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# THE CONCEPT OF FORMING A RISK MANAGEMENT SYSTEM IN THE INNOVATIVE ACTIVITY OF A LOGISTICS AND TRANSPORT ENTERPRISE

*The article considers the risk management system with indication of the key subsystems: a management entity, which includes a special group of people who carry out purposeful functioning of the management object using various methods and techniques of influence management; a management object, which includes risk, risky investments of capital and economic relations between entities in the course of entrepreneurial activity; a management process, which consists in the process of influence of the entity on the management object and can be carried out provided that certain information is circulated between the management and the management. The author also identifies certain functions performed by the above risk management subsystems. A number of tasks of risk management of a logistics and transport enterprise have been identified. Risk management should facilitate the implementation of measures aimed at achieving key performance indicators and improving the efficiency of the logistics and transport enterprise's processes. It is noted that the functioning of any enterprise, in particular, a logistics and transport enterprise, depends on the built-up internal control system (ICS). To build an ICS of a logistics and transport enterprise, it is proposed to choose a model of three lines of protection. The traditional model of the three lines of defence involves the following division of functions: the first line includes operational management and is responsible for assessing, controlling and mitigating risks through effective internal controls; the second line provides risk management, identifies target risks, reports to senior management and monitors compliance; and the third line, which represents risk-based internal audit, reviews the implementation of risk management in the previous two lines and reports to senior management and the board on the effectiveness of risk assessment and management in the organisation. According to the adapted model, the first line includes business owners, shareholders, participants and senior management, who are empowered to make key decisions on approving and managing corporate strategy, including risk management strategy. They approve and direct the internal control system. It is noted that certain risks associated with innovation activities can be insured, such risks include: direct property losses associated with transportation, equipment operation, and supply of materials; indirect losses caused by dismantling and moving damaged property; risks subject to compulsory insurance (against industrial accidents, diseases, property damage, and vehicle theft).*

*Keywords: risks, risk management, strategy, risk management strategy, logistics and transport enterprises, transport, logistics, system, risk management system, innovation, innovation activity.*

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# КОНЦЕПЦІЯ ФОРМУВАННЯ СИСТЕМИ УПРАВЛІННЯ РИЗИКАМИ В ІННОВАЦІЙНІЙ ДІЯЛЬНОСТІ ЛОГІСТИЧНО-ТРАНСПОРТНОГО ПІДПРИЄМСТВА

*У статті розглянуто систему управління ризиками, що розглядається на рівні підсистем: підсистема «суб'єкт управління» передбачає наявність певної групи осіб, що, з застосуванням способів, методів та прийомів реалізує функціонування об'єкту; підсистема «об'єкт управління» містить ризики, ризиковані вкладення (інвестиції) і зовнішньоекономічну діяльність підприємства; підсистема «процес управління» передбачає вплив суб'єкта управління на об'єкт управління з урахуванням передачі інформації від керованої до керівної системи, і навпаки. Визначено низку завдань управління ризиками логістично-транспортного підприємства. Вказано, що управління ризиками має протегувати запровадженню заходів, що спрямовані на здобуток основних показників діяльності та підвищення ефективності процесів логістично-транспортного підприємства. Зазначено, що функціонування будь-якого підприємства, зокрема логістично-транспортного, залежить від налагодженої системи внутрішнього контролю (СВК). Для побудови СВК логістично-транспортного підприємства пропонується модель з трьома лініями захисту. Існуюча (традиційна) модель розподіляє функції*

*наступним чином: перша лінія передбачає операційний контроль, оцінює, контролює та здатна забезпечити зниження ризиків; друга лінія відповідає за управління ризиками, здатна визначати цільові ризики, виконує функції зі звітування перед керівництвом, а також здійснює моніторинг відповідності; третя лінія основана на ризиках орієнтованих на внутрішній аудит, контролює здійснення ризик-менеджменту на перших двох лініях та звітує керівництву про управління ризиками та ефективність їх оцінки в організації. Адаптована модель, що також складається з трьох ліній, відрізняється від традиційної тим, що в першій лінії представлено акціонери, вище керівництво та власники підприємства, які приймаються господарські та управлінські рішення, зокрема і щодо управління ризиками. Зазначено, що певні ризики, пов'язані з інноваційною діяльністю, можуть бути застраховані, до таких ризиків належать: прямі майнові збитки, пов'язані з перевезеннями, роботою обладнання, поставкою матеріалів; непрямі збитки, спричинені демонтажем і переміщенням пошкодженого майна; ризики, що підлягають обов'язковому страхуванню (від нещасних випадків на виробництві, від захворювань, від пошкодження майна, від викрадання транспортних засобів).*

*Ключові слова: ризики, ризик-менеджмент, стратегія, стратегія управління ризиками, логістично-транспортні підприємства, транспорт, логістика, система, система управління ризиками, інновації, інноваційна діяльність.*

## FORMULATION OF THE PROBLEM IN GENERAL TERMS AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

The proper effective functioning of enterprises is impossible without a properly built internal control system. Currently, there is no clearly established model for logistics and transport enterprises, which provokes the introduction and promotion of a model for transforming the internal control system by three lines of defence based on the implementation of a risk management mechanism.

