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## METHODS AND SYSTEMS FOR ALLOCATING AND REPORTING INDIRECT COSTS IN MANAGEMENT ACCOUNTING

While performing their activities enterprises aim at achieving financial results that allow their normal operation under market conditions.

Costs are one of the elements that are directly related to the formation of the financial result. Cost accounting is one of the most important sectors in accounting, having various functional dimensions as an information system. Thus, accounting should create information for measuring the performance or efficiency of an enterprise. This is achieved by reporting the flows associated with the movement and changes of resources (material, labour and financial). Revenues and expenditures are the factors related to the measurement of efficiency. The reporting of operating expenses is not only related to the creation of information on efficiency, but it is also relevant to calculating the cost of products and services provided by the enterprise. The relevance of cost information is expressed as follows:

First, cost is used to measure the elements of financial statements. For example, in the balance sheet the tangible fixed and intangible assets and inventories are shown by their cost. The information on the actual cost is used for the preparation of the statement of revenue and expenditure, in which the operating costs are classified based on their function.

Second, the information on the actual cost is used to analyze the profitability of the products manufactured and services rendered.

Third, the information on the actual cost is used in pricing. This applies primarily to products and services whose prices are subject to regulation. Some contracts are concluded on a "cost-plus" basis. Construction enterprises enter into a contract with investors for construction, in which the contractor is reimbursed for the allowable or otherwise defined costs plus a percentage on these costs or a fixed fee. In this case, accounting information about the cost of the accounting product (construction works) according to construction contracts, construction sites, contract stages and calculation objects is used.

Cost information is also used for the purposes of tax legislation.

The creation of accounting information about costs should be oriented to the needs of management in the following areas:

✓ examining and studying the costs and cost prices that are formed on this basis for the various activities;

✓ determining the bases for assessing certain elements of the assets of an enterprise;

✓ using the information on the cost of production and the services rendered to compare with the sale prices and to find out the results;

✓ forecasting and planning of expenditures and revenues (a pre-established cost, production budgets, etc.);

✓ identifying the differences (deviations) between the actual costs and the pre-established ones, etc.

The process of making tactical and strategic managerial decisions is based on information about costs, systematized according to different classification signs.

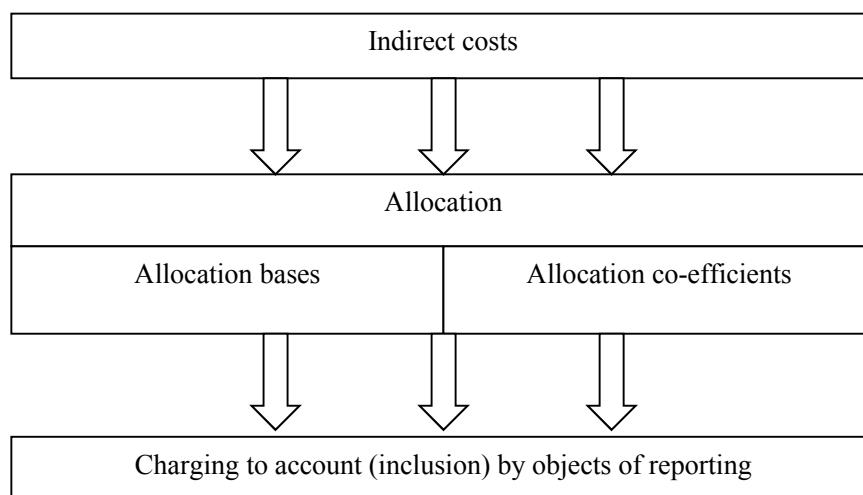
It should be noted, however, that the cost of products and services include various costs. In order to solve relevant problems in the reporting process they are grouped in different ways.

