

# APPLICATION OF ACTIVITY BASED COSTING IN MANUFACTURING COMPANIES IN BANGLADESH: A SURVEY BASED STUDY

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## **Abstract:**

*The widespread environmental change has forced many organizations to change and re-think their business and competitive strategies, particularly cost management system, in order to achieve the competitive edge in the marketplace. Successful organizations are those that are able to improve quality, lower costs and efficiency of operations and eliminate products and services that incur losses. This explains why some organizations are successful while others fail. An organization costing system is a system that helps the management with the strategy planning while the system plays an important role in providing accurate cost information about the products and customers. In other words, the costing management system is important to provide timely and quality information to help managers in their decision making process. To achieve this, many organizations shift their focus from conventional or traditional costing system to an increasingly popular cost methodology system that is Activity- Based Costing (ABC). This system identifies cost pool or activity centers in an organization. It simply collects cost in functional activity cost pools and then applies costs to products/services using individual cost drivers (Brignall, 1997). It assigns cost to products and services (cost drivers), based on the number of events or transactions that are taking place in the process of providing a product or service. From the very beginning, when this system was introduced, it has already proved its popularity among the manufacturing context.*

*A satisfactory number of research and studies reveal how the ABC system in the manufacturing sectors has effectively kept the operational cost at marginal level and still be able to provide better customer service at the same time. Thus, this study analyses how an ABC costing system that improves operations and to better meet the needs of customers in a more cost – effective manner. In Bangladesh, the research on application of is very rare that made the researchers interested to conduct a research in this area. It will enlarge the scope of further research benefiting the practitioners to come up with strong solutions to the problems identified in the research. A semi-structured questionnaire is designed to conduct the field survey. And descriptive statistics are used to present the survey findings. As the research is a preliminary one, the discussions are kept simple and the analysis is simplified just to highlight the practices in some selective areas.*

**Key words:** Activity Based Costing, Manufacturing Company, Survey, Bangladesh.

**JEL classification:** D23

## **INTRODUCTION**

A country's economy in large depends on industries particularly manufacturing sectors such as garments and textiles companies, leather, medicine, cement, electronics, etc . As more corporate sectors venturing into manufacturing industries create competition, they are required to provide a quality customer service at reasonable cost. A number of firms have gone into bankruptcy as a result of poor control over escalating overhead cost. Thus, the survival of a firm in manufacturing industry is largely depending on the ability to keep the operation cost at marginal level and thus make it as competitive advantage to take it to even greater profitability.

Cost and management accounting concepts and techniques are used in manufacturing sectors to provide cost information for decision-making. A study by Horngren (1995) found that the focus of cost management should be on decisions and the various cost management techniques, systems and measurements that spur and help managers to make wiser economic decisions. Of the many available cost management systems, research reveals that a bigger number of companies' uses

Activity-based costing (ABC) method in comparison with the traditional costing system in providing timely and quality cost information (Adams, 1996; Brignall, 1997; Cagwin & Bouwman, 2002; Innes & Mitchell, 1997). However, the implementation of such system is costly and often the idea of implementing the system is drop as a result of time consumption and lack of expertise. In some cases, the cost for carrying out the ABC analysis is higher than the returns. Nevertheless, there is a growing body of literature, which argues that, compared to the traditional costing systems; Activity-Based costing (ABC) offers important advantages to organizations (Adams, 1996).

The goal of any cost management system is to provide relevant and timely information to management. This information supports better management of corporate resources in production of products or provision of services, and improves competitiveness in terms of costs, quality, and profitability. In this context, a cost management system can also be viewed as a planning and control management system (Berliner and Brimson 1988). Cooper (1988a, 1988b, 1989a, 1989b) provided the comprehensive discussion of activity-based costing (ABC), following the pioneering work of Kaplan (1983, 1984).

In the rest of this report, section 2 presents a review of literature. Section 3 presents the current significance of activity based costing and the discussion of the requirements for further improvement. The analysis of the survey results is presented in section 4. Section 5 concludes with a general overview of summary of the findings.

## **1.2 OBJECTIVE OF THE STUDY**

The purpose of this case study is to study the application of Activity Based Costing in manufacturing sectors in Bangladeshi companies particularly textiles and garments companies and whether this cost system provides better control over the cost in comparison with the traditional costing system.

