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RISK-BASED APPROACHES TO THE MANAGEMENT OF LARGE-SCALE ECONOMIC AND PRODUCTION SYSTEMS

Introduction. Deepening the international division of labor, increasing dynamism and increasing the scale of integration processes in the context of steadily increasing globalization of market relations and production operations, aimed at the gradual creation of a single global economic and information space, are key current trends in the world economy. The most powerful driving force of deployment and a significant consequence of these complex processes of change in the system of social production is the strengthening of the integration orientation of transformations of the corporate sector of the economy, which are not only individual large transnational conglomerates but also a wide range of other corporate enterprises. which belongs to joint-stock companies), regardless of the scope and scale of their economic activity.

For domestic corporations, the actualization of issues of participation in the process of creating integration associations, expanding and strengthening cooperation in various areas of business is further defined as the urgency of modern requirements for the accumulation of large amounts of total capital resources, increasing existing resource and production capacity and increasing innovation. investment potential, and due to the need to significantly strengthen competitive positions in national and international markets in a rapidly growing dynamic environment, as well as increase the competitiveness of goods and services produced, based on economic flexibility and adaptability, expanding the composition and strengthening the existing competitive

benefits, diversification and limitation of economic risks, etc. On the other hand, the use of significant reserves available in the field of integration cooperation to increase business efficiency, as well as the implementation of relevant opportunities to improve the organization and management of corporate enterprises, is largely determined by the economic feasibility of corporate integration associations, rational identification of potential partners. cooperation, complete consideration of the diverse set of interests of the participants in the integration process in the structural construction and functional content of the management system of the corporate association, etc.

However, even when establishing the peculiarities of development and considering the mechanisms of functioning of various organizational and economic forms of integration associations among scientists, there is no consistency of opinion on the economic nature of the phenomenon of corporate cooperation and on determining the prerequisites for integration of corporate enterprises.

However, it should also be noted that both given the conscious limitation of the completeness of the classification approach by a simple list of forms of integration can not be sufficiently considered the whole complex range of characteristics and features of different integration associations, and when used in this context excessively extensive system. artificial features of inevitable smoothing of significant frameworks and boundaries, which determine the relevant differences between



different types of integration associations, which, in turn, also determines the need for further deepening of scientific substantiation of ways to intensify integration processes in the corporate sector of the national economy.

Analysis of the latest research. The issue of risk-based management of large-scale economic and production systems has attracted the attention of many foreign and domestic researchers in recent decades, as the development of the global economy, the digitalization of production, and the complication of production chains lead to an increase in the level of uncertainty and risks in the activities of enterprises.

Masuda Y. et al., consider a risk management model for the digital transformation of a large enterprise: they propose strategies for mitigating risks with IT/Big Data, which is useful for understanding risks in large-scale systems [3].

The author Wang Z. analyzed operational risks that arise during the digitalization of enterprises and proposed strategies for their minimization – this provides a modern context for risk-based management [9].

Abernikhina I. considers the issue of integrating risk management into the enterprise management system, comparing international standards (ISO 31000, COSO ERM) and offering adapted models for the Ukrainian business environment. In such works, the authors substantiate a systematic approach to combining quantitative and qualitative risk assessment tools, scenario analysis, and simulation modeling to increase the predictability of management decisions [4].

Thus, the risk-based approach (ROP) is considered as a basic mechanism for increasing the stability of production systems and occupational safety management. In particular, the study by Zdanovsky V. et al. is devoted to the application of ROP in production factors in order to increase the effectiveness of occupational safety management systems; the author emphasizes the need to integrate professional risk management into the functioning of the OHSMS of enterprises [7].

Thus, the analysis of scientific sources shows that risk-based management of large-scale economic and production systems is based on a combination of economic theories, systems analysis, mathematical modeling, and modern digital technologies. The research of scientists forms a theoretical and methodological basis for the development of effective management decisions in complex multi-level structures that operate under conditions of high uncertainty and dynamic changes.

