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MANAGEMENT ACCOUNTING TOOLS AND TECHNIQUES: THE ACTIVITY BASED COSTING (ABC)

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ABSTRACT

Traditional costing systems operate on the assumption that the production of products and services is what incurs the costs. For this reason, net costs for materials, labor and other direct costs are assigned to products, while all other costs are grouped as indirect and allocated to products, usually based on a measure of production volume. There is a tacit assumption that indirect costs to be allocated to products are necessary, otherwise they would not exist. Because costs are necessary, each unit of product or service should bear its share of the costs. In the last decade, there has been a growing interest in another type of cost accounting system. It is the Activity Based Costing (ABC) system, which considers that activities cause costs and that products or services, and customers are the reasons why activities are performed.

Keywords:

Activity Based Costing, Businesses, Cost Pools, Costing System, Management Accounting,

INTRODUCTION

The business environment has undergone tremendous changes in recent decades due to increasing global competitiveness, demand for a wider variety of products and the reduction of information costs. The development of new technologies that are essentially related to the automation of production processes and the development of innovative information systems has led to significant progress, affecting all departments of the various organizations, but also in general the sector in which they operate. Companies have stopped competing locally only and are faced with companies located on other continents, which in turn incorporate different realities and different business environments. These changes have forced organizations to implement increasingly sophisticated costing systems.

However, as Fisher and Krumwiede [1] characteristically point out, choosing the costing method that is most appropriate for business organizations is a critical and complex issue. This assumption is based on the fact that the wrong allocation of costs, as is partly the case with traditional costing systems, leads to the export of incorrect industrial costs and possibly incorrect administrative decisions[2].

In the context of tough competition and the shortcomings of traditional costing systems, the Activity Based Costing (ABC) method was developed to help identify and distribute the costs associated with creating products or services, while aiming to more reliable and accurate information on real costs [3]. With this information, executives are able to support their decisions and formulate more rational strategic choices regarding the placement of products on the market as well as to continuously improve their business processes [4].

LITERATURE REVIEW

History of Activity Based Costing

The first signs of the emergence and implementation of a potential ABC method are placed in the mid-1970s when American manufacturers used this costing system as an effective method of recording the cost of their products and their production volume in relation to the required activities. The reason for the invention of Activity Costing (ABC) was the ineffectiveness of traditional costing methods in the United States during the 1960s and 1970s [5].

But the decisive step for the development and configuration of the ABC integrated system was developed in 1987 when Robert Kaplan and Robin Cooper, professors at Harvard Business School, introduced this method through the Harvard Academic Journal as an innovative approach to solving problems that traditional systems had until then.

IJETRM

International Journal of Engineering Technology Research & Management

moment [6]. Johnson and Kaplan (1987) argued that there were hidden factors influencing Industrial Overheads, which in turn had to be better distributed to facilitate control and thus increase administrative and productive efficiency. So, from the early 1990s, ABC began to be accepted by most researchers and cost collectors as the method that provides more timely and reliable information on the factors that affect costs and lead the management to take reasonable business decisions[7].

Of particular interest is the research of P. Turney (2010), who summarizes the history of the ABC method according to the phases of its life cycle. Specifically, it emphasizes the expansion of its functionality over time as follows:

1987 - 1991: In 1987 ABC has appeared in articles in scientific journals, mainly from the Harvard University. This is the period when global markets intensified competition and turned the attention of the business world to innovative cost systems, creating high expectations. In fact, in 1990, the first method support software was created.

1991 - 1995: This period can be described as the difficult years of ABC as the first doubts arose based on its effectiveness. Also, new administrative methods were beginning to appear, making its implementation and adoption more complicated. Still, many argued that ABC does not consider continuous growth but also issues of quality and improvement. Others argued that it did not take into account restrictions on operating costs, investments, etc. This was because ABC had high expectations in the early years of its implementation but had not yet been tested and matured as a new business method.

1995 - 2000: This period is characterized by rapid technological development, taking the ABC method out of the quagmire of the previous period. In fact, its application was gradually adopted beyond the industrial field, such as the banking, insurance and health sectors.

2000 - 2006: Implementation of ABC is promoted and facilitated more and more as the use of the internet is intensified to a high degree and at the same time the cost of obtaining technology data, which are inextricably linked to Activity Costing, is significantly reduced.

