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INFORMATION ANALYTICAL PROVISION IN ASSESSMENT AT MICROLEVEL ECONOMIC SECURITY STUDIES

Abstract. One of the subject areas in economic security studies (a new direction in management science) is an assessment. Estimates of a particular object will most significantly reflect its state in case there is an information analytical support. Information analytical assessment provision in economic security studies must meet assessment information needs by providing such resource as indicators, using which it will be possible to have a high-quality economic security estimates of the objects selected for assessment. The indicators selection and further operations with them using the assessment methods to get the objects estimates in microlevel economic security studies is performed taking into account an object of assessment, a research context of economic security, quality estimates requirements, availability and accessibility of information for determining values of indicators, estimates character (retrospective, current, predictive). There are some examples of indicators and methods of the objects assessment in the microlevel economic security studies considered that are eligible for assessment in a protective context of an enterprise economic security.

Keywords: economic security studies, microlevel, assessment, estimate, indicator, method, factor.

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ІНФОРМАЦІЙНО-АНАЛІТИЧНЕ ЗАБЕЗПЕЧЕННЯ ОЦІНЮВАННЯ В ЕКОНОМІЧНІЙ БЕЗПЕКОЛОГІЇ МІКРОРІВНЯ

Анотація. Однією з предметних областей в економічній безпекології (новий напрям в управлінській науці) є оцінювання. Оцінки конкретного об'єкта максимально достовірно будуть відображати його стан за наявності інформаційно-аналітичного забезпечення.

Інформаційно–аналітичне забезпечення оцінювання в економічній безпекології має задовольнити інформаційні потреби оцінювання шляхом надання такого ресурсу як показники, з використанням яких можна отримати якісні оцінки економічної безпеки вибраних об'єктів оцінювання. Вибір показників та подальші операції з ними за допомогою методів оцінювання для отримання оцінок об'єктів в економічній безпекології макrorівня здійснюються з урахуванням об'єкта оцінювання, контексту дослідження економічної безпеки, вимог до якості оцінок, наявності та доступності інформації для визначення значень показників, характеру оцінок (ретроспективні, поточні, прогнозні). Як приклад надано деякі показники та методи оцінювання об'єктів в економічній безпекології мікрорівня, які придатні для оцінювання у захисному контексті економічної безпеки підприємства.

Ключові слова: економічна безпекологія, мікрорівень, оцінювання, оцінка, показник, метод, чинник.

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ИНФОРМАЦИОННО–АНАЛИТИЧЕСКОЕ ОБЕСПЕЧЕНИЕ ОЦЕНИВАНИЯ В НАУКЕ ОБ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ НА МИКРОУРОВНЕ

Аннотация. Одной из предметных областей в науке об экономической безопасности (новое направление в управленческой науке) является оценивание. Оценки конкретного объекта максимально достоверно будут отображать его состояние в случае наличия информационно–аналитического обеспечения. Информационно–аналитическое обеспечение оценивания в науке об экономической безопасности должно удовлетворять информационные потребности оценивания путем предоставления такого ресурса, как показатели, на основе которых можно получить качественные оценки экономической безопасности выбранных объектов оценивания. Выбор показателей и дальнейшие операции с ними с применением методов оценивания для получения оценок объектов в науке об экономической безопасности на микроуровне осуществляется с учетом объекта оценивания, контексты исследования экономической безопасности, требований к качеству оценок, наличия и доступности информации для определения значений показателей, характера оценок (ретроспективные, текущие или прогнозные). Как пример, представлено некоторые показатели и методы оценивания объектов в науке об экономической безопасности на микроуровне, которые подходят для оценивания в защитном контексте экономической безопасности предприятия.

Ключевые слова: наука об экономической безопасности, микроуровень, оценивание, оценка, показатель, метод, фактор

Формул: 0; рис.: 2; табл.: 2; библи.: 21

Introduction. Economic security studies is a new direction in the management science, within which there is a constant replenishment and systematization of theoretical provisions, hypotheses, regularities concerning economic security of specific objects [1–4]. Economic security studies describe the phenomenon of economic security, allow to reveal its essence, show forms of display, causal relationships in ensuring economic security [5, p. 15].

