WILL APPLICATION OF ACTIVITY BASED COST MANAGEMENT BE BEST OPTION FOR EDUCATIONAL INSTITUTES?

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Abstract: Higher Education Sector not only in India but also worldwide is facing challenges for managing their shrinking revenues, rising costs for salaries, maintenance of campuses, fixing various types of fees, cost of conducting various programs, seminars, publications and managing other value added services. In the current environment survival and to succeed needs the change in perception, attitude and approach towards dynamic changes that are happening around and organization’s preparedness and to develop core competency. The Chief Executives of these organizations must act and take quality decisions efficiently, accurately in respect of their products and services in a sustainable manner. Therefore, not only Educational Institutes but also other organizations need to manage their costs and revenues while maintaining quality in services, timeliness and efficiency of their activities. They need good costing system.

Traditional cost accounting system allocates indirect overhead costs arbitrarily to products/services resulting in distorted cost picture. Hence it is difficult to answer the question which product or activity is profitable and which is not? Activity Based Costing (ABC) resolves this problem by tracing overheads and converting them to direct costs through cost drivers.

Combining ABC and ERP system will be effective and successful as ERP makes it possible to define the concept of work centre more widely. This makes it possible to treat indirect resources in the same way as direct resources thereby yielding more accurate product/service costs. This will improve the cost information of the organization/institute, which in turn will enable the organizations to compete with others while maintaining the quality of the services in timely and efficient manner.
Keywords: Activity Based Costing, Management Institute Costing, Batch Costing, Absorption Costing, Cost drivers.

Introduction

The Higher Education Sector worldwide has witnessed a tremendous increase in its institutional capacity. India too witnessed tremendous increase in its institutional capacity since Independence. The number of Universities/University-level institutions has increased 18 times from 27 in 1950 to 504 in 2009. The sector boasts of 42 Central universities, 243 State universities, 53 State Private universities, 130 Deemed universities, 33 Institutions of National Importance (established under Acts of Parliament) and five Institutions (established under various State legislations). The number of colleges has also registered manifold increase with just 578 in 1950 growing to be more than 30,000 in 2011.

Management education has also seen phenomenal growth in the past six years. Times of India, Mumbai dated Feb 19, 2012 mentioned that “…….The Indian management education sector grew so wildly when demand was rampant (today there are 3,900 management schools with close to 3.5 lakh seats) that supply overshot demand by a long straw. And now comes the fallout.

…….. as many as 65 business management colleges across India are planning to close down; these institutes no longer see business sense in offering an MBA course, preferring to use the land for more lucrative ventures. In fact, experts predict that many more management colleges may close down in the days to come. As S S Mantha, Chairman of the All-India Council for Technical Education, puts it, "Colleges in remote India and institutes of poor quality are not getting students.

But managing cost and infrastructure in these institutes are posing challenge before the management. Having witnessed tremendous growth, these institutes are at the verge of fall. The question is why? There are many reasons for such failures including lack of cost management as:

(i) the costs of higher education are increasing far more rapidly than that of other goods and services.
(ii) cost measurement and control is challenge before all educational institutes.
(iii) In contrast to most businesses, key decisions that affect cost are made by faculty and administrators at the lower, rather than at the upper level.

Educational Institutes are facing challenges:
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• for managing their shrinking revenues,
• rising costs for salaries,
• maintenance of campuses,
• fixing various types of fees,
• cost of conducting various programs, seminars, publications and
• other value added services.

Therefore, they need to manage their costs and revenues while maintaining quality in services, timeliness and efficiency of their activities.

Cost Accounting methods that educational institutes or other organizations use for determining the cost of products or services are many such as Standard Costing, Absorption Costing, Marginal Costing, Activity Based Costing, Job or Batch Costing. Use of these methods by the companies or educational institutes depends on objectives, size of organization/ institute, competition, market share, manufacturing processes or services provided, complexities of operations or activities, decisions regarding establishing sales prices or fees for various activities, in the product or activity mix selection to sell/ provision of services, in the decision to choose marketing strategies, and in the analysis of the impact on profits or margin by changes in costs. In the current environment of business or any education institute, a business administration or chief executive in order to survive and succeed in current Business world has to change his perception, attitude and approach towards dynamic changes that are happening around and organization’s preparedness and to develop core competency, must act and take quality decisions efficiently, accurately in respect of their products and services in a sustainable manner.

