

## **EVALUATION OF COST CENTER OPERATIONS USING ABC METHOD**

PhD Applicant **Mădălina Aurelia GRIGORE**  
PhD Applicant **Elena Daniela NICOLAE**  
PhD Applicant **George Ciprian GIJU**  
**University “Valahia” Târgoviște**

Ph.D. **Daniela MITRAN**  
**University “Athenaeum”**  
**Bucharest**

### **Abstract**

*The continuous changes appearing in the industrial and economic environment, upgrading of manufacturing technologies, the need to obtain relevant information to facilitate management decision making, have made absolutely necessary the rethinking of the cost calculation system. Both traditional and modern methods used in management accounting for costing is based on cropping the enterprise into responsibility centers. But within the organization is being felt the interdependence that is impossible to identify a center whose costs and performances are not conditioned by other centers of responsibility. A.B.C. method is one of the means to produce a more relevant cost proposing to allocate indirect costs based on the distribution base showing the cause and effect relationship between activity and product-consuming activity. This article aims to show what cost centers are, which is their role within the responsibility centers, which are the positive effects and the limits of cost centers, which represents and what is the ABC method - a modern method of evaluating a cost center operations and which are the advantages and limitations of this method.*

**Keywords:** responsibility centers, cost centers, ABC method, activity, cost inducer

**JEL Classification:** M41 Accounting

### **Introduction**

An organization that consumes more resources than necessary is not effective. Due to the fact that some organizations are not profit oriented, sometimes is more useful their perception as cost centers rather than as profit centers. The effectiveness of a profit center is measured by comparing income and expenses. The effectiveness of a cost center is measured by comparing performance achieved with the established budget. One mean to measure the cost effectiveness is the **efficiency** - the size of the effect/result achieved in relation to a unit of resources used. An organization can be efficient (e.g. to record a high productivity of labor), but to be ineffective. If in the activity employees are performing there is a wrong

list of priorities, they can be very effective working very hard, but without achieving really important goals.

An organization's ability to manage costs depends on its efficiency and organizational effectiveness. Most times not establishing ways and means of reducing costs is the solution but rather their optimization starting with the stage of design and development of product and ending with their sales. Precisely for these reasons we believe that management costs should play an essential role in each organization, must be a customary component of management accounting as it provides to management information with a high degree of detail supporting planning, control and grounding decisions, focusing on product, activities or processes cost within organizations.

### **Cost center - part of the responsibility centers**

Responsibility center is a dependent set of elements, which together form an organized whole, having a high degree of autonomy in the use and optimization of available resources (Rusu & Voicu, 2001, p. 15).

Thus, these centers can be divided into:

- Partial responsibility centers:
  - Cost centers: organizational link where are obtained products and services that generate expenses (costs) with whose the aid can measure the efficiency and effectiveness of the centers activity;
  - Income centers: the work is appreciated in terms of value depending on income.
- Global responsibility centers:
  - Profit centers: organizational link where profit can be calculated;
  - Investment centers: organizational link where the report/difference between income of products sale and investments made for all manufacturing resources can be highlighted.

The use of these responsibility centers has the following roles:

- facilitates the control of financial indicators by specialists in budgets that do not have to know the technological aspects;
- allows identifying the contribution of each responsibility center to achieve organization's profit.

A different view on the classification of responsibility centers is provided by J. Margerin in his work "*Budget Management*" (quoted by Badea, p. 15):

- cost centers;
- discretionary expense centers;
- turnover centers;
- profit centers;
- return centers.

Cost center is made responsible for both direct costs involved in its operation as well as for production budgets or tasks assigned. Cost center is the smallest segment or area of responsibility for which costs are added together. Production and service departments within manufacturing companies are classic examples of this type of responsibility center. Whole business (manufacturing branches of a multinational company), production units and workshops may be, at their turn, regarded as cost centers, being composed of a multitude of lower cost centers.

The authority and responsibility of cost centers must be clearly defined and assigned to a department head, often called the *team leader*, business leaders being named *managers of the enterprise*. There should be no higher authority relative to management of cost elements.

