

ACTIVITY-BASED COSTING (ABC) – AN EFFECTIVE TOOL FOR BETTER MANAGEMENT

Meenakshi Prajapat

Assistant Professor, NIET, Alwar

ABSTRACT Activity-based Costing (ABC) is a powerful tool for an organization to have an accurate and effective cost for its product avoiding cost distortion. This research paper covers a wide range of topics from theoretical aspects of ABC to its application. It has discussed some specific cases in different countries. Some of highlight the impact of ABC on the European firms where as some other has tried to discuss the American context of ABC. Analysis contains some data on the Nestle Bangladesh Ltd. which maintains the ABC. We have tried to analyze how successful the company is in implementing ABC. In the different era of business like service sector, technology business, manufacturing sector and many more. Implementing ABC in these different sectors is a little bit different. ABC has to be implemented considering the characteristics of that sector. In total ABC has been proved to be successful for almost all the sectors. There have been some modifications in ABC also. Some other concepts have also been discussed here like theory of constraints, time driven ABC and many more.

Keywords: ABC, management accounting, manufacturing sector, time driven ABC.

I. INTRODUCTION

Activity-based costing (ABC) was developed and has been advocated as a means of overcoming the systematic distortions of traditional cost accounting and for bringing relevance back to managerial accounting. A traditional system reports what money is spent on and by whom, but fails to report the cost of activities and processes (Miller 1996). Many organizations in the manufacturing industry have adopted the new costing method. Aranoff et al (1998) said that there are two purposes of activity-based costing. The first purpose is to prevent cost distortion. Cost distortion occurs because traditional costing combines all indirect costs into a single cost pool. Cost distortion is prevented in ABC by adopting multiple cost pools (activities) and cost drivers. The second purpose is to minimize waste or non-value-adding activities by providing a process view. Activity Based Costing is motivated by a belief that traditional (general ledger) accounting information is all but useless to managers who are interested in evaluating the effectiveness of resource allocation decisions in their companies. This traditional

information is geared instead toward satisfying auditors or other outsiders who are interested in some evidence of financial accountability.

II. OBJECTIVES

The report is prepared with an objective to have a gross idea about Activity Based Costing. Although this is the main objective of the report, it can be detailed as follows:

1. To develop a clear concept about the theoretical aspects of ABC.
2. To know the applications of ABC in different countries.
3. To know the problems and benefits of implementing ABC in any organization.
4. To find out the reasons of denying to implement ABC.
5. To know about the implementation of ABC in manufacturing sector.
6. To know about its benefits in public sector organizations.
7. To have knowledge about the relationship between ABC and other management accounting concepts such as Activity Based Budgeting, Theory of Constraints, Supply Chain Costing, Total Quality Management, Life Cycle Costing etc.
8. To know about the implementation of ABC in Bangladesh.
9. To recommend some steps for the development of ABC implementation.

III. Research Methodology

For the purpose of preparing this report both primary and secondary data are used. Primary data have been collected by interviewing key personnel of Nestle Bangladesh Ltd. and the secondary data have been collected by logging on to website, studying different journal related to Activity-based Costing (ABC) and different books.

Case study of the ABC method

We conducted our ABC case study on the activity of the company “Fely Lemn S.R.L.”, which was set up in 2003 and has a total of four employees. The company’s main business activity is the manufacture of joinery and carpentry items for buildings, and it can also carry out secondary activities such as manufacture of chairs, office and shop furniture, kitchen furniture and manufacture of other furniture.

To carry out its business activity, S.C. Fely Lemn S.R.L. uses the following materials: fiberboard, wood, and accessories such as: hinges, handles, edges, wood screws. It also uses various types of machinery: cutting machines, edgebanders, planers, slitting machines, polishing machines; and hand tools: screwdrivers, milling machines, drilling machines, hot-air blower. The company manufactures and sells three categories of products: fiberboard furniture, wood (oak, spruce, cherry) carpentry and joinery items. We know the following data concerning the making of the company’s product.

