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COST MANAGEMENT, ACTIVITY-BASED COSTING AND NEW GENERATIONS OF ABC

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ABSTRACT

Price is one of the determining factors in the survival and economic life of the business which is considered to be an effective factor in many management decisions. Today, new approaches of pricing have been reviewed and analyzed. In this paper, activity-based costing and new generations of ABC in effective costing in the calculation of the price are taken into consideration. The history of the issue shows that the price and the accounting based on that before the 1950s, the oldest of which dates back to the 19th century in America, as a tool for evaluating the performance of subordinate managers, productivity analysis and determining the profitability of products, analysis of cost deviation, and a standard to pay more attention to employees and customers were treated as long-term profitability. But, after 1950, it faced with a fundamental change and has had several innovations, including those for optimal transfer pricing, portfolio-based budgeting, outsourcing, value management and value creation, placing these products through developing final costing models such as activity-based costing (ABC). In the meantime, running and implementing costing systems, when they get more complex, is difficult. The present paper examines costing, activity-based costing and new generations (ABC); the differences and similarities of each are briefly described and the overall conclusion of the discussion, on the use of each of the costing models, are presented.

Keywords: *Costing, Cost Management, Activity-based Costing, Time-driven Activity-based Costing*

INTRODUCTION

The rapid growth of technology and the globalization of trade cause to increase competition among the manufacturing business to attract domestic and global markets; in this field, institutions are successful which can adapt themselves to changes and gain the consent of clients and consumers through producing and providing quality products at reasonable prices to sustain their own life. Achieving this goal will not be possible unless we correctly understanding activities and costs and control them (Hassanzadeh and Seyednezhad, 2007).

In today's unpredictable business environment, the most important criterion for most companies is profit estimate; i.e. estimating the relationship between the costs of producing goods and services against the selling price of goods and services; so, the attention of companies will mostly be shifted to the accurate calculation of costs (Michalska and Szewieczek, 2007). Currently, companies are faced with major challenges; on the one hand, if demand for products increases, they are forced to increase the quality of their products and quickly offer them to clients; at this time, the pressure to reduce costs will increase (Jorj et al., 2009).

One of the dominant patterns of providing accounting theories is profit paradigm in decision makings or, in short, decision pattern. The main theme of this model is the usefulness of accounting information for decision models so that the related data of each decision model is firstly specified, and, then, the best method of accounting to calculate and determine it is selected.

On the other hand, the measurement of accounting has always been of great importance, and, even, common people believed that accounting is a scientific discipline for measurement. In accounting, the

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purpose of the assessment process or measuring the items is to determine an amount of money for the cost or event of a business unit which is quantitatively reasonable.

Accordingly, from the outset, the main focus of management accounting is to determine helpful information in the company's decisions, and, to measure and evaluate information, a variety of methods is employed. Determining useful information to calculate the exact price of the product is perhaps the most important task of Management Accountants. Over the past two decades, many new methods have emerged in management accounting to calculate the cost of production in theory and practice, such as activity-based costing system (ABC), the resource consumption accounting system (RCA), time-driven activity based costing (TDABC) and light activity-based costing system (ABCLight). These methods have been appeared as a response to the information needs of specific decision making environments and, also, to promote the shortcomings observed in existing systems and changes in production. These innovations are some common elements, but certain aspects, differ.

Based on the above discussions, the conclusion of cost management system, activity-based costing and new models of costing are the aim of writing this paper. In the following, the author will review and present an overall conclusion of costing systems.

MATERIALS AND METHODS

Research Methodology

The data of the current article is collected based on the library method. In this method, first, through taking notes, it has been tried to have a general familiarity with the subject matter. Then, through reviewing recent articles and books related to the activity-based costing and focusing on a variety of new policies, the data and the required evidence have been collected. It has been tried to make use of recent articles and books, unless the ones which have specifically dealt with the history of costing.

Cost Management

In a brief and simple definition "cost management is a set of measures that the management does to ensure customer satisfaction and continuous control and reduction in the cost." The emphasis of the cost management system is on activities of the enterprise. This emphasis is to achieve the goal of producing high quality products and services with minimal cost, which is very important. In this system, the cost of the major activities of the firms is devoted to producing goods and services with regard to the use of the activities in the production of these goods and services .

