Applications of Activity-Based Costing in Bangladesh

Mohammad Tariq Hasan[*]
Shammi Akter[**]

Abstract

The study deals with the problem of Activity-Based Costing (ABC) utilization in conditions of the Bangladesh. Shortcoming of the traditional costing methods and advantages of Activity-Based Costing systems are explained in the opening part of this article. Major part of article is dedicated to describe the advantages of utilization of ABC system in practice. This article describes the approach of Bangladeshi companies to the problems of cost management in today's business environment and seeks the obstacles in adoption of modern costing systems. Finally our study focused on the level of practice of the cost management systems in the Bangladeshi companies. We search the answer for the question: "How do Bangladeshi companies deal with the different types and levels of costing methods application and systems?" At last, we define the obstacles of applying modern costing methods and the possible ways of the utilization and implementation of these systems.

Key words: Cost management, costing methods, Activity-Based Costing, overhead allocation

JEL Classifications: M40, M41, M49

Introduction

In the recent time we can see a noticeably growing importance of the high quality information for the company management decision. The area of the cost management systems used for costing and budgeting is one of the most important aspects of company's financial management system. According to the intense competition in the globalized markets, companies need the information about the profitability of a product, customers or markets, about costs consumed by different activities and other different areas where the costs have the important role. To ensure competitive advantage company has to have the ability to react to the changes in product and activities structure and feature these changes in the product costing. If the costing system does not change and does not conform with process, activities and product structure dynamics, then the costing system will become obsolete and will produce the incorrect information about the company cost.

Contemporary managerial accounting is affected by the growing importance of effective overhead cost management, the cause of which lies in several factors. First and foremost, there has been a proportional increase in the overheads faced by companies, changing from around a portion of 10% in the 1950´s to what it is today, potentially representing approximately 40% of a manufacturing business's total costs. Another factor holding sway over the bearing of effective overhead cost management is pressure from competitors, forcing firms to extend the efficiency of

[*] Lecturer, Faculty of Business, ASA University Bangladesh
[**] Lecturer, BBA, Dhaka City College

their operations. Organizations with huge overhead departments and inflated overhead costs could have difficulties reaching the necessary level of operational effectiveness. Furthermore, there is the factor of increasing diversity of operations. This means that each product and every customer could differ in how they consume overhead department services within an organization. In such cases, any company's costing system should provide useful information on product and client costs, as well as giving data on the relations between costs, company activities, and cost objects, these being products and customers. Accountants and financial managers often overcome challenges like this by allocating overhead department costs to cost objects. However, the fixed nature of such costs complicates matters while allotting expenses in instances of fluctuating capacity utilization. In order to overcome this, a number of sophisticated costing methods have been developed in recent decades that help managers deal with issues of overhead cost allocation, processes which provide data for effective cost management.

Objectives

The study has been undertaken with the following objectives:

- To know about the cost practice of Bangladeshi companies
- To identify the use of ABC system in Bangladeshi company
- To explore the opportunities and problem of ABC system

Research Methodology

The image of the cost management level in Bangladeshi companies could be presented through the results of the research. The sample of Bangladeshi companies, of different size, ownership structure and business branches, has been chosen as the object of this research, to help to show the approach of the Bangladeshi companies to the utilization of the ABC system in their cost management. Random sample of 40 Bangladeshi manufacturing companies has been chosen for participation on this study. They had filled the questionnaires, with the questions related to the area of research. Contacted persons were usually financial managers or executive of the companies, which proves the relevance of the gathered data. The main aim of this research was to identify the number of companies using or considering the utilization of the process costing and management system (Activity-Based Costing) and describing the relation of the companies to possible utilization of these systems.

Introduction of the Activity-Based Cost Management System

In the beginning of 1980´s companies started to seek for new costing methods and started to deal with activity-based methods, consequently with development of process management, which has been developed in the same period. The Activity-Based Costing (ABC) as a new type of the costing method was constructed in that time. ABC involved the important quality improvement in the area of cost calculations and solved the basic shortages of traditional absorption costing systems, by looking for of the true causes of the overhead costs consumption.

