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MODERN RISK MANAGEMENT TECHNIQUES

The increase in the rate of system-wide impact of negative risks on the activities of organizations in the global economy obliges top management to form an industry-oriented approach to risk management. This study is devoted to the adaptation of a conservative approach to risk classification, the analysis of world experience in the use of tools to combat the impact of risks on the activities of enterprises, as well as the formation of a primary approach to the implementation of a comprehensive methodology-risk management, taking into account the Russian specifics of doing business.

Keywords: risk management, risk management techniques, risk management tools, efficiency assessment, economic and financial stability, identification and assessment of risks.

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СОВРЕМЕННЫЕ МЕТОДИКИ УПРАВЛЕНИЯ РИСКАМИ

Увеличение темпов общесистемного воздействия негативных рисков на деятельность организаций в мировой экономике обязывают топ-менеджмент формировать отрасле-центрированный подход к управлению рисками. Данное исследование посвящено адаптации консервативного подхода к классификации рисков, анализу мирового опыта применения инструментов борьбы с воздействием рисков на деятельность предприятий, а также формированию первичного подхода к внедрению комплексной методики-управления рисками с учётом Российской специфики ведения бизнеса.

Ключевые слова: риск-менеджмент, методики управления рисками, инструменты управления рисками, оценка эффективности, экономическая и финансовая устойчивость, идентификация и оценка рисков.

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In the context of the modern global economy, increasing geopolitical challenges and sanctions pressure on the sovereign economies of countries, risk management is becoming one of the key tasks for organizations seeking to maintain stability and competitiveness in the face of increasing uncertainty. The rapid pace of changes in the technological and information spheres, the integration of global markets and supply chains, as well as the emergence of increased severity of threats such as cybercrime and sanctions pressure, make traditional risk management methods insufficient for an effective response. The transition to more flexible and adaptive approaches in risk management is becoming an urgent requirement for companies, regardless of the cluster economy.

The development of risk management methods reflects the need for continuous adaptation to changing conditions. New tools, such as the use of artificial intelligence, big data technologies and blockchain, represent innovative solutions that allow not only to predict and mitigate potential threats, but also to identify new opportunities for growth and strengthening market

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positions in a timely manner. Modern approaches to risk management are based on a combination of quantitative and qualitative methods that provide a comprehensive understanding and assessment of risks. tools to avoid the emergence of new risks that have not yet been studied. Despite the wide range of modern techniques, their practical application is impossible without relying on basic theoretical foundations, including classical and modern concepts that reflect the evolution of approaches to risk management. It is worth considering both the scientific and practical novelty of these tools and taking into account the fact that they cannot be used in critical sectors of the economy.

When realizing the need to apply a radically new approach to risk management, it is necessary to achieve a harmonious combination of traditional methods and innovative tools in order to avoid the emergence of new risks that have not yet been studied.

The purpose of this article is to study modern risk management techniques and analyze their applicability and adaptation for practical use in an increasingly complex environment. The main tasks include the systematization and comparison of modern approaches to risk management, the study of the role of insurance in risk management processes, as well as the formation of the concept of a primary systematic approach to risk management, taking into account the capabilities of Russian business.

The modern approach to risk management is based on many years of scientific research and a variety of theoretical approaches that have formed the foundation for the development of effective methods and tools. Understanding the nature of risks, as well as their classification and methods of quantitative and qualitative assessment are key aspects that determine the choice of strategies and tactics in risk management.

To form a reference classification, in Table 1, we will display one of the first risk classifications presented by J. M. Keynes, which, despite its historical value, still serves as the foundation for the formation of modern approaches [1].

Table 1 – Classification of risks indicated by J.M. Keynes

Structural element of the classification (risks are subdivided)	Classification components
By the factor of occurrence	internal
	external
By the factor of insurance	insured uninsured
	insured uninsured
By the nature of the impact on the result	speculative
	net
By the level of financial losses	permissible
	critical
	catastrophic
By the factor of foresight	predictable
	unpredictable (force majeure)
By duration of exposure	permanent
	temporary
By areas of occurrence	political
	social
	environmental
	commercial
	professional

Figure 1 shows the author's synthesis of the Keynes classification, adapted to modern realities. The example takes into account new categories of risks caused by the changing technological and economic environment, examples are given for each type of risk, which makes the classification more visual and practically applicable (if necessary, the data can be displayed in the AVACOR software for internal audit).

