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IMPROVING THE METHODOLOGY FOR MANAGING INNOVATION AND INVESTMENT PROCESSES OF CLUSTER ENTITIES

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ABSTRACT

The goal of the research is the development of a management accounting system model that allows monitoring and analysis of innovative-investment costs and makes management decisions within the framework of implementation of the innovative-investment activity. The work applies the methodology of system analysis and synthesis. The result of the research consists of statement, theoretical justification, and solution of the question complex connected with improvement of information and analytical providing of management innovative and investment activities by means of introduction in accounting practice of the enterprises of the administrative account system. The methodological approach to the formation of the management accounting system proposed in this article will allow solving a number of tasks related to the management and control of the innovative and investment activity of the enterprise, including ensuring the efficiency of accounting. The availability of such information will allow to weigh carefully and make a final decision, taking into account the possible financial risks of the company. The introduction of the main provisions, recommendations, and results of the study contribute to the improvement of the methodological basis of management accounting innovation and investment activities of enterprises, the creation of an information base, and the preparation of innovation and investment decisions. The obtained results are useful for the construction of a full-fledged management accounting system for the costs of innovation and investment activities. Innovative and active enterprises should be able to manage their costs at all stages of a new product life cycle. In large measure, the solution of this problem will contribute to the organization of management accounting and cost control and financial results by the system of "direct costing" and "standard-cost".

Keywords: *Cluster, agro-industrial, Investment*

INTRODUCTION

The main factor of sustainable development of regional economies is the formation of a new mechanism of innovation and investment processes management at all levels of management. However, the activation of this mechanism is impossible without a theoretical understanding of the problems of information and analytical support in this area.

The existing information infrastructure does not provide reliable and high-quality support for the innovation and investment process. Studies have shown that the majority of enterprises can not make quality management decisions related to the innovation and investment development,

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due to the lack of sufficient efficiency and methods and means of processing the required information imperfections.

In these circumstances, an extremely important task, facing the national science and practice, is the formation of such information, which would objectively and promptly reflect the economic situation within the enterprise, carrying out innovation and investment activities, aimed its leadership at the choice of the most effective ways of development and optimal management decisions.

Until now, information-analytical maintenance of management of innovation and investment activity is reduced to the calculation of the following indicators: net present effect (NPV), the index of ROI (IR), internal rate of return (IRR), modified internal rate of return (profitability) (MIRR), payback period (PP), the accounting rate of return (ARR), etc. (Alikaeva, 2003; Alikaeva et al., 2017; Altudov et al., 2017). However today this is not enough. Enterprises engaged in innovation and investment need to learn how to manage their costs to innovative products to bring profit. It is the profit that ultimately serves as the main condition for the competitiveness and viability of an innovation and investment enterprise.

In its turn, cost management is possible only within the framework of management accounting. It is management accounting that is intended to give the management an accurate and objective picture of the situation in the enterprise. Without such information, it is impossible to manage innovation and investment processes in the enterprise effectively.

Only by forming alternative thinking among domestic managers, the possibility of an ambiguous approach for solving management problems, we can expect that innovation and investment projects, within a particular enterprise, will begin to bring maximum profit in the shortest possible time. This is especially true for the Kabardino-Balkarian Republic on the territory of which the largest Russian innovative and investment project "Ethane" is implemented, with a total value of RUB 15,7 billion. Production of "Ethane" is aimed at the production of innovative clean polymers and it has a strong import substitution orientation.

It is clear that the management accounting system of a particular enterprise depends on many factors: the nature of products, the scale of the company and business, as well as the human factor - the position of the top management and CEO, and the relationship between the departments. However, despite this, within the framework of management accounting, the following cost management systems are identified, which many scientists propose to implement regardless of certain activity factors. Such management accounting systems include "direct costing" and "standard cost", which are based on the organization of separate accounting of variables and fixed costs, and the use of its advantages in order to improve management (Gedgafova et al., 2014; Shidov et al., 2017).