## ANALYSIS OF RESEARCH AND PUBLICATIONS

A number of works by domestic scholars are devoted to the issues of risk management at logistics and transport enterprises, including: Borovyk M.V. [1], Prykaziuk N.V., Medryk D.E. [3], Herasymenko O. [7], Tarashevskiy M.M. [8], Eforeenko L.V. [9], Volynec I.H. [10].

## FORMULATION OF THE OBJECTIVES OF THE ARTICLE

The article is aimed at studying the main components of the risk management system. The article proposes to build a system of internal control of a logistics and transport enterprise by adapting the model of three lines of protection.

## PRESENTATION OF THE MAIN MATERIAL

Due to the objective existence of risk, there was a need to create a mechanism that allows taking this factor into account when making and implementing business decisions. Such a mechanism is risk management, which includes a set of methods, techniques and measures that to some extent help to predict risk events and take measures to prevent or reduce the negative consequences of their occurrence.

The process of risk management includes: risk forecasting; assessment of their possible scope and consequences; development and implementation of measures to prevent or reduce risk-related losses [1].

According to the modern concept of risk management, risk management can be viewed as a system or a process. As a system, it contains subsystems (Fig. 1).

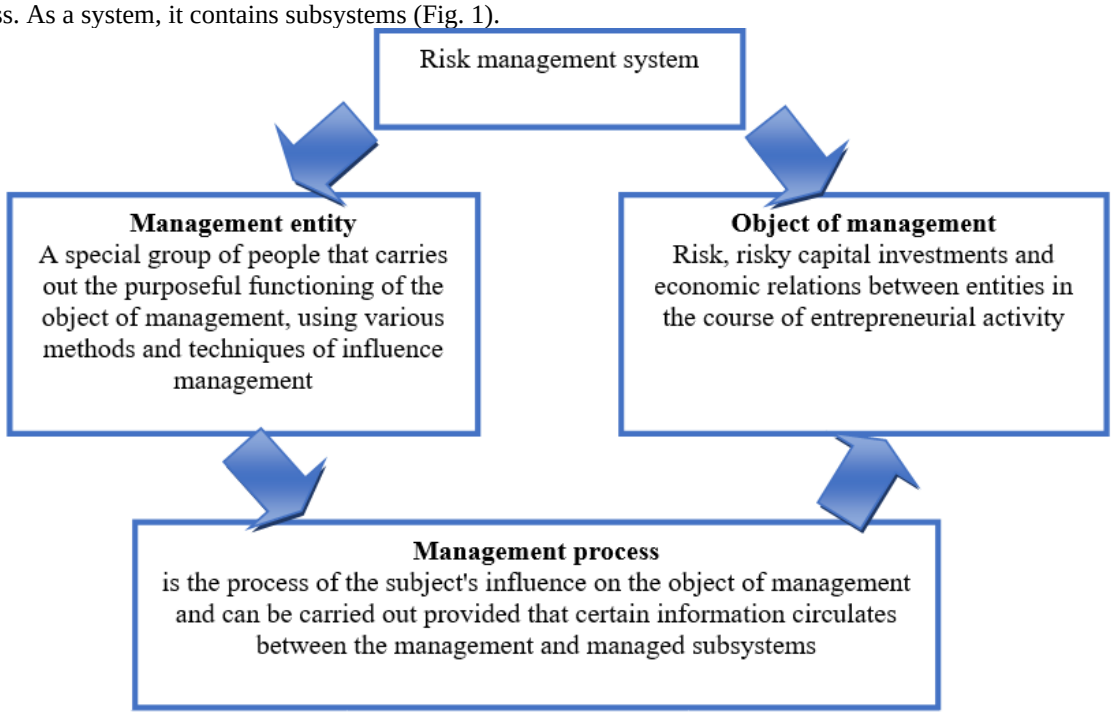


**Fig. 1. Risk management subsystems**

The management process always involves obtaining, transferring, processing and using information. In this case, the key role is played by obtaining reliable and sufficient information that meets specific conditions, as it allows an entrepreneur to make decisions on actions in risky situations.