2006 - present: From 2006 till today ABC combined with new methods in the field of Management and decision making, contributing efficiently to various areas of the organization, such as profits, corporate and financial decisions. Moreover, ABC is now applied in the field of human resources as the new models that have been developed have the ability to predict the staff that the company will need in the future, which positions should be filled and what skills the employees that will be hired should have [8].

Define Activity Based Costing

Before clearly defining the nature of an ABC system, it is appropriate to describe the key concepts that characterize Activity Based Costing and constitute the core around the method definition. Specifically, it is worth mentioning and analyzing as key concepts the following:

Resources: resources are defined as all the available data held by an organization and which are used to carry out its various activities. Alternatively, resources can be described as the ability to perform a task as they represent all the means that can be derived from the various activities - tasks. Typical examples are raw materials, wages, etc.

Activities: An activity is defined as an act, event or transaction that consumes a company's resources, causing costs to arise and creating products or services. The products in turn consume activities. By determining the amount of resource (and the resulting cost) consumed in an activity as well as the amount of activity consumed in the manufacture of a product, it is possible to identify immediately and with relative accuracy the manufacturing costs in products.

Cost objects: A product or a part for which costs are accumulated or measured can often be defined as a cost carrier.

IJETRM

International Journal of Engineering Technology Research & Management

For example, a product is a cost carrier for direct materials, direct labor, and Industrial Overhead. Also, the maintenance department of a factory can be considered a cost carrier because it accumulates the costs of maintenance workers as well as the supplies of the maintenance department. Later the costs of this section will be attributed to products, which in turn are cost carriers. Finally, a customer can be characterized as a carrier, a machine, a group of machines, a group of employees, etc.

Activity cost pools: An activity cost pool is a group of individual expenses, usually per department or service center of an organization. This cost represents elements of an interrelated group of activities. Activity cost pools are commonly used for the distribution of overheads in production units. For example, the material handling activity in a business can be a cost pool consisting of many sub-activities such as counting, loading, waiting, moving and so on.

Cost drivers: Cost drivers are described as the mechanisms that link the cost of activities to the cost carriers. Essentially, cost drivers transfer the costs from the activities to the respective cost carriers and are linked to either transactions or duration. Those related to transactions are simply a measurement of the repetitions of a transaction and are therefore directly related to the concept of frequency (transaction drivers). In contrast, those related to the duration of an activity are defined as duration drivers. Finally, cost drivers are divided into resource drivers and activity drivers. The former is the basis for locating resources in activities and are defined as a measure of the amount of resource consumed by an activity. Activity guides have a similar function, only in this case they are the connecting links between activity costs and cost actors [9].

Once the basic concepts that characterize the method of Activity Based Costing have been defined, the definition of the method will follow, as formulated by both domestic and foreign authors [10]. In particular, B. Turney (1996) defines ABC as a method of measuring the cost and performance of activities and cost actors. Activity-Based Costing assigns costs to resource-based activities and then outsources costs to cost-based activities. ABC focuses on accurate information about the actual costs of products, services, processes, activities, distribution channels, contracts, and projects [11]. In addition, it helps identify problems and develop safe routes to solutions and opportunities. This is achieved by providing financial and non-financial information about activities and cost actors [12][13]. In addition, Horngren, Datar, and Foster (2006) define ABC as a “costing approach that focuses on individual activities as the fundamental cost drivers. Uses the cost of these activities as basis for allocating costs to other objects - cost carriers such as products or services” [14][15]. To summarize, in a more general context, the ABC method recognizes the direct relationships between resource costs, cost guides, activities, and cost actors in the process of outsourcing activities and then to actors [16][17].

Principles of Activity Based Costing

According to Cooper and Kaplan (1988) the basic principle governing Activity Based Costing is that all business activities, in essence, exist to support the operation of the production and distribution of products and services [18][19]. Therefore, the cost of these functions should also be considered the cost of the product. In contrast to traditional systems that depend solely on production bases that are driven by output size, Activity Based Costing classifies activities into five general levels which are described as follows:

Unit-level activities: Unit-level activities are performed each time a unit is generated. The cost of activities at unit level should be proportional to the number of units produced. For example, providing power for the operation of the equipment used in the processing would be a unit-level activity, because power tends to be consumed depending on the number of units produced.

