4.1 Introduction

Marginal costing is an important tool for cost control, business decision making and to solve multiple business problems. It is also recognized as variable costing technique. Generally, the total cost of a business is divided into two parts fixed cost and variable cost. Fixed cost is also known as period cost because it is not change with the change in production up to a certain level. On the other hand, variable cost changes directly with the change in production and thereby termed as product cost. This variable cost is termed as marginal cost which is based upon the principle that fixed cost is uncontrollable and not included in cost of production for taking decisions. Therefore, in marginal costing technique valuation of closing stock is done on the basis of variable cost.

4.2 Marginal Costing

Marginal costing is a technique of calculation of marginal cost and the result of change cost and profit with change in volume. The decision is taken after considering the variable cost. The basic difference between marginal and absorption costing is that in absorption costing, value of closing stock is calculated on the basis of total cost whereas, in marginal costing, value of closing stock is calculated on the basis of marginal or variable cost.

For example, if a company produce 100 units at variable cost of Rs. 20 per unit and fixed cost of Rs. 1000, then total cost will be Rs. 2000 + Rs. 1000 = Rs. 3000, but if company produces one extra unit then only variable cost will change, fixed cost remains the same. Now total cost will be Rs. 2020 + Rs. 1000 = Rs. 3020. So, the decision will be taken on the basis of variable cost. This technique is known as marginal costing and extra cost of production of one unit i.e. Rs. 20 is known as marginal cost.

According to the Institute of Cost and Management Accountants, London, "Marginal Costing is the ascertainment, by differentiating between fixed costs and variable costs, of marginal cost and of the effect of profit of changes in the volume or type of output."

Marginal costing has a positive relationship between variable cost and production units. It depends upon the rule that variable cost must be realised. The difference between the sale and variable cost is known as contribution. The profit under marginal costing is calculated as follow:

	Sales	××××××
Less:	Variable cost	(××××××)
	Contribution	××××××
Less:	Fixed cost	(××××××)
	Profit/Loss	××××××

Marginal cost equation

$S - V - F = \pm P$

$S - V = F \pm P$

$S - V = C = F \pm P$

Where, S = Sales

V = Variable cost

F = Fixed cost

C = Contribution

P = profit

4.3 Characteristics of marginal costing technique

Marginal costing technique separates the fixed and variable cost and take decision on variable cost basis. The major features of marginal costing technique are as follow:

- It divides total cost into fixed and variable cost.
- It is not an independent costing method such as job costing, process costing. It is an important tool for management decision making.
- Variable cost is known as product cost whereas, fixed cost is termed as period cost.
- In marginal costing contribution is a significant concept used for decision making
- Valuation of closing stock and work in progress is done on the basis of variable cost.

4.4 Techniques of marginal costing

The techniques or tools or elements of marginal costing are as follows:

1. Contribution: Contribution is the excess of sales over variable cost. It is a major tool for decision making in marginal costing. Greater the contribution, higher will be the profits. It is also termed as gross margin. Contribution concept helps in determining the sale price, break even analysis, selection of profitable product mix, determining the key factor or various other management decisions. It can be expressed as

Contribution = Sales – Variable cost

Contribution = Fixed Cost + Profit

Or, C = S – V

C = F + P

2. P/V ratio: Under the concept of contribution, profit volume ratio is also calculated. Profit volume ratio or P/V ratio is also known as gross margin ratio or contribution ratio. It is the relationship between contribution to sales. It can be calculated as follow:

P/V ratio = $\frac{S-V}{S}$ X 100

Or, P/V ratio = $\frac{C}{S} \times 100$

Or, P/V ratio = $\frac{F+P}{S}$ X 100

Or, if two years sales and profits are given then,

$$\text{P/V ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$$

3. Break Even Point Analysis: Generally Break Even Point analysis is also termed as Cost Volume Profit Analysis. It is key element of marginal costing technique. In narrow term, it is defined as no profit or no loss point and in broader term, it is defined as the association between cost, sale and profit. The following terms are also studied under Break Even Point analysis:

(a) Break Even Point (BEP): Break Even Point is that point of sales at which firm has no profit or no loss. In other words, total sales and total cost or firm are equal. The sale above the break even will generate profits for the firm. It is also known as equilibrium point or critical point. It can be computed as under:

$$\text{BEP (in units)} = \frac{\text{Fixed Cost}}{\text{Sales – Variable Cost}}$$

$$\text{BEP (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

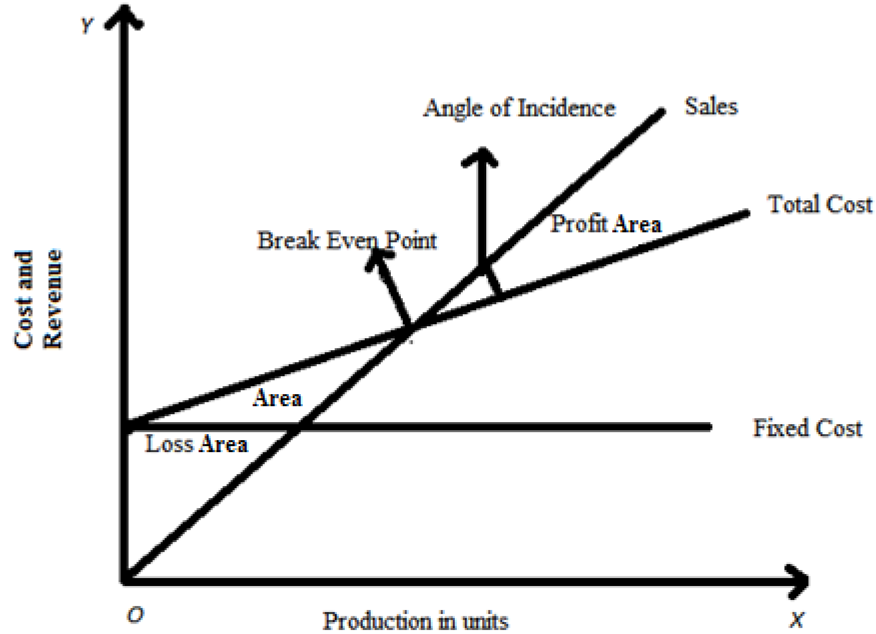
It is to be noted that if breakeven point is calculated in units, then sale and variable cost is taken per unit.