Both the object and the subject of the business risk management system perform certain functions (Table 1).

Table 1

**Functions of the risk management subsystem**

| Subsystem | Features |
|---|---|
| Management system object | Organisation:<br>1) resolution of issues<br>2) works to reduce the degree of risk<br>1) 3) the risk insurance process; economic relations and connections between business entities |
| Subject of the management system | 1) Forecasting (development of prospective changes in the financial and economic condition of the object and its parts);<br>2) organisation (uniting people involved in risk management on the basis of certain rules and procedures: creation of governing bodies, building the structure of the management apparatus, development of rules and regulations);<br>3) regulation (influence on the object of management, which helps to achieve a situation of stability of this object in case of deviations from the set parameters);<br>4) control (checking the organisation of work on risk management);<br>5) coordination (coherence of all parts of the risk management system);<br>6) incentives (encouragement of specialists to be interested in risk management). |

For logistics and transport enterprises, risks are inherent in their business activities, transportation and transport services, and they require mandatory consideration and assessment when planning financial results. The main prerequisites for establishing an effective risk management system at transport companies are set out in international standards, in particular: FERMA [2], COSO ERM 2017 і 2018 [3], ISO 31000:2018 [4], ISO 9000:2015 [5], ISO 26500:2012, ISO 22301, ISO Guide 73:2009 [6], AS/NZS 4360:2004 [7].

Risk management should take into account possible synergies arising from the interaction of internal and external risks, as well as between elements of different risk groups.

The specifics of risk management at logistics and transport enterprises are determined by the nature of their activities and increased responsibility for risk situations. This requires a clear definition of goals, objectives, principles and methods of risk management in the transport sector.

The purpose of risk management in the transport industry is to ensure that the company is prepared for possible unfavourable situations and to achieve its goals. To do this, it is necessary to fulfil the tasks shown in Fig. 2.


**Fig. 2. Tasks of risk management of a logistics and transport enterprise**

Risk management should facilitate the implementation of measures (Fig. 3) aimed at achieving key performance indicators and improving the efficiency of the logistics and transport enterprise's processes [8].

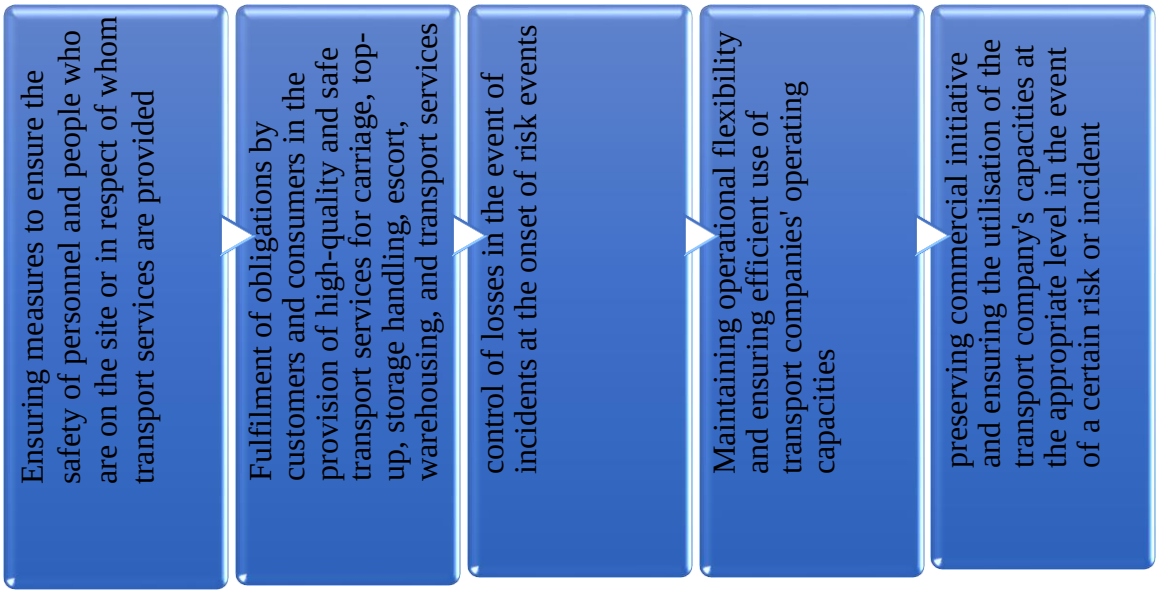


**Fig. 3. Measures to ensure that performance and efficiency indicators are met**

Risk management is closely related to control functions. The concept of control' has evolved from a control tool to internal control as a process, and then to an internal control system (ICS) [9].

