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METHODOLOGY FOR FORECASTING AND ANALYZING MANAGEMENT ACCOUNTING INDICATORS AT AN ENTERPRISE

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Abstract: The article examines modern methodological approaches to the analysis and forecasting of management accounting indicators at an enterprise. The importance of economic analysis and forecasting in the processes of planning and managerial decision-making is substantiated. Key analytical and forecasting methods aimed at improving resource efficiency and reducing managerial risks are discussed. The research findings can be applied in the practical activities of enterprises across various industries to enhance the management accounting system and improve the rationale of managerial decisions.

Key words: management accounting, economic analysis, forecasting, analytical methods, managerial decisions, planning.

Annotatsiya: Maqolada korxonalarda boshqaruv hisobi ko'rsatkichlarini tahlil qilish va prognozlashning zamonaviy metodik yondashuvlari yoritilgan. Iqtisodiy tahlil va prognozlashning rejalashtirish hamda boshqaruv qarorlarini qabul qilish jarayonidagi ahamiyati asoslab berilgan. Resurslardan foydalanish samaradorligini oshirish va boshqaruv xatarlarini kamaytirishga yo'naltirilgan asosiy tahlil va prognozlash usullari ochib berilgan. Tadqiqot natijalari turli tarmoqlardagi korxonalar faoliyatida boshqaruv hisobi tizimini takomillashtirish va boshqaruv qarorlarining asoslanganligini oshirishda amaliy ahamiyatga ega.

Kalit so'zlar: boshqaruv hisobi, iqtisodiy tahlil, prognozlash, tahlil usullari, boshqaruv qarorlari, rejalashtirish.

Аннотация: В статье рассматриваются современные методические подходы к анализу и прогнозированию показателей управленческого учета на предприятии. Обоснована значимость экономического анализа и прогнозирования в системе планирования и принятия управленческих решений. Раскрыты основные методы анализа и прогнозирования, направленные на повышение эффективности использования ресурсов и минимизацию управленческих рисков. Полученные результаты могут быть использованы в практической деятельности предприятий различных отраслей с целью совершенствования системы управленческого учета и повышения обоснованности управленческих решений.

Ключевые слова: управленческий учет, экономический анализ, прогнозирование, методы анализа, управленческие решения, планирование.

INTRODUCTION

In the context of intensified competition and increasing uncertainty in the external economic environment, the role of effective management accounting has become increasingly important as a key instrument for ensuring sustainable enterprise development. Modern organizations require not only the recording of actual performance indicators but also scientifically grounded forecasting of their dynamics in order to improve the quality of managerial decision-making. Forecasting management accounting indicators enables the timely identification of potential risks, a comprehensive assessment of development prospects, and the formulation of optimal strategies for the efficient use of enterprise resources.

The purpose of this article is to substantiate methodological approaches to the analysis and forecasting of management accounting indicators at the enterprise level. The study examines the fundamental principles and methods of economic analysis and forecasting applied within the management accounting system and clarifies

their role in planning and managerial decision-making processes. The practical significance of the research lies in the applicability of the proposed methodological approaches to enhancing the validity of managerial decisions and improving the overall operational efficiency of enterprises across various industries.

LITERATURE REVIEW

In academic research on management accounting and managerial decision-making, considerable attention is devoted to methods of economic analysis and forecasting. Studies by K. V. Baldin, S. N. Vorobyev, and B. G. Litvak view management accounting as a key informational foundation for developing and justifying managerial decisions, while forecasting enterprise performance indicators is identified as a crucial element of both strategic and operational planning. These authors emphasize the importance of applying an integrated approach that combines the analysis of actual data with the forecasting of future development trends.

The works of O. I. Larichev, A. I. Orlov, R. A. Fatkhutdinov, and L. G. Evlanov highlight the extensive use of economic and mathematical methods, expert evaluations, and modeling in the analysis and forecasting of business processes. Researchers note that the application of system analysis and multifactor models enhances the reliability of forecasts and improves the effectiveness of managerial decisions. At the same time, the adaptation of forecasting methodologies for management accounting indicators to the specific conditions of individual enterprises remains a relevant research direction and offers significant potential for further scientific development.