In the light of above the educational institutes should adopt a cost accounting system which should serve three purposes:

(a) promoting cost efficiency without compromising the service quality
(b) allow the educational institutes to maximise its resources through product and service line management
(c) highlight the opportunities for continuous improvement in its services

In order to achieve the above, cost efficiency, product and service line and for continuous improvement educational institutes need to consider implementing Activity Based Costing (ABC) system through ERP system to integrate all functions and activities and also to have effective planning and control over these activities.
As mentioned above, there are many cost accounting systems to determine the cost of products or services such as Standard Costing, Absorption Costing, Marginal Costing, Activity Based Costing, Job or Batch Costing. Before Activity Based Cost Management System is explained, it would be pertinent to refresh these concepts/systems. These systems are being explained very briefly as follows:

**Standard Cost**

**Standard Costs** as defined in Cost Accounting Standard (CAS-1) issued by the Institute of Cost Accountants of India (ICAI) means “A predetermined norm applied as a scale of reference for assessing actual cost, whether these are more or less. The standard cost serves as a basis of cost control and as a measure of productive efficiency when ultimately posed with an actual cost. It provides management with a medium by which the effectiveness of current results is measured and responsibility of deviation placed.”

Standard costs are used to compare the actual costs with the standard cost with a view to determine the variances, if any, and analyse the causes of variances and take proper measure to control them.

**Standard Costing**

Standard Costing is a technique which employs Standard Costs as a basis for cost comparison and uses standards for costs and revenues for the purposes of control through variance analysis.

**Absorption Costing System**

In absorption costing system total cost of manufacturing or providing a service is taken in consideration while valuing product or service. It not only includes costs of materials and labour, but also of all manufacturing overheads (whether ‘fixed’ or ‘variable’). It is also referred to as the full-cost technique. The traditional costing method was developed in the age of manufacturing and basically uses to arrive at manufacturing cost of a product. However, over a time service sector also came into picture and it constitutes sizeable portion in GDP of India. The costing is now not restricted to only manufacturing sector but extended to service sector like education, telecommunication, hospital & healthcare, insurance, financial services, banking etc.
Marginal Costing

Marginal costing is a technique of costing which includes only variable costs in the form of direct material, direct labour and direct manufacturing overheads while determining the cost per unit of product. It presents cost data wherein variable costs and fixed costs are shown separately for managerial decision-making. It is simply a method or technique of the analysis of cost information for decision making by the management to find out an effect on profit due to changes in the volume of output.

Job and Batch Costing

Job costing is a costing system which considers each job a cost unit. Job may be single order or contract as per the customer’s special requirement. When an enquiry is received for any job or contract, the cost per order or job is estimated and on the basis of the estimate, a price is quoted to the customer. Actual cost of materials, labour and overheads are accumulated on the completion of job or contract and the actual costs are compared with the quoted price and thus the profit or loss is determined accordingly.

Activity Based Costing (ABC) System

Traditional Costing System takes into account though all costs into account while valuing the product or service but the indirect expenses termed as overheads are allocated on products/services on an arbitrarily basis on volumetric measures such as the labour hours or machine hours, space, watts, or tonnage and any base as determined by an organization. This methodology is appropriate when the overheads costs are low in comparison to other costs. In the present environment of information technology, indirect expenses or overhead costs have increased manifold due to many reasons. So allocation of such costs to products in an arbitrary manner distorts the final cost of products or services and when manufacturing economics are analysed at product/customer and business unit profitability levels, the traditional costing system gives a misleading picture. Hence it is difficult to answer the question – which of the products/services or customers are profitable and which are not? Activity Based Costing (ABC) solves this problem by tracing overheads and converting them to direct costs through cost drivers.

Activity-Based Costing (ABC) a business practice was invented by Dr. Robert Kaplan of Harvard. In this system costs are collected and accounted for activity-wise, so that return on investment and improvement effectiveness can be evaluated. However, implementing ABC requires proper data structures and an adequate data collection and reporting systems (such as ERP) involving all employees in the activity. Recently Dr. Kaplan has simplified and modified ABC into Time-Driven ABC. Initially this system was popular among the manufacturing sector but over a time it is equally applicable in service sector due to advantages attached to this system. A number of research and studies reveal how
the ABC system in the service sectors has effectively kept the operational cost at marginal level and still be able to provide better customer service at the same time.

