

Formation of System of Indicators for Assessing Threats to Economic Security of Enterprises Based on a Process Approach

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Abstract — In conditions of a dynamically developing, highly competitive business environment for the functioning of the organization, issues of ensuring economic security remain relevant. The presence of numerous threats in the internal and external economic environment requires management to systematically monitor and control them. This circumstance entails the need to develop and implement a methodological basis and methodological tools for managing economic security. In science and practice, these issues are resolved, as a rule, through the formation of a system of indicators and key guidelines that reflect the critical points of the organization. The substantiation of the composition of indicators and their systematization in order to assess possible risks is of certain scientific interest. In the economic literature there is a multivariance of author's approaches to the formation of a system of indicators. The situation is aggravated by the lack of a regulatory framework in the field of economic security of the enterprise. Currently, the component approach to the formation of a set of indicators is widely used. Its essence is to group particular indicators by type, compare them with threshold values and obtain an integral value with its subsequent gradation. The disadvantage of this approach, according to the authors, is the disparity of the projections of the grouping of indicators. The proposed process approach to the formation of indicators meets the requirements of consistency and continuity.

Keywords — *economic security of enterprises, process approach, system of indicators, threats, quantitative parameters.*

I. INTRODUCTION

The analysis of literature sources revealed the existence of several approaches to the formation of a system of indicators for assessing threats to the economic security of an organization [1–10]. Moreover, an overview of these approaches in terms of various characteristics was carried out by a number of authors. So, for example, draws attention to the work of N. B. Golovanov, in which the system, function, process, resource and causal approaches described by the following characteristics: the initial state assessment, strategic objective, the assessment tools, the nature of the evaluation [11].

I.N. Ermakova, N.B. Mikheeva and D.S. Khandogina give an overview of the approaches: indicator, resource-functional, complex, and based on the theory of economic risks [12]. The authors themselves follow a component approach to the formation of indicators for assessing threats to the economic security.

According to the authors, the above approaches have a number of features and the disadvantages arising from them:

- binding indicators to business projections: finance, human resources, technical component, ecology;
- lack of causal relationships between projection threats;
- lack of understanding of the threat development vector in the enterprise economy;

- lack of continuity of indicators for assessing threats to the economic security of the enterprise.

In this way, the purpose of the study is to formulate a system of indicators for assessing threats to the economic security of an enterprise so that the dynamics of threats at each stage of the business process are tracked.

Business, according to P. Drucker, can be defined as a process that turns external resources, namely knowledge, into external results – economic values [13].

II. RESEARCH METHODS

The process approach as a management concept was finally formed in the eighties of the 20th century. All activities of the organization, according to this concept, are considered as a set of processes. There are different definitions of a process, but the definition from ISO 9001 is usually used. “A process – set of interrelated or interacting activities that use inputs to deliver an intended result.”

The process approach allows quick resolution of problems that arise and thereby influence the result. In contrast to the functional approach, process management

allows focusing on the results of the work of the entire organization, and not each of the units separately. In this case, the process becomes the main element of the organization, since in accordance with one of the principles of this approach, the organization consists of processes, not divisions [14-17].

Consider the author's position on this issue. The first aspect is the rationale for the choice of parameters. Since the purpose of the analysis is the formation of a system of indicators of economic security from the point of view of the process approach, the main indicators should be included in the set of initial indicators, reflecting the level of resources used, absorbed costs and the final result obtained.

Based on this discussion, the resources used must include: information, fixed assets, raw materials, human resources, financial resources, management, technology; absorbed expenses – fixed and variable costs: depreciation, material costs, salary, other; to benefits – volume of sales, profit, margin, business reputation, competitiveness, active investment. The chain of relationships between these quantitative characteristics will look like this (Fig. 1).