Batch-level activities: Batch-level activities are performed each time a batch is handled or processed, regardless of how many units are in the batch. For example, tasks such as placing orders, installing equipment, and organizing shipments to customers are batch-level activities. Paid once for each lot (or customer order). Batch level costs depend on the number of batches processed and not on the number of units produced, the number of units sold or other volume measures. For example, the cost of installing a batch processing machine is the same regardless of whether the batch

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International Journal of Engineering Technology Research & Management

contains one or thousands of items.

Product-level activities: Product-level activities are product-specific and typically have to be carried out regardless of the number of batches executed or the units of production produced or sold. For example, activities such as product design, advertising of a product and the maintenance of a product manager and staff are all activities at the product level.

Customer-level activities: Customer-level activities are specific to customers and include activities such as sales calls, mailing lists and general technical support not related to any product.

Organizationsustaining activities: Organizational support activities are carried out regardless of which customers are served, what products are produced, how many batches are executed or how many units are built. This category includes activities such as factory heating, office cleaning, computer networking, loan settlement, annual shareholder reporting, and more.

In addition, in formulating the basic principle of the method, it would be correct to emphasize that ABC is a two-dimensional model consisting first of the cost assignment stage and second of the process stage. Specifically, during the first stage, the General Industrial Expenses are collected in cost-activity pools and in the second phase they are channeled from there to the specific products of the company. The main purpose of this stage is to form and know the cost of activities and agencies. The second stage of the process provides a report on the overall activity that has occurred or is generally occurring within the organization. The steps in this phase are to identify cost and activity guides as well as extract information to measure their performance. Note that performance measures (financial or not) are the indicators of performance and the results achieved by a process or an organizational unit. In summary, the first stage of cost can be considered as the construction phase of the model while the process stage is the use phase of the model built during the first stage [20].

Design an Activity Based Costing System

According to Garrison and Noreen (1999), planning for the development, integration and implementation of Activity Based Costing is summarized in a 6-step process as follows:

1st Stage - Identifying Activities and Cost Pools: The first important step in implementing an ABC system is identifying the activities that will form the basis of the system. This can be difficult and time consuming and requires a lot of preparation. A common process is for the people who make up the ABC implementation team to interview the people working in the general departments and ask them to describe their main activities. Usually, this leads to a very long list of actions - activities, making it financially impossible to use a different cost guide for each action. When combining activities in an ABC system, activities must be grouped at the appropriate level. Batch-level activities should not be combined with unit-level activities or product-level activities with batch-level activities and so on. In general, it is best to combine only those activities that are highly correlated on one level. For example, the number of customer orders is likely to be highly correlated with the number of completed customer orders shipped, so these two batch-level activities (receiving and sending orders) can usually be combined with a small loss of accuracy [21].

2nd Stage - Activity analysis: ABC continues with the activity analysis phase, clearly identifying the processes that underpin a product and avoiding some of the systematic inaccuracies of traditional costing. This activity analysis identifies the relationships of indirect costs and allows certain percentages of these activities to be assigned directly to a final product.

3rd Stage - Assign overhead costs to the cost pools: Essentially, this is the stage where the costs of resources are assigned to the activities (called the allocation of the 1st stage). Once resources are identified, resource drivers are

IJETRM

International Journal of Engineering Technology Research & Management

defined to allocate resource costs to the activity group (first-stage drivers). Resource guides (causes) are measures of the resources consumed by an activity. For example, the cost of human resources will be allocated to indirect administrative or indirect administrative costs. These tanks will each have some contribution to the cost carrier

4th Stage- Activity Percentage Calculation: At this stage, the activity percentages that will be used to allocate overheads to products and customers are announced. The ABC team determines the total activity for each cost pool, which is necessary for the production of each combination of the company's products and for the service of its current customers.

5th Stage - Assign overheads to cost actors: The fifth step in implementing Activity Based Costing is called "second stage allocation". In the allocation of the second stage, the activity rates are used to apply - charge overheads to products and customers. The costs are transferred to the final stage, to cost carriers based on the activity guides (2nd stage cost drivers or second-stage drivers). Activity guides are measures of the requirements of an activity by downstream cost carriers, such as the number of components in a product used to measure an assembly activity.

6th Stage - Preparation of administrative reports: Once the cost analysis has been completed based on the ABC, the cost data relating to the entities and procedures should be communicated in a concise and consistent manner. This announcement of the costing process is a critical and important part of the design as it justifies the cost of the analysis which in many cases is not even negligible. The most common management reports compiled with ABC data are product and customer profitability reports. These reports help companies channel their resources into the most lucrative growth opportunities while emphasizing profitable products and customers [22].