The functioning of an enterprise directly depends on the effectiveness of the ICS. This system should fully meet the requirements of the enterprise, including its type, scale, specifics of business activities, composition of available resources, organisational structure, as well as mission and goals. A well-implemented ICS allows an organisation to achieve its goals and perform tasks aimed at achieving its mission. An effective ICS is an important tool for risk management. It helps an enterprise to achieve its goals and objectives by identifying and eliminating threats at all levels, both when implementing new processes and executing existing ones. This is critical for an objective assessment of the existing potential, development indicators and performance of the enterprise.

Integration of risk management of logistics and transport enterprises into ICS and corporate governance will ensure a sustainable and cyclic risk management process that will allow implementing all necessary measures to ensure the safety of health and life of people, preservation of property, achievement of key performance indicators, maintaining operational flexibility and promoting commercial initiatives.

The absence of ICS in an organisation leads to simplification of control and its transformation into self-control and observation. As a result, the organisation faces numerous uncovered residual risks, which, in turn, inevitably leads to the loss of part of the assets.

To build the ICS of a logistics and transport enterprise, it is proposed to choose a model of three lines of protection.

The traditional model of the three lines of defence involves the following division of functions: the first line includes operational management and is responsible for assessing, controlling and mitigating risks through effective internal controls; the second line provides risk management, identifies target risks, reports to senior management and monitors compliance; and the third line, which represents risk-based internal audit, reviews the implementation of risk management in the previous two lines and reports to senior management and the board on the effectiveness of risk assessment and management in the organization.

The traditional model can be adapted for logistics and transport enterprises in the process of risk management by focusing on planning roles instead of specific positions in the formation of the organisational structure; focusing on achieving added value, not just compliance with best practices in process implementation; and avoiding conflicts of interest, not just applying common practices (Fig. 4) [8].

According to the adapted model, the first line includes business owners, shareholders, participants and senior management, who are empowered to make key decisions on approving and managing corporate strategy, including risk management strategy. They approve and direct the internal control system.

The second line of defence includes process owners and experts who design and manage the internal control system in their designated areas of responsibility. The third line of defence is responsible for testing and coordinating the ICS with the help of independent experts who evaluate the effectiveness of other specialists. In this case, internal audit plays an additional role in coordinating risk management and establishing ICS between the second and third lines.

Within the second line, a single management function may cover several roles (e.g., the security service may be responsible for information security, cyber security, as well as human resources, transport and fire safety). There is also interaction between the first and third lines through the delegation of decision-making to process

owners. The basis of the internal audit and risk management cycle is to increase added value at an acceptable level of risk. Therefore, when the impact of external risks increases, business owners should be informed in a timely manner.

