Management Accountancy

Unit 7
Activity Based Costing

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Contents

- Concept, Need, Objectives and Limitations of Activity Based Costing (ABC)
- Limitations of Traditional Costing System
- Procedures of Absorption of Overhead under ABC
- Activity Based Management

Learning Objectives

- Understand the concept of Activity Based Costing (ABC)
- Describe the need, objectives and limitations of ABC
- List out the limitations of Traditional Costing System
- Know about Activity Based Management

Activity-Based Costing

- Traditional product costing systems were designed decades ago when most companies manufactured a narrow range of products, and direct labour and materials were the dominant factory cost
- Overhead costs were relatively small, and the distortions arising from inappropriate overhead allocations were not significant
- Today companies produce a wide range of products; direct labour represents only a small fraction of total costs, and overhead costs are of considerable importance

Activity-Based Costing

- Cooper and Kaplan (1988) have developed a more refine approach for assigning overheads to products and computing product costs
- They call this approach “activity-based costing (ABC)”
- It is claimed that ABC provides product cost information that is useful for decision-making purposes
- Activity based costing, relation between overhead costs and different activities

Advantages/Need of Activity Based Costing System

- To find out realistic product cost
- Useful for the purpose of correct allocation of all the overhead costs
- overhead is allocated on the basis of activities
- helpful in the control and reduction of cost
- flexible enough to trace cost for different activities.
- classifies cost into long-run and short-run variable costs
  - This classification is relevant to strategic decision making.
- Activity-based costing provides useful financial and non-financial measures
  - The cost driver rate is the example of financial measure and transaction volume the example of non-financial measure

Objectives of Activity Based Costing System

- to assign overhead cost on activity basis
- to identify available resources and resource-consuming activities
- to determine more accurate total cost of production or service
- to rectify the inaccurate cost information and to supply accurate cost of management
- to assist management for planning and forecasting
- to help management in taking decision for the better result

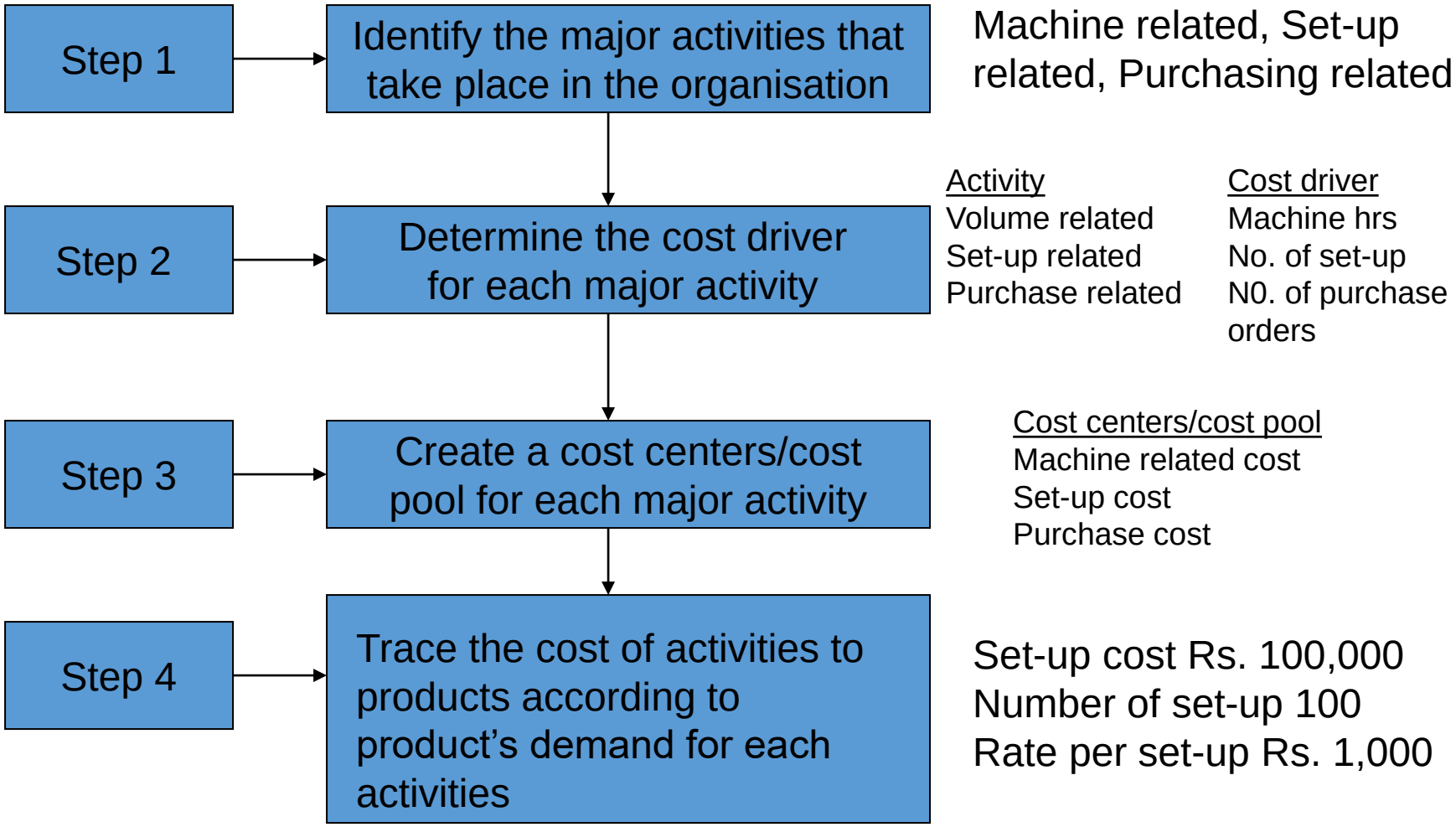
Limitations of Activity Based Costing System