Active economic security studies development taking place in the course of the last decade in Ukraine, post–Soviet countries, Eastern Europe countries (Poland, Bulgaria) led to formation within it of several subject areas.

The subject area in the economic security studies is considered as a unity of interconnected similar elementary objects, their peculiarities, relations and functions, considered within a particular economic security studies direction [1]. One such subject area of the economic security studies is assessment.

Assessment in the economic security studies of macro, meso and micro levels is important because the retrospective, current and predictive estimates of economic security of the specific object not only allow you to get an idea of its economic security state, but also form the foundation of decision–making, identification of necessary resources, creation and using of necessary reserves.

Review of sources, surveys and publications. Assessment is the main category of the assessment theory, which is developed via two main directions:

mathematical (assessment of the values parameters on the basis of measured empirical data with a random component) [6–8];

philosophical ("axiological" person's attitude to the diversity of subject embodiments of human life and opportunities of their cognitive and practical development) [9].

In the management science the assessment is considered mainly in general philosophical sense, from the positions of values recognition (significance of something to somebody) of the assessment object state for the enterprise management. This recognition contributed to the transformation of axiology into general methodology assessment in enterprise management. Contextual character of scientific results, theoretical findings and methodological pluralism, which, by T. Hayday, reaches "methodological anarchism" in the assessment methodology acquire more profound and sustained character due to the multiplicity of its objects [10].

Despite recognition of estimates importance in the economic security studies, knowledge assessment in the scientific understanding has mainly non–system, fragmented, structurally unorganized structure, which leads to random selection of the assessment system elements, its weak substantiation and integrity. These circumstances, on the one hand, are explained by the lack of theoretical basis of assessment in economic security studies and on the other – explain contradictions in assessments understanding (nature, function and purpose) and cause the necessity for a holistic understanding of assessment.

Assessment in any science is a complex process, construction of which must meet certain requirements, be established by logic, rules, procedures and algorithms, using a number of principles. Only in that case estimates of the specific object will most reliably reflect its condition. One of these requirements, compliance with which creates grounds for the reliability of estimates is high quality information and analytical assessment provision.

Assessment in economic security studies cannot be considered as finished sphere of research. Mostly researches are devoted to assessment of risks [11–14]. In addition, other important objects in economic security studies have no assessment procedures. This fact limits managing enterprise economic security.

Methodology. To form ideas to build information analytical provision IN assessment at microlevel economic security studies there were such methods used as survey, structural analysis, visualization, monograph analysis, table method and causal analysis. Such methods are well–known and often used in methodology of scientific research. The logic of research is based on used methods. We defined objects of assessment in micro level security studies. Using causal analysis, we described links between such objects of assessment. By the results of survey of managers and top–management specialists we were able to analyze relevance and necessity of objects of

assessment. And after defining factors which determine indicators selection for objects assessment in the microlevel economic security studies we suggested character of assessment, assessment methods and indicators for every assessment object.

Results. In general terms, the concept of "provision" is interpreted as satisfaction of certain needs and interests of activity subject by providing necessary resources or creating the right conditions [15, p. 126]. The adjective "information analytical" narrows the concept of "provision" to a particular sphere of application (in our case – the economic security studies) and concerning specific activity – assessment in the microlevel economic security studies.

Information and analytical assessment provision in the economic security studies is considered necessary in order to meet the information requirements of assessment by means of providing such resource as indicators, using which you can get quality estimates of economic security of the selected objects of assessment. Using a variety of indicators is necessary to overcome the subjectivity of estimates in the economic security studies.

The indicator used in estimates defining in microlevel economic security studies should be viewed as a form of presentation of the results of various procedures and information operations using set algorithms with information. This form allows you to use, interpret information and share it.

