MATHEMATICAL METHODS, MODELS AND INFORMATION TECHNOLOGIES IN ECONOMY

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CLASSIFICATION OF COSTS AND METHODS OF THEIR MANAGEMENT IN THE SYSTEM OF STRATEGIC CONTROL

Aytan Asker Abasova*, PhD, Associate Professor
Azerbaijan University of Architecture and Construction, Azerbaijan
Kamala Mehdi Mamedova**, PhD (Economics), Associate Professor
Azerbaijan University of Architecture and Construction, Azerbaijan
Lala Aziz Alekperova***, Senior Lecturer
Azerbaijan University of Architecture and Construction, Azerbaijan

*ORCID 0000-0003-1633-6257

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Introduction. In a market economy, all economic entities need a flexible and quick response to the variability of the external environment in order to form a long-term competitive policy and strategy.

Management functions form a single integrated economic information space that fully meets the concept of strategic controlling. Controlling as an integral management system is based on the management accounting information system. It is a tool for integrated (complex) activity management, which provides a methodological and instrumental base to support the basic management functions: planning, management and control. It is in management accounting that a database is formed for internal users, the content of information is determined for managing a specific object. In this regard, there is a need to consider the accounting concept of strategic controlling, focused on management accounting.

Analysis of recent research and publications. In the last decade, sufficient attention has been paid to the study of theoretical and practical aspects of operational (current) management accounting. Management accounting, first of all, is aimed at the future. It is associated with the development of planned indicators and the distribution of responsibility for accounting centers. However, in addition to budgeting, cost accounting and reporting, management accounting also includes the organization of internal control.

In order to increase the efficiency of management decisions, it is necessary to put into action all management functions, create conditions for their optimal interaction. This can be achieved with an integrated approach to the interaction of both general and specific management functions. In this case, we are talking about the emergence and development in parallel with the strategic management of the strategic controlling system. The need for the concept of "controlling" to appear in theory and practice is due to a number of reasons:

- Instability of the external environment, which puts forward additional requirements for the strategic management system;
- Complication of organizational management structures, which requires a mechanism for coordinating management procedures within the system itself;

^{**}ORCID 0000-0002-3100-6160

^{***}ORCID 0000-0002-3898-3941

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- The presence of a large amount of information that does not provide the principle of its relevance in the process of ensuring the adoption of strategic management decisions;
 - Aspiration to synthesis and integration of various fields of knowledge and human activity.

Regardless of how an organization positions itself in the market, special attention should be paid to the level and quality of costs associated with the implementation of business processes, activities, functions and operations.

Proper allocation of costs greatly facilitates the formation of reporting for management. The detailing of expenses and the procedure for attributing them to the cost will depend on the goals and objectives set by management.

In advanced economies, there are many options for classifying costs. They depend on the goals and directions of accounting, as well as the requests of reporting users.

Costs are the resources expended for economic activity, expressed in their cost. Expenses are the reduction in economic benefits due to the incurrence of liabilities or the disposal of assets. Resources are considered costs and have a cost until they recognize the income for which they were spent. At this point, the costs are recognized as expenses. In the classification of costs, there are a large number of terms for their designation. Many authors have contributed to their creation. As well as in the resulting confusion for determining costs. This leads to discrepancies and complicates the understanding of users of management reporting and its compilers. Each company maintains its own management accounting methods and techniques that are specific to its management and objectives.

Objectives of the article. Scientists consider the category of "costs" in parallel with the categories of "costs" and "costs" in terms of their relationship, interchangeability and significant differences. In the process of development of economics, many foreign and local scientists have tried to concisely and accurately define the essence of "costs" and "expenses". K. Druri, C.T. Horngren, B. Needles, B. Ryan, M.A. Vakhrushina, V.B. Ivashkevich, V.E. Kerimov, O.E. Nikolaeva, A.D. Sheremet and others. Have made invaluable contributions in this area.

Costs represent the sum of the economic resources of an entity that are formed in the course of the entity's operations, as well as transformed and presented in the form of the entity's assets.

This is a key indicator for assessing the organization's potential, its competitive position, external capabilities and risks in implementing the strategy. Costs have the ability to pay for themselves and bring economic benefits in the future.

Expenses are part of the expenses incurred in the reporting period to generate income and reduce the capital of the organization. These include, among other things, cash and non-cash expenses and accounts payable.

The classification of costs proposed by K. Drury is noteworthy. According to him, first of all, accounting collects information on three cost categories:

- material costs;
- workforce;
- overhead costs.

Then the aggregate costs are divided by areas of accounting:

- 1) to calculate and estimate the cost of manufactured products;
- 2) for planning and management decisions;
- 3) to implement the control and regulation process.

