ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 7, pp. 18288-18306, July, 2017

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

ACTIVITY BASED COSTING SYSTEM

Waleed Khalid Shihab and Sivaram Prasad R

Department of Commerce and Business Administration
Acharya Nagarjuna University

DOI: http://dx.doi.org/10.24327/ijrsr.2017.0807.0484

ARTICLE INFO

Article History:

Received 17th April, 2017
Received in revised form 12th May, 2017
Accepted 04th June, 2017
Published online 28th July, 2017

Key Words:

Techniques of Costing, Methods of Costing, Activity-Based Budgeting- Abb, Cost Allocation, Classification of Costs

ABSTRACT

Activity based costing system (ABC) is a costing methodology that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each. This model assigns more indirect costs (overhead) into direct costs compared to conventional costing.

INTRODUCTION

Traditionally, *cost accounting* is considered as the technique and process of ascertaining costs of a given thing. In sixties, the definition of cost accounting was modified as 'the application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and ascertainment of profitability of goods, or services'. It includes the presentation of information derived there from for the purpose of managerial decision making. It clearly emphasizes the importance of cost accountancy achieved during the period by using cost concepts in more and more areas and helping management to arrive at good business decisions. Today, the scope of cost accounting has enlarged to such an extent that it now refers to the collection and providing all sorts of information that assists the executives in fulfilling the organizational goals. Modern cost accounting is being termed as management accounting, since managers being the primary user of accounting information are increasingly using the data provided by the accounts, setting objectives and controlling the operations of the business. (Michael Grayson, Denise Woodburym, 2006)

Activity-based costing (ABC) is a product costing system that allocates indirect costs to products depending on their relative consumption of company resources. Started in the 80s as a method to allocate overhead costs in manufacturing companies, over the last four decades ABC usage has been extended to various service industries as a management accounting tool to monitor and manage business performance (Ermela Bufi,2014)

In recent years, companies have reduced their dependency on traditional accounting systems by developing activity-based cost management systems. Initially, managers viewed the ABC approach as a more accurate way of calculating product costs. But ABC has emerged as a tremendously useful guide to management action that can translate directly into higher profits. Moreover, the ABC approach is broadly applicable across the spectrum of company functions and not just in the factory. (Robin Cooper and Robert S. Kaplan,1991) the ABC system traces and allocates costs to products with cause-effect drivers-including volume-based and non-volume-based drivers -and thus is expected to improve the accuracy of cost calculation, assist in making accurate decisions, and serve as a benchmark for planning and control. (Rong-Ruey Duh, Thomas W. Lin, Wen-Ying Wang, Chao-Hsin Huang, 2008) Since its very early stages of development activity-based costing has been claimed to have high-potential applications in businesses with high product diversity. Subsequent empirical studies have confirmed a positive correlation between product diversity and benefits from ABC within a single firm or between product diversity and ABC usage across different industries and firms Product diversity is defined as the number or range of different

Corresponding author:* **Waleed Khalid Shihab
Department of Commerce and Business Administration Acharya Nagarjuna University

product lines or different product families offered (Ermela Bufi, 2014) Activity Based Costing overcomes the drawbacks of the traditional cost accounting methods (Yu Dandan), Explaining the ABC method implies approaching three analysis levels: operation, activity and process. Operation is the first level in describing the labor process and it does not imply the calculation of any cost, being the part of the production process which is homogenous from a technological stand point and which represents the object of a work norm that must be performed during a given time interval, by an executive. Either individual or collective. On a certain job, specifically equipped and fitted with tools. Activity is a set of ordinate and connected operations for the purpose of achieving a certain objective process is a set of organized activities aiming toward the achievement of a common objective and it has three characteristics:

- it is organized in a transversal manner compared to hierarchal organization and to the main functional structures of the enterprise (production, marketing, sales, financial , planning, purchase etc).
- each process has an output (finality)
- it has an internal or external client.(Saveta T udorache, 2008)

Cost is "the amount of expenditure (actual or notional) incurred on or attributable to a given thing".(512)

The real physical resources consumed

- The money equivalent of the real physical resources used.
- The value of benefits foregone in the alternative use of resources. (Rastislav Rajnoha, Felicita Chromjaková, 2009)

What is Cost Accounting?

"Cost Accounting is the application of accounting and costing principles, methods and techniques in the ascertainment of cost and the analysis of savings and or excesses as compared with previous experience or standard."(Association of Accountancy Bodies in West Africa (ABWA)., 2009)

What is Cost?

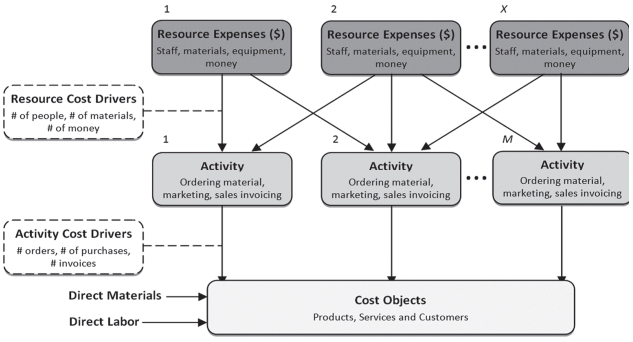
Cost is the amount of expenditure incurred on or attributable to a specified thing or activity. Mathematically, cost is the product of the quantity of a given resource used and the price per unit of the quantity of resource. Costs are usually ascertained in respect of cost units or cost objectives. (Association of Accountancy Bodies in West Africa (ABWA)., 2009)

Cost Card

Direct material cost	xx
Direct labour cost	xx
Direct Expenses	xx
Prime cost	xxx
Indirect material cost	xx
Indirect labour cost	xx
Indirect expenses	xx
Overhead cost	xxx
Total cost	xxx

Traditional Costing Systems

Kaplan and Cooper (1998) analyzed several integrated cost systems to drive profitability and performance. One is the *traditional costing system* used mainly in the past and now merely for financial reporting procedures. In a traditional costing system, direct costs are directly attributed to the cost objects. On the contrary, indirect costs are typically allocated to each cost object using a single or a few volume-based cost drivers (e.g. direct labour, machine hours or units of output). This type of costing system was created when companies manufactured products with little variety and a predominant proportion of direct costs; or when supporting activities and its accompanying indirect costs were limited. Presently, traditional costing systems still work well in stable environments with small or fixed indirect costs and little variation in activities, products or services. However, because of automation, short product life cycles and high products and services variety, most production and service environment have changed. Therefore, the cost system that was adequate for homogeneous cost pools driven by a single cost rate could now be given distorted signals about profitability and performance when using volume-based allocation rates. The limitation of traditional costing systems is that they are unable to allocate the indirect costs of many resources of a company in an accurate way). Since indirect costs have become increasingly more important than direct costs and those costs are not accurately attributed to the diff erent activities and products, traditional costing systems are unable to estimate adequate cost information for most organizations today. (Lorena Siguenza-Guzman, Alexandra Van den Abbeele, Joos Vandewalle, Henri Verhaaren Dirk Cattrysse)



Activity-Based Costing Structure (Kaplan and Cooper, 1998)

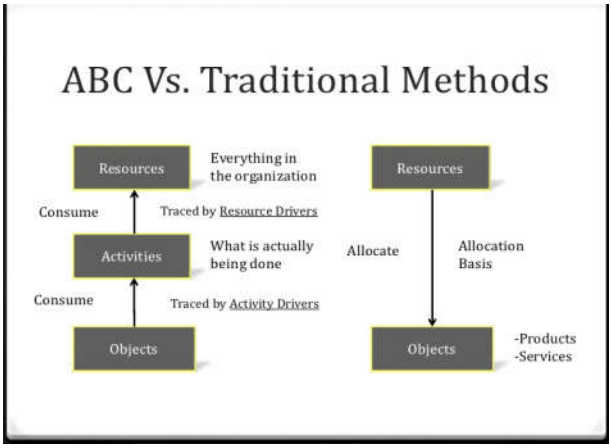
(Lorena Siguenza-Guzman, Alexandra Van den Abbeele, Joos Vandewalle, Henri Verhaaren Dirk Cattrysse)

Activity-Based Costing System

With the rise of the complexity of companies' operations, the weakness of traditional volume based costing models becomes more evident. Managers have sought other ways of obtaining more accurate information about costs, being ABC one of the most prominent alternatives. ABC was first developed by practitioners and then introduced in some Harvard Business School teaching cases. It was especially promoted by Robin Cooper and Robert Kaplan in the mid- 1980s1 (Cooper and Kaplan, 1988; Kaplan and Cooper, 1998). Because ABC was fi rst designed for manufacturing processes, the theory of its promoters is based on the assumption that products differ in the complexity of manufacturing and that the consumption of

activities is also in diff erent proportions. Compared to traditional costing methods, ABC is a process which provides a more accurate and efficient management of activity costs since it draws indirect costs more closely to the different activities (Ellis-Newman and Robinson, 1998). Figure 1 presents the stages that ABC uses for cost allocation, the cost drivers and the relationships between the resources, activities and objects (Lorena Siguenza-Guzman, Alexandra Van den Abbeele, Joos Vandewalle, Henri Verhaaren Dirk Cattrysse)

www.google.co.in)



ABC's 7 Steps

Step 1: Identify the products that are the chosen cost objects. (Boris Popesko, 2013) During this step, the main activities (which cause overhead expenses) are identified. Examples of these activities include Web site design and maintenance, order processing, product marketing, telephone support, product handling, and product shipping. The number of main activities identified (and used as a medium to trace overhead) is determined by the level of accuracy and reliability desired. (Narcyz Roztocki)

Step 2: Identify the direct costs of the products.
Step 3: Select the activities and cost-allocation bases to use for allocating indirect costs to the products.
Step 4: Identify the indirect costs associated with each cost allocation base (activity).
Step 5: Compute the rate per unit of each cost-allocation base (activity) used to allocate indirect costs to the products.
Step 6: Compute the indirect costs allocated to the products.
Step 7: Compute the total costs of the products by adding all direct and indirect costs assigned to the products.(1)

Final step in ABC application is the assigning the cost of activities to products. In case of ABC implementation in hospital this step could be crucial, because the management have to decide, what the final product or cost object of the healthcare institution is. Is it the patient as the customer or the type of diagnosis?