Appropriate costing system is necessary as textiles and garments companies under great pressure to lower costs and improve the quality and efficiency of operations due to a competitive garments industry. Particularly, it requires cost information to improve the quality, timeliness, and efficiency of the activities they perform, and to understand accurately the cost of the individual department. Thus, the objectives of this research are as follows:

1. A costing system that determines the efficiency and effectiveness of all major activities performed in the firms.
2. A costing system that identify and evaluate new activities that can improve the future performance of the firms.
3. A costing system that identify and eliminate non-value added costs. These are the costs of activities that can be eliminated with no deterioration of service quality and performances.

## **1.3 RESEARCH METHODOLOGY**

Data was gathered principally through administration of questionnaires to finance, accounting and management staff of corporate firm, supplemented by a review of relevant documentations. In some cases free discussion were made with the concerned officials of sample firms to have a clear idea about their practice of advanced accounting method. These assist the author to have an understanding of the evolution, growth and present significance of ABC and application of ABC in Bangladeshi manufacturing firms.

## **1.4 THE SURVEY**

A survey of 25 manufacturing companies in Bangladesh was conducted. The survey instrument was developed to collect data to provide evidence about the current status of activity-based costing adoption and implementation. It included demographic questions about the

respondent's position in the organization and about the size of the company and the economic sector in which it operated. Respondents were also asked about their familiarity with ABC and about the cost systems presently in use in their companies.

## LITERATURE REVIEW

For the last few dozen years, the following company operation phenomena have been observed:

- The automation of production processes has meant the demand for unskilled workers is decreasing while the demand for specialists is increasing.
- The importance of secondary processes, going around production, is increasing (inspection, supervision, sale, marketing processes, etc.).
- Firms are outsourcing many services (e.g., tax advising).

Cokins (2001, p. 5-6) states, over the last few decades organizations have been increasingly offering a greater variety of products and services as well as using more types of distribution and sales channels. In addition, organizations have been servicing more and different types of clients. Introducing greater variation and diversity (i.e., heterogeneity) into an organization creates complexity, and increasingly complexity results in more overhead expenses to manage it.

As a result of these phenomena, there occurred a complete change in the cost structure of company operations. Research results published in 1985 show that for 100 years in American industry, common costs (indirect costs) had been continually growing from 40% to 75% of the entire costs, while participation of direct costs of labor had been diminishing from 55% to 25% of the entire cost (Kaplan, 1990). According to Cokins, Stratton, and Helbling (1993, p. 2), "As businesses have become more complex, the elements of costs are replacing the direct costs of touch-laborers and purchase materials."

Here it is highly probable that the use of traditional methods of cost calculation will result in a distortion of unit costs of the products. Traditional cost allocation methods work only when the following apply (Cokins, 1996):

- Few very similar products or services are produced.
- Overheads are low.
- Production and conversion processes are homogenous.
- Customers, customer demands, and marketing channels are homogenous.
- Selling, distribution, and administration costs are low.

The change in the cost structure in organizations has become one of the main reasons for the criticism of the traditional cost accounting systems and their usefulness in the evaluation of products and services profitability.

As an answer, by the end of the 1980s, a new cost calculating method, activity-based costing, was proposed (Cooper & Kaplan, 1988; Johnson & Kaplan, 1987; Kaplan, 1988). According to Kaplan and Cooper (1997), there exist two simple rules to be used when searching for a potential applicable use of ABC systems:

- **The principle of Willy Sutton:** The share of indirect costs in all the costs is high.
- **The principle of high diversity:** There are a lot of different products, clients, suppliers, processes, and so forth.

One shall stress again that these requirements are met in a growing number of companies as the increasing competition makes them flexible in meeting diverse client needs and calls for factoring in different conditions of cooperation with partners on the market.