Indicators used to obtain estimates of specific objects in microlevel economy security studies are regarded as a central element, main resource of information and analytical provision of the assessment. Thus, interrelated and interdependent, permanently carried out processes of search, selection, collection, storage, processing and generalization of information that constitute the information and analytical provision of assessment in economic security studies should be directed to obtain reliable indicators, using which the estimates (judgments) of economic security of the assessed objects will be formed.

In general philosophical sense an estimate is considered as a form of objective reality reflection. An estimate is a result of the assessment process that runs on a specific logic with established requirements necessary to regard estimates as the result of the assessment as reliable ones [16].

In the applied aspect the term "assessment" has a polysemic nature, which means it can be interpreted diversely: as a dimension or calculation (evaluation or estimation – referring to the very process of calculations), as a rough value of a quantity or parameter, as a statement that sets absolute or relative value of any object, etc.

Assessment of an object in the economic security studies – is a judgment carried out based on positive or negative indicators (a certain conclusion, unity of a thought) of an object of assessment regarding economic security of an estimated object.

The logic of assessment in economic security studies will be largely determined by the characteristics of the object of assessment. In a sense, selection of an assessment object of the economic security studies – is the answer to the question "what is being measured"?

The assessment objects in the economic security studies are different. Traditional economic security studies consider the following objects of the economic security: state, region, sector, activity type. However, further development of microlevel economic security studies caused also identification of other objects of economic security. Therefore, the assessment objects in microlevel economic security studies can be:

- economic security of an enterprise;
- system of economic security of an enterprise;
- security providing activity of an enterprise;
- activity of an economic security structural unit of an enterprise;
- protection objects security;
- economic security of enterprise business activities (innovative, marketing etc.);
- potential (supply) of economic security of an enterprise;
- reserves of providing economic security of an enterprise;
- threats to an enterprise activity.

The estimated objects in the microlevel economic security studies are interconnected (Figure 1), and although the estimates of each object have independent value, after all, these estimates together allow us to define the economic security of an enterprise. Ideally, in the microlevel economic security studies assessment the estimates of all objects are necessary, although in practice it is not always appropriate and possible for various reasons.

Assessment of microlevel economic security studies objects significantly differs regarding the estimates designation and requirements for their accuracy, which determine the assessment methods choice, indicators and operations with them, implementation of which allows obtaining necessary estimates.

The estimates of objects can have a diverse application field: in an analytical activity, predicting conditions of the enterprise activity, in summarizing results of activity and assessing its effectiveness, in operational and strategic decision-making. In order to have economic security estimates the assessment of some objects can be limited to one or two indicators, while others need a set of indicators.