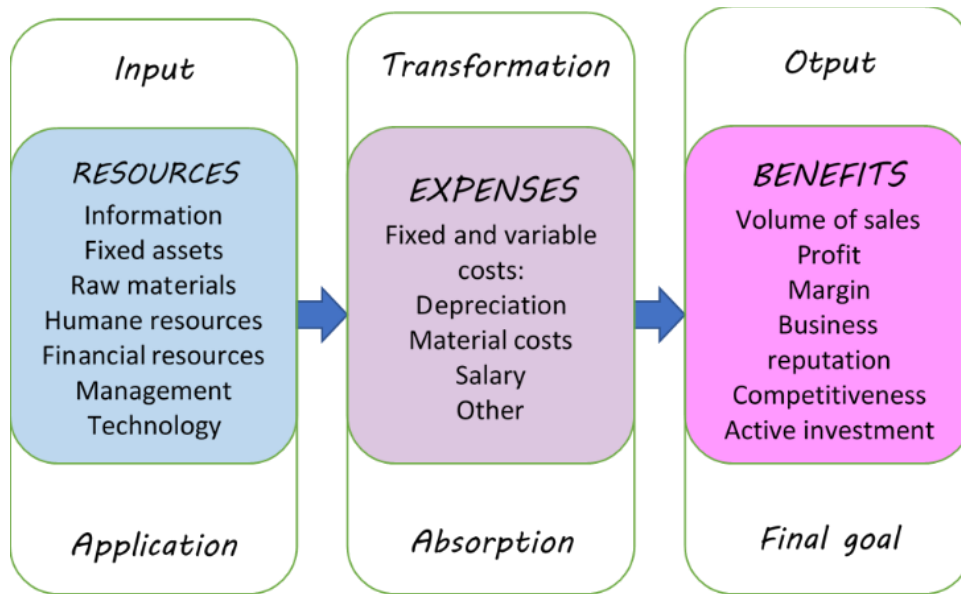


Fig. 1. The process approach to the formation of indicators

Next, we consider the process of forming direct participants in production, the resource base. Its value can be determined at a particular point in time. Expenses are temporary in contrast to resources. They can be considered as the absorption of resources by the corresponding elements of the production process.

Consequently, resources will be the starting point of expenses absorption. The end point of this process will be the educated benefits of this process. However, resources are not necessarily transformed into expenses. Costs inevitably lead to final results — positive (income) or negative (loss).

A highly competitive external environment gives rise to dangers and threats to the enterprise. A distinction should be made between understanding the definitions of danger and threat.

By danger we mean the objectively existing possibility of a negative impact, the fully recognized, but not fatal probability of harm, damage to anyone or anything from objects (factors) that have damaging properties.

The threat is considered as a concrete, vector and targeted form of danger at the stage of readiness to move from opportunity to reality.

In relation to the enterprise, the presence and degree of impact of threats directly affects the level of its economic security.

Thus, the economic security of the enterprise is a stable state of its protection from the negative impact of external and internal threats, which ensures stable implementation of the main commercial interests and goals of the authorized activities.

We can also define the economic security of the enterprise as the state of the most efficient use of corporate resources to prevent threats and ensure the stable functioning of the enterprise now and in the future.

At the same time, there may be threats to the economic security of the enterprise, which could not have been reasonably foreseen in advance. Threats that can not be reasonably predicted are risks.

The task of the system of ensuring the economic security of the enterprise is to analyze the risks of the economic security of the enterprise, to assess the degree of their impact on the activities of the enterprise and to prevent the transition beyond acceptable limits.

A deep study of numerous literary sources showed the presence of a terminological separation of dangers and threats and their consequences for business on external and internal.

As a rule, most authors define external dangers and threats as those that arise outside the enterprise. They are not directly related to its production activities, are of an indirect nature, but can cause damage to the enterprise [18]. We can include to them:

- political instability;
- macroeconomic crises, rising inflation, disturbances in the economic mechanism, imbalance in the economy, loss of markets, resources, energy carriers);
- changes in the budget, tax, financial policies, regulatory framework;
- changes in government structure;
- underdeveloped market infrastructure;
- the criminalization of society, the growth of corruption;
- unfair competition;
- illegal methods of obtaining competitive information, industrial and economic espionage;
- raiding;
- infection of various types of programs with computer viruses;

- illegal financial transactions;
- natural and technical emergencies;
- unauthorized access of competitors to confidential information;
- theft of financial assets and values;
- fraud;
- physical damage to property.

Dangers and threats of an internal nature arise directly in the processes of the enterprise. The main ones include:

- violations in labor, financial, contractual discipline;
- violation of internal standards for storing corporate confidential information;
- cooperation with unreliable counterparties and investors;
- brain drain from the enterprise;
- low staff competence;
- low intellectual property protection;
- interruptions in the operation of the funds in connection with objective factors (accidents, shutdown of energy, water, heat supply, failure of computers);
- the relationship of senior management with the criminal world;
- poor management in tactical and strategic planning, incorrect target selection, erroneous assessment of enterprise capabilities.