RESEARCH METHODOLOGY

The methodological foundation of this study is based on systemic and functional approaches to the analysis of management accounting indicators, which make it possible to examine these indicators in close connection with planning processes and managerial decision-making at the enterprise level. The research applies both general scientific and specialized methods of economic analysis, including comparative analysis, index methods, balance analysis, factor analysis, the chain substitution method, and value-based (functional cost) analysis. The application of these methods ensures the identification of the influence of individual factors on cost formation, financial results, and overall performance indicators of the enterprise.

For forecasting purposes, extrapolation techniques, expert evaluation methods, and economic and mathematical modeling were employed, enabling the identification of potential trends in key management accounting indicators over the forecast horizon. The information base of the study consists of enterprise management and financial accounting data, as well as planning and economic calculation materials. The obtained results were systematized and interpreted to develop practical recommendations aimed at enhancing the validity of managerial decisions and improving the overall efficiency of business operations.

ANALYS AND RESULTS

Analysis is defined as a scientific method of examining an economic situation or problem through the conceptual or empirical decomposition of an integrated whole into its constituent elements, followed by the identification and comparison of the object's key properties and characteristics. In the context of management accounting, analysis serves as a fundamental tool for obtaining reliable and structured information that supports objective evaluation of enterprise performance and informed managerial decision-making. The analytical process is grounded in several core principles, including the unity of analysis and synthesis, which ensures a comprehensive understanding of interrelated indicators, as well as the identification of leading factors through their systematic ranking.

Equally important are the principles of comparability, timeliness, and quantitative certainty, which guarantee the consistency, relevance, and measurability of analytical results. Ensuring comparability requires uniformity in scope, quality, time periods, data collection methods, and analytical conditions, thereby enhancing the reliability of conclusions. The principle of operational efficiency emphasizes the timely execution of analysis through rational organization, while quantitative certainty ensures that analytical outcomes are expressed in measurable and verifiable terms. The integrated application of these principles contributes to a logically coherent and methodologically sound analytical framework that enhances the effectiveness of management accounting and supports sustainable enterprise development.

The comparative method is widely applied in management accounting analysis and is aimed at identifying deviations from planned performance indicators, determining the causes of such deviations, and revealing internal reserves for improving efficiency. The effective use of this method requires strict comparability of the analyzed data in terms of evaluation criteria, time periods, seasonal characteristics, and geographic conditions, which ensures the validity and reliability of analytical conclusions.

Within this framework, comparative analysis involves the systematic comparison of actual reporting indicators with planned benchmarks, indicators of the previous period, and data from earlier periods, as well as comparisons with industry-average values. In addition, comparisons may be conducted on a daily basis to monitor short-term dynamics, while indicators of the technical level of production are assessed in relation to product quality parameters. The integrated application of these types of comparisons enables a comprehensive assessment of enterprise performance, supports the identification of development trends, and enhances the analytical justification of managerial decisions, thereby contributing positively to the overall effectiveness of management accounting systems.

The index method is applied when comparing indicators that describe two states of the same economic system. Indices are used to measure changes in complex phenomena, to determine the contribution of individual factors, and to conduct comparative analyses across different periods, regions, or established standards. This method enables the decomposition of both absolute and relative deviations of an aggregate indicator into its underlying factor components, thereby enhancing the depth and interpretability of analytical results.

The balance method is used to compare interrelated indicators of business activity in order to identify and measure their mutual influence and to determine reserves for improving production efficiency. Within this approach, the relationships among individual indicators are expressed through the equality of totals obtained from comparative assessments, which ensures internal consistency and supports a comprehensive evaluation of resource allocation and utilization. In addition, the chain substitution method serves to identify the impact of specific factors on an aggregate indicator or functional relationship. This method involves the sequential replacement of planned values of individual factors while keeping other variables constant, allowing the magnitude of each factor's influence to be determined through successive calculations.

The elimination method is applied to isolate the effect of a single factor on aggregate indicators of production and economic activity by excluding the influence of other factors. This approach enables a more precise assessment of causal relationships and contributes to a deeper understanding of the determinants of enterprise performance. By focusing on the net impact of individual factors, the method enhances the analytical clarity and reliability of managerial conclusions.

