



BANGLADESH  
COST ACCOUNTING  
STANDARDS

BCAS - 14

Activity Based  
Costing

## BCAS 14: Activity Based Costing (ABC)

### 14.1 Introduction

In this ever changing dynamic business environment, managers or decision makers have to identify different ways to focus on business strategy. Cost leadership is one of the important generic strategies that a company can follow to generate the value for the stakeholders. ABC is believed to be the most innovative tool developed in last century in the field of cost and management accounting focusing on product costing and management strategy. During the late 1980s, Kaplan & Bruns had defined this term in their book. Usually it is treated as the modern alternative to absorption costing. It enables the business to identify the relevant information in terms of value addition which in turn helps to take more effective decisions for the business and society at large. ABC is an approach that identifies the activities that a firm/ organization performs and then assigns indirect costs to products via those activities. This approach or system recognizes the relationship between costs, activities and products, and through this relationship, it assigns indirect costs to products less arbitrarily than traditional methods. ABC focuses attention on cost drivers, the activities that cause costs to increase. Traditional absorption costing tends to focus on volume related drivers, such as labor hours or machine hours, while activity-based costing uses a varieties of drivers by understanding the causal relationship. In this way, long-term variable overheads, traditionally considered fixed costs, can be traced to products more scientifically. This standard provides guidelines on the applicability of ABC and other peripheral issues surrounding the use of ABC which will change the role of Management Accountant from scorekeeper to Strategic Advisor.

### 14.2 Objectives

The main objective of this standard is to provide guidelines to organizations so that cost can be scientifically traced with the cost objects benefiting all the counterparties being affected by misleading allocation. It can be used to identify areas that would benefit from process improvement.

Activity-based costing provides a more accurate method of product/service costing, leading to more accurate pricing decisions. It increases understanding of overheads and cost drivers and makes costly and non-value adding activities more visible, allowing managers to reduce or eliminate them. ABC enables effective challenge of operating costs to find better ways of allocating and eliminating overheads. It also enables improved product and customer profitability analysis. It supports performance management techniques such as continuous improvement and scorecards.

### 14.3 Scope

14.3.1 This standard provides guidelines to trace indirect cost with cost objects more scientifically.

14.3.2 More specifically, the standard addresses the following pertinent issues relating to cost allocation -

- a) Identifying different activities
- b) Analyzing activities
- c) Selecting appropriate cost pools and cost drivers
- d) Differentiating resource drivers and activity drivers
- e) Proposing a cost allocation system

14.3.3 This standard may be followed by companies and other business or non-business organizations where cost and management accounting is in practice either as a statutory obligation or to support management decision making process.

## 14.4 Key Features

The key features of this standard are pointed below -

- a) Presenting the concept of Activity Based costing as a part of strategic managerial decision;
- b) It focuses on allocation of indirect cost only;
- c) It relates with internal decision making perspective which in turn helps all stakeholders;
- d) Identifying different cost pool and driver which are related to goods or services; and
- e) Accumulating all relevant cost to the particular goods or services.

## 14.5 Definitions

The following terms are used in this standard with the meanings specified -

- 14.5.1 Activity Based Costing: Activity-based costing (ABC) is an accounting method that identifies the activities that a firm performs and then assigns indirect costs to cost objects.
- 14.5.2 Indirect Cost: As defined in BCAS 4.5.1.
- 14.5.3 Activity: As defined in BCAS 3.5.1.
- 14.5.4 Activity Cost pool: As defined in BCAS 3.5.4
- 14.5.5 Activity Cost Driver: As defined in BCAS 3.5.6.
- 14.5.6 Cost Object: As defined in BCAS 3.5.5.
- 14.5.7 Cost Hierarchy: The cost hierarchy is a classification system used in activity-based costing that designates activities based on how easily they can be traced to a product.
- 14.5.8 Unit Level Activities: These activities are performed each time a unit is produced.
- 14.5.9 Batch Level Activities: Batch level activities are performed each time a batch is handled or processed, regardless of how many units are in the batch.
- 14.5.10 Product Level Activities: These activities are related to specific products and typically must be carried out regardless of how many batches are run or units of product are produced or sold.
- 14.5.11 Customer Level Activities: These activities are related to specific customers and include activities such as sales calls, catalogue mailings and general technical support that are not tied to any specific product.
- 14.5.12 Organization Sustaining Activities: These activities are carried out regardless of which customers are served, which products are produced, how many batches are run, or how many units are made.