MAIN PART

The division of costs into fixed and variable in the domestic accounting practice was carried out in order to plan tasks to reduce the cost of production, analyze the causes of deviations from established standards, to study the trend of certain types of costs to a more or less uniform change depending on the volume of production, and to develop methods for alternative analysis. The issue of the need to use the considered group at the organization of cost accounting was polemized in the special literature. In this regard, there were two diametrically

opposite points of view. One group of scientists (I. A. Lamykin, S. M. Kamenetsky, V. I. Korsunov, I. Poklad, etc.) considered it possible to use such a group only in planning and economic analysis. Thus, I. I. Poklad noted that such a subdivision of costs "has no significant practical importance for accounting and calculation of production costs. However, it plays an important role in the economic analysis of production costs, the cost of marketable products and certain types, groups of products and semi-finished products" (Gedgafova, 2001). Another group, considering this feature of classification in General connection with the system of accounting and costing, stressed that the division of costs into fixed and variable "allows to attribute more accurately to direct and indirect costs, to form a comprehensive article of calculation, taking into account the degree of proportionality of individual costs to the number of products and services. All this contributes to improving the accuracy of production costs calculation" (Ivashkevich, 1974); and "increases the analytical possibilities of the accounting and creates preconditions for optimization of the number of decisions" (Chumachenko, 1971).

In our view, the issue of the area of application of this grouping was debatable due to the fact that accounting and analysis in our country developed in parallel, independently from each other for a long time. Accounting data were used mainly for external reporting, on which the analysis was based. Both accounting and analysis had little impact on the decision-making process at the enterprise level.

The current development of the economy is fundamentally changing the situation. The shift towards predominantly innovative management and management practices has led to the close integration of accounting and analysis. Mutual penetration of one science into the sphere of another and their synthesis influenced the creation and functioning of an integrated information system of enterprise management, providing managers with the data necessary for planning, monitoring, evaluation of business operations, and management decisions. In turn, the question of the purpose of dividing costs into fixed and variable is considered to be exhausted.

In modern conditions, characterized by increased competition, the struggle of markets and the search for new market segments, increasing the cost of development, development, and production of new products, advertising, market research, etc., the classification of production costs for fixed and variable are of paramount importance. This division of costs is important to study the cost behavior, determine the relationship between volume, cost, and profit, calculating the point of critical production, operational planning, control of costs, and other management objectives.

When classifying the costs of constants and variables, it should be born in mind that there are costs that, in a certain situation, decision-making can be either constant or variable. The answer to the question of whether these costs should be considered fixed or variable depends primarily on the length of the period considered for decision-making. It is known that in a long period all costs become variable. Meanwhile, scientific research and calculations have led to the conclusion that in the manufacture of innovative products being attributed to the constant costs meets the following conditions:

1) the absolute value remains unchanged when production volume increases or decreases with respect to a given area of relevance and given time (usually a separate planning period);

2) the costs are inversely proportional to the quantity of production and the work performed, per unit of output;
3) distributed on structural divisions indirectly, often on the basis of the direct administrative decision;
4) control over their occurrence is mostly carried out by the administration of the enterprise.

The variables must include costs that are characterized by the following features:

1) in absolute value, they are changed together with the change in production volume within a certain relevant level and within a selected period of time;
2) per unit of variable volume, they are relatively constant;
3) accurately and easily determined by structural units;
4) control over their condition and behavior is carried out by production managers.

As for the conditional variable costs, it is difficult to determine their characteristic features. However, I must say that this group should include expenses, the amount of which is determined by the degressive and jump-like dependence on the volume of production. It is either costs as directly on the technological process, and on general production and general economy needs of the enterprise, or the constant in nature expenses having temporary character. Including both constant and variable components, conditionally variable costs can be divided between these two categories using the methods of correlation and regression analysis, mathematical statistics, graphical methods, which are well studied and detailed in the works of domestic and foreign authors (Drury, 2014; Ivashkevich, 1974; Nikolaeva, 1993; Stukov, 1998; Anthony Robert, 1965; Horngren Charles and Kaplan, 1987; Mellerowicz, 1977).