The system of analytical accounting of costs provides for their grouping in each of the above areas, depending on the objectives of management [4].

It is especially important to consider this behavior of fixed costs when addressing long-term strategic objectives for the implementation of management measures.

Grouping costs by variables and fixed costs allows you to identify the following types of costs:

- 1) marginal (marginal) costs the value of the increase in costs, which varies with the increase in the volume of product per unit, information on the value of marginal costs is used when deciding on the optimal volume of production; marginal revenue to assess the effectiveness of marginal costs determines the additional income from the sale of another unit of product;
 - 2) average fixed costs fixed costs per unit of output;
 - 3) average variable costs variable costs per unit of output;
- 4) average total costs variable and fixed costs per unit of output are the basis for assessing the profitability of certain types of products, works, services, goods.

Математичні методи, моделі та інформаційні технології в економіці

The formation of an indicator of the cost of products (works, services) is the most important priority in the management accounting system. Cost of goods (works, services) means the costs expressed in monetary terms for its production and sale. The cost of a product is defined as the estimated cost of natural resources, raw materials, fuels, energy, fixed assets, labor resources and other costs incurred in its production and sale used in the production process [6].

The main material of the study. Under market conditions, the cost of production plays an important role in the efficiency of enterprise management, including the optimal management of costs and the use of all resources. Therefore, the cost of products (works, services) should be considered as an indicator that characterizes the results of the organization's activities and reflects the effectiveness of technical, technological, organizational and economic decisions in the production process.

Today, the place of cost in pricing and its role as an economic mechanism is of particular interest. Recently, the cost indicator has been replaced by indicators such as price and profit, and has been left in the background. Adopting a measure of profit as a key indicator for evaluating an organization's performance, I think, can lead to a misinterpretation of the role of accounting and cost analysis as insignificant. Under market conditions, every enterprise should try to find resources to reduce the cost of production, increase the competitiveness and profitability of products.

In market conditions, the price of goods is formed by the relationship between supply and demand, so they try to make more profit at lower cost.

Reducing costs is an important source of increasing profits, and thus an important factor in increasing the profitability of production [2].

Cost has several functions:

- 1) accounting and control of all costs associated with the production and sale of products;
- 2) economic justification of the expediency of making real investments in the reconstruction, technical re-equipment and expansion of the existing enterprise;
 - 3) determination of the optimal size of the enterprise;
 - 4) economic justification and making any management decisions, etc.

In international practice, the formation of production costs is based on the following general principles:

First, any costs should be calculated where they are located. According to the relationship between production and costs, costs are divided into direct and indirect, and enterprises are divided into cost centers.

This is based on the principle of "justification" or the principle of comparing costs and benefits.

The second principleis also based on the principle of justification. Non-recoverable costs (deferred costs, unrealized planned costs) should not be included in the cost of the product. For example, advertising costs should be included in the cost of goods sold, not in residuals.

The third principleis a departure from conservatism. The principle of conservatism (prudence) is applied when compiling the balance sheet. According to this principle, goods and materials remaining in warehouses should be considered at a lower price in the market and initially recognized (historical). This principle is not used in production accounting due to the possibility of making the wrong decision due to the receipt of incorrect information.

The fourth principle that is, losses in excess of the standard should not be included in the cost of production. These losses include longer downtime than standard, excessive material consumption and more plan losses, as well as losses from natural disasters.

The fifth principle – expenses of previous periods are not included in the cost. If the above principles are not followed, the production cost of the reporting period will reflect an unrealistic level, and as a result, it will not be possible to control costs and make management decisions. However, this does not apply to deferred expenses.

Thus, the above shows that the increasing role of cost in production management requires the search for new ways and resources to reduce costs, planning the process of cost formation, improving the methods of accounting, analysis and their regulation [2].

It is unreasonable to think about the possibility of reducing the cost and consumption of materials, increasing profitability and solvency without regulating the process of formation of costs and results.

Determining the cost range (complex) that makes up the cost of production is one of the urgent problems of restructuring the management mechanism in the process of economic reform.

The composition of the cost at different stages of economic development varies depending on the task. With the transition from one stage to another, the cost structure expands. Accelerated expansion of the cost structure is more characteristic of the last two stages of development – self-financing and market economy.

There are many opinions on the content of the cost structure. Some authors suggest the inclusion of new types of costs / expenses, while others exclude some of the existing components. In my opinion, the changes in the nature of industrial production and the organization of production in the methods of accounting, planning and calculation of the cost of production in industrial enterprises should be reflected and taken into account, the proposed changes should be scientifically substantiated.