Traditional cost accounting has been criticized for cost distortion and the lack of relevance during the last 20 years (Johnson and Kaplan 1987). A traditional system reports where and by whom money is spent on, but fails to report the cost of activities and processes (Miller 1996). Many organizations, including petroleum and semiconductor companies in the manufacturing industry, have adopted the new costing method, activity-based costing (ABC). Major problems of traditional costing methods: mixing of all types of costs together in the few company overheads; arbitrary allocation of that overheads; and "averaging" of the overhead costs allocated, can be effectively eliminated by the process view on the allocation process. Usually, **absorption costing method** allocates the proportionally same volume of overhead costs to each product, according to the volume of the direct costs. At present companies could use this method which is very often misguiding. The effect that plays its role in wrong overhead cost allocation could be described as the "averaging". Generally, absorption costing method places overhead department costs in the general or administration overhead, these having been allocated to a product using direct labor or a basis for direct cost allocation. Indeed, using such a foundation for allotting fixed overheads results in unsuitable arbitrary allocation (Drury, 2001). The absorption costing method could distort product costs, because it allocates overhead costs proportionally to the portion of direct costs.

Glad and Becker (1996) defined a number of fundamental limitations in traditional costing systems:

- Labor, as a basis for assigning manufacturing overhead, is irrelevant as it is significantly less than an overhead and many overheads do not bear any relationship to labor costs of labor hours.
- The cost of technology is not assigned to products based on usage. Moreover, direct (labor) cost is replaced by an indirect (machine) cost(s).
- Service-related costs have increased considerably in the last few decades. Costing for these services was previously non-existent.
- Customer-related costs (finance, discounts, distribution, sales, after-sales service, etc.) are not related to the product's cost objects. Customer profitability has become as crucial as product profitability.

Problem of averaging of the over head costs allocation can by effectively solved by the ABC method, in that way, that individual group of overhead costs will be allocated by individual cost drivers, according to the nature of relation between these costs and cost drivers.

Concept of ABC costing

Activity-based costing is now an accepted element of the accounting and control systems of industrial and service firms, and it has been employed in both governmental and not-for-profit organizations. ABC is a product of the technological era. Conventional managerial information systems can trace their roots to the industrial age, when labor was the dominant factor of production. Within these systems, over-head cost is first allocated from service departments to production departments and then distributed, using an "overhead charging rate," to specific products. This method was developed to measure manufacturing processes in which overhead

was either immaterial or was mainly a function of direct labor, which, in turn, was dependent upon production volume. Moreover, in a conventional industrial setting, production departments were mainly responsible for the key manufacturing activities and were clearly distinguishable from service departments, which provided only ancillary support. In the service economy (as well as in modern, computer-driven manufacturing facilities), direct manufacturing labor is no longer the overriding factor of production and the distinction between production and service departments has become decidedly blurred. Overall product and service costs are more influenced by research, materials handling, procurement, maintenance, quality control, and customer service than by direct labor.

To compensate for the deficiencies of the conventional information systems, ABC requires firms to collect costs in specially constructed "activity pools" rather than service departments or overhead cost centers. Each of the pools corresponds to a group of similar business processes or activities that are homogeneous in that all costs assigned to the pool are influenced or driven by a common factor. The activity pools can cut across departmental boundaries and can include overhead costs incurred by production as well as service departments. After collecting the costs in the activity-based cost pools, the firm distributes them directly to its various products or services by means of a "cost driver." A cost driver is similar to an overhead charging rate, but it should represent the factor that has the greatest influence on the behavior of the overhead costs within a particular activity pool. (Granof M.H., Bell P.W and Neumann B.R, "Accounting for Managers and Investors")

The basic idea of ABC is to allocate costs to operations through the various activities in place that can be measured by cost drivers. In other words, cost units are assigned to individual activities, e.g. planning, packing, and quality control, at a preliminary stage using a resource cost driver, with the costs of these activities being allocated to specific products or cost objects. In reality, these are caused by the incurrence of overheads, using an activity cost driver in the second phase. Activity-based costing methodology has been described by many authors. (Drury-2001, Kaplan, Cooper-1998, Glad Becker-1996 and Cokins 2001)

<u>The implementation of the ABC system has the following steps:</u>
Step 1) Identifying the activities such as engineering, machining, inspection…etc.
Step 2) Determining the activity costs
Step 3) Determining the cost drivers such as machining hours, number of setups etc.
Step 4) Collecting the activity data
Step 5) Computing the product cost

(Akyol D. E., Tuncel G. and Bayhan G. M)

Comparison between ABC & Traditional costing system

Considering the issue of compliance with financial reporting requirements, traditional cost accounting systems often allocate costs based on single-volume measures such as direct-labor hours or machine hours. While using a single volume measure as an overall cost driver seldom meets the cause-and-effect criterion desired in cost allocation, it provides a relatively cheap and

convenient means of complying with financial reporting requirements. (Encyclopedia of Management)