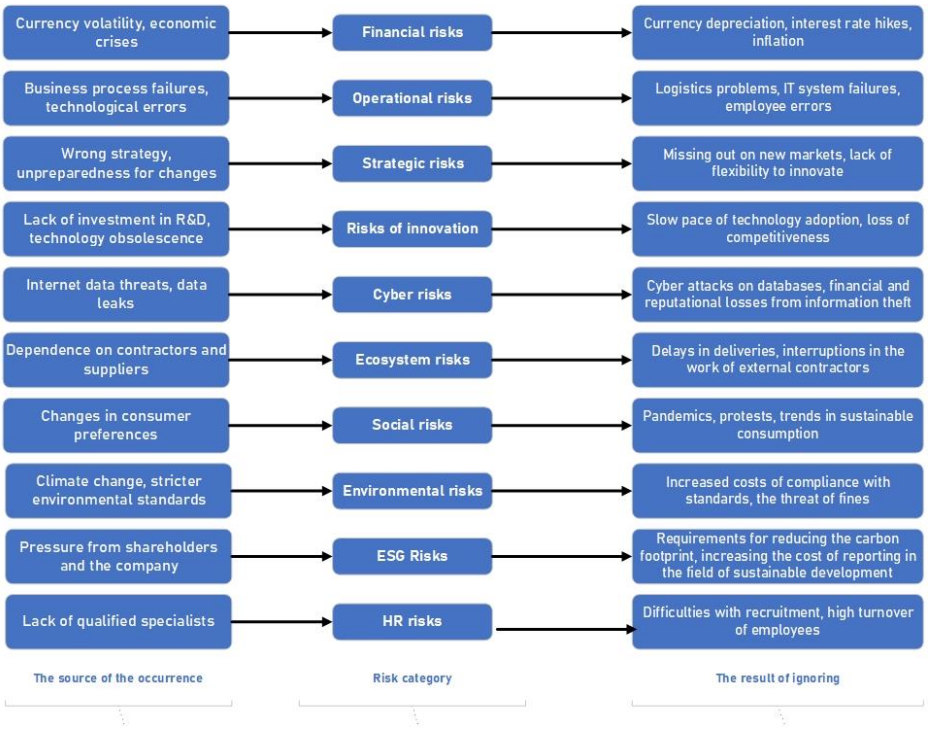

Figure 1 – Authors' adaptive risk classification

The modern approach to risk management includes a variety of methods, which are divided into quantitative, qualitative and combined approaches. In table 2, compiled by the author on the basis of [2], [3], we present the main approaches to risk management that allow organizations to navigate the choice of methods depending on the nature of the risk and its source.

Table 2 – Main approaches and methods of risk management

Approach	Methods	Short description
Quantitative methods	Value-at-Risk (VaR)	They are used to quantify and predict financial losses
	Scenario analysis	
	Analysis of probabilistic distributions of payment flows	
	Decision tree	
	Monte Carlo method (simulation)	
Qualitative methods	The Delphi method	They are focused on expert assessments and analysis of factors affecting the organization
	SWOT analysis	
	Hierarchy analysis method	
Combined approaches	Stress testing	A combination of quantitative and qualitative assessments to model different scenarios
	Integration of artificial intelligence and big data algorithms	Reconciliation of artificial intelligence computing power for risk analysis and identification

Quantitative risk accounting methods involve the use of complex mathematical models and algorithms, which makes them the most suitable for use in the risk management of large organizations with high volumes of data and complex processes. Nevertheless, certain elements of these methods, such as calculating the break-even point and analyzing sensitivity to changes in individual factors (for example, sales volumes), can be successfully applied in small businesses.

To simplify these calculations and improve their accuracy, software products such as Project Manager have appeared on the market, which allow analysts to effectively simulate various scenarios, thereby expanding the availability of advanced risk management tools for enterprises of different scales.

Qualitative risk management methods are based on expert assessments, analysis of experience and intuition, which makes them especially useful in conditions of limited data and the need for quick decision-making. These methods are applicable to companies of any size,

as they require fewer resources for analysis and do not depend on complex computational processes. However, their effectiveness often depends on the competence and experience of specialists, as well as on the availability of data for comparative analysis.

Combined methods combine quantitative and qualitative approaches, which makes it possible to take into account both objective numerical indicators and subjective expert assessments. Such methods are especially useful for medium-sized and large organizations, where a comprehensive risk assessment is required with the possibility of modeling various scenarios. The combined approach provides a more flexible and accurate risk analysis, allowing both quantitative factors (for example, the probability of losses) and qualitative aspects (for example, reputational risks) to be taken into account. Modern software products such as RiskWatch and Risk Manager include functionality for combined analysis, facilitating the integration of qualitative and quantitative data into the risk management process.