Different published studies on ABC application uses various types of cost objects. It starts with types of diagnosis or individual patients and finishes with the specific cost objects in the narrow applications of ABC, in specific healthcare areas. Cost object definition is based on managerial requirements of the system. Another important issue is to collect the accurate information about the volume of activities consumed by the cost objects. (Boris Popesko, 2013)

Definition and concept

'An approach to the costing and monitoring of activities which involves tracing resource consumption and costing final outputs. Resources are assigned to activities, and activities to cost objects based on consumption estimates. The latter utilize cost drivers to attach activity costs to outputs.'

A development of the principles of activity based costing (ABC) is activity based management (ABM).

Operational ABM is defined as: 'Actions, based on activity driver analysis, that increase efficiency, lower costs and/or improve asset utilisation.'

Strategic ABM is defined as: 'Actions, based on activity based cost analysis, that aim to change the demand for activities so as to improve profitability.'(The Chartered Institute of Management Accountants, 2006)

History of Activity Based Costing

Traditionally cost accountants had arbitrarily added a broad percentage of expenses onto the direct costs to allow for the indirect costs. However as the percentages of indirect or overhead costs had risen, this technique became increasingly inaccurate because the indirect costs were not caused equally by all the products. For example, one product might take more time in one expensive machine than another product, but since the amount of direct labour and materials might be the same, the additional cost for the use of the machine would not be recognized when the same broad 'on-cost' percentage is added to all products. Consequently, when multiple products share common costs, there is a danger of one product subsidizing another. Two tools -a cost hierarchy and a bill of activities- help in the implementation of ABC to create a cost hierarchy, activities are identified and classified into four levels. Unit-level activities are performed each time a unit is produced. Batch-level activities are performed each time a batch of goods is produced. Product level activities are performed to support the diversity of products in a manufacturing plant. Facility-level activities are performed to support a facility's general manufacturing process. A bill of activities is then used to compute the costs assigned to activities and the product or service unit cost (Panagiotis Dimitropoulos, 2007) The broad concept of activity costs within CPS is that the number of files handled, multiplied by staff time and staff salary costs, is equal to the total cost of staff time spent on the CPS prosecution process. The system is built purely on staff time and excludes accommodation and other ancillary costs, e.g. Capital expenditure or payments to third parties such as Counsel. (Leanna Lane, Shaun Morris 2014) The concepts of ABC were developed in the manufacturing sector of the United States during the 1970s and 1980s. During this time, the Consortium for Advanced Management-International, now known simply as CAM-I, provided a formative role for studying and formalizing the principles that have become more formally known as Activity-Based Costing. Robin Cooper and Robert S. Kaplan, proponent of the Balanced Scorecard, brought notice to these concepts in a number of articles published in Harvard Business Review beginning in 1988. Cooper and Kaplan described ABC as an approach to solve the problems of

traditional cost management systems. These traditional costing systems are often unable to determine accurately the actual costs of production and of the costs of related services. Consequently managers were making decisions based on inaccurate data especially where there are multiple products. Instead of using broad arbitrary percentages to allocate costs, ABC seeks to identify cause and affect relationships to objectively assign costs. Once costs of the activities have been identified, the cost of each activity is attributed to each product to the extent that the product uses the activity. In this way ABC often identifies areas of high overhead costs per unit and so directs attention to finding ways to reduce the costs or to charge more for costly products Activity-based costing was first clearly defined in 1987 by Robert S. Kaplan and W. Bruns as a chapter in their book Accounting and Management: A Field Study Perspective. They initially focused on manufacturing industry where increasing technology and productivity improvements have reduced the relative proportion of the direct costs of labour and materials, but have increased relative proportion of indirect costs. For example, increased automation has reduced labour, which is a direct cost, but has increased depreciation, which is an indirect cost. Like manufacturing industries, financial institutions also have diverse products and customers which can cause cross-product cross-customer subsidies. Since personnel expenses represent the largest single component of non-interest expense in financial institutions, these costs must also be attributed more accurately to products and customers. Activity based costing, even though originally developed for manufacturing, may even be a more useful tool for doing this. (Yakup ZENGİN, 2010)

Cost Allocation In General

Cost allocation is fundamentally a problem of linking (1) some cost or groups of costs with (2) one or more cost objectives, such as products, departments, and divisions. Ideally, costs should be assigned to the cost objective that caused it. In short, cost allocation tries to identify (1) with (2) via some function representing causation. Linking costs with cost objectives is accomplished by selecting cost drivers. When used for allocating costs, a cost driver is often called a cost-allocation base. Major costs, such as newsprint for a newspaper and direct professional labour for a law firm, may each be allocated to departments, jobs, and projects on an item-by-item basis, using obvious cost drivers such as tonnes of newsprint consumed or direct-labour-hours used. Other costs, taken one at a time, are not important enough to justify being allocated individually. These costs are pooled and then allocated together. A cost pool is a group of individual costs that is allocated to cost objectives using a single cost driver. For example, building rent, utilities cost, and janitorial services may be in the same cost pool because all are allocated on the basis of square metres of space occupied. Or a university could pool all the operating costs of its registrar's office and allocate them to its colleges on the basis of the number of students in each faculty. In summary, all costs in a given cost pool should be caused by the same factor. That factor is the cost driver. Many different terms are used by companies to describe cost allocation in practice. You may encounter terms such as allocate, attribute, reallocate, trace, assign, distribute, redistribute, load, burden, apportion, and reapportion, which can be used interchangeably to describe the allocation of costs to cost objectives.(6)

Advantages and Disadvantages of ABC System

Advantage of ABC System

- ABC system brings accuracy and reliability in product cost determination by focusing on cause and effect relationship in the cost incurrence. It recognizes that is activities which cause costs, not products and it is product which consumes activities.
- In advanced manufacturing environment and technology where support functions overhead constitute a large share of total costs, ABC system provides more realistic product costs.
- ABC system identifies the real nature of cost behavior and helps in reducing costs and identifying activities which do not add value to the product. With ABC system, managers are able to control many fixed overhead costs by exercising more control over the activities which have caused these fixed overhead costs. This is possible since behavior of many fixed overhead costs in relation to activities now become more visible and clear.
- ABC system uses multiple cost drivers, many of which are transaction based rather than product volume. Further, ABC system is concerned with all activities within and beyond the factory to trace more overheads to the products.
- ABC system traces costs to areas of managerial responsibility, processes, customers, department besides the product costs.
- ABC system improves greatly the manager's decision making as they can use more reliable product cost data.
- ABC system helps usefully in fixing selling prices of products as more correct data of product cost is now readily available
- ABC system products reliable and correct product cost data in cause of greater diversity among the products manufactured such as low-volume products, high-volume products. Traditional costing system is likely to bring errors and approximation in product cost determination due to using arbitrary apportionment and absorption methods.
- ABC system provides cost driver rates and information on transaction volumes which are very useful to management and performance appraisal of responsibility centers. Cost driver rates can be used advantageously for the design of new products or existing products as they indicate overhead costs that are likely to be applied in costing the product.

ABC system provides not only a base for calculating more accurate product cost but also a mechanism for managing costs. (Shaban E. A. Salem, Shabana Mazhar, 2014)

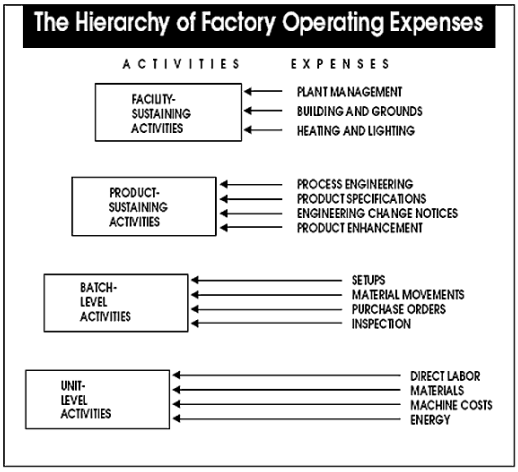
Pros and Cons of the Abc System

Pros	Cons
• It identifies the goods and services that contribute the most or the least to the business. • It computes the costs more accurately, which gives more control of indirect costs. • It renders information to make possible strategic decision-making. • it is applicable to all kinds of organisations • it allows costs to be related with its cause • it measures the performance of both workers and departments • it enable creating financial projections	• the cost of addressing the information is higher than in other systems. • there is a difficulty in defining cost drivers • Even though it is an improvement of other processes ,it needs primary cost sharing • even though the cost is more accurate, the exact cost is not obtained since there are unforeseen expenses. • it is focused in costs optimisation, leaving aside the systematic vision of the organisation

(SARA MORELLO DIAZ,2015)

The ABC hierarchy

A number of basic features of ABC should be noted. Basically it is a two-stage procedure in which cost of resources in the first stage are allocated to activities to form Activity Cost Pools, which in the second stage are allocated to cost objects based on these objects' use of the different activities. Cost object is the generic term of ABC for products, services and customers. In order to differentiate between the different allocations at the two stages the first stage allocation bases are termed "resource cost drivers" and the second-stage bases "activity cost drivers". Activities and cost objects are placed in a hierarchy to avoid arbitrary allocations of costs. A typical hierarchy in the product dimension is shown in figure 1. The conception is that each level contains different activities and that these activities in essence are decoupled, i.e. the consumption in any higher-level activity is unaffected by, i.e. do not vary with, activities at the lower levels. In other words, the higher-level costs are always common to all activities at lower levels, and therefore should not be allocated to these lower levels. Especially the allocation of all costs to the unit-level will create misinterpretations because "when batch and product level costs are divided by the number of units produced, the mistaken impression is that the costs vary with the number of units" (Thyssen, J., Israelsen, P., & Jørgensen, B., 2004)

