

Methodological support of analytical procedures for managing economic security (on the example of an airline)

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Abstract: *This research study examines the issues of methodological support of analytical procedures for managing economic security in relation to both hotel enterprises, in particular airlines, and economic regions in general. The relevance of the selected research topic is determined by the significance of the issues of economic security management of both individual enterprises and economic regions as a whole in view of the current changes in the global economy and the urgent necessity for an adequate and timely response to them in order to create optimal conditions for maintaining economic security at the proper level. The purpose of this research is to determine the main directions of the formation of analytical procedures for managing economic security in the context of the real economic situation in the country in particular and in the world as a whole. The main approach to conducting scientific research is a combination of a systematic approach to the analysis of issues of economic security and its management with the analytical structuring of all the results and conclusions that were obtained and made in the course of this scientific research. The proposed methods were tested on the basis of airlines.*

Key Words: *regional security, economy, economic risks, enterprise*

1. INTRODUCTION

The study of the issues of economic security of individual enterprises, in particular airlines, and economic regions makes it possible to conclude that the choice of the appropriate method is based on assessment problems, which can be broadly divided into problems of assessing economic security based on initial flows (results) or problems of assessing economic security based on input flows (which, in the context of this study, are the risks of enterprise activities).

So, the methods of fuzzy logic, scenario approach, expert approach are used mainly to implement the tasks of assessing economic security based on modelling the interdependencies between input factors of influence on the state of economic security. Economic, statistical methods, folding of private indicators are used mainly to assess the state of economic security based on the analysis of the state of the components of economic security [1], [2].

A systematic analysis of the problems of regional security management shows that in modern conditions, increasing the efficiency and safety of the functioning of regional socio-economic systems (RSES), exposed to the influence of many internal and external threats of various natures, is one of the most important strategic directions for the development of the national economy and the defence capability of any state [3]. This state of affairs is due to the necessity to ensure sustainable progressive development and stability of the RSES functioning under various conditions of adverse effects of external and internal factors such as socio-economic, natural - technological, geopolitical nature, as well as those inspired by human activities [4].

At the same time, the system of economic security of enterprises and organisations is associated with the solution of an amount of calculation and design, analytical and information, legal, managerial and a number of other tasks, the solution of which is aimed at protecting the economic interests and rights of citizens, business entities, organising all accompanying protective functions. Modern enterprises are exposed to numerous threats, both external and internal, extreme impacts and risks that cause negative consequences, as well as negatively affect their competitiveness and sustainability. This determines the priority of the timely adoption of managerial decisions regarding the provision of the proper level of economic security and safety of managing the processes of economic security of enterprises [5]. Along with this, the formation of mechanisms of economic protection of individual enterprises and economic regions as a whole involves the search for new, more advanced technological solutions for building a management system, in the context of a multi-alternative choice, with its corresponding information and analytical justification. One of the most important tasks of the economic management system is the theoretical development, followed by the practical implementation of the management control system at all possible stages of the functioning of the economic security management system of an enterprise or a separate region. Such procedures should be provided in a timely manner with information and analysis, as well as subsequently accompanied along the entire chain of making management decisions based on the systematic use of information [5], [6].

The concept of economic security of an organisation is associated with the implementation of its vital economic interests (needs): improving the efficiency of economic activities in general, achieving the set strategic goals and guidelines, protection from external and internal dangers and threats, etc. [7]. In general, the issues of methodological support of the economic security management system of enterprises and organisations, increasing the level of their competitiveness in the existing external economic environment, are among the most vital, the timely solution of which determines the conditions for the implementation of an integrated approach to the formation of an integral economic security management system. Such a mechanism should be focused on ensuring continuous and full-fledged reproduction of an organisation's protective properties as an integral mechanism capable of developing in space and time and successfully solving the problems of countering external extreme influences and maintaining competitiveness, as well as sustainable and safe development through the effective use of resources, combining internal and external factors of influence and mobilisation of reserves, monitoring and filtering of threats and risks, their assessment, reflection and suppression [7], [8].