In ABC system each individual activity is identified as a cost object. ABC system first calculates the cost of individual activities and then assigns these costs to cost objects such as products and services on the basis of the mix of activities needed to produce each product or service.

Costs to be allocated are traced to cost pools, preferably keeping variable costs and fixed costs in separate pools. Then costs are traced to products and services based on cost drivers that measure the causes of the costs of a particular activity. By using both unit based and non-unit based Activity Drivers, overheads could be more accurately traced to individual products or service activities mostly oriented to customers and products.

Activity Based Cost Management principles consider the following interrelated points:
- Resources drive activities
- Activities consume resources
- Cost objects (products/services) consume activities
Cost driver is the underlying factor(s) which causes the incurrence of cost relating to that activity and helps to attribute the cost as accurate to the activity as far as possible. Examples of cost drivers:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Machine Hours</td>
</tr>
<tr>
<td>Warehousing</td>
<td>Floor Area Occupied</td>
</tr>
<tr>
<td>Marketing</td>
<td>Value of goods sold</td>
</tr>
<tr>
<td>Purchase</td>
<td>Number of Goods Receipt Notes</td>
</tr>
<tr>
<td>Manpower</td>
<td>Number of Employees in a department or time spent on a Work Station</td>
</tr>
<tr>
<td>Depreciation on building</td>
<td>Floor area occupied by the machine or each Department</td>
</tr>
<tr>
<td>Indirect Overheads</td>
<td>Similar way cost drivers for other indirect expenses can be identified.</td>
</tr>
</tbody>
</table>

The concept of activity based costing can be explained by the following diagram:

![Diagram of Activity Based Costing](image)

**Machine Hours, LH = Labour Hours**

**Source:** Ms Lakshmi Deosthalee Study on Activity Based Costing in Ports

Further, the Activity Based Costing vis-à-vis Traditional Costing can be understood by way of example below:

* A Company manufactures two Products: A & B as per the following information:

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Product A</th>
<th>Product B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material (Rs)</td>
<td>3,00,000</td>
<td>2,00,000</td>
<td>5,00,000</td>
</tr>
<tr>
<td>Labour (Rs)</td>
<td>54,000</td>
<td>36,000</td>
<td>90,000</td>
</tr>
</tbody>
</table>

*AIMA Journal of Management & Research, November 2012, Volume 6, Issue 4/4, ISSN 0974-497 Copy right © 2012 AJMR-AIMA*
Total Direct Cost | 3,54,000 | 2,36,000 | 5,90,000
Total Overheads | 2,50,000
Number of Labour Hours | 5,400 | 3,600
Rate per Hour | 10 | 10 | 10
Labour Hours consumed by each Product (%) | 60% | 40% | 100%

Unit Cost of Product A & B as per Traditional Costing will be as follows:

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Product A</th>
<th>Product B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material (Rs)</td>
<td>3,00,000</td>
<td>2,00,000</td>
<td>5,00,000</td>
</tr>
<tr>
<td>Labour (Rs)</td>
<td>54,000</td>
<td>36,000</td>
<td>90,000</td>
</tr>
<tr>
<td><strong>Total Direct Cost</strong></td>
<td><strong>3,54,000</strong></td>
<td><strong>2,36,000</strong></td>
<td><strong>5,90,000</strong></td>
</tr>
<tr>
<td>Apportionment of total Overheads in labour hours i.e. 60% and 40%</td>
<td>1,50,000</td>
<td>1,00,000</td>
<td>2,50,000</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>5,04,000</strong></td>
<td><strong>3,36,000</strong></td>
<td><strong>8,40,000</strong></td>
</tr>
<tr>
<td>Number of Units Produced</td>
<td>50,000</td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td>Cost Per Unit</td>
<td>10.08</td>
<td>13.44</td>
<td></td>
</tr>
</tbody>
</table>

