

# **From ABC to Time Driven Activity Based Costing for outpatient clinics**

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**Abstract :** A good lead firm, said M.Jr.Harper, means being in control its future and to be master of the future is learning to work with the information. But one can not seriously claim that the accounting information fully meet all the information needs of different user groups, especially when it comes to accounting management whose role is perceived differently by each entity, depending on the purpose and objectives management. Given the complexity of public healthcare institutions, especially public hospital units, it becomes necessary to thorough knowledge of the organization and exercise management control as accurate determination of costs, determining the strengths and shortcomings of cost calculation and assessment information their implications on the performance of the entities is a constant imperative of decision making. In this context we want to point out that it is the method impact Time Driven Activity Based Costing over the management of the hospital units .

**JEL classification: M40, M41**

**Keywords: management control; calculation methods; decisions**

## **1. INTRODUCTION**

Economic competition, today became increasingly fierce economic environment requires efficiency and performance. On the other hand, fulminant technologies require continuous upgrading of skills and new forms of organization and management of the activity. In this dynamic context, management accounting gain vitally important as organizations turn exert an influence on the social, economic and physical. Business decisions on the development of new products, the pricing policy in its recruitment and salary are dependent accounting information, and managers' behavior is influenced by accounting data (Horngren et &, 2005) because they have an impact on their possibilities for action managers while being producers and recipients of such information.

New research in management accounting reveals a significant evolution of his fundamental concepts. They focus on the key issues of the activities managed directly related decisions. Analysis and costing, the priority objectives of management accounting is done in a much broader context, compared to the traditionally manner, meaning that there is now more closely specific elements of these activities on the organization's strategy. Thus, information on costs acquire a special role in the

development of more efficient strategies that give organizations a sustainable competitive advantage.

Therefore, in a market economy requires a new vision costs, meaning that the starting point should be the market price and it is depending on it to be analyzed opportunity cost adjustment decision on the status of manufacturing a product, execution a work or provide a service. Such operation requires a lot of precision and economy on consumption that affect the cost, which by the information that it provides, it becomes decisive for decision making have been adopted to schedule and demanding control of operations and capitalization incurred in obtaining production.

We ask ourselves if we can copy and apply a management model as it was conceived? The answer is yes and no. Information systems and management accounting common forms are similar in different countries, but their associated management practices differ from country to country visible.

This distinction leads to the idea that the main differences occur between different countries and between Europe and the United States occur in the informal systems. Formal information systems, instruments are very close, in retailing, management practices differ in terms of informal systems, the actors around accounting and management tools and other resources in different cultural contexts.

## **2. Objectives**

Some American researchers (R. Cooper, Kaplan, Porter, Miller) and French (Mevellec, Labas, Lorino), taking into account the disadvantages of traditionally costing methods were designed and developed another management system known as ABC (Activity Based Costing) or ABM (Activity Based Management). For the design of this model and so far have been more than 20 years which is why the model is considered unwieldy and outdated. This is the reason for which we want to bring into question another model, already known in the literature as the Time Driven Activity Based Costing model that folds very well on outpatient health system.

## **3. Methodology**

Methodology of investigation covers the main research methods, namely qualitative research and quantitative research, by highlighting features of the study from the theoretical perspective, a descriptive-conceptual manner.

We felt that the best approach is deductive, proceeding from the general toward particularly, especially using comparative analysis of the concepts, tools, and specific methods of management accounting.

## **4. ASPECTE TEORETICO-METODOLOGICE ALE METODEI ABC/ABM**

Currently, mechanistic model of enterprises operating in opposition to the new management logic is increasingly necessary in production. He tends to inhibit the development of enterprises, attitudes and representations are essentially much more tenacious than technologies.

Competition analysis was to demonstrate the merit of other possible strategies, in particularly differentiation strategy or isolation and prioritizes customer value problem. All processes must be geared towards customer satisfaction (internal or external), which assigns a value functionalities or services. This value creation must be achieved efficiently, ie with the lowest cost. Optimizing the value-cost relationship is the foundation of the new management reasons.

## 4.1 Metoda ABC

In the mid-1980s, following the works published in CAM-I, the first systems costs were applied activities in the United States. The key objective was to remedy distortions in costs observed in a large number of U.S. companies that leads to wrong decisions.