Meanwhile, some groups of scientists point to a certain conditionality of such a division, stressing that in practice it is difficult to draw an exact line between fixed and variable costs since their dependence on the volume of production is sometimes expressed insufficiently. Challenging such an argument, V. B. Ivashkevich notes that in order to judge the nature of the relationship between costs and volume of production, there is no need for an ideal accuracy of dividing costs into constant and variable ones. It is important to establish the presence or absence of such a trend for specific conditions of production and a certain point in time (Ivashkevich, 1974). At the same time, in our view, certain conditionalities arising from the differentiation of costs by the degree of their dependence on the volume of the production are quite acceptable, since they are much smaller than the information and analytical losses that can be incurred, ignoring such a division. Moreover, the office's needs have resulted in an accurate measurement of the accuracy of accounting information as a relative measure, prioritizing the prompt and timely receipt of information.

We share the position of S. A. Nikolaeva, according to which "the nature of the behavior of costs (constant or variable) depends on the relevant production situation in which decisions are made" (Nikolaeva, 1993). The stated point of view corresponds to the views of American scientists, according to which "any costs can be constant or variable depending on the purpose for which they are made" (Horngren Charles and Kaplan, 1987). In this regard, to study the nature of the level dependence of the costs' absolute amount on the volume of production, it is

advisable to group the costs by cost locations and compare them with each site volume production, workshop, and other business units.

An important feature of the proposed approach to costs is a group that is possible to determine and control the financial result, not only after the end of the production cycle but also at the end of each stage of the production process, as well as the centers of responsibility. In addition, an increased data capacity accounting system expands the analytical framework to address critical enterprise economic problems at various levels of management. In addition, only sharing the cost of a constant and variable part (as outlined above), you can use a system of "direct costing" and "standard cost".

The term "direct costing" (from the English direct costing – account of direct costs) appeared in 1936. It was introduced by the American scientist D. Harris. However, this title according to most researchers fails because they do not fully reflect the essence of the system (main in the direct costing - the organization of separate accounting of variable and fixed costs, and the use of its advantages in order to improve management efficiency). More accurately reflects the essence of the system concept "variable costing" (from the English «variable costing» - account variable costs).

Meanwhile, the term "direct-costing" appeared not by chance. In the early stages of the practical application of the system, only direct costs (all variables) were included in the cost price and indirect costs were written off directly to the financial results. As a result, the total amount of variable costs coincided with the amount of direct costs, which was reflected in the name of the system.

Currently, direct costing provides costing, not only in terms of direct variable costs but also in part of variable indirect costs. Therefore, there is some conditionality of the name. At the same time, this system is called differently in different countries. For example, in Germany and Austria for this purpose, the term teilkostenrechnung (grenzkostenrechnung), that is, a given partial (boundary) cost or deckungsbeitragsrechnung – a contribution of margin accounting; in the UK direct costing is called marginal costing – an accounting for marginal costs; in France - la comptabilite ' marginale – a marginal accounting (Gedgafova, 2001). Domestic researchers, analyzing this accounting system, operate with such concepts as "accounting of limited cost" (Stukov, 1998), "accounting of proportional cost" (Tkach and Tkach, 2004), "accounting of truncated cost" (Paly, 1990), etc.

Studying various aspects of the accounting of variable costs system organization in the countries with developed market economy and analyzing experience of its application in the foreign accounting, it is possible to come to a conclusion about ambiguity of a direct costing; it is a characteristic of administrative accounting subsystem from the point of view of the considered costs completeness. Direct costing itself is a management accounting system based on the classification of fixed and variable costs and includes cost accounting by type, place of origin and carrier, accounting for the results of production activities, cost-benefit analysis, and the adoption of management decisions on this basis.