Graphical methods serve as effective tools for illustrating economic processes and analytical results. Depending on their purpose, they include comparison charts, chronological graphs, and control-planning charts, while their construction may involve line, bar, pie, three-dimensional, or coordinate formats. These visual instruments facilitate the interpretation of trends, dynamics, and interrelations among indicators. Functional cost analysis is applied to increase the useful effect per unit of cost over the entire life cycle of an object by assessing the rationality of the functional set. This method aims to achieve an optimal balance between utility and total costs, identify innovative solutions through a functional perspective, and reduce resource consumption by eliminating or minimizing non-essential functions. The implementation of functional cost analysis is based on functional, cost-based, systemic, integrated, and dynamic principles.

In addition, factor analysis employs multivariate statistical techniques, including correlation matrices, to examine complex relationships among variables. Economic and mathematical analytical methods are used to evaluate alternative managerial decisions and to identify optimal solutions under current or prospective economic conditions. These methods support the assessment of developed plans, optimization of business programs, determination of appropriate enterprise scale, definition of optimal product assortments, and evaluation of overall economic efficiency, thereby contributing positively to effective enterprise management.

Analytical techniques represent specific procedures used to process, structure, and interpret economic information in the course of enterprise performance evaluation. One of the key techniques is summarization and grouping, where summarization involves aggregating the overall effect of multiple factors on a generalized indicator of production and economic activity, while grouping consists of classifying the analyzed phenomena into characteristic categories based on selected criteria. This approach enhances the clarity and analytical value of the obtained results.

The use of absolute and relative indicators allows for a comprehensive assessment of economic phenomena. Absolute indicators reflect the scale or volume of economic activities, whereas relative indicators characterize the degree of plan fulfillment and the intensity of performance outcomes. Average values serve as generalized characteristics of mass, qualitatively homogeneous economic phenomena and include arithmetic, geometric, and weighted averages. In addition, continuous and sample observation techniques are applied, depending on the scope of analysis: continuous observation covers the entire population of relevant phenomena, while sample observation relies on representative subsets. The techniques of detailing and generalization further contribute to analytical accuracy by decomposing aggregate indicators into partial components and identifying the specific influence of individual factors, thereby supporting well-grounded and effective managerial decision-making.

Forecasting is understood as a scientifically substantiated judgment about the possible future states of an object, as well as about alternative paths and time horizons of its development. In this context, forecasting represents a systematic anticipation of future outcomes based on accumulated experience and current assumptions. It constitutes a complex and multifaceted process that requires addressing a wide range of analytical, informational, and methodological issues in order to ensure the reliability and relevance of forecasted results.

Forecasting of managerial decisions is closely linked to the planning process. Plans and forecasts represent complementary stages of planning, with the plan performing the leading role in management. Within the management system, a forecast serves as a pre-planning development of multi-variant models for the evolution of the managed object, whereas a plan specifies clearly defined implementation periods and concrete characteristics of the projected outcomes. The primary objective of forecasting managerial decisions is to obtain scientifically grounded projections of trends in quality indicators, cost components, and other performance measures used in long-term planning, research and development activities, and the overall advancement of the management system. Key forecasting tasks include assessing market demand based on marketing research, identifying major economic, social, and technological trends, selecting the most influential indicators, choosing appropriate forecasting methods and horizons, projecting quality indicators over time, optimizing forecasts according to maximum utility and minimum life-cycle costs, and substantiating the economic feasibility of developing new or improving existing products within available resources and strategic priorities.

The object of any forecast may include economic, social, technical, organizational, and other processes occurring both within an organization and in its external environment. From this perspective, forecasting can be defined as a scientific approach to identifying the current state of an organization and determining the most probable pathways of its future development. Forecasts are developed in the form of qualitative characteristics and, in simpler cases, as statements regarding the likelihood or unlikelihood of specific events. These characteristics should incorporate quantitative indicators expressed as point or interval estimates, as well as the probability of their achievement. A forecast therefore represents the outcome of the forecasting process and may be presented in verbal, mathematical, graphical, or other analytical forms describing the potential future state of an enterprise and its environment.