In contrast to traditional cost-accounting systems, ABC systems are not inherently constrained by the tenets of financial reporting requirements. Rather, ABC systems have the inherent flexibility to provide special reports to facilitate management decisions regarding the costs of activities undertaken to design, produce, sell and deliver a company's products or services. At the heart of this flexibility is the fact that ABC systems focus on accumulating costs via several key activities, whereas traditional cost allocation focuses on accumulating costs via organizational units. By focusing on specific activities, ABC systems provide superior cost allocation information—especially when costs are caused by non-volume-based cost drivers. In table below, we are trying to make a comparison between ABC and Non-ABC costing systems:

Table 1: Comparison between ABC and Traditional Costing

Particulars	ABC Costing	Traditional Costing (Non-ABC)
Cost Pools	ABC systems accumulate costs into activity cost pools. These are designed to correspond to the major activities or business processes. By design, the costs in each cost pool are largely caused by a single factor—the cost driver.	Traditional costing systems accumulate costs into facility-wide or departmental cost pools. The costs in each cost pool are heterogeneous—they are costs of many major processes and generally are not caused by a single factor.
Allocation Bases	ABC systems allocate costs to products, services, and other cost objects from the activity cost pools using allocation bases corresponding to cost drivers of activity costs.	Traditional systems allocate costs to products using volume-based allocation bases: units, direct labor input, machine hours, revenue etc.
Hierarchy of Costs	Allows for non-linearity of costs within the organization by explicitly recognizing that some costs are not caused by the number of units produced.	Generally estimates all of the costs of an organization as being driven by the volume of product or service delivered.
Cost Objects	Focuses on estimating the costs of many cost objects of interest: units, batches, product lines, business processes, customers, and suppliers.	Focuses on estimating the cost of a single cost object—unit of product or service.
Decision Support	Because of the ability to align allocation bases with cost drivers, provides more accurate information to support managerial decisions.	Because of the inability to align allocation bases with cost drivers, leads to over costing and under costing problems.
Cost Control	By providing summary costs of organizational activities, ABC allows for prioritization of cost-management efforts.	Cost control is viewed as a departmental exercise rather than a cross-functional effort.
Cost	Relatively expensive to implement and maintain.	Inexpensive to implement and maintain.

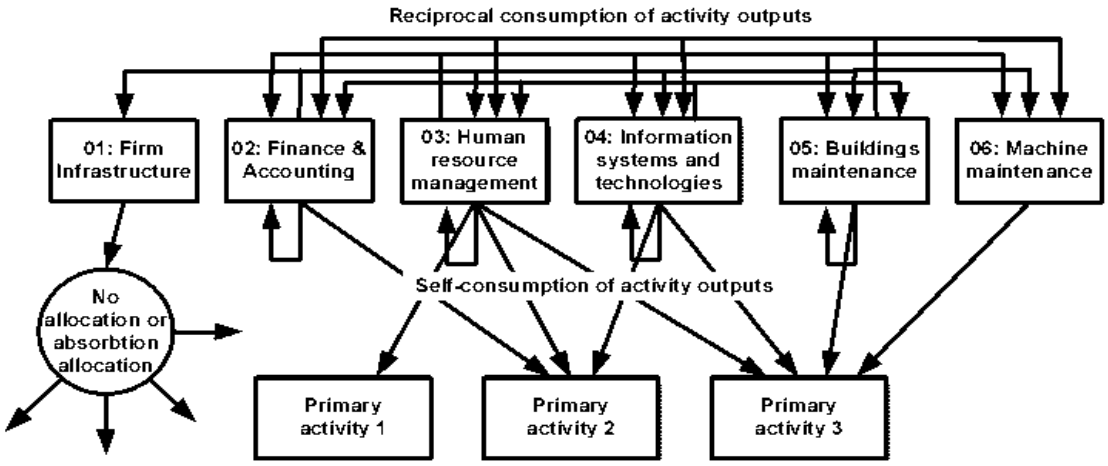
Application of ABC System

There are two purposes of activity-based costing. The first is to prevent cost distortion. Cost distortion occurs because traditional costing combines all indirect costs into a single cost pool. This pool is allocated on the basis of some resource common to all of the company's products, typically direct labor. 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 which can be achieved by activity analysis and (or) the function of monitoring activities.