In 1923, J. Maurice Clark coined the phrase 'different costs for different purposes', but most companies only have one costing system, which is used for all purposes: stock valuation, planning, control and decision-making (Brignall, 1997). Prior to the introduction of ABC costing system, a number of companies, particularly manufacturing sectors, used a traditional costing system called volume-based costing system, which is volume-based cost driver such as direct-labour hours, direct

labour cost, or machine hours. At most the cost are classified into two main parts that are Product cost which is a cost assigned to goods that were either purchased or manufactured for resale and Period cost where administration and selling are recognized as expenses during the period in which they are incurred. If inventories are manufactured, the product cost is relatively easy to trace to production job but manufacturing overhead is not easily traced to jobs as these costs often bear no direct relationship with individual jobs or units of product (Hilton, 2005). The conventional or traditional accounting system allocates the manufacturing overhead to the products either plantwide overhead rate or on two-stage allocation system. The former allocates cost on a single activity base for the entire factory but the latter assigns manufacturing overhead cost based on departmental activities.

Under this system, at the first stage, the manufacturing cost is collected into cost pools and then attached to products by a method based on unit volume of production such as direct labour hours (Brignall, 1997). Thus, the allocation of manufacturing cost depends on the types of resources that the products consume. The greater the products consume the resource, the higher the overhead attached to the products based on one particular activity base such as direct labour hour, machine hour or direct labour cost. Furthermore, this system allows for cost distortions, which will be greater in business units with a higher proportion of overhead costs (Baird, Harrison, & Reeve, 2004).

While this approach has the advantage of simplicity, it will result in systematic miscosting where overheads are not volume driven (Innes & Mitchell, 1997).

Researchers noted that this system failed to reflect other resource or cost of activities that added value to the production (Adams, 1996; Innes & Mitchell 1997; Johnson & Kaplan, 1987). Other than that, Cooper and Kaplan (1987, cited in Adams, 1996) assert that traditional cost and management accounting systems such as those based on standard costing and absorption costing have measured company performance imperfectly because they have not kept up with the developments in production technology and consumerism.

Therefore, to avoid biased cost reporting, the allocation of overheads to cost objects should not be based on a common volume-related measure, such as direct labour hour but on the groups of activities which generate those overheads (Kaplan, 1987, cited in Adams, 1996).

An overhead allocation based on activity centers avoids a common consequence of traditional output-based costing system particularly under cost low volume products. A study conducted by Innes and Mictchell (1997) found that overheads based on activity centers facilitate the targeting of unnecessary, wasteful, resource usage and the costly effects of over-complex ways of running a business process. This technique, which is popularly known as Activity-Based costing (ABC), is a 'system that focuses attention on the costs of various activities required to produce a product or service' (Baird et al., 2004:

384). This system is in favor of many organizations in order to provide "true" cost information for their strategic decision-making.

Cooper and Kaplan (e.g. Cooper, 1988; Cooper and Kaplan, 1988), developed the system that will reduce the level of arbitrary cost allocations associated with "traditional" costing systems and result in more accurate product cost (Baird et al., 2004). Many authors have advocated the benefits of ABC, and a number of studies have provided empirical evidence to support those benefits (Anderson, 1995;

Foster and Swenson, 1997; McGowan and Klammer, 1997; Norris, 1994; Swenson, 1995 all cited in Baird et al., 2004). Spicer (1993, cited in Adams, 1996) noted that besides providing more accurate product costing, ABC also improves the basis upon which strategic decisions, involving resource allocation, product mix, pricing and marketing, are made. Cagwin and Bouwman (2002) further listed authors who are in the opinion that, the application of ABC is more effective in specific environmental conditions (enabling conditions) such as manufacturing complexity (Jones, 1991), environments with specialty product costs (Srinidhi, 1992) and diverse (multiple different) business environments (Cooper & Kaplan, 1988). Furthermore, the refined treatment of overhead cost by using ABC system can facilitate the identification of how individual customer influences

the cost of supply (Innes & Mitchell, 1997). Bellis-Jones (1989) found that when ABC is used in this way, customer profitability profiles and analysis are possible and market strategy is enhanced by this intelligence (cited in Innes & Mitchell, 1997).

In the beginning, ABC cost management system was common in the manufacturing environment where the identification of activities associated with the products was still less complex and in some instances the activities were direct. However, now even the service sectors adopt ABC cost management, acknowledging the importance of cost information for survival in the increased competition. A number of researches revealed successful applications of ABC in private as well in public manufacturing sectors.

