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DIRECTIONS OF IMPROVEMENT OF RISK MANAGEMENT SYSTEM IN THE FIELD OF LOGISTICS ACTIVITIES

***Summary.** The changeable and unpredictable development of the enterprises’ external environment is one of the appearance causes of various types of business activities’ risks, including logistics. The purpose of this article is to develop recommendations on improving the risk management of enterprises’ logistics activities in the context of instability. Achieving this goal requires consideration of the main stages of this process regarding the logistics activities’ risks, providing advices on improving the process of risk management of logistics orientation. The article explores the process of analyzing the logistics activities’ risks of the enterprise. Proceeding from the theoretical provisions of management and summarizing the practical experience of research in the field of systematic analysis of the enterprises’ logistics activities risks, there are traced the organization’s peculiarities of such analysis, and the*

main directions of its further improvement are proposed. All actions in the article, which are related to the analysis of the risk of enterprise logistics activity, are proposed to carry out in a certain sequence in the article. This sequence is given in the form of a structural scheme of systematic analysis of the risks of the enterprise logistics activities. Based on the objectivity of the existence of logistics activities' risks and the need to ensure the rational management of them, the algorithm of the risk management in the enterprise logistics system covers the stages of risks' identification, their qualitative and quantitative assessment, diagnostics, assessment of risk acceptability and application of neutralization measures to unacceptable logistical risks. It is concluded that the logistics activities risks combine different types of risks of all components and elements both in the process of changing material, financial and information flows, as well as in the process of managing the risks arising in the logistics system.

Key words: *risk, risk management, logistics system.*

Statement of the problem. At the present stage of management, the success and effectiveness of enterprises crucially depends on the correctness and validity of the chosen business strategy and the use of logistic principles in management. The application of the logistics approach in the management practice allows to significantly improve the profitability and quality of service, to ensure the effective streaming processes management in the economic systems of enterprises, which is the key to significant advantages in competitive struggle.

Risks exist at all stages of the chain of production and delivery of goods in the logistics system. They may include political instability, a change in the exchange rate, carriers' opportunities, product retention periods and on the part of consumers demand. Minimizing logistical risks of the enterprise is one of the most important tasks of any enterprise focused on success.

Analysis of recent research and publications. The problematic issues of risk management in the process of logistics activities' organization are devoted to a significant number of scientific works of leading foreign and domestic scientists. The scientific workers pay much attention to the development of logistic risks' classifications, rationalisation of methodical approach and practical tools to determine the enterprise logistic risk in the conditions of uncertainty. These issues are in the focus of attention of many domestic and foreign scientists, such as: S. Bai, S. Hrynkevych [1], N. Ilchenko [4], O. Ilyash [1], M. Karpuntsov, N. Kondratenko [9], N. Kotseruba [7], N. Krasnokutska [2], V. Lachkova [2], N. Likhach [6], O. Lobashov [9], A. Mazaraki, S. Matviy [3], L. Mykhailovska, M. Oleksyuk [1], O. Olshansky [8], E. Savoskina [6], O. Sarkisova, N. Seraphim [5], N. Chukhrai [3]. Despite some interest of scientists in risk management problems, existing developments do not allow to form a systematic vision of the process of choosing the appropriate approach to risk management in the field of logistics activities of trading enterprises.

Fomulation purposes of article (problem). The analysis of scientific works has demonstrated that the works which are focused on the problems of forecasting risks in the logistics activities of trade enterprises is not enough. The problems investigated in the article cause the next goal setting: to improve the system of management of logistics risks of a trading enterprise.

The main material. Analyzing the theoretical development principles of the enterprise logistics, it is necessary to distinguish the main development directions of the enterprise logistics system. External factors for the development of logistics systems are the transition from the seller's market to the buyer's market; increased competition; energy crisis of the 70s of the XX century; achievement of scientific and technological progress; computerization of material flow management [1, p. 85-90].

Scientists identify the following stages of logistics development: the first (60-ies of the XX century) is characterized by the use of a logistical approach to the management of material flows in the sphere of circulation; the second (80s of the XX century) is characterized by consideration of production together with storage and transportation, that allows to reduce stocks, to improve quality of customers service due to timely execution of orders, to improve equipment using; the third stage refers to the present time and is characterized by the active use of modern communication technologies, which provide rapid passage of material and information flows. These flows allow to control all stages of the product movement from the primary source of raw materials to the end consumer [1, p. 121-134].