## 14.6 Standards

- 14.6.1 Under ABC, activities in an organization are identified, costs are accumulated with reference to each identified activities and the cost of each activity is assigned to all products and services according to their respective consumption.
- 14.6.2 Charging direct material and direct labor costs are the same under both traditional cost accounting method and ABC method.
- 14.6.3 This standard acknowledges that ABC results more pragmatic cost per unit to support strategic management decision.
- 14.6.4 Factors to be considered for implementation of ABC are -
- a) The commitment of top level management;
  - b) Level of competition;
  - c) Severity of product cost cross-subsidization;
  - d) Varieties of product lines and stock keeping units; and
  - e) Benefits of implementing ABC outweigh the cost.
- 14.6.5 Traditional costing runs under the principle that 'products consume resources'. However, ABC believes that 'activities consume resources and products are the outcome of activities'.
- 14.6.6 The successful implementation of ABC depends on the identification of different steps in applying ABC along with adherence to the steps. The steps are -
- a) Identification of major activities involved in the production process;
  - b) Classification of each activity according to the cost hierarchy;
  - c) Identification and accumulation of total costs of each activity;
  - d) Identification of the most appropriate cost driver for each activity;
  - e) Calculation of total units of the cost driver relevant to each activity;
  - f) Calculation of the activity rate i.e. the cost of each activity per unit of its relevant cost driver;
  - g) Application of the cost of each activity to products based on its activity usage by the product.
- 14.6.7 A rational number of activities need to be identified to make the system cost effective. Otherwise more number of activities will make the system chaotic and will make the method difficult to implement. However, there is no standard for fixing rational number of activities.
- 14.6.8 All the identified activities should be categorized as per cost hierarchy. There are four such categories, (a) unit level, (b) batch level, (c) product level, and (d) facility level.
- 14.6.9 Unit level activities are activities that are performed on each unit of product. Batch level activities are activities that are performed whenever a batch of the product is produced. Costs at the batch level depend on the number of batches processes rather than on the number of units produced, number of units sold or other measures of volumes. In pharmaceutical industry, batch level production takes place frequently. Proper identification of required tasks of any particular batch need to be scientifically identified. Product level activities are activities that are carried out separately for each product. Facility level activities are activities that are carried out at the plant level. The unit-level activities are most easily traceable to products while facility-level activities are least traceable.

14.6.10 **Respective cost driver needs to be identified for each activity which must be driven by causal analysis.**

14.6.11 Organization should have a policy on identification of resource drivers and activity drivers. The resource driver is the measure of the frequency and intensity of the demands placed on resources by activity. Activity driver measures the frequency and intensity of the demands placed on activities by cost objects enabling costs to be assigned to cost objects. A typical flow is given below:



14.6.12 ABC prefers to convert indirect cost into direct if logically feasible and economically justifiable. The ABC focuses on directly tracing as many overhead costs as possible to the ultimate cost objects.

14.6.13 The costs of any department are divided among the activity cost pools in first stage allocation process by using respective resource drivers.

14.6.14 ABC system determines the total activity for each cost pool that would be required to produce the company's present product mix and to serve its customers.

14.6.15 **The activity rates are computed by dividing the total cost for each activity by its total activity.**

14.6.16 The Overhead rates, or activity rates, may be based on the level of activity at capacity rather than on the budgeted level of activity.

14.6.17 All cost pool is not relevant. Some cost pools need to be excluded. Other cost pool consists of organizational sustaining costs and costs of idle capacity that are not allocated to products and customers.