Threats and risks can be considered not only external and internal, but also through the prism of the process approach. The chain of resources – expenses – benefits from the point of view of protection of economic interests that we have consistently built up can be the basis for the formation of a system of indicators of economic security.

Indicators are needed to obtain information about the process and make appropriate management decisions. Economic security indicators are a set of quantitative or qualitative parameters that reflect the likelihood of threats to the process itself and its results.

The theory and practice of economic analysis has developed the basic principles for constructing a system of analytical indicators (Fig. 2) [19].

In the work of scientists about formation of a system of indicators have shown that there are some general requirements for analytical indicators are included in the system (Fig. 3) [19].

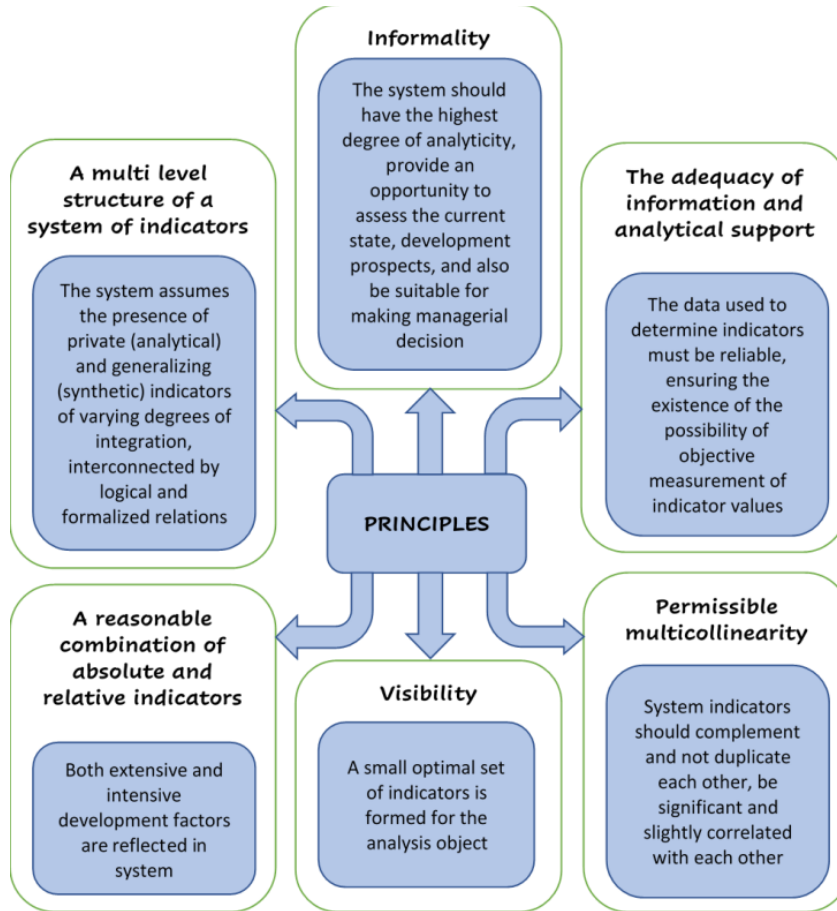


Fig. 2. The basic principles for constructing a system of analytical indicators

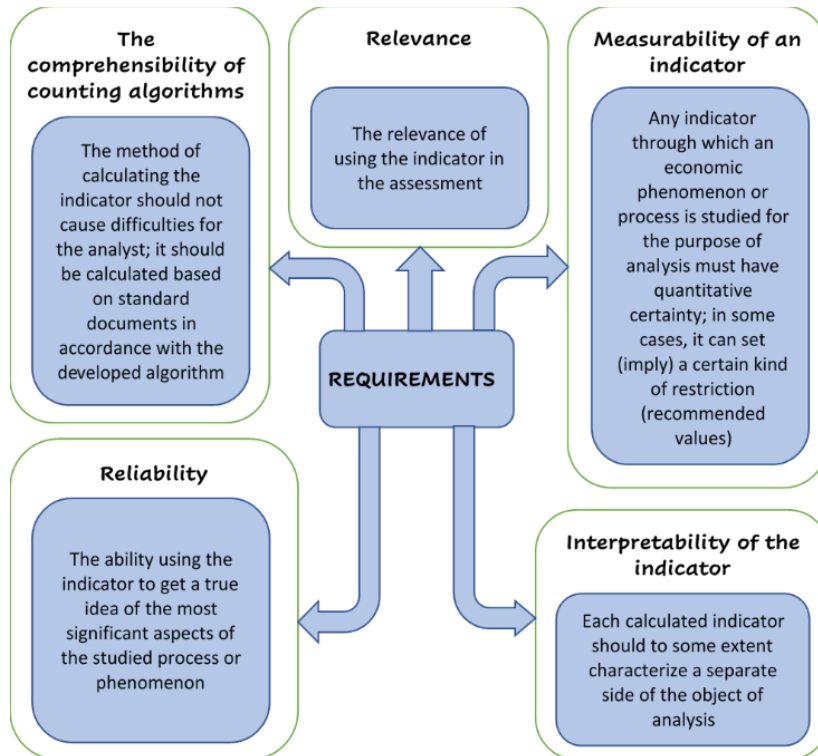


Fig. 3. General requirements for analytical indicators

III. RESULTS

The elements, which are input to the process (Fig 1), change during the execution of actions. They can be materials, equipment, documentation, various information, personnel, finances. The following indicators of economic security will correspond to them: the coefficients of accuracy, completeness and data protection, capital-labor ratio, quality indicators of raw materials (fat content, sugar content, ash content), employee qualification ratio, weighted average cost of capital, degree of automation, digitalization of processes.

Expected benefit will be the result of the process: profit, material product, various services or information. The following indicators of economic security will correspond to them: factor depreciation, capacity utilization level, material

capacity, current assets turnover, liquidity ratio, security sufficiency, staff turnover.

The elements that do not change in the process but are necessary for it are resources: equipment, documentation, finances, personnel, infrastructure, environment, etc. They will be reflected by the following indicators of economic security: product profitability, ROA, staff profitability, capital productivity, labor productivity, number of complaints, product defectiveness coefficient.