The goal of the work. The aim of the study is to substantiate risk-oriented approaches to managing large-scale economic and production systems, with a focus on identifying and systematizing key risks, determining their impact on the resilience and operational efficiency of enterprises, and developing an integrated approach to implementing risk management within corporate governance.

Presenting main material. The extreme variety of forms of formation and peculiarities of functioning of

associations of enterprises is available in modern economic practices due to the breadth of the range of motives and goals of intensification of integration processes, the sources of which may be market (strengthening of competitive positions of participants through combination of marketing opportunities and joint sales channels). counteraction to unfair competitive actions, streamlining and expanding the range of aggregate product offer, etc.), production and cooperation (concentration of production capacity, pooling of resource base and synergy of key competencies in the context of forming the whole chain of new value creation, investment (increase of scientific potential and strengthening of scientific and technical basis of innovative activity, increase of ability of members of association concerning accumulation of large volumes of investment resources, facilitation of access to external sources of financing, etc.), organizational and managerial (ensuring systematic focus, effective coordination and coordination of joint actions in various areas of management, etc.), institutional (focus on minimizing transaction costs through the development of non-market mechanisms of economic cooperation). and maintaining mutual trust) the nature of the origin. In this case, despite the above and organized extremely wide and diverse range of forms of enterprise associations, organizational and economic regulation of structural and functional construction and legal regulation of the vast majority of the considered business integration structures is carried out in the form of corporate entities (corporations and business associations).

The corporation as a way of organized collective human activity should, obviously, be considered one of the oldest and most ingrained in the context of civilizational development of mankind practices. The initial attempts to create an organized human unity, based on the relationship of equity participation in the lease of *latifundia*, usually date back to ancient Greece. The very etymology of the term «corporation» is usually associated with the Latin term «*corpus habere*», which was widely used in Roman law to identify the legal status of a group of people, whose community was primarily based on the pooling of property contributions. However, unlike the individual («*persona*»), the legal capacity of such legal entities in Roman law was to some extent limited ([1; 2; 6]): corporations enjoyed their own (separate from the founders and participants) rights and had to bear their own responsibility, but the exercise of these rights and responsibilities (capacity) could take place only through individuals (the same members of the corporation).

Later, the use of such collectives spread to a much wider range of not only economic but also spiritual, religious, professional and other associations, which gives good reason to link the origin of the concept of corporation with the late Latin «*corporatio*» (that is, «union», «union»). In recent times, after the collapse of the Roman Empire, the principles of corporate governance in various spheres of human interaction were trans-

ferred to the social practices of medieval European states in conjunction with the preservation of the general principles of Roman law. Later, with the beginning of the New Age, the rapid development of trade corporate organizations and associations was closely linked with the organization and implementation of equity relations in the development of open new lands.

At the same time, the fundamental difference between the new trading corporations of the era of the Great Geographical Discoveries was to some extent overcoming the isolation inherent in medieval corporate unions and unions, which was caused by the desire to restrict access to trade secrets and opportunities. The industrial revolution, in which there was, on the one hand, the rapid growth of social opportunities for large-scale production of useful goods and services, and on the other – increased urgency to accumulate for this purpose huge amounts of financial and investment capital, led to the final formation of this phenomenon corporate organization of the joint-stock type, which is currently the basis of the modern world economic system. In the organizational and legal sense, the corporation (of course, given the significant differences in the regulatory framework and regulatory framework in this matter in the continental and Anglo-Saxon legal systems and traditions) is considered a company (ie, a special type of enterprise based on participation, participation). unification of individual efforts and capital, separation from the corporation of its founders and members, independence and autonomy in management, etc.).