ABC concept initiated by R.Cooper and R.Kaplan starts from the observation that there are products that consume resources but activities and various activities of the company are used by the product.

Given the sequence of causation and cost allocation is not produced from conventionally distribution keys, we find that the firm should be seen as a network of activities in internal and external customer service and not as a body.

An activity is a set of basic tasks, homogeneous, which aims to create value for internal or external customer. A chain of activities that contribute to achieving a common goal called the "process".

A **first step** consists in tracing activities will be significant cost and performance support, knowing that the activities involving the consumption of resources and activities involving cost carriers.

In this perspective, activities can be classified as:

- critical activities, that needed to achieve the strategic priorities;
- main activities and primary, that sustains the company and will not be abandoned without losing its identity;
- secondary activities that the firm must possess for the normal conduct of its object;
- activities with added value for the customer, and will not be considered.

Once determined activities , resource allocation question consumed by them, as in classical methods . The difference is that , for expenses which are not directly from the center of activity , use " an inducer of resources " ( resource driver) , which plays the same role as distribution keys . Knowledge of available resources ( manpower, materials, information ) allows the estimation of " theoretical capacity " of an activity . In essence , the concept of theoretical capacity , or "normal" corresponds to the actual level of activity , even if it is often arbitrary center of activity and not be based on any specific activity .

The work is supple enough to accommodate a large number of cost calculation cost carriers . Their choice varies depending on management issues to be solved or decisions to be taken . We can talk about products, customers , a project, an order, a responsibility center , an asset, value chain , etc. .

The frequency calculations may vary and should not correspond to accounting period.

For each carrier costs will determine the list of tasks required, and for each of them, the number of drink drivers (for example, assembly activity required six welds, so we have six inducers or drivers).

The method offers the possibility to build a matrix of costs dependent activity (EAD) in which the costs are in rows and column activity. It follows that a charge "j" identified in the work "i" is found in cell "ij", hence the next model down the amount of resources consumed (CTA) in the business "i":

$$CTA_{(i)} = \sum_{j=1}^n R_{(j)} \times N_{(i,j)} \quad (1) \quad , \text{ în care :}$$

$R_{(j)}$  = term consumption of a particularly resource category "j"

i = activity

$N_{(i,j)}$  = input i, j of the matrix or activity-dependent costs (EAD)

A **second step** involves assigning activity costs to cost bearers (products, works, services). The unit of work, allowing the binding of the carriers cost will call "inducing activity" (driver activity) (a unit of work) on the basis of the unit cost is to be determined, namely:

$$Cu_{da} = \frac{CTA_{(i)}}{N_{da}} \quad (2) \quad , \text{ in which:}$$

$Cu_{da}$  = unit cost of inducer activity (activity driver)

$N_{da}$  = number of inductors activity

Knowing the unit cost of inducer activity, can determine the value of an activity "j" attributable to a product "i" ( $TCAP_{(i)}$ ), according to the following relationship:

$$TCAP_{(i)} = Cu_{da} \times N_{das_{(i)}} \quad (3) \quad , \text{ in which:}$$

$N_{das_{(i)}}$  = number of inducing specific activity of "i"

With regard to the calculation of the cost of the product, the method offers the possibility to build a second array of activities dependent on the item (APD) that work in "j" rows is, and the products "and" column. It follows that the values found in each product ( $TCP_i$ ) will be based on the following relationship:

$$TCP_{(i)} = \sum_{j=1}^n TCAP_{(j)} \times APD_{(i,j)} \quad (4) \quad , \text{ in which:}$$

$APD_{(i,j)}$  = entry i, j in the matrix APD

Inducer activity differs from conventional units by the will to restore a causal link with the consumption of resources, so that we can distinguish four types of inductors:

- inducers bound volume manufactured products (machine hours, hours-workers kg consumables);
- inducers related operational organization (number of plots, number of orders, number of deliveries, number of invoices etc.);
- inducers of the existence of the product (number of technological cards, number drawings, number of manufacturing recipes, number of exemptions and so on, which are independent of the number of products is achieved);
- inducers of the existence of capacity (broadly, pubs, cars, people).