Relative to our study, the system of indicators for assessing threats to the economic security of enterprises will have the following form (Table 1). There are a huge number of threats and indicators characterizing them, and we gave only a fragment of the table.

TABLE I. GROUPING THREATS TO THE ECONOMIC SECURITY OF AN ENTERPRISE BASED ON A PROCESS APPROACH AND A SYSTEM OF INDICATORS FOR ASSESSING THEM (FRAGMENT)

Process stages	Threats	Indicators
Input	Low quality raw materials Low technical equipment of production Low staff competence infection of various types of programs with computer viruses Unauthorized access of competitors to confidential information Restriction of access to credit resources	The coefficients of accuracy, completeness and data protection Capital-labor ratio Quality indicators of raw materials (fat content, sugar content, ash content) Employee qualification ratio Weighted average cost of capital Degree of automation, digitalization of processes
Transformation	The increase in the raw waste The decrease in production output Brain drain from the enterprise Theft of financial assets and values Violations in labor, financial, contractual discipline	Factor depreciation Capacity utilization level Material capacity Current assets turnover Liquidity ratio Security sufficiency Staff turnover
Output	Decrease in effective demand Lower product quality Sales decrease Claim growth Profit reduction and profitability decline Uncontrolled growth in receivables Shortcomings in Marketing Policy	Product Profitability Return on assets Staff profitability Capital productivity Labor productivity Number of complaints Product defectiveness coefficient The growth of trust in the product and the enterprise, the growth in the number of orders

Fig. 4 illustrates a detailed diagram of the formation of a threat assessment system for an element of an enterprise's activity based on a process approach on the example of materials.

Similar schemes can be developed for each element of the process.

Each process must have subjects. The owner is a person who has the necessary resources and is responsible for the

final result of the process. Suppliers contribute to the process. Customers are interested in the results.

Each process must have subjects. The owner is a person who has the necessary resources and is responsible for the final result of the process. Suppliers contribute to the process. Customers are interested in the results.

Each of the participants can be considered in two aspects. Firstly, as a source of threats, and secondly, as a performer of the assessment, management and neutralization of threats.