At the time of the analysis, the use of artificial intelligence (AI) in risk management is extremely controversial. The relationship between risk management and AI regulation is critically important to ensure the stable and safe development of technologies. The experience of the leading countries (Figure 2) shows how different the approach to the implementation of AI models can be [4].

Figure 2 – Global regulation of artificial intelligence

Models based on the use of AI algorithms can generate absolute new risks caused by the following factors: fundamental errors (code error), which can lead to incorrect calculations and forecasts; lack of information and historical precedents in the training dataset can lead to a violation of the accuracy of the output data.

The use of generative artificial intelligence capabilities in risk management is a less popular approach for implementation into the business process (8% of organizations use it) [5].

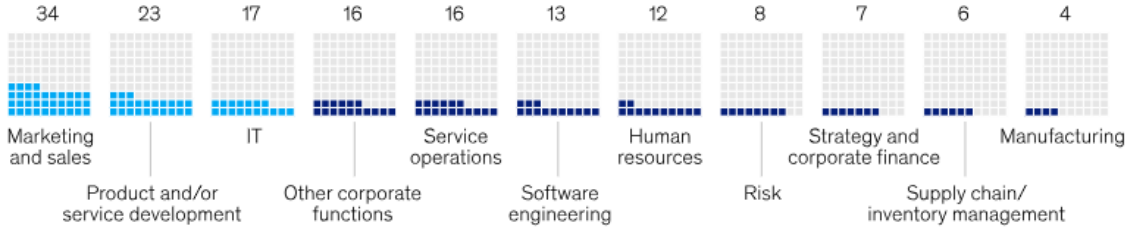

Figure 3 – Respondent organizations that regularly use generative AI, by function, % of respondents

According to the study, AI has become most widespread in marketing and product development. Thus, due to the limited resources of organizations, the human factor prevails over the capabilities of AI in the formation of methods and approaches to risk management.

Having considered the main approaches and methods of risk management, it is possible to proceed to practical recommendations on the choice and adaptation of risk management techniques. It is important to note that in practice, risk management requires not only a theoretical basis, but also taking into account the characteristics inherent in each company, however, it is possible to draw up a unified action plan for reforming and adapting the risk management system taking into account modern business realities.

To begin with, let's outline the current position of the risk management concept in the USA, EU countries, as well as Russia. At the moment, the level of development of risk man-

agement in the EU, the USA and Russia demonstrates significant differences due to both the mentality of economic entities and the availability and maturity of financial instruments to minimize risks.

In the European Union and the United States, the risk management approach is integrated into the corporate strategies of most large and medium-sized companies. These regions have highly developed financial instruments for risk management, among which insurance stands out, covering a wide range of potential threats, below in Figure 4 we will display the growth of insurance premiums in real terms in 2023 relative to 2022 worldwide.

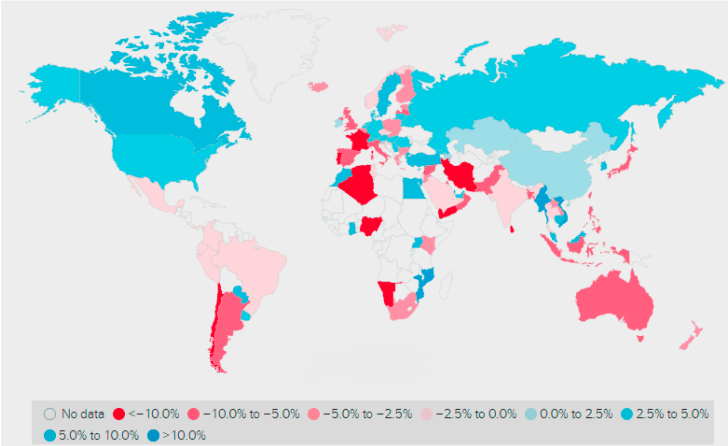

Figure 4 – Growth of insurance premiums in real terms in 2023 worldwide, %

According to the data in Figure 4, there is a huge difference in the growth of payments in the EU – this change is caused both by the reorientation of supply chains, due to sanctions against the Russian Federation, and by an internal decrease in production growth and, as a result, the GDP of countries as a whole.

The US insurance market is also steadily growing — total premiums in 2023 reached $1.5 trillion, which is almost 8% of the country's GDP. These data confirm that insurance is one of the main risk management tools for companies in these countries, especially in industries such as finance, IT and manufacturing.