Thus, the very phenomenon of the corporation is based on orderly features and properties that primarily characterize and determine the principles of construction and general principles of collective activity and cooperation of people in the direction of achieving jointly recognized and jointly defined goals, common interests and others. In this case, the corporation as a somewhat united and structured human community is determined by the specificity of the content of the approach to streamlining the interaction of founders and participants, which allows us to consider such an entity as a special type of organizational group. In particular, the following features and properties should be considered characteristic of the corporation and corporate relations: the use of participatory relations to streamline cooperation and interaction of participants; legal separation and property separation of the company from its members; full general legal capacity and administrative independence, which are manifested in the emergence of a wide range of rights and obligations of the company as a legal entity, completely separated from the founders; separation of powers arising from the possession of corporate rights (shares in the capital of the company), and management functions; the presence of a separate management vertical to represent the interests of owners in the organizational structure and in the highest governing bodies of the corporation; voluntary transfer by participants of a share of their own rights and powers at the disposal of the corporation, etc.).

It should be noted, however, that the peculiarity of the importance and scale of corporate representation in the modern global system of economic relations determines the extraordinary expansion of the basic (system-forming) content and significant diversity of identification of corporations in the general context of public relations. Thus, the generalization of the existing theoretical provisions for establishing the essence of the concept of «corporate organization» or «corporation», allowed the author to identify such approaches that exist to address this issue.

First, the corporation as a specific form of organized identification of the sign of social unity of people. The scope of this approach extends far beyond specific economic entities (economic organizations), which are considered only a separate type of organizational support for the community of individuals and groups of individuals, united by a sense of homogeneity of interests, values and goals, which, in turn, serve as a basis for formation of coordinated and agreed models and strategies of collective behavior in the direction of approximation to achieve mutual benefit and realization of common expectations. Important and characteristic of this approach is the consideration of corporate organization as an integral part of the social system, the fundamental principles and basic principles of which are manifested in the creation of a standardized corporate form of organization of economic relations of the whole community in the direction of organic inclusion of such productive individual and collective cooperation in the general context of life support and development. Thus, the corporate organization is considered to be a certain connecting institutional link of relations both at different levels of building a system of social relations and between phenomena and processes unfolding at these levels (the institutional nature of such a combination is to standardize and streamline socially recognized practices and approaches for use in the regulation of economic relations). At the same time, the implementation of the institutional function of the corporation is carried out in the opposite direction: on the one hand, in terms of integrating a possible wide variety of acts of human economic interaction through unification (within corporate requirements) of economic activity in the most general context of the existing social order; and on the other hand – in the direction of development, implementation and implementation (through appropriate improvement, standardization and simplification of the used norms and rules of regulation of economic interaction) more perfect, adequate and appropriate to the realities of economic life, mechanisms of economic relations.

Second, the corporation as an integrated business structure. Under this approach and in this case, the economic space of economic interaction is considered as a set of inextricably linked and intertwined segments, which use alternative in nature modes of resource allocation – market and administrative. In this case, the above institutional function of the corporate organization receives a more significant economic content and

acquires a new meaning, which is to increase the flexibility of the economic system of the economic mechanism of society, within which there is the formation of two ways of economic relations: market, optimal use of resources; which, however, may be accompanied by the emergence of significant amounts of unproductive transaction costs and limited opportunities for social regulation in the distribution of total wealth (see, O. Williamson [5], E. Furubotn and etc.); corporate, which is a set of localized economic entities, the internal economic structure of which is based on administratively managed redistribution of resources (subject to the requirement of voluntary transfer of participants' rights and powers to the corporation), but economic interaction between them occurs through the use of market mechanisms. Thus, corporate organizations (corporations) in the economic (interaction of non-coercive-market and centralized-administrative redistribution of resources) and structural (interpenetration of components of the economic mechanism, differing in the principle of construction - decentralized-voluntary for markets or hierarchically-functional for enterprises) aspect represent a certain extremely mobile link between the market-economic and administrative-organizational spheres of the economic system of society. Within this approach, to some extent embodies the specific corporate ideology of economic convergence of different economic mechanisms (market and administrative), initiated in the classic works of A. Burley and J. Mins [8], D. Kotz [10] etc.