For applying the Activity Based Costing, the information in respect of activities and cost drivers is as follows:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Total Cost</th>
<th>Number/ %age for Product A</th>
<th>Number/ %age for Product B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Ups</td>
<td>50,000</td>
<td>5 Nos. (25%)</td>
<td>15 Nos. (75%)</td>
</tr>
<tr>
<td>Material Receipts</td>
<td>30,000</td>
<td>45%</td>
<td>55%</td>
</tr>
<tr>
<td>Inspections</td>
<td>60,000</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Maintenance Requests</td>
<td>25,000</td>
<td>25 (50%)</td>
<td>25 (50%)</td>
</tr>
<tr>
<td>Common Overheads</td>
<td>85,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost Element</th>
<th>Product A</th>
<th>Product B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material (Rs)</td>
<td>3,00,000</td>
<td>2,00,000</td>
<td>5,00,000</td>
</tr>
<tr>
<td>Labour (Rs)</td>
<td>54,000</td>
<td>36,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Set Ups (25%/75%)</td>
<td>12,500</td>
<td>37,500</td>
<td>50,000</td>
</tr>
<tr>
<td>Material Receipts (45%/55%)</td>
<td>13,500</td>
<td>16,500</td>
<td>30,000</td>
</tr>
<tr>
<td>Inspections (35%/65%)</td>
<td>21,000</td>
<td>39,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Maintenance (50%/50%)</td>
<td>12,500</td>
<td>12,500</td>
<td>25,000</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Common Overheads (60%/40%)</td>
<td>51,000</td>
<td>34,000</td>
<td>85,000</td>
</tr>
<tr>
<td><strong>Total Cost of Products</strong></td>
<td><strong>4,64,500</strong></td>
<td><strong>3,75,500</strong></td>
<td><strong>8,40,000</strong></td>
</tr>
<tr>
<td>Number of Units Produced</td>
<td>50,000</td>
<td>25,000</td>
<td></td>
</tr>
<tr>
<td><strong>Cost Per Unit</strong></td>
<td><strong>9.29</strong></td>
<td><strong>15.02</strong></td>
<td></td>
</tr>
</tbody>
</table>

From the above small example, it may be noted that the cost per unit as per Traditional Costing System and Activity Based Costing System, varied widely. Why it happens? We know that the Activity Based Costing identified the activities which consume resources directly, accordingly, portion of overheads left were common for all the activities and were allocated based on labour hours. The Organization may allocate the overheads based on some other suitable method as it considers fit for that organization.

Initially ABC gained importance in manufacturing sector and but its uses have been extended to service sector which includes Educational Institutes. Educational Institutes have large human resources compared to any other service industry therefore, the activity based costing would be an impressive option.

Accurate cost information provides a competitive advantage. Educational Institutes which are facing stiff competition, the ABC System may help them to develop and to execute its strategy by providing accurate information about the cost of its products and services, the cost of serving its students/ customers, the cost of dealing with its teachers/ suppliers, and the cost of supporting educational activities/ business processes within the Institute/ company.

**Advantages of Activity Based Costing System**

1. When overheads or indirect expenses are high, products or services provided are diverse and competition is stiff, the use of Activity Based Costing would be best option.
2. ABC provides more accurate product/ service cost because it uses more activity drivers than that of traditional or conventional costing.
3. Booth and Giacobbe (1997) found that the major benefit that adopters of ABC received from the implementation of ABC were more precise profit analysis. More accurate costing is achieved by assigning overhead to activities in accordance with their consumption of the activities that cause costs (Johnson 1991, Drury 1992).
4. ABC avoids or minimizes distortion in product costing that result from arbitrary allocation of indirect costs.
5. ABC can assist managers and staff to better understand their actions and decisions by focusing attention on those activities that help them achieve their goals, through a structured and methodical process. Common features in most of the activity based costing systems are ability to measure performance, efficiency, quality, customer and product profitability and elimination of non-value added work.
Limitation of Activity Based Costing System

Though the activity-based cost system is superior to traditional costing system but they could fail due to poor implementation process (Ness and Cucuzza (1995), Player and Keys (1995) and Pattison & Arendt (1994). The limitations of ABC in briefly are:

- ABC requires more resources to implement / maintain compared to other costing methods;
- Identifying cost drivers to cost objects is difficult preposition as found by Jayson (1994).
- Major change in culture, attitude and method of working is required;
- Adoption of ABC in planning requires significant resources and a very well-constructed model;
- With ABC, there is still a need for management judgment especially to decide on equitable cost allocation rules; and
- ABC may not be “accurate” in the financial accounting sense as the model is highly dependent on availability of accurate data.

