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INSTITUTIONAL AND ECONOMIC MECHANISM FOR ENSURING THE ECONOMIC SECURITY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND DIGITISATION

The subject of this research is institutional and economic mechanism for ensuring the economic security of transport, which determined the purpose of the study. Transport companies play an important role in ensuring the growth of the national economy, and the existence of a number of risks that have a negative impact on their development raises the issue of researching the institutional and economic mechanism for ensuring their economic security. The research uses general scientific and special methods. The research examines the institutional and economic mechanism for ensuring the economic security of transport enterprises in the context of sustainable development and its main elements; analyzed the current state of the transport industry and the impact of modern digital technologies on the development of transport insurance as an instrument for ensuring economic security. The established mechanism is an important component of strategic development and an important tool for ensuring the economic security of transport companies.

Keywords: *institutional and economic mechanism, transport companies, transport insurance, InsurTech, economic security, business processes, sustainable development, digital technologies, digital economy, digitalisation.*

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ІНСТИТУЦІЙНО-ЕКОНОМІЧНИЙ МЕХАНІЗМ ЗАБЕЗПЕЧЕННЯ ЕКОНОМІЧНОЇ БЕЗПЕКИ В УМОВАХ СТАЛОГО РОЗВИТКУ ТА ЦИФРОВІЗАЦІЇ

Предметом даного дослідження є інституційно-економічний механізм забезпечення економічної безпеки транспортних підприємств, що повинен включати як нормативно-правове забезпечення, фінансові стимули та ризик-менеджмент, впровадження інноваційних технологій з дотриманням принципу екологічності. Метою дослідження є обґрунтування інституційно-економічного механізму забезпечення економічної безпеки транспортних підприємств в умовах сталого розвитку. Транспортні підприємства відіграють важливу роль у забезпеченні зростання національної економіки, її конкурентоздатності та підтримки соціально-економічної стабільності. Наявність цілого ряду ризиків мають дестабілізаційний вплив на забезпечення сталого розвитку транспортних підприємств та актуалізують питання дослідження інституційно-економічного механізму забезпечення їх економічної безпеки. В дослідженні використано загальнонаукові та спеціальні методи. Так, загальнонауковий метод узагальнення було застосовано для опису підходів та елементів у інституційно-економічному механізмі, метод статистичної аналітики авторами використано при описі тенденцій у формалізації ризиків у транспортній галузі. Застосування методів проєктування та економічного моделювання дозволили формалізувати закономірності впливу страхового інструментарію у механізмі забезпечення економічної безпеки на результативність реалізації цільових елементів. Досліджено інституційно-економічний механізм забезпечення економічної безпеки транспортних підприємств в умовах сталого розвитку та його основні елементи; проаналізовано сучасний стан транспортної галузі та вплив сучасних цифрових технологій на розвиток транспортного страхування як інструменту забезпечення економічної безпеки; сформовано структуру інституційно-економічного механізму системи економічної безпеки транспортних підприємств. В умовах посилення екологічної та соціальної відповідальності підприємств, сформований механізм є важливою складовою стратегічного розвитку та важливим інструментом забезпечення економічної безпеки та посилення рівня адаптивності до нових викликів.

Ключові слова: *інституційно-економічний механізм, транспортні підприємства, транспортне страхування, InsurTech, економічна безпека, бізнес-процеси, сталий розвиток, цифрові технології, цифрова економіка, цифровізація.*

Problem statement. The current business environment is associated with the importance of ensuring economic security based on the goals of sustainable development. Today, transport companies play an important role in ensuring the growth of the national economy, its competitiveness and maintaining social and economic stability. The environment in which transport companies operate is characterised by a number of challenges related to globalisation, digitalisation and compliance with ESG principles, as well as risks: internal, such as depreciation of equipment, low digital readiness, and external, such as changes in institutional regulation, price fluctuations, and war. These risks hinder the processes of ensuring the sustainable development of transport enterprises and raise the issue of researching the institutional and economic mechanism for ensuring their economic security.

The institutional and economic mechanism for ensuring the economic security of transport enterprises should include regulatory support, financial incentives and risk management, as well as the introduction of innovative technologies and the principle of environmental friendliness.