METHODOLOGY

The paper initially aims at a general description of Activity Based Costing which is a method of allocating overhead and direct expenses related to the most important activities of your company first. This process allows owners and managers an opportunity to better define the areas of manufacturing or sales that generate the most profit. Inventory analyzed under the ABC method is classified in order of profitability.

CONCLUSION

Activity Based Costing (A.B.C.) has been adopted by a wide range of organizations and can offer a strong comparative advantage. Business-based costing is a costing method that aims to provide business management with cost information for making strategies and other decisions that potentially affect capacity and therefore "fixed" costs. It is the modern view of costing and differs from traditional costing systems because it is based on measuring the activities of the entity. If an attempt is made to present the A.B.C. by some definition, he would say that: the A.B.C. is a costing system in which the activities are the main cost carriers, the cost of which, after being calculated, is distributed to the final cost carriers, who in addition to the finished products or services can also be the customers of the financial unit.

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REFERENCES

- [1] Fisher, J.G; Krumwiede, R. *Product costing systems: Finding the right approach*. Journal of Corporate Accounting & Finance, 23(3), 2012
- [2] Babad, Yair M.; Bala V. Balachand. *Cost Driver Optimisation in Activity-Based Costing*. The Accounting Review. 56 (3), 1993
- [3] Hilton, R. W. *Managerial Accounting*. Second Edition, McGraw-Hill, Inc. New York, 1994

IJETRM

International Journal of Engineering Technology Research & Management

- [4] Ness, J. A.; Cucuzza, T. G. *Tapping the potential of ABC*. Harvard Business Review, 73(4), 1995
- [5] Babad, Y. M.; Bala V. B. *Cost Driver Optimisation in Activity-Based Costing*. The Accounting Review, 56(3), 1993.
- [6] Blaxill, M. F.; Hout, T.M. *The Fallacy of The Overhead Quick Fix*. Harvard Business Review, 69(4), 1991
- [7] Larson, P. ; Kerr, S. *Integration of process management tools to support TQM implementation: ISO 9000 and activity-based costing*. Total Quality Management & Business Excellence, 18(1-2), 201-207
- [8] Leahy, T. *Where are you on the ABC learning curve?*. Business Finance, 10(12), 2004
- [9] Liu, L. Activity-based costing. Financial Management, March 2005, pp 25-29
- [10] Max, M. *Leveraging process documentation for time-driven activity based costing*. Journal of Performance Management, 20(3), 16-28, 2007
- [11] Meelah, R.; Ibrahim, D.N. *Factors influencing activity based costing (ABC) adoption in manufacturing industry*. Investment Management & Financial Innovations, 4 (2), 113-124, 2007
- [12] Plowman, B. *Activity based management driving profitability*. Accountancy Ireland, 39(2), 23-25, 2007
- [13] Johnson, B.; Glad, E. *Spring chicken or dead lunch?*. Chartered Accountants Journal, 85(2), 35-36, 2006
- [14] Kaplan, R.S.; Anderson, S.R. *Time-driven activity-based costing*. Harvard Business Review, 82(11), 2004
- [15] Hansen, D.; Mowen, M. *Cost management: accounting and control*. Mason, OH: London: Thomson/South-Western, 2006
- [16] Kaplan, R.; Anderson, S. *Time-driven activity-based costing: a simpler and more powerful path to higher profits*. Boston, MA: Harvard Business School, 2007
- [17] Turney, P. *Common cents: how to succeed with activity-based costing and activity-based management*. New York: London: McGraw-Hill, 2005
- [18] Fremgren, J.M. *The direct costing controversy- an identification of issues*, The Accounting Review, 31(1), 43-51, 1964
- [19] Garrison, R.H. and Noreen, E.W. *Managerial Accounting Concepts for Planning Control and Decision Making*, 7th edition. Illinois: Irwin, 1994
- [20] Green, F.B.; Amenkhienan, F.; Johnson, G. *Performance measures and JIT*, Management Accounting (IMA) 72(8), 50-3, 1991
- [21] Hansen, D.R.; Mowen, M.M. *Cost Management: Accounting and Control*. Cincinnati: South-Western College Publishing, 1995
- [22] Hendricks, J.A. *Applying cost accounting to factory automation*, Management Accounting (IMA) 70(6), 24-30, 1998