Which System of Cost Accounting Should be used in Educational Institutes?

After studying briefly aforesaid various systems of Cost Accounting for calculation of cost of products or services, now the question arises, among various systems of cost accounting, what system of cost accounting would be good option for service sector like Educational Institutes.

Where in an organization overhead costs or indirect costs are lower as compared to direct costs, the absorption costing is best option because absorption of overheads on some basis, may not affect the product or service cost much. Absorption costing in this case may help to ascertain the overall profitability or efficiency of the manufacturing system but would fail to provide the real cost of individual product units or services cost individually.

Educational Institutes are service industry and overheads cost is sizeable as compared to manufacturing sector. So activity based costing would mirror its functioning in strategic decision-making processes. ABC would provide the real cost of its services, would help in identifying inefficient or non-profitable segments of its services which eat into the profitability of other highly profitable service segments.

In Technology advanced age when Internet and web based technologies have eliminated international boundaries for businesses and Educational Institutes and competition in domestic and international markets, managing the costs is challenge while focusing on
quality, economy and customer oriented approaches, Activity Based Costing may provide the best solution to service sector including educational institutes.

Costing system based on ABM would help Educational Institutions to understand the various activities, resources, cost drivers and value of services being provided by them. Activity Based Costing also helps to eliminate non-valued added activities that consume Institutional resources without accrual of any benefits to the Educational Institute.

**Why Activity Based Costing necessary in Educational Institute?**

As mentioned above traditional costing systems are not capable to address the problems of businesses or services sector, the educational institutes which is service sector need such a costing system which may enable them:

- **Take Long term strategic decisions** through understanding individual services and customer profitability and its drivers, enable plethora of actions which transform unprofitable to profitable services/customers

- **Assessment and determination of accurate cost breakdown for:**
  a) fixing fees for courses
  b) Cost of programmes and seminars
  c) Publications
  d) Maintenance of campuses
  e) Salaries and related benefits
  f) Other value added services

- **Better understanding the resources needed to serve each educational activity.**

- **Staffing and resource allocation decisions** for making vast amount of cost information accessible, sharing of the best practices and technology that enables generating new knowledge

- **Identification of opportunities to reduce costs for achieving competitive advantage by the educational institutes.**

- **Plan and budget more effectively in terms which are understandable and explainable**

- **Profit optimization**
The accusation and analysis of cost information in respect of various activities and resources through various ERP modules for implementing activity based costing will provide accurate and timely information for making effective decisions on: students, teachers, workshops, seminars, alumni and other activities being undertaken by the educational institutes.

**Enterprise Resource Planning (ERP) System**

Enterprise Resource Planning (ERP) systems are information systems that integrate all the activities and functions of an Organization to standardize its data and streamline its business processes. Integration provides better control over the company’s operations and make data exchange between cross functional activities possible. ERP system provides a variety of information. It is based on achieving information flow, logistics, capital flow, value flow and business flow of organic integration and increase customer satisfaction as the goal, to plan and control the main line to and information technology as a platform, set of customers, markets, sales, procurement, planning and business process reengineering and other functional modules as a whole, for the supply chain management business management methods. It can be depicted as follows:

Source: [http://www.4infinitesolutions.com/ercps.htm](http://www.4infinitesolutions.com/ercps.htm)

**Building or developing Activity Based Costing System in Higher Educational Institute through ERP Modules**
Expenses are to be determined and analyzed based on general ledger and also determine the cost drivers to assign the cost to activities. Cost drivers, both resource and activity, are to be considered early as the sources of data may be lacking or difficult to obtain. The determination of cost drivers and activities are done based on the discussion with the Management of the organization.

Cropper and Cook (2000) highlighted the need for universities to adopt more sophisticated management models so that it would be possible to plan, monitor and allocate resources in a more accurate fashion, i.e., a sophisticated management accounting system. However, designing, monitoring and maintenance such a model requires additional human and material efforts.