Cost management system focuses on the notion that the companies, to succeed in the market, must have comprehensive and intelligent programs for pricing and conformity to competitive prices. Hence, cost management requires using tools and techniques that are mostly invented in the domain of accounting and are abundantly used in successful organizations and world level. From among these tools and techniques are activity-based costing, target costing, quality costing, value engineering, Kaizen costing, cost analysis of the competitor, designing on the basis of cost, the optimal selection and six sigma. These systems are against those known as the traditional costing systems. In the traditional system, costing is done on the basis of volume. In such a system, the cost of any product is the total cost of direct materials, direct labor and allocated manufacturing overload.

A cost management system should help to manage the following issues (Darabi, 2008):

- Determining the target of used resources to carry out the important activities of the organization.
- Detecting and removing the items from expenditure that do not create added value.
- Determining the efficiency and effectiveness of the performance of activities (assessing performance)
- Identifying and evaluating new projects whose implementation will improve the future performance of the organization.
- Doing what is changing.

Activity-Based Costing System

Product costing system is the allocation of the common costs of resource capacity on an issue price, such as products (other cost issues include customers, channels, and various parts of the business). Costing, in

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other words, is a set of programs, activities, and actions that is done to determine the cost to build or establish an issue cost; the issue is what we are looking to set whose price (Rahnamayeh, 2009).

Activity-based costing can be regarded as a developed extension of a two-step method of cost, which is the foundation of modern industrial costing systems and the calculation of the cost of product, and, consequently, pricing for sales. In traditional costing, costs are allocated based on the volume of product, while activity-based costing/management, products and produced services are not the direct consumers of supplies, but the consumers of the activities. So, in ABC, the emphasis is on activity as a matter of costing, because activity is the main factor of creating cost. In this system, first, the costs are devoted to activities and, then, through activities, are allocated to other issues (such as products, services, offices, etc.). After determining the costs, managers pay more attention to activities and are more sensitive to the activities. Activity-based costing, in this sense, is cost-sharing system based on the investigation and research, so that the costs Stimuli, i.e. the main activities, are identified through the analysis of financial and operating processes.

Correct calculation of product cost and selling price of products, improving production processes, eliminating redundant activities, identifying cost drivers, identifying value-added activities and the subsequent elimination of worthless activities, operations planning and determining business strategy of the economic section, and correct measurement of the performance require data which ABC provides much more better than traditional systems of management accounting. Activity-based costing is a key axis that the complex components of advanced cost management system are stored around it; in case it is not carefully implemented, it can neutralize the cost management efforts. However, the benefits of activity-based costing/management systems finally lead to an increase in the value of the company because through using ABM/ABC technology, the cost of inefficient industries can be identified and the amount of savings, resulting from improved methods, can also be identified and measured. Also, the redesign of programs by an ABC analyst, using efficient processes, reduces costs and enhances the quality; what better results one can expect from a process in the current competitive condition!