$$\text{BEP (in amount)} = \frac{\text{Fixed Cost}}{\text{Sales – Variable Cost}} \text{ X Sales}$$

$$\text{BEP (in amount)} = \frac{\text{Fixed Cost}}{\text{Contribution}} \text{ X Sales}$$

$$\text{BEP (in amount)} = \frac{\text{Fixed Cost}}{\text{P/VRatio}}$$

(c) Graphical Presentation of BEP: Break Even analysis can be portray through graph as follow:



(b) Margin of Safety (MoS): The actual sales over the Break Even point sales are known as margin of safety. Margin of safety indicates that sales above the Break Even point sale will generate profits and sales less than this point will be the reason of loss. The formula of margin of safety is

MOS (in units) = Actual Sales (in units) – BEP Sales (in units)

MOS (in amount) = Actual Sales – BEP Sales

MOS (in amount) = $\frac{\text{Profit}}{\text{P/VRatio}}$

(c) Angle of Incidence: It is the angle between the total cost and total sales line or where the total sales and total cost line intersect each other. Higher the angle, higher will be the profits and margin of safety and vice versa.

4. CVP Analysis: Cost Volume Profit analysis is method to know the association between cost, sales and profit. All three are related to each other as if change in cost affects the volume of sales and profits. If profit changes i.e. increase or decrease, it will also change the further sales and variable cost will vary with the units of production. Similarly, if sales will fluctuate, then cost and profits will also fluctuate. CVP Analysis helps the manager to control the cost, profit planning decision, maintain the desired level of profit and in many other decisions related to business.

5. Key Factor: Key factor or limiting factor is that factor which is necessary for production but accessible in limited quantity or scarce. So, the management has to take the decision after considering the limiting factor. Key factor vary from company to company. For example, material may be limiting factor for one company if it is not easily available to that company. On the other hand, labour or machinery or technology etc. may be the key factor for other company. The decision on the basis of key factor is taken up by using the contribution concept.

4.5 Decision Making

Decision making is defined as a cognitive process of taking decisions by choosing best option among different alternatives. It is a method to identify the various alternatives related to problem solving and selecting the best one. It is a process which makes decisions more deliberate and profitable. Marginal costing technique is used by the management to make rational decisions. For example, decision related to make or buy any product, deciding the optimum sales or product mix, etc.

Although, environment is dynamic and no decision is helpful in every situation. Decision making is an iterative and continuous process. It is the duty of top management to take appropriate decision in uncertain or risky situations which require knowledge, skills and experiences.

4.6 Process of decision making

Management has to follow systematic approach to take worthy decisions. No method of decision making fits to every situation. The following steps may be adopted while taking a decision in business:

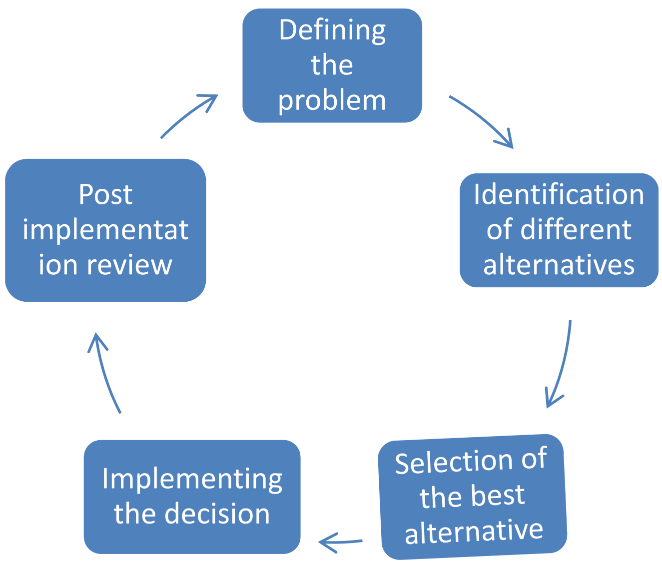


Figure: Process of decision making

Defining the problem: While taking a decision, it is necessary to identify the problem first. If problem is well defined, then fifty per cent of solution may be achieved. The problem should be clear and measurable so that timely decision may be taken.

Identification of different alternatives: After defining the problem relevant information is collected to identify the potential solutions to the problem. There may be more than one alternative for the solution of a problem which can be identified through market research, consultant advices or various external sources. Management has to consider all possible alternatives to take appropriate decisions.

Selection of the best alternative: The next step is to evaluate and selecting the best alternative among different ones on the basis of risk return or cost benefit analysis. Various quantitative and qualitative measures based upon the facts and statistics should be considered to select the best alternative.

