

**APLICACION OF ABC METHOD FROM
AN OPERATOR OF WATER AND SEWERAGE**

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Abstract

At the time of the appearance of the ABC method, many specialists considered that they found the most opportune method of calculation to allocate the overhead costs on the cost objects, otherwise said to be able to calculate the total cost of a product or service. Because the method is based on determining the total cost, we can consider that the ABC method is not a method of costing, but rather a method of cost management. Unfortunately, in the specialized literature of Roumania there are many approaches which consider that the ABC method is a method of costing in the traditional way, although in our opinion it is not.

Application of ABC method to a regional operator of water and sewerage shows us the possibilities of the method, the possibilities that are offered in the field of cost and administration overhead management, respectively of the establishment of the accounting result on the different cost objects. In case of the regional operator the calculation object is the city or township in which provides the services of water and sewage.

Keywords: Activity Based Costing method, Total Costs, Costs, Managerial Accounting.

Classification JEL: M41, M21

1. Introduction

Nowadays, in order to perform a correct analysis of the results and the costs and expenses generated by a product, service, order, project etc. it is very important to calculate a real total cost on a cost object. The problem of calculating the total cost has become increasingly important with increasing costs of support activities (so-called administrative) in comparison with the direct costs. The application of the method ABC (Activity Based Costing) to a regional operator of water and sewerage is interesting, even in conditions in which, as a first reaction we think is not necessary. Theoretically would not be necessary, because there are two main services that they provide these companies, the provision of drinking water and wastewater treatment. In these conditions the only thing which requires the use of complex methods of cost analysis is regionalism the service, because these services are provided for the different locality and they generate different costs. For an efficient management of these activities we need to know separately the costs of this service for each town and city. The application of the ABC method allows us the knowledge of these costs and their management, thus moving from ABC to ABM (Activity Based Management).

The goal of our research is to demonstrate the usefulness of the ABC method, and in cases in which, without a thorough analysis we consider that can't and shouldn't be used this method. We think that this research and conclusions are useful both for theoreticians and both for practitioners, who are confronted every day with this problematic

2. The method of research used and literature review

Our research is based on the analysis of the specialized literature and the case study. In the research we based on the literature review and as a method of research we used comparative analysis. We compared the Roumanian approaches with the international approaches and through a critical and interpretative analysis we have formulated the conclusions of this research. To emphasize those set out in the conclusions we have realized a case study.

IFAC considers that up to the present time management accounting had four phases of development (fig. no.1). In our opinion, nowadays we live in the fifth phase of development - which began in 2000. In this period the challenges that appear in front of management accounting binds to the efficiency of data extraction, from the immensity of data provided by ERP systems. We have "all data", but which are those pieces of information that we really need in decision-making?

We believe that it is more important the orientation of the "data provision" systems to support the rapid decisions (reactions to unforeseen changes in the economy of companies) than on ensuring a huge volume of data (uninterpreted analytical data).

Nowadays when we have advanced methods of allocating indirect costs (e.g. the ABC method or the "process costing" method), which instead of the predetermined overhead rate use a rational allocation of the cost related to the cause and effect of an operation, the biggest challenge to managerial accounting is the choice of the tracked parameters at each level of decision-making, if we don't want to see only the tree in front of the forest because of the multitude of data.

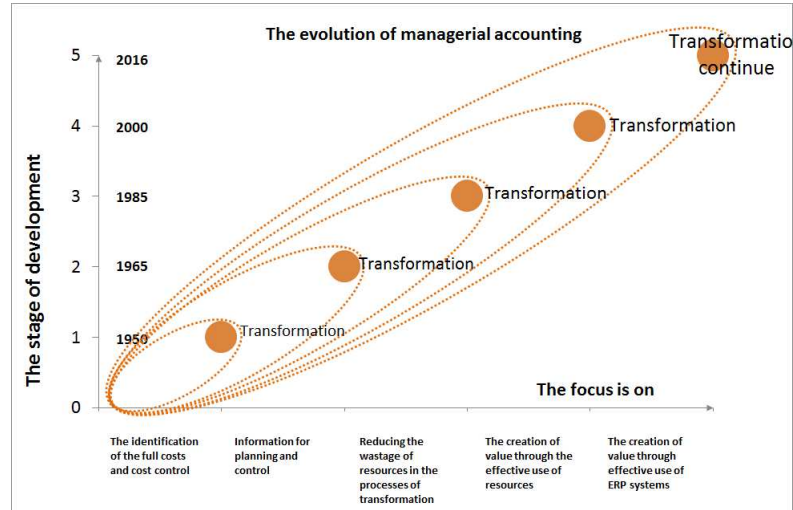


Figure 1. The evolution of managerial accounting (Source: IFAC (1988) + own addendum)

Each phase has emerged in response to the challenges of the industry located in the development and the manner in which he drove the enterprises of this period. In our opinion the fifth phase of development has emerged in response to the challenges presented by the possibilities of the IT industry and not as an expectation on the part of industrial developments. The possibilities have generated the development and not expectations as it was in the first four phases of development. In this phase of development of managerial accounting challenges arise related to the allocation of overhead costs and the calculation of the total cost. Probably this development in the evolution of managerial accounting will continue.