Classification of costs on a scientific basis is of great importance for the proper organization of cost accounting. This will not only help to better plan and take into account costs, but also to analyze them more accurately, as well as to identify certain relationships between different types of costs and calculate their impact on production costs and profitability.

In the economic literature, production costs are classified according to various criteria: by type of cost, in relation to the technological process, depending on the volume of production, the method of inclusion in the cost of production, the degree of similarity, the degree of participation in production and sales, the level of coverage and at the place of production (Table 1).

Classification of production costs

Table 1

№	Classification attribute	Types of expenses
1	According to the economic content	Cost element and expense item
2	In relation to the technological process	Basic and additional costs
3	In relation to the volume of production	Constants and Variables
4	By inclusion in the cost of production	Direct and indirect
5	About participation in the process of production and sale of the product	Production and non-production (commercial) costs
6	According to the time of occurrence	Present and future
7	According to the scope of the plan	Planned and unplanned
8	Due to the expediency of spending	Productive and unproductive
9	By type of activity	Main and auxiliary production costs, logistics costs
10	Controlled when possible	Controlled and uncontrolled expenditures

Source: compiled by the author

Classification according to economically justified features covers groupings by economic elements (cost element) and cost items (cost item). An economic element is a type of initial, homogeneous cost for the production and sale of products that cannot be broken down into components at the enterprise level.

The distribution of economic elements determines the planned and actual costs of the enterprise as a whole, as well as the salary fund, the amount of material resources received, the amount of depreciation, etc. The classification is based on the principle of economic homogeneity of costs, regardless of location and direction. A necessary condition for the use of these groupings is their systematization [5].

The classification by economic element is the same for all enterprises, regardless of size and area. Therefore, it must be uniform and mandatory for use in all industrial enterprises. The sample nomenclature is presented in the "Regulations on the composition of costs included in the cost of the product", approved by the Cabinet of Ministers of the Republic of Azerbaijan dated August 16, 1996 No. 111 [3].

The following economic elements were distinguished in this nomenclature:

- 1) Material costs (excluding returned waste):
- raw material costs;
- for spare parts for repair;
- components;
- external fuel and energy costs;
- services of third party organizations of production nature;
- 2) Labor costs, including payments to employees of the organization in cash and in kind; incentive supplements and benefits; compensation payments; bonuses and one-time incentive payments, as well as the costs associated with the retention of the employee under the contract.
 - 3) Allocations for social needs (pension fund, social insurance fund, health insurance fund).
 - 4) Depreciation of fixed assets.
 - 5) Other expenses.

Математичні методи, моделі та інформаційні технології в економіці

The division of costs by elements allows you to determine all the costs of production and sale of products and reflect them in the cost estimates of production. This grouping is used when compiling the profit and loss balance to determine the need for working capital.

The grouping of costs by economic elements does not indicate the purpose and purpose of production costs, their relationship with production results and expediency, does not allow to calculate the unit cost of production, its purpose is to determine the total production costs. products. Therefore, cost items are used to manage costs, control the use of enterprise resources, determine the planned and actual cost of the product unit, and determine how much money is spent in which areas.

The object of calculation is the type of cost that constitutes the cost of both individual types of products and all products as a whole.

Value accounting items include costs that are economically diverse, combined with a common purpose and place of formation.

The grouping of valuation items is sectoral in nature. The grouping of costs in the management of domestic production by calculation items is related to the organizational and technical characteristics of production, determines the organization of analytical cost accounting in the construction organization and is intended for calculating the cost of individual products and their groups. Although the previous model of the nomenclature of accounting items lost its validity after October 1, 1996, some enterprises continue to use this model, taking into account the characteristics of the industry [8].

The nomenclature of cost items used in the oil industry differs to some extent from the cost calculation items used in other industries.

This is due to the characteristics of technological processes. The grouping of costs by economic elements and cost items complement each other. It is advisable to use both groups in cost management. With simple production and the release of homogeneous products, these groups can overlap in small businesses.

In relation to the technological process, costs are divided into fixed and overhead costs.

The main ones costs directly related to the technological process. This includes raw materials and materials for the production of products, fuel and energy for technological purposes, wages of production workers, costs of maintenance and operation of machinery and equipment, depreciation of production equipment, etc. includes.

Overhead costs associated with the management of production and the organization as a whole. These include salaries of the management of production units and organizations, lighting and heating costs of production and management units, obsolescence of buildings, structures, household appliances, office expenses, postage, etc. includes.

