

**ACTIVITY BASED COSTING & TRADITIONAL COST ACCOUNTING SYSTEM:
A COMPARATIVE STUDY OF OVERHEAD COST ALLOCATION**

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The present world of cut throat competition coupled with increasing consumer demands and product differentiation makes the traditional costing redundant and widely responsible for strategic failures. Traditional costing apportions indirect expenses on irrational basis to discrete product lines and services. Activity Based Costing (ABC) contemplates a paradigm shift in overhead allocation through scientific means commonly known as cost drivers. In this paper, we trace the development of concepts and techniques of cost accounting that have shifted the attention of the management practitioners towards alternative methods of costs allocation. This paper highlights the distinctive features of ABC for ascertaining true product cost. Undoubtedly, ABC is a definite improvement over the traditional methods on the premise that the costs are collected on the basis of activities rather than products and it can effectively contribute to the top managerial decision making process based on product, customer and geographical profitability.

KEYWORDS

Activity Based Costing, Cost Accounting, Cost Drivers, Traditional Costing.

INTRODUCTION

The use of traditional cost accounting for overhead allocation is now being considered as outdated and nebulous as it is based on indiscriminate ways of allocation and is of little value in industry where direct cost is insignificant. ABC brings radical changes in the methodology of overhead cost allocation. However, contrary to popular belief, ABC does not replace the established traditional costing system it rather gives new perspective to overhead cost allocation. ABC focuses on the activities and allocates the cost of such activities through common cost drivers to end product or customer for better decision-making.

As per ABC philosophy both the direct and indirect costs must be identified for each customer separately and this is truly a refinement of the traditional costing systems of apportioning overheads. Traditional Costing Systems is based on measures such as direct labour hours or machine hours to allocate overhead costs to products manufactured. On the other hand, ABC allocates overhead costs to products on the basis of the resources consumed by each activity involved in the product. This is accomplished by assigning costs to cost pools that represent specific activities and allocating these costs using appropriate cost drivers to the product. Cost drivers are those activities, which have a direct cause and effect relationship to the occurrence of a particular cost. (Carter, Usry, 2002).

The main assumption of the ABC system is that products consume activities and activities consume resources (Hongren, Datar & Foster, 2003). An activity is defined as event, action, transaction or work sequence that incurs cost when producing a product or providing a service (Weygandt, Kieso & Kimmel, 2005). In the ABC system, direct costs are also traced to products or services, so the main attention is paid to indirect costs which are allocated to activities, instead of to departments (like in traditional systems). The application of the ABC system goes through two main stages. In the first stage, indirect costs are allocated to activity/ cost pools. It is important to determine the correlation between a particular indirect cost and an identified activity. The second stage in ABC application is assigning indirect costs from activity cost pools to products, by using defined cost drivers. A cost driver is any factor or activity that has a direct cause effect relationship with the resources consumed. The usage of multiple allocation bases can provide a more accurate and objective profitability of various products.

The goal of any cost system is to provide relevant and timely information to the management. This information supports better management of corporate resources in production of the goods or provision of services and improves competitiveness in terms of costs, quality and profitability. ABC methodology assigns an organization's resource costs through activities to the products and services provided to its customers (Wikipedia, 2008). It is generally used as a tool for understanding product and customer cost and profitability. As such, ABC has been used as a strategic tool for pricing, outsourcing and measurement of process improvement initiatives. The ABC method was designed in the United-States during the 80's (Cooper and Kaplan, 1988). "It is a refined cost system which enables classifying more costs as direct, to expend the number of indirect cost pools and to identify cost drivers" (Wegmann, 2008).