According to Cropper and Cook, in order to address some of these challenges, English higher education funding bodies issued costing guidelines recommending a model which was an approximation of the activity-based management system. These guidelines included resource costs, activities, cost drivers and outputs. They also defined six key stages:

1. Identify resources used (staff, consumables, equipment, etc.);
2. Identify products (courses, research, working-papers, consultancy, etc.);
3. Identify activities (teaching, research, admissions, library services, registration, etc.);
4. Attribute used resources to activities;
5. Assign activities to products through cost drivers (staff, students, space);
6. Analyse and correlate results.

Broad and Crowther (2001) concluded that, in fact, universities did not adopt the ABC system but rather a hybrid system somewhere between traditional systems and the ABC system. Some general costs would be allocated based on activities and other costs would be attributed using more traditional techniques, such as labour hours. In principle, the ABC system is applicable to higher education institutions, but maybe not to all departments in a faculty. However, the role of certain departments within the organisation makes it difficult to implement the ABC system. Nonetheless, the adoption of this system in other departments will allow for the information available to management to be more reliable than that provided by traditional costing systems.

Numbers of things are to be considered before embarking upon building ABC Model for any organization. Success and failure of ABC Model depends upon business issues required to be addressed by the ABC Model. When structuring a model there are a number of key points to consider. As we know that ABC uses cost drivers to assign the
costs of resources to activities and unit cost as a way of measuring an output. There are three steps involved in developing or implementing ABC Model:

1. **Identify the activities related to Higher Education Institution**
   For implementation of ABC Model, all the activities performed by the Higher Education Institution are to be identified based on responsibility centre. Each activity may consist of one or more sub-activities required to be performed to achieve the output.

   The cost items for a Higher Education Institute can be divided into four major groups:
   - teaching (undergraduate degrees, postgraduate courses, master degrees, doctoraldegrees);
   - research (research projects);
   - services provided to external customers such as consultancy services to public, support service in the development of projects in various areas.

2. **Determine the cost drivers for each activity and assign resource costs associated with each activity**

   Next step is determining the cost drivers for each activity and tracing costs to cost objects to determine why the cost occurred based on cause and effect relationship. Cause is the process or operation or activity and effect is the incurrence of cost. The cost is to be defined as the direct and indirect costs that a higher education institution may incur, and also a strategy for assigning these costs to the cost items.

   (i) **Direct Costs**: costs that can be traced directly to one output. Direct cost has three components - direct material cost, direct labour cost and direct expenses. The teaching staff costs’ distribution has to be based on staff time. Time spent teaching, time spent doing research and any other function is to be defined. The time each teacher spends doing research or providing a service is to be determined. The time spent by a teacher in respect of teaching is to be attributed to each of the courses. There may be cases when a teacher spent his or her time with students individually and thesis supervision, it is to be accounted for accordingly.

   (ii) **Indirect Cost**: Indirect costs means those costs which cannot be allocated to an individual output but is common some of the activities. The benefit of indirect costs is derived by two or more outputs, but not all outputs. Indirect costs may be related to the various councils, services, sections and offices that are in a university or Educational Institution. The indirect costs will be related to IT Support Services, Technical Support Services, Maintenance and Auxiliary Services, Organization of events, Library, Training, General Administration related costs such as Salaries of
Administrative Staff, HR, Finance, Marketing & Communication Office (Seminars, Workshops, conferences, media, Admission Notices, Advertisement, Publicity etc.).

3. **Assign activity costs to activities using the cost-driver rate**

The next step is assigning the cost of the activities based on unique consumption patterns/time step on each activity. This is done using activity drivers. Activity drivers assign activity costs to outputs (cost objects) based on the consumption or demand for activities.

ABC could be carried out in educational institutes by following standard ERP system. According to Cooper and Kaplan the requirements for operational control and ABC systems have fundamentally different purposes and a single integrated approach cannot be adequate for both of these. The combination of activity-based costing and ERP management system will not only improve the accuracy of cost calculation of various activities and resources, but also raise the enterprise management level, and enhance the competition power of enterprise in current economic environment.