It should be borne in mind that the last relationship computing (4) covers indirect costs attributable to the product. To find the total cost completely ( $TCC_{(i)}$ ) of the product is

required the addition of direct costs per product ( $CDP_{(i)}$ ) according to the relationship:

$$TCC_{(i)} = TCP_{(i)} + CDP_{(i)} \quad (5)$$

This cost modeling can lead to:

- analyze margins on products / services, customers or couples products / services, customers;
- the traditional budgeting (enough to start deducting the amount expected objectives and activities necessary to aggregate the budget centers);

- estimate the value chain by adding elements of all activities relating to the same subdivision (design, logistics, manufacturing, trade, services);
- grouping activities into centers of activity, corresponding to a process, a project, an action. An activity center can thus be constituted by a set of support activities, converging towards the same goal: budget, human resources management.

But the cost of shipping carriers and their grouping should not become an overriding concern because competitiveness is gained in the activities which must contain the key drivers of performance.

The performance of a task can be estimated mainly through the inductor cost, but also by other inducers such as the quality, range, and flexibility.

Inductor (driver) costs must be distinguished from inducer activity, which is not always recognized by the literature based on ABC (Activity Based Costing). They correspond to the root causes of resource consumption at the level of activities and therefore constitutes the basic criterion of performance. Certainly not limited to ABC costing, while allowing relief activities by reducing resource consumption by eliminating certain activities or worthless.

#### **4.2. Metoda ABM**

In the form in which it appeared, we can speak of " the cost of the first generation system " , which is why many authors have argued that , in essence , ABC brought nothing new and has long been equated with traditionally costing methods .

Introducing the ABC method does not involve any one organizational change or a management concern . In its first stage , the method is limited to tracking activities within the centers or liability analysis and re-adding a stage in the allocation process .

Interest method outlined ABC cost system of the second generation , ABM ( Activity Based Management ) is not limited to obtaining reliable and cost containment activities . The authors of the second generation is based on a different vision of the company, more cross that lead to calling into question the traditional centers of responsibility.

Going beyond the traditionally boundaries of the enterprise and taking into account the global value chain strategic segment concerned ABM method becomes a genuine method to support the administration and management.

#### **4.3. De la metoda ABC la metoda Time Driven Activity Based Costing**

While many authors have advocated the method ABC , as was previously mentioned , particularly in the health , Y.Lievens et al . , And M.King et al . , Believes that ABC systems have the disadvantage of involving a consuming additional time and resources to manage such systems . In this regard it is worth P.Everaert 's statement underlined et al . , Regarding the fact that " many managers have tried to implement ABC , including the health system, but abandoned the attempt in the face amount of lies and increased costs ."

Looking to overcome their ABC system, R.S.Kaplan and S.Anderson have developed a new concept that they called TDABC (Time Driven Activity Based Costing) and are based only on two cost drivers, ie the unit cost of capacity used time the unit to carry out a transaction or activity.

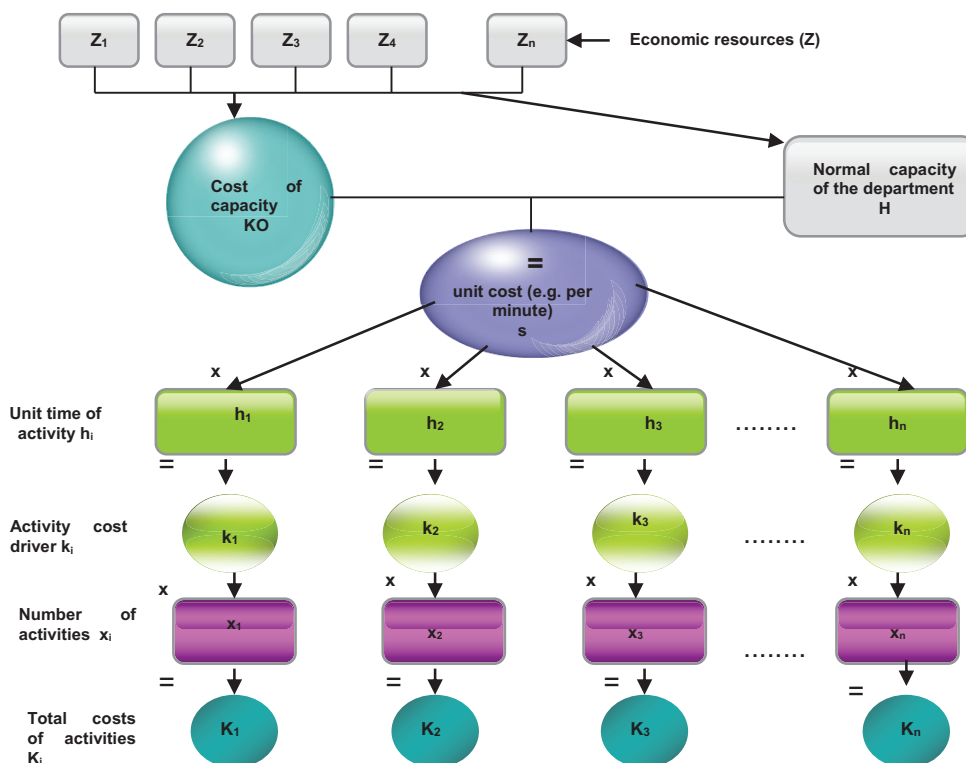
TDABC particularities as compared with the ABC method are shown in Table 1 .