Implementing the decision: After identifying the most suitable solution to the problem, the decision is implemented to sort out the problem.

Post implementation review: The next step is to appraise the result after the execution of the decision to see whether the problem is solved or not. If there are any discrepancies, suitable action should be taken to rectify the errors.

4.7 Cost Related With Decision Making

While taking decisions in the business, various costs are associated with the decisions, some of which are as follow:

Relevant Cost: These are future costs which can be affected by change in decision of management. The relevant cost is variable cost which may be incremental or avoidable. While comparing different alternatives, if cost changes, then that particular cost will be relevant cost. For example, if a firm purchased machinery costing Rs 10,000 and now its book value remains Rs 1,000. The machinery became obsolete but, can be sold for Rs 2000 after modification which will cost Rs 500. Here, Rs. 2000 and Rs. 500 both will be relevant cost.

Differential Cost: It can be defined as an increase or decrease in total cost after the decision of management. It may be incremental or decremental cost. It is an important term for decision making. If total cost increases, when decision is changed from one alternative to another, it is termed as incremental differential cost. Conversely, if total cost decreases, when decision is changed from one alternative to another, it is termed as decremental differential cost.

Opportunity Cost: Opportunity cost may be termed as benefit sacrificed while choosing one alternative over other. If while choosing an alternative profits are forgone, such sacrificed profit is known as opportunity cost. For example, a producer can produce either chair or table. The value of one chair is Rs. 500 and value of table is Rs. 700. The producer decides to manufacture chair instead of table as resources are limited. The sacrificed value of table Rs. 700 over chair is known as opportunity cost.

Shut down Cost: It is fixed cost which is incurred during the closing down of a division, department or business. Since if production is not done, variable cost is not incurred. But, some fixed cost is related with the business such as salary, depreciation etc. which are unavoidable, are defined as shut down cost.

Imputed Cost: These are the costs which are not actually incurred in cash. For example, interest on capital which is not actually paid, but essential for the management decision.

Out of Pocket Cost: The cost which is paid in cash is known as out of pocket cost such as cost of material, labour, expenses, etc. The expenses which are not paid in cash as depreciation, is not included in out of pocket cost.

Sunk Cost: It is the cost which cannot be collected if expended. These costs are irrelevant for management decisions since they have been incurred. The decisions which are irreversible, cost associated to them are known as sunk cost i.e. investment in fixed assets.

Escapable Cost: The cost which may be avoided during production process is known as escapable cost and which cannot be avoided is termed as unavoidable cost.

4.8 Decision Involving Alternate Choices

Managers have to take various timely decisions out of various alternatives. Marginal costing is a technique to take effective decision such as profit planning, deciding optimum product policy, make or buy decision of a product, etc. Following are some important management problems regarding which management has to take decision:

- Make or buy decision
- Expand or buy decision
- Expand or contract decision
- Change vs. status quo
- Retain or replace
- Exploring new markets
- Optimum product mix
- Adding and dropping a product

Make or buy decision

A firm has to take decision whether to purchase a product or manufacture it itself. If a firm manufactures a product or part, thereof then it has to incur some fixed or variable costs and if, firm purchases the same from market, it has to choose the supplier by taking into consideration the availability of material, financial soundness, regular supply and reliability of supplier. The decision should be taken after comparing the cost and benefit received by two alternatives. If cost of purchase is less than the marginal cost of manufacturing, then it is advisable to purchase the product from the market instead of manufacturing it by the firm.

Example 4.1 A company finds manufacturing cost of a product in its firm is Rs. 10 each and if purchase from the market, then cost will be Rs. 8 each with regular supply. Give the suggestions to the company whether to make or buy the product. The cost component of making a product is as follow:

	Rs.
Direct Material	4
Direct Labour	2
Variable expenses	1
Fixed expenses	3
Total	10

Solution: By putting aside the fixed cost which has to incur, the decision should be taken on the basis of marginal cost.

Marginal cost of product manufactured	
	Rs.
Direct Material	4
Direct Labour	2
Variable expenses	1
Total	7

Since the marginal cost of product manufacturing i.e. Rs. 7 is less than the cost of purchase i.e. Rs. 8, it is advisable to manufacture the product as it gives some contribution to the firm.

Expand or buy decision

Due to limited capacity, a company may purchases some component of its product from market, but if it wants to expand its capacity, then such decision will be taken after considering the cost and benefits involved in such decision. Since expansion requires huge capital expenditure as well as opportunity cost, the decision should be taken if expansion yields definite return.

Expand or contract decision

When firm expands its business operations, it results in various economies such as reduction in fixed cost, increased capacity, maximising the consumer specification, etc. On the contrary, a firm will do contraction in its operations if it results into diseconomies. The expansion or contraction may further create various problems such as communication barriers, increase in cost, division of authority and responsibilities etc. The decision of expansion should be taken if it results in profits as expansion includes some fixed cost also.

Example 4.2 A firm wants to expand its plant which increases its fixed cost by Rs. 20,000. The present fixed cost is Rs. 50,000. The current capacity of plant is to produce 10,000 units in a year which increased by 50% after expansion. Presently, the variable cost is Rs.10 per unit which will go down by 20 percent after expanding plant capacity. Selling price remains unaffected via expansion which amounts to Rs. 20 per unit. You have to suggest whether the firm should expand its plant capacity or works with its present capacity.