Forecasts may be classified according to several criteria. Based on their time horizon, forecasts range from short-term to long-term, reflecting different planning horizons. Very short-term forecasts, such as weekly or monthly projections, are typically used for operational purposes, while short-term forecasts support annual planning. Medium- and long-term forecasts, often referred to as strategic or prospective, provide a basis for long-range development planning. Forecasts can also be differentiated by their methodological orientation into exploratory, normative, and vision-based types. In terms of managerial influence, forecasts may be passive, assuming limited organizational intervention, or active, emphasizing the organization's capacity to shape its future through deliberate actions. Depending on the degree of uncertainty, forecasts may be invariant, involving a single highly probable scenario, or variant, allowing for multiple alternative development paths. Finally, according to the form of presentation, forecasts are classified as point forecasts, which specify a single expected value, or interval forecasts, which define a range of possible values for the forecasted indicator.

A forecasting method is defined as a systematic approach to studying a forecasting object with the purpose of developing a scientifically grounded forecast. According to scholarly assessments, more than 150 different forecasting methods have been identified in the literature; however, in practical applications, only approximately 15–20 methods are commonly used. The choice of a specific forecasting method is determined by several key factors, including the nature of the forecasting object, the required level of accuracy, the availability and reliability of initial data, and the professional competence of the forecaster.

Within the framework of technological forecasting, forecasts are developed for economic, commercial, social, and political activities. Technological forecasting is generally classified into exploratory and normative types. Exploratory forecasting is based on the identification of emerging opportunities and the analysis of development trends using available empirical information at the time of forecast preparation. In contrast, normative forecasting is oriented toward the organization's mission, strategic goals, and priority needs, focusing on achieving desired future states. This approach involves moving from defined objectives and needs toward the identification of appropriate means and technologies for their realization. Exploratory forecasting commonly employs methods such as extrapolation, modeling, historical analogy, and scenario development grounded in the analysis of reliable empirical data (Picture 1).



Picture 1. The Most Widely Used Forecasting Methods

Expert Judgment Method. The expert judgment method is based on the premise that a forecast can be derived from the informed opinions of a single specialist or a group of specialists whose judgments rely on extensive professional, practical, and scientific experience. This method assumes that experts are capable of integrating qualitative and quantitative information to assess future developments with a high degree of reliability. Expert judgments may be classified as either individual or collective, depending on whether the evaluation is provided by one expert or through a structured aggregation of opinions from multiple experts. The collective form, in particular, enhances objectivity by reducing the influence of individual bias and enabling the synthesis of diverse perspectives. Owing to its flexibility and adaptability, the expert judgment method is widely applied in situations characterized by limited statistical data and is often used in personnel assessment, strategic planning, and complex decision-making contexts where formalized quantitative models may be insufficient.

Extrapolation Method. The extrapolation method is based on the analysis of stable development trends observed in the past and present and their extension into the future. This approach assumes that previously identified patterns provide a reliable basis for anticipating future dynamics of enterprise development. Two main types of extrapolation are distinguished: formal and predictive extrapolation. Formal extrapolation relies on the assumption that existing trends will continue unchanged over time, while predictive extrapolation links current development patterns with hypotheses regarding future dynamics, taking into account the potential influence of changing internal and external factors.

In practical applications, extrapolation methods are most effective at the initial stage of the forecasting process, where their primary purpose is to identify general trends in the variation of key indicators. By providing an initial analytical framework, extrapolation supports subsequent forecasting stages and facilitates the selection of more sophisticated methods when higher accuracy or consideration of complex influences is required.

Modeling Methods. Modeling is defined as the construction of an abstract or mathematical model based on a preliminary analysis of the object and the processes under consideration, with the identification of its essential features and characteristics. In the context of forecasting, modeling provides a structured representation of complex economic relationships and enables the analysis of system behavior under various conditions. Forecasting based on models involves several interrelated stages, including model development, experimental or simulation analysis, comparison of preliminary forecast results with actual empirical data, and subsequent refinement and adjustment of the model.

The application of modeling methods enhances the analytical rigor and predictive accuracy of forecasts by allowing for the systematic testing of assumptions and scenarios. Through iterative validation and calibration, models can be adapted to reflect changing conditions and emerging patterns, thereby increasing their relevance

for managerial decision-making. As a result, modeling methods are widely used in situations that require a comprehensive assessment of interdependencies among variables and a high level of methodological precision.