Costs are divided into direct and indirect, depending on the method of inclusion in the cost of the product. *Direct costs* are directly related to the production of a particular type of product, so they can be included directly in the cost of the product produced, as they are based on primary documents. Direct costs include raw materials and supplies for production, fuel and energy for technological purposes, salaries of production workers, social insurance premiums for production workers.

But at the same time a number of costs can not be attributed to the production of a particular product. If several types of products are produced in the workshop, then the salary of the shop manager should not be equal to the cost of all types of products in equal parts. To do this, we must relate the amount of his salary to the total cost of all products produced, and then distribute it among individual products. That is why the costs included in the distribution using special indicators and ratios, rather than directly to the cost of a particular product, are called indirect costs.

Indirect costs is associated with the production of several types of products. These costs are recorded at the place of origin during the month, distributed among the types of products in proportion to the selected base at the end of the month and included in the cost of specific types of products. Indirect costs include equipment maintenance and repair costs, lighting and heating costs, salaries of management staff, social insurance fees from management staff salaries, etc. aiddir.

According to its composition, costs are divided into single-element and complex costs.

Single element costs, consisting of one element – materials, wages, depreciation, etc. These costs are not divided into different components, regardless of their location and purpose.

Complex costs that consist of more than one element, such as workshop and general plant costs, including related staff salaries, depreciation of buildings, and other one-element costs.

Costs involved in the production and sale of a product are divided into production and non-production (commercial) costs.

Production costs is related to the main activity of the enterprise, ie. is the cost of producing the product. Commercial (non-production) costs are not directly involved in production, but are necessary for the implementation of the enterprise. These include marketing research, advertising activities, etc. costs included. Production and commercial costs are the full cost of services (products, works).

Production costs are included in the cost of work for the calendar period to which they relate, regardless of the time of occurrence. For this purpose, the costs of production are divided into:

- current, ie fixed production costs;
- Disposable, ie disposable or periodically produced.

The exact division of production costs into current (for the selected month) and one-time (occurs at least once a selected month) is important for the calculation of monthly costs and is fully in line with international principles.

According to the volume of production, costs are divided into conditionally fixed (fixed) and conditionally variable (variable) costs.

Fixed (conditional fixed) costs do not depend on the volume of production during the reporting period. Fixed costs include: rent of buildings, utilities, office and household expenses, salaries of administrative and management staff with allocations to extra-budgetary funds, regular taxes (on property).

Variable (conditionally variable) costs are costs that vary in direct proportion to the increase or decrease in the volume of services provided.

Variable costs include costs incurred in the course of operating activities, components, electricity and water costs, transportation costs, salaries of key employees, allocations to non-budget funds with variable wages, taxes (income) from the financial results of the enterprise tax, tax under the simplified taxation system) [6, p. 29].

It is necessary to divide the costs into fixed and variable to a certain extent, because it is impossible to draw clear boundaries between them. It is called temporary variable and semi-fixed costs, because in certain situations, some costs can move from one category to another [2, p. 60]. For example, the electricity consumed for the operation of equipment is a variable cost, the more the equipment works, the more products are produced, but the electricity for office lighting is a fixed cost, because its consumption is impossible depends on the volume of products produced.

Clearly, the composition of fixed and variable costs may vary from enterprise to enterprise, depending on the nature of the industry or the type of industry. The classification of fixed and variable costs is the theoretical basis for the organization of the Direct Costing system [1, p. 59].

The following types of conditionally variable costs are: proportional, digressive, regressive, bounce, repair, flexible [9, p. 140].

These are costs that vary in proportion to the volume of production. Progressive costs – costs that exceed the rate of growth of production. As a rule, they arise due to the increase in the payment of refusals, downtime, overtime during non-regular work of the enterprise.

Digressive – grows more slowly than production. For example, technological energy and fuel.

Regressive – they decrease with increasing production. For example, it includes fixed costs per product. As more products are released, the cost per unit of output decreases.

Leaping – are typical costs when prices change up or down. These changes are one-time and are particularly noticeable in material-intensive industries.

Repair (delay) – as production increases, they remain at the same level for some time.

Agile – most adapted to market conditions. At different production volumes, they can behave as proportional, progressive, or regressive costs.

In the context of market relations, in the international practice of management accounting, there are also different classifications of costs. This is a dependent and independent classification, depending on the management decision.

Conclusions. Thus, research shows that in the economic literature, production costs are classified according to various characteristics. Oil industry enterprises mainly use the traditional classification of costs by economic elements and calculation items. It meets all the requirements of planning and cost control, the calculation of the total cost of production, but it is not enough to obtain the necessary information about costs for management decisions. Therefore, in my opinion, along with this classification, it is necessary to apply a classification that meets the conditions of market relations. In particular, the use of grouping costs into fixed and variable according to the volume of production allows you to calculate the break-even point of production when studying the relationship between costs, volume of production and profit.