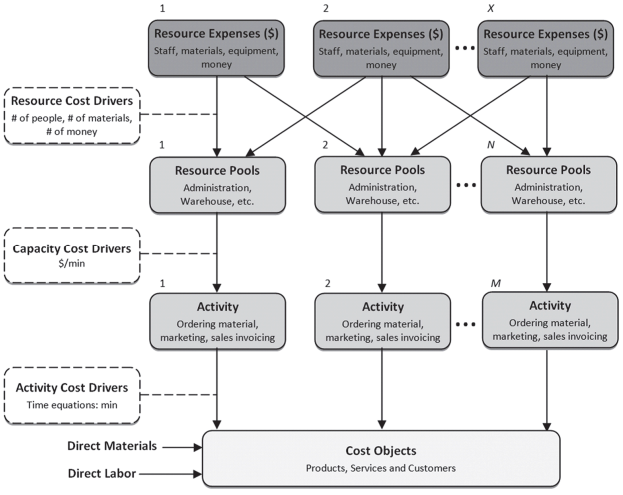


www.google.co.in

Time-Driven Activity-Based Costing System

TDABC model (based on (Everaert, Bruggeman, Sarens et al., 2008))

(Lorena Siguenza-Guzman, Alexandra Van den Abbeele Joos Vandewalle, Henri Verhaaren and Dirk Cattrysse)



Activity Based Management (ABM)

Using Activity Based Costing (ABC) to improve a business is called Activity Based Management (ABM). ABM includes cost driver analysis, activity analysis and performance measurement. (Fig.1). Activity analysis is done with an objective to eliminate those activities that do not add value to the product and in turn, reduce product costs. ABC measures performance of activities, determine the output costs and identify the possibilities for making the process more efficient and effective Instead of focusing on resources, ABM bases management decisions on activities, thereby providing a completely new perspective on company operations. Rather than arbitrarily assigning resources to activities, ABM provides managers with the crucial ability to question the relevance of activities and hence optimize the resources allocated to them. ABM's main advantage is that, by identifying company-specific performance measures, it focuses on cost management activity, and also improves planning techniques and the tracking of established goals.

ABM advantages

- focuses on what people actually *do*; what people do determines the associated costs incurred; shows clear link between activities a unit performs and resources consumed
- enables managers to take ownership of information formerly owned by accountants; can help everyone in company to understand resources used and outputs produced by each activity/process; people doing activities/processes set own budgets and performance measures

- works well in projects and cross-functional processes; enables focus on those processes where costs have been hidden under traditional costing methods
- can minimise increasingly blurred distinction between fixed vs variable costs, or direst vs indirect costs
- also used to find cost of *not doing* something eg machine downtime
- integrates what once were separate activities value analysis, process analysis, quality management and costing-into one system for analysis
- managers can identify and control costs which had in the past been unidentified, undifferentiated or considered fixed.(56)

Classification of costs

Understand cost classification by behavior

- variable cost
- fixed costs.

Understand cost classification by traceability

- direct cost
- indirect costs.

Understand cost classification by relevance

- differential costs,
- opportunity costs,
- and sunk costs.

Understand cost classification by function.

- manufacturing cost
- nonmanufacturing costs.

Understand cost classification by elements of cost

- materials cost
- labour cost
- expenses

Cost Classification by Behaviour

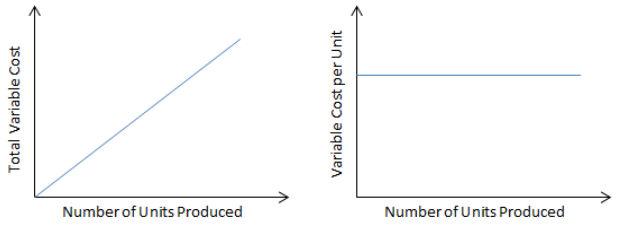
Cost behaviour is associated with learning how costs change when there is a change in an organization's level of activity. The costs which vary proportionately with the changes in the level of activity are referred to as variable costs. The costs that are unaffected by changes in the level of activity are classified as fixed costs.

Cost behaviour is not required for external reporting under U.S. GAAP. However, the understanding of cost behaviour is very important for management's efforts to plan and control its organization's costs. Budgets and variance reports are more effective when they reflect cost behaviour patterns. The understanding of cost behaviour is also necessary for calculating a company's break-even point and for any other cost-volume-profit analysis.(www.accountingcoach.com)

Variable Cost

A ***variable cost***

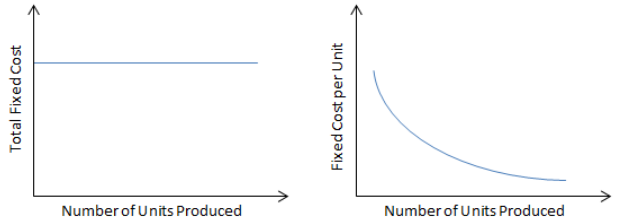
Variable Costs are those that vary with variations in output (Mahmoud Nassar, 2009). Is one that varies in direct proportion to changes in the level of activity. The activity can be expressed in many ways, such as output (units produced, units sold), miles driven, beds occupied, lines of print, hours worked, and so forth. As an example, consider the KIA car. Each auto requires one battery. As the output of autos increases and decreases, the number of batteries used will increase and decrease proportionately. If auto production goes up 10%, then the number of batteries used will also go up 10%. This means the total cost of batteries will also go up by 10%. (Azzouz Elhamma, 2012)



www.google.co.in

Fixed cost

A cost that remains constant within a given period of time and range of activity in spite of fluctuations in production. Per unit fixed cost varies with the change in the volume of production. If the production increases, fixed cost per unit decreases and as there is decrease in production, the fixed cost per unit increases. Rent and insurance of building, depreciation on plant and machinery, salary of employees etc., are some examples of fixed costs.(Arkadiusz Januszewski,2015)



www.google.co.in

Understand cost classification by traceability

Direct Cost

a direct cost is one that pertains to a certain cost object and can be easily and economically traced to that cost object. As an example, the salary of the secretary of the university of Saskatchewan's Accounting department is directly traceable to the department (the desired cost object). (Azzouz Elhamma, 2012)

Indirect Cost An indirect cost is one that cannot be easily and conveniently traced to a particular cost object under consideration. (Azzouz Elhamma, 2012) (513)

Direct costs are classified further into direct materials cost and direct labour cost. The manufacturer purchases materials (for example, unassembled parts), hires workers to convert the materials to a finished good, and then offers the product for sale. Thus, there are three major categories of product costs:

Direct materials that can be feasibly identified directly, at relatively low cost, with the product. 'The Cost of material which can be attributed to a cost object in an economically feasible way' (513) (To the manufacturer, purchased parts, including transportation-in, are included in direct materials.) Direct materials are often called raw materials. Materials that cannot be identified with a specific product (for example, paper

for plant reports, lubricating oil for machines) are included in item 3.

Direct labor the cost of employees or workers who can be identified and (attributed) to a cost object economically directly, at reasonable cost, with the product. These workers transform the materials into a finished product. (513)

All other costs of transforming the materials into a finished product, often referred to in total as manufacturing overhead. Some examples of manufacturing overhead follow.

- Indirect labor, the cost of workers who do not work directly on the product yet are required so that the factory can operate, such as supervisors, maintenance workers, and inventory storekeepers.
- Indirect materials, such as lubricants for the machinery, polishing and cleaning materials, repair parts, and light bulbs, which are not a part of the finished product but are necessary to manufacture it.
- Other manufacturing costs, such as depreciation of the factory building and equipment, taxes on the factory assets, insurance on the factory building and equipment, heat, light, power, and similar expenses incurred to keep the factory operating.

Although we use manufacturing overhead in this book, common synonyms used in practice are factory burden, factory overhead, burden, factory expense, and the unmodified word, overhead.(Myers, Joan K. ,2009)

Understand cost classification by relevance

Given the importance of cost information for decision making, managers must be able to identify costs that are relevant for individual decisions. Cost classification by relevance helps in decision making. Only costs that are relevant to individual decisions must be used in the analysis preceding decision making. In general, differential and opportunity costs are relevant for most decisions, whereas sunk costs are irrelevant for any decision.(501)

Sunk Cost a sunk cost is a cost that has already been incurred and cannot be recovered. Sunk costs (also known as retrospective costs) are sometimes contrasted with *prospective costs*, which are future costs that may be incurred or changed if an action is taken. (en.wikipedia.org) Examples of sunk costs include equipment that has been paid for and expenditures for personnel time already worked. (Athanasios Vazakidis, Ioannis Karagiannis and Anthi Tsialta, 2010)

To illustrate a sunk cost, assume that a company paid $50,000 several years ago for a special-purpose machine. The machine was used to make a product that is now obsolete and is no longer being sold. Even though in hindsight the purchase of the machine may have been unwise, no amount of regret can undo that decision. And, it would be foolish to continue making the obsolete product in a misguided attempt to “recover” the original cost of the machine. In short, the $50,000 originally paid for the machine has already been incurred and cannot be a differential cost in any future decision. For this reason, such costs are said to be sunk and should be ignored in decisions. (Azzouz Elhamma, 2012)

Differential Costs: Differential cost is the difference between the cost of two alternative decisions, or of a change in output levels. The concept is used when there are multiple possible options to pursue, and a choice must be made to select one option and drop the others. The concept can be particularly useful in step costing situations, where producing one additional unit of output may require a substantial additional cost. Here are two examples:

- Example of alternative decisions. If you have a decision to run a fully automated operation that produces 100,000 widgets per year at a cost of $1,200,000, or of using direct labor to manually produce the same number of widgets for $1,400,000, then the differential cost between the two alternatives is $200,000.
- Example of change in output. A work center can produce 10,000 widgets for $29,000 or 15,000 widgets for $40,000. The differential cost of the additional 5,000 widgets is $11,000.

In essence, you can line up the revenues and expenses from one decision next to similar information for the alternative decision, and the difference between all line items in the two columns is the differential cost.

A differential cost can be a variable cost, a fixed cost, or a mix of the two - there is no differentiation between these types of costs, since the emphasis is on the gross difference between the costs of the alternatives or change in output.