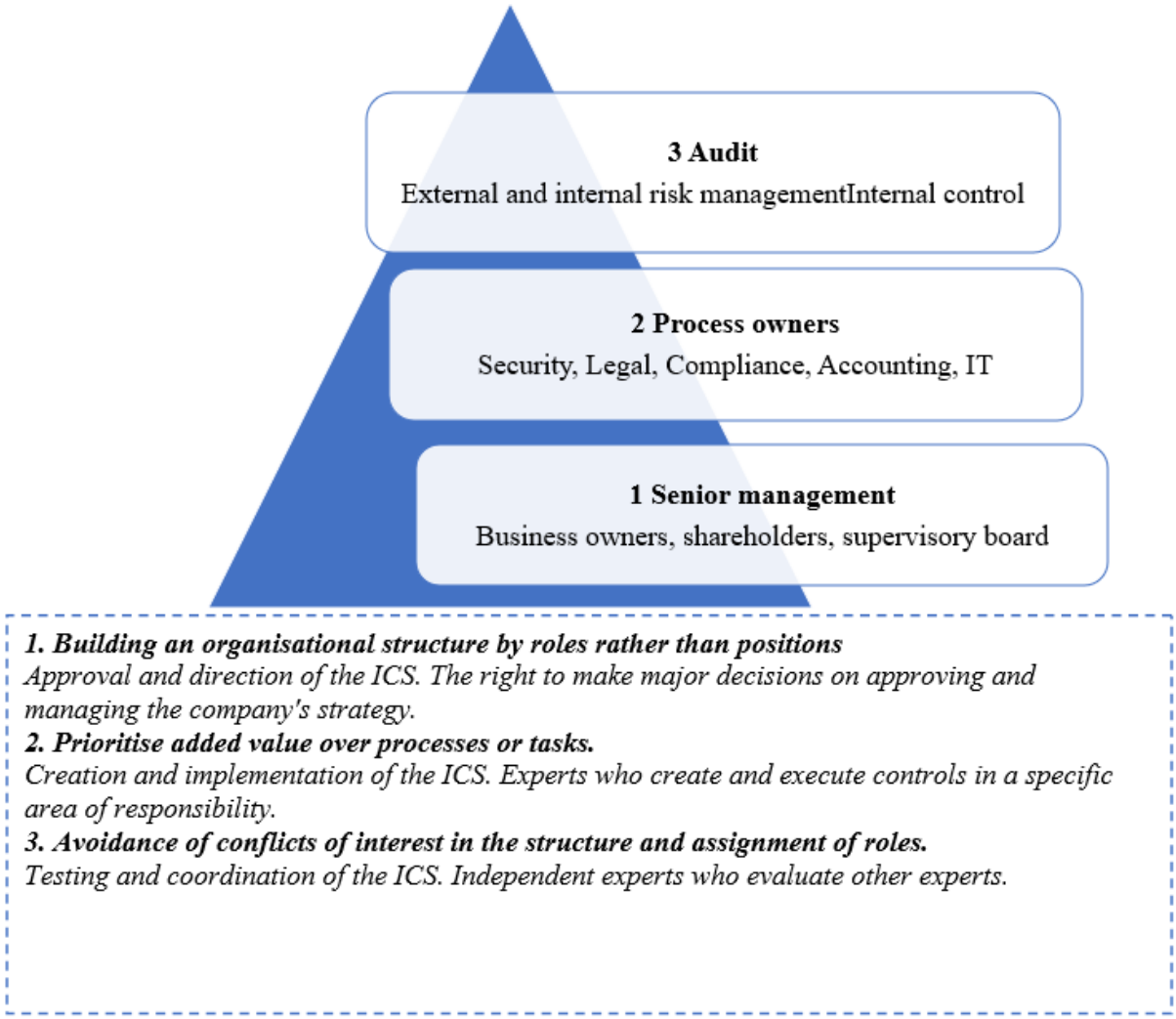


**Fig. 4. Model of ICS transformation by three lines of defence based on the implementation of the risk management mechanism**

When designing the roles, appropriate tools and institutions, such as a local audit or investment committee, steering or compliance committee, should be included to support the added value and contribute to the achievement of management objectives.

The assessment of risk management effectiveness is subjective and is based on an analysis of the availability and effectiveness of the risk management components defined in the COSO ERM model: control environment, tasking, event identification, risk assessment, risk response, control procedures, use of information systems and communication, and monitoring. These approaches are especially relevant for transport companies, as they help to form an organisational and economic mechanism for risk management.

According to the FERMA risk management standards, the risk management process at transport companies must be integrated into all levels of management.

When studying risks, as recommended by scientists, it is important to identify a group of risks that can be insured. In the event of certain risk events, an investor has reason to hope for compensation for losses associated with this risk. Risks that can be insured include: direct property losses related to transportation, equipment operation, and supply of materials; indirect losses caused by dismantling and moving damaged property; risks subject to compulsory insurance (against industrial accidents, diseases, property damage, and vehicle theft).

Developing on the basis of innovations and taking risks, an innovative enterprise, in order to reduce risk, is forced to improve its production base, logistics system, optimise the structure of the distribution network and the system of goods movement, adapting them to changes (expected or actual) in the market. In this aspect, each successfully implemented innovation expands the adaptive market capabilities of the enterprise to changes in the external environment [11].

## CONCLUSIONS

The main components of the risk management system are considered. It has been determined that risk management is closely related to control functions. It is proposed to choose an adapted model of three lines of protection to build an internal control system of a logistics and transport enterprise.

Accordingly, the first line of the model includes business owners, shareholders, participants and senior management, who have the right to make key decisions on the approval and management of corporate strategy, including risk management strategy. They approve and direct the internal control system.

The second line of defence includes process owners and experts who design and manage the internal control system in their designated areas of responsibility. The third line of defence is responsible for testing and coordinating the internal control system with the help of independent experts who evaluate the effectiveness of other specialists. In this case, internal audit plays an additional role in coordinating risk management and establishing the internal control system between the second and third lines.

Risks associated with innovation activities will cause certain changes in the operation of enterprises, in particular logistics and transport enterprises, which involves improving the production base, logistics system, optimising the structure of the distribution network and the goods movement system to adapt them to changes in the market. Successfully implemented innovations at an enterprise can expand the market's adaptive capabilities to changes in the enterprise's external environment.

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