As an alternative to a system that takes into account the total cost (usually aimed at improving the calculation), the system of accounting for variable costs is aimed at improving the current control of costs for each individual type of finished product, as well as improving the methods of management decisions, the ability to adjust them depending on changes in market

conditions, and other external factors. It is no coincidence that in the works of foreign scientists, this system is interpreted as "cost management" or "enterprise management".

A distinctive feature of the costing system for variable costs is the reference to the product of only those costs that depend on the degree of the production capacity use of the enterprise (or rather, the volume of production due to the available machine capacity). Fixed costs, in this case, are not related to inventory of finished goods and are not recorded in the volume of work in progress. Thanks to the specified features of the considered system, accounting focuses on the process of implementation. The underlying accounting principles meet the needs of market research. It should be noted that systems that take into account the full cost of production are oriented to production, and their accounting principles meet the needs of reflecting the production process technological aspects.

The main evaluation indicator in the direct costing is the marginal profit, also called the contribution to the coverage. Margin profit is calculated as the difference between realized income and variable costs. It is used to cover fixed costs and generate profit. Fixed costs (as highlighted above) are treated as a single unit in this accounting system and are not measured against specific items. This allows us to simplify accounting. The simplification is achieved by reducing accounting to modeling changes of one variable, namely cost variables, depending on changes in volume and structure of production. This fact gives the management "exceptional economic importance in modern accounting, as it allows to control the efficiency of internal management, analyzing the development of variable costs, according to which current decisions are made" (Mellerowicz, 1977).

The main advantage of the direct costing system is that it can be used to study the relationship and interdependence between production, cost, and profit (break-even analysis). As a result, it becomes a powerful tool for making optimal management decisions when considering many analytical tasks.

The aim of the break-even analysis is to determine what will happen to the financial result if a certain level of production changes. This information is very important for managers, as one of the most important variables affecting a total income, total costs and profit is the volume of production. Based on this, the study of the relationships between production, cost, and profit should be paid a special attention, because the knowledge of this dependence allows managers to answer the following questions: at what level of production the company works break-even; how many units of production must be sold to obtain the planned amount of profit; what profit can be expected at this level of production, etc. Solving such problems is especially important for innovation and investment enterprises, as the application of the break-even analysis model will help to identify the level of capacity utilization that will ensure break-even production of an innovative product (we are talking about determining the critical level of production, in which there will be neither profit nor loss, that is, the break-even point). To calculate the break-even point, you can use the following mathematical dependence:

$$V = C / M, \quad (1)$$

where V is the volume of production of an innovative product, from which the costs of its production will be fully covered by the income from the sale, C is the total amount of fixed costs for the period, and M is a specific margin profit.

It should be borne in mind that changes in both the sale price and the average variable costs will lead to a change in the margin profit (or margin profit ratio), and, therefore, to a change in the break-even point. By calculating the break-even point, the innovation and investment enterprise will be able to plan the volume of production and sales of an innovative product that will bring him profit. Meanwhile, the multi-stage (multi-layer, multi-block, and multi-segment) accounting of marginal income, is widely used in the practice of industrialized countries. It has significant prospects for the current control of the profitability of an innovative product.

Multistage accounting of coverage amounts involves the division of a fixed cost block and the distribution of its parts between the total amount of a product, the place of origin of the costs or the whole division of the enterprise. As a result, the quality of management decisions optimizing the production program is improved, since in this case, the "contribution" of each division of the enterprise, the place of costs origin to the formation of the production result becomes evident. In addition, the information on multi-stage cost accounting facilitates more accurately the control of costs in the places of their origin, allows to determine the results of intra-economic activities of the innovation and investment enterprise individual departments.