Математичні методи, моделі та інформаційні технології в економіці

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Aytan Asker Abasova, PhD, Associate Professor, Azerbaijan University of Architecture and Construction, Azerbaijan. Kamala Mehdi Mamedova, PhD (Economics), Associate Professor, Azerbaijan University of Architecture and Construction, Azerbaijan. Lala Aziz Alekperova, Senior Lecturer, Azerbaijan University of Architecture and Construction, Azerbaijan. Classification of costs and methods of their management in the system of strategic control.

The article discusses the main goals of controlling to improve current processes in the company and achieve strategic goals. It is said that management accounting with its system indicators, reports and cost management is both the information basis and the tools of this process. With the correct organization of management accounting, top management receives all the necessary data to optimize management and improve the production process. However, without proper internal control, it is impossible to manage the economic and production activities of the company. Properly organized management accounting with control functions allows you to avoid many mistakes and financial risks in business. This helps management not only manage the company more effectively, but also develop its future. Strategic management accounting is an accounting and analytical system of information that is important for strategic management decisions of the organization's top management. It is a system for the transformation of data flows and the formation of financial and non-financial indicators that characterize the external and internal conditions of the company's activities, the degree of effectiveness and efficiency of strategy implementation. In today's highly competitive economy, innovations in the strategic management accounting system, including cost optimization models, are increasingly in demand. As a central object of strategic planning, accounting, control and analysis, costs are the most important factor influencing the profitability of the organization, their level and degree of impact management, as well as can be significantly regulated by making strategic decisions. From this point of view, a clear, unambiguous definition of the essence of the category of "expenses" becomes even more relevant. The article also examines the theoretical and methodological aspects of the formation of a management accounting system in the context of a vertically integrated direction of the enterprise's functioning. The relationship between the management accounting system and the process of self-organization is proved, and the significance of the synergistic effect in vertically integrated enterprises for its management is indicated.

Key words: accounting, strategy, accounting, controlling, cost grouping, financial result, evaluation, automation, management accounting, management decision.

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Абасова Айтян Аскер, кандидат технічних наук, доцент, Азербайджанський університет архітектури та будівництва. Мамедова Кямала Мехді, доктор філософії з економіки, доцент, Азербайджанський університет архітектури та будівництва. Алекперова Лала Азіз, старший викладач, Азербайджанський університет архітектури та будівництва. Класифікація витрат та методи управління ними в системі стратегічного контролю.

У статті розглянуто основні цілі контролінгу для вдосконалення поточних процесів на підприємстві та досягнення стратегічних цілей. Кажуть, що інформаційною основою та інструментами цього процесу є управлінський облік з його системними показниками, звітами та управлінням витратами. При правильній організації управлінського обліку вище керівництво отримує всі необхідні дані для оптимізації управління

та вдосконалення виробничого процесу. Проте без належного внутрішнього контролю неможливо управляти господарсько-виробничою діяльністю підприємства. Правильно організований управлінський облік з функціями контролю дозволяє уникнути багатьох помилок і фінансових ризиків у господарській діяльності. Це допомагає керівництву не тільки більш ефективно керувати компанією, а й розвивати її майбутнє. Стратегічний управлінський облік – обліково-аналітична система інформації, яка ϵ важливою для прийняття стратегічних управлінських рішень вищим керівництвом організації. Це система трансформації потоків даних і формування фінансових і нефінансових показників, що характеризують зовнішні та внутрішні умови діяльності компанії, ступінь результативності та ефективності реалізації стратегії. В умовах сучасної висококонкурентної економіки інновації в системі стратегічного управлінського обліку, включаючи моделі оптимізації витрат, стають все більш затребуваними. Будучи центральним об'єктом стратегічного планування, обліку, контролю та аналізу, витрати ϵ найважливішим фактором, що вплива ϵ на прибутковість організації, їх рівень і ступінь впливу на управління, а також може суттєво регулюватися шляхом прийняття стратегічних рішень. З цієї точки зору чітке, однозначне визначення сутності категорії «витрати» стає ще більш актуальним. У статті також досліджено теоретико-методологічні аспекти формування системи управлінського обліку в контексті вертикально інтегрованого напрямку функціонування підприємства. Доведено взаємозв'язок між системою управлінського обліку та процесом самоорганізації та вказано на значення синергетичного ефекту на вертикально інтегрованих підприємствах для його управління.

Ключові слова: облік, стратегія, облік, контролінг, групування витрат, фінансовий результат, оцінка, автоматизація, управлінський облік, управлінське рішення.