Analysis of recent research and publications. The issues of economic security, in particular in terms of theoretical and methodological support, are covered in the works of O. Arefieva, I. Myagkykh, M. Shkoda [1], O. Vovk, T. Tkachenko, S. Smerichevska and others [2]. The issues of economic and organisational aspects of the development of transport enterprises are covered in the studies of I. Reshetnikova, S. Smerichevskyi. Vovk, [3], N. Yarova, O. Vorkunova [4], A. Grechan [5], V. Chornyi [6], M. Chekhovska [7], O. Melnychenko [8], Gschösser F., Cordes T., Lumetzberger D., Tautschnig A. [9]. Despite the fact that the topic has been widely covered by the authors, current trends in economic development, globalisation and digital transformation create new challenges that require research. The effectiveness of insurance instruments in ensuring the economic security of transport enterprises is also reflected using telematics, UBI, InsurTech, and parametric insurance tools.

Formulating the purposes of the article. To study the institutional and economic mechanism for ensuring the economic security of transport enterprises in the context of sustainable development and its main elements.

Presentation of the main research material. The economic security of an enterprise is considered from the standpoint of a system of preventive measures to ensure sustainable operations, which is achieved by managing negative factors, i.e. risks [1]. Modern innovative technologies are a key aspect of ensuring the stable and efficient operation of transport enterprises, and the digital potential of enterprises is an important factor in ensuring economic security [2]. Today, innovative determinants are a source of research on the effectiveness of modernisation of transport enterprises [3]. Considering the mechanism of ensuring economic security from the point of view of covering emerging risks, insurance is an important financial instrument for increasing the level of investment attractiveness of enterprises and ensuring economic security.

Today, according to a World Bank report, the needs to rebuild Ukraine's transport sector are estimated at $78 billion [10].Ukraine is gradually reforming and modernising its transport sector: the National Transport Strategy of Ukraine until 2030 has been updated, the Strategy for the Development and Construction of Border Infrastructure with the EU and Moldova has been adopted, and rail transport is being reformed, but these processes are rather slow. The total cost of damage to the transport sector is $36.7 billion, and budget expenditures on the road sector were halved in 2024 compared to 2023. The closure of airspace and the loss of access to seaports has increased the load on rail and road networks and disrupted the logistics of major transport. These issues are extremely relevant. At the same time, current models of economic security do not take into account such factors as war, blackout, pandemic and resilience to them, and do not take into account the specifics of the industry (logistics, infrastructure). The state policy does not yet sufficiently provide for the necessary legislative and organisational changes, taking into account the type of transport, current economic conditions and transformational ones.

Given that, according to a report prepared by the UN in cooperation with the government, the World Bank Group and the European Commission, as of the end of 2024, the total cost of the country's recovery over the next decade will be USD 524 billion, and the share of needs for the restoration of the transport sector is already 15%, we believe it is necessary to use the insurance instrument as an important factor in attracting investment resources and developing public-private partnerships. Motor insurance provides a mechanism for financial stability, stimulating investment, reducing uncertainty for businesses and ensuring business continuity. By covering extraordinary events, insurance is a kind of factor that stimulates innovation and the latest technologies, directly in the transport sector. The share of motor insurance premiums in the total amount of payments in the market in 2024 was about 55%. According to Swiss Re, the aviation insurance market will grow by 4–5% by 2030 [11].

Digital tools and platforms, data and analytics aimed at optimising business processes in insurance, increasing the level of risk accuracy, and reducing costs form the concept of InsurTech. The main current trends and innovative technologies in the transport insurance market are:

1. Telematics and UBI. Telematics is a technology used to monitor driving style for better risk assessment and personalisation of insurance services. Today, the telematics market is worth USD 5.03 billion (2024) and will grow 4 times by 2032 to USD 19.23 billion [12]. Today, 14.4% of car insurance policies include telematics, and more than 20% of consumers use pay-as-you-drive models [13]. The largest number of policies with telematics is in Italy – 20–25%, in the UK – 12–15%, and in France – about 10% [14]. European governments are implementing connected-car platforms that support built-in telepathic systems.

UBI is a car insurance model based on the assessment of driver behaviour and the level of intensity of transport use. The UBI market is estimated at USD 63.07 billion in 2024 and will grow to more than USD 200 billion by 2029 [15].

It has been proven that UBI systems reduce the accident rate by up to 50%.

Such innovative technologies help to create personalised insurance products and reduce costs, change the pricing system, and increase the level of customer engagement.

1. Parametric insurance is a type of insurance in which the payout depends on the occurrence of a certain event or the achievement of certain specified parameters (precipitation, wind speed), rather than on the amount of losses. We believe this type of insurance is promising for the development of aviation transport and, accordingly, aviation insurance. It is especially relevant in an unstable economic environment. The introduction of IoT, AI, and blockchain technologies in air transport insurance will be used to assess and monitor risks and automate payments.