In most businesses the current economic realities lead to the reorganization and to the reduction of staff. If sometimes in the sector of productions and services all the costs of the too high administration (related to support activities for the production and services) were supported by clients without any problem, nowadays in the very intense competition this is not possible.

The services and products they needed by customers are becoming more and more individualized and complex and therefore require more intensive support activities such as technical help desks and public relations. All these additional needs are leading to an increase in costs and expenses.

The first time the issue of general costs (overheads) in growth was approached by researchers Jeffrey G. Miller and Thomas E. Vollmann, in an article entitled "The hidden Factory" (1985), which presents the problems brought about by the permanent increase of the overhead costs. In their research shows that the permanent increase of the quality of the products and the problem generated by the increase of general and administrative expense is a continuing concern of managers. This problem was compounded by the fact that managers knew how to solve problems related to quality, but in the face of increases in overhead they were powerless. Miller and Vollmann were identified through the conducted research in the sector of electronic industry (where these increases were very pronounced), the causes that generate the administrativ overhead costs.

In their conclusions, they have influenced long-term of approach to the cost management method. They have made very important conclusions. The first conclusion was that the problem of general overhead costs is not a cyclical problem. In the last one hundred years, these costs have increased on a permanent basis, and definitely they will increase in the future. These costs are replacing the direct costs with labor. The second conclusion was that it is important to develop a model in which the overall costs to be related to "the forces that are behind them" and were able to give an interpretation of the general costs (overheads) "The biggest part of the overhead costs appear in the "hidden factory", the driving force real in this factory comes from the number of transactions performed, and not the physical products made by the visible factory". All the operations that lead to increase the value of a product or service is carried out in "hidden factory". Workers in this factory are employed with the "blue collar", so who work in offices in front of computers.

3. Case study

The company above mentioned record of costs is keep with the global method, because it has two activities, the drinking water supply and wastewater treatment. At the first trial we can say that this method satisfy the informational needs of management, the problem is complicated when each served city and township is considered a profit center and from that moment the management no longer has any pertinent information to decision making. As a first approach, the overheads of administration you can assign the profit centers with the help of the predetermined overhead rate, but they reflect the resources consumed by each point of the thing? Of course not. If we want to have a fair (acceptable) result, we must apply ABC method.

Steps for implementing ABC method are the following:

1. The realization of a catalogue of activity at the level of companies.
2. Calculating the cost on various activities.
3. The identification of the cost object, which will keep track of the total cost.
4. The choice of the cost drivers, which serve to allocate the costs of activities and subactivities on cost objects.

As a first step for the implementation of this system, we passed to the realization of a catalogue of activity and subtasks at the level of company.

After the establishment of the catalogue of activities, we assessed the weight and importance of the current of each subactivities and we have done the following: we established overhead for each office, as follows: we collected expenditure on offices and services, and in the case of overhead expenses water, sewer, electric and thermal energy, i.e. fuel, security, cleaning, etc. we assigned on offices on the basis of the m² on the desk. In this way, we obtained how much is the totality of the administrative overhead (PIU, technical Office, Purchasing, Payroll, Accounting, Relations with the Public, Billing, Administration, IT, Legal, Labor Protection, Environmental Protection, Audit, Marketing).

As part of the case study we present the tasks of the office of HR and the allocation method of costs generated by this activity. On the basis of an interview conducted with the employees of this office we have identified the following subactivities and we have established their own share of the activity of the HR (Table no.1).

The subactivity of the activity of HR

Subactivity name	Share in the work of the office
1. Creating, updating and management of the strategy related to human resources	5%
2. The management of the state functions and the update of job descriptions	7%
3. Preparing, organizing and tracking the improvement and development of employees	5%
4. Management of the evaluation system of employees	15%
5. Management of relations between employees and management	3%
6. Updating the database with the employees of the enterprises	3%
7. Introduction data on the presence and the calculation of the wages	50%
8. Issue of certificates and other documents related to the activity of HR	5%
9. Preparation of dossiers of retirement, employment, termination of employment contracts	5%
10. Completion and submission of the questionnaires of statistics	2%

Table no.1 The subactivity of the activity of HR (Source: own elaboration)

On the basis of the weights thus obtained, the costs of the office HR were divided on tasks (subactivities). The costs of tasks can be allocated to the profit centers (PC) (the bearer of the cost is the point of the thing, in the case of water service and sewage), but others do not bind directly or indirectly the activity of the center (working point) and may not be allocated with this method (will be allocated with the traditional method). In Table no. 2, we present which of the costs subactivities is allowable with the ABC method and which is cost driver with which it can apportion the cost.