14.6.18 Costs are assigned to cost objects in the second stage allocation by using activity drivers. This assignment requires the status of resources consumed by each unit of cost objects.

14.6.19 **ABC eliminates product cost cross subsidization. Under traditional costing high volume products are usually overcharged and low volume products are undercharged. Thus, one group of customers subsidizes another group.**

## 14.7 Recording and Reporting

14.7.1 Activity based costing is ordinarily used as a supplement to, rather than as a replacement for, the organization's usual costing method.

14.7.2 Non manufacturing as well as manufacturing costs may be assigned to cost objects.

14.7.3 A number of overhead cost pools are used, each of which is allocated to products and other cost objects using its own unique measure of activity.

14.7.4 It is important to record the following information for smooth application of ABC:

- a) List of activities;
- b) Classification of activities as per different cost hierarchy;

- c) List of cost drivers with the breakdown of resource and activity driver;
- d) Resource consumption patterns of cost objects; and
- e) Any other pertinent information for use.

14.7.5 Organization is encouraged to have its own manual of applying ABC as it requires a dedicated and highly committed team having required expertise.

## 14.8 Effective Date

This standard will be effective from January 1, 2017 onwards.

## Appendix 14 A

### Cost Pool, Cost Driver and Cost Hierarchy

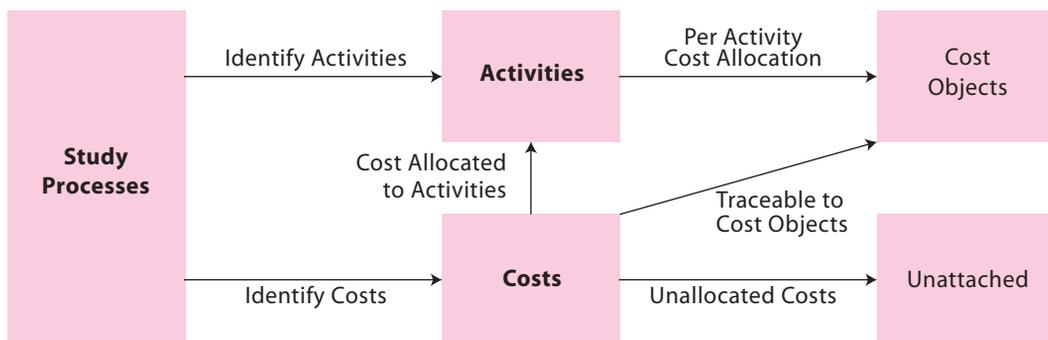
The following table presents a comparative example of cost pool, driver and hierarchy which is every important requirement in ABC implementation.

Cost Pool	Cost Drivers	Cost Hierarchy
Machining parts	Number of machine hours	Unit level
Purchasing	Number of purchase orders or ordering hours	Product or batch level
Receiving and Storing	Number of purchase orders or shipments received	Product or batch level
Engineering	Number of engineering work orders or hours	Product level
Packing	Number of shipments, number of cubic feet or packing hours	Product or batch level
Shipping	Number of pounds shipped	Product or batch level
Machine Setup	Number of setups or setup time	Batch level
Materials handling	Number of times handled or material handling hours	Product or batch level
Inventory control and materials planning	Number of part numbers or administrative hours	Product or batch level
Inspection and quality control	Number of inspections or inspections time	Product or batch level

## Appendix 14 B

### ABC Process

The objective of ABC is to derive improved measures of cost. By introducing activity cost pools, one is better able to allocate the costs (resources) to end objects (products, customers, etc.). The necessary steps to develop an ABC system are summarized as follows:

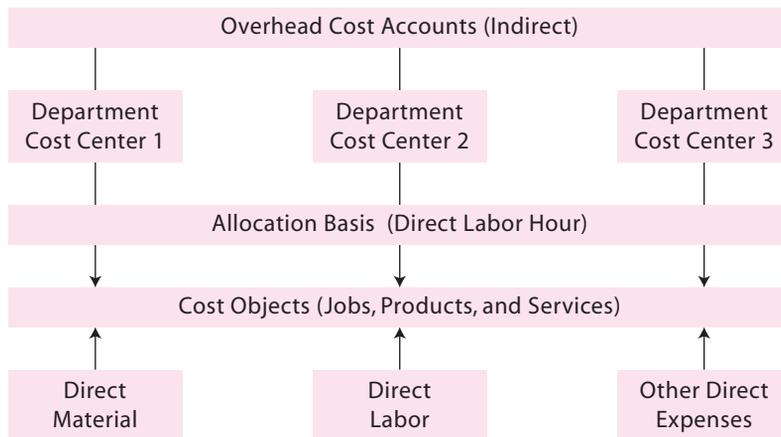


## Appendix 14C

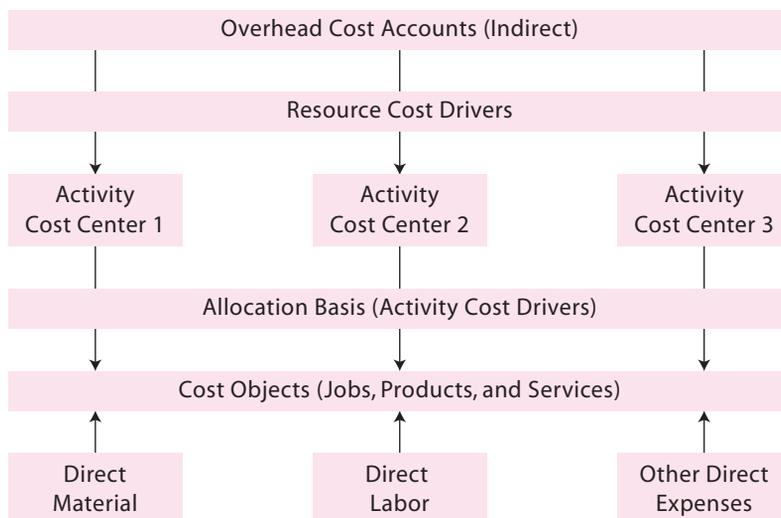
### Traditional vs. ABC Systems

Activity Based Costing measures the cost and performance of activities, resources, and cost objects. Resources are assigned to activities, then activities are assigned to cost objects based on their use. Activity based costing recognizes the causal relationships of cost drivers to activities. However, costs are assigned to cost objects through different cost centers under traditional costing by using volume based plant wide drivers.

#### a) Under Traditional System:



#### b) Under ABC System:



## Appendix 14D

### An Example of ABC

This appendix presents a numerical example on the application of ABC for product costing comparing the same with the traditional costing.

Brothers Furniture runs the business as a sole proprietorship. While it has 50 skilled carpenters and 5 salesmen on its payroll, it has been taking care of the accounting by itself. Now, it intends to offer 40% of the ownership to public in next couple years and is willing to make changes and has hired you as the management accountant to organize and improve the accounting systems. Brothers' total budgeted manufacturing overheads cost for the current year is Tk. 5,404,639 and budgeted total labor hours are 20,000. It applied traditional costing method during all of the 10 years period, and based the pre-determined overhead rate on total labor hours.

Brothers' sofa range includes the 2-set, 3-set and 6-set options. Platinum Interiors recently placed an order for 150 units of the 6-set type. The order is expected to be delivered in 1 month time. Since it is a customized order, Platinum will be billed at cost plus 25% as an established policy practiced by Brothers.

