

Definition of Activity-Based Costing (ABC)

CIMA defines ABC as "Cost attribution to cost units on the basis of benefit received from indirect activities e.g., ordering, setting up, assuring quality". (ABC) is a system that focuses on activities as the fundamental cost objects and uses the cost of these activities as building blocks for compiling the costs of products and other cost objects. Now-a-days many organisations have taken up advanced manufacturing technology with the result that indirect costs are increasing very much and direct costs are becoming a smaller portion of total costs. Traditional costing systems which absorb indirect costs on a direct labour basis are, therefore, not relevant in the present set up of advanced manufacturing technology. In the present set up, ABC is a better approach of cost allocation.

Approaches in ABC

Researches made by Robin Cooper and Robert S. Kaplan of Harvard Business School, and others claimed that the costs should be classified as long-term variable costs and short-term variable costs. Conventionally, short-term variable costs are known as variable costs and long-term variable costs are known as fixed costs. Short-term variable costs are changing proportionately with the volume of production. Long-term variable costs vary in long-term but not instantly.

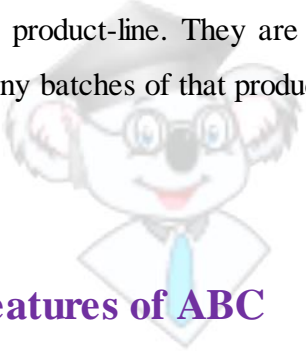
According to this approach, there are three major kinds of activities in the organizations:

- (a) Unit level activities,
- (b) Batch level activities and
- (c) Product sustaining activities.

The above major activities drive costs or expenses which can be classified according to above three major activities as follows:

- (a) Costs at the unit level,
- (b) Costs at the batch or production-run level and
- (c) Product sustaining costs.

Unit level costs correspond to short-run variable costs e.g., materials, temporary labour, etc. The unit level costs measure resources that are consumed proportionately with the number of units produced. Some costs are incurred by activities that are performed each time a batch of product is produced. Such activities relate to the length of set-ups or the number of set-ups performed. They vary with how many set-ups are done and how many batches are run, but are fixed with respect to the number of units produced in a batch, e.g., set-up costs, cost of inspection, purchase orders, etc. The third category of costs relate to activities that enable firms to produce each specific product. These costs (e.g. product specification, process engineering, product enhancement, etc.) will tend to increase as more products are added to the product-line. They are easily traceable to a product line but are fixed with respect to how many batches of that product are run or how many units of the product are produced.



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Features of ABC

The key characteristics of ABC are discussed below:

1. Simple traditional distinction made between fixed and variable cost is not enough guide to provide quality of information to design a cost system. But the distinction made in cost behaviour patterns in terms of volume (scale), diversity (scope), events (decisions and time make the ABC system more effective.
2. In ABC system the forces behind overhead costs are named as 'cost drives'. A cost driver is 'an activity which generates cost'. In tracing overhead cost product, a cost behaviour pattern must be understood so that appropriate cost driver could be identified.
3. In the traditional system cost analysis is done by product. In ABC managers centre of attention on activities rather than products because activities in various departments may be combined and costs of similar activities ascertained, e.g. quality control, handling of materials, repairs to machines etc. If detailed costs are kept by activities, the total company

costs for each activity can be obtained, analysed, planned and controlled.

4. ABC emphasizes problem areas that ought to have management's attention and more detailed analysis. Many actions are possible, on pricing, on process technology, on product design, on operational movements and on product mix.

5. Managers manage activities and not products. Changes in activities lead to changes in costs. Therefore, if the activities are managed well, cost will fall and resulting products will be more competitive.

Steps to develop or implement ABC system

The following steps are required to develop or implement ABC to achieve the desired results:

1. Identify the main activities performed in the organization, such as manufacturing; assembly etc., as well as support activities, including purchasing, packing and dispatching.
2. Determining the demand for each individual activity on the basis of budgeted production.
3. Collect accurate data on direct labour, material and overhead costs.
4. Identifying the key activities (Product cost differentiation, Activities and their cost drivers and Identification of non-value added cost) involved in each functional area.
5. Emphasis resources whose consumption varies significantly by product and product type.
6. Allocating the common indirect costs to various activities in each functional area.
7. Establish the demands made by particular products on activities, using the cost drivers as a measure of demand and also giving attention whose demand patterns are un-correlated.
8. Determining the budgeted cost of performing each activity.
9. Ascertaining the actual cost of each activity.
10. Preparing the statement of expenditure activity wise and comparing it with the value addition activity wise to know the activities which are to be eliminated or need improvement for taking corrective action wherever necessary and better performance of the organisation.