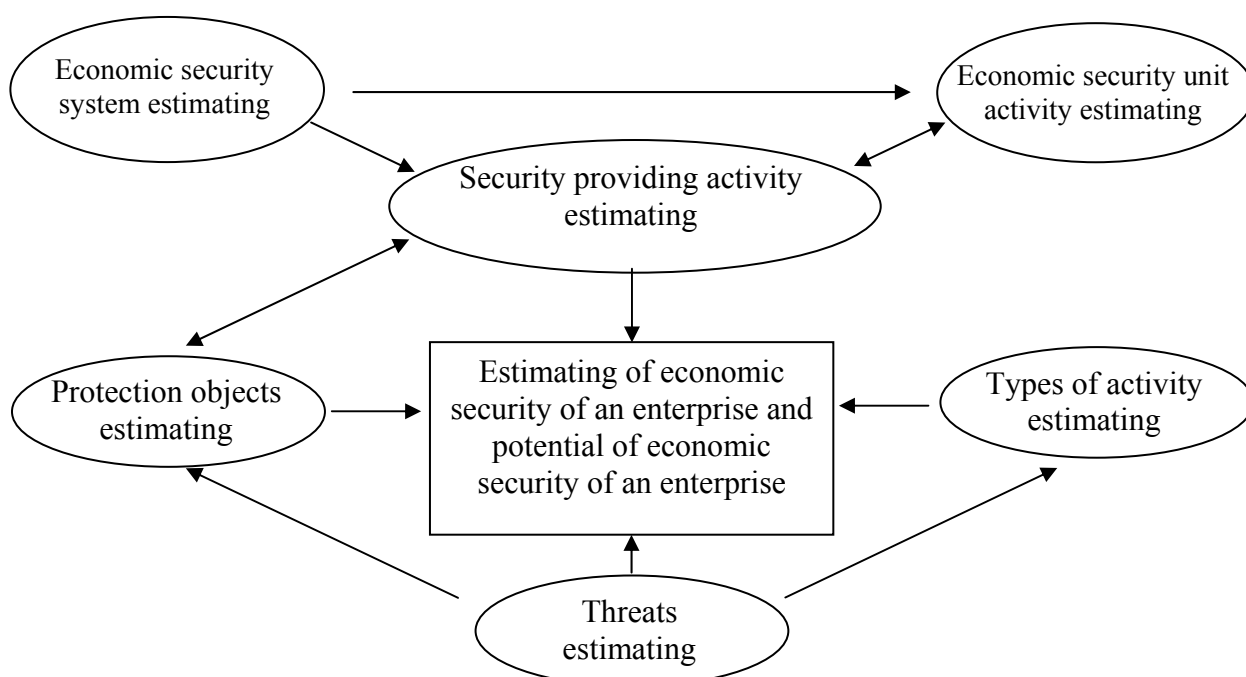


Fig. 1. The interconnection of assessed objects in microlevel economic security studies

The estimates of some objects of microlevel economic security studies are mostly theoretical (e.g., assessment of economic security system), others – mainly practical (e.g., assessment of economic security of an enterprise or security of certain protection objects), that is to some extent confirmed by the data table 1, with the results of survey of managers and owners of 23 industrial enterprises from several regions of Ukraine regarding assessed objects.

Selection of indicators and further operations with them by using the assessment methods to get economic estimates of objects in microlevel economic security studies is conducted using a variety of factors (Figure 2). Considering these factors provides substantiation for the selection of the indicators for the assessment of objects in the microlevel economic security studies, which allows to avoid occasionality in the selection of indicators.

Selection of assessment indicators for the microlevel economic security studies largely depends on the context of the enterprise economic security study. In the postneoclassical science ontology (by Stepin, a historical form of economics development, the 70-ies of the XX century till nowadays [17]) fundamentalism and existentialism were replaced by contextuality of scientific results and theoretical conclusions [18]. Contextualism denies (or at least questions) the presence of

one objective answer to some questions [18], one single position, one direction in these responses [19]. So the answer to the question "What is economic security" according to P. Unger is caused by the net of accepted assumptions that are not objectively grounded, and this response is given regarding these assumptions.

Table 1

The results of survey of managers and top–management specialists of enterprises regarding assessment of microlevel economic security studies objects (Developed by V.V. Vahlakova)

| Questions | Number of enterprises, the managers and top–management specialists of which answered positively |
|---|---|
| 1. Do you think there is a need for the economic security assessment of the management activity of an enterprise? | |
| yes, there is | 14 |
| the need in such assessment is insignificant | 5 |
| there is no need | 4 |
| 2. Is the economic security of your enterprise assessed, and if yes – how often? | |
| yes, once a year | 2 |
| yes, once a quarter of a year | 2 |
| yes, on the managers' or owners' request | 7 |
| yes, in case of a significant deterioration of activity conditions | 8 |
| no, it is not assessed | 4 |
| 3. Is there an economic security structural unit at your enterprise? | |
| yes, there is | 10 |
| no, there is no such a unit | 13 |
| 4. What objects are assessed? | |
| the enterprise economic security | 14 |
| the economic security of certain types of activity | 9 |
| certain protection objects | 1 |
| threats to activity | 16 |
| activity of an economic security structural unit of the enterprise | 10 |
| Security providing activity | 0 |
| 5. Subject of assessment | |
| internal | 23 |
| external | 0 |

Contextualizm in the economic security studies caused several answers to the question "what is the economic security of the enterprise," the most–widespread of which is the protection context according to which the economic security of the enterprise is seen as protection of vital components of the structure and activities of the enterprise from various threats. From the position of protective approach the indicators of assessment in economic micro security studies have to describe their security state caused by (or can be caused by) the influence of various threats.