Since a differential cost is only used for management decision making, there is no accounting entry for it. There is also no accounting standard that mandates how the cost is to be calculated.(http://www.accountingtools.com)

Opportunity costs

Opportunity cost is the potential benefit that is given up when one alternative is selected over another. To illustrate this important concept, consider the following examples: (Victoria Whelan, 2033)

Example 1

Vicki has a part-time job that pays her $200 per week while attending college. She would like to spend a week at the beach during spring break, and her employer has agreed to give her the time off, but without pay. The $200 in lost wages would be an opportunity cost of taking the week off to be at the beach. (Azzouz Elhamma, 2012)

Understand cost classification by function

Another cost classification is based on function. Before discussing this further, it might be useful to understand that every organization carries out a sequence of activities to fulfill its mission.2 Such a sequence of activities is known as the value chain of that organization. Acadian Seaplants, located in Dartmouth, Nova Scotia, is a diversified, technology-based manufacturer of natural, specialty fertilizers, crop bio stimulants, feed, food, food ingredients, and brewery supplies derived from select species of marine plants. Acadian is a fully integrated company involved in activities ranging from marine plant cultivation and the hand harvesting of pure seaweeds to product and application development, manufacturing, and technical customer support. Acadian’s value chain is considerably broad (see Exhibit 2-3). In contrast, some

competitors of Acadian may be less integrated involved only in product and application development or in manufacturing. Such competitors must depend on other organizations for the cultivation and harvesting of seaweeds (front end of the value chain) and customer support (back end of the value chain); their value chains would be narrow. Cost classification by function consists of associating costs with the type of activity for which that cost is incurred (e.g., manufacturing, marketing, or administration). For a retailer, such as Zellers, costs pertaining to the procurement and stacking of the goods to be sold would be classified as merchandising costs, whereas advertising costs and the costs of the accountants and legal personnel may be classified under selling and administrative costs. Such a distinction is more pronounced for manufacturing companies; we can distinguish between manufacturing and nonmanufacturing costs. This is the classification of cost into the major activities undertaken by a business, such as production administration, etc.

Production cost*;* the cost incurred directly from the production of goods. That is, the cost incurred by a factory up to the point that the products are ready for warehousing. This is made up of cost of raw materials, factory wages and salaries and other production overhead. It is known as a manufacturing cost.

Administration cost*:* The cost incurred in the formulation of policies, decision making and control of the activities of an organisation. Examples include salaries of office staff, cost of office stationery, cost of office machines, etc.

Selling and marketing cost*:* The cost incurred in securing orders, creating demand, providing customer service and increasing sales. Examples include salaries of sales reps or sales dept, cost of marketing research, bad debts, showroom expenses, etc

Distribution Cost*:* The cost incurred in making the finished product ready for despatch and delivering it to the customer. Examples are cost of packaging, salaries of despatch drivers, salaries of packers, cost of packing cases, warehouse costs, etc.

Finance Cost*:* The cost incurred in securing and servicing finance .Examples are loan interest, share issue expenses, dividends, cash discount, etc.

Research and Development Cost*:* the cost incurred for the acquisition of new or improved knowledge in the production of goods and services. Examples are salaries of research personnel, cost of research equipment, etc. (http://www.virtualkollage.com)

Understand cost classification by elements of cost

Costs can be classified by element. There are three basic elements of cost. These are materials, labour and other facilities or resources other than materials and labour. Thus when classified according to elements, there are the following classes of cost:

- materials cost
- labour cost
- expenses

Material cost

These are the costs of materials or commodity other than fixed assets, introduced into product or consumed in the operations of an organisation. In other words, they are the cost of materials input into the production of goods and services. For example, the cost of:

- raw materials
- component parts
- work in progress
- primary packing materials
- lubricating oil
- consumable tools
- stationary etc.
- cleaning materials

Labour Cost

These are the cost of employee remuneration. In other words, payments made to and on behalf of employees for offering services in the production function.

Expenses

These are costs other than material costs and labour costs. For example the cost of:

Hiring special equipment and maintaining such equipment. (Association of Accountancy Bodies in West Africa (ABWA, 2009)

Royalty payments

- Copyrights and patent payments
- Utilities such as electricity and water
- Rent etc. (Association of Accountancy Bodies in West Africa (ABWA, 2009)

Other Management Accounting Terms

Controllability of cost: This considers the extents to which cost can be influenced by a particular manager lf an organization .These are

1. Controllable Cost: Any cost that can be influenced by a particular manager of an organisation.
2. Uncontrollable Cost: Any cost that cannot be influenced by a particular manager of an organisation.

Normality of Cost: this considers whether a particular cost is expected to be incurred under certain conditions. These are

1. Normal Cost: Any cost incurred under operating conditions that are considered to be normal.
2. Abnormal cost: Any cost incurred under operating conditions that are not considered normal. An example may be cost incurred to repair a faulty product that has been manufactured.

Overheads

Overheads comprise of indirect materials, indirect employee cost and indirect expenses which are not directly identifiable or allocable to a cost object. Overheads may defined as the aggregate of the cost of indirect material, indirect labour and such other expenses including services as cannot conveniently be charged directly to specific cost units. Thus overheads are all expenses other than direct expenses. In general terms, overheads comprise all expenses incurred for or in connection with, the general organization of the whole or part of the undertaking, i.e., the cost of operating supplies and services

used by the undertaking and includes the maintenance of capital assets.(513)

Avoidability of Cost: This considers the extent to which a particular may cease to occur when an activity or department is closed .These are

1. Avoidable Cost: Any specific cost which can be prevented when an activity or department does not exist.
2. Unavoidable Cost: Any specific cost which cannot be prevented when an activity or department does not exist.

Cost Centre: A cost centre is "a location, person, or item of equipment or group of these for which costs may be ascertained and used for the purpose of control". Thus, a cost centre refers to a section of the business to which costs can be charged. It may be a location (a department, a sales area), an item of equipment (a machine, a delivery van), a person (a salesman, a machine operator) or a group of these (two automatic machines operated by one workman). (H. L. Verma, M. C. Garg, M. S. Turan , K. P. Singh, B. S. Bodla)

Cost Unit: It is a quantitative unit of a product or service in respect of which costs may be ascertained for the purposes of control. E.g. meal served, bed occupied, bar of soap, gallon of paint, etc.

Cost driver Any factor whose change "causes" a change in the total cost of a related cost object. (511)

Revenue Centre: A part of a business responsible for the raising of revenue with no responsibility for the cost of doing so.

Profit Centre: A part of the business accountable for both costs and revenues.

Investment centre: A profit centre that is also responsible for investment and whose performance is measured by its return on investment.

Responsibility Centre: A department or function whose performance is a direct responsibility of a particular manager.

Discretionary Cost: this is any cost which arises directly as a result of a particular decision.

Cost Object

Cost object is the technical name for a product or a service, a project, a department or any activity to which a cost relates. Therefore the term cost should always be linked with a cost object to be more meaningful. Establishing a relevant cost object is very crucial for a sound costing system. The Cost object could be defined broadly or narrowly. At a broader level a cost object many be named as a ***Cost Centre***, where as at a lowermost level it may be called as a ***Cost Unit***. (The Institute of Cost Accountants of India, 2014)

Period Cost: any cost incurred within a particular accounting period and is charge as expenditure within that period.

Product Cost: Any cost incurred directly in producing a particular product and is matched with revenue generated from the sale of the product.

Relevant Cost: Any cost affected by a particular decision.

Irrelevant Cost: Any cost not affected by a particular decision.

Sunk Cost: Any cost already incurred and will not be affected by any decision taken e.g. cost of research already undertaken.

***Notional or imputed cost*:** Any cost which does not involve the outflow of cash. E.g. depreciation.

Differential Cost: Any cost that varies between alternative courses of action.

Opportunity Cost: The cost of the benefit forgone in choosing a particular alternative in preference to another.

Conversion Cost: Any cost incurred in transforming raw materials into finished products. That is labour cost and production over heads

Marginal Cost: The additional cost incurred for producing one additional output.

Standard Cost: The pre-determined unit cost of product or service expected to be incurred under normal operating conditions.

Budgeted Cost: The pre-determined total cost of an activity or operation.

Costing methods: These are the costing systems that are used in the ascertainment of cost. They are job costing, batch costing, contract costing, process costing and service costing.

Costing techniques: These are the costing systems that are used in presenting information to management. Examples include marginal costing, absorption costing, standard costing, etc.

Incremental Cost: the additional cost incurred as a result of a particular decision or activity. http://www.virtualkollage.com

Prime Cost The aggregate of Direct Material, Direct Labour and Direct Expenses. Generally it constitutes 50% to 80% of the total cost of the product, as such, as it is primary to the cost of the product and called Prime Cost. (The Institute of Cost Accountants of India, 2014)

Cost pool: is the account head in which costs are accumulated for further assignment to cost objects. http://accounting explained.com

Cost Allocation

Cost allocation (also called cost assignment) is the process of finding cost of different cost objects such as a project, a department, a branch, a customer, etc. It involves identifying the cost object, identifying and accumulating the costs that are incurred and assigning them to the cost object on some reasonable basis.

Cost allocation is important because it the process through which costs incurred in producing a certain product or rendering a certain service is calculated. If costs are not accurately calculated, a business might never know which products are making money and which ones are losing money. If cost are misallocated, a business may be charging wrong price to its customers and/or it might be wasting resources on products that are wrongly categorized as profitable.

Mechanism

Typical cost allocation mechanism involves:

- Identifying the object to which the costs have to be assigned,
- Accumulating the costs in different pools,
- Identifying the most appropriate basis/method for allocating the cost http://accountingexplained.com

What is the major weakness of the traditional method of allocating factory overhead?

Under the traditional method of allocating factory overhead (manufacturing overhead, burden), most of the factory overhead costs are allocated on the basis of just one factor such as machine hours or direct labor hours. In other words, the traditional method implies there is only one driver of the factory overhead and the driver is machine hours (or direct labor hours, or some other indicator of volume produced).

In reality there are many drivers of the factory overhead: machine setups, unique inspections, special handling, special storage, and so on. The more diversity in products and/or in customer demands, the bigger the problem of allocating all the costs of these various activities via only one activity such as the production machine's hours.