Table no.1 Presentation of expenses incurred

Items	Fiberboard Furniture	Wood carpentry	Joinery items	Total
Direct costs/expenses	13000	4500	3000	20500
Indirect production costs				8260
Administrative Overheads				2000
Distribution costs				411
Quantity manufactured	12	15	300	327

Analysis and grouping of activities are as follows:

Table no. 2 Presentation of activities

Activity	Cost	Cost driver
Raw material orders	1450	Number of orders released
Inventory management	1000	Number of types and sizes of raw materials
Preparation and release of manufacturing	1000	Number of batches released
Production	2400	Machine operating hours
Administration	2000	Costing hours
Distribution/sale	411	Number of products

The following information is also available:

Table no. 3 Cost drivers

Drivers	Fiberboard Furniture	Wood carpentry	Joinery items	Total
Number of orders Released	12	3	10	25
Number of types and sizes of raw	2	3	1	6

Materials				
Number of batches released	12	15	30	57
Machine operating hours	160	80	80	320
Costing hours	10	7	5	22
Number of Products	12	15	300	327

Table no. 4 Allocation of activity costs

Activity	Cost	Fiberboard		Wood carpentry		Joinery Items	
		furniture drivers	furniture costs	drivers	costs	drivers	costs
Raw material Orders	1450	12	696	3	174	10	580
Inventory Management	1000	2	333	3	500	1	167
Preparation and release of Manufacturing	1000	12	210	15	263	30	526
Production	2400	160	1200	80	600	80	600
Administration	2000	10	909	7	636	5	455
Distribution/sale	411	12	15	15	19	300	377

Determination of production cost:

Fiberboard furniture: - direct costs/expenses: 13000 lei

- indirect production costs: 3363 lei

- production cost: $13000 + 3363 = 16363$ lei

- quantity: 12

- unit production cost: $16363 / 12 = 1364$ lei

Wood carpentry: - direct costs/expenses: 4500 RON

- indirect production costs: 2192 RON
- production cost: 4500 + 2192 = 6692 RON
- quantity: 15, unit production cost: 6692 / 15 = 446 RON.

Joinery items: - direct costs/expenses: 3000 RON

- indirect production costs: 2705 RON
- production cost: 3000 + 2705 = 5705 RON
- quantity: 300
- unit production cost: 5705 / 300 = 19 RON.

The records related to production are as follows:

record of direct costs/expenses

921	=	901	20500
921 furniture			13000
921 carpentry			4500
921 joinery			3000

record of indirect costs

923	=	901	8260
923 furniture			3363
923 carpentry			2192
923 joinery			2705

record of administrative overheads

924	=	901	2000
-----	---	-----	------

record of distribution costs

925	=	901	411
-----	---	-----	-----

record of allocation of indirect costs, administrative overheads and distribution costs

921	=	%	10671
		923	8260
		924	2000
		925	411

calculation and settlement of actual costs relating to the finished products obtained

902	=	921	31171
902 furniture		921 furniture	17737
		921	
902 carpentry		carpentry	7253

IV. IMPLEMENTATION OF ACTIVITY-BASED COSTING

Experts agree on several essential characteristics of any successful implementation of Activity-Based costing. First, the initiative to implement activity-based costing must be strongly supported by top management. Second, the design and implementation of an ABC system should be the responsibility of a cross-functional team rather than of the accounting department. According to Cooper and Kaplan (1991), before designing an ABC system, six major decisions should be made: Should the system be integrated with the existing cost system or should it be a standalone system? Should a formal design be approved before implementation? Who should take ownership of the final system? How precise should the system be? Should the system report historical or future costs? Should the initial design be complex or simple? After having answered these important questions one can start with designing the appropriate ABC system for its demanded purposes. A conceptual model presented in the following figure has been used to demonstrate the relevance of ABC in manufacturing and service organizations

The implementation process

- Step 1: Identify and define activities (such as unit level, batch-level, product-level, customer-level, organization-sustaining) and activity cost pools.
- Step 2: Whenever possible, directly trace overhead costs to activities and cost objects
- Step 3: Assign costs to activity cost pools
- Step 4: Calculate activity rate
- Step 5: Assign costs to cost object
- Step 6: Prepare Management Report

Implementation of Activity-based Costing in Manufacturing Environment

As the manufacturing environment moves to computer integrated manufacturing and the products that are manufactured are diverse, conventional cost systems can report seriously distorted product costs. Joon Jong No and Brian H. Kleiner (1997) enclosed ABC systems achieve product costs that are more accurate than those reported by using multiple cost drivers to trace the costs of the activities of a manufacturing process to the products that consume the resources used in those activities. The objective an ABC system is to provide the most benefit possible at the lowest overall cost. Mehmet and Jeanette said that traditional costing system has the inability to determine actual product / service costs accurately and the inability to provide useful information to management for the purposes

of making critical operating decisions. After implementing ABC one company can evaluate their customers and provides accurate cost data for price quotes.