Solution: The profit of two alternatives is computed as follow:

Unit produced after expansion = $10{,}000 + 10{,}000 \times 50\% = 15{,}000$ units

Variable cost after expansion = $10 - 10 \times 20\%$ = Rs. 8 per unit

Fixed cost after expansion = Rs. 50,000 + Rs. 20,000 = Rs. 70,000

	Present Position Rs.	After Expansion Rs.
Sales		
10000 × 20	2,00,000	
15000 × 20		3,00,000
Less: Variable cost		
10000 × 10	1,00,000	
10000 × 8		80,000
Contribution	1,00,000	2,20,000
Less: Fixed cost	50,000	70,000
Profit	50,000	1,50,000

It is clear from the example that profit after expansion increased, so the firm should take the decision of expansion of its plant.

Change vs. Status quo

Sometimes management has to take decision regarding its policies whether they should be changed or not. For example decision regarding change in selling price, asset purchase or hire on lease, to accept or reject a specific order, make capital expenditure or not. For such decisions, a manager should take into consideration the different costs and benefit derived by change in policy. Differential cost may be interest on capital, depreciation. Increase in variable and fixed cost, etc. and differential gain may be tax benefits, cost saving and increase in contribution, etc.

Example 4.3: XYZ Ltd. Produces 10,000 pens and its cost budget is given below:

	cost Rs.
Material	4
Wages	2
Manufacturing expenses	3
Variable overhead	1
Total	1,00,000
	₹
Fixed overheads	60,000
Selling Price	20

If company increases its selling price by 10% to do saving in manufacturing expenses by Rs. 1 per unit and variable expense by Rs. 0.5 per unit, then sale will go down by 20%.

On the other hand if company decreases its selling price by 5% to increase the sale, then sales volume will increase by 10 percent, but additional sales will increase its fixed cost by Rs. 7000 and reduce its material cost per unit to Rs. 2. Suggest which proposal should be accepted.

Solution:

	Present position 10000 units	Proposal I 8000 units	Proposal II 11000 units
Selling price per unit	₹ 20	₹ 22	₹ 19
Sale	2,00,000	1,76,000	2,09,000
Less: Material	40,000	32,000	22,000
Wages	20,000	16,000	22,000
Manufacturing expenses	30,000	16,000	33,000
Variable overhead	10,000	4,000	11,000
Contribution	1,00,000	1,08,000	1,21,000
Less: Fixed expenses	60,000	60,000	67,000
Profit	40,000	48,000	54,000

If selling price is reduced, then, profit will be maximized. So, proposal II should be accepted.

Retain or replace

Sometimes management has to decide whether to retain or replace an asset in the business. Such problem can be solved through differential benefit and cost analysis. Differential cost may be interest on owner's capital, depreciation on assets, increase in variable and fixed cost, etc. and differential benefits may be tax saving, cost saving and increase in contribution, etc. Besides that, social cost and benefit should also be considered in such type of decisions.

Example 4.4: A firm purchased machinery worth Rs. 50,000 one year ago having no scrap value and useful life of five years. Firm charged depreciation on straight line basis. Now the firm wants to replace its old machinery to new one to reduce its operating cost Rs. 30,000 p.a. The cost of new machinery is Rs. 70000 with no salvage value and useful life of four years. The present level of sales and variable cost per annum is Rs. 1, 50,000 and Rs. 1, 10,000 respectively. Evaluate the profitable proposal.

Solution:

The present value of old machine is Rs. 40,000. If firm replaces the old machinery, then this Rs. 40,000 will be treated as loss.

Statement of comparative profitability of the two proposals for a period of four years

	Old machinery (₹)	New machinery (₹)
Sales (A)	6,00,000	6,00,000
Variable cost	4,40,000	3,20,000
Loss on writing off old machinery	40,000	40,000
Depreciation	--	70,000
Total cost (B)	4,80,000	4,30,000
Profit (A-B)	1,20,000	1,70,000

The total profits of four years will be increased by Rs. 50,000 (Rs. 1, 70,000 – Rs. 1, 20,000) or Rs. 12,500 per year. Therefore, it is appropriate for the firm to replace the old machinery to new one.

Exploring new markets

If plant capacity of a firm remains unutilised, then a firm should accept the additional order of production to enjoy the benefit of mass production. A firm should accept the additional order on less than the market price because there is no additional fixed cost incurred in such order and the decision should be taken on the basis of marginal cost, if total profits increased after accepting the order, firm should choose to take new order. The firm can utilise its idle capacity to fulfil the order from foreign market or from new domestic market.

Example: 4.5

BKL Ltd Company works on 50% capacity and sells 10000 units per month at a price of Rs. 100 per unit. Cost per unit of the product is given below:

	Rs.
Direct Material	30
Direct Labour	20
Variable expenses	10
Total	60

The fixed expenses incurred by the company are Rs. 200000. Now, the company received an order of 10000 units from foreign market at a price of Rs. 80 per unit. If company accepts the order, the fixed expenses will increased by 10%. State whether the company should accept the order or not?

Solution:

Presently, the company is working on 50% capacity, to produce additional 10000 units; it will have to work at 100% capacity.

Statement of comparative profitability

	At Present capacity 10000 units Rs.	Additional order 10000 units Rs.	Total
Selling price per unit	100	80	
Sale	10,00,000	8,00,000	18,00,000
Less: Direct Material	3,00,000	3,00,000	6,00,000
Direct Labour	2,00,000	2,00,000	4,00,000
Variable expenses	1,00,000	1,00,000	2,00,000
Contribution	4,00,000	2,00,000	6,00,000
Less Fixed Cost	2,00,000	20,000	2,20,000
Profit	2,00,000	1,80,000	3,80,000

The company should accept the order because total profits will increase after accepting the order.