For enterprises engaged in innovation and investment activity, a five-level scheme for the accounting of marginal income can be proposed (the scheme can be detailed depending on the objectives of internal management):

Sales proceeds - Variable costs
= Marginal revenue 1 (amount of coverage 1) - Constant costs for each type of product (costs that will not be if you abandon this product)
= Marginal revenue 2 (the amount of coverage 2)
The amount of contribution margin 2 – Fixed costs for each group of products (the costs of which will not br, if we abandon the entire product group of products)
= Marginal revenue 3 (amount of coverage 3)
The amount of contribution margin 3 - Constant costs of teams (plots)
= Marginal revenue 4 (amount of coverage 4)
The amount of contribution margin 4 - Constant costs of workshops (production units)
= Marginal revenue 5 (amount of coverage 5)
The amount of contribution margin 5 - Permanent costs of the enterprise
= Output

Considering the use of the "direct-costing" system on innovation and investment enterprises, it

is necessary to take into account the current need for its organization, mainly due to the general requirements of setting management accounting in order to implement effective management. However, despite the increasing importance of information generated by the use of this system (on the basis of which many management tasks are solved), the calculation of reduced costs is possible only in the conditions of internal reporting. Even in developed market economies, where variable costing is of paramount importance, neither the Company of professional accountants nor the tax administration approves the method of limited cost calculation for external reporting and tax purposes application (Charles, 2005).

A parallel system of "direct costing" for the innovative and investment enterprises should implement the "standard-cost" system, which originated from the USA in the early XX century. It is based on the following fundamental principles:

- provisional regulation of costs and the calculation of the regulatory cost per unit of output;
- preliminary control of expenses on the basis of primary documents and fixing of deviations from regulations at the time of their emergence with simultaneous identification of the reasons and responsible persons. The deviations between the actual and standard costs arising in each accounting period are completely written off on financial results of the enterprise, thereby showing the influence of deviations on profit (loss) of the enterprise;
- daily information on deviations from the norms.

It is believed that this system contributes to the efficiency of cost management and control, as it requires a detailed study of all the production, administrative and marketing functions of the enterprise, resulting in the development of the most optimal approaches to management while reducing costs. "Standard-cost" system involves the establishment of cost centers and allocating responsibility for costs with specific leaders whose work is carefully monitored. In addition, standard costs serve as the best criterion for estimating actual costs. The establishment of cost standards is an important condition for improving the efficiency of the production process and the quality of work, which is important in terms of innovation and investment projects. The established standards should be extremely accurate and provide information that can be used to verify the actually achieved results to identify trends in the innovation and investment enterprises. Analysis and control of deviations are the main tools of the system "standard-cost".

For enterprises engaged in innovation and investment activity, we have developed an algorithm for the analysis of losses and deviations in profit system "standard-cost". This algorithm will be considered on the example of "ETANA", Ltd., which produces an innovative pure polymer and is a member of the agro-industrial cluster. The production chain of this product consists of two parts – the liquid phase and the solid phase. The developer of the liquid phase is the company Uhde Inventa-Fischer AG. The solid phase was developed by Bühler. Estimates of the cost center responsible for the liquid phase for the upcoming planning period are presented in Table 1. This stage involves the use of two types of raw materials: terephthalic acid and ethylene glycol (purified antifreeze). The estimates determined by the planned size of production is 10 000 kg.

Table 1. Estimated cost of the liability center for the forthcoming planning period*

Cost items	Amount, rubles
Basic materials:	
terephthalic acid (2000 kg × 19 rubles per kg)	38000
ethylene glycol (1000 kg × 42 rubles per kg)	42000
Subtotal:	80000
The labor of production workers (30 hours × 300 rubles. per hour)	9000
Indirect costs:	
variables (200 rubles per 1 hour of labor of production workers)	6000
the constant (400 rubles for 1 hour of labor of production workers)	12000
Subtotal:	107000

* Part of the data is conditional, as it is a commercial secret of LLC "ETANA".

At the end of the planning period, the management accounting system reports on the implementation of the estimates. It turned out that instead of the planned output of 10,000 kg, 9,000 kg were actually produced (Table 2). Table 2 demonstrates data of the actual costs of the analyzed responsibility center for the production of 9 000 kg.