In general, transport insurance contributes to financial stability, which is manifested in the growth of long-term investments, reducing the level of economic uncertainty, acts as a risk management tool, reducing financial shocks, the use of reinsurance operations helps to stabilise the global economy, insurance payments ensure financial stability in emergency situations.

The institutional and economic mechanism for ensuring the economic security of transport enterprises is understood as a set of institutional, financial and legal elements that ensure the achievement of sustainable development goals and the formation of a competitive transport industry.

Let's take a closer look at the main elements of the institutional and economic mechanism in the context of modern challenges (Fig. 1):

1. Institutional support: includes legal and regulatory support and regulation (tariffs, taxes, licensing, environmental standards); government policy to support the sector (guarantees, grants, insurance, subsidies); international contracts and logistics corridors.

2. Organisational structure: economic and information security service, established system of interaction with the state, partner enterprises and other enterprise services (IT, finance).

3. Economic levers and incentives. They should be considered from the point of view of financial support for enterprise renewal (credit, leasing, state aid) and risk assessment and management - insurance, diversification.

4. Information and analytical support: includes a system of data collection, data protection (cybersecurity), and IT tools.

5. Risk management system. It includes assessment of internal and external risks, continuous monitoring and reporting. External risks are particularly urgent today, including: military risks (leading to disruption of logistics routes, closure of key routes); price volatility (for fuel); changes in legislation; cyber risks.

6. Resource management: human resources, financial resources, material resources – ensuring the efficiency of their use and investment.

7. Environmental safety (compliance with environmental standards, energy saving).

8. Integral indicators and sustainability: security assessment indicators (financial, operational, environmental); expert assessments, statistical models; partnerships and route diversification; ensuring financial sustainability.

In Ukraine, the availability of war risk insurance can stabilise the economic situation and maintain the vector of sustainable development. The war makes it much more difficult to resume air traffic, and the destruction of transport infrastructure is significant. However, insurance companies are now ready to provide coverage for commercial aviation. An effective model for covering war risks should include government support, insurance companies' participation, and international guarantees.

Therefore, it should be assumed that the basic condition for the restoration of transport companies and logistics is to guarantee insurance against war risks. It should be noted that digital technologies in insurance processes contribute to a more dynamic development of the economy, and modern digital transformation has a significant impact on the transport insurance industry. Digital technologies are transforming the road, air, rail and maritime transport market not only by speeding up transport and logistics services, but also by expanding insurance guarantees and forms of support. We see a significant potential for Ukraine to adapt parametric models and UBI, and use digital infrastructure for air transport insurance.

Taking into account all aspects of the development of the transport industry in the current conditions of digitalisation, increased geopolitical tension, the importance of compliance with environmental safety standards, ensuring financial stability, and the importance of the transport sector in the country's economic development, we will formulate target benchmarks that implement the institutional and economic mechanism of the economic security system of transport enterprises in an elementary manner (Table 1).

Conclusions. Thus, the insurance instrument we have considered is part of the economic component of ensuring the economic security of transport companies. But, in our opinion, it is the most important in times of war and the importance of attracting investment in the sector. Along with the economic component, the definition of goals and risk assessment, indicators, institutional and regulatory, organisational, managerial, and information and analytical components are also integral. Important promising areas for the development of transport insurance today are the integration of UBI systems (mobile applications, telepathic data, partnerships), the development of parametric insurance products and the use of commercial cases, which will facilitate the implementation of UBI in Ukraine. Transport insurance contributes to economic stability, expands investment opportunities, provides support in emergency situations and stimulates the development of the national economy.

In the context of increasing environmental and social responsibility of enterprises, the established mechanism is an important component of strategic development and an important tool for ensuring economic security and enhancing the level of adaptability to new challenges.