An ABC system achieves improved accuracy in estimation of costs by using *multiple* cost drivers to trace the cost of activities to the products associated with the resources consumed by those activities. In this respect, a cost *driver* is an event, associated with an activity, that results in the consumption of firm's resources. Since the number of events performed in a firm is often vast, it may not be cost-effective to use a distinct and different cost driver for each activity. Thus, many activities may be grouped into a single driver to trace the costs of all the grouped activities for a product or service. For instance, each setup may be associated with a single cost driver that accounts for moving, grouping, sequencing, and segmenting.

At the same time, there may be other competing cost drivers, such as setup hours, better correlated with the resources consumed by these grouped activities. In activity-based costing, these different cost drivers are not necessarily all proportional to unit volume, in contrast to traditional volume-based cost systems (Kaplan 1988, OfGuinn 1990, Dewan and Magee 1992).

"The art of designing an ABC system can be viewed as making two separate but interrelated decisions about the *number of cost drivers* needed and *which cost drivers to use*. These decisions are interrelated because the type of cost drivers selected changes the number of drivers required to achieve a desired level of accuracy" (Cooper 1989a, 1989b).

Activity-based costing provides a translation between the general ledger accounts, which are required by generally-accepted accounting practices (GAAP) for external reporting, and overhead resources representing work activities or functions of the firm. The work activities (such as creating and maintaining the bills of material, tool design, production planning and scheduling, etc.) are subsequently linked to business processes (customer services and "for fee" deliverables) and product cost objectives based upon demand-driven consumption patterns that reflect cause-and-effect relationships.

This is opposed to simplistic single cost allocation schemes employed in traditional accounting systems. Costs that were treated as fixed overhead costs in traditional accounting systems now gain a true measure of variability in activity-based cost accounting systems.

The product total cost is found through the summation of direct charges against each product (direct labor + direct material + direct contracts to repair components) and individual allocation of each production indirect and general and administrative expense pools to the product. Using the reciprocal method of allocation of production indirect (PI) and general & administrative (G&A) expenses, matrices are used to represent transfers of cost as follows:

$$[I - AT]^{-1} * [B] = [C] \quad (1)$$

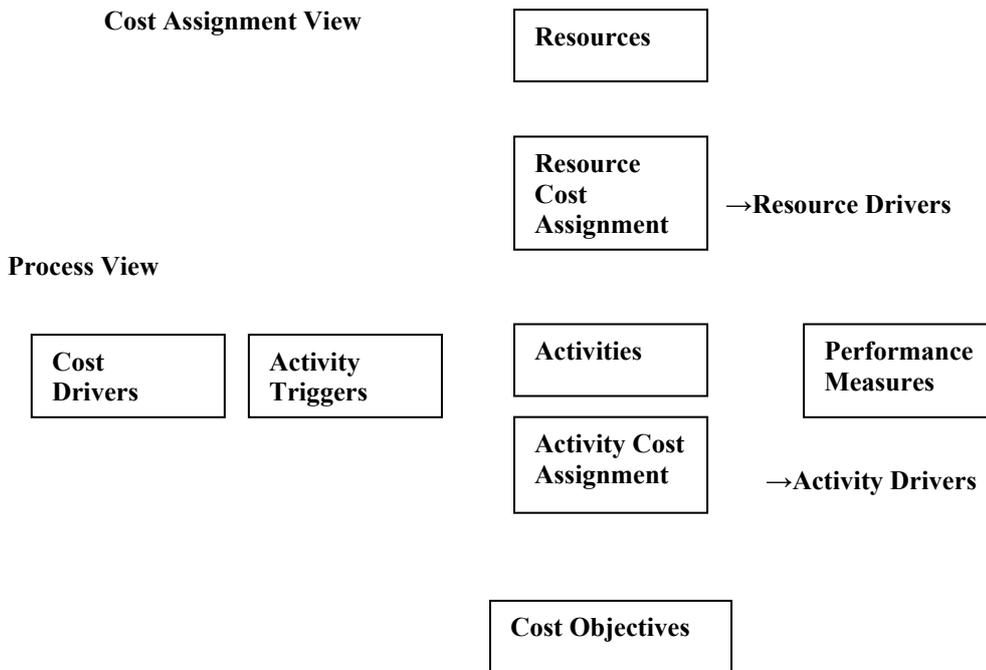
Where I is the identity matrix,

A is the usage proportions,

B is the vector of variable costs allocated to each direct and indirect cost center before transfers, and C is the vector of reciprocal costs after transfers. [Kaplan, 1988]