- more complex than the traditional costing system
  - numerous cost pools and multiple cost drivers
  - more expensive - may not be affordable for small organizations.
- more useful to the organizations overhead costs are related to activities rather than unity.
  - If most of the overheads are related to units, the traditional system of costing will be more useful.
- complicated for the firms that rely on market-based pricing
- positive attitude and employee support are most necessary
- primary stage of development
  - its applicability is still doubted.

Limitations of Traditional Costing System

- Charging Overhead on Basis of Units
- Emphasizing Production Unit, not Activity
- High Proportion of Direct Cost in Total Cost
- Single Cost Driver

ABC System Involves Following Stages



Conclusion

- ABC has attracted a considerable amount of interest because it provides not only a basis for calculating more accurate product costs but also a mechanism for managing overhead cost
- By collecting and reporting on the significant activities in which a business engages, is possible to understand and manage costs more effectively
- ABC system may have their greatest potential in the area of cost management

ILLUSTRATION 1

Two products x and y are made using similar equipment and method.

The data for last period are :

Items	Cost (Rs.)	Cost Drivers
Volume Related	13,200	Machine hours
Purchase Related	12,000	Number of order
Materials Handling	2,600	Number of Movement
Maintenance	7,500	Maintenance hours
Quality Control	2,750	No. of Inspection

Output and related activities are as follows:

	Product X	Product Y
Production Units	400	1,000
Machine hours per unit	4	5
No. of Purchase order	10	20
No. of Movements	5	8
Maintenance hours	20	30
No. of Inspections	10	15

Required: Cost Driver Rate

SOLUTION

WORKING NOTES

Calculation of Total Cost Driver:

(i) Machine Hours = (400 x 4) + (1,000 x 5) = 1,600 + 5,000 = 6,600

(ii) No. of Orders = 10 + 20 = 30

(iii) No. of Movement = 5 + 8 = 13

(iv) Maintenance Hours = 20 + 30 = 50

(v) No. of Inspections = 10 + 15 = 25

Calculation of Cost Driver Rate

Activities	Cost	Cost Driver	Total Cost Driver	Cost Drivers Rate
Volume Related	13,200	Machine hours	6,600	Rs. 2
Purchase Related	12,000	No. of order	30	Rs. 400
Materials Handling	2,600	No. of Movement	13	Rs. 200
Maintenance	7,500	Maintenance hours	50	Rs. 150
Quality Control	2,750	No. of Inspection	25	Rs. 110

ILLUSTRATION 2

Nepal Company manufactures two products namely A and B products, using the same plant process. The following relates to a product period:

Products	A	B
Output (Units)	500	5,000
Machine Hour Per Unit	5	5
No. of Purchase Order	50	200

The costs of the activities are as follows:

Repair	Rs. 55,000
Purchase Related	Rs. 1,00,000

Required: Overhead cost per unit by ABC

SOLUTION

WORKING NOTES

Calculation of Total Cost Driver:

(i) Machine Hours = (500 x 5) + (5,000 x 5) = 27,500

(ii) No. of Orders = 50 + 200 = 250

Calculation of Cost Driver Rate

Activities	Cost	Cost Driver	Total Cost Driver	Cost Drivers Rate
Repair	55,000	Machine Hrs.	27,500	Rs. 2
Purchase	1,00,000	No. of Order	250	Rs. 400