Functional areas of ABC

Some of the functional areas along with activities involved and cost drivers are given below:

Functional Areas: Materials Management

Activities Involved:

- Issuing tenders
- Issue of purchase orders
- Inspection of materials
- Taking perpetual stock taking

Cost driver:

- No. of tenders issued
- No. of purchase orders
- No. of purchase orders
- Value of stock handled

Functional Areas: Stores Management

Activities Involved:

- Storing the materials
- Inspection and verification
- Taking perpetual stock taking

Cost driver:

- Value of materials stored
- No. of times inspected
- Value of stock handled

Functional Areas: HR Management

Activities Involved:

- Recruitment

- Training
- Settlement of industrial disputes
- Labour turnover

Cost driver:

- No. of employees recruited
- No. of employees
- No. of employees
- No. of employees replaced

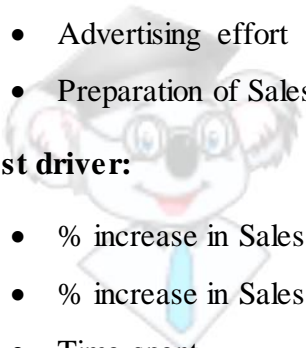
Functional Areas: Marketing

Activities Involved:

- Demand creation
- Advertising effort
- Preparation of Sales Forecasts

Cost driver:

- % increase in Sales
- % increase in Sales
- Time spent



Functional Areas: Quality Control

Activities Involved:

- Receipt of Samples
- Testing the samples
- Issue of Test Certificates

Cost driver:

- No. of batches produced
- No. of batches produced
- No. of batches produced

Benefits of Implementing ABC

1. ABC facilitates to reduce costs by providing meaningful information on the opportunities available reducing costs. If the company's financial performance is not reasonable it may have to fall back on extreme measures like layoffs.
2. Non-manufacturing costs can no longer be ignored as they represent a considerable portion of the total cost. Soft drink giants, like, Coke and Pepsi have to bear huge marketing costs in terms of advertising. On the contrary manufacturing costs constitute a very small proportion of the total cost. These non-manufacturing costs can be allocated easily because the relationship between costs and its causes is better understood by ABC.
3. ABC involves preparing the statement of expenditure activity wise and comparing it with the corresponding value addition to know the activities which are to be eliminated or need improvement.
4. ABC helps in price fixation by providing information about the product/service cost.
5. ABC enables the manager to decide whether the firm should get the activity done within the firm or subcontract the same to an outside agency, i.e., it simply helps in make or buy decision.
6. ABC helps in Transfer pricing. ABC provides accurate information to evaluate the performance of the transferor and transferee departments.

Example :

A Company manufactures two products A and B using the same equipment and similar processes. An extract of the production data for these products in one period is shown below:

Particulars	X	Y
Quantity produced (Units)	5,000	7,000
Direct labour hours per unit	1	2
Machine hours per unit	3	1
Setups in the period	10	40
Orders handled in the period	15	60

Overhead costs

Relating to machine activity	2,20,000
Relating to production run set -up	20,000
Relating handling of orders	<u>45,000</u>
	<u>2,85,000</u>

Calculate the production overheads to be absorbed by one unit of each of the products using the following costing methods:

- A traditional costing approach using a direct labour hour rate to absorb overheads.
- An activity based costing approach, using suitable cost drivers to trace overheads to products.

Solution:

(a) Direct labour hours

Product X	(5,000 units x 3 hours)	5,000
Product Y	(7,000 units x 1 hour)	<u>14,000</u>
	Total	<u>19,000</u>

Overhead absorbed rate = $2,85,000 / 19,000 = \text{Rs. } 15 \text{ Per hour}$

Product X (1 hour X Rs. 15) = Rs.15 per unit

Product Y (2 hours X Rs.15) = Rs.30 per unit

(b) Machine hours

Product X	(5,000 units X 3 hours)	15,000
Product Y	(7,000 units X 1 hour)	<u>7,000</u>
Total		<u>22,000</u>

Using ABC the overhead costs are absorbed according to the cost drivers.

Machine — hour driven costs (Rs.2, 20,000/22,000 M.H.) = Rs. 10 per M.H

Setup driven costs (Rs.20, 000/50 set ups) = Rs.400 per setup

Order-driven costs (Rs.45, 000/75 orders) = Rs.600 per order.

Overhead costs:

Particulars	Product X (Rs.)	Product Y (Rs.)
Machine driven costs	(1,5000 hrs x Rs.10) 1,50,000	(7,000 hrs. x Rs. 10) 70,000
Setup costs	(10 x Rs. 400) 4,000	(40 x Rs. 400) 16,000
Order handling costs	(15 x Rs. 600) 9,000	(60 x Rs. 600) 36,000
	1,63,000	1,22,000
Units produced	5,000	7,000
Overhead cost per unit	Rs. 32.60	Rs. 17.43

These figures recommend that product Y absorbs an unrealistic amount of overhead using a direct labour hour basis. Overhead absorption should be based on the activities which drive the costs, in this case machine hours, the number of production run setups and the number of orders handled for each product.



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