Under the traditional method, the costs of performing all of the diverse activities will be contained in one cost pool and will be divided by the number of production machine hours. This results is one average rate that is applied to all products regardless of the number of activities and the complexity of those activities. Since the cost of many of the diverse activities do not correlate at all with the number of production machine hours, the resulting allocations are misleading Activity-based costing is intended to overcome the weakness of the traditional method by having various pools of costs and then allocating each pool's costs on the basis of its root cause. www.accountingcoach.com.

Working of Activity Based Costing

The working of Activity Based Costing is explained below.

Understanding and analyzing manufacturing process:- For installation of any costing system, study of manufacturing process is essential. For Activity Based Costing system also, it is necessary to study the manufacturing process and ascertain various stages involved in the same so that 'activities' involved in the same can be identified.

Study of the Activities involved:- The next step is to study the activities involved in the manufacturing process. This step is very crucial as the entire Activity Based Costing is based on identification of activities. In this step, the activities involved in a process are identified. For example, in a bank, opening of an account is one of the services offered to customers. In this service, activities involved are studied. It may be revealed that opening of a new account involves activities like issuing the application form, verification of the same and accepting the initial amount required for opening of an account. Similarly in case of a manufacturing company, purchase procedure may involve activities like receiving of purchase requisition for concerned department or the stores department, inviting quotations from various suppliers, placing of an order, follow up of the same and finally receiving and inspection of the goods. In case of an educational institute, activities in a library may include activities like issue of books, receipt of books, ordering new books, giving accession numbers, stock taking, removing obsolete and outdated books, identification of slow moving and fast moving items etc. In this manner, whether in manufacturing or in service sector, activities are identified and the next step is to divide the activities into value adding and non value adding. The objective behind this is that attention can be focused on the value adding activities while non value adding activities can be eliminated in the future.

Activity Cost Pool:- Cost pool is defined by CIMA as, 'the point of focus for the costs relating to a particular activity in an activity based costing system.' For example, in case of a library, the cost of issue and receipts, cost of ordering, stock taking costs etc. can be identified with 'Library Cost'. In other words, 'Library' will the cost pool in which all the costs mentioned above may be clubbed. In case of a manufacturing organization, as regards to stores, cost of classification, cost of issue of stores requisitions, inspection costs etc. can be pooled under the heading 'stores'. Thus cost pool concept is similar to the concept of cost center. The cost pool is the point of focus or in other words, it is the total cost assigned to an activity. It is the sum of all the cost elements assigned to an activity.

Cost Drivers:- According to CIMA, 'cost driver is any factor which causes a change in the cost of an activity, e.g. the quality of parts received by an activity is a determining factor in the work required by that activity and therefore affects the resources required. An activity may have multiple cost drivers associated with it.' In other words, cost driver means the factors which determine the cost of an activity. For example, if we repeat the example of library, the number of receipts and issue of books will be cost drivers, in a stores, no. of stores requisitions will be cost drivers, in customer order processing the no. of customers as well as no. of orders will be cost drivers. Thus a cost driver is an activity which generates cost. Activity Based Costing is based on the belief that activities cause costs and therefore a link should be established between activities and product. The cost drivers thus are the link between the activities and the cost.

Identification of costs with the products:- The final stage in Activity Based Costing is to identify the cost with the final products which can also be called as cost objects. Cost objects include, products, services, customers, projects and contracts. As mentioned earlier, direct costs can be identified easily with the products but the indirect costs can be linked with the products by identifying activities and cost drivers. Thus Activity Based Costing is the process of tracing costs first from resources to activities and then from activities to specific products.

CONCLUSION

It can be concluded that the Activity Based Costing is a costing system which tries to charge the indirect costs to the products and services fairly accurately. However for effective implementation there is a need of involvement of the staff and their training on continuous basis.

Similarly there is a need to review the working of the system at periodic intervals and keep a follow up of the feedback received. These actions will ensure effective implementation of the system. Support of top management is also required for effective implementation of this system. Activity Based

Costing system is definitely a better system but much depends on the implementation of the same. (The Institute of Cost Accountants of India, 2008)

Activity-Based Budgeting - ABB

What is an 'Activity-Based Budgeting - ABB'

Activity Based Budgeting (ABB) is a method of budgeting designed to provide greater transparency into the budget process. In its most basic form, ABB is a method of budgeting in which revenues generated from instructional and research activities are allocated directly to the unit responsible for the activity. ABB 'empowers' greater local planning and accountability and creates incentives for units to more efficiently manage resources and expenditures. Further, direct control of resources generated from activities creates incentives to set priorities and develop new activities consistent with the overall mission and strategic goals of the institution. http://opb.washington.edu

BREAKING DOWN 'Activity-Based Budgeting - ABB'

Activity-based budgets are more likely to be utilized by newer companies without historical budgeting information on which to rely. In addition, activity-based budgets are more useful for companies undergoing material changes, such as those with new subsidiaries, major customers, business locations or products. Because traditional budgeting processes simply adjust previous year budgeted amounts, established firms with minimal change are more likely to use traditional growth budgeting approaches. A flat rate is typically applied to previous year data to reflect business growth and inflation. http://www.investopedia.com

Example of Activity-Based Budgeting

A company anticipates receiving 50,000 sales order in the upcoming year. The cost to process a single order is $2. Therefore, the activity-based budget for the expenses relating to processing sales orders for the upcoming year is $100,000 ($50,000 * $2). This figure may be contrasted to a traditional approach to budgeting. If last year's budget called for $80,000 of sales order processing expenses and sales were expected to grow 10%, only $88,000 ($80,000 + ($80,000 * 10%)) is budgeted. http://www.investopedia.com

Benefits of Activity Based Budgeting

Like activity-based costing, activity-based budgeting draws attention to overhead activities and their associated costs. It emphasises that activity costs may be controllable if activity volume is controlled. Where traditional budgeting tends to focus on input costs, ABB takes an outputs-based approach, recognising that activities drive costs. ABB views the business as a collection of activities, a perspective that links well with organisational strategy. http://www.cgma.org

Disadvantages of Activity-Based Budgeting

Activity-based budgeting is more costly when compared to traditional budgeting techniques. It requires more information and more time from management in order to be developed. Activity-based budgets require more assumptions and insight from management that result in potentially greater opportunities for budgeting inaccuracies. Finally, the ongoing maintenance and analysis of budget variances require more resources than other budgeting techniques. http://www.investopedia.com

Advantages of Activity Based Costing

Improve overall process

During the process of implementing an activity based costing method in a business, all of the processes that are used are looked at in depth. After a short period of time, a bigger picture begins to emerge of which processes are working well and which are not. thenextgalaxy.com

Waste Is Identified

Overhead costs often include quite a few wasteful products. All of these can be identified very simply with an ABC method of cost analysis, and then removed from the business all together, or at least managed more effectively. thenextgalaxy.com

Pricing is better organised

With ABC businesses are able to fully identify all the costs that are associated with producing a single unit of their product. Because of this new understanding, they are able to develop pricing strategies and marketing much more efficiently. thenextgalaxy.com

Can Be Applied To the Entire Business

It may seem that activity based costing is only effective and efficient for the production costs that are involved in a business, but all overhead costs can be reduced using this method. Everything from management, CEO's, and entry level employees. thenextgalaxy.com

Cost Management: ABC provides cost driver rates and information on transaction volumes which are very useful to management for cost management and performance appraisal of responsibility centres. Cost driver rates can be used advantageously for the design of new products or existing products as they indicate overhead costs that are likely to be applied in costing the product. http://www.yourarticle library.com

Benefit to Service Industry

Service organizations, such as banks, hospitals and government departments, have very different characteristics than manufacturing firms. Service organizations have almost no direct costs, most of the costs are overheads and they do not hold stocks of service as the service is consumed when it is produced. Traditional costing has generally been considered inappropriate for these organizations, whereas ABC offers the potential of benefits from improved decision making and cost management.

An ABC system can provide better costing information and help management manage efficiently and gain a better understanding of the firm's competitive advantages, strengths and weaknesses. Often, managers recognize needs for a better costing system such as ABC when they are experiencing increased lost sales due to erroneous pricing that resulted from inaccurate costing data.

An ABC system has the most impact on firms that have areas with large, increasing expenses or have numerous products, services, customers, processes, or a combination of these.

Example are plants that produce standard and custom products, high-volume and low-volume products, or mature and new products. http://www.yourarticlelibrary.com

Overhead Application Flexibility

An important advantage of activity-based costing is that overhead rates are calculated based on each activity pool, not just using the entire factory. This allows for overhead rates to be determined with more precision and overhead application to occur based on specific actions. For example, under the traditional costing system, a small business might determine that, in general, overhead is related to direct labor hours and use direct labor hours to calculate the company's overhead rate. However, in an activity-based costing system, the company is able to precisely specify that in the customer service cost pool, overhead is incurred each time a customer calls into the call center, and use this more precise measure as the overhead driver. http://yourbusiness.azcentral.com

Disadvantages of using the activity based costing system

1. ABC Costing System is very costly to implement and maintain
2. ABC costing systems produces the reports that are different from the profit and loss reports produced through traditional costing systems.
3. As most of the companies are using traditional costing systems, so because of the difference in the costing basis the costing and financial reports of the two companies of the same industry could not be compared
4. Adaptability of ABC Costing System is not suitable for all kind of companies because small companies have not many resources to adapt it and have too many activities but size of transactions is too low.
5. Data Produced through ABC Costing System can easily misinterpret and can lead towards wrong decisions
6. ABC costing system does not comply with the GAAP and a company has to produce its reports for internal and external purposes by using traditional and ABC costing system both at a time.
7. ABC costing system costs are allocated on the base of cost drivers and activities undertaken to manufacture the product, definitely, it provides the accurate and proper allocation of the costs to the products but there is a danger of over or under costing of the products when irrelevant cost drivers or activities are assigned to the products www.bayt.com

Activity based costing in service sector

At its core, activity-based costing (ABC) is about cost management. This is reducing and controlling costs while still creating a quality product. ABC allows managers to identify how various cost objects are using resources differently and to highlight areas for continuous improvement. The literature on ABC focuses mainly on its use in manufacturing settings because it has been so successful in that area.