At the same time, the development of effective mechanisms for defining the concepts of economic security of an enterprise or an entire region and their management should be based on the implementation of a full-fledged approach to management issues, an integration approach to building information systems for corporate governance, enterprise risk management systems, analysis and control of current processes. enterprises [9]. The very concept of economic security of an enterprise implies the absence of any danger for the conduct of its activities, therefore, the economic security management involves the management of the processes of creating such conditions under which the possibility of such a danger is completely excluded. To solve such issues, it is required to develop and implement a set of measures to prevent the occurrence of risks by introducing a protection system as a set of compensating factors that can reduce the risk to the minimum permissible or zero indicators [10], [11].

Further research in this direction will complement the existing picture of research and help to form a qualitative idea of the sequence of formation of procedures for methodological support of analytical procedures for managing economic security of both individual enterprises and economic sectors and regions in general.

2. LITERATURE REVIEW

Issues related to the economic security of enterprises and organisations, as well as the possibility of high-quality management thereof, have received extensive discussion in literary sources. The variety of opinions expressed by researchers creates the proper conditions for the qualitative disclosure of research topics and forms an assessment base for subsequent research in a given direction. Thus, the group of authors represented by V. V. Lesnyak, G. E. Kroklicheva and E. S. Arakelyants, [7], conducting research on risk management of the economic activity of the organisation, noted “The functioning of complex risk management mechanisms in the economic security system of an organisation is based on the implementation of an integrated approach to considering environmental challenges, threats and their sources, risks and protective tools and methods. The development of comprehensive mechanisms and tools for ensuring economic security is aimed at reducing the total integrated risk to an acceptable level based on the use of appropriate resources and capabilities, first of all, the capabilities of the organisation’s backup system to level, reduce risks, and, ultimately, ensure its security” [9]. At the same time, the authors point to some features of the differentiation of the risks of an enterprise conducting its economic activities. In their opinion, “The risks in the economic activity of an organisation are subdivided into symmetrical, i.e. leading to profit or loss (business risk, financial risk) and asymmetric, causing only losses. It is important to emphasise that the impact of risks should be determined by assessing the cost of risk for an organisation as a whole” [9].

Similar assessments are found in a joint study by I. A. Kiseleva and T. A. Klimenko [12] dedicated to the economic risks of enterprises and their economic security. According to scientists–researchers, “The economic security is a state of stability, in which an enterprise can carry out economic activities, while it maintains equilibrium in a changing external and internal environment, in conditions of destabilising factors. The key parameters of the economic security of an organisation are financial independence, financial stability, stability, the ability to develop, renew funds, improve the market situation” [12]. L. K. Ivanova [13] examining various aspects of the economic security of an enterprise, noted “... the economic security of an enterprise consists of several functional components, which may have different priorities for each specific enterprise, depending on the character of existing threats” [13].

Regarding the character of the threats to the activities of an enterprise, the author pointed out the fact that “External hazards are not associated with the production activities of an enterprise, as a rule, they are associated with environmental changes, climatic, political, socio–economic, demographic, forensic, etc. Internal threats arise in the process of production and sale of products and can have an impact on business results” [13].

The peculiarities of the current crisis situation in the context of its influence on the issues of economic security of an enterprise are highlighted in the study by A. S. Ilinykh [14]. According to the researcher, “In modern conditions, the problem of the economic security is relevant, since enterprises operate in conditions of various external and internal risks, and the competitive economic environment hides numerous threats.

This circumstance requires the subjects of enterprise management to build an integrated system aimed at increasing the level of economic security. The current crisis situation and the processes of modernisation of the country determine the purposeful activities in the field of ensuring the economic security of enterprises” [14].