Third, the corporation as an organizational and legal form of collective business organization. The emergence of such a view of the genesis and patterns of nature of the corporation in the capitalist economy is inextricably linked with one of the most important features of corporate organization, which is the separation of ownership and management. The growing needs of enterprises in capital resources needed to create a technologically complex and technically cumbersome industrial production base, as well as a significant increase in requirements for knowledge and innovation of the final product almost made it impossible to continue economic activity on the basis of purely private capital. Similarly, an excessive increase in the variety of management and professional decisions related to the current activities and strategic prospects of enterprise development, determine the need to strengthen the professional leadership of corporations. At the same time, gradually (in the context of identifying these trends) there was a development of deep transformations of the content of social and labor relations, in which the increasing needs of modern post-industrial society in creative saturation and professionally specialized filling of productive employment of employees gradually reflected in partial labor, with the spread of the use of collective forms of joint investment, participation in capital, etc. In this context, the economic functions of the corporation as an extremely effective organizational form of flexible support and mutually beneficial support of economic cooperation have been further identified through expanded

inclusion, on the one hand, in the structure of the investment mechanism of capital formation and reproduction. the sphere of relations between the owners of the means of production and employees. Moreover, in both cases, corporate organizations acted as a powerful integration basis for updating and revising the organizational and economic foundations of collective entrepreneurial activity through the acquisition of acts of interaction of a wide range of participants in economic activity aimed at achieving common compromise goals, coordination and balancing of different interests and implementation. mutually beneficial cooperation (as opposed to the purely private business's narrow focus on individual satisfaction of the requirements of capital owners, increased exploitation of employees, neglect of social needs, etc.).

Fourth, the corporation as a form of organization of specific joint-stock relations based on membership (participation). The implementation of expanded functions and the implementation of new tasks of corporate entities in the system of transformation of social relations to some extent determines the need to revise the content and features of structural and organizational structure and economic mechanism of corporations. At the same time, the ability of the corporate internal economic system to flexibly balance the interests and aspirations of not only shareholders and staff, but also a wide range of people interested in the development of the corporation (the state) acquires much more importance (relative to the traditional conditions of industrial technology), consumers, suppliers, contact audiences, etc.). The corporation acts as a quasi-market for the distribution and redistribution of corporate control, ie the ability to influence management decisions on the distribution and use of resources available to these groups. Such a quasi-market, initially formed by balancing the capital contributions of the corporation's members to the formation of its property base, is further developed through the involvement and subordination of the mechanism of corporate regulation of the diversified influence of stakeholders. The effectiveness and functionality of this type of corporate cooperation is almost crucially determined by the openness and transparency of the procedures for distribution and redistribution of shares of corporate control as objects in the domestic quasi-market (on the same basis as in the real market relations). Under such conditions, the traditional joint-stock form of the corporation (usually characterized by the maximum level of manifestation of the previously noted advantages of the corporate organization) also acquires a new functional content, which is to form a reliable (recognized as appropriate and meets the expectations of participants) basis of corporate cooperation.

Thus, in modern conditions, the formation and development of a joint stock company to ensure the performance of a wide range of important social functions and full realization of economic benefits of a joint stock corporation involves the formation and support of a special type of connection, which is characterized by integration aspects of construction and operation: as a

public or social contract; as a manifestation of human unity; as a way to identify common interests; as an integration form; as an organizational and legal form; as an organizational form; as a legal construction; as a form of capital pooling.

On the other hand, it should be noted that the generalization of theoretical provisions for determining the nature and content of the category «integration» allows to identify the presence of signs of corporatism in the context of integration processes (Table 1).