The usability of the ABC method in the task of HR and cost driver established

Subactivity name	Allocability by ABC method	Cost driver
1. Creating, updating and management of the strategy related to human resources	No	-
2. The management of the state functions and the update of job descriptions	Yes	No. job descriptions updated for the PC.
3. Preparing, organizing and tracking the improvement and development of employees	Yes	No. people who have followed the courses

Subactivity name	Allocability by ABC method	Cost driver
4. Management of the evaluation system of employees	Yes	No. evaluations assisted by HR
5. Management of relations between employees and management	No	-
6. Updating the database with the employees of the enterprises	Yes	No. the person who made the update
7. Introduction data on the presence and the calculation of the wages	Yes	No. employees on the profit center
8. Issue of certificates and other documents related to the activity of HR	Yes	No. certificates issued for the profit center
9. Preparation of dossiers of retirement, employment, termination of employment contracts	Yes	No. files made for the profit center
10. Completion and submission of the questionnaires of statistics	No	

Table no.2 the Task of the activity of the HR and the cost driver used (Source: own elaboration)

By applying the presented method, the results are interesting. We extract from research a profit center with results on the month of November 2015.

The structure of the result to the profit center Sanmartin on November 2015

Explanations	Traditional method				ABC method			
	Water	Sewerage	Other services	Total	Water	Sewerage	Other services	Total
Quantity sold (m ³)	3.488	1.328			3.488	1.328		
Revenues	7.882,88	2.470,08	153,43	10.506,39	7.882,88	2.470,08	153,43	10.506,39
Variable Direct Costs	2.305,93	929,44	-	3.235,37	2.305,93	929,44	-	3.235,37
Profit or loss – level 1	5.576,95	1.540,64	153,43	7.271,02	5.576,95	1.540,64	153,43	7.271,02
Contribution margin per unit – level 1	1,60	1,16	-	-	1,60	1,16	-	-
The minimum volume of production – TFC	3.244,14	1.324,70	-	-	4.496,49	1.864,29	-	-
The minimum volume of production – PFC	1.998,83	790,53	-	-	2.819,20	1.144,81	-	-
Fixed Direct Costs	1.817,82	537,19	-	2.355,01	1.817,82	537,19	-	2.355,01
Profit or loss – level 2	3.759,13	1.003,45	153,43	4.916,01	3.759,13	1.003,45	153,43	4.916,01
Contribution margin per unit – level 2	1,08	0,76	-	-	1,08	0,76	-	-
Manufacturing Overhead	1.378,10	379,92	-	1.781,62	2.689,79	790,93	-	3.513,53
Profit or loss – level 3	2.381,03	623,53	153,43	3.134,39	1.069,34	212,52	153,43	1.402,48
Nonmanufacturing Costs	1.991,13	619,71	-	2.611,29	2.681,81	834,67	-	3.517,10
Profit or loss – November	389,90	3,82	153,43	523,10	-1.612,48	-622,16	153,43	-2.114,61

Table no.3 Comparison of the results obtained by the traditional method and ABC method to the profit center Sanmartin on November 2015 (Source: own elaboration)

It can be seen that by applying the traditional method of costing, the profit center Sanmartin occurs with a positive result (profit), and through the application of the ABC method, this result is negative (sign loss). From the point of view of strategic and operational it is important to know this reality. In decision-making, must take into account both the resources, direct and indirect, consumed in the manufacturing process, and the administrative resources consumed by support activities.

4. Conclusions

From this research it follows that, the system of calculating costs with the ABC method lead to different results so opposite of the level of costs and profitability of the object of calculation. These results do not mean that a

regional operator of water and sewage have to give up the provision of water services and sewerage in the centers of profit which are in loss, but the method allows a meaningful analysis of the results obtained. In the development phase of a regional operator may not be only the profit centers which have positive result, because the output achieved depends on the degree of connection of population to water and sanitation services and length of service in that locality (consumer habits are formed over time). This method gives us the opportunity to achieve a more efficient management of costs.

From a technical point of view, the introduction of the ABC method requires a substantial labor force and generating costs in addition to the existing ones. This method, besides the presented advantages, submitted disadvantages. Apart from the cost generated, in case of activities appears the necessity to repetitions of the interview to establishing the new weights, which result from changes in the activity and this can reduce the efficiency of the method.

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