The model or template, shown in Figure 1, is used to illustrate the concepts of activity-based cost (ABC) accounting. There are two axes to this template. The vertical axis is the cost assignment view. The cost assignment view begins with the resource entity which contains the total resources available for use by the activities. It can be thought of as overhead resources capacity constraints just as there are direct resource constraints on the production line. The resource assignment process allocates costs to the activity through the use of appropriate cost drivers. The activity entity is where the work is performed as resources are converted into output. The activities entity is thus part of the

cost structure. The activity cost assignment process utilizes activity drivers to assign the costs to the cost objectives. This cost assignment covers a specific time period, which in this research is a quarter to coincide with the accounting and production reporting period for the firm. The horizontal axis is the process view. The causal occurrence, the cost driver, causes the activity to utilize the resources to accomplish the specific work. The activity trigger provides a valve for accomplishing work. The activity from the process view is a direct work center. Performance measures and data are collected during and after the activity accomplishes the work. The process view is constantly changing as each time a cost driver initiates an activity through the activity trigger, new results are obtained. Realistic performance measures must, therefore, be established to track activity results as within statistical control and to provide a data base for continuous improvement.



**Figure 1. Expanded Activity-Based Cost (ABC) Model [CAM-I, 1997]**

Thus, Activity Based Costing is an approach to cost management that links the consumption of resources to the activities a company performs and then assigns these activities and their associated costs to products and customers.

### ABC in 21<sup>st</sup> Century

In a nutshell, the typical benefits of activity based costing are as follows:

- Identify the most profitable customers, products, and channels.
- Identify the least profitable customers, products, and channels.
- Determine the true contributor to and detractors from financial performance.
- Accurately predict costs, profits, resource requirements associated with changes in production volume, organizational structure and cost of resources.
- Easily identify the root causes of poor financial performance.
- Track cost of activities and work processes.
- Equip managers with cost intelligence to stimulate improvements.
- Facilitate a better marketing mix.
- Enhance the bargaining power with the customer.
- Achieve better positioning of product.

With the costing now based on activities, the cost of serving a customer can be ascertained individually. Deducting the product cost and the cost to serve each customer, one can arrive at

customer's profitability. This method of dealing separately with the customer costs and the product costs enables the identification of the profitability of each customer. And positioning the product and service cost accordingly.

ABC has helped enterprise in answering the market need for better quality products in competitive prices. Analyzing the product profitability and customer profitability, the ABC method has contributed effectively for the top management's decision making process. With ABC, enterprises are able to improve their efficiency and reduce the cost without sacrificing the value for customers.

This has also enabled enterprises to model the impact of cost reduction and subsequently confirms the savings achieved. Overall, ABC is a dynamic method for continuous improvements. With ABC, any enterprise can have a built-in cost advantage, so it can continuously add value to both its stakeholders and customers.

But following initial enthusiasm, ABC lost ground in the 1990s, to alternative metrics, such as Kaplan's balanced scorecard and economic value added. ABC has stagnated over the last five to seven years. (Kaplan, 1998). An independent 2008 report concluded that ABC was an inefficient use of resources: it was expensive and difficult to implement for small gains, and a poor value, and that alternative methods should be used. The implementation of ABC is not easy. It needs special software installation for make it work, which is costly.

Continuous improvement of ABC can give a better solution of the problem. The implementation of ABC can make the employees various cost involved. This will then enable them to analyze the cost, and to identify the activities that add value and those that do not add value. Finally, based on this, improvements can be implemented and the benefits can be realized. This is a continuous improvement process in terms of analyzing the costs, to reduce or eliminate the non value added activities and to achieve an overall activity.