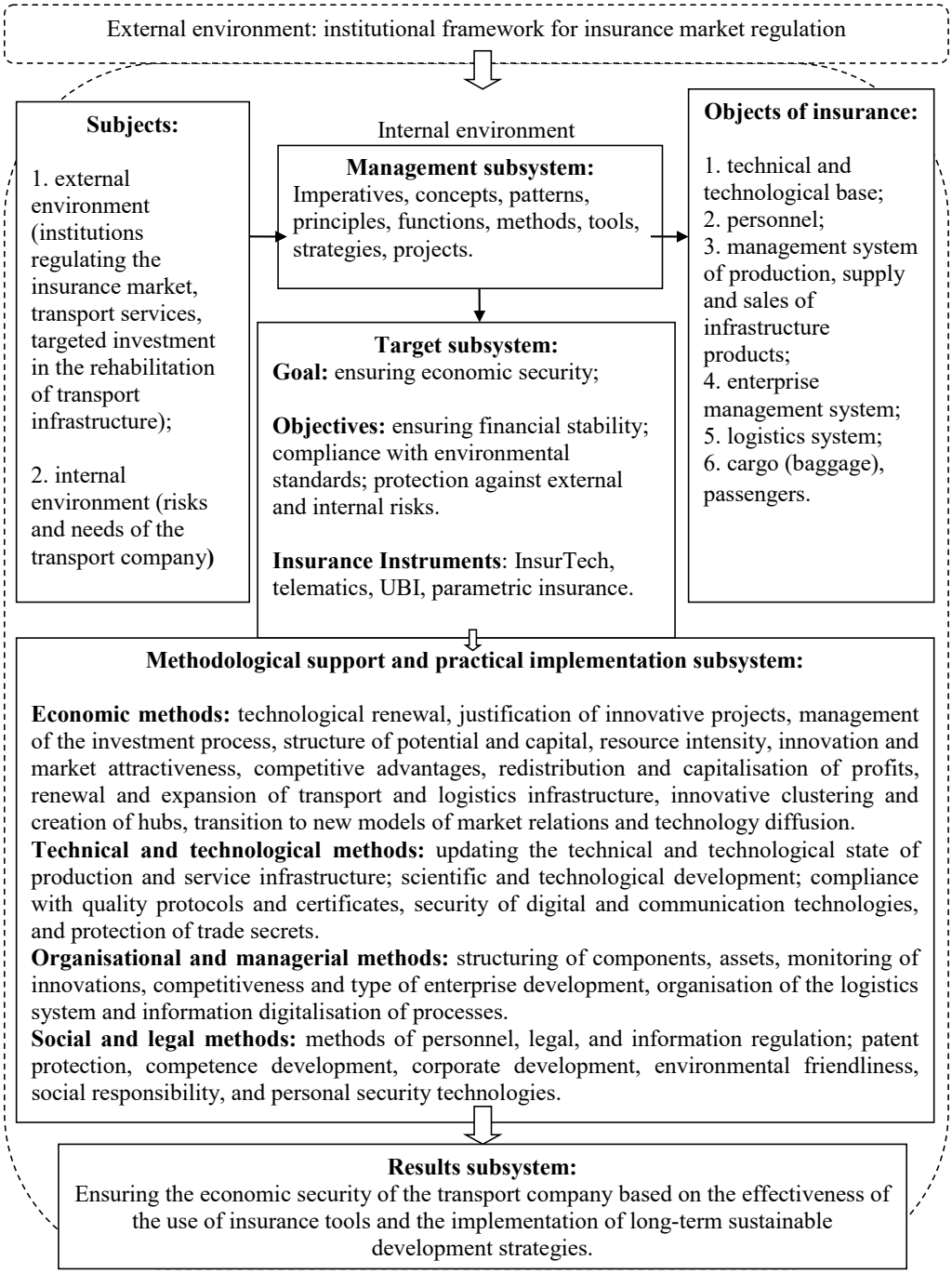

Figure 1. Scheme of the institutional and economic mechanism for ensuring the economic security of transport enterprises

Source: proposed by the authors

Table 1

Structure of the institutional and economic mechanism of the economic security system of transport enterprises

Target elements of the institutional and economic mechanism of the economic security system	
1	2
1. Defining the objectives	– Ensuring financial stability – Protection against external and internal risks – Compliance with environmental regulations
2. Risk identification	– Internal: level of wear and tear, insufficient internal controls, lack of staff
	– External risks: war, changes in legislation, inflation, price fluctuations, competition, changes in environmental regulations
3. Institutional and regulatory component	– State support (grants, subsidies) – Licensing, standards – Regulations, policies

Continue Table 1

1	2
4. Organisational and managerial component	– Internal structure – Organisation of risk management – Cooperation with authorities and partners
5. Economic component	– Security – Investments – Insurance, reserves – Stimulating efficiency
6. Information and analytical component	– Forecasting models – Internal audit and control system – Information collection and analysis system
7. Indicators.	– Financial (security costs, repairs) – Operational – Risky – Information security
8. Planning system	– Building development scenarios – Reserves (routes, suppliers)
9. Improving the mechanism	– Monitoring system – Adjustment of policies

Source: proposed by the authors

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