Cost Statement

Activities	Cost Driver Rate	Product A		Product B	
		No.	Cost Traced	No.	Cost Traced
Repair	Rs. 2	2,500	5,000	25,000	50,000
Purchase Related	Rs. 400	50	20,000	200	80,000
Total Cost			**25,000**		**1,30,000**
Output Units			**500**		**5,000**
Cost per unit			**Rs. 50**		**Rs. 26**

ILLUSTRATION 3

Company A produces two products: P_1 and P_2. Both are produced on the same equipment and use similar processes. The products differ by volume. The information for input, output and the cost of activities are given below :

	Product P_1	**Product P_2**
Output in Units	1,000	10,000
Machine Hour per Unit	2	2
Direct Labour Hour per Unit	4	4
No. of Purchase Orders	80	160
No. of Set-ups	40	60

The Cost of the Activities is as follows:

Volume Related	Rs. 1,10,000
Purchasing Related	Rs. 1,20,000
Set-up Related	Rs. 2,10,000
Total	Rs. 4,40,000

Required: Find out the until production cost by using:

(i) Conventional Costing by using Machine Hours

(ii) Activity Based Costing and

(iii) Comparison of Conventional Costing and Activity Based Costing

SOLUTION:

(i) Calculation of Unit of Production Cost by using Conventional Costing

Step 1: Total Machine Hour = (1,000 x 2) + (10,000 x 2) = 2,000 + 20,000 = 22,000

Step 2: Total Overhead Cost = Rs. 4,40,000

Step 3: Overhead Rate per Machine Hour = $\frac{4,40,000}{22,000}$ = Rs. 20

Step 4: Overhead Cost Per Unit and Total Overhead Cost

Cost per Unit by using Machine Hour P_1 = 2 Hr. x Rs. 20 = Rs. 40

P_2 = 2Hr. x Rs. 20 = Rs. 40

Total Cost for P_1 = 1,000 units x Rs. 40

= Rs. 40,000

Total Cost for P_2 = 10,000 units x Rs. 40

= Rs. 4,00,000

(ii) Activity Based Costing:

Step 1: Calculation of Cost Driver Rates

Activities	Cost (Rs.)	Cost Driver	Total Cost Driver	Cost Drivers Rate (Rs.)
Volume Related	1,10,000	Machine Hour	22,000	Rs. 5
Purchase Related	1,20,000	No. of Orders	240	Rs. 500
Set-up Related	2,10,000	No. of Set-ups	100	Rs. 2,100

WORKING NOTES:

Calculation of Total Cost Drivers:

Volume Related = (1,000 units x 2 hrs) + (10,000 units x 2 hrs) = 22,000 hrs.

Purchase Related= 80 + 160 = 240 Orders

Set-up Related = 40 + 60 = 100 Set-ups

Step 2: Cost Statement by Using ABC System

Activities	Cost Driver Rate	Product P_1		Product P_2	
		No.	Cost Traced	No.	Cost Traced
Volume Related	Rs. 5	2,000	10,000	20,000	1,00,000
Purchase Related	Rs. 500	80	40,000	160	80,000
Set-up Related	Rs. 2,100	40	84,000	60	1,26,000
Total Cost			**1,34,000**		**3,06,000**
Output Units			**1,000**		**10,000**
Cost per unit			**Rs. 134**		**Rs. 30.60**

(iii) Comparison of Coventional Product Costing and Activity Based Costing :

Product	Conventional Costing	Activity Based Costing
P_1	Rs. 40	Rs. 134
P_2	Rs. 40	Rs. 30.60

Activity Based Management

- Activity Based Management (ABM) is a cost accounting term
  - Under ABM the current activities and company goals are adjusted by using past production activities and costs.
  - It is an approach to management that aims to maximize the value adding activities.
- Activity Based Management is used to determine the profitability of every aspect of a business so that those areas can be upgraded or eliminated.
  - It includes aspect like pricing and product mix decision, cost reduction process improvement and product design decisions.

Objectives of Activity Based Management

- To identify and enhance value added activities
- To reduce or to eliminate non-value added activities
- To improve efficiency and profitability by redesigning processes

Benefits of Activity Based Management

- It make possible to identify the most and least profitable customers, products and channels
- Management can predict accurately about the costs, profit, sales volume, resource cost
- The poor performance can be easily identified
- Cost reduction is possible.
- It also assists management on effective decision making

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Thank You