The Cost Hierarchy

Cooper (1996) defined cost behavior as falling into four levels:
A unit-level activity is performed each time a unit is produced.
A batch-level activity is performed each time a whole batch is produced.
Product-sustaining activities allow products to be produced.
Facility-sustaining activities allow the production process to occur.

Different services may consume very different amounts of a resource in a service firm. The levels of competition and regulation in a service environment influences the costing system. More competitive markets require more sophisticated systems that better match costs to different cost objects. ABC is such a sophisticated system.

Service firms are becoming more interested in costing accurately in order to make long- term strategic decisions as well as day-to-day operating decisions. Accurate costs are necessary to make product pricing, staffing, and resource allocation decisions. Service customers all require different amounts of resources. Accurate costs, along with the quantity and patterns of resource consumption, let managers know the proper price to charge for services. But ABC is hard to implement in service firms since employees often work on many projects in a day and for different amounts of time. This makes it hard to trace the resources used by cost objects. http://maaw.info

Service Industry

Juanita is a hospital administrator. She's in charge of the business side of the hospital, and is tasked with making sure that the hospital is able to remain open. They can't do that if they are losing money, so much of her job is ensuring that the hospital continues to make money.

A service industry is a business industry that provides a service instead of a product. Hospitals, banks, insurance companies, and salons are just a few examples of service businesses.

Juanita's hospital is in a service industry, and she wants to know how the accounting system the hospital uses can help her make sure that the hospital is profitable. To help her out, let's look at activity-based costing and how it can be applied to service industries. http://study.com

Applying ABC to Service Businesses

Service companies have had problems coming up with decent cost accounting systems because they have been modeling them after systems found in manufacturing firms. The problems with this are that manufacturing firms place emphasis on valuing inventory, which service firms do not have, and use standard costs calculated for direct materials and labor. Direct materials and direct labor are not major cost categories in service firms and it is hard to calculate standard costs in a service setting. Nonetheless, service firms do need to know accurate costs for product profitability analysis. They need to find out:

Which products are profitable.
Which products should be emphasized.
Trends in product profitability over time.
Product costs as a basis for setting prices.

This means that costing in the service sector needs to be forward-looking, and ABC is a tool for such analysis. There are several service industries where ABC has started to emerge, and will continue to prove useful.

Financial Services

As the regulation ended in the banking industry, costing became more important as banks competed with one another. Banking costs are not driven by the volume of customers, but rather the number of transactions processed. Traditional volume based costing is obviously inappropriate in this case. Banks are moving to the concept where the user pays for the cost of the services they use, so that all users do not share the bill evenly. To do so they must have an accurate reflection of the cost of services.

Sharma (1992) described step-by-step how banks should implement ABC:

Split the bank into profit centers.

- Prepare a list of products associated with each profit center and a list of product related and non-product related activities.
- Divide non-product related activities into activities with unit-specific significance and activities with organization-wide significance.
- The former activities are spread across all products produced by the unit. The latter category should include as few things as possible.

Healthcare

Healthcare providers used to be able to increase their prices or service to increase revenues and profitability. Today Medicare or managed care firms essentially set revenues with their prospective payment system (PPS). All healthcare providers can do to improve profitability is make good decisions with accurate cost information. PPS improved the sophistication of cost accounting systems in healthcare

In a survey of hospital administrators about what information they needed to manage effectively, they said:

The cost of an episode of care.
Accurate allocation of administrative costs to products.
A comparison of costs and their causes over time.
Information regarding the cost of various activities.

All of this information is available from an ABC system. There are examples of hospitals successfully implementing ABC systems in the article.

Young and Pearlman (1993) believed that hospital's cost accounting systems evolve in a four-step process:

The hospital improves the overall cost accounting systems. The system separates variable and fixed costs.

The system identifies factors that drive costs, the ways these factors can be controlled, and redefines departments as profit or cost centers.

The accounting system supports the reconfiguration of administrative systems that cut across traditional functional lines.
Another viewpoint on hospital cost accounting systems is provided by Ramsey (1994). He believes that it should serve three purposes:

It should promote cost efficiency without sacrificing product and service quality.

It should allow the organization to maximize its resources through product and service line management. It should highlight areas for continual improvement.

Insurance

This industry is also making the move toward better management of costs due to increased competition. Here workers may spend a long time working on one task and the time on each task varies greatly depending on the case. The discussion in this section is mainly about ABC concepts and hospital malpractice insurance. A study found that a variety of factors drove malpractice costs and that the risk of malpractice was also tied to geographical locations. With these facts a malpractice insurance cost per medical procedure was calculated and divided by the number of that type of procedure for accurate costing. http://maaw.info

Study of traditional cost methods

Full-Cost Method: An accounting system used by companies that incur exploration costs for oil and natural gas that does not differentiate between operating expenses associated with successful and unsuccessful exploration projects. http://www.investopedia.com

Partial cost method*:* In the partial cost calculation method the total cost is established with a calculation method, in relation to which the Direct Costing method is known best. When this method is applied, only the direct costs are charged to cost bearers. ... Only the variable (not direct) costs are accounted on the product. www.google.co.in

Standard Cost Method: Standard costing is the practice of substituting an expected cost for an actual cost in the accounting records, and then periodically recording variances showing the difference between the expected and actual costs. This approach represents a simplified alternative to cost layering systems, such as the FIFO and LIFO methods, where large amounts of historical cost information must be maintained for items held in stock. http://www.accountingtools.com

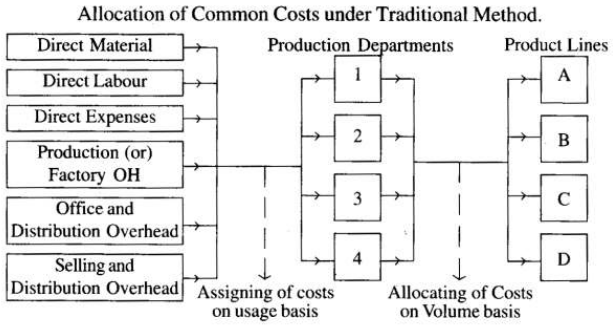
Limitations or Weaknesses of Traditional Cost Accounting System

Providing inaccurate costing information leads to taking of wrong decisions by the top management if used for control purposes or for fixing selling prices or sending quotations. Moreover, the allocation of indirect costs do not truly reflect the resources consumed by the end products. In this way, weaknesses of traditional cost accounting system are briefly explained below.

1. Overhead recovery rates such as machine hour rate, labor hour rate etc. are used for absorption of indirect costs i.e. overhead. These are highly suitable for the valuation of closing stock and reporting the same to the top management as accounting information. But, this is not useful for taking decisions since the decisions have implications over 3 to 5 years. Moreover, some fixed costs are variable in the long run.
2. The splitting of cost into fixed and variable is often unrealistic. The reason is that the splitting of cost gives inaccurate costs of products if business grows.

3. Some companies are manufacturing and selling more than single product. In such a case, these companies are forced to take decision on pricing, product mix, advertisement, sales promotion campaign, process technology etc. based on the approximate cost information. This is due to difficulty in collection, classification, allocation and recovery of overheads to individual products accurately.
4. In the modern technology developed business world, most of the labor work is done through automation i.e. mechanization of manual work. If so, automatically the direct costs are reduced and indirect costs are increased. In this way, cost structure of a product is changed if automation is taking place in any products.
5. The indirect costs are allocated and reallocated at product level only after manufacturing of a product. At work in progress stage, the allocation of indirect costs is made in an arbitrary manner. Under new manufacturing technology, there is a need of the degree of completion of work with accurate indirect costs incurred. This is not possible under traditional cost accounting system.

In order to overcome these weakness and short term bias of marginal costing, Activity Based Costing (ABC) has been emerged. http://accountlearning.com



http://accountlearning.com

Image: Allocation of Common Costs under Traditional Method

Costing Systems :- There are different costing systems used in practice. These are described below.

Historical Costing :- In this system, costs are ascertained only after they are incurred and that is why it is called as historical costing system. For example, costs incurred in the month of April, 2007 may be ascertained and collected in the month of May. Such type of costing system is extremely useful for conducting post-mortem examination of costs, i.e. analysis of the costs incurred in the past. Historical costing system may not be useful from cost control point of view but it certainly indicates a trend in the behaviour of costs and is useful for estimation of costs in future.

Absorption Costing :- In this type of costing system, costs are absorbed in the product units irrespective of their nature. In other words, all fi xed and variable costs are absorbed in the products. It is based on the principle that costs should be charged or absorbed to whatever is being costed , whether it is a cost unit, cost center.

Marginal Costing :- In Marginal Costing, only variable costs are charged to the products and fixed costs are written off to the Costing Profit and Loss A/c. The principle followed in this case is that since fixed costs are largely period costs, they should not enter into the production units. Naturally, the fixed costs will not enter into the inventories and they will be valued at marginal costs only.

Uniform Costing:- This is not a distinct method of costing but is the adoption of identical costing principles and procedures by several units of the same industry or by several undertakings by mutual agreement. Uniform costing facilitates valid comparisons between organizations and helps in eliminating inefficiencies. (The Institute of Cost Accountants of India,2008)

Cost centre-According to Chartered Institute of Management Accountants, London, cost centre means "a location, person or item of equipment (or group of these) for which costs may be ascertained and used for the purpose of cost control". Cost centre is the smallest organizational subunit for which separate cost collection is attempted. Thus cost centre refers to one of the convenient unit into which the whole factory organization has been appropriately divided for costing purposes.

Each such unit consists of a department or a sub-department or item of equipment or, machinery or a person or a group of persons. For example, although an assembly department may be supervised by one foreman, it may contain several assembly lines. Some times each assembly line is regarded as a separate cost centre with its own assistant foreman. The selection of suitable cost centres or cost units for which costs are to be ascertained in an undertaking depends upon a number of factors which are listed as follows.

