The Evolution of Risk Management Theories in Business

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Abstract. *The article examines the evolution of risk management theories in business, which is particularly relevant in the context of the current challenges of globalisation, digitalisation of the economy and increasing uncertainty in the external environment. Risk management is becoming strategically important as a tool for helping companies adapt to turbulent conditions, where risks are not only threats but also sources of innovative opportunities. The aim of the study is to systematise the main stages of development of theoretical concepts of risk management and determine their impact on modern management practices. To achieve this goal, a comprehensive methodological approach was used, combining analysis of scientific sources, historical and logical methods, systematic analysis, comparative analysis of theoretical models and concepts, as well as methods of synthesis and generalisation of information. Particular attention is paid to the integration of classical, quantitative, behavioural and digital approaches in risk management. The results of the study confirm the existence of five key stages in the evolution of risk management: classical, quantitative, integrated, behavioural and digital-ESG-oriented, each of which is characterised by a specific understanding of risk, assessment methods and management. It has been established that contemporary risk management is predicated on the principles of proactivity, integration of non-financial risks, application of advanced digital technologies, and the establishment of a culture of anti-fragility. The present study explores the evolution of risk management functions, from their initial purpose of loss minimisation to their current role as a strategic instrument that fosters sustainability and competitiveness in enterprises. The practical value of the article lies in substantiating the conceptual foundations for the development of risk management in the context of the digital economy and sustainable development. These can be used to improve risk management systems in enterprises of various forms of ownership and industries. The proposed results can serve as a basis for developing adaptive risk management models that take into account the current challenges of the business environment, as well as for improving the effectiveness of management decisions in the field of corporate governance.*

Keywords: *risk management, evolution, risks, business, strategy, ESG, anti-fragility, digitalisation, governance, GRC.*

JEL Classification: *G32, M21, O33*

1 Introduction

In today's environment of dynamic development of the global business environment, digitalisation of the economy and increased turbulence in the external environment, risk management is taking on a new quality and strategic importance. The relevance of the study is determined by the need for a critical rethinking of the theoretical foundations of risk management in the context of the post-industrial economy, where risks become not only threats but also sources of new opportunities. Against the backdrop of rapid changes in the nature of risks, from financial to social, environmental and digital, there is a need to study the evolution of risk management theories that inform modern business decision-making.

In this regard, it is particularly important to analyse the transformations in theoretical approaches to risk management, which reflect the shift in priorities in business management—from a defensive model to a strategic and proactive one. Modern risk management is based on the principles of a holistic view of risks, their interdependence and ability to influence the value of a business in

the long term. A more profound understanding of the evolution of risk theories enables one to discern fundamental patterns in the development of management concepts and adapt management tools to contemporary challenges, including cyber threats, ESG criteria, global crises related to security, sustainable development and business reputation.

The aim of the study is to systematise and critically analyse the stages of development of risk management theories in business, taking into account changes in the conceptual approach, tools and functional role of risk in management. To achieve this goal, the following tasks have been set: to describe the main historical stages in the development of risk management theories; to identify methodological shifts in approaches to risk; to determine the impact of digitalisation, behavioural factors and ESG orientation on the transformation of modern risk management. The methodological basis of the study consists of historical-logical, comparative analysis, systemic and structural-functional approaches. The logic of the presentation of the material is based on a step-by-step coverage of the transformation of risk management: from classical approaches to the modern integrated digital model of risk management.

In contemporary scientific discourse, risk management is considered one of the key areas for improving the efficiency of enterprises in conditions of growing uncertainty and complexity of the business environment.

Babailov V. and Kurdenko O. (2022) propose a conceptually new approach to distinguishing the functional components of risk management by dividing it into three separate areas: risk economics, risk engineering, and risk administration. According to the authors, this professional division allows specialists with narrow specialisations to be involved in managing the relevant types of risks, which significantly increases the effectiveness of risk management in enterprises.

The article by Rostov M. and Kliuchka O. (2025) focuses on the financial dimension of effective risk management. The authors argue that integrating risk management into the overall strategy of an enterprise contributes to increasing the profitability, stability and reputational reliability of business organisations. It is noted that the implementation of structured approaches to identifying, assessing, mitigating and monitoring risks creates competitive advantages in the market.

Baldyniuk V. (2023) considers risk management as a strategic management tool that contributes to reducing costs, increasing adaptability and strengthening the competitiveness of enterprises. The author emphasises the impact of digitalisation and the need to adapt risk management to rapidly changing environmental conditions.

The historical dimension of the evolution of risk management theories is highlighted in the work of Herasymenko O. (2013). The author analyses key events and changes in risk theory based on global economic transformations, which allows systematising the stages of risk management development and linking them to global financial crises.