Leslie Chadwick (1998, p. 14) believe that cost centers can be divided into costs of products, services, departments, divisions and functions. Cost center can be a place, a person or a function that performs certain expenses. Cost calculation per cost center aims to collect and accumulate funds for each cost center in part.

Cost centers are part of the basic structures of J.D. Edwards' accounts. It can indicate where transactions will have an impact on the organization, for example, in a warehouse or a shop. This is the lowest level of your organization, for which you should keep books showing a balance sheet and result account. A cost center shows the place of execution (where?) of a transaction within the organization.

Cost centers have the following characteristics:

- are assigned to a single company;
- meet your company's latest organizational level;
- represent the base of result accounts (level tracking of expenses and income).

## **2. Positive effects and limitations of cost centers**

Alongside the benefits arising from decentralization, which cost centers system is taking to an extent proportional to its degree of deepening that is chosen, we consider that applying the cost centers system have specific positive effects:

- reducing or eliminating "hidden" costs, this can not be highlighted in various documents;
- transformation of accounting in an effective management tool;
- timely knowledge of the financial performance of the enterprise as a whole and for each designated area of responsibility within the company;
- facilitating the adoption of corrective decisions in case of identifying deviations from the budget;
- encouraging managers to act in the interest of the organization as a whole, by measuring its performance in accordance with the forecast budget.

Limitations of cost centers system:

- using costs as a commensurate mean of success is relatively difficult to understand for those who are evaluated in this way. There is thus a risk that team leaders no longer to have confidence in the fairness of the system or its operation (sine qua non conditions of operation of the responsibility centers) and conflicts occur between interdependent departments;
- costs that can not be charged (and, of course, controlled) at lower levels of organizational structure, can be demotivational for managers whose task is to assess the performance of subordinates;
- the success of implementation of such a system depends on the concern and the financial strength of the organization to reduce the share of indirect costs for direct expenses, by investments made in systems for measuring the consumption of utilities per unit of segmentation, as well as increasing the time spent on reporting, more detailed procedures and forms etc.

▪ **ABC method - modern method of evaluating operations of a cost center**

ABC method has its origins in research conducted within General Electric group in the early '60s, researches revealed that most indirect costs are rooted in decisions taken downstream in the production of products. In 1963, Peter Drucker pointed to the lack of relevance of the traditional approach of calculating the cost of production. In the '80s different American consulting firms and major industrial enterprises defined the current version of the ABC method.

ABC is an analytical accounting system, built around the concept of activity, which is another formula for determining the full cost (Ionascu, 2003, p. 57). The basic concept of ABC method is activity, defined as a group of people, technologies, materials, methods which contribute to making a product. The activity is a dynamic concept that is characterized by the following features (Brăescu & Jinga, 2002, p. 36):

- duration;
- permanent fitting;
- multiple and evolutionary states;
- "conversational" exchange (interactivity, continuity);
- continuous management dialogue etc.

Liggett, Trevino and Lavelle supported the following: "Certain activities are implemented for Theoretical and Applied Economics manufacture products. Such activities use company's resources and therefore determine the cost. Production is using activities. By determining the quantity of resources used for an activity (and costs resulting from it) and direct adding of production costs is likely to be used to report the activity used for the execution of a product unit of the entire production" (Liggetto et. al., 1992, p. 4).

According to the ABC method, the cost calculation involves several steps, namely (Briciu & Burja, 2004, p. 199):

1. identifying the main activities of the company (materials handling, purchasing, packaging, brushing etc.);
2. identifying factors that determine the costs of an activity (cost inducers);
3. collection of each activity costs that is directly equivalent to traditional cost centers;
4. distribution of indirect costs on products according to their use in an activity.