Optimum product mix

If a firm produces more than one product then the problem arises regarding the product mix which maximises profits. The firm has to face this problem due to limited resources or capacity. A firm should adopt a sale mixture which generates higher profit or maximum contribution. While selecting the profitable mix, key or limiting factor should also be considered.

Example 4.6: The sales/production mix of a company is as follow:

1. 1000 units of product A and 1000 units of product B
2. 2000 units of product C
3. 1000 units of product A, 500 units of product B and 500 units of product C

The cost and sale per unit is given below:

	A Rs.	B Rs.	C Rs.
Direct Material	4	4	5
Direct Labour	2	4	3
Variable expenses	3	4	2
Selling Price	15	25	20

The fixed cost is Rs. 2,000. Calculate the profitable product mix.

Solution:

Statement of Marginal Cost

	A per unit Rs.	B per unit Rs.	C per unit Rs.
Selling Price	15	25	20
Less: Direct Material	4	4	5
Direct Labour	2	4	3
Variable expenses	3	4	2
Contribution Per unit	6	13	10

Selection of profitable mix

1. 1000 units of product A and 1000 units of product B	
Contribution	
A = 1000 × 6	6,000
B = 1000 × 13	13,000
Total Contribution	19,000
Less Fixed Cost	2,000
Profit	17,000
2. 2000 units of product C	
Contribution	
C = 2000 × 10	20,000
Less Fixed Cost	2,000
Profit	18,000
3. 1000 units of product A, 500 units of product B and 500 units of product C	
Contribution	
A = 1000 × 6	6,000
B = 500 × 13	6,500
C = 500 × 10	5,000
Total Contribution	17,500
Less Fixed Cost	2,000
Profit	15,500

Conclusion: The product mix 2 is more profitable as compared to other product mixes as it earns higher profit of Rs. 18000.

Adding and dropping a product

When a firm manufactures more than one product and one product has to be discontinued, then management should take decision on the basis of the contribution, effect on sales of other products and plant capacity, etc. Marginal costing technique helps in management decision making of adding or dropping a product or product line. The product which gives lesser contribution should be discontinued.

Example 4.7: Pearl Ltd. makes three products X – 6000 units, Y – 4000 units and Z – 2000 units. The cost per unit of each product is as follow:

	X Rs.	Y Rs.	Z Rs.
Raw Material	3	4	5
Direct wages	2	5	4
Variable overhead	4	3	2
Fixed expenses	6	5	7
Total cost	15	17	18
Selling Price	20	25	22

The firm decides to discontinue a product, and by doing so then the production of other products will go up by 50%. You are required to compute which product should be discontinued.

Solution:

Total fixed expenses of each product	Rs.
X (6000 × 6)	36000
Y (4000 × 5)	20000
Z (2000 × 7)	14000
	70000

Contribution per unit of each product	per unit Rs.
X (20 - 9)	11
Y (25 - 12)	13
Z (22 - 11)	11

(1) If product X is discontinued, production of Y and Z will be increased by 50% each. Production of Y and Z would be 6000 units and 3000 units respectively.

Contribution	Rs.
Y = 6000 × 13	78,000
Z = 3000 × 11	33,000
Total Contribution	1,11,000
Less: Fixed Cost	70,000
Profit	41,000

(2) If product Y is discontinued, production of X and Z will be increased by 50% each. Production of X and Z would be 9000 units and 3000 units respectively.

Contribution	Rs.
X = 9000 × 11	99,000
Z = 3000 × 11	33,000
Total Contribution	1,32,000
Less: Fixed Cost	70,000
Profit	62,000

(3) If product Z is discontinued, production of X and Y will be increased by 50% each. Production of X and Y would be 9000 units and 6000 units respectively.

Contribution	Rs.
X = 9000 × 11	99,000
Y = 6000 × 13	78,000
Total Contribution	1,77,000
Less: Fixed Cost	70,000
Profit	1,07,000

If product Z is discontinued then profit will be maximum i.e. Rs. 1, 07,000.

4.9 Responsibility Accounting

In an organization, the responsibilities of each and every level of management should clearly be communicated so that accountability should be ascertained. This technique of deciding responsibility on the basis of responsibility centres performance is known as responsibility accounting. The responsibility of each division, employee, department or manager is established and cost and revenue variances are calculated to control the operations.

According to Charles, T. Horngreen, “Responsibility Accounting is a system of accounting that recognizes various responsibility centres throughout the organisation and reflects the plans and actions of each of these centres by assigning particular revenues and costs to the one having the pertinent responsibility. It is also called profitability accounting and activity accounting”.

According to E.L. Kohler, “Responsibility accounting is the classification, management, maintenance, review and appraisal of accounts serving the purpose of providing information on the quality, quantity and standards of performance attained by persons to whom authority has been assigned.”

4.10 Nature/Characteristics of Responsibility Accounting

The key features of responsibility accounting can be explained as under:

- It is related to costs and revenue of an organization.
- In responsibility accounting, costs are divided into controllable and non controllable costs.
- The division of costs is done on the basis of cost centres.
- In responsibility accounting, comparison of actual and budgeted performance is done to determine the success or failure.