Borovyk M. (2016) studies risk management as a means of ensuring sustainable development of enterprises. The author substantiates the phased nature of the risk management process and defines its main characteristics, focusing on economic, social, political, environmental and man-made risks.

The article by Buriennikova N., Hordiichuk A. and Buriennikov Yu. (2025) reveals an updated approach to managing SEE risks (Social, Environmental, Economic) based on the COSO ERM concept. The authors propose using SEE management to improve the performance of complex dynamic enterprises by developing a strategic management algorithm that takes SEE risks into account.

Vakulenko V., Liu Y. and Liu S. (2025) focus on risk management in logistics systems under martial law. The article discusses new challenges for logistics in Ukraine, the need to adapt to high volatility risks, and the introduction of digital tools and adaptive management strategies.

Hrosul V. and Usova M. (2021) provide a systematic overview of the nature of risks, their causes and classification. The authors justify the need to adapt the conceptual framework of risk management to the conditions of the new economy, which is based on innovation and rapid change.

An analysis of contemporary scientific publications indicates a high level of scientific and practical interest in the issue of effective risk management as a critical factor in ensuring business stability, sustainability, and competitiveness. Scientists are unanimous in their assessment of risk management as an integrative tool of strategic importance in a dynamic external environment.

2 Theoretical Foundations of Risk Management as a Scientific Category

Risk management in modern business is a multifaceted system that encompasses the identification, assessment, monitoring and mitigation of risks that may negatively or positively affect the achievement of an enterprise's strategic goals. Its place in the enterprise management

system is critical, especially in the context of a highly volatile market environment, globalisation, digitalisation of business processes and increased competition.

In the domain of economic science, risk is delineated as the probability of an unfavourable event materialising or the actual outcome diverging from the anticipated one. Conversely, risk does not inherently possess an exclusively negative connotation; it can concomitantly serve as a catalyst for novel opportunities, thereby aligning with the contemporary notion of positive risk management. Consequently, risk management can be defined as a deliberate system of actions aimed at the identification, analysis, assessment and response to risks, with the objective of ensuring that established goals are achieved with minimal loss or optimal effect.

The following main types of risks are identified in the business environment (Duhovanets O. M., 2016; Hrosul V. A., & Usova M. O., 2021; Idobaeva A. L., 2021; Korobka S., 2021):

– Financial risks (currency, credit, interest rate, investment);

– Operational risks (internal failures, staff errors, technical failures);

– strategic risks (incorrect assessment of the market, competition, innovations);

– social and reputational risks (loss of customer trust, conflicts);

– environmental risks (impact on the environment, environmental responsibility);

– digital and cyber risks (IT system vulnerability, attacks, data leaks);

– ESG risks (related to the environmental, social and governance sustainability of the company).

The scientific apparatus of risk management is based on an interdisciplinary approach, combining economic theory, statistics, finance, management, psychology, and modern information technologies. The main methods of risk management include avoidance, reduction, transfer, acceptance, diversification, reservation, and hedging (Proskura V., & Bilak R., 2017; Herasymenko O., 2013).

It is important to emphasise that risk management methodology changes with the development of economic relations. While in the early stages the focus was mainly on loss reduction and insurance, the modern paradigm is oriented towards an integrated assessment of the impact of risks on the business model, strategy and stakeholders.

Among the leading methodological approaches to risk management, the following are worth highlighting (Proskura V., & Bilak R., 2017):

− Systemic approach (risk analysis as part of the overall management system of the enterprise);

− process approach (risk management as part of business processes);

− behavioural approach (consideration of psychological and cognitive biases in decision-making);

− innovative and digital approach (use of big data, artificial intelligence, predictive analytics);

− integrated approach (ERM) (combining all types of risks into a single management system focused on achieving strategic goals).

Therefore, risk management in business emerges as a structured process that combines theory, practice, behavioural analysis and digital tools, ensuring the adaptability of the enterprise to changes in the environment.

3 Historical Stages in the Evolution of Risk Management Theories in Business

The development of risk management as a scientific and practical discipline has been a complex process, evolving from a rudimentary understanding of risk as an external threat to an integrated management system that has become a strategic component of corporate governance. The historical evolution of risk management approaches is closely linked to changes in economic formations, the level of technological development, and the accumulation of knowledge in the fields of economics, finance, and behavioral sciences. Five key stages in the evolution of risk management theories in business can be identified (Table 1).

Classic stage: risk as a threat (until the mid-20th century). In the early stages of economic development, risk management was limited in nature and was viewed solely as a tool for protection against unpredictable threats. The main goal was to avoid losses that could arise as a result of natural disasters, accidents, or breaches of commercial contracts.

Risk management methods at this stage were based on insurance, reserving funds, and applying protective legal mechanisms. The theoretical basis was actuarial mathematics, which was used by insurance companies to calculate the probabilities of insured events occurring. Risk was equated with an "undesirable event" and, therefore, had to be eliminated as much as possible.