Table 1. Identification of signs of connectivity in theoretical approaches to identifying the essence of corporate integration processes

Approach to defining the essence of integration	An approach to defining the essence of a corporate organization	Corporate aspect of integration implementation
Integration as a certain state of connection of parts of a whole	Corporation as a form of organized identification of the sign of social unity of people	Corporate typification of economic interpersonal and collective relations as a component of ordering and structuring the social system
	Corporation as an integrated business structure (association of enterprises or capital)	Execution of the institutional function of combining and supporting the interaction of market-economic and administrative-organizational spheres of the economic system of society
Integration as a combination of focus on the whole and the process of creating the whole	Corporation as an organizational and legal structure of the organization of collective entrepreneurial activity	Ensuring the focus of integration on achieving common compromise goals, coordination and balancing of divergent interests, implementation of partnership mechanisms and mutually beneficial cooperation
	Corporation as a form of organization of specific joint-stock relations based on membership (participation)	Formation of a proper and adequate to the expectations of the participants basis for the integration process of cooperation based on the distribution and redistribution of corporate control

Source: author's development

Thus, the consideration of integration as a certain state of connection of parts of the whole in the context of institutional tasks of the corporate organization is based on the unification of functional and procedural aspects of interaction of integration processes, which due to increasing unification and typification as key in terms of integration dynamics properties and characteristics of these entities (internal structure, modes of operation, the order of inclusion in economic life, etc.), and in relation to the recognized rules of cooperation (institutional aspect of the management mechanism), allows to achieve a closer relationship and a high level of homogeneity relations. Ensuring the organic combination of target orientation to increase the integrated closeness of interaction of subjects in the process of formation and development of economic structure of society is achieved through flexible interpenetration of market (economic relations based on voluntary participation of subjects in trade using a price mechanism based on balancing supply and demand) and administrative-organizational (actually a corporate organization based on the use of a certain level of coercion in terms of the manifestation of volitional principle in the internal allocation of resources) ways to achieve jointly established and freely recognized goals, which are the general basis for collective entrepreneurial activity. The emergence of integrated integrity as a certain stage, the result of integration dynamics involves the creation of an orderly system of a wide range of relations (economic, social, industrial, cultural, etc.), within which based on established rules and procedures governing conditions of participation and acts of interaction stability in joint activity, stability of functioning and stability of development of the corporate formation constructed thus can be reached.

Thus, the management of corporate integration processes involves the need to justify, make and implement management decisions, which are determined by different levels of identification of the following parameters (Fig. 1): strategic orientation in the decision-making process and extremely high cost of management decisions, implemented by the company, will be aimed at solving the most long-term development challenges and associated with the implementation of large amounts of investment); great importance of new competitive advantages and new competencies (related to the implementation of the desire to create original new opportunities to strengthen competitive positions, ensuring the formation of innovative competencies); variety of conditions for determining the forms of interaction with other subjects of economic relations (usually related to a limited range of the most fundamental decisions on streamlining the composition of partners in corporate integration and establishing forms of cooperation).

Determining the parameters of acceptance and implementation of the space of acceptance and implementation of management decisions in corporate governance of integration development of associations of joint stock companies allows to form a basic description of the key features of this process (Table 2).

The key guideline and basic requirement for the implementation of the described approach to building a mechanism for corporate governance of integration development of associations of joint stock companies, focused on solving problems of increasing synergetic and emergent properties of integration association, is to deepen economic localization of economic relations within the achieved new quality unity.