In turn, M. V. Merkushev and N. A. Tovstonozhenko [15], investigating the theoretical aspects of the economic security of an enterprise, came to the conclusion that “... the economic security of an enterprise is a complex characteristic that objectively reflects the degree of protection from the negative influence of internal and external factors of all the potentials of an enterprise, which allows ensuring sustainable and effective activity.

Thanks to a sufficient level of economic security of an enterprise, it is possible to create favourable conditions for the effective functioning of an enterprise, as well as to achieve the main goal through the timely expression and weakening of the influence of any threats” [15].

Thus, the literature review testifies to the diversity of the authors' assessment characteristics in matters of the economic security of an enterprise, and also reflects some similarity in assessing the degree of risks of the activities of enterprises and their impact on the state of the economic security of an enterprise as a whole.

3. MATERIALS AND METHODS

In this scientific study, the task is to study a set of issues related to the methodological support of analytical procedures for managing economic security, which can be considered in the context of the activities of an individual enterprise, as well as a separate economic industry or region. A comprehensive scientific study of the issues of economic security in general was conducted in the context of the search for a qualitative methodological basis for such management.

The methodology of this research study was based on a combination of a systematic approach to the analysis of issues of economic security and its management with the analytical structuring of all the results and conclusions that were obtained and made in the course of this research. A deep systematic analysis of the materials available in the study of the topic of this scientific research, combined with the creation of a qualitative structure for constructing the results obtained in the course of this research work and the formation of final conclusions based on the results of this scientific research, contributed to the highest quality disclosure of the stated research topic and the formation of final conclusions that can objectively reflect the essence of the results obtained during the study.

In the course of this research work, a significant amount of data was taken from publications by foreign authors who conducted research on a set of issues related to the economic security of enterprises and organisations, as well as searched for ways to effectively manage it.

To facilitate the perception of information, as well as to create the most objective, high-quality picture of this study, all publications of foreign authors who conducted research within the framework of topics corresponding to the topic of this scientific research were translated into Russian.

The combination of data obtained from foreign information sources, with the results of research by domestic scientists, allowed forming the most objective picture of the study, the results and conclusions that most objectively reflect the current state of affairs in matters of economic security of enterprises, as well as economic regions, which is optimal to the task of objective coverage of the issues raised in the topic of this scientific research.

In general, the methodology of this scientific research fully meets the questions stated for consideration and can become a reliable basis for an objective and comprehensive study with the formation of qualitative conclusions that fully reveal the stated topic.

The issues of methodological support of analytical procedures for managing economic security require a deep, structured study, taking into account all external and internal factors that are of significant importance in the study of a set of issues raised in the topic.

The selected combination of scientific research methods fully meets the assigned tasks and therefore was chosen as the basis for conducting scientific research in this particular work. The materials and methods of this scientific research were the basis for the preparation of its main results and the formulation of conclusions that optimally and qualitatively reflect the essence of this scientific research, as well as determine the prospects for subsequent scientific research in the chosen direction.

4. RESULTS

The study of the issues of methodological support of analytical procedures for managing economic security, as applied to enterprises in a specific field of activity and in the context of economic development of a particular region, led to the following results.

Studies of a set of issues related to the concepts of “economic security”, “economic security of an enterprise”, “economic security of an industry”, “economic security of a region”, “economic security management system”, etc., indicate the relativity of these concepts and the absence of clear systems of assessments in matters of economic security, in relation to various spheres and industries.

In addition, it should also be noted the organisational complexity of the economic security system and the different functional orientation of the formation of the methodology for managing economic security, as applied to a single enterprise or the region as a whole.

All this necessitates the formation of a complex combination in a unified methodology for the analysis of input hazards and risks, as well as the dangers and risks that are caused by the previous performance of an enterprise or an economic region [16], [17].

In accordance with the chosen division of economic security objects, the methodology for analysing economic security management should be based on methods for analysing the economic potential of an enterprise or an economic region, the conditions of its activity, as well as taking into account economic interests that are significant in the general context of an enterprise or organisation.