Quantitative and financial stage: risk as a controllable parameter (1950s–1980s). After World War II, there was a huge jump in the development of economic science, especially finance. During this time, risk started to be seen not just as a threat, but as something that could be analysed and optimised. This is when the basics of modern financial risk theory started to form.

Table 1 Comparative analysis of the stages of risk management evolution

Stage	Risk characteristics	Main tools	Key idea	Distinctive features
Classic (until the 1950s)	External threat	Insurance, reserving, actuarial calculations	Loss avoidance	Approach to risk as a threat, risk avoidance; limited role in strategy
Quantitative and financial (1950–1980s)	Calculated parameter	Portfolio theory (Markowitz), CAPM, VaR	Profit optimisation	Mathematisation of risks; focus on financial risks and income optimisation
Integrated (1990–2000s)	Systemic threat	COSO ERM Framework, ISO 31000, Basel Accords	Built-in risk management	Implementation of risk management in strategy; expansion of the range of risks
Behavioural (2000–2015)	Subjective perception	Prospect theory, behavioural economics	Consideration of the human factor	Analysis of human behaviour and biases; adaptation of risk management strategies
Digital (since 2015)	Complex uncertainty	Big data, AI, c cybersecurity, ESG indicators	Resilience and adaptability	Consideration of non-financial risks; digital technologies; focus on sustainable development

Source: summarised by the author on the basis of (Herasymenko O., 2013; Hrosul V.A., & Usova M.O., 2021; Duhovanets O.M., 2016; Idobaeva A.L., 2021; Korobka S., 2021; Proskura V., & Bilak R., 2017)

Key achievements of this stage:

• Markowitz H. (1952) – efficient portfolio theory (risk can be reduced through asset diversification);

• Sharpe W. F., John Lintner (1970) – CAPM (Capital Asset Pricing Model) (risk-return ratio);

• Value at Risk (VaR) model – assessment of maximum possible losses at a given confidence level (Jorion P., 2007).

The management of risk is an integral component of financial management, encompassing the calculation, comparison, and mitigation of risk through portfolio optimisation and hedging strategies.

Integrated system stage: risk as part of the management system (1990s–2000s). In the 1990s, in response to large-scale corporate crises and bankruptcies (e.g., Enron, WorldCom), the concept of Enterprise Risk Management (ERM) (*Enterprise Risk Management, COSO*, 2004) was formed – an integrated risk management system at the level of the entire organisation. The concept of risk evolves beyond its traditional financial interpretation, being recognised as a factor that impacts the realisation of the organisation's strategic objectives.

The main guidelines for this stage are as follows:

• COSO ERM Framework (*Enterprise Risk Management, COSO*, 2004) – 8-step model (from setting goals to monitoring);

• ISO 31000 (ISO 31000:2018, 2018) (international standard for risk management);

• Basel Accords I, II, III (Basel Accords, VUE, 2021) (regulation of the banking system through risk-based approaches to capital, liquidity and operational resilience);

• ERM assumes that risk management covers not only negative events, but also opportunities to improve efficiency, is supported by analytics, and is embedded in corporate strategy.

Behavioural and cognitive stage: risk through the prism of the individual (2000–2015). Since the beginning of the XXI century, the understanding of the nature of risk has expanded. The active development of behavioural economics has shown that managers, investors and consumers do not always act rationally, and decision-making depends on psychological factors, experience, emotions and biases.

Key concepts:

• Maps of Bounded Rationality: Psychology for Behavioral Economics (Kahneman D., 2003) – people evaluate gains and losses differently, tend to avoid losses;

• behavioural finance (the impact of mass behaviour on stock markets) (Barberis N., & Thaler R. H., 2002; Shiller R. J. 1999);

• development of adaptive risk management models that take into account the human factor as a source of risks and distortions.

This stage contributed to a rethinking of decision-making concepts in business and the development of scenario modelling, simulations, and game-based risk analysis.

Digital ESG-oriented stage: risk as a strategic asset (from 2015 to present). The current stage is

characterised by high digitalisation of business, expansion of risk types and changes in social demands on enterprises. Risk management is transforming into a system for managing uncertainty, cyber vulnerability, resilience and reputation.

Key features of this stage:

• Utilisation of big data, AI, and real-time analytics for risk monitoring;

• increased significance of ESG risks (environmental, social, governance);

• spread of the GRC approach (Governance, Risk, Compliance) in international companies;

• development of the concept of anti-fragility (Taleb N., 2012), which involves not only surviving a crisis, but also strengthening the system in conditions of uncertainty.

Contemporary risk management strategies emphasise proactivity, resilience and adaptability, thus becoming a conduit for achieving long-term business value.