Table 2 - Performance Report of the responsibility center*

Cost items	Amount, rubles
Basic materials:	
terephthalic acid (1905 kg × 20 rubles per kg)	38100
ethylene glycol (1025 kg × 40 rubles per kg)	41000
Subtotal:	79100
The labor of production workers (28 hours × 320 rubles per hour)	8960
Indirect costs:	
variables	5200
permanent	11600
Subtotal:	104860

* Part of the data is conditional, as it is a commercial secret of LLC "ETANA".

Comparison of the data of the two tables leads to the conclusion that the responsibility center allowed deviations from the standard costs of:

1) the use of raw materials;
2) the use of the wages of the main production workers;
3) indirect costs.

The purpose of the standard-cost system is to calculate these deviations correctly and in a timely manner.

At the first stage deviations on the used raw materials are analyzed.

The standard cost of raw materials consumed depends on two factors:

1) the standard price of raw materials;
2) a standard consumption of raw materials per unit of output.

Deviation of actual costs from the standard under the influence of the first factor (commodity prices) can be calculated using the following mathematical relationship:

ΔC = (Actual price per unit - standard price per unit) × Number of purchased raw materials.

Based on the data of Tables 1 and 2, we determined the size of deviations of the actual costs from the standard prices for raw materials.

ΔC terephthalic acid = (20 - 19) × 1905 = + 1905 rubles – an adverse deviation (N), because this position is over-estimated in comparison with standard costs.

ΔC ethylene glycol = (40 - 42) ×1025 = - 2050 rubles – a suitable deviation (F) funds are saved due to the cheaper actual purchase of ethylene glycol against standard costs.

The calculation of deviations is not the main aim. The enterprise is obliged to disclose the reasons for the unfavorable deviations so that in the future, responsibility for them is assigned to the head of the corresponding center of responsibility. So, overrun at the price of terephthalic acid is unlikely to be associated with the activities of the production department. Rather, it is a miscalculation in the work of another center of responsibility - the procurement department, which did not properly plan the purchase of terephthalic acid. For example, a smaller lot was bought at a higher price or the right time for market research was missed, so raw materials were purchased at the last moment at an overpriced price. In these cases, this adverse deviation will be controlled for the procurement department, and therefore it will be the responsibility for the overrun. The reason for the overspending, which is not controlled by the purchasing department, can be an objective increase in prices for terephthalic acid on the market, caused, for example, by inflation. The second factor, affecting the physical size of the spending is the specific consumption of raw materials, i.e., the cost per unit of output.

The formula for calculating the deviation of actual costs from the standard for the use of raw materials can be presented in the following form:

ΔU = (Actual consumption of raw materials - Standard consumption of raw materials) × The standard price of raw materials.

Then by terephthalic acid we have:

ΔU terephthalic acid = (1905 - 1800) × 19 = + 1995 rubles – an adverse deviation (N).

For ethylene glycol:

ΔU ethylene glycol = (1025 - 900) × 42 = + 5250 – an adverse deviation (N).

It can be addressed to the head of the center of responsibility (workshop) in cases where the cost overruns associated, for example, with non-compliance, technological and labor discipline, violation of the parameters of the production process, non-compliance with schedules of preventive maintenance of equipment, etc. If the overrun of raw materials is associated with low quality, then the responsibility for that is vested in the Department of procurement (the purchase of poor quality raw materials) or to the head of the warehouse (in violation of the parameters storage). Next, the total flow of terephthalic acid from the standard rate deviation is calculated, taking into account both factors. It is formed under the influence of two factors:

1) a low deviation (ΔC terephthalic acid) - (+ 1905 rubles) (N);
2) the use of raw materials deviation (ΔU terephthalic acid) - (+ 1995 rubles) (N).

ΔS terephthalic acid = + 3900 rubles (N).

Similar calculations are possible for ethylene glycol. The total deviation, in this case, will be: ΔS ethylene glycol = + 3200 rubles (N).

It consists of:

1) a low deviation (ΔC ethylene glycol) - (- 2050 rubles) (N);
2) the use of raw materials deviation (ΔU ethylene glycol) - (+ 5250 rubles) (N).