1. Organization of the factory
2. Conditions of incidence of cost
3. Requirements of the costing system ie. Suitability of the units or centres for cost purposes.
4. Availability of information
5. Management policy regarding making a particular choice from several alternatives.

Profit centre-A profit centre is that segment of activity of a business which is responsible for both revenue and expenses and discloses the profit of a particular segment of activity. Profit centres are created to delegate responsibility to individuals and measure their performance.

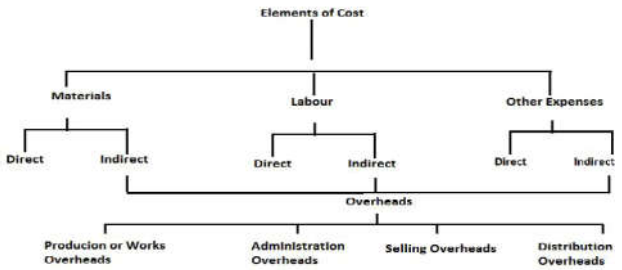
Difference between Profit centre and Cost centre

The various points of difference between Profit centre and cost centre are as follows. Cost centre is the smallest unit of activity or area of responsibility for which costs are collected whereas a profit centre is that segment of activity of a business which is responsible for both revenue and expenses.

1. Cost centres are created for accounting conveniences of costs and their control whereas as a profit centre is created because of decentralization of operations i.e., to delegate responsibility to individuals who have greater knowledge of local conditions etc.
2. Cost centers are not autonomous whereas profit centres are autonomous.
3. A cost centre does not have target cost but efforts are made to minimize costs, but each profit centre has a profit target and enjoys authority to adopt such policies as are necessary to achieve its targets.

4. There may be a number of cost centres in a profit centre in a profit centre as production or service cost centres or personal or impersonal but a profit centre may be a subsidiary company within a group or division in a company.(Sri. Vinesh Ottuparammal, Smt. T. Shameera Kunhu. T, Sri.T.H. Jahfarali)

Elements of Cost- The management of an organization needs necessary data to analyze and classify costs for proper control and for taking decisions for future course of action. Hence the total cost is analyzed by elements of costs ie by the nature of expenses. The elements of costs are three and they are materials, labour and other expenses. These can be further analyzed as follows.



By grouping the above elements of cost, the following divisions of cost are obtained.

1. Prime cost = Direct Materials + Direct Labour+ Direct Expenses
2. Works or Factory Cost = Prime Cost + Works or Factory Overheads
3. Cost of Production = Works Cost + Administration Overheads
4. Total Cost or Cost of Sales = Cost of Production + Selling and Distribution Overheads

The difference between the cost of sales and selling price represents profit or loss.(Sri. Vinesh Ottuparammal, Smt. T. Shameera Kunhu. T, Sri.T.H. Jahfarali)

Role of Cost Accountant In Decision Making

The outlook of modern business is such that all enterprises-whether large or small, manufacturing or nonmanufacturing, public or private, profit or nonprofit-require a wide variety of cost data in making day-to-day operating decisions. Thus, for the modern cost accountant, the positive emphasis on analysis and interpretation) requires involvement in the dynamic phase of business-the current period and the future. The dynamic phase is concerned primarily with planning (i.e., selecting objectives and the means for their attainment) and controlling (i.e., achieving conformity to established plans). Cost Accountants collect, assimilate, collate and analyse all financial information related to an organization. Their main role is to ensure that managerial decisions are within cost prescriptions. They need to give a prediction about financial performance of any project. For this cost accountant considers many factors such as the cost of raw material, labour, transport and overheads, among others. He will be responsible for planning and executing effective management information and control systems, inventory control incorporating mathematical models, investment analysis, project management, internal audit, cost audit etc.

Cost Accountant plays one of the most important roles in the organization

Cost accountant analyst performs one of the most important roles in the entire organization. It is really imperative that the companies pay a great emphasis on the job of an accountant analyst. Cost accountancy deals with the preparation of the various reports for the knowledge of the internal stakeholder.

All the decisions that are taken by the company management regarding the future of the company are based on the financial reports that are prepared by the cost accountants.

Cost Accountant performs action as under:

1. To analyze material, labour and the overhead expenses
2. To reconcile daily productions with accounting transactions
3. To coordinate with R&D for production of new items
4. To Assist the controller in developing cost improvement opportunities
5. To prepare the new product costing as well as do the gross profit analysis for the marketing in order to determine the feasibility and profitability before presenting the samples and pricing to the customers.(The Institute of Company Secretaries of India,2014)

Methods of Costing

The general fundamental principles of ascertaining costs are the same in every system of cost accounting, but the methods of analysis and presenting the costs vary from industry to industry. Different methods are used because business enterprises vary in their nature and in the type of products or services they produce or render.

Job Costing

It refers to a system of costing in which costs are ascertained in terms of specific jobs or orders which are not comparable with each other. Industries where this method of costing is generally applied are printing press, automobile garage, repair shop, ship-building, house building, engine and machine construction, etc.

Contract Costing

Although contract costing does not differ in principle from job costing, it is convenient to treat contract cost accounts separately. The term is usually applied to the costing method adopted where large scale contracts at different sites are carried out, as in the case of building construction.

Batch Costing

This method is also a type of job costing. A batch of similar products is regarded as one job and the cost of this complete batch is ascertained. It is then used to determine the unit cost of the articles produced. It should, however, be noted that the articles produced should not lose their identity in manufacturing operations.

Terminal Costing

This method is also a type of job costing. This method emphasises the essential nature of job costing, i.e. the cost can be properly terminated at some point and related to a particular job.

Operation Costing

This method is adopted when it is desired to ascertain the cost of carrying out an operation in a department, for example, welding. For large undertakings, it is frequently necessary to ascertain the cost of various operations.

Process Costing

Where a product passes through distinct stages or processes, the output of one process being the input of the subsequent process, it is frequently desired to ascertain the cost of each stage or process of production. This is known as process costing. This method is used where it is difficult to trade the item of prime cost to a particular order because its identity is lost in volume of continuous production. Process costing is generally adopted in textile industries, chemical industries, oil refineries, soap manufacturing, paper manufacturing, tanneries, etc.

Unit or Single or Output or Single-output Costing

This method is used where a single article is produced or service is rendered by continuous manufacturing activity. The cost of whole production-cycle is ascertained as a process or series of processes and the cost per unit is arrived at by dividing the total cost by the number of units produced. The unit of costing is chosen according to the nature of the product. Cost statements or cost sheets are prepared under which various items of expenses are classified and the total expenditure is divided by total quantity produced in order to arrive at unit cost of production. This method is suitable in industries like brick-making, collieries, flour mills, cement manufacturing, etc. This method is useful for the assembly department in a factory producing a mechanical article e.g., bicycle.

Operating Costing

This method is applicable where services are rendered rather than goods produced. The procedure is same as in the case of single output costing. The total expenses of the operation are divided by the units and cost per unit of service is arrived at. This method is employed in railways, road transport, water supply undertakings, telephone services, electricity companies, hospital services, municipal services, etc.

Multiple or Composite Costing

Some products are so complex that no single system of costing is applicable. It is used where there are a variety of components separately produced and subsequently assembled in a complex production. Total cost is ascertained by computing component costs which are collected by job or process costing and then aggregating the costs through use of the single or output costing system. This method is applicable to manufacturing concerns producing motor cars, aeroplanes, machine tools, type-writers, radios, cycles, sewing machines, etc.

Departmental Costing

When costs are ascertained department by department, the method is called "Departmental Costing". Usually, for ascertaining the cost of various goods or services produced by the department, the total costs will have to be analysed, say, by the use of job costing or unit costing.(The Institute of Company Secretaries of India,2014)

Techniques of Costing

The following techniques of costing are used by the management for controlling costs and making managerial decisions:

Historical (or Conventional) Costing

It refers to the determination of costs after they have been actually incurred. It means that cost of a product can be calculated only after its production. This system is useful only for determining costs, but not useful for exercising any control over costs. It can serve as a guidance for future production only when conditions continue to be the same in future.

Standard Costing

It refers to the preparation of standard costs and applying them to measure the variations from standard costs and analysing the variations with a view to maintain maximum efficiency in production. What is done in this case is that costs of each article are determined before-hand under current and anticipated conditions, but sometimes they are determined before-hand under normal or ideal conditions. Then actual costs are compared with the pre-determined costs and deviations known as variances are noted down. Thereafter, the reasons for the variances are ascertained and necessary steps are taken to prevent their recurrence.

Marginal Costing

It refers to the ascertainment of marginal costs by differentiating between fixed costs and variable costs and the effect on profit of the changes in volume or type of output. In this case, only the variable costs are charged to products or operations while fixed costs are charged to profit and loss account of the period in which they arise.

Uniform Costing

A technique where standardized principles and methods of cost accounting are employed by a number of different companies and firms, is termed as uniform costing. This helps in comparing performance of one firm with that of another.

Direct Costing

The practice of charging all direct costs to operations, process or products leaving all indirect costs to be written off against profits in the period in which they arise, is termed as direct costing.

Absorption Costing

The practice of charging all costs both variable and fixed to operation, process or products or process is termed as absorption costing.(cost accounting 5)

Installation of A Costing System

A cost accounting system is a system that accumulates costs, assigns them to cost objectives and reports cost information. It ascertains product profitability and helps management in planning and control of business operations. A system has to be designed to suit the needs of an organisation. Costing can be employed in any industry whether it is manufacturing industry or other industries like public utility, public services, construction companies, agriculture, mining etc. As a system designer, the cost accountant should be able to perceive the

needs of the management at various levels and design such a system as will meet those needs promptly, effectively and efficiently. The "needs" are concerned with the following:

The objective: The system will naturally differ according to what is expected from the costing system. The system will be simple if the objective is merely to fix prices; it will have to provide detailed information if the aim is to measure efficiency, control, etc. If the law requires installation of the costing system, the legal requirements must obviously be kept in mind.

Decision-Making Points: The levels of management which require information will determine the quantum and format of information that the costing system will have to provide. The periodicity of the various reports will be similarly determined.