The strength of the influence of resource factors, functions and conditions of activity of a particular enterprise or organisation on ensuring its stability determines the general state of its economic security and the possibility of managing it in the future. Evaluations of all three aggregated components of economic security by quantitative values of their deviation from the normative values made it possible to identify the risks and hazards of the entire system of

activities [18], [19]. The assessment of the strength of the factor's influence, which was carried out based on calculating the distance of deviation of an indicator from the standard, made it possible to distribute the state of resource use, the implementation of economic relations and the conditions of activity into groups: risk factors, critical hazards, hazards, conditional security, security.

The frequency of the factor's influence on the state of economic security was determined based on the calculation of the coefficient of variation, which is the ratio of the standard deviation to the arithmetic mean [20], [21], [22].

If the coefficient of variation is less than 10%, the set of values of the selected resource use indicator is homogeneous, the average value is typically the level of the trait in this set, and the set is stable because it changes (fluctuates) to a small extent.

If the coefficient of variation is less than 33% but more than 10%, there is an average variation in the selected population, the population is within the homogeneity range.

If the variation is more than 33%, the fluctuations in the selected population are significant, and, accordingly, the risk of changes in the stability of this population is significant.

The use of the matrix method of presenting data provided the research with the possibility of simultaneously grouping the entire set of indicators characterising the state of economic security, according to the criteria of the strength and frequency of impact. This distribution made it possible to identify a set of indicators, the state of use of which indicates the hazard or risk of the activity of a particular enterprise (data are presented in Figure 1).

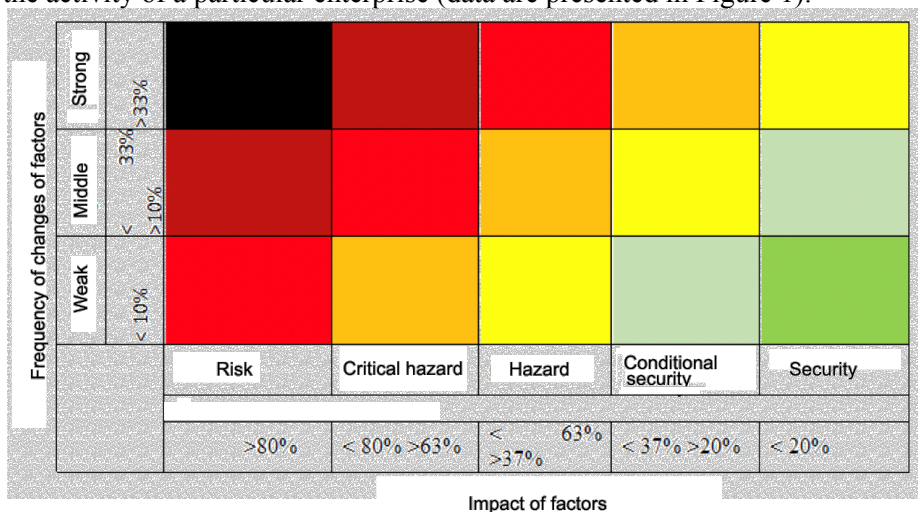


Fig. 1 - Matrix for identifying the states of factors for ensuring economic security (resources, functions, activity conditions)

The use of a matrix system for assessing the state of factors for ensuring the economic security of an enterprise allows visually assessing and comparing deviations from the standard indicators, the variation in the indicators of resource use, the performance of functions and activity conditions of an enterprise. Such an assessment allows finding resources, functions and conditions, the state of which indicates potential losses and losses of an enterprise from their use [23].

A potential danger to the economic activity of an enterprise, regardless of its sphere of economic affiliation, is a decrease in sales efficiency, combined with an increase in sales costs, compared to the rate of receipt of proceeds from the sale of volumes of finished products.

The dangers for the activities of all enterprises are the conditions of economic activity in Ukraine, manifested in the uneven economic development, the danger of population migration, the lack of the rule of law, the danger of democratic pressure, etc.