Analyzing the opinions of domestic scientists, it can be concluded that the development of logistics management in Ukraine depends on many positive and negative factors, external and internal problems. And external ones are the most important among them. These include, firstly, the crisis situation of the economy as a whole, low purchasing power of the population, insufficient level of investment activity and financial crisis.

Secondly, due to the fact that the value of the circulation sphere, which in the concept of logistics plays a decisive role, slowly developed the movement of goods on the basis of logistics, has been not evaluating properly in Ukraine for a long time.

Thirdly, the development of market infrastructure (distribution systems of goods, communications, transport networks) in Ukraine is slowing down and is below the global average.

The main objectives of the development of logistics systems are [2, p. 76-82]:

- organization of complex, integrated systems of material, information and other related flows;

- strategic coordination, planning and control over the use of logistics capacities of production and circulation spheres;
- achievement of high systemic flexibility;
- ongoing improvement of the logistics concept within the chosen strategy in the market environment.

Specific tasks of modern logistics development can include: maximum reduction of product storage time; reducing the transportation time; rational distribution of transport facilities; quick responsiveness to consumer demands [2, p. 36].

At present, the main priority of logistics at the enterprise is maximum coordination of material and information flows when they are combined. The solving of this task is the use of electronic data processing, automation of production and implementation of other innovations while improving the structure of information flows in logistics, which are widely used now in domestic enterprises. Nowadays the enterprises have a tendency to improve logistics systems, so it becomes urgent the need to implement and widely use such information systems, which would allow to organically combine all logistics subsystems in one. This form of management requires constant common communication between all participants of joint activities [2, p. 53-67].

In case of using the global (network) economy, the organization has the following opportunities [3]:

- application of fast transportation over long distances. This can be achieved only by close cooperation, including through the combining of freight forwarders by the Internet;
- by means of the Internet, buyers and sellers can make connections with each other through huge distances, sometimes being at different ends of the globe;
- supporting the overall logistical flow of goods obtained through the Internet is an advantage in competitive struggle.

The concept of a balanced scorecard, which involves the use of managerial information systems and which tracks a limited number of metrics that are closely related to strategic goals, is also a priority for the development of enterprise logistics. [4]. The reference model of operations in supply chains is designed to standardize its activities, to compare itself with competitors, to take the experience of enterprises in its own and other industries. It is based on a standard description of supply chains management processes, standardization of interconnection between business processes, standard criteria that allow measuring and comparing performance indicators (productivity) processes, supply chains management practices that help achieve the best results [4].

A systematic approach to risk analysis in logistics as a general methodological direction in science allows for an insightful analysis of all activities aspects of the subjects of logistics activity in terms of their subordination to the overall business development strategy, the interests of shareholders, managers and other related groups, a comprehensive analysis of performance results, as well as the compliance of the results with the goals and objectives, the existing development potential [5]. The high degree of risk of the enterprise logistics activities leads to the need to find ways to decrease it. When it talks about the need to take into account the risk in a certain type of economic activity (a certain project), it means the interests of the entities involved in it: the customer, investor, executor (contractor) or seller, buyer, as well as the insurance company.

Risk analysis is carried out in this sequence [6]:

- identification of internal and external factors that increase or decrease the degree of risk;
- analysis of detected factors;
- assessment of a certain type of risk;
- establishing an acceptable degree of risk;
- analysis of individual operations regarding the chosen degree of risk;

- development of measures to decrease the degree of risk.

The following important cases should be considered during the risk analysis:

- the loss volumes from different types of risk do not depend on each other;
- implementation of a certain type of risk does not necessarily increase or decrease the possibility appearance of another (except for risk of force majeure event);
- in case of implementation of a particular risk the maximum possible losses should not exceed the financial capacities of the enterprise.

Analysis and assessment of the risk of logistics activities provides for determining the degree of risk possibility and the amount of losses. Calculation and analysis of risks in this case, as a rule, provides for such stages [7]:

- modeling the consequences of each risk factor;
- determination of the real (predictable) possibility of each risk factor and losses from it in value terms;
- time distribution of risks (in view of that many risks are concentrated in the initial stages of the project implementation (risky situation) and disappear with the approach to completion of works);
- building a structural element model of risk factors with the identification of each factor and its quantitative assessment;
- ranking of risk factors by importance and selection of the most threatening risks;
- creation of a database (bank) of data on similar transactions (projects) on the acceptability of a particular level (risk factor);
- choosing of alternative criteria for developing a risk management strategy;
- liquidity maximization;
- profitability maximization for fixed levels of liquidity and risk;
- risk minimization for fixed levels of liquidity and profit (profitability).