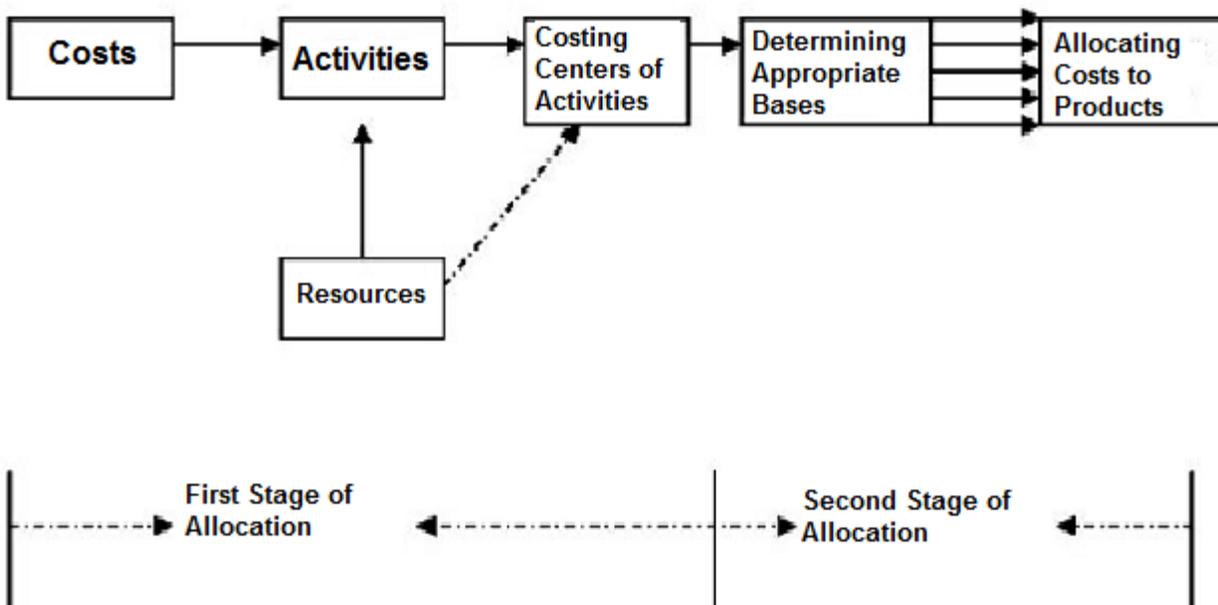


Figure 1: The Stages of Activity-Based Costing System

We shall see what makes so many plans of ABM/ABC not to access upper path?

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Through the recurrent advancement of technology, we are faced with a considerable growth of overload, so that in the 1950s, only 10% of total costs were overload, but, today, it increased to more than 40% (Boris, 2009). In this regard, the major disadvantages of traditional system are summarized as follows:

- Traditional systems may provide inaccurate information about services, products, and customers' cost.
- Companies that produce various products cannot distinguish which of their products or services are profitable.

By increasing indirect costs, choosing an appropriate costing system which can accurately allocate indirect costs to products, services, etc. is felt more (Eskandari, 2009) because, to compete in a competitive market, the company must have a strong costing system to implement its ability and react against any changes in the products and activities; if the system is not up-to-date, it will be disabled and inaccurate data will be accessed about the costs of the company (Bogdanoiu, 2009). Over the past decade, new costing methods have been created to improve cost management systems; these methods are used not only for accounting but also for management organizations as decision making instruments (Borjeson, 1994). One such system is activity-based costing implemented in many manufacturing and service industries, both private and public, for management functions, including the exact costs, making decision for the composition of products, the final cost services and profitability analysis of clients; after a year (1988), when Cooper and Kaplan introduced it, this costing became the subject of more than 100 articles and book (despite the volatility of ABC model, this system was not comprehensively accepted. Some companies, due to organizational strengths and behaviors that are associated with any new idea, failed to adapt to ABC and some others ignore to accept it at the beginning. Since running ABC systems was costly, taking care of it was complex, and reforming it was difficult, these resistances, to some extends, seem to be logical (Atefi, 2009).

For this reason, in 2004, Kaplan and Anderson proposed a new version of ABC called time-driven activity-based costing to reduce the complexity in measuring costs (Szychta, 2010).

New Generations of ABC

Resource Consumption Accounting (RCA)

Resource Consumption Accounting (RCA) is the recent development (in the past decade or more) in accounting and management. This method was introduced in a series of articles by Anton van late Miró and is currently being developed by RCA association. Reliable evidences about the use of RCA in the corporate around the world do not exist. Resource consumption accounting is generally based on the so-called German GPK costing which is being used in for more than 60 years in 3000 German companies (the German-speaking countries) successfully. GPK costing system puts emphasis on the real value of resources within a company to produce a particular product. In this way, it tries, as far as possible, to identify the actual flow among resources, and between resources and products, and, thus, it can prevent any unreasonable allocation (White, 2009). RCA system is actually a combination of GPK and ABC systems. GPK systems are highly accurate and often consist of hundreds or more cost and price tanks. One of the key features of RCA system is that it tracks primary and secondary costs of per tank and calculates a separate price for variable (adjusted) and constant costs.