Management may have the ability to rank overall customer value as well as their profitability on a per job basis. This information helps to target resource utilization, which may lead to an even greater customer value. Based on their extensive case study based research on ABC implementation, Innes and Mitchell (1991) concluded that the change process involved in implementing ABC is an on-going one and that there are three factor types (motivators, facilitators and catalysts) which interact together to promote the cost accounting change.

Cohen et al (2005) has done a study on some Greek companies about whether they have implemented ABC costing or not. All the companies have been classified into four categories –adopters, supporters, deniers and unawares. The result of the specified journal can be summarized by the following table-

ABC adopters (already implemented ABC) 40.9%

ABC deniers (don't want to implement ABC) 31.9%

ABC supporters (will implement ABC in future) 13.6%

ABC unawares (ignorant about ABC) 13.6%

ABC Implementation in Different Culture

Willi & Majidul (2004) has done a very significant task on ABC costing, entitled as, “US and German activity-based costing: A critical comparison and system acceptability propositions”. This article gives us an opportunity to know about the country to country variations in implementing accounting rules. As the ABC costing has taken place of traditional costing, it leads the further practice in this concern and country to country variations is the key point of different practice of ABC. Here the authors try to provide a comparison of the two systems by considering their specific development.

IMPLEMENTATION of ABC (Bangladesh Perspective)

Activity-based Costing (ABC) was first introduced in Bangladesh in 1994. Three leading companies (in their own sector) in our country used Activity-based Costing;

- Novartis
- Glaxo SK (BD) Ltd.
- Nestle Bangladesh Ltd.

Implementation of ABC in Nestle Bangladesh Limited

Nestle is the world's largest group, not only in terms its sales but also in terms of its product range and its geographical presence. Nestle covers nearly every field of nutrition,

infant formula, milk products, chocolate and confectionery, instant coffee, ice-cream, culinary products, frozen readymade meals, mineral water etc. it is also a major producer of pet food. In most of this product groups and in most markets, Nestle is the leader or at least a strong member too. It is a much focused company, with 94% of the sales coming from the food and beverage sector. Nestle is present around the globe, on all continents, with around 230,000 people working in more in an 84 countries with 466 factories and with sales representatives in at least another 70 countries. Many of its brand names are familiar to all:

- Nestle Milk (1867)
- Nescafe (1938)
- Vittel (1960)
- Fristikles (1980)
- Maggie (1947)
- Thomy Alcon (1970)
- Nido
- Kit Kat etc.

Some of its products have broken records: 3000 cups of Nescafe are consumed every second and Kit Kat merited an entry in the Guinness Book of World Records as the world's best selling chocolate bar with 418 Kit Kat fingers eaten every second around the world!

Nestle Bangladesh Ltd. Itself introduced ABC in 1997. They used ABC costing as a supplement to the company's usual costing method. In case of implementation, their top management was a good initiator. They believe that the design and implementation of ABC is the responsibility of a cross-functional team rather than of the accounting department

Advantages of ABC System

The growing industrial complexity and product diversity have made the emergence of ABC system for growing firms. As a powerful tool for decision making purpose, the major advantages of ABC systems are discussed below:

1. ABC increased operational performance by allocating overhead costs based on the actual consumption on the resources by each activity.
2. ABC recognizes the interdependencies of cost drivers to activities.
3. It enables the management to see where the most important costs occur as well as what provides them.

4. Decisions about improving pricing, marketing, product designing and product mix can be made more efficiently by implementing an ABC system.
5. ABC system is the suitable method for correct and accurate information.
6. Redeploying a resource from a non value-added to a value-added activity.
7. By identifying the weak product lines and accurate costs, ABC helps to increase organizational efficiency and profitability.
8. Completely eliminating a non value-adding activity ABC can takeout costs.
9. Identifying and correcting an error that was not budgeted for correcting an error that was not budgeted for correction but would have caused an expense had it not been corrected.
10. Provide Growth by removing a bottleneck that was causing a capacity constraint.
11. It helps industrial marketers in three ways; it results in cost estimates to use in pricing, guides industrial marketers to adjust in negotiations to yield significant cost reductions and indicates areas for change in operations to permit cost reductions that will allow the company to satisfy customer wishes better.

V. CONCLUDING REMARK

Activity-based costing has already come up as a new generation concept in trade and commerce. It has changed the traditional view of cost and management accounting. It measures cost more accurately than other volume-based cost system. As more accurate overhead cost allocations lead to fewer distortions, it acts as a performance evaluation tool. The system introduced some burning issues like ABM, balance score card, bench marking, TQM as performance evaluation tool. By using segment reporting and relevant costing in conjunction with ABC system unprofitable product line or department can be dropped. When implementing an ABC system, a change in the management structure should occur in order to facilitate the application of ABC. It has become essential for capital intensive production process.