An equally important factor when choosing indicators for the objects assessment in the microlevel economic security studies is the estimates character (retrospective, current, predictive).

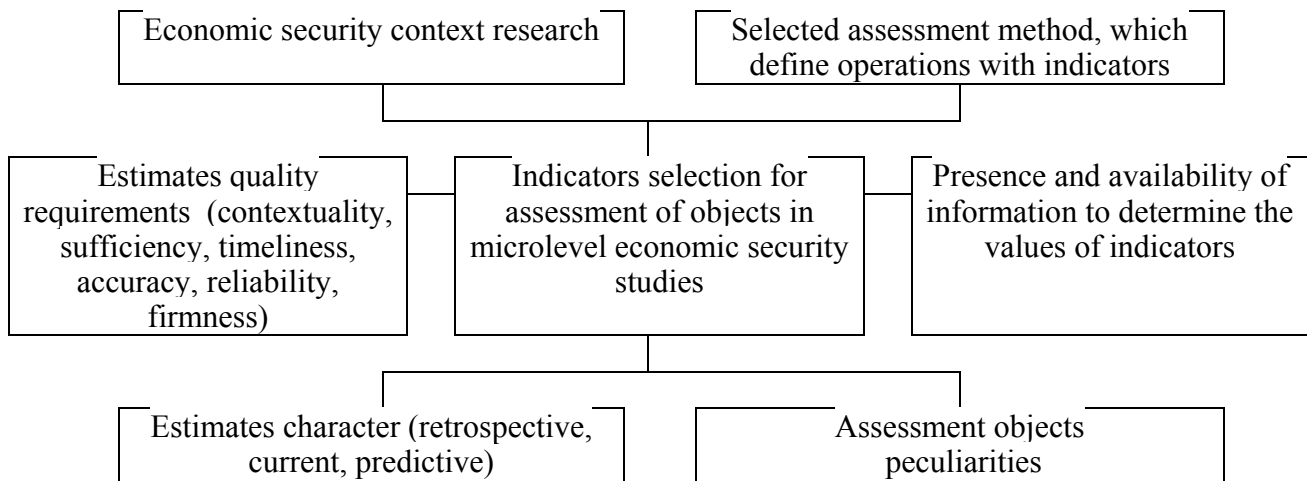


Fig. 2. Factors which determine indicators selection for objects assessment in the microlevel economic security studies

In modern studies of macro and microlevel economic security studies the most common one is the retrospective assessment. Its estimates are analytical, and they are necessary, at least because they give an idea of errors and miscalculations in ensuring economic security (of a state, region, enterprise) which is the basis to avoid them in future. Although their meaning is not limited by that. Much more important in the economic security studies are current and predictive estimates of the assessed objects. However, their obtaining is hindered by the difficulties in determining reliable values of current and predictive values of the utilized indicators and limited possibilities of the available assessment methods. Thus, the available sources of information to determine values (primary management and accounting data, expert assessment or results of certain assumptions of the enterprise specialists company) and predictive values of parameters (corresponding calculations and expert estimates) cannot be considered reliable.

Thus, the situation is somewhat paradoxical. Information and analytical assessment support has many opportunities for receiving retrospective estimates of objects in the microlevel economic security studies. Although, these estimates are low valuable for economic security of the enterprise. In order to get current and predictive estimates of objects that are essential for security providing of the enterprise, possibilities of information and analytical assessment support should be acknowledged as limited.

Limited possibilities of information and analytical support of objects assessment in microlevel economic security studies can be overcome to some extent by the reverse effect factor "assessment methods", i.e. choosing indicators grounding not on the methods used, but vice versa, when choosing (or developing) assessment methods taking into account the indicators present.