In GPK, to define the source, a set of seven criteria is determined:

- 1- The cost of a costing center and resource must be distinctly clear; to determine it, allocation and prorated should not be used.
- 2- The output of each center must quantitatively be determined
- 3- The responsibility of each costing center should be given to a special administrator although he may have the responsibility for several tanks.
- 4- The size of the costing center should be manageable.
- 5- Costing items, technology, type of price or work should be similar or identical.
- 6- Costing allocation triggers should quantitatively be determined.
- 7- Costing center should be classified as primary or support.

Thus, the system size (regarding the number of links) is larger than the ABC system. As a result, the implementation of an RCA is likely to be significantly more expensive than the costs of implementing a

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similar ABC system. Updating RCA system, as ABC system, is daunting. Adding a new tank or changing a stimulant in RCA system leads to similar problems, as in the ABC system; in addition, in RCA, we have to check for significant number of connections. Therefore, implementing and maintaining an RCA system are certainly more expensive than a similar ABC system.

ABC systems retain many of the advantages of the ABC system because these systems combine the concepts in ABC with the analysis of capacity and perspective in GRK system management. RCA system targets some of the shortcomings of the ABC system. RCA system explicitly expresses grouped costs at different levels in terms of the subject of the cost. So, for example, RCA system enables the company to identify the final cost of the decision in product level. Since the RCA system groups the costs based on the production lines or similarity, we can identify final costs attributable to the decisions of the product lines and similarities.

While the RCA system may grant some benefits, it may have some disadvantages of the ABC system. In particular, tracking activity costs in RCA system is difficult because the product, and not a business unit, is an implied unit of analysis for resource consumption.

Lack of concentration on activities to address the key barriers of increasing the value of business processes is the disadvantage of RCA systems because the main focus of the modern approaches of management accounting is on the identification and removal of the non-value added activities.

Time-driven Activity-based Costing

In order to overcome some of the problems of costing common system, activity-based, Kaplan and Anderson (2004) introduced a new system called "Time-Driven Activity-Based Costing" (TDABC). Unlike the conventional method of Activity-Based Costing, this system does not identify the activities at the first step and does not allocate costs to activities. In this way, first, the directors or the management team directly predict resource requirements for each cost issue; cost resources are determined based on the time equation and directly and automatically allocated to activities and operations (Rahnamay, 2009). The key advantage of a TDABC system is the ease of implementation and updating, compare to its ABC counterpart (Kaplan and Anderson, 2007). While the level of details in ABC system depends on the cost of the number of tanks (which determines the number of connections for measurement), the details of the TDABC system depends on the reflected separation in the equation.

Comparing the measurement error in the ABC system or RCA against error in TDABC systems is difficult. ABC system is based on vague data drawn from interviews and notes. TDABC system is less dependent on allocations at the macro level than the ABC system, but rather the estimated time at micro level is important. Kaplan and Anderson (2007) argue that the time-based rates in TDABC have potentially lower measurement error.

Cardinals and Libra (2008) determined that the error is greater when the staff report at a high separation and micro levels.

Since, in the ABC method, 100% of the time devoted to the activities is reported by the staff report, so the unused capacity is not considered; as a result, the costs of activity is reported higher, thus, in TDABC, since the sum of the capacity time is unused and its costs are revealed, the management gets more information about the final cost of each activity and the profitability of the costs; on the other hand, it can assess efficiency or inefficiency of the organization or related issues which are a major advantage of TDABC.

Kaplan and Anderson (2007) reported the following important benefits for time-driven activity-based costing method:

1. It makes it easier and faster to build an accurate model.
2. It matches well with the data that is available from organization resource planning systems And customer relationship management (in makes the system dynamic, yet less dependent on human force)
3. It moves the costs towards the transactions and orders, using the characteristics of orders, processes, suppliers, and customers.
4. It can be applied monthly to offer the economy of the latest organizational operation.
5. It creates transparency in utilization of capacity and efficiency of processes.