Robert Kaplan and Steven Anderson have suggested time-driven activity based costing. This is a new approach to avoid the difficulties associate with large scale ABC implementation. In this revised model, managers estimate the resource demands for each transaction, product or customer, rather than relying on time-consuming and costly employee surveys. The time driven Activity Based Costing is simpler since it requires, for each group of resources, estimates of only two parameters. 1. What are the costs per time unit of capacity to supply resource to business activities? (The total overhead expenditure of a department divided by the total employee time available). 2. An estimation of the unit times of activities: how much time it takes to carry out one unit of each kind of activity (an estimated or observed by the managers). This time-driven ABC approach also overcomes a serious technical problem associated with employee surveys: employees invariably reports percentages that add up to 100, when they are asked to estimate time spends on activities. Managers should take into accounts time that is idle or unused. The method also supports time equations, a feature that enables the ABC model to approximate the complexity of real world operation. By showing how specific order, customer and activity characteristics cause variation in processing times.

## ANALYSIS

Questionnaires for the survey are designed to collect information regarding application of activity based costing in Bangladesh. 25 firms were selected randomly and the respondents were asked to answer questions in different areas of the selected technique. The respondents comprised the senior level managers, including Chief Executive Officers, General Managers and Management Accountants.

The respondents' background is summarized in Table 1. 12% of the respondents were financial controllers and director, 32% were accountants, 48% were accountant and financial manager and 8% of them were other managers. All the respondents were male and have a working experience of more than 5 years (64%). All of them had completed a Bachelor's degree, with 40% holding a Master's degree and 12% having a professional qualification.

**Table 1. Background of Respondents**

	Frequency	%
<b>Position:</b>		
Director	3	12
Management Accountant	12	48
Accountant	8	32
Others	2	8
<b>Gender:</b>		
Male	25	100
Female	0	0
<b>Period in Position:</b>		
Less than 5 year	5	20
5 – 10 years	16	64
More than 10 years	4	16
<b>Qualification*:</b>		
Bachelor	15	60
Master	10	40
Professional	3	12

*\*respondents may have more than one qualification*

## RESPONDENTS:

The respondents of this survey were selected from manufacturing companies and from the same industry. Due to the complexity involved in covering and varying nature of the result of different industries, we only focused on textiles and garments industry and all of the respondents were either Accounting managers or director or assistant manager, production manger, chief executive officer, director etc. Almost all the concern companies are operating here for more than 10 years but one company is running here for more than 5 years and another is running for more than 8 years.

Table 2 shows the ownership structure where almost all the companies are local (92%). It also shows the distribution according to investment. Twelve percent of the firms recorded investment of less than 50 million, 12% having investment between 10 million to 50 million, 68% with investment between 50 million to 100 million, and 8% with investment of more than 100 million.

**Table 2. Profile of Companies**

	Freq	%
<b>Ownership Structure:</b>		
Local (> 50% local)	23	92
Foreign (> 50% foreign)	2	8
<b>Investment</b>		
< 50 million	3	12
50 million – 100 million	3	12
> 100 million	17	68
> 500 million	2	8

Table 3 shows that the distribution of the firms according to sales turnover. Sixteen percent of the firms recorded annual sales turnover of less than 10 million, 44% with annual sales turnover

between 10 million to 50 million, 20% with annual sales turnover between 50 million to 100 million, and 20% with annual sales turnover of more than 100 million.

**Table 3. Frequency for Firm Size (Sales Turnover)**

Sales Turnover:	Freq	%
< 10 million	4	16
< 50 million	11	44
50 million – 100 million	5	20
> 100 million	5	20

Research objective seeks to explore whether firm size is related to the use of AMAT (ABC). Larger firms with bigger capital and other resources are more likely to use AMAT as this advanced technique is usually expensive and require large capital outlay.

### ACCOUNTS

First question asked to the participants in this section of the survey was if they have an independent/separate cost and management accounting department for generating cost information. The result was almost fifty-fifty, that means out of 25 survey participants 14 said yes and the rest 11 said no. Among them who said no almost everyone (94.76%) responded that Account/Accounts & Finance department is responsible for taking decision regarding costs and other related issues in their company.

It was asked to the rest of them who said yes in response to 1<sup>st</sup> question that what are the objective(s) of using cost related information. The response was mixed. Some pointed out to a certain reason like either quality controlling or cost control or product pricing but most of them said that the objective was a combination of all these reasons. According to the response of the respondents the importance of the factors like Cost Accounting, Pricing, Short term financial planning, long term financial planning, income planning, control of profit centers is very high in success of their business.