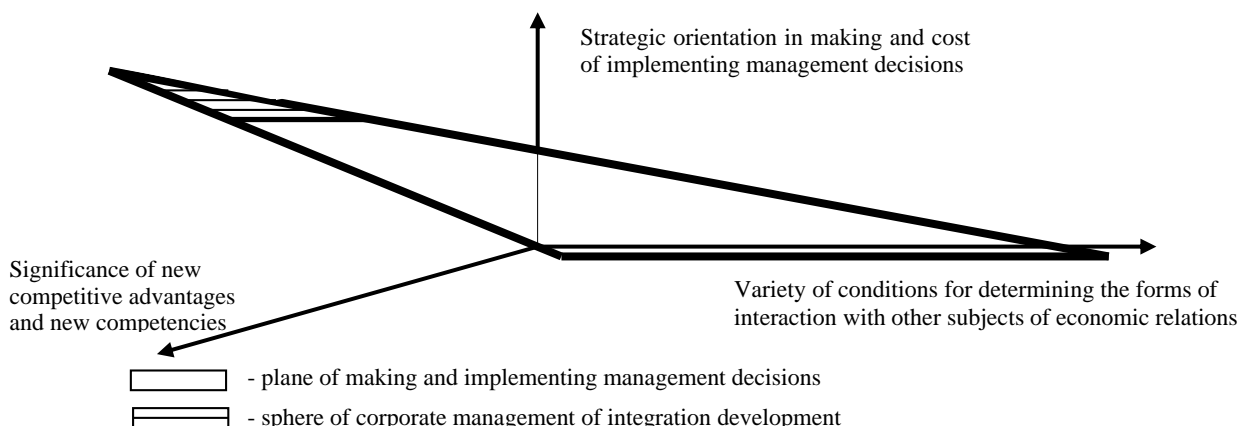


Fig. 1. Sphere of management decisions at corporate management of integration development of associations of joint-stock companies

Source: author's development

Table 2. General characteristics of corporate governance of integration development of associations of joint-stock companies

A sign of the management process	Characteristics of corporate management of integration development of associations of joint-stock companies
Goal	Formation within the perspective balance of property rights of the group portfolio of competencies of the association of joint-stock companies to achieve a dynamic increase in the return from obtaining strategic complementarity of competencies
Object	Regular activities to increase the synergetic and emergent properties of the integration association
Subject	Corporate mechanisms of management of integration processes considered through definition of interrelation of the mechanism of corporate integration with other mechanisms of management of association of joint-stock companies (mechanisms of corporate management, strategic management of integration association, innovation and integration development, reflective harmonization of corporate cultures processes, implementation of the program of transformations and overcoming resistance to organizational change)
Subjects	The highest governing bodies of the corporation, shareholders, staff, potential partners in integration
Principles	Local rationality and organization
	Relative value of resources
	Unity of socio-cultural space
	Complementarity of competencies
	Impact balancing
	Self-reproduction
	Free choice of behavior
	Cooperation and clarity of interest
	Imperativeness of individual behavior
	Sufficient variety of incentives
	Minimization of externally systemic contradictions
	Protection of property rights
	Minimize the cost of maintaining competencies
	Distributed democracy
Reproductive balance of resources	
Emergence	

Source: author's development

Conclusions. The peculiarity of the importance and scale of representation of corporate organizations in the modern global system of economic relations determines the extraordinary expansion of the basic (system-forming) nature of content and a significant variety of identifying features of corporations in the general context of public relations. At the heart of the corporation's phenomenon are orderly features and properties that primarily characterize and determine the principles of construction and general principles of collective activity and cooperation of people in the direction of achieving jointly recognized and jointly defined goals, ensuring common interests and others.

The most significant differences between the forms of integration and the types of integration entities are re-

lated to the identification of the following features and characteristics: the degree of voluntariness of the unification procedure; conditions of the integration procedure; common contours of information exchange and reporting; types of resources involved in joint activities.

Management of corporate integration processes involves the need to justify, make and implement management decisions, which are determined by different levels of identification of the following parameters: strategic orientation in the process of making management decisions and extremely high cost of management decisions. investment); great importance of new competitive advantages and new competencies (related to the implementation of the desire to create original new opportunities to strengthen competitive positions, ensuring the

formation of innovative competencies); variety of conditions for determining the forms of interaction with other subjects of economic relations (usually related to a limited range of the most fundamental decisions on streamlining the composition of partners in corporate integration and establishing forms of cooperation).