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6. It predicts the demand for necessary resources and provides the possible budget resource capacities based on the predicted values and complexity for companies.

7. It is easily compatible with enterprise-level models through software applications and database technologies.

8. It makes the quick and inexpensive maintenance possible for model.

9. In any industry or company, with any degree of complexity about customers, products, parts, processes and a lot of human forces and capital costs can be used.

Although there are problems and limitations in the use of activity-based costing (ABC), it seems that time-driven activity-based costing (TDABC) can solve all of its problems. It also creates other problems such as excessive dependency of costing system on time; however, activity-based costing movement of a complex and expensive financial system towards the tools that provide correct and feasible data for managers quickly, alternately, and cheaply, seem appropriate.

Companies, especially service industries, are in high-tech environment, intense competition market, complex and constantly changing environment. For the customers to continuously use the services of a company, it is required that the company has two high quality items and low cost services. ABC system provides information on the cost of operations, customer service and profitability, and the market that such information provides the basis for managers to improve their relationships and profitability with customers; however, using this system in the large companies, including service industries, will be time consuming and costly. The purpose of the new version of ABC, i.e. TDABC, is eliminating these problems in big companies. This data system obtains the required time for each activity using time equations and can evaluate multiple transactions. In addition to having advantages of ABC, it improves the cost calculations, and saves the time and management decisions. As it is seen in the paper, the employees in ABC system do not consider unused capacity but consider their practical capacity with equal ideal capacity; but in TDABC, practical capacity is considered 80 % of ideal capacity and will cause to reveal the unused capacity of the staff that this issue would lead to a more precise calculation of costs. Based on information provided in the article, it is concluded that, in the current competitive market, companies need appropriate costing systems so that they can attract, customer satisfaction, in addition to profitability; in the present world, time-driven activity-based costing can be the best option for service industries.

Light Activity-Based Costing (Light ABC)

An acceptable designed system is global. The ways and means to achieve the objectives in this system are called Light ABC. Designing for businesses to create a good infrastructure for ABC data systems and those who use ABC, the advanced system that measures a large amount of data, particularly very important and relevant data, are considered.

Based on Pareto's law, 20 % of accidents are responsible for 80 % of the results. For example, 20 % of customers provide 80 % of the earnings of a company.

Light ABC does not specify a set of resources, but it measures more detailed information on income or resources are essential for making decision.

Other important aspects of the company, as well as, risk of management information and all the information required for making decision and system controlling that is going to be managed should be measured well; i.e. it is not limited to financial information. This valuable system requires less effort to gather information and, by enhancing and modifying management information, it would be beneficial for the overall decision and control. Running Light ABC can complete substantial opportunities of a company on the basis of information. Since Light ABC is used by companies which have the foundation of ABC (Rahnamay Roudposhti and PourYousef, 2009), all the advantages and disadvantages described in ABC system will be established in conjunction with Light ABC, too. The only thing worth noting is that less information is gathered in Light ABC system, and it is helpful for integrated decision-making and controlling by senior and middle managers. So, to implement a Light ABC system, compared with a traditional system, more data is required, but, compared with ABC system, less data is needed; also, the expenses to need this system, like ABC system, is very expensive and updating it is really difficult.

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Conclusion

Providing the information needed for cost management is not possible unless through establishing an advanced accounting management system which includes designing and using different methods of accounting in the organization. Management accounting cannot be regarded as a fixed and uniform set of rules, but its methods to achieve the goals of the organization are through improvement and making decision by its managers and staff.

Therefore, management accounting should accord itself with the characteristics and requirements of the relevant organization; the organizations should also adapt themselves to the changing environments. Those with cannot accord themselves with the two forces of technological changes and global competition will not survive in long term. Management accounting requires the application of techniques and tools that have been developed in the field of management accounting and are widely used in successful organizations. Activity-based costing is one of these tools and techniques.

In addition, new requirements, such as the WTO Agreement can be a good reason for using cost management. So, with regard to the issue of joining the global trade market, we are forced to walk in a competitive environment, and, to survive in such an environment, we should consider applying modern methods of cost management.

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