In response to next question that if they have any incentive wage plans in force in their organization majority (25 out of 35) said yes. Among those who said yes, 10 said that they have 100% bonus plan, 10 said for group bonus plan, 2 said they have straight price work plan and 3 said for having other plan. Next question was if they apply overhead before incurrence or charge when incurred. 40 % respondents answered that yes, charged when incurred and 54% said that Charge Applied at a predetermined rate, 6% kept it blank and didn't response. Among those who said yes, majority voted for multiple rates. Around 50% said that they use units of production base, while around 23% said that they use DLH, around 14% said that they use Prime, rest went for combination of these 2/3.

### COST DRIVER, COST POOL

ABC is widely used in the public sector, including by the Corps. It was previously used only in the large manufacturing companies. The small firms were in fear about the worth of ABC with huge initial set up cost and change in organization. But, now the small firms are also coming up with implementing the advanced techniques. Next section of the survey was especially on overhead, which brought up the issues like cost driver, cost pool, hierarchy.

The first question in this section was if they use activity based costing for allocating common overheads that cannot be traced in relation to a specific job. Around 64% said yes and the rest 36% said no to this question.

Table 4 shows the frequency distribution of overhead costs portion from the total manufacturing costs. The table indicates 36% of the firms had an overhead portion of less than 10%

of the total manufacturing costs, 24% of them had between 10% to 15% of overhead portion, 20% is in between 15% to 20% of overhead portion and same proportion has overhead more than 20%.

Among the firms who use activity based costing only one said they use single cost driver, 3(18.75%) using double cost driver and 12(75%) with multiple cost driver. Cost driver is the unit of an activity that causes the change of an activity cost. A cost driver is any activity that causes a cost to be incurred. The Activity Based Costing (ABC) approach relates indirect cost to the activities that drive them to be incurred. In traditional costing the cost driver to allocate indirect cost to cost objects was volume of output. With the change in business structures, technology and thereby cost structures it was found that the volume of output was not the only cost driver. Some examples of indirect costs and their drivers are: maintenance costs are indirect costs and the possible driver of this cost may be the number of machine hours; or, handling raw-material cost is another indirect cost that may be driven by the number of orders received; or, inspection costs that are driven by the number of inspections or the hours of inspection or production runs. Generally, the cost driver for short term indirect variable costs may be the volume of output/ activity; but for long term indirect variable costs, the cost drivers will not be related to volume of output/ activity. John Shank and Vijay Govindarajan list cost drivers into two categories: Structural cost drivers that are derived from the business strategic choices about its underlying economic structure such as scale and scope of operations, complexity of products, use of technology, etc and Executional cost drivers that are derived from the execution of the business activities such as capacity utilization, plant layout, work-force involvement, etc. To carry out a value chain analysis, ABC is a necessary tool. To carry out ABC, it is necessary that cost drivers are established for different cost pools.

According to the usages of cost driver, the table indicates that, 48% firm is using physical unit, 28% direct labor cost, 16% direct material cost, same proportion using machine hours, 24%direct labor hour and 20%firms are using prime cost as their cost drivers.

The respondents were asked about the nature of cost drivers that is used in their organization. 87.5% of the firms said they use activity based costing and the rest said using volume based costing. Next question was about cost pool. Among the respondents, 10(62.5%) said they use 2 cost pool, 5(31.3) said the use 3 cost pool and only one firm said they use 1 cost pool. All the respondents answered negative when they were asked whether they use any hierarchy in cost pool.

**Table 4. Portion of Overhead Costs from Total Manufacturing Costs**

Overhead Portion	Frequency	Percentage (%)
Less than 10%	9	36
Between 10% - 15%	6	24
Between 15% - 20%	5	20
More than 20%	5	20
<b>Cost drivers for factory overhead</b>		
Units of Production	12	48
Direct Labor Cost	7	28
Direct Material Cost	4	16
Direct Labor Hours	6	24
Machine Hours	4	16
Prime Cost	5	20

Next question was about the potential benefits from using the ABC. The average result in scale of 5.0 is as following:

	Least likely		likely		moderate		more likely		most likely	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Calculation of the true total product cost					3	18.8	7	43.8	6	37.5