ABC favours better cost allocation by identifying resources consumed for specific activities and related cost drivers. ABC system is a costing principle that relies on activities that have a cause and effect relationship with cost as a basis for allocating such cost to cost objects which jointly cause the cost (Debor and Eragbhe, 2005). ABC charges products for the cost of capacity they actually use and not for idle capacity like the absorption method. However, the true worth of ABC from a managerial perspective is its ability to assign activity costs to cost objects. This enabling characteristic allows management accountants to reassign activity costs across business processes and identify relationships more accurately in decision-making processes. Under ABC, these activities and rates more precisely link to the actual work or job currently performed. ABC terminology is work centric as compared with absorption costing which is transaction centric (Cokins, 2002). Many authors have advocated several stages in the implementation of ABC. Hongren, Datar and Foster (2003) as quoted by Debor and Eragbhe (2005) advocated seven stages which includes:

- i. Identifying the products that are the chosen objects;
- ii. Identifying costs, direct cost of the product;
- iii. Selecting the cost allocation basis to use for allocating indirect costs to products;
- iv. Identifying the indirect costs associated with each cost allocation base;
- v. Computing the rate per unit of each cost allocation base used to allocate indirect cost;

- vi. Computing the indirect cost allocation to the product; and
- vii. Computing the total cost of the product by adding all direct cost and indirect costs of the products.

Users of the ABC system have to identify the activities, which generate cost and then match the activities to the level bases used to assign costs to the products. While using the ABC system, the activities, which generate cost, must be determined and then should be matched to the level drivers used to assign costs to the products (Akyol et. al., 2005).

Narasimhan and Thampy (2002) stated that activity based costing system highlights the use of activity based cost information in benchmarking and identification of value added and non-value added activities. Bhatta (2001) argued that most companies seem to recognize that their cost systems do not respond adequately to today's competitive environment and the methods they use to allocate costs among their products are unscientific. Quite simply, accurate cost information can give a company a competitive edge.

Worldwide ABC adoption rates appear to be relatively low as it is quite cumbersome and redefines entire allocation methodology. Companies nowadays operate under volatile business environments that are strongly influenced by customer demands and generate revenues and profits when customers identify value and buy their product or service. Under this framework managers will focus their attention internally to find the best ways of using their resources effectively, in order to create or maintain value in their products or services. Activity based systems which are information systems that provide quantitative information about activities in an organization. Activity based systems help managers to view the organization as a collection of related activities, thus enable managers to improve operating processes and make better pricing decisions.

The ABC system is very complex and takes much more effort and resources to implement than the traditional systems. Its application is justified only if the benefits from the ABC system exceed the costs of its implementation. Therefore, when management decides to implement the ABC system, it must be sure that the system will provide more useful cost information for taking right decisions than traditional systems.

REVIEW OF LITERATURE

Bromwich and Bhimani (1989) observed that though ABC corrects the product cost distortions but no such study has been done to demonstrate that it increases the profitability of the firm (Shim and Stagliano 1997).

Shields (1995) discovered that users' perceptions of ABC success were linked to six behavioural and organizational variables: top management support; integration with competitive strategy initiatives, such as TQM and JIT; performance evaluation and compensation; non-accounting ownership of the ABC project; training provided in designing, implementing and using ABC; and the provision of adequate

resourcing. They found that the firm's top-level manager 'champions' the ABC project and cross functional teams, process orientation and adequate training to employees on the ABC, linkages between activity based team oriented performance metrics to the compensation plan, and decision making at shop floor level by people who have process knowledge.

Hubbell (1996) argued in favour of integrating ABCM systems with the measures of shareholder value such as economic value added. The resultant integrated cost management system could provide a better governance mechanism for improving processes, optimising the use of capital and thus create shareholder value.

Foster and Swanson (1997) surveyed 132 United States companies and found that all of them were using activity based cost management. The decision to use ABCM, management use of dollar improvement and the overall net benefits as success measure yielded the highest explanatory power.

Goddard and Ooi (1998) discussed the ABC methodology, as implemented in library services at the University of Southampton. The result showed substantial differences in the allocation of the central overheads cost as between institutions of Higher Education using the ABC model and the existing system. They argued that, although the ABC approach may overcome some of the problems of overhead allocation and improve the economic efficiency of organizations, there are significant problems with its practical application. In this study, it has been concluded that the ABC model provides more equitable overhead allocation than traditional systems, as it ensures that the faculty is charged for its actual consumption of central resources. It also enables allocated costs to be both verified and refuted. However, this case study showed that, in practice, the ABC model is less efficient than in theory. Also, it is very expensive to develop and maintain such a system.