4.11 Kinds of Responsibility Centres

The most common types of responsibility centres are given as under:

Cost Centre: A cost or expense centre is a centre in which managers are accountable for the costs or expenses rather than revenues such as accounting department, HR department, research and development department, production and service department, etc. Here budget is prepared only to estimate or control the cost for a particular period.

Revenue Centre: A revenue centre is a centre in which managers are accountable for the revenue rather than costs such as sales department. Here the actual and budgeted sales are compared to increase the share of revenue by focusing on each segment of market.

Profits Centre: The centre in which manager is accountable for both cost as well as revenue is known as profit centre. The main objective of this centre is to acquire profits for which manager fixes the selling price, focuses on effective marketing programme and performs other activities to boost the profits.

Investment Centre: Here the manager is accountable for capital expenditure decision as well as cost and revenues. The manager decides to investment in an alternative manner after analyzing the different options on the basis of risk and return.

4.12 Process of Responsibility Accounting

Responsibility Accounting is a mechanism to achieve the organisational goals by dividing responsibilities. The steps involved in this process are as follow:

Determining the Responsibility Centre: First, creation of responsibility centres is done for whole organization and responsibilities of each manager of responsibility centres are decided.

Determining the Goals: The targets or goals of each responsibility centre are fixed with the help of the experts on the basis of facts and figures so that activities can be performed in the direction of achieving the goals.

Recording the actual performance: Actual work of every responsibility centre is noted down and is to be reported to the managers of each centre.

Finding out the deviations: The next step is to find out the variations by comparing the actual figures by budgeted ones and tried to find out the reasons of that particular gap.

Corrective measures: If variation exists, then necessary corrective measures are taken to combat these variations.

4.13 A Format of Performance Evaluation on the basis of Responsibility Accounting

Evaluation of Performance of the X Department for the Period…….

	Actual Costs Rs.	Budgeted Costs Rs.	Variances Rs.
Controllable Costs Material Direct Labour Maintenance Expenses Other variable expenses			
Total Controllable Costs (A)			
Uncontrollable and Allocated Costs Rent of Factory Depreciation Other Uncontrollable Costs			
Total Uncontrollable and Allocated Costs (B)			
Total Costs (A+B)			

4.14 Significance of Responsibility Accounting

Accountability: It decides the responsibilities of each level of management and the managers are responsible for their particular area or activity. If performance is unsatisfactory, the particular manager is held accountable for the failure.

Improves performance: Every manager performs his activity with special care because in case of failure he has to answer the reasons of gaps.

Cost control: It also helps in controlling the cost by dividing the work in to different responsibility centres.

Effective delegation: Delegation of authority and responsibilities becomes easier because of creation of different responsibility centres.

Quick decisions: When every manager know his/her limits and activities, it becomes easier to take a decision.

Management by exception: Management by exception principle is also followed because work is divided in effective manner and only key activities are handed over to top management.

4.15 Disadvantages of Responsibility Accounting

Difficulty in cost categorization: It becomes more complex to categorize the controllable and uncontrollable costs.

Delay in decision making: Due to various responsibility centres and their numerous managers, it is not easy to take prompt decisions.

Conflicts: Every manager wants to show his performance more than other centres which creates conflicts among various centres.

Example 4.8: The data related to production department of CNT Company for the September 2019 is as follows :

	Budget Estimate	Actual
Production in units	2,000	3,000
	Amount (₹)	Amount (₹)
Material	80,000	1,00,000
Direct Labour	90,000	1,20,000
Maintenance Expenses	90,000	1,10,000
Manager Salary - Fixed Expenses	40,000	50,000
Rent of Factory	15,000	15,000
Administrative Expenses - Fixed		

	1,00,000	1,20,000
Depreciation	40,000	40,000
Power	60,000	80,000
Indirect Labour	40,000	50,000

Evaluate the performance on the basis of responsibility accounting.

Solution:

Report on Performance Evaluation for the month of September, 2019

	Budget Estimate	Budget Estimate for Actual Production	Actual	Variance
Units Produce	2000	3000	3000	
	Amount (₹)	Amount (₹)	Amount (₹)	
Controllable Costs				
Material	80,000	1,20,000	1,00,000	20,000 (F)
Direct Labour	90,000	1,35,000	1,20,000	15,000 (F)
Maintenance Expenses	70,000	1,05,000	1,10,000	5000 (A)
Manager Salary	40,000	60,000	60,000	--
Power	60,000	90,000	80,000	10,000 (F)
Indirect Labour	40,000	60,000	50,000	10,000 (F)
	3,80,000	5,70,000	5,20,000	50,000 (F)
Uncontrollable Costs				
Rent of Factory	15,000	15,000	15,000	--
Depreciation	40,000	40,000	40,000	--
Administrative Expenses	1,00,000	1,50,000	1,20,000	30,000 (F)
	1,55,000	2,05,000	1,75,000	30,000 (F)

Working Note:

1. The Budgeted Estimate for Actual Production can be calculated as follow:

Budgeted Estimate for Actual Production = $\frac{\text{Budgeted Cost}}{\text{Budgeted Units}}$ X Actual Units

For example, Material = $\frac{80,000}{2,000}$ X 3,000 = Rs.1, 20,000

4.16 Reporting to Management

Introduction

Reports are the necessary mechanism for management to make plan, policies and decisions as reports communicate the sufficient information to management and other related parties. Reports include various schedules, charts, graphs, financial data and presentation of various suitable statistical tools and techniques. Reports are the tool to maintain public relations as reports are prepared on the basis facts and figures. On the basis of reports a company can present its achievements, financial position, potential targets and programs and periodic information to related users including government, other officials and stakeholders.