The second stage of calculations is to identify deviations of actual work from the standard and determine the causes of their occurrence. The total amount of gross wages for hourly wage depends on the number of hours worked and wage rates. Accordingly, the amount of deviation of the actually accrued salary of the main workers from its standard value is determined by two factors – the deviation of the wage rate and the deviation in the number of hours worked, i.e. labor productivity.

The deviation in the wage rate (ΔWr.) is defined as the difference between the actual and standard wage rates multiplied by the actual number of hours worked:

$$\Delta Wr. = (\text{Actual wage rate} - \text{Standard wage rate}) \times \text{Actually worked time.}$$

Based on the data presented in Tables 1 and 2, we have:

$$\Delta Wr. = (320 - 300) \times 28 = + 560 \text{ rubles (N).}$$

Does it depend on whether this is an unfavorable deviation from the head of the responsibility center (shop chief)? It depends if unskilled work is performed in the shop by highly skilled workers, and therefore paid at an increased rate. It does not depend if the administration of the enterprise was forced to raise wages to the staff of the shop due to the strike of workers trade unions, inflation or other objective reasons.

Deviation of labor productivity (ΔWlp.) is defined as follows:

$$\Delta Wlp. = (\text{Actual spent time in hours} - \text{Standard time on actual output}) \times \text{The standard hourly wage rate.}$$

The actual time was 28 hours (Table 2). Standard complexity is calculated according to Table 1 on the basis of the following details: expected output of 10000 units, the labor standard volume of 30 hours. Consequently, the complexity of the standard is equal to 0,003 hours.

Hence, the deviation of labor productivity will be:

$$\Delta Wlp. = (28 - 0{,}003 \times 9000) \times 300 = + 300 \text{ rubles (N).}$$

The reasons for these deviations can be both objective (independent from the activities of the section chief) and subjective (depending on the activity of the head shop) character. Objective factors (poor quality of raw materials) result in dramatically increased labor costs of basic workers. In this case, the supply department would be responsible. Other objective reasons include the lack of skilled workers, the poor quality of equipment repair, not prosperity in the organization of labor. For all these flaws in the production, the administration of the enterprise is responsible. Examples of subjective reasons may be a violation of labor discipline in the shop,

poor work organization, etc. Finally, the aggregate deviation of the actual gross wages and salaries of its standard value are determined.

$$\Delta S = 560 + 300 = + 860 \text{ rubles (N)}.$$

The calculations show that it was formed under the influence of two factors:

1) The deviations in the rate of wages (ΔWr.) - (+560 rubles) (N);
2) The deviation productivity (ΔWlp.) - (+ 300 rubles) (N).

In the third phase, the deviations from the norms of actual indirect costs are calculated. For ease of analysis, we divide them into fixed and variable parts using the data in Table 3.

Table 3 - Estimated and actual indirect costs (rubles).

№	Indicators	By estimate	Actually
1.	Fixed indirect costs	12000	11600
2.	Variable indirect costs	6000	5200
3.	Production in norm-hours	30	27
4.	The standard rate of allocation of fixed indirect costs for standard-hour (page 1: page 3)	400	-
5.	The standard rate of distribution of variable indirect costs for standard-hour (page 2: page 3)	200	-

The first two indicators are taken from the estimates and the report on its implementation (Tables 1 and 2). Then, the norm-hour indicator is introduced and the output (estimated and actual) is estimated in norm-hours. Norm-hour is the time that must be spent on the production of a unit of production in the most efficient operation of the enterprise. Production in norm-hours (third indicator) is calculated as follows. From estimates, it is evident that the production of 10000 units of products require 30 hours of work, i.e. normal time to release one of the product is 0.003 hours. Actual output (9000 units) is 27 norm-hours (0.003 × 9000).

The standard rate of distribution of fixed costs – a private division of the estimated fixed indirect costs of production in normal hours: 12000/30 = 400. This means that one labor hour is necessary 400 rubles of fixed indirect costs. The normative rate of variable indirect costs distribution is calculated in a similar way: 6000/30 = 200, i. e., 1 norm-hour corresponds to 200 rubles variable indirect costs. These rates are needed to further adjust the estimated costs to the actual output achieved.