Table 1 shows a reflection of the state of economic security of an enterprise, the conditions of its activity and the realisation of its potential, using the example of the airline “Ukraine International Airlines”.

Table 1 - The state of the economic security of the enterprise, the conditions of its activity and the realisation of the potential of the airline “Ukraine International Airlines”

Strong variations	Stability in the short term Own financial resources The volume of working capital to pay off current liabilities Sufficiency of own financial resources to cover long and short-term liabilities Economic interests of owners Using own resources Return on assets Return on equity Return on sales Profitability of product sales Efficiency of equity management	Sufficiency of circulating liquid assets to pay off current liabilities	Lower profitability due to higher sales costs	Loyalty policy	Business activity
Middle variations	The number of funds to pay off current liabilities			Efficiency in the use of inventories	Efficiency of consumer debt management Employee efficiency Efficiency in the use of fixed assets State legitimacy
Weak strong	Mutual settlements with the budget		Uneven economic development population migration law supremacy	Economic downturn, external influences, human rights	Airline economic interests Asset use efficiency Finance consumption Attraction of additional financing Impact of administrative costs on profitability
	Risk	Critical hazard	Hazard	Conditional security	Security

The economic security of an enterprise should be managed with consideration of the creation of conditions of protection from the effects of external threats to its activities, the main types of which are shown in Figure 2.

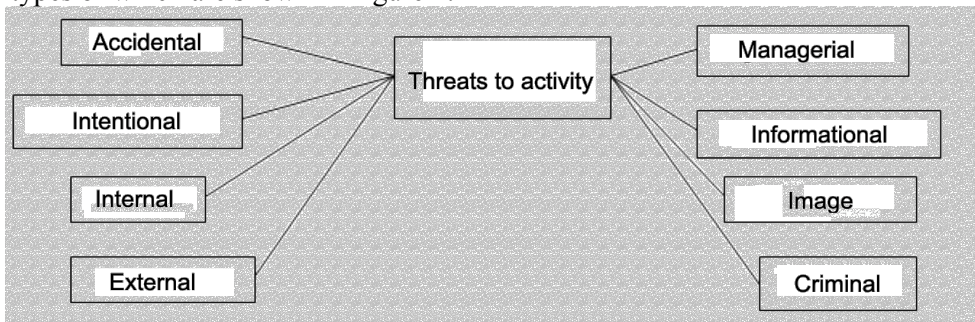


Fig. 2 - Types of threats to the activities of an enterprise, regardless of the scope of its economic affiliation

In the context of this research study, the figure (indicator) of the economic security of an enterprise should be considered as a function (Eq. 1):

$$F_{es} = f(I_{esup}, I_{esri}, I_{esac}), \quad (1)$$

where: I_{esup} – the index of economic security of using the economic potential of the enterprise; I_{esri} – the index of economic security of realisation of economic interests; I_{esac} – the index of economic security of the activity conditions. The indices of the economic security of the subsystems that form the economic security of an enterprise make it possible to identify the contribution of each of them in the formation of the general index of the economic security of an enterprise. Calculations of the index of economic security and the level of harmonisation of subsystems of economic security make it possible to analyse the dynamics of a state of economic security of a particular enterprise and a comparative analysis of the economic security of a sample of enterprises in a given economic sector [24].

Thus, the final stage in the formation of a methodology for analytical procedures for managing economic security of a particular enterprise or industry should be considered the formation of methodological support for assessing subsystems of economic security, in the context of calculating their generalised indicators and, on their basis, assessing the state of economic security of specific enterprises. The calculation of indicators of economic security in each specific case will have a relative character due to the fact that the applied design characteristics are always relative and do not reflect the complete picture of the activities of an enterprise or the entire economic sector. Also, the level of consistency of the economic security subsystems of an enterprise should be considered relative, assessed with consideration of all possible risks of the activity.