Economic Forecasting Method. The economic forecasting method is based on the decomposition of an economic process or phenomenon occurring within an enterprise into its constituent components, followed by the identification of the relationships and mutual influences among these components as well as their impact on the overall dynamics of the process. Through systematic analysis, this method makes it possible to reveal the underlying essence of economic phenomena, identify patterns of future change, and comprehensively assess alternative pathways for achieving established objectives. By focusing on causal relationships, economic forecasting contributes positively to the development of well-grounded managerial strategies.

The process of economic analysis within this method is typically structured into several sequential stages. These stages include defining the problem and establishing evaluation criteria and objectives, preparing the information required for analysis, conducting analytical processing of the data after its examination, formulating recommendations for possible ways to achieve the stated goals, and presenting the results in an organized and interpretable form. The consistent application of these stages ensures methodological coherence, enhances analytical accuracy, and strengthens the practical relevance of forecasting outcomes for managerial decision-making.

Balance Method. The balance method is based on the construction of balance sheets that represent a system of indicators in which the first component characterizes resources according to their sources of formation, while the second component reflects their allocation across all areas of use. This method ensures internal consistency by maintaining equality between available resources and their distribution, thereby providing a coherent framework for analyzing and forecasting economic processes at the enterprise level.

Through the application of the balance method, the principles of proportionality and balance are effectively implemented in the forecasting process. Its core purpose is to link the enterprise's needs for raw materials, material inputs, financial resources, and labor with production capacities and available resource sources. Consequently, the system of balances used in forecasting typically includes financial, material, and labor balances. The use of this method contributes positively to the reliability of forecasts, supports rational resource planning, and enhances the effectiveness of managerial decision-making.

Normative Method. The normative method is one of the fundamental forecasting methods and has gained increasing importance in contemporary economic analysis and planning. The essence of this method lies in providing technical and economic justification for forecasts through the application of established norms and standards. These norms serve as benchmark indicators and are used to calculate resource requirements as well as to assess the efficiency and intensity of resource utilization.

By relying on standardized parameters, the normative method ensures consistency, comparability, and objectivity in forecasting results. It enables enterprises to align projected indicators with optimal or target levels of resource consumption and performance, thereby supporting rational planning and effective control. The application of this method contributes to improving the accuracy of forecasts and enhancing the methodological soundness of managerial decision-making, particularly in environments that require adherence to regulated or internally approved performance standards.

Program-Target Method (PTM). The program-target method has gained widespread application in recent years and is closely integrated with other forecasting approaches. This method involves developing forecasts by initially assessing final needs based on the enterprise's development goals, followed by the identification and selection of effective means, pathways, and resource provisions required to achieve these objectives. By starting from clearly defined targets, the program-target method ensures a strong alignment between strategic intentions and forecasting outcomes.

The essence of the program-target method lies in defining the key development goals of the enterprise and formulating a system of interrelated measures aimed at achieving these goals within predetermined time frames. This process is carried out under conditions of balanced resource provision and with careful consideration of efficient resource utilization. The application of the program-target method enhances the coherence of forecasting and planning processes, strengthens the linkage between goals and available resources, and contributes positively to the effectiveness of enterprise development strategies and managerial decision-making¹.

CONCLUSION AND RECOMMENDATIONS

The results of the conducted research indicate that the application of a comprehensive methodology for analyzing and forecasting management accounting indicators is an essential prerequisite for enhancing the

1 Boronenkova, S. A. Economic Analysis in Enterprise Management. Moscow: Finance and Statistics, 2003. 224 p.

effectiveness of enterprise management. The integration of systemic and functional approaches with methods of economic analysis and forecasting enables a more in-depth assessment of the current state of business activities, facilitates the identification of efficiency improvement reserves, and contributes to the reduction of managerial risks under conditions of external uncertainty.

From a practical perspective, it is recommended to introduce regular forecasting of key indicators related to costs, revenues, and financial results into the enterprise's management accounting system, using economic–mathematical models and expert evaluations. In addition, expanding the application of functional cost analysis and factor analysis in managerial decision-making processes is considered advisable. The implementation of these recommendations will improve the validity of planning calculations, enhance the quality of managerial decisions, and support the sustainable long-term development of the enterprise.

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