The first stage of the process of forming a logistics risk management system of a trading enterprise is to determine the goal, which can be risk minimization and income maximization from risk-related situations [8].

Later on, the data collection on variables that containing information about the current state of the company and the environment is carried out. Then there are identification of risk factors, probability assessment of their appearance and formation of the risk profile of the enterprise.

By means of factor analysis the functions of finding, evaluating and comparing the optimal solution are carried out. The search function involves additional research into possible risks in order to do their in-depth analysis. The evaluation function consists in a detailed study of the causes and factors that influenced the discrepancy of actual risk values and planned indicators. Comparative function allows to correlate emerging risks with certain criteria, in other words, it identifies differences from a given level of risk [7].

On the basis of a thorough analysis of material flows and causes of malfunctions that occurred in past periods, quantitative and qualitative assessment of risks is carried out, after which a model of the logistics system is developed. Qualitative evaluation allows to identify areas of risk manifestation, and quantitative – to estimate the magnitude of risks in numerical form.

Imitation, analytical and optimization methods are used for the study of logistic processes. Imitation modeling allows to evaluate options for actions in conditions of uncertainty. Then, during the modeling of relations of supply chain participants, the Pareto principle is used. This principle determines the point of balance, the deviation from which can provoke a deterioration of the criterion of optimality of participants, the estimated indicators of many variants of actions are calculated, on the basis of which choosing the best [2, p. 73]. The analytical method uses standard approaches to calculating the assessments of alternatives. Optimization methods involve the use of linear programming, which allows to evaluate existing alternatives and choose the best option. The economic

justification of methods for reducing costs in the supply chain of a trading enterprise is based on the forecasting of future conditions and does not produce a guaranteed result, since the forecast may be false. Such uncertainty affects the degree of risk hazards and the size of the consequences of making the wrong decision, so it is recommended to form a risk management system, simultaneously designing the logistics system. Functional and process approaches can be used to organize the logistics system.

The process approach of risk management should include analysis and coordination of interaction of all participants of the supply chain and functional units of the enterprise [9]. Risk flows due to this approach are considered at several levels, table 1.

Table 1

Identification of risk flows at different levels of risk management of a trading enterprise

Level	Risk factors	Method of risk management
1. Operation	Quality of execution and consistency of operations	Joint coordination of unit actions, transparency of major flows, timely control and monitoring
2. Infrastructure	Work of technological equipment and elements of information, transport and warehouse and production infrastructure	Compliance with the optimal maintenance mode, constant analysis of the current state of infrastructure
3. Supply chain links	Interaction of supply chain participants and the degree of influence of individual participants	Application of different interaction options, conclusion of partnership agreements
4. Logistics system	Disruptions to supply networks and related supply chains	Changing the structure of the logistics system based on information from logistics research
5. Environment	Interaction of the enterprise with the external environment	Forecast of risks due to operational response

Resource: [8; 9]

In case of the functional approach, the identification of risk factors is carried out at certain stages of material flows movement, and their management takes place within the appropriate functional zones. The main drawbacks of the

functional approach are incomplete vision of the process, difficulty assessing the impact of each stage on the final result, which characterizes the degree of the logistics system efficiency.

Using the process approach, each supply system and supply chain is represented in the form of a set of dependent processes. In the supply chain, the movement of material flows is considered as an end-to-end process, the risk movement is analyzed, its transformation into another kind is carried out, there is a mutual exclusion of several types of risks.

Consequently, for the effective functioning and sustainable development of enterprises in conditions of instability and uncertainty, a systematic approach to the management of logistics risks should be used. This will identify reserves to improve the efficiency of business process management and scientifically reasonably develop a plan of measures aimed at optimizing time, minimizing the cost of organizing logistics activities, rational use of resources, ensuring requirements for the quality of logistics services in the product supply chain, transformation of partnerships, flexible response to changes in the market environment.

Insights from this study and perspectives for further research in this direction. From there, risk management is one of the most important aspects of ensuring sustainable functioning and development of the logistics system of the trading enterprise, so to improve the efficiency of logistics activities of the trading enterprise, it is necessary to develop an algorithm of risks assessment in the management process.

The risk management model considers not only comparing different alternative options for organizing logistics activities in risk conditions, but also effectively managing appropriate risks. Using such a model during the solving the tasks of risk management in supply chains of trading enterprises will enable the effective organization of logistic processes in the relevant links of supply chains.

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