5. DISCUSSIONS

The issues of economic security of enterprises in the context of the formation of methodological support for analytical management procedures cause wide discussion in the circles of scientists and researchers involved in the scientific development of this complex of issues. In particular, the group of authors represented by V. V. Lesnyak, G. E. Kroklicheva, and E. M. Selezneva [9], in a joint study, expressed an opinion on the importance of forming a systematic approach to the issues of assessing enterprise risks. The authors believed that “The organisation of information and analytical support is associated with the collection and

processing of information about the challenges of the external environment, threats and risks initiated by them, the preparation of information to assess the level of backup protection and the economic security zone of the organisation, information support and support for the development and use of adaptive engineering tools as an effective comprehensive risk management mechanism” [9]. The authors also put forward their own theory regarding the consistency of measures to counter risks “Consistency is manifested in the possibility of comparing the level of backup protection, determined from the data of the hedged derivative balance, and the cost of the organisation, taking into account the real risks determined from the derivative balance of the integrated corporate risk” [9].

The issues of assessing the risks of enterprise activity were studied in the works of the authors I. A. Kiseleva and T. A. Klimenko [12]. The authors defined the factors of economic security of enterprises in this way “The main factors include exogenous and endogenous (external and internal) factors. Exogenous factors include the economic and political situation, the fiscal policy of the state, the saturation of the markets for finance, labour resources, production, and sales. Endogenous factors include personnel and economic policies of an organisation, ensuring financial independence and sustainability, managing the company's competitiveness, product quality management, marketing, innovation, force majeure” [12].

The issues of economic security of an enterprise and the possibility of effective management of such were raised in the study of the author L. K. Ivanova [13]. The research scientist focused on the fact that “It creates a threat to economic security and creates conditions that impede the normal functioning of accounting. An uneven schedule for submission of primary documents, submission of a large number of primary documents for the whole month on the last day before reporting, submission of documents incorrectly or incompletely filled out leads to irregular work of the accounting department, errors, permanent corrections, fines, penalties” [13]. In a similar direction, A. S. Ilinykh, engaged in the development of issues of economic security of enterprises and the possibility of protection against risks. According to the scientist “The economic security of an organisation is its ability to develop and work in a constantly changing internal and external environment, which characterises its stability and ability to be guided by effective management” [14]. The researcher also draws attention to the fact that “... that the level of economic security of an organization is directly proportional to its financial condition and position in the market. Also, its level depends on many factors, both internal and external. Therefore, when analysing the economic security of an organisation and developing measures to improve it, it is necessary to take into account many things” [14].

The complex of the researched issues was actively raised in the developments of foreign authors dealing with the problems of economic security of enterprises and the possibility of managing it. Thus, foreign researchers of employment problems V. Cirilloa, M. Rinaldini, J. Staccioli, M. E. Virgillito [25] in their joint work wrote “One of the indicators that determine the financial stability of an enterprise in the current real market conditions is its solvency. The risks of insolvency of enterprises are assessed based on the characteristics of the liquidity of their current assets, followed by the identification of potential weaknesses” [25], [26], [27], [28]. A similar assessment is expressed in the study by F. Ceballos and M. Robles [24], devoted to the problems of the heterogeneity of demand for market insurance. The authors expressed the opinion that “To assess the liquidity risk, it is necessary to calculate the relative indicators characterising the liquidity and structure of the organisation's balance sheet. The change in the share of fast-selling assets and the share of hard-to-sell assets also reflects the trends in the economic security of an enterprise” [29], [30]. In addition, in their opinion, “Cost-effectiveness reflects the level of profitability or revenue performance. Cost-effectiveness indicators are relative indicators in which the amount of profit is compared with some other

indicator reflecting the economic conditions, for example, with the number of proceeds from sales, the amount of equity capital, etc. High cost-effectiveness indicators have a positive effect on strengthening the level of economic security of the organisation” [31]. Researcher J. Vacca [20], conducting research in the field of information security, noted that “Information security management offers targeted coverage of how to protect critical systems and how to deploy security management systems, IT security, identity management, intrusion detection and prevention systems, computer forensics, network forensics, firewalls, penetration testing, vulnerability assessments, and more. This requires comprehensive coverage of current technologies and practices associated with information security management solutions. All of the above will ultimately objectively affect the security of the economic activity of an enterprise as a whole” [31].