Table 2 shows the example of some of the indicators and methods of assessment in the microlevel economic security studies that are eligible for assessment in the protective context of the enterprise economic security.

There is no determination at all in the formation of the indicators list to assess objects in the microlevel economic security studies. Selection or designing these indicators depend on the characteristics of the enterprise, attitude of managers and owners of the enterprise to provide economic security, competence of specialists on economic security, the assessment scale and the use of estimates in the enterprise management.

According to the data from table 2, in order to obtain estimates in the microlevel economic studies a variety of indicators may be used. In addition, there are various methods using of which enables performing operations with indicators.

When evaluating objects in the microlevel economic studies relative ratios with diverse types of construction are mainly used. Although, evaluating objects in microlevel economic studies would not do without quality assessment indicators, despite their subjectivity and limited possibilities to obtain reliable estimates. Objective quality indicators enhancing is realized by their transformation following certain algorithms into quasi-quantitative indicators, examples of which are the object assessment in points or determining a level (usually in fractions of a unit).

Indicators to assess objects in the microlevel economic security studies
(formed by V.V. Vahlakova)

| Assessment object | Assessment character | Assessment method | Indicators |
|--|----------------------|---|---|
| The system of economic security of an enterprise | Current, predictive | Combinatorial method (analysis of combinations of indicators) | Indicators of complexity [5, p. 152–168] and system quality |
| Security providing activity | Retrospective | Combinatorial method | A large proportion of cost savings by preventing violations in the activity of an enterprise, inefficient, unprofitable decisions and actions in the total amount of savings Prevented loss coefficient (the ratio of the value of prevented loss due to the opportunistic behavior of business partners and net profit of an enterprise) Ratio of reimbursed and the company's total expenditures The expenditures share for economic security regarding total value of the company's expenditures (or the total value of the transaction expenditures of the enterprise) |
| Economic security structural unit activity | Retrospective | Combinatorial method | Prevented loss ratio, cost savings by preventing inefficient decisions, violations and expenditures on unit maintenance Business criminalization factor Ratio of detected and prevented cases of commercial information leakage |
| Threats to the activity of an enterprise | Current, predictive | Process (creating S-type graph of activation and development of a threat) | Probability of a threat realization Losses of an enterprise from a threat Spending of an enterprise on neutralizing the threat or evading it Mathematical expectation of the consequences of a threat |
| Protection objects | Retrospective | Combinatorial method | Analysis of combinations of indicators (for example, protection object "market position of an enterprise"): indicator of the intensity of competition in a market where there are products (works, services) of the enterprise competitiveness of products (works, services) of the enterprise the share of sales to solvent consumers, with whom are signed prolonged supply agreements, in total sales volume the proportion of consumers that are business partners of the enterprise in the last fifth years, the total number of consumers specialization level of the enterprise |
| | Current | Matrix method | Building of a combination of two-dimensional matrix with further estimates profiling [20]), and signature matrix [21]. Examples of two-dimensional matrix for the protection object "unique technology", "measure of uniqueness – the number of professionals who have |