Anderson and Young (1999) in a study of 21 filed research sites of two firms examined the relationship between activity-based costing systems, contextual factors, and factors related to ABC implementation process by using survey and interview process. They found that implementation process has clear influence on the ABC/M success and the contextual setting directly influences the process and outcome. The criteria for success of ABC systems is its ability to provide more accurate cost data vis-à-vis traditional cost systems and usage of ABC cost data for cost reduction and process improvement.

Booth and Giacobbe (1999) reported on a survey of 213 manufacturing firms and noted comments by some "adopters" that ABC had been a success. However, the authors cautioned that most of the firms surveyed had only been using ABC for a short period of time, which would make it difficult to fully assess any benefits. Also, the majority were still using their existing costing systems as well i.e. the ABC system had not been infused or integrated within the primary system.

Gordon and Silvester (1999) examined the performance of ten ABC user firms vis-à-vis their matched size and industry controlled counterparts who have not adopted ABC. Though ABC user firms had

abnormal returns on the date of announcement but not statistically significantly different from their counterparts. Thus, they questioned the adoption of ABC if it does not lead to creation of firm value.

Groot (1999) reported by surveying the United States food and beverages industry that 18% of the respondents had implemented ABC and 58% were reconsidering its implementation.

Malmi (1999) found that firms superior performance subsequent to ABC adoption revealed that the ABC adoption decision was the 'rational value enhancing choice' and it was not a fad or fashion or forced selection. Shekari (2000) studied ABC in increasing the optimization in Siman-e-Fars Company by designing and proposing ABC system, after studying and analyzing the current system of costing in that company and recognizing its strong points and weak points. Then by using the table of determining value added and the criterion for activity appropriation, he determined activities with value added and without value added by using the definition for value added in activity based costing system. Finally, he determined the yield of service activity centers and manufacturing centers by using ABC costing and it was shown that ABC system has saved a lot and it has increased the profitability of the company. Thus, by omitting unnecessary activities and without value added, the yield of the activity centers and the company as a whole increased.

Kennedy and Affleck-Graves (2001) examined the link between ABC implementation and creation of shareholder value using Rappaport (1986) framework and event study methodology (Brown and Warner 1980 & 1985). They got responses from 47 ABC users and 187 non-ABC users. They found that choice of management accounting system such as activity based costing for a sample of UK firms had a significant impact on firm.

Cagwin and Bouwman (2002) in their survey of 210 internal auditors found that the firms with diverse product portfolio and with high proportion of overheads cost when they have adopted activity-based costing along with other strategic initiatives such as Just in Time (JIT) and Total Quality Management (TQM), it resulted in substantial improvement in their return on investments. The other enabling conditions for the efficacy of the ABC in the organizations are sophisticated information technology systems, absence of excess capacity and competitive environment.

Narasimhan and Thampy (2002) designed ABC system for ascertaining service cost for different customers with a case study of two branches of a large Indian private sector bank. The use of ABC information in benchmarking, branch network restructuring, business process outsourcing, and identification of value-added and non-value added activities have been argued.

Anand, Sahay and Saha (2005) noted Cagwin and Bouwman (2002) in their survey of 210 internal auditors found that the firms with diverse product portfolio and with a high proportion of overhead cost when they have adopted activity-based costing along with other strategic initiatives such as JIT and TQM, resulted in substantial improvement in their return on investments. The other enabling conditions

for the efficacy of the ABC in the organizations are sophisticated information technology systems, absence of excess capacity and competitive environment.

European University Association (EUA, 2008) prepared the study in which they have numbered different factors which are influencing the development of the full costing method at European universities. These factors are legal status, size, profile, ownership of property, governance, funding structure and the level of autonomy. The study has shown that some countries have fully developed a full costing system such as the UK and the Netherlands and some countries like Estonia, Slovenia and Croatia, do not have any method for tracing and allocating costs. The reasons for that could be found in available databases for implementation, especially accounting and costing data, but also in the institutional framework for universities. The higher cost recovery of project costs and financial sustainability of universities can be achieved through the benefits on the national level, which include: a more comprehensive approach to costing, more efficient internal resource allocation, and improved decision-making - based on a better understanding of investment decisions, benchmarking possibilities within the sector and price activities.