In summary, it can be posited that the evolution of risk management can be conceptualised as a transition from reactive protection to strategic risk management as a resource capable of creating competitive advantages, stimulating innovation and ensuring the long-term viability of the enterprise.

4 Transformation of Risk Management in the Context of Modern Business Environment Challenges

The advent of digital technologies, the globalisation of financial markets, the proliferation of environmental and social threats, pandemics, military conflicts and geopolitical instability have collectively engendered a wholly novel context for business operations, necessitating a re-evaluation of the conceptual underpinnings of risk management. In this new environment, risk management evolves from a mere system for controlling or minimising negative impacts to a strategic instrument for ensuring the adaptability, innovation and sustainability of the enterprise.

New risks as catalysts for change in management approaches. In the XXI century, the range of risks faced by businesses has expanded significantly:

− Digital risks (cyber attacks, data leaks, manipulation of artificial intelligence algorithms, attacks on infrastructure);

− global epidemiological and biological threats (the COVID-19 pandemic has demonstrated the vulnerability of supply chains, logistics, and personnel);

− climate risks (the growing impact of climate change on business models, agriculture, and energy);

− social and ethical risks (expectations of transparency, ethical behaviour, corporate social responsibility);

− reputational risks (increased consumer sensitivity to corporate behaviour, instant dissemination of information on social media).

Such complexity and interdependence of risks requires a multi-level approach to analysis and response, including scenario modelling, predictive analytics, and the development of crisis resilience systems.

Technological transformation of risk management. Digitalisation has become one of the most important factors in the transformation of risk management. Thanks to the use of modern technologies, risk management is reaching new heights:

− Big data and AI enable deep analytics of large data sets in real time;

− predictive analytics allows to identify hidden patterns and risks before they become critical;

− machine learning is used for automatic identification and classification of risks;

− blockchain ensures transparency of transactions and auditing of decision-making traces;

− cybersecurity is becoming a key element of risk management for digital businesses.

Thus, risk management is increasingly being integrated into digital business models, creating comprehensive GRC (Governance–Risk–Compliance) systems that provide not only control, but also flexibility and resilience to external shocks.

ESG risks and sustainable risk management. Modern risk management is taking on a new social orientation within the paradigm of sustainable development. Investors, consumers and regulators are increasingly demanding that companies take ESG (Environmental, Social, Governance) factors into account as part of responsible business.

Features of ESG risks: E (environmental): natural disasters, energy efficiency, carbon footprint; S (social): employee rights, gender equality, health and safety; G (governance): transparency, integrity, governance structure.

ESG risk management means integrating non-financial risks into the company's overall strategy. This helps build trust among stakeholders, access green financing, and improve reputation in the market. At the same time, it requires a thorough review of risk management performance metrics and new sustainability indicators.

Prospects for the development of risk management: from stability to anti-fragility. In conditions of deep uncertainty and multidimensional crises, the concept of anti-fragility proposed by

Nassim Taleb (Taleb N., 2012) becomes particularly relevant. It refers to the ability of a system not only to withstand shock, but to become stronger as a result of it. This changes the very philosophy of risk management: from avoidance and compensation to learning, adaptation and transformation.

Future-oriented companies develop dynamic risk management systems that:

− Adapt to new threats and opportunities;

− continuously analyse changes in the behaviour of customers, partners and competitors;

− support a culture of risk-oriented thinking at all levels of management;

− implement scenario planning, strategic reserves and digital flexibility.

Modern risk management is no longer limited to control and prevention. It is a multi-level, flexible, digitally oriented and proactive system that ensures the stability, development and competitiveness of a company. The integration of technologies, consideration of ESG factors, adaptability and learning form a new paradigm in which risk is not only a challenge but also a resource for growth.

5 Conclusions

The study revealed that the evolution of risk management theory and practice is a logical reflection of transformations in economic thinking, technological development and changes in management models and social expectations. Risk management has undergone a complex process of adaptation to global challenges, evolving from the classical understanding of risk as an external threat to the modern awareness of it as an integral element of strategic management.

Five key stages in the development of risk management theories are analysed: classical, quantitative, integrated, behavioural and digitally sustainable. At each stage, the understanding of the nature of risk, management functions, and analysis tools changed. Particular attention is paid to current trends that are shaping a new risk management paradigm: digitalisation, ESG orientation, strategic anti-fragility, the use of artificial intelligence, and big data.

The study demonstrated that effective risk management in the XXI century should be proactive and systematic, and integrated into the overall business development strategy, taking into account both financial and non-financial risks. The successful management of risk in corporate entities necessitates a high degree of adaptability on the part of the company, engagement in continuous learning, the adoption of a cross-disciplinary approach, and the establishment of a culture of risk-oriented thinking.

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