REFERENCES

1. Amrik S. Sohal & Walter W.C. Chung, "Activity based costing in manufacturing: two case studies on implementation", *Integrated Manufacturing Systems* 9/3 [1998] 137-147.
2. Binshan Lin, James Collins, Robert K. Su (2001), "Supply Chain Costing: An Activity-based Perspective", *International Journal of Physical Distribution & logistics Management*, Vol. 31 No. 10, pp. 702-713, MCB UP Ltd.

3. Chen F. Frank (1996), "Activity-based Approach to Justification of Advanced Factory Management Systems", *Industrial Management & Data System*, Vol. 96 No-2, pp. 17-24, MCB University Press.
4. Chewen Sheu, Ming-Hsiang Chen, Stacy Kover (2003), "Integrating ABC and TOC for better manufacturing decision making", *Integrated Manufacturing System*, Vol. 14 No. 5, pp. 433-441, MCB UP Limited.
5. Cohen, Sandra and Venieris, George and Kaimenaki, Efrosini(2005), "ABC: Adopters, Supporters, Deniers and Unawares", *Managerial Auditing Journal*, Vol.20.
6. Drew Stapleton, Sanghamitra Pati & Erik Beach & Poomipak Julmanichoti (2004), "Activity-based Costing for Logistics and Marketing", *Business Process Management Journal*, Vol. 10 No. 5, pp. 584-597,
7. Emerald Group Publishing Limited
8. Emblemsvag Jan, "Activity-based life-cycle costing", *Management Auditing Journal* 16/1 [2001] 17-27.
9. Gunasekaran, H. B. Marri, Y.Y.Yusuf, "Application of Activity-Based Costing: Some Case Experiences", *Managerial Auditing Journal* 14/ 6 [1999] 286- 293.
10. Hughes Andrew (2005), "Activity-based Costing and Activity-based Management - A Profitability Model for SMEs Manufacturing Clothing and Textiles in the UK", *Journal of Fashion Marketing and Management*, Vol. 9 No. 1, 2005 pp. 8-19.
11. John C Lere (2000), "Activity-based Costing: A Powerful Tool For Pricing", *Journal of Business And Industrial Marketing*, Vol. 15 No. 1, pp. 23-33, MCB University Press.
12. John M Trussel & Larry N Biter (1998), "Strategic Cost Management: an Activity-based Management Approach", *Management decision*, Vol. 36, No. 7 pp. 441-447, MCB University Press.
13. Joon Jong No, Brian H. Kleiner (1997), "How To Implement Activity – Based Costing", *Logistics Information Management*, Volume 10. Number 2. 1997. pp. 68-72.
14. K. Franz Willi & Islam Majidul (2004), "US and German Activity-based Costing: A Critical Comparison and System Acceptability Propositions", *Benchmarking: an International Journal*, Vol.11 No.1, 2004 pp. 31-51, Emerald Group Publishing Limited.

15. Kee, Robert and Schimidt, Charles (1997), “A comparative analysis of utilizing activity-based costing and the theory of constraints for making product-mix decisions”, Int. J. Production Economics 63 (2000) 1-17.
16. Kelline S. Cox, Ronald G. Downey, Laurinda G. Smith (1999), “ABC’s Of Higher Education- Getting Back To The Basics An Activity-Based Costing Approach To Planning And Financial Decision Making ”, pp. 1-18, Wasington.
17. M. Supitcha & W.H. Fredrick (2001), “Cultural influences on the ABC implementation in Thailand’s environment”, Journal of Managerial Psychology, Vol. 16 No. 2, 2001, pp. 142-158, MCB Univer4sity Press.
18. Mehmet Kocakulah and Jeanette Maier-Lytle, “How to Implement Activity –Based Costing in a Manufacturing Environment”, University of Southern Indiana ,School of Business, Dept. of Accounting and Business Law, 8600 University Blvd., Evansville, IN 47712;

The logo for MITRC Journal of Science, Engineering and Management features a large, stylized gear or wheel with a blue and orange color scheme. The text "MITRC Journal of Science, Engineering And Management" is overlaid on the gear in a bold, sans-serif font. "MITRC" is in blue, and "Journal of Science, Engineering And Management" is in orange.

**MITRC Journal of
Science,
Engineering
And Management**