*Step 1: identifying the main activities of the company.* Identifying the activities is based on Harvat/Nayer model, and includes four phases:

- formulating hypotheses on the key processes, phase that rely on the structure of products, company's structure, business objectives;
- analysis of the activities for determining partial processes;
- allocation of capacities and costs by planning analytically the necessary expenditure needed by partial processes and planning of cost place expenditure based on data from the previous year or on budget;
- concentration of partial processes and main processes.

The highest accuracy of the calculation is assumed to be realized by establishing four general levels of activity, some of these levels are in turn divided into specific cost centers:

- *Unit level activities* that are realized each time a unit is produced. Are those that occur as a result of total production volume that passes through an enterprise.
- *Lot level activities* are performed each time a lot of goods are produced or handled. Include tasks such as placing purchase orders, equipment, and transportation of materials to customers and reception of materials. The costs generated by lot level activities such as purchasing are based on the number of purchase orders submitted and depend on the size of these commands.
- *Product level activities* are required by attaining each different type of product. These activities are designed to support the production of each different type of product; therefore the product level activities will be linked only to certain products and not others.
- *Enterprise level activities* only refer to the overall manufacturing process of an enterprise. Enterprise level costs refer to enterprise management, insurance, property taxes and employees facility.

*Step II: identifying factors that determine the costs of an activity (cost inducers).* Cost inducers, also called “cost stimulators”, represent the size of reference for allocating indirect costs. Cost inducers represent the cause of consumption variation of resources and serves as a measurement tool of the volume of benefits provided.

Cost inducers must meet the following conditions:

- be easily to identify and use;
- be the cause of resource consumption variation;
- not to influence the staff behavior;
- be easily accessible.

*Step III: collection of each activity costs that is directly equivalent to traditional cost centers.* All activities for which the same cost inducers were identified regroup in an aggregation center. This way facilitates the cost calculation, giving up to an individual treatment of each activity. At this point we can calculate the unit cost of the inducer knowing:

- the cost center aggregation consisting of the amount of all component activity cost;
- the total volume of the inducer.

**Inducer unit cost = Cost center aggregation/Total volume inducers**

*Step IV: distribution of indirect costs on products according to their use in an activity.* At this point it is calculated the production cost of various components of products, the production cost of manufactured products, the full costs of products sold.

The production cost will include direct costs and a dose of aggregation centers expenditure (indirect). In general, the production cost is calculated on three components:

- cost depending on the volume of production which refers to the consumption of raw materials,
- direct labor, equipment operating hours;
- lot cost caused by the production of the organization which refers to the cost of manufacturing orders, quality control cost etc.
- part or subassemblies cost due to the existence as such and which technically refers to the ethnic file, design, redesign, information storage etc.

The calculation of production cost of manufactured products reunites the following elements:

- parts and subassemblies cost;
- other raw materials cost;
- direct labor;
- machine operation cost;
- activities consumed by manufactured products cost.

The consumed activity cost is determined as following:

**Consumed activity cost = Inducer unit cost x Volume of inducers used in the manufacture of a product**

The calculation of the complete cost of products sold assumes to supplement the production cost with some of the administration and sale cost, part determined by specific cost inducers of these activities.

Now we may put the question on how to identify the advantages and limitations of using the ABC method. Using less arbitrary ways of distribution, the cost calculated by the ABC method will be more relevant, but it will not be exact, because its aim is to determine the origins of the cost, updating the triggers of resource consumption. The advantages of using the ABC method (Cucui et. al. 2003, p. 51-52) can be considered the following:

- productive/unproductive distinction disappears. We note a unified vision of the company: “its productivity is not shared, it results from the circumstances of the efforts of one or others”;
- ABC method facilitates understanding the working methods and sources that cause cost appearance in the enterprise until product sale;
- the notion of “activity”, which is essential coordinate of this method, allows more rigorous justification of decisions in company’s dynamic activity and better understanding of the mechanism of value creation;
- a substantial part of indirect costs concerning the products are direct opposite with the activities. Therefore, management activities provide a more effective pilotage of the enterprise;
- by its approach, ABC method provides a better method of diagnosing the causes of cost variation and business performance;
- the notion of activity is compatible with the approach of total quality by enabling the evaluation of non-quality costs;
- the approach based on “activities” allows the correlation of cost calculation with the strategic analysis.