According to one of the renowned authors in the theory of management accounting – C. Drury, accounting primarily accumulates information about three categories of costs: materials, labour and overheads. Costs are summarized in the following areas: 1) for calculating and evaluating the production cost; 2) for planning and making managerial decisions; 3) for carrying out a control and regulation process. Moreover, in each of these three areas, in turn, the costs are further elaborated depending on the purpose of management<sup>1</sup>.

Traditionally accounting practice in our country classifies costs according to the way they relate to the cost of products and services rendered. According to this feature, costs are classified into direct and indirect. Direct costs are directly related to the manufacturing of a specific type of product or service. They relate directly to the cost based on the relevant primary documents. They include the costs related to raw materials, wages of workers directly employed in manufacturing, insurance accrued on these wages, etc. Indirect costs are associated with the manufacturing of several products, respectively activities, objects, etc. Examples of such costs include depreciation of machinery and equipment, maintenance and operation of machinery and equipment, etc.

Indirect costs are allocated and charged to account by specific objects in proportion to a pre-selected basis, i.e. there are two aspects, two successive operations: allocation of costs and their inclusion in the cost (See figure 1).

<sup>1</sup> See ДРУРИ. К. Введение в управленческий и производственный учет. – Москва, Аудит. ЮНИТИ, 1997. – С. 31-32.



**Fig. 1. Allocating and charging indirect costs to account by objects of reporting**

The bases for allocating indirect costs by types of production and activities and the criteria for their selection are quite different. The choice of one or another basis is often subjective. As a rule, the allocation of indirect costs is provisional. Despite some inaccuracies in the allocation of costs, it appears necessary and topical under the modern conditions, as well.

The problem of indirect costs has been solved differently in the practice of the developed countries.

One of the oldest methods used for the allocation of costs in calculating the cost of production is the method of coefficients. The aim of its application is to determine the full cost and margin (result) of the production output.

The essence of this method is expressed in the following:

- ✓ The direct costs are reported and charged to account by purpose;
- ✓ The indirect costs are reported in total and then are allocated by means of coefficients and are charged to account by the types of production.

In this respect the method of cost analysis centres<sup>1</sup> is interesting. This method is currently used by French companies. The process of cost accounting relates to the registration of costs, their preliminary accumulation and allocation and charging them to account by purpose as direct and indirect costs by types of products manufactured and services rendered.

The essence of this method is expressed in the following:

- Formation of cost analysis centres, which facilitates the allocation of indirect costs. In terms of their significance, these cost analysis centres correspond to the organizational-production structure of the enterprise.

- The production costs are grouped on the basis of their charging to account by purpose – as direct costs, and on the basis of their inclusion in the product cost – as indirect costs.

As a rule, the cost analysis centres meet the structural subdivisions of the enterprise, which carry out a certain activity and respectively the costs of implementing it. It is possible to create centres to meet specific information needs. There are two types of centres – primary and ancillary cost analysis centres.

The costs incurred in the primary centres are allocated and included in the cost of products manufactured and services rendered.

The costs incurred in the ancillary centres are allocated and charged to the primary centres. These cost allocations are called primary and secondary allocation of costs, respectively.

In search of a solution to the problem of indirect costs, the USA developed the Direct costing system. The ‘Direct costing’ concept was promoted by the National Association of Cost Accountants (later National Association of Accountants) in April 1954. This document, intended for practice, also defines the fixed costs that should be excluded when calculating the cost of each product. Fixed costs are associated with the maintenance and operation of the enterprise and do not depend on the volume of its production and sales. They also relate to the organization and management of the enterprise. They include the costs of development and expansion of enterprises. The majority of these costs are indirect. They are not included in the cost of the output. This system of calculation is suitable in cases where the proportion of the total production costs is not high. Therefore, it has two versions: simplified and improved.

<sup>1</sup> In earlier works in the field of management accounting this method is known as the method of homogenous sections (Methode des sections homogenes). See LASSEGUES, P. *Gestion de l'entreprise et comptabilite*. – Paris, Dalloz, 1972, p. 474; LAUSEL, P. *Comptabilite analytique*. – Paris, Sirey, 1971, p. 43.