Yereli (2009) studied the application of ABC in a Turkish hospital and compared the results with the traditional costing system. She calculated the cost of gallbladder surgery by using both methods and then compared the results. The results showed that the cost of this surgery by using the new system regarding in dollar, and by using the traditional system compared with the ABC was between 965 and 1053 and between 535 and 599 dollars, respectively. These results show that ABC can prepare more appropriate data and can help the managers in analyzing the prices and better decision makings about budgeting and strategic programming.

Gujral(2010) used activity-based costing method as a tool for costing in Hematopathology lab. First the data needed were collected through the hospital's accounting system and interviewing the staff. Then the related costs were analysed and the direct and indirect costs were identified and were appropriated according to the definite percentages and stimulants. Using ABC results in a more accurate and clearer data about service costs. This method helps the laboratories to redesign their cost structure or at least get a more appropriate understanding of the economy dominant over the laboratory management.

OBJECTIVES OF STUDY

The following objectives are formulated for the present study:

1. To conceptualize ABC and its related benefits in manufacturing set up.
2. To highlight the significant improvement in product costing thorough proper allocation of overheads.
3. Making Products more competitive by vigorously following scientific basis of cost allocation.
4. ABC yields benefits to the company, its business partners and consumers through phasing out non permissible waste, making products highly competitive and enhancing shareholders wealth.

5. To determine the nature of costs and analyze them as direct traceable costs, activity traceable costs and non-traceable costs (or unallocated costs).
6. To determine cost drivers for each activity and use output measures to calculate activity recovery rates to be loaded on the products.

IMPACT OF ABC IMPLEMENTATION ON PRODUCT COSTING

In the hypothetical case study given below, we have attempted to highlight the impact of Activity Based Costing on product costing and challenging the traditional costing method of overhead cost allocation by turning the export rejected product into profitable option. This paradigm shift in profitability is really spectacular and ABC undoubtedly offers different perspective to product costing. A Company produces three products and related cost of manufacturing another indirect expenses of the products are as follows:

Cost Elements	A	B	C
Raw Material	12	15	21
Direct Labour	9	12	14
Variable Overheads	6	5	8
Machine Hours	8	8	9

The Company adopts traditional system of overhead cost allocation to products and recently the Company lost the export order for product C as the price charged by it was quite high. The Management Accountant of the Company suggested to adopt ABC as he is of the firm view that product C is most competitive and traditional costing distorts the true profitability. He emphasized the need for ABC cost allocation method and identified various activities and cost drivers as under:

Activities	Cost	Cost Driver
Raw Materials	10,000	Time Spent on inspection
Placing Orders	40,000	Number of orders placed
Inspection	30,000	Number of units produced
Maintenance	20,000	Machine hours spent

Total indirect cost and machine hours are 100,000 and 50,000 respectively. Product wise details for cost drivers:

Cost Drivers	A	B	C
Inspection Time	500	250	250
Orders	40	40	20
Units	2000	2000	2000
Machine Hours	16000	16000	18000

The Management Accountant advocates the superiority of ABC over traditional method of overhead cost allocation as follows:

TRADITIONAL COSTING SYSTEM

Machine Hour Rate $100,000/50,000 = 2/-$ per hour

Cost Elements	A	B	C
Raw Material	12	15	21
Direct Labour	9	12	14
Variable Overheads	6	5	8
Machine Hours	16	16	18
Total Cost	43	48	61

Activity Based Costing

Cost Elements	A	B	C
Raw Material	12	15	21
Direct Labour	9	12	14
Variable Overheads	6	5	8
Overheads*	18	18	13
Total Cost	45	50	56

*Overhead Allocation ABC

Cost Elements	A	B	C
Receiving Materials	5,000	2,500	2,500
Placing Orders	16,000	16,000	8,000
Inspection	10,000	10,000	10,000
Maintenance	6,000	8,000	6,000
Total Cost	37,000	36,500	26,500
Units	2,000	2,000	2,000
Cost per Unit	18	18	13

CONCLUSION

Implementation of ABC ensures allocation of overheads to products and customers on more scientific and appropriate basis rather using a single absorption rate based on traditional. In the example given above, the company could have secured export order if it had followed ABC method of overhead cost allocation rather traditional method of overhead absorption based on machine hour driver.