In addition, according to the European Agency for Occupational Safety and Health (EU-OSHA), more than 70% of European companies use internal risk management systems and regularly assess risks related to safety and operational activities. In the United States, approximately 85% of large companies apply ISO 31000 standards, which provide a systematic approach to risk management, including regular stress tests and the creation of reserve funds.

In turn, the Russian insurance market, although it is at the stage of growth (an increase of 25.8% in 2023 compared to 2022), is extremely unstable, and the only driver of market growth remains life insurance. Figure 5 below shows the dynamics of the insurance market in Russia (compiled by the author on the basis of [6]).

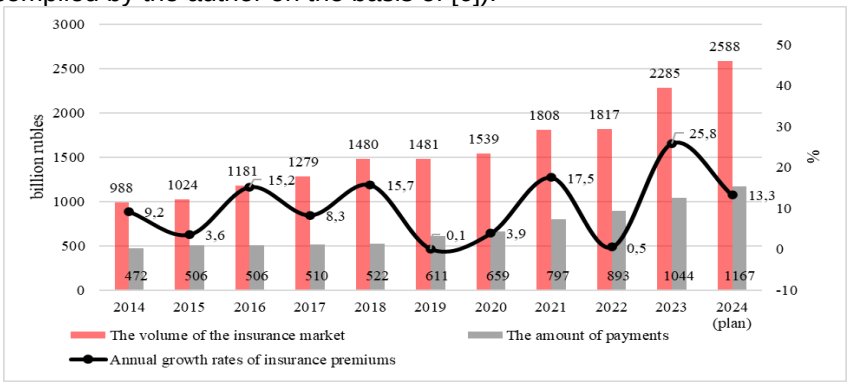

Figure 5 – Dynamics of the insurance market of the Russian Federation 2014–2024

According to the above scheme, despite the total growth of the market from 988 billion rubles in 2014 to the planned 2588 billion rubles in 2024, the growth curve is characterized by the absence of a stable upward or downward trend, due to unpredictable fluctuations in pa-

rameters. According to experts, Expert RA forecasts an increase in property insurance of legal entities of 5-7%, and the final weight is around 6% of the total weight of the market [7]. Thus, insurance (the main mechanism for minimizing risk in the EU and the USA) is not a priority in business in the territory of the Russian Federation.

To date, only large state-owned corporations such as Rosatom State Corporation, Gazprom PJSC and other corporations in the extractive sector of the economy have their own risk management methods. Most smaller organizations simply do not have the financial and human resources capabilities to create and constantly update their own system.

One of the available and applied risk management methods in terms of determining the final price of products is the use of the producer price index (PPI) and deflator indices, formed by the Ministry of Economic Development of the Russian Federation. Below in Figure 6 we will display an example of a part of the indexes.

	2022	2023	2024	2025	2026
	report	estimation	forecast		
Industry (BCDE)					
deflator	**107,4**	**102,6**	**108,8**	**102,9**	**102,8**
PPI	111,4	102,4	108,6	103,8	103,3
including without fuel and energy complex products (oil, petroleum products, coal, gas, energy)	**108,6**	102,7	106,4	104,4	103,9
Mining (Section B)					
deflator	**114,9**	**98,9**	**115,1**	**100,0**	**101,0**
PPI	114,7	100,2	114,4	100,5	101,1
Extraction of fuel and energy minerals (05, 06+09)					
deflator	**119,7**	**97,6**	**115,9**	**99,6**	**100,8**
PPI	121,1	98,9	115,3	100,1	100,8
Coal mining (05)					
deflator	**133,0**	**86,1**	**105,4**	**102,5**	**102,6**
PPI	143,7	80,1	105,7	102,9	103,0
coal energy stone					
PPI	**143,3**	94,2	105,0	103,6	103,4

Figure 6 – Forecast of producer price indices and deflator indices by type of economic activity, in % per year

Using this approach, manufacturing organizations index the costs of purchasing materials and other consumables for the production of finished products. The index increases the base value of the price by its value, which eventually leads to the formation of a new cost of the product and, as a result, a change in the shipping price. This approach does not require any financial resources for its implementation at the enterprise, however, it covers an extremely small range of possible risks, which makes it less effective in comparison with complex methods developed separately by large corporations.

As part of the study, a method of low-intensity assimilation of the above-described method into the formation of a risk management policy, which will be based on available methods, will be proposed. The project roadmap presented below in Figure 7 represents the author's vision of a practical tool for small and medium-sized organizations to form a basic approach to risk management. The above approach, subject to further refinement, taking into account industry specifics, is able to provide an average level of awareness and opportunities to influence already studied and existing risks.