In the improved version, the algorithm includes the allocation of indirect costs.

A number of enterprises use high-tech equipment, which reduces the relative share of direct costs – for materials and labour, and increases the indirect costs – depreciation of equipment, expenses for salaries and insurance of the personnel employed in the operation and maintenance of this equipment, etc. R. Kaplan, one of the prominent researchers in the field of management accounting, states that the industrial cost structure changes in the course of time and this is a historical fact. And if at the beginning of the century the general (indirect) costs accounted for 50-60% of the direct labour costs, today the percentage of the general (indirect) costs compared to the direct labour costs is significantly higher – most often from 400 to 500%, and in some complex productions it exceeds 1000%<sup>1</sup>.

Often in performing their activities enterprises need to attract resources for a long period in the production, marketing, supply and so on. Therefore, notwithstanding the fact that according to estimates the equality of marginal costs and earnings carries a maximum income, the application of the Direct costing system is justified in certain conditions: enterprises in which variable (direct) costs make up a significant part of the costs; the range of products manufactured is small.

If these conditions are not present, it is believed that the cost indicator is distorted to some extent.

Traditional systems of calculation assume that the allocation of indirect costs is linked to factors which reflect the quantitative aspects of the work done – man-hours, machine-hours, quantity of processed products, etc.

The development of new forms of production organization has changed these ideas. As noted by P. Mevellec,<sup>2</sup> in modern enterprises there is a growing importance of the diversity of the products that enterprises manufacture with a view to satisfy market demand. Companies incur costs, which are indirect, they are not determined by the volume of production, but rather by the need to maintain a variety of products manufactured. For this purpose, they expend resources, which are not dependent on the size of the production series (batch). These are the costs that are made for: setting and adjusting the machines; controlling the quality of the series that manufacture new products; supply activities; customer service, etc.

The weaknesses and inaccuracies in the allocation of indirect costs (mainly based on direct labour costs) in the classical systems of calculation lead to the emergence of a method for calculating the cost based on activities – Activity-based costing (ABC). It is based on hypotheses and methods of allocating and charging the costs to the cost price, which are considered more appropriate than those that existed before. This new costing approach is based on the idea concerning the activities - products interrelation.

The concept underlying the ABC method suggests management control based on knowledge about processes. The ABC method allows measuring of costs not only by activities but also by functions, centres, etc., as well as determining the contribution of the activities in the value creation by the enterprise. This is not just a system for monitoring but also a system oriented to management actions.<sup>3</sup>

The application of the ABC method is related to the use of certain terms:

- **An activity**, which is defined as a set of works or activities carried out by a person or a machine. It breaks down into separate simple operations and at the same time defines the consumption of resources for their implementation. For the purposes of applying the method, the enterprise breaks down by activities rather than by functions.

The activities can be divided into two broad groups: activities relating to the existence of the enterprise and priority activities.

- The grouping of activities in manufacturing is of particular interest:

- ✓ Activities at an individual product level. The costs for these activities include: raw materials, wages, insurance of those directly employed in manufacturing, electricity, maintenance and operation of the equipment, etc.;

- ✓ Activities at a series (batch) level. The costs for these activities involve assembling the goods, the movement of materials, orders for deliveries, inspection and control of deliveries, etc.

- ✓ Activities at a product maintenance level. These include the costs for engineering designs and technical documentation (product characteristics), changes in production technology, product upgrades, etc.

- ✓ Activities relating to the organization and management of the enterprise as a whole.<sup>4</sup>

<sup>1</sup> See Kaplan, R. Cost accounting: a revolution in the making. – Corporate accounting, printings 1985. Quoted after EVERAERT. Set P. Mevellec. Calcul des couts: il faut dépasser les méthodes traditionnelles. – R e v u e française de gestion, 1990, mars – avril – mai, p. 18.