You are not a fan of traditional product costing system. You believe that the benefits of activity-based costing system exceeds its costs, so you sat down with Ms. Emily Nathan, the chief engineer, to identify the activities which the firm undertakes in its sofa division with which you have to start for implementing ABC as you have learnt while you was at graduate school. Next, you calculated the total cost that goes into each activity, identified the cost driver that is most relevant to each activity and calculated the activity rate. The results are summarized below:

Activity	Costs (Tk.)	Activity Drivers	Rate
Production of components	2,313,132	Machine hours	93
Assembly of components	1,231,312	Number of labor hours	62
Packaging	213,123	Units	43
Shipping	231,230	Units	46
Setup costs	34,243	Number of setups	143
Designing	123,132	Designer hours	123
Product testing	24,234	Testing hours	48
Rent	1,234,233	Labor cost	75%

Once the order was ready for packaging, Emily gave you a summary of total cost incurred and a statement of activities performed (also called the bill of activities) as shown below:

<b>Order No: 15X2013</b> <b>Customer: Platinum Interiors</b> <b>Units: 150</b> <b>Type: 6-Set Sofa</b>		
Cost of direct materials	:Tk. 25,000	
Cost of purchased components	:Tk. 35,000	
Labor cost	:Tk. 15,600	
Activity	Relevant Cost Driver	Activity Usage
Production of components	Machine hours	320
Assembly of components	Number of labor hours	250
Packaging	Units	150
Shipping	Units	150
Setup costs	Number of setups	15
Designing	Designer hours	70
Testing	Testing hours	22
Rent	Labor cost	15,600

#### Part A: Costing under Traditional Costing System

Under the traditional costing system, cost equals materials cost plus labor cost plus manufacturing overheads charged at the pre-determined overhead rate. The pre-determined overhead rate based on direct labor hours as practiced by Brothers is Tk. 270 (Tk. 5,404,639/20,000) per labor hour. The actual number of labor hours spent on the order is 250 as given by Ms. Emily. Once these data are available, traditional costing system will result the following cost estimate for the whole order:

Cost Components	Amount (Tk.)
Direct materials	25,000
Purchased components	35,000
Labor cost	15,600
Manufacturing overheads (Tk. 270 × 250)	67,500
Total cost under traditional product costing system	143,100

Platinum is billed at cost plus 25%, so the amount of sales to be booked would amount to Tk. 178,875 (Tk. 143,100 × 1.25).

#### Part B: Costing under Activity Based Costing System

The same calculation can be done under ABC system more scientifically which will result improved product costing and pricing decision based on the additional information Ms. Emily Nathan has provided.

Activity-based costing doesn't result any variation on how direct costs are treated. Thus, direct materials cost, cost of purchased components and labor cost remains the same as these are considered in traditional product costing system. However, the value of manufacturing overheads assigned is more accurately estimated under ABC. The following worksheet estimates the manufacturing overheads that should be assigned to the order of Platinum Interiors:

Activities	Activity Rate	Activity Usage	Activity Cost Assigned
	[A]	[B]	[A × B]
Production of components	93	320	29,760
Assembly of components	62	250	15,500
Packaging	43	150	6,450
Shipping	46	150	6,900
Setup costs	143	15	2,145
Designing	123	70	8,610
Product testing	48	22	1,056
Rent	75%	15,600	11,700
			82,121

Once overhead cost for the order is computed, it should be added with all the direct cost to calculate the total cost of the order as shown below:

Cost Components	Amount (Tk.)
Direct materials	25,000
Purchased components	35,000
Labor cost	15,600
Manufacturing overheads	82,121
Total cost under ABC product costing system	157,721

Based on the more accurate estimation of the order cost, the invoice should be raised at Tk. 197,151 (Tk. 157,721 × 1.25) instead of \$178,875 as calculated under traditional product costing system. A comparative calculation is shown below:

Cost Components	Under Traditional Costing System	Under ABC System
Direct materials	25,000	25,000
Purchased components	35,000	35,000
Labor cost	15,600	15,600
Manufacturing overheads	67,500	82,121
Total cost	143,100	157,721
Margin @ 25%	35,775	39,430
Price	178,875	197,151

This comparative presentation clearly specifies how ABC System improves product costing and pricing decision by ensuring more accurate tracing of manufacturing overheads with the cost object. Distortion in pricing and product cost cross-subsidization are checked through implementing ABC. At the same time, it will ensure profitability for the firm and value for money for the customer.