| | | | | |
|--|---------------|---|--|---|
| | | | access to technology"; "measure of uniqueness – the probability of dissemination" | |
| | Predictive | Factor analysis | Determination of change in the future values of retrospective analysis indicators under the influence of selected factors | |
| Economic security of other types of activity | Retrospective | Indicator Generalization (determining complex indicator of functional subsystem by single indicators) | Taking as an example HR subsystem: the average age of workers indicator of educational level of workers coefficient of working experience at the enterprise the degree of loyalty of workers the proportion of workers who are recognized as carriers of corporate knowledge turnover of employees–carriers of corporate knowledge distribution of corporate knowledge (multiple, monopoly, uniform) the potential loss of the enterprise in firing employees–carriers of corporate knowledge | |
| | | Combinatorial | Analysis of combinations of parameters (taking as an example the marketing subsystem): intensity of competition in the market, which includes products (works, services) of the enterprise the enterprise dependency ratio from vendors enterprise dependency ratio from customers contractors' safety factor the share of enterprise products that meet the best world analogues (or surpass them) financial strength stock coefficient of market stability coefficient of elasticity of demand for goods (works, services) of the enterprise ratio of expenses dynamics on product promotion and sales volume | |
| | Current | Testing methods, conference of ideas, questions and answers, "6 – 5 – 3" | Qualitative description of economic security type (or types) of the enterprise with the following definition of quasi–quantitative indicators | |
| | | Matrix method | Building of a combination of two–dimensional matrix with the further estimates profiling [20] and signature matrices [21]. Examples of matrices for financial subsystems: "Threshold of financial security – a solvency ratio"; "Coefficient of solvency restoration – a liquidity ratio" | |
| | Predictive | Factor analysis | Determination of change in the future values of retrospective analysis under the influence of selected factors | |
| | | Matrix method | Building a two–dimensional matrix together with further profiling estimates [20], and the signature matrix [21]. | |
| | Economic | Retrospective | Indicator method (with determining of | Example of indicators: Coefficient of raw material security Ratio of the dynamics of labor productivity and labor |

| | | | |
|---------------------------|--------------------|--|--|
| security of an enterprise | | an integral indicator) | costs Financial security threshold Solvency ratio Turnover ratio The level of technological capabilities The coefficient of reliability of suppliers The coefficient of reliability of consumers Ratio of gross investment of the enterprise and investment needed for economic security The intensity of competition in the market, which includes products (works, services) of the enterprise The dynamics of the market share of the enterprise |
| | | Generalization Group index | Definition of integral indicator by comprehensive indicators (functional subsystems, the types of resources, the types of threats, etc.) |
| | Current Predictive | Testing methods, conference of ideas, questions and answers, "6 – 5 – 3" | Qualitative description of economic security of the enterprise with the following definition of quasi-quantitative indicators |
| | | Matrix method | Building of a combination of two-dimensional matrices with further estimates profiling [20] and signature matrices [21]. Example of the matrices: " The enterprise dependency coefficient from customers – coefficient of timely payments received for the products"; "The enterprise dependency coefficient from vendors – coefficient of reliability of contractors"; "Financial strength stock – profit margin" |

The indicators selected for assessment of economic security of objects define the criteria and rules for identification and verification of received objects estimates in microlevel economic security studies.

The economic security of any object is a diverse phenomenon that has no clear boundaries, so the estimates of objects in the microlevel economic security studies have to provide rather not a quantitative description of this phenomenon, but should allow managers and owners of an enterprise to have an idea of economic security of the enterprise and catch trends that are being formed, regarding strengthening or weakening of economic security and on this basis to build the security providing activity of the enterprise.

Discussion. Obtained results are useful both for assessment at microlevel economic security studies and theory and practice of managing enterprise in the context of providing enterprise economic security.

According to obtained results there can be such Future research directions as making and approving specific assessment models for considered assessment object on the base of suggested methods and indicators. This will allow finalizing suggested ideas and their implementing to the practice of management on the pragmatic level of research

Conclusions. Economic security studies are a new direction in the management science, and assessment is a very important subject area. The retrospective, current and predictive estimates of a particular object form the foundations of a decision-making process to ensure the economic security of the enterprise. The reliability of estimates in the microlevel economic security studies is achieved upon availability of a high-quality information and analytical assessment provision.

Information and analytical assessment provision in the economic security studies is designed to meet the information needs using such resources as indicators to get quality assessment of selected objects.

The objects in the microlevel economic security studies are diverse, causing a variety of indicators, using of which the selected objects estimates are formed.

The indicators selection and further operations with them using assessment methods to get the objects in the microlevel economic security studies is conducted using a number of factors. Their consideration ensures the validity of the indicators selection for the objects assessment in the microlevel economic security studies, allows avoiding randomness in the selection of indicators.

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