<sup>2</sup> See MEVELLEC, P. Systems de calcul de couts de revient et subventionnement croises. – R e v u e française de comptabilité, 1993, №241, p. 59.

<sup>3</sup> The drawbacks and inefficiency of the traditional systems of costing are subject of study in the works of Eiler and Goletz in 1982, ad in a number of publications by Kaplan and Johnson in 1987. The technique of applying the ABC method is described in a book jointly by Johnson and Kaplan. Along with that the method is practically applied by R. Cooper in enterprises of Hewlett-Packard, Siemens, as well as in some other enterprises of Tektronic, Scovill, General Electric, etc.

<sup>4</sup> See MORRARD B. Comptabilité analytique et contrôle de gestion. www.gestion.unige.ch. The grouping of activities in Anglo-Saxon literature is presented in a similar way.

• **Cost driver.** The French authors use the term “inducteur”.

The ABC method is characterized by tracing the transfer of direct costs by objects of costing. This is done by using cost drivers. Their application explains the consumption of activity costs and the consumption of product activities. They are used to link the activities to the objects of costing.

Similarity may be sought in the application of the factors and allocation of indirect costs, which is known from our practice.

The most commonly used cost drivers in the industrial sector can be grouped as follows:

Cost drivers relating to the volume of output:

- ✓ the area occupied by workshops and other subdivisions;
- ✓ number of installed machines;
- ✓ the average number of workers;
- ✓ direct labour costs;
- ✓ cost of the basic materials;
- ✓ number of man hours;
- ✓ number of machine hours;
- ✓ amount of manufactured products, etc.;

Cost drivers that have a complex nature and express the characteristics of

✓ the activities performed are not related to the volume of production:

- ✓ number of series (batches) of a given product;
- ✓ number of sellers;
- ✓ number of customers;
- ✓ length of a production cycle;
- ✓ number of the orders fulfilled per month;
- ✓ number of requisitions;
- ✓ number of readjustments of machines etc.

The term ‘**processes**’ is used in relation to the application of the ABC method. Following the logic of activities, they express the content of manufacturing products.

As already stated, this method is characterized by tracing the costs and causality in the formation of the cost. There arises the question of the liability for incurring the costs, which leads to the problem of budgets development. As a rule, their design is based on the idea of centres of responsibility. They do not overlap with activities. The French author M. Lebas, who along with P. Mevellec is one of the most prominent researchers in the field of activity costing presents a matrix model, in which the enterprise is seen as a network of activities (see figure 2).<sup>1</sup>

Functions \ Processes	Deliveries	Workshop – mechanical processing	Workshop – assembling	Control	Sales	Administration
Accepting orders		•	•		•	
Management of product changes	•	•	•	•		•
Invoicing			•	•	•	•
Quality control	•	•	•	•		
.....						

**Fig 2. Matrix structure of an enterprise, presented as a network of activities**

As can be seen in Chart 2, the enterprise is shown as a grid, in which the functions and processes intersect in the squares. According to the author, not every intersection of columns and rows can be identified as an activity (in this figure these are the cells with the black dots). This way of interpreting the structure of the enterprise allows easily to identify the activities, which are determined on the one hand by the functions (centres of responsibility), and on the other – by the processes that generate costs (causality).

In this situation, budgets should be developed according to activities. On this basis, the resources that will be needed for each activity are identified and its contribution in the general plan of activities is evaluated.

The application of the ABC method passes through the following stages:

**First**, identifying and classifying activities. There are several approaches:

- The “Top down” approach. The enterprise management prepares an activity classifier;
- Processing and re-using documents relating to processes;
- Conducting interviews with the staff in order to gather information about the activities.

**Second**, identifying activity costs. At this stage, information should be ‘produced’ regarding the costs associated with the activities.

**Third**, determining the cost of the cost driver. For this purpose we need information about the activity costs and the volume of the activity.