Deviations of constant indirect costs (Δ IEc.) are defined similarly to the previous calculations (as the difference between actual indirect costs and their estimated value adjusted for the actual release). The actual value of fixed indirect costs is 11600 rubles.

Further, the value of fixed overhead costs are calculated, that was to match estimated volume production. To do this, the actual output of standard-hours multiplied by the overhead allocation rate: 27× 400 = 10800 rubles. Hence, the deviation of the actual constant of indirect costs from the estimated ones are:

$$\Delta \text{ IEc.} = 11600 - 10800 = + 800 \text{ rubles (N)}.$$

This deflection is influenced by two factors:

1) due to deviations in output (Δq);
2) due to the deviation of the actual fixed costs to estimated (Δs).

The influence of the first factor is estimated by the formula:

Δq = (Estimated output in norm-hours - The factscal output in norm-hours) × The standard rate of allocation of fixed indirect costs.

In numerical terms, it will be:

$$\Delta q = (30 - 27) \times 400 = + 1200 \text{ rubles (N)}.$$

The second factor is estimated as the difference between the actual and the estimated fixed costs:

$$\Delta s = 11600 - 12000 = - 400 \text{ rubles (F)}.$$

Similar calculations are performed on the variable indirect costs (ΔIEv.). To do this, the following Institute formation is used (Table 3):

- actual output in norm-hours (27);
- the rate of distribution of indirect variable costs (200);
- actual variable indirect costs (5200).

Therefore, the deviation will be:

$$\Delta IEv. = 5200 - 27 \times 200 = - 200 \text{ rubles (F)}.$$

What are the possible causes of deviations of actual indirect costs to the estimated? It was found that the indirect variable costs are dependent on the labor-time of main production workers. Therefore, the first reason can be a deviation of the actual working time from the main production workers estimated (ΔTl.). The size of this deviation is given by:

ΔTl. = Actual variable costs - Estimated variable costs, adjusted for the actual release products.

The actual variable overhead costs are 5200 rubles, and the actual work time of production workers is 28 hours (Table 2). It is estimated that 1 hour of work of production worker is 200 rubles indirect variable costs. Consequently, the size of the deviation is:

$$\Delta Tl. = 5200 - 200 \times 28 = - 400 \text{ rubles (F)}.$$

Clarifying the causes of the deviation analysis is necessary for each item of variable costs. The second reason for the deviation is that the actual indirect costs differ from the estimated ones. This deviation is called the deviation of indirect cost variables by efficiency (ΔIEe.) and is calculated by the formula:

ΔIEe. = (Actual working time - Working time at a rate adjusted to the actual output) × Standard rates' indirect variable costs.

In this example, a deviation variable costs performance will be:

ΔIEe. = (28 - 27) × 200 = + 200 rubles (N).

Thus, the calculated above cumulative adverse deviation of actual variables of the estimated indirect costs (ΔIEv.) is formed under the influence of two factors:

1) deviation of variable overheads (ΔTl.) - (- 400 rubles) (F);
2) deviation efficiency (ΔIEe.) - (+ 200 rubles) (N).

The purpose of the calculations performed above is analysis and monitoring of management responsible for a liquid phase process for the manufacture of the innovative pure polymer. Similar calculations should be carried out at the shop responsible for the solid phase. With the results of the analysis, the company's management will have the necessary information for monitoring costs and profits.

In summary, it should be emphasized that the construction of a system of management accounting innovation and investment activity of the enterprise is a creative process. Proposed in this article, the methodological approach to the formation of an intra-organizational management accounting system will help to solve a number of problems related to the management and control of innovation and investment activity of the enterprise, including the provision of accounting efficiency. An effective system of management accounting will allow us to evaluate the status of the innovation and investment at any time, and to decide on further implementation or suspension of innovation and investment projects.

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