Thus, the discussion by various authors [32] of the issues of economic security in the context of the activities of enterprises and organisations by domestic and foreign authors demonstrates the variety of approaches to the topic under study. Subsequent scientific research in the chosen direction will contribute to its qualitative disclosure and the formation of more complete conclusions on the stated research issues.

6. CONCLUSIONS

The study of issues of economic security in relation to the activities of individual enterprises and entire economic regions in the context of the possibilities of forming methodological support for managing economic security led to the following conclusions. The issues of economic security of an enterprise, in particular an airline, or an entire region, regardless of its belonging to a specific economic sector, are decisive in the development of methodological support for analytical procedures for managing economic security. In the context of considering the stated issues, special attention should be paid to the correct assessment of the risks of an enterprise or an economic region, which have a significant impact on the economic security of any organisation. Threats to the activities of any enterprise or organisation are of a gradual nature and are divided into many factors, both internal and external, related to the information and management areas of an enterprise, as well as the possibility of illegal impact on its activities. In general, the indicator of the economic security of an enterprise should be considered as a function of several derivatives, such as the economic security of using the economic potential of an enterprise; economic security of the implementation of the economic interests of an enterprise, as well as the economic security of real conditions of activity. Changes in these listed indicators over time has a significant impact on the indicator of economic security and, as a result, on the possibility of the formation of high-quality management thereof.

In addition, the indicators of the economic security of the subsystems that form the economic security of an enterprise make it possible to identify the contribution of each of them in the formation of the general index of the economic security of an enterprise. This fact is essential from the point of view of the formation of the methodology of analytical procedures for managing the economic security of an enterprise. The relationship between the real and theoretical value of the economic security indicator determines the degree of consistency of the economic security subsystems. Determination of the indicator of economic security and the level of harmonization of subsystems of economic security makes it possible to analyse the dynamics of the state of economic security of a selected, specific enterprise and a comparative analysis of the economic security of a sample of enterprises of a certain type of activity or belonging to specific economic regions.

The methodological support of analytical procedures for managing economic security involves a high-quality collection of current relevant data on the real state of the subsystems of economic security to conduct an objective analysis and assess their real state. There are three such subsystems and the values of their indices objectively reflect the current state of economic security of using the economic potential of an enterprise, the economic security of the implementation of economic interests, as well as the economic security of the conditions for the activity of a particular enterprise. The methodology of analytical procedures for managing economic security involves timely accounting for the risks of each individual subsystem and calculating the probability of a successful outcome of operations carried out by the management structures of an enterprise, taking into account the coordinated work of all subsystems of economic security.

In general, the issues of the methodology for the analysis of economic security management imply the determination of a clear relationship between the timely implementation of analytical procedures for assessing the current state of the links of the economic security system of an enterprise, in order to determine the current state of the entire system and the real value of the economic security indicator, in relation to a specific time period. Correct alignment of the sequence of these actions in a given volume will allow achieving the desired level of economic security of an enterprise, regardless of its affiliation to a specific economic sector, and is also important in determining the degree of economic security of a particular region. Management of the economic security of an enterprise and a region is a prerequisite for the formation and maintenance of its competitiveness at the proper level in order to strengthen its position in the chosen economic sector. Methodological support of analytical procedures for managing the economic security of an enterprise must be established in accordance with the current state of affairs at an enterprise and the level of tasks that are posed to it at the current stage of its economic development. The correct choice of the methodology of analytical procedures for managing economic security contributes to improving the quality of enterprise management and its overall efficiency in a real economic situation.

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