In ABC system costs are allocated to the operations through individual activities, which can be measured by the cost drivers. In other words, the cost units are in the first phase allocated to the individual activities (such as planning, packing, quality control), using the resource cost driver. In the second phase, costs of those activities are allocated to the concrete products or cost objects, which in reality caused the incurrence of the overheads, using the activity cost driver (Horngren, Foster and Datar 1999). The cost allocation deals also with the division into primary and secondary activities and its cost consumption relations. Not all company activities are consumed by the external cost object (such as product or customer); some of the activities are consumed within the organization, for the in-house needs (such as IT, personal management or infrastructure). After the total activity costs and activity output a measure is determined, the primary rate can be calculated as the quotient of activity costs and output measures. Therefore, the primary rate represents activity unit costs. Following the calculation of primary rates, the next thing to do is allocate secondary activities to primary ones. It is possible to solve all of the problems relating to overhead department costs if the amount of secondary cost driver units can be quantified. These are consumed by individual primary activities, such as the number of employees, SAP licenses and square meters being consumed by a primary activity like 'Quality control'.

The difficulty lies in that these secondary activities and their output measures are not solely consumed by primary activities but other secondary activities, as well as these activities themselves (Figure 1). This problem has also been discussed by some authors (Jacob, Mashall, Smith, 1993). Figure 1 shows how any activities mutually consume other activity outputs. If we analyze, for example, the activity entitled human resources management, it is shown that this activity consumes outputs of other secondary activities as IS/IT, finance & accounting, amongst others. These types of activities, providing as they do additional outputs for other secondary activities, may be described as reciprocal secondary activities.

Figure 1: Example of mutually and self-consumed secondary activities in the cost model



Findings and analysis

Costing method used in practice

The core part of the research focused on the questions about the costing method used by the company. Companies were asked to define, which costing method they use for their product costing. The results are shown in table 2.

Table 2: Cost Calculation methods used in Bangladesh

1- Division Costing	3	8%
2- Absorption Costing	9	22%
3- Standard Costing	12	30%
4- Variable Cost analysis	5	13%
5- Target costing	1	2%
6- Activity Based Costing	4	10%
9- Communication(2;3;4)	4	10%
8- Other	2	5%
TOTAL	**40**	**100**

As we can see, the most extended costing methods are the traditional absorption costing and standard costing. The study find out the amount of absorption costing is 22%, portion of standard costing is 30%, portion of variable costing is 13% and portion of Activity-Based Costing is 10% in 2008. Definite interpretation of these results may not be possible, but we can notice a slow downward movement in the number of traditional costing methods and variable costing methods which is replaced by very slow increase in ABC utilization and development of combined costing methods. These results are relevant to the trends described in the worldwide information sources.

Despite the costing method used, a relatively high number of companies do not consider their costing system as the accurate one; 25% of all firms are not satisfied with their cost management system and 20 % of all firms assume that their own costing system doesn't provide the real image about the company costs. That means, that in fact the quarter of the firms in the sample recognize their own costing system as insufficient and providing the inaccurate data. Rest of the firms should consider their costing system as providing the correct data or firms could be satisfied with its level, but its not proving, that the data and information provided by that system are correct in fact. Based on these results, it is not possible to formulate any proved conclusion what portion of the companies use the incorrect system. According to the experiences from worldwide researches and findings, we can expect that a relatively large number of companies use the inaccurate costing system, but regard their costing system as suitable.

Utilization of Activity-Based Costing Systems

The following part of the study focused on the Activity-Based Costing systems itself. 40% of the companies know about the ABC system, but only 25% of them are completely informed about the features and consequences of the costing system. This shows that the popularization of this method is good, but there is a lack of practical experience with the utilization of this system and detailed information about the advantages and possibilities of effective applications.

Table 3 shows the companies´ approach to the Activity-Based Costing methods. As we can see, most of the companies have never dealt with this type of costing method. A relatively high number considered the possible implementation of ABC, but finally they rejected the application of this system. The high number of companies, that have not dealt with the ABC or rejected the application of this method, have generally been goaded by the lack of information sources about this approach and a general lack of experience with the method.

The reasons why companies have never dealt with ABC systems or rejected its application are described in the following part of the research. 25% of companies consider the ABC system as not suitable because of the character of their operations, 10% of companies consider the application of the method as inadequate for investment and 50% of companies do not have enough information about the ABC system. Companies are not able to perform any kind of analysis, which could help them to forecast the propriety of the ABC application or lead them through the successful implementation process. Sometimes also the implementation performed by the external consultants could be seen as expensive and ineffective.

Table 3: companies approach to ABC system

Never dealt with	24	60%
Considered but rejected	6	15%
Really considering	4	10%
Implementing	3	7%
Using	3	8%
TOTAL	**40**	**100**

The last part of the study focused on the companies which use or consider the use of the ABC system. The intention of the research was to find out the reasons why companies decided to use this system. The results are introduced in the table 4.