<sup>1</sup> See LEBAS M. Du cout de revient au management par les activites. – R e v u e française de comptabilite, 1994, №259, p. 48.

**Fourth**, including the activity costs in the cost of products manufactured and services rendered. This stage involves:

- identifying all activities that relate to the manufacturing of a product (providing a service);
- identifying the amount of units of each activity used for manufacturing a unit of production (service);
- charging to account and including the costs by products and applying the cost of the cost driver for each activity.

Regardless of the advantages, this method also has disadvantages: it is hard and expensive to implement; it is based on subjectivity when including the costs by products; there is a danger of the desire to minimize costs at any cost; the hypothesis of a linear relationship between the activities and resources consumed.

In conclusion, it can be said that the approaches and methods for allocating indirect costs that exist in management accounting reflect the tendency to bring more accuracy and precision in this regard, but also that this issue remains currently controversial and open.

#### **Симеонова Р. Методи і системи для розподілу і повідомлення постійних витрат у бухгалтерському та управлінському обліку**

Одна з головних проблем у бухгалтерському та управлінському обліку, яка завжди була актуальною, і для якої рішення знаходяться в теорії і практиці, посиляється на розподіл і повідомлення про постійні витрати.

Постійні витрати – важливий елемент вартості за поточних умов. У статті обговорюється важливість вартості як у фінансовому, так і бухгалтерському та управлінському обліку – особливо відносно управління витратами. У сучасних умовах, має місце зростання частки постійних витрат у вартості промислових товарів і послуг. Це неминуче асоційоване з їх розміщенням, яке як правило тимчасове.

У статті надано різні методи і моделі розподілу постійних витрат: метод коефіцієнтів, метод аналізу центрів витрат і "директ-кост" система. Пошук можливостей поліпшити розподіл прямих витрат є в сполученні з ґрунтованим на методі (ABC). Стаття вивчає концептуальні принципи і директиви для його застосування.

*Ключові слова:* бухгалтерський та управлінський облік, вартість, умови, розміщення.

#### **Симеонова Р. Методы и системы для распределения и сообщения постоянных расходов в бухгалтерском и управленческом учете**

Одна из главных проблем в бухгалтерском и управленческом учете, которая всегда была актуаль-

ной, и для которой решения ищутся в теории и практике, ссылается на распределение и сообщение о постоянных расходах.

Постоянные расходы – важный элемент стоимости при текущих условиях. В статье обсуждается важность стоимости как в финансовом, так и бухгалтерском и управленческом учете – особенно относительно управления затратами. В современных условиях, имеет место рост доли постоянных расходов в стоимости промышленных товаров и услуг. Это неминуемо ассоциируется с их размещением, которое как правило временное.

В статье приведены разные методы и модели распределения постоянных расходов: метод коэффициентов; метод анализа центров расходов и "директ-кост" систему. Поиск возможностей улучшить распределение прямых расходов состоит в сообщении с основанным на методе (ABC). Рассмотрены концептуальные принципы и директивы для его применения.

*Ключевые слова:* бухгалтерский и управленческий учет, стоимость, условия, размещения.

#### **Simeonova R. Methods and Systems for Allocating and Reporting Indirect Costs in Management Accounting**

One of the main issues in management accounting, which has always been topical, and for which solutions are sought in its theory and practice, refers to the allocation and reporting of indirect costs.

Indirect costs are an important element of cost under the current conditions. The paper discusses the importance of cost both in financial and management accounting – especially regarding cost management in different directions. Under the present conditions, there is an increase in the share of indirect costs in the cost of manufactured goods and services. This is inevitably associated with their allocation, which as a rule is provisional.

The current paper studies the various methods and models of allocating indirect costs: the method of coefficients; the method of cost analysis centres and "Direct costing" system. The search for opportunities to improve the allocation of these costs is related to the Activity-based costing method (ABC). The paper studies the conceptual foundations and guidelines for its application.

*Keywords:* management accounting, cost, conditions, allocation.

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