Significant Operations: Costing must obviously pay greater attention to those areas which account for the bulk of expenditure. Mostly, it is production but, in quite a few cases, selling and distribution, accounts for greater expenditure than production; in such a case the system must devote greater care to selling and distribution.

Uncontrollable Items: Sometimes the law provides for a certain course of action; for example sugar must be packed in new gunny bags. Costing must not try to change this. Sometimes managements may decide to adopt a particular course for various reasons, for example, purchasing an item only from a particular firm. Obviously, it will be no use trying to alter this.

To install a sound costing system in an organisation is not an easy task. The costing for each firm must be so designed as to meet its earlier needs. It should be ensured first that the following pre-requisites for installing a sound costing system are present in the organisation:

1. The organisational set up should be clear cut regarding authority and responsibility of different individuals.
2. The management of the organisation should extend full support to the system.
3. The co-operation of the members of the staff and of the workers in general should be ensured. They should have the real spirit and enthusiasm to operate the system.
4. If financial records can yield all the necessary costing information, it is not necessary to have a separate costing department. Usually, however, a separate costing department is essential or desirable but its strength will depend upon the needs of the management and the volume and complexity of transactions or events to be recorded and handled.

The following are the essential considerations which would govern the installation of a sound costing in an organisation in general:

Executive Side: The memorandum and articles, organisation chart, delegation of powers etc.

Accounting Side: Financial accounting records, last audited accounts etc.

Internal Control Side: The existing forms, registers, number of copies etc.

Technical side and Others

1. The size, layout and organisation of the factory should be studied.
2. The methods of purchase, receipt, storage and issue of materials should be examined and modified if necessary.
3. The method of paying wages should be studied.
4. The management requirements and their attitude towards cost accounting should be kept in view.
5. The cost of installing and operating the system should be economical.
6. The nature, method, process and stages of production, the quantities and qualities of each product should be examined.
7. The system should suit the organisation.
8. Forms and records should involve minimum clerical work and cost.
9. The system should enable prompt reporting to the various levels of management.
10. The system should so designed that cost can be effectively controlled.
11. The staff in the cost accounting department should have the ability to produce required cost data.
12. The persons using the reports should be able to understand and use the information.
13. The adoption of cost accounting systems and practices followed by other firms in the industry facilitates inter unit and inter-firm comparisons.
14. A suitable unit of cost should be selected so that the cost is meaningful. For example, in a steel mill, the unit is "tonne" and in a company producing refrigerators, the unit is each refrigerator. In a transport company, the unit is "tonne-km" i.e., the effort in hauling one tonne of goods for one kilometre.
15. External factors e.g. government regulations affect the frequency, volume and structure of the cost accounting system.

Any proposed changes should suit other departments and should dislocate production schedule. Other points to be noted are

1. ***Accuracy:*** Cost accounts must be accurate and correct otherwise they will prove to be misleading.
2. ***Equity:*** Allocation of indirect expenses to a particular class of output, department or job should be fair and equitable.
3. ***Simplicity:*** As cost accountants are highly analytical, there is a tendency towards complexity. Needless, elaboration should be scrupulously avoided and care must be taken to keep them as simple as possible. Careful choice should be made of the cost unit i.e. the quantity for which cost will be computed e.g. a tonne of steel, a kg. of yarn etc.
4. ***Elasticity:*** The cost accounting system should be elastic and capable of adapting itself to altered circumstances.
5. ***Comparability:*** The records must be maintained in such a manner that the result of one period can be compared with the results of any other period. The records of the past must act as a guide for the future.
6. ***Promptness:*** Prompt recording of the relevant figures in analytical form is the sine qua non of costing. Arrangements should be made for the prompt supply of

records by the various departments relating to raw material, stores, labour etc., and the data thus obtained, are promptly analysed and recorded.

7. ***Observance of instructions:*** The costing staff must carefully obey the instructions given to them and even slight deviations must be permitted.
8. ***Periodical results:*** In order to derive maximum benefit, it is advisable to have the results prepared periodically so that actual cost can be compared with estimated costs.
9. ***Reconciliation with financial accounts:*** The whole system should be so maintained as to make reconciliation with financial accounts easy and simple.(cost accounting 5)

Practical Difficulties in Installing A Costing System

Lack of support from top management: Many a times, the cost accounting system is introduced without the support of the top management in all the functional areas. Even managing director or chairman often introduces such system without consulting the departmental heads. This results in opposition from the various managers as they consider it is an interference on their activities.

Resistance from the existing staff: The existing financial accounting staff may offer resistance to the cost accounting system because of a feeling of their being declared redundant under the new system.

Non-cooperation at other levels of organisation: The foreman, supervisors and other staff may also resent the additional paper work and may not co-operate in providing the basic data which is absolutely essential for the success of the system.

Shortage of trained staff: There may be shortage of cost accountants to handle the work of cost analysis, cost control and cost reduction. The work of the costing department can not be handled with the availability of trained staff.

Heavy costs: The costing system will involve heavy costs unless it has been suitably designed to suit specific requirements.

To overcome this difficulties the following points are suggested:

1. Before the installation of a costing system, there must be firm commitment to the system on the part of the top management.
2. The existing accounting staff should be impressed about the need to supplement the existing financial accounting system.
3. The employees should be properly educated regarding the benefits which can be obtained from such a system.
4. The existing staff working in the accounts department must be properly trained in costing methods and techniques.
5. The costing system should be installed and operated according to the requirements of a specific case, so that it may not entail heavy cost to the organisation.
6. There should be proper supervision after installation and continuous efforts on the part of the cost accountant to make the system successful and to achieve the desired objectives.(cost accounting 5)

Reference

Institute of cost and works accountants of india, icwai for j.a.o. Controller general of accounts, basics of cost accounting

Cost Accounting and Financial Management, the Institute of Cost Accountants of India.

Ermela, B. (2014) Designing an Activity-Based Costing System for A Specialty Retail Store, University of Oulu.

Cooper and Robert S. Kaplan. Profit Priorities from Activity-Based Costing.

Rong-Ruey Duh, Thomas W. Lin, Wen-Ying Wang, Chao-Hsin Huang. (2009) the design and implementation of activity-basedcosting,-www.emeraldinsight.com/1834-7649.htm.

S aveta T udorache. Activity based costing (ABC Method) University Lecturer Anca Bratu.

Cost & Managerial Accounting, Bachelor of Business Administration, (B.B.A.), BBA-304, Directorate of Distance Education Guru Jambheshwar University HISAR-125001.

LTC Steve Hanson, Cost Concepts for Accounting Analysis, *Director of Training U.S. Army Financial Management School.*

Lorena Siguenza-G, Alexandra Van den A. Joos V. Henri V. Dirk C. Recent Evolutions In Costing Systems: A Literature Review of Time-Driven Activity-Based Costing.

Boris, P. Specifics of the Activity-Based Costing applications in Hospital Management, *International Journal of Collaborative Research on Internal Medicine & Public Health, Tomas Bata University in Zlin, Czech Republic,* Email: popesko@fame.utb.cz.

Narcyz, R. Activity-Based Costing for E-Commerce, State University of New York at New Paltz ,School of Business, 75 South Manheim Boulevard, New Paltz, NY 12561, 845-257-2930 (phone)/845-257-2947 (fax) roztockn@ newpaltz.edu.

Chapter 5: Activity-Based Costing (ABC) & Activity-Based Management (ABM), H 13 Horngren 13e.

Stephanie, E and Technical Information Service (2006) Activity Based Costing, Topic Gateway Series No. 1, Great Britain, The Chartered Institute of Management Accountants 26 Chapter Street London SW1P 4NP United Kingdom.

Panagiotis, D. Activity based costing in sport organisation: theoretical background and future prospects, Department of Sport Management, University of Peloponnese, SMIJ-VOL. 3, Number 2, 2007, Χορηγια - Choregia

A Guide to Activity Based Costing, the Crown Prosecution Service, ABC Team October 2014.

Yakup Z. (2010). Activity-Based Costing Analysis in A Firm, Dokuz Eylul University Graduate School of Natural And Applied Sciences.

Cost Allocation and Activity-Based Costing Systems, Chapter 5 Cost Allocation and Activity-Based Costing Systems.

Shaban E. A. S. Shabana ,M.(2014) The Benefits of the Application of Activity Based Cost System - Field Study on Manufacturing Companies Operating In Allahabad City -India, IOSR Journal of Business and Management (IOSR-JBM), e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 16, Issue 11.Ver. I (Nov. 2014), PP 39-45 www.iosr journals.org

Sara Morello, D. Activity Based Costing System (ABC) Implementation in A Supermarket, University Jamue.

Thyssen, Jesper; Israelsen, Poul; Jørgensen, Brian,(2004) Activity Based Costing as a Method for Assessing the Economics of Modularization - a Case Study and Beyond, Center for Industriel Produktion, Aalborg Universitet. General (1995) Activity-based costing (ABC): the next generation, Bulletplint, Tel: 01737 247357 Fax: 01737 226651. www.accountingcoach.com

Trupti, M. Managerial Economics lecture NO-20: theory of cost, shailesh j.mehta school of management, IIT Bombay.

Cost concepts, chapter two, learning centre www.mcgra whill.ca/olc/brewer.

www.google.co.in

Basic Cost Concepts, Module-6B, *Elementary Cost Accounting.*

Cost Accounting And Financial, (2014) Intermediate, Study Notes, The Institute of Cost Accountants of India, CMA Bhawan, 12, Sudder Street, Kolkata - 700 016.

Cost Concepts and Behavior

Joseph T. Kelley (2002) Core Cost Concepts, Chapter V, Draft (http://www.accountingtools.com)

Hill, R. (2001) Cost Terms, Concepts, and Classifications. http://www.virtualkollage.com

S. Roychowdhury (2004) Introduction to Cost Accounting, Sloan School of Management, Massachusetts Institute of Technology, 15.501/516

How to cite this article:

Waleed Khalid Shihab and Sivaram Prasad R.2017, Activity Based Costing System. *Int J Recent Sci Res.* 8(7), pp. 18288-18306. DOI: http://dx.doi.org/10.24327/ijrsr.2017.0807.0484

****