In terms of graphic design Time Drive Activity Based Costing method is shown in Figure 1 vation provides a clear picture of the steps necessary to determine the cost of services performed

**Table no. 1. Features TDABC method comparative method ABC**

Method ABC	Methoda TDABC
Step 1 - Identify the various activities	Step 1 - Identification of different resource groups (departments)
Step 2 - Assign resources consumed by activities	Step 2 - Estimate the total cost of each resource group (department)
Step 3 - Determine cost drivers and unit costing induction	Step 3 - Determine the normal capacity of each resource group (available hours)
Step 4 - Effect on cost objects costing activities	Step 4 - Determine the unit cost of each resource group by dividing the total cost related to normal capacity
Step 5 - Multiplication customers cost drivers, analyze the information obtained	Step 5 - Construction equations stroke
	Step 6 - Multiplying the unit cost of each resource group estimated time for each event

Source: Everaert P, BruggemanW, Sarens G, Anderson S, Levant Y. Costmodeling in logistics using time-driven ABC. Experiences from wholesaler. International Journal of Physical Distribution & Logistics Management 2008;38(3):172–91.



Source: Ana Szychta – Time-Driven Activity-Based Costing in Service Industries, Review Social Sciences/Socialiniai Moskiai. Nr.1(67), 2010, pp.54

**Figure no. 1. Activity cost calculation under TDABC**

Our concern is to apply the method in a patient clinics TDABC, indicating that it is a health facility outpatient clinic consultation in various areas from which patients receive medical treatment recommendation or are referred for hospitalization.

The main problem is not given TDABC identify different groups of fish but to determine the time required to achieve an activity (ambulatory clinics where we refer to the time required, registration of a patient, the more since the patients are not the same, each requiring a different amount of time). TDABC advantage is that the equations for determining the various drivers are driven in time, as shown in Figure 2.



Figure no. 2. Main activities in a outpatient clinic

In the outpatient clinic study subject were retrieved 17 specialized medical services (departments or groups of resources), but to the survey were chosen services Cardiology, ENT, endocrinology, urology, ophthalmology, dermatology and surgery services that have attracted attention to the frequency of patients and their willingness to provide the necessary data.

What is characteristic of these services is the existence of two types of examinations, namely: a non-technical (discussion with the patient) and one technical (eg electrocardiogram in cardiology, endocrinology and urology ultrasound measurement of intraocular pressure in Ophthalmology etc.) , which involves determining the cost of two rows, one related activities ethnic character and one character afferent non-technical activities. Differences in size of the two relevant costs specific consultations and data differences apparatus used, and the time required to achieve the consultation as a whole.

## 5. Conclusions

Moving to ABC TDABC method is an important step in business management firms, especially in public health by considering the following benefits it brings: ABC computing simplifies system provides accurate and relevant information to managers who clinicilo patient can make effective decisions to improve operational activities, provide opportunities for profitability analysis for each medical service, the information released may underlie decisions on investments to be made.

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