But like any other method, ABC method has also its limitations. Among the major critics of the method we could mention:

- the weight of activities identification that produce value and cost inducers’;
- the distribution of expenditure on activities is subjective because it is difficult to separate on each work time of a person who carries out several activities, often administrative;

- this method remains difficult to apply when some companies have problems with identifying hidden costs, while others show interest in physical indicators, and most of them are using only financial ratios;
- ABC method requires a long period of assimilation, before its widespread use within an organization.

Despite these limitations, ABC is a method of cost calculation that achieves a more comprehensive analysis of indirect costs compared to traditional costing methods, being a powerful tool in cost management, performance management, activity-based management and control management.

**Conclusions** Structuring the company's activity on responsibility centers has become a priority in customer satisfaction and achieving a profitable activity. If in developed countries the management

based on responsibility centers is widespread, in Romania there is a resistance to this way of structuring the firm's activity, mainly due to the mentality of some business leaders. Enterprises are defined as entities producing balance sheets. After setting up an enterprise, cost centers must be created and assigned to companies. Cost centers are the lowest level of your organization for which it must be kept a track and an account showing a balance of results. One of the most advanced and modern method used to assess the operations of a cost center is the ABC method.

ABC method considers activities as a place where the law of spending behavior for the tasks performed is studied. Calculating the cost of products is only a secondary result of what is essential: the cost of activities and product cost. The main purpose of the ABC method is to provide information to facilitate management decision making; to analyze the costs of products, services and processes; to measure the costs of resources consumed in order to increase revenue, productivity and efficiency in using these resources. Therefore, the ABC method helps companies get better information about their processes and activities to help improve its operations. ABC method integrates all the information necessary for the good development of the enterprises' activity (destroys the barriers which separate financial information for the rest of the data). Provides competitive advantage and improves performance of business using this method.

## REFERENCES

1. **Badea, Florica:** Managementul productiei, Carte preluata din Biblioteca digitala ASE, <http://www.ase.ro/biblioteca/pagina2.asp?id=cap2>;
2. **Brăescu, Mădălina, Jinga, Gabriel (2002):** Măsurarea și evaluarea performanței întreprinderii prin metoda ABC, Revista Contabilitate și audit, Contabilitate și Informatică de gestiune, nr. 2/2002;
3. **Briciu, Sorin, Burja, Vasile (2002):** *Contabilitate de gestiune. Calculația și analiza costurilor*, Editura Ulise, Alba Iulia;
4. **Cucui, Ion; Horga, Vasile; Radu, Mariana (2003):** Control de gestiune, Editura Niculescu, Bucuresti.
5. **Ebberen, Klaus; Posster; Ladislau; Ristea, Mihai (2000):** Calculatia si managementul costurilor, Ed.Teora, Bucuresti;
6. **Eden, Yoram; Ronen, Boaz (2002):** *Activity Based Costing (ABC) and Activity Based Management (ABM)*, FMAC (Financial and Management Accounting Committee ), *Articles of Merit 2002*, disponibil online la adresa: <http://www.ifac.org./bookstore/Professional Accountants in Business>, accesat in data de 15.09.2010;
7. **Ionascu, Ion; Filip, Andrei Tiberiu, Stere, Mihai (2003):** *Controlul de gestiune*, Editura Economică, Bucuresti;
8. **Leslie Chadwick (1998):** Contabilitate de gestiune, Bucuresti, ed. Teora;
9. **Liggett, H. R., Trevino, J. and Lavelle, J.P.(1992):** Activity-Based Cost Management Systems in an Advanced Manufacturing Environment - Economic and Financial Justification of Advanced Manufacturing Technologies, H. R. Parsaei, editor (New York: Elsevier Science Publishers)
10. **Rusu, C.; Voicu, M. (2001):** Managementul pe baza centrelor de responsabilitate, Bucuresti, ed. Economica.