The formation and development of a joint stock company to ensure the implementation of a wide range of important public functions and full realization of economic benefits of a joint stock corporation involves the formation and support of a special type of connection, which (in the context of these approaches) is the following integration aspects of construction and operation: as a public or social contract; as a manifestation of human unity; as a way to identify common interests; as an inte-

gration form; as an organizational and legal form; as an organizational form; as a legal construction; as a form of capital pooling.

The motivational basis of corporate integration development is determined by a clear focus on creating new competitive advantages and improving the emergent properties of the participants in this process, between which within this kind of interaction there is a special relationship. Thus, the content and direction of corporate integration is to localize economic relations of entities engaged in cooperation, in the direction of creating a certain (limited by selected rules and regulations; structural construction of supply chains; personal preferences of decision makers, etc.) economic space of interaction, partially separated from the system of market relations.

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Hutsaliuk O., Bondar Iu., Mankuta Ya., Ostapenko O. Risk-based approaches to the management of large-scale economic and production systems

The article examines the theoretical and methodological foundations of applying risk-oriented approaches to the management of large-scale economic and production systems. It substantiates the need to shift from traditional management models toward dynamic tools that enable proactive identification, assessment, and mitigation of risks within complex industrial and economic structures. The study analyzes the classification of risks characteristic of such systems and their impact on resilience, operational efficiency, and strategic controllability. A methodological framework for integrating risk management into corporate governance is proposed, incorporating multi-level risk diagnostics, scenario modeling, early-warning systems, and adaptive planning instruments. Special attention is given to the use of digital technologies, including decision-support systems, big data analytics, and intelligent forecasting models, which enhance the accuracy of risk assessment and ensure system stability under uncertainty. The article presents the results of applying the risk-oriented approach to large-scale production complexes, demonstrating increased adaptability, reduced operational losses, and improved strategic flexibility. It is concluded that the implementation of risk-oriented management approaches is a key prerequisite for the effective development of economic and production systems in a turbulent contemporary environment.

Keywords: risk management, large-scale economic and production systems, risk-oriented approach, management efficiency, digitalization, uncertainty, adaptive planning, meta-management.

Гуцалюк О. М., Бондар Ю. А., Манькута Я. М., Остапенко О. В. Ризико-орієнтовані підходи до менеджменту великомасштабних економіко-виробничих систем

У статті розглянуто теоретико-методологічні засади застосування ризико-орієнтованих підходів до менеджменту великомасштабних економіко-виробничих систем. Обґрунтовано необхідність переходу від традиційних моделей управління до динамічних інструментів, що забезпечують проактивне виявлення, оцінювання та мінімізацію ризиків у складних виробничо-економічних структурах. Проаналізовано класифікацію ризиків, характерних для таких систем, а також їхній вплив на стійкість, ефективність та стратегічну керованість. Запропоновано методичний підхід до інтеграції ризик-менеджменту в систему корпоративного управління, який включає багаторівневу діагностику ризиків, сценарне моделювання, системи раннього попередження та інструменти адаптивного планування. Особлива увага приділена використанню цифрових технологій, зокрема систем підтримки прийняття рішень, аналітики великих даних та інтелектуальних моделей прогнозування, що дозволяють підвищити точність оцінки ризиків і забезпечити стійкість функціонування системи в умовах невизначеності. Представлено результати апробації ризико-орієнтованого підходу на прикладі великомасштабних виробничих комплексів, які засвідчили зростання їхньої адаптивності, зменшення операційних втрат та підвищення стратегічної гнучкості. Зроблено висновки, що впровадження ризико-орієнтованих підходів є ключовою передумовою ефективного розвитку економіко-виробничих систем у сучасному турбулентному середовищі.

Ключові слова: ризик-менеджмент, великомасштабні економіко-виробничі системи, ризико-орієнтований підхід, ефективність управління, цифровізація, невизначеність, адаптивне планування, мета-менеджмент.