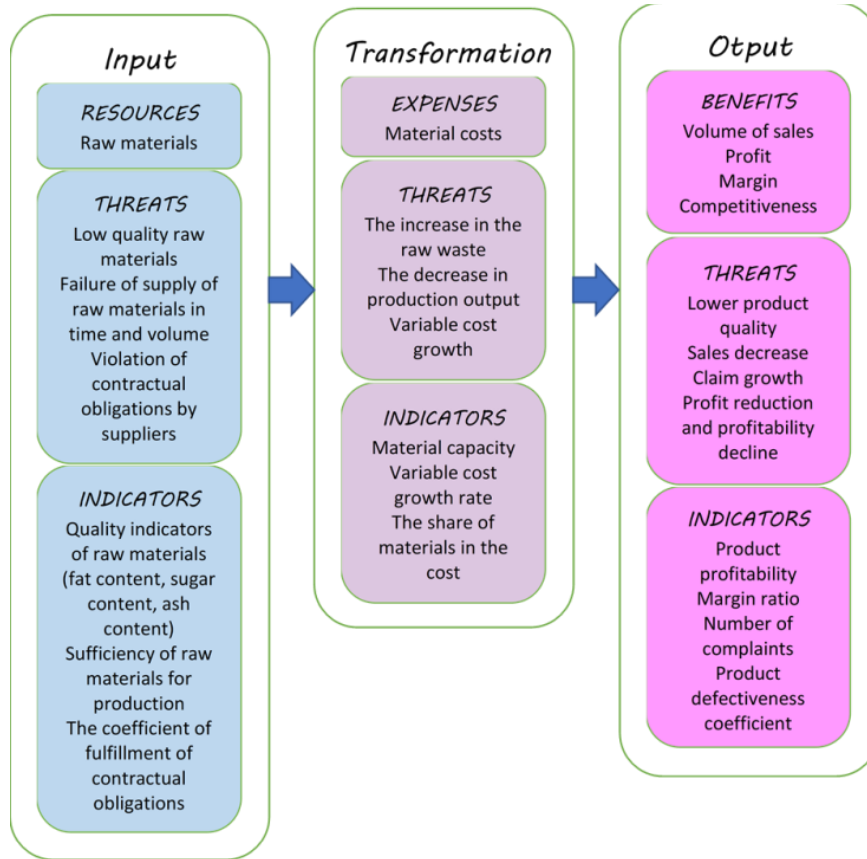


Fig. 4. Example of the formation of a threat assessment system for an element of an enterprise’s activity based on a process approach

IV. CONCLUSION

Based on the materials, the authors obtained some conclusions.

The beginning of the production process is characterized by the presence of production forces (means of labor, objects of labor, labor with its own competencies and experience) and a system of production relations (organization of production, production equipment and technology, labor and financial discipline, digitalization of processes and / or elements of the enterprise’s activity, etc.).

Financial resources are advanced in production resources, which are the material basis of production processes. Productive resources interact with labor and form the basis of production. This is how the formation of the resource base takes place. In this case, the size of the resources can be determined and fixed in a certain amount. As a rule, at the initial moment of the formation of resources, their value is recorded in volumetric (quantitative) natural and / or value meters.

Over time, the transformation of resources into the cost parameters of the enterprise. These parameters are initially in the form of costs. Therefore, we can say that the absorbed resources in the production process become costs. For some resources, absorption implies a change in their natural form into monetary, material, production, commodity, and again monetary. Other resources are absorbed with the loss of their material state. Third resources are partially absorbed during multiple production cycles. After receiving the products and

selling them, the company generates revenue. Thus, the ultimate form of resource absorption will be income.

It is possible to measure threats at each stage of the transformation of resources into costs and revenues through a system of proposed indicators.

The process approach to the formation of a system of indicators of economic security has several advantages:

- coordination of indicators within the process;
- orientation of indicators to the result of the process;
- continuity of indicators;
- reflection by indicators of increasing the efficiency and effectiveness of the organization;
- improved predictability of performance indicators;
- identifying opportunities for process improvement;
- exclusion of unused indicators;
- lack of duplication of characteristics of economic phenomena and processes;
- maximum reflection of the essence of economic phenomena.

The author’s point of view can be extended to assess threats to the economic security of enterprises regardless of their organizational and legal form and industry affiliation.

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