Table - 4: The reasons of using ABC system (count on those consider ABC system)

Reasons	No. of companies
Necessity of cost reduction	2
Necessity of cost reduction + Improving of the information about costs	5
Problem with present system	2
Other reasons	1
TOTAL	10

Conclusion

The results of the research provide an overview of the level of cost management in Bangladesh. Despite long discussions about the limitations of the traditional costing systems, the modern Activity-Based Costing systems, which are able to eliminate the inaccurate assimilation of costing methods, are not widely extended. The main reason of the low utilization of these systems is the inability to perform effective implementation process and to effectively utilize information outputs of the system. The ABC method itself is mostly utilized by the biggest Bangladeshi companies operating in the field of manufacturing, energy, telecommunications and other services, where the limitations of the traditional systems and obscurity of cost objects is very relevant. Medium sized companies with heterogeneous production, where the application of ABC system could be very effective, do not deal with ABC system in a wider range, because of the reasons mentioned above. Possible solution to this problem, which is primarily caused by the information barrier about the system details and information outputs, is to publicize the practical examples of useful and effective utilization of the sources, which could be recognized by the possible users of these systems.

References

Akyol D. E., Tuncel G. and Bayhan G. M., "A comparative analysis of activity-based costing and traditional costing", World Academy of Science, Engineering & Teachnology, vol.3, 2005

Cokins, G. (2001), Activity-Based Cost Management: An Executive's Guide, John Wiley and Sons, ISBN 047144328X

Drury, C. (2001), Management and Cost Accounting, Fifth Edition, Thomson Learning; ISBN 1-86152-536-2

Glad, Ernst, Becker, Hugh (1996), Activity-Based Costing and Management, John Wiley and Sons, ISBN 0-471-96331-3

Granof M.H., Bell P.W and Neumann B.R., Accounting for Managers and Investors (Englewood N.J, Prentice-Hall, 1993).

Horngren, C.Y., Foster, G. and Datar, S. M. (1999), Cost Accounting, 10th edition, Prentice Hall, Upper Saddle River, NJ

Jacobs, F., Marshall, R., Smith, S. (1993), An alternative method for allocating service department costs, Ohio CPA Journal; Apr 1993; 52, 2; ABI/INFORM Global pp.20

Johnson, H. T., and R. S. Kaplan., Relevance Lost: The Rise and Fall of Management Accounting. Boston: Harvard Business Sch. Press, 1987.

Kaplan, R., Cooper, R. (1998), Cost & Effect – Using Integrated Cost Systems to Drive Profitability and Performance, Harvard Business School Press, ISBN978-0-87584-788-7

Miller, J. A. (1996), Implementing activity-based management in daily operations, John Wiley & Sons, New York, NY

Appendix-1

Questionnaires for survey

Q: 1 What are the methods used to calculate for cost?
Q: 2 Will you ever approach for ABC system?
Q: 3 Do you have any idea about ABC system?
Q: 4 What are the reasons for using ABC system?
Q: 5 Why are you reluctant to use ABC system?
Q: 6 Do you think your costing system provide accurate information?
Q: 7 Are you satisfied with current cost system?

Appendix-2

List of companies for questionnaire survey

(Only Respondent)

01. ACI Limited	21. Monno Fabrics
02. Aftab Automobiles	22. Shinepukur Ceramics Limited
03. Al-Haj Textile	23. Yousuf Flour
04. Apex Foods	24. Sinobangla Industries
05. Alltex Ind. Ltd.	25. Square Textile
06. Apex Spinning	26. Square Pharmaceuticals Ltd.
07. Berger Paints Bangladesh Ltd.	27. Alltex Ind. Ltd
08. BEXIMCO Ltd.	28. Saiham Textile
09. Beximco Pharma	29. Safko Spinnings
10. BSRM Steels Limited	30. Usmania Glass
11. Confidence Cement	31. Renata Ltd
12. Desh Garmants	32. Sonargaon Textiles
13. Eastern Cables	33. Standard Ceramic
14. Fu-Wang Ceramic	34. Olympic Industries
15. Fu Wang Food	35. Metro Spinning
16. GQ Ball Pen	36. Golden Son Ltd.
17. H.R.Textile	37. Dulamia Cotton
18. Kohinoor Chemicals	38. Aramit Cement Ltd.
19. Keya Cosmetics	39. Fine Foods Limited
20. Monno Ceramic	40. Aziz Pipes