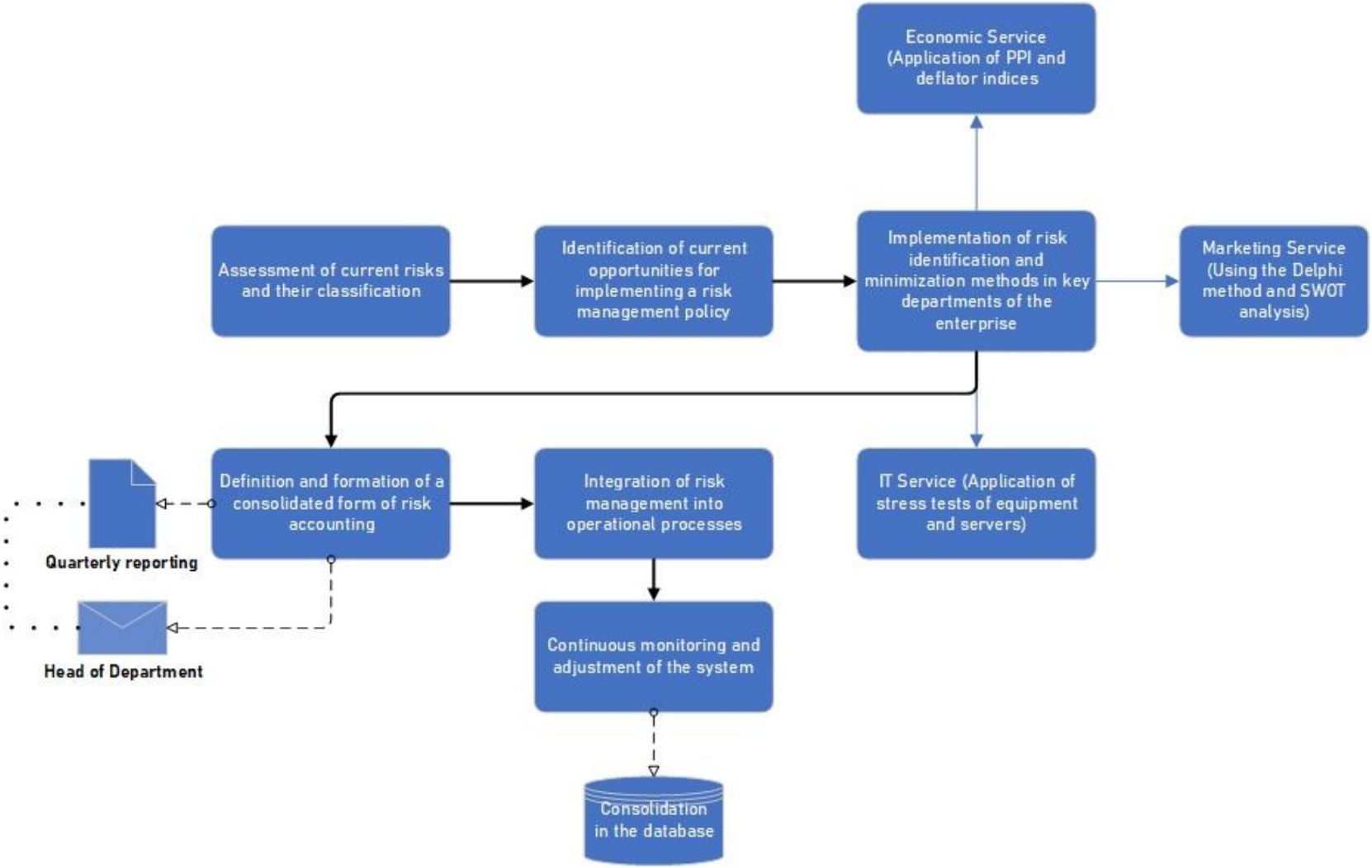

Figure 7 – Roadmap for the formation of risk management methodology in small and medium-sized businesses (compiled by the authors)

Within the framework of the conducted research, it was possible to form an adapted author's classification based on the classical risk classification proposed by J. M. Keynes, which takes into account the specifics of modern economics and business.

In the process of analyzing the experience of risk management in the USA, EU countries and Russia, the current state of risk management in each of the objects of the global economy was determined. As a result of the analysis, taking into account the underdevelopment of the business risk insurance tool in Russia, an approach to the formation of a primary risk management system for small and medium-sized businesses was proposed. The approach is based on the use of a set of techniques (CPI, deflator indices, SWOT analysis, Delphi method, stress testing), which, due to a shortage of resources (human and financial), are able to provide enterprise management with a unified tool for identifying, processing results and forming ways to minimize the impact of risks.

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