Activity based costing can also be used for improving operations of the educational institutes by managing activities that incur cost and for making effective decisions on various activities and resources.

In recent times software companies are strategically focusing towards an integrated ABC and ERP system. AG, a German based ERP vendor invested in ABC Technologies Company and strengthened it’s know how in ABC (Shaw,1998, p.56; McMillan,1998). Many other ERP manufacturers have also applying ABC into their systems.

Numerous articles and cases of implementing ABC have been written. In these cases ABC systems has been created alongside existing ERP systems as a management system (Gunasekaran et al., 1999, pp.286-287).

**ERP modules used by companies**

There are many ERP modules available in the market. Generally these ERP modules are as follows:

1. Finance & Accounts Module
2. Sales & Marketing Module
3. Human Resources Module
4. Manufacturing & Production Module

Since the main objective of an ERP system is to integrate a company’s operations by a common database shared by all functional areas, most ERP vendors provide an ERP package that consists of numerous modules closely related to such functional areas. The Educational Institutes may get the modules installed and can implement some of the...
modules selectively according to its requirements. The above ERP Modules may be depicted as follows:

**ERP MODULES**

![ERP Modules Diagram]

- **Finance & Accounts**
  - Accounts & Receivable
  - Accounts Payable
  - Assets Accounting
  - Cost Centre Accounting
  - General Ledger

- **Centralized Database**
  - Order Management
  - Sales Management
  - Sales Planning
  - Returns Requests
  - Hours worked
  - Payroll
  - Job Skills
  - Personnel Planning

- **Sales & Marketing**
  - Material Requirement Planning
  - Production Schedules
  - Shipment
  - Inventory Management

- **Human Resources**
  - Training
  - Education

- **Manufacturing & Production**
  - Material Requirement Planning
  - Production Schedules
  - Shipment
  - Inventory Management

**Source:** Anatomy of an Enterprise System (Adapted from Laudon and Laudon (2006) and Davenport (1998))
An educational institute using activity-based costing systems through ERP Modules may likely to be more successful in capturing accurate cost and surplus information for:

a) Activities;
b) Resources;
c) value added services/ activities;
d) providing cost effective services

The quantum of change and incremental cash benefits observed by the management of the educational institutes with respect to performance varies with the level of adoption of activity-based costing system and other decision support systems.

Conclusion

The educational institutes can employ ABC system to link the costs of their products and services such as courses or programs, research, publications, and consultations, to the revenue they receive from these resources. Based on the result of ABC the educational institute may link and establish the relationship between customer type, pricing, resource allocation, and capital expenditure, that an educational institute can make strategic decisions regarding the student type it should target, the courses it should provide, the most suitable delivery method and the appropriate mix and allocation of resources required to achieve its strategic goals and objectives (Granof et al., 2000). Furthermore, an educational institute could use ABC approach as a tool to match utilization of resources with faculty missions; obtain a better sense of the effectiveness of academic staffs’ time and effort differentiation within faculties; discuss with deans and department heads the efficient and most effective allocation of resources to meet the needs of the faculty, department, and institute; organize the information in a way that makes sense across units; and act as an essential public relations tool (Cox et al., n.d.).

The activity based costing system in educational institutes would provide better control over the cost in comparison with the traditional costing system. Appropriate costing system is necessary in the educational institutes as they are under great pressure to manage their lower revenues and improve the quality services due to high competition in education industry. Each educational institute requires cost information to improve the quality, timeliness, and efficiency of the activities it performs and to understand accurately the cost of all the activities being provided by the educational institute.

Combining ABC and ERP system will be effective and successful as ERP makes it possible to define the concept of work centre more widely. This makes it possible to treat indirect resources in the same way as direct resources thereby yielding more accurate product/ service costs. This will improve the cost information of the organization/ institute.

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The management motivations for adoption of activity-based costing are significantly different between the manufacturing organizations and service sector including educational institutes who have adopted fully integrated activity based cost management with ERP. ERP and ABC have their own roles in modelling the organisation’s functions. One thing is certain i.e. both these systems may improve the cost awareness of the educational institute’s management and in turn decision making. When costs of operations are known, management can develop its processes more efficiently to inform their decision making and planning.

Bibliography