According to S. N. Maheshwari, "Reporting to Management can be defined as an organized method of providing each manager with all the data and only those data which he needs for his decisions, when he needs them and in a form which aids his understanding and stimulates his action".

According to R.L. Smith," Reports are the instruments of communication, the nervous system of organisational anatomy."

4.17 Features and characteristics of Reporting to Management

The basic features of reporting may be explained as under:

- It is an iterative and continuous process.
- It provides necessary information to users.
- In includes presentation of results and necessary information of the company.
- It is the base of planning and decision making of the management.
- It is based on facts and reliable figures.
- It is prepared on periodic basis.

4.18 Significance/Functions of Reporting to Management

Reporting is an important tool of management for decision making and various other activities. The benefits for adopting reporting to management are as follows:

Communication: A report is a tool for the communication of the information to management for performing various functions such as planning, strategy and policy formulation, decision making, etc. A report communicates the information to different stakeholders and officials and interested users for different purposes as investment decision, dividend declaration. It helps the government for preparing budget and other activities.

Reference: Reports can be used for future reference as they are based on the relevant facts and figures.

Legal obligations: One of the basic purposes to prepare reports is to fulfil the legal obligations. According to the Companies Act 2013, it is mandatory for a company to publish the audited reports and submit to the income tax authorities as per Income Tax Act 1961. Therefore, it is mandatory to prepare a report.

Public Relations: Reports are the main source to maintain public relations being a better source to inform public about various aspects of company and it also helps in increasing the reputation of the company.

Performance Measurement: Reports are the basis of performance measurement of financial position as well as employees of the corporation. On the basis of reports comparison of performance is made possible and corrective action may be taken to improve the gaps.

Fixation of the benchmark: Reports also provide help in setting up the standards or benchmarks for the operational and financial performance of a corporation.

Helpful for management: Reports are the main source of internal communication. On the basis of report's results it is easier to plan, control, and to coordinate among employees or departments and other managerial works.

Helpful in Decision making: It is easier for management to access related data for any subject matter of the company and can decide about area to be improved or can be brought to the optimal level.

Helpful in motivation: On the basis of reports, performance of each and every individual can be ascertained and reward or punishment can be decided accordingly. The financial position is also determined which motivates management to focus on more deprived areas.

Enhancing business growth: It also helps management to take quick decisions which increase the productivity and help to earn consistent profits. It helps in enhancing overall business growth and reputation of the business.

4.19 Factors to be considered for good reporting

An effective reporting system has some specific qualities which are as under:

Complete and reliable: The report should cover all the necessary aspects and should be based on reliable and unbiased facts.

Proper format: Report should be made according to the needs of the users. The information should be supplied in a proper manner using charts, graphs and other statistical techniques.

In time: Report should be submitted to management in time so that, further planning can be done or necessary action be initiated to improve the performance.

Precise: Reports should be based on relevant and sufficient information. Unnecessary facts should be avoided to present the reports.

Flexibility: Flexibility should be maintained to grab any changes according to dynamic circumstances easily. This is an important aspect of reporting. Reports should be flexible enough to change any significant information.

According to goals: Report should be based on the objectives of the company. Various information should be categorised for the evaluation purpose.

Low cost: Report is prepared to minimise the cost and to increase the profits. The resources used in preparing the report should also be minimised.

Ambiguity: Ambiguous words should be avoided while preparing reports so that, one can easily understand the meaning of the reports.

Effective presentation: The presentation of the report should be effective and according to the need of the targeted group so that the information could be conveyed in effective manner.

Logical: The content and sequence of the report should be logical. All data should be divided into different sections.

Continuity: Difference sections of report should be arranged in precise manner.

Abstract: Abstract should include all important aspect related to result. The essence of the report should be clear after reading the abstract.

Language: The report should be prepared in that language which is easily understandable by users. Short sentences should be used.

Length of the report: The report should not be so long. Tables and charts should be used to comprehend the report.

4.20 Types/forms of reports

Reports are classified according to following different basis:

1. On the basis of the purpose: Reports can of two types on the basis of need of users.

(a) Internal Reports: These reports are not public documents and prepared for the internal parties such as management, employees, etc. There reports are the basis of decision making and other managerial activities. These can be of three types:

- Reporting for top level management
- Reporting for middle level management
- Reporting for lower level management

(b) External Reports: These reports meet the needs of external users such as stakeholders, creditors, government, customers and stock exchanges, etc. These are the published documents and are prepared according to legal requirements.

2. On the basis of the submission: They are classified into routine or specific reports on the basis of submission:

(a) Routine Reports: The routine reports are prepared to perform planning and control activities by the management. These reports are based on the daily routine activities of management and are prepared for short period.

(b) Specific Reports: Specific reports are related to specific programme or decision making. These reports are for specific matters as labour conflict, capital expenditure and cost control etc.

3. On the basis of the functions: These reports may be operating or financial.

(a) Operating reports: These reports are based on the operating activities of a business. These reports may be of two types:

(i) Control Reports: These reports are prepared to control the activities of business. These reports are useful for comparing the budgeted operational activities to actual performance.

(ii) Information Reports: These reports help in planning and making policies for the business. The scope of these reports is much wider than control reports.