Improvement of the decision making process in relation to product costs					3	18.8	6	37.5	7	43.75
Identification of activities' cost					4	25	9	56.3	4	25
Identification of the factors that are responsible for cost creation							9	56.3	7	43.75
Cost reduction					2	12.5	10	62.5	4	25
Analysis and control of product profitability					2	12.5	9	56.3	5	31.25
Cost accounting system update in order to be more accurate					7	43.8	5	31.3	3	18.75
More accurate indirect cost allocation to products					2	12.5	14	87.5		
Overhead decrease							10	62.5	6	37.5
More realistic budget preparation					4	25	5	31.3	7	43.75
Improvement of departments' performance measurement					1	6.25	10	62.5	5	31.25
Abolition of "loss making" products					3	18.8	8	50	5	31.25
Improvement of activities' performance					1	6.25	8	50	7	43.75
Improvement of activities' management efficiency					1	6.25	10	62.5	5	31.25
Improvement of the decision making process in relation to preservation or discontinuance of activities					3	18.8	7	43.8	6	37.5
Improvement of products' quality					3	18.8	7	43.8	6	37.5
Identification of "loss making" customers		1	6.25		5	31.3	4	25	6	37.5
Adjust pricing policy as to apply to increased product mix complexity					2	12.5	7	43.8	6	37.5
Attainment of synergies with Total Quality systems					2	12.5	6	37.5	8	50
Changes of product mix in order to better suit to customer needs from a value					5	31.3	9	56.3	2	12.5
For money perspective					4	25	8	50	4	25
Identification of "loss making" suppliers		3	18.8		5	31.3	6	37.5	2	12.5
Improvement of outsourcing decision procedures		1	6.25		1	6.25	10	62.5	4	25
Improvement of customers' management efficiency					3	18.8	8	50	5	31.25
Attainment of synergies with Just in Time systems		2	12.5		3	18.8	6	37.5	5	31.25
Motivation of the personnel that deals with cost accounting					1	6.25	7	43.8	8	50

The next question was what the potential problems are that they may face for implementing ABC and they were asked to answer in same scale 5.0. The average result is as following:

	Least likely		likely		moderate		more likely		most likely	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%

Software selection			9	36	7	28	7	28	2	8
Data collection				0	5	20	8	32	12	48
Adequacy of requested resources			2	8	8	32	10	40	5	20
Personnel's resistance to ABC			3	12	6	24	10	40	6	24
Prolongation of the pilot program's timetable			2	8	7	28	4	16	3	12
Activities' identification			2	8	7	28	7	28	6	24
Identification of the proper cost drivers					5	14.29	8	22.9	4	16
Top management support					4	11.43	5	14.3	11	31.43
Overrun of initial estimated cost			4	11.4	7	20	3	8.57	5	14.29

## CONCLUSIONS AND FINDINGS

Globalization and the increasing complexity of business, together with high-powered computing technology, have contributed to the development of new management accounting techniques all over the world. The present study shows that the survey result of the present practices of management accounting in listed manufacturing sector reveals the state of use of the sophisticated technique like Activity Based Costing in Bangladesh is not satisfactory.

There are several reasons behind it. First of all in many local offices still they are practicing manual techniques and since the financial officers or chief accountant or top managers are quite old and hence they are quite back dated in some cases. They don't adopt new technologies and techniques, as they feel happy with their old techniques. This situation is gradually changing when the new blood is entering into the company or they see the practice in other foreign company. In many offices the processes are not well defined and as a result there is no dedicated cost center for a particular operation or the fixed cost and variable cost is defined. Due to have lack of defined process it become difficult in many cases to implement a costing model like ABC. That is why in spite of being well aware of the ABC or such modern cost model many companies couldn't implement it because it requires changing their whole process, which is little, complicated. Another problem in Bangladesh is lack of using software/tools in the different operations. Although new generation guys are well computer educated but the previous generation are not well computer literate and even if they know how to use it, in many cases they are reluctant to use those tools.

To keep pace with the world changing management accounting environment, Bangladeshi firms should use the newly developed techniques. A well-balanced practice of such techniques irrespective of the sectors may be enhanced through compulsory enactment of cost and management accounting audit in Bangladesh.

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