RECOMMENDATIONS FOR FUTURE RESEARCH

The present research paper focuses on the theoretical framework behind Activity Based Costing and its related application. The author recommends for future research on the following lines:

1. To introduce mandatory cost accounting standard (CAS) prescribing guidelines on Activity Based Costing for all industries.
2. Studying ABC for companies in service sector.
3. Applying ABC to identify direct cost also in manufacturing products to highlight potential loss or non-permissible waste and improve product profitability.
4. ABC should be simplified by predefining cost drivers and activities for all industries.

REFERENCES

1. Anand, M., Sahay, B.S. & Saha, S. (2005). Activity-Based Cost Management Practices in India: *An Empirical Study Decision*, 32(1), 123-152.
2. Anderson, Shannon W. and S. Mark Young (1999). "The impact of contextual and process factors on the evaluation of activity-based costing systems," *Accounting, Organizations and Society*, 24 (7), October, 525-559.
3. BhattaNSMahabaleshwara (2001), "Activity Based Costing and Accounting", *Management Accountant*, ICWAI, Calcutta, August: 573.
4. Booth, P. & Giacobbe, F. (1997). Activity-based costing in Australian manufacturing firms: Key survey findings. Management Accounting Issues Report Number 5 *Management Accounting Centre of Excellence*. CPA Australia: (March).

5. Booth, P. &Giacobbe, F. (1999). Activity-based costing in Australian manufacturing firms: the 'state of play'. Contemporary Perspectives on ManagementAccounting. *Management Accounting Centre of Excellence*. CPA Australia, 35–61.
6. Bromwich, M. and Bhimani, A. (1989). Management Accounting: Evolution not Revolution, London, UK, Chartered Institute of Management Accountants.
7. Brown, S. J. and Warner J.B. (1980). "Measuring security price performance," *Journal of Financial Economics*, 8(3), September, 205-258.
8. Brown, S. J. and Warner J.B. (1985). "Using daily stock returns: the case of event studies," *Journal of Financial Economics*, 14(1), March, 3-31.
9. Cagwin, D. &Marinus J. Bouwman (2002). "The association between activity-based costing and improvement in financial performance," *Management andAccounting Research*, 13, 1-39.
10. Carter, W. &Usry, M. (2002) *Cost Accounting, 13th edition*, Thompson Learning.
11. Gujral, S., Dongre, K., Bhindare, S., Subramanian, P.G., Narayan, H.K.V., Mahajan, A., Batura, R., Hingnekar, C., Chabbria, M., Nair, C.N. (2010). Activity-Based Costing Methodology as Tool for Costing in Hematopathology Laboratory. *Indian. J. Pathol. Microbiol.*53 (1), 68- 74.
12. Kennedy, Tom and John Affleck-Graves (2001). "The impact of activity-based costing techniques on firm performance," *Journal of Management AccountingResearch*, 13, 19-45.
13. Malmi T. (1999). Activity-based costing diffusion across organizations: an exploratory empirical analysis of finish. *Accounting Organisations and Society*, 24November, 649–672.
14. Narasimhan, M. S. and Thampy, A. (2002), "Activity Based Costing in Banking Service: A Case Study of a Large Indian Private Sector Bank", *Prajnan*, 31(2):95-110.
15. Rappaport, A. (1986). Creating Shareholder Value: The New Standard for Business Performance, N.Y., *The Free Press*.
16. Shekari, A. (2000). Studying the application of activity-based costing in increasing the optimization (A case study: Siman-e-Fars company)". *MA dissertationin Industrial Management, Shiraz University*.
17. Shield M. (1995). "An empirical analysis of firms' implementation experiences with activity-based costing," *Journal of Management Accounting & Research*, Fall, 148-166.