(b) Financial Reports: These reports portrait the financial position of the concern. The examples of financial reports are cash flow statement, balance sheet and other financial statements, etc. They can further be explained as under:

(i) Static Reports: The reports which define the information at a particular date such as balance sheet is called static report. These reports describe the financial wealth of a corporation.

(ii) Dynamic reports: These are the reports which state the financial position, their comparison and changes in financial position, etc. of a corporation. For example, cash flow statement, funds flow statement etc.

4. On the basis of the preparation:

(a) Trend Reports: These are the reports in which comparison of more than one period is made to know the trends of a particular period. The trends can be calculated activity wise or department wise or business as a whole.

(b) Analytical Reports: In these reports, comparison is made of diverse activities for a specific period or budgeted and actual facts can be compared. These reports are the base to draw conclusions.

5. On the basis of activities

(i) Reports on individual activities: The report which directs only one executive is known as individual activity report. For example, report for a sales executive of a particular area.

(ii) Report based on joint activities: The report which provides information of more than one executive at a time is known as joint activities report.

The report may be of several types such as oral reports, written reports, graphical reports, descriptive reports and comparative reports, etc.

4.21 Format of an Effective Report

The presentation of a report in effective manner is a pre requisite. The following steps should be adopted while presenting the report:

1. Preliminaries

(a) Title Page: Title page includes the title of the report, and the name of the writers.

(b) Preface: It involves the acknowledgement, purpose of the report, background, scope, etc.

(c) Table of Content: It includes the division of the chapters, page numbers.

(d) List of Tables and Figures: This involves the list of tables and figures used in the report.

(e) Abstract: It contains the major problem and findings. It also includes the objectives of the report.

2. Main body of report: It involves the following:

(a) Introduction: Here is given the brief introduction of the subject matter for which the report relates to. It contains the history, present situation of the subject and all necessary details.

(b) Main body of text: It includes the purpose of report, methodology of report, analysis of data, methods used to analyse the data and presentation of information etc.

(c) Conclusion: This section involves the key findings and interpretation of the findings on the basis of which decisions will be taken.

3. The Reference Material

(a) Bibliography and References: It involves the sources from which information is collected and used or gained insight to prepare the report.

(b) Appendices: It includes the supporting material used to collect and prepare the report such as questionnaire, list of abbreviations, tables, figures and other related documents.

QUESTIONS FOR PRACTICE

1. 1.Discuss the following cost concepts associated with decision making :

   (a) Relevant costs (b) Differential cost.

2. What factor would you take in to consideration in closing or suspending the activity?
3. "The three factors of price, cost and volume are fundamental to virtually every business activity, every business decision." Discuss the statement, explaining the inter-relation of the factor named.
4. Explain the cost and non-cost considerations which shall govern the decision to make or buy a component.
5. Cost-benefit analysis is needed for resolving many managerial problems. List the various items of cost and benefit that you will quantity in respect of managerial decisions concerning: (a)Change versus Status quo,(b) retain or Replace ,(c) Shut-down and continue .
6. Prepare a detailed note explaining and illustrating the circumstances in which the following cost concepts can be applied in decision making:

   (a) Opportunity cost (b) incremental cost.

7. Explain in unambiguous terms with illustrative examples the following concepts :

   (1)Relevant cost, (2) Opportunity cost, (3) Sunk Cost.

8. A manufacturer who has been in the line of manufacturing and selling shoes has been utilizing 70% of his capacity. He has costed the shoes as follow:

	Rs.
Raw material	10
wages	5
overhead expenses	6
Depreciation	3
Selling price	25

   Present production is 5000 pairs of shoes per month and on 70% capacity it will be 6000 pairs per month. An offer for export of 2000 pairs per month is available for 6 month at the sale price of Rs. 22 per pair net of all export related expenses and incentives. Should the order accepted or not?

9. Present the following information to show the management: (a) marginal cost and contribution per unit. (b) Total contribution and profit from each mixture

	Product	Price per unit
Direct material	A	10
	B	9
Direct wages	A	3
	B	2

Fixed expenses	Rs. 800	
Sale price	A	20
	B	15

Variable expenses are allocated to product as 100% of direct wages

Sales mixture:

(i) 1000 units of Product A and 2000 units of Product B

(ii) 1500 units of Product A and 1500 units of Product B

(i) 2000 units of Product A and 1000 units of Product B

Recommend which of the sales mixture should be accepted.

(Ans. Profit (i) Rs. 7200; (ii) Rs. 8200; (iii) Rs. 9200; mixture iii is recommended.)

10. Explain the concept of responsibility accounting.
11. What is a responsibility centre? Explain different types of responsibility centers.
12. What do you understand by responsibility accounting?
13. What do you understand by the term "reporting to management"? What are the general principles to be observed while preparing reports?
14. What consideration would guide you in deciding the method of presenting information?
15. "A proper reporting system in essential for efficient management "Explain.

Suggested Readings:-

1. J.K. Aggarwal, R.K. Aggarwal, M.L. Sharma – Accounting for Managerial Decisions–Ramesh Book Depot, Jaipur.
2. R. Kishore–Advance Management Accounting–Taxman allied Services Pvt. Ltd.
3. M.Y. Khan, P.K. Jain–Management Accounting–Tata McGraw Hill
4. Horngren, Sundem, Stratton–Introduction to Management Accounting-Pearson Education
5. S.N. Mittal–Accounting & Financial Management – Shree Mahavir Book Depot, Nai Sarak, New Delhi.
6. Anthony, Robat N., Hawkins and Merchant Management Ac