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## COMPREHENSIVE ANALYSIS OF THE IMPACT OF THREATS ON THE LOGISTICS SYSTEM OF ENTERPRISES

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The article is devoted to the problems of complex analysis of the impact of threats through the prism of the study of the elements of the logistics system. In the formation and implementation of logistics activities come to the fore the development of methodological principles and theoretical problems associated with a comprehensive study of the supply of raw materials, production processes, the establishment of sales channels for finished products. Logistics activities of enterprises should be carried out on a block basis on the basis of model consideration of its elements. The article builds a model of logistics activities of enterprises, which consists of four separate elements: procurement logistics, production logistics, sales logistics and control systems for logistics activities. The development of modern economic relations is formed under the influence of intensifying globalization changes, which are mainly manifested in the expansion of markets for products, finding the most optimal and safe business partners. Requirements to the terms of contracts, product quality, which requires a comprehensive assessment of export potential, its strengths and weaknesses, as well as economic risks that can significantly change the course of trade agreements and affect the amount of profit. Therefore, in the conditions created under the influence of intensified competition for markets, it is necessary to make full use of opportunities to assess threats to minimize and prevent. Within the limits of substantiation of mechanisms and measures of stabilization of an internal condition of the enterprise the order of an estimation of internal and external threats of development of logistic activity by means of the separated (by weighting factors) and integrated (according to the offered order of their summary) estimation is proved.

**Keywords:** enterprise, logistics system, threats, supply, efficiency, competitiveness.

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### *Introduction and problem statement*

The development of market transformations in Ukraine is accompanied by an increase in market participants and intensification of competition between them. At the same time, one of the most effective tools for achieving competitive advantages for individual producers and their partners is the creation of effective in organizational, production, economic aspects of associations with trade enterprises in the form of logistics chains. Optimally constructed logistics chain ensures efficient production processes, promotes economic development and increases the investment attractiveness of the enterprise. All this contributes to improving the quality of life of the population and ensuring sustainable development of the territory.

### *The purpose of the article*

The purpose of the study is to scientifically substantiate the feasibility of an integrated approach to assessing the effectiveness of logistics activities of enterprises.

### *Analysis and research of publications*

Processes in economic activity through the use of selection of suppliers of raw materials, identification of threats to enterprise development and restructuring of logistics. These issues were studied by such domestic and foreign scientists as: Anikina B.A, Babenkova T.Yu., Babiy I.V., Beyher O.V., Belyakova O.V., Gerasymchuk Z.V., Goy I.V., Gordon M.P., Domnina S.V., Krykavsky E.V., Kovalska L.L, Konishcheva N.Y., Larina R.R., Levkin G.G., Litvinenko V.A.,

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Mirotin L.B., Moroz O.D., Novikova O.A., Oklander M.A., Plotkin B.K., Prokofieva T.A., Rakhmangulova O.N., Rodnikova A.N., Savka B.R., Semenenko A.I., Smekhova A.A., Stepanov V.I., Sumets O.M., Tishkina E.M., Trushkina N.V., Tyurina N.M., Uskova N.S., Shcherbakov V.V. etc.

**Presentation of the main material**

Logistics is considered as integrated flow management in the enterprise. It covers all areas: supply, production, marketing, transportation, sales, finance, service, infrastructure, warehousing, transportation, inventory management.

Consider the model of logistics activities of enterprises (Fig. 1).

One of the main problems faced by enterprises in the procurement process is the search for optimal ways and sources of purchase and delivery of products. The solution to this problem is provided by decision-making and evaluation of their effectiveness.

Thus, the main functions of procurement logistics include: search for material resources, research, evaluation and identification of optimal suppliers of raw materials, methods of delivery, as well as the implementation of procurement processes and control over their implementation. From the point of view of logistics activities of enterprises, the importance of production process management lies in effective (in terms of minimizing costs and improving the quality of finished products) management of material flows and work in progress processes, participates in the distribution of finished products. It is the foundation for strategic production planning, forecasting markets and improving product

tastes, based on consumer preferences. Production logistics requires a comprehensive approach to managing the system of production, storage and transportation of finished products.

The main tasks of production logistics are:

- rational use of material flows in the enterprise based on the forecast of market needs;
- setting standards for work in progress and monitoring their compliance;
- coordination of production processes with supply and marketing services;
- minimization of time to perform basic transport and warehousing operations;
- ensuring flexible, coordinated operation of all production processes on a single schedule and uniform
- management and control of the production process;
- identification and study of the causes of deviations from the planned tasks, the application of measures to eliminate these causes;
- participation in research and implementation of production innovations;
- control of finished products.

An integral part of the logistics activities of enterprises is sales logistics or distribution logistics. It includes: receiving orders for the supply of products and their efficient processing; physical distribution of finished products; organization of product shipment; establishing commercial ties with intermediaries; organization of delivery and control of transportation; marketing; sale of finished products, organization of a network of warehouses, etc.

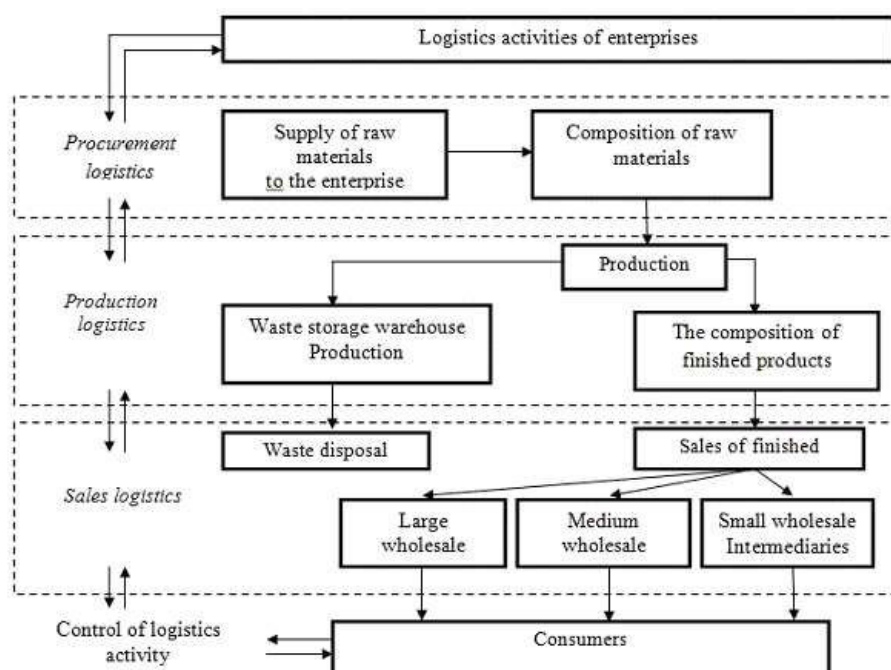


Fig. 1. Model of logistics activities of enterprises

Effective management of logistics operations at enterprises is impossible without the application of a control approach. It provides an opportunity to explore, identify, evaluate the relationship between all elements of the management system in the structure.

Control in logistics systems – a cyclical process of processing logistics data to identify deviations or discrepancies between planned and actual values of logistics indicators, as well as analysis of these deviations to identify the causes of discrepancies [1, p. 211].

The development of modern economic relations is formed under the influence of intensifying globalization changes, which are mainly manifested in the expansion of markets for products, finding the most optimal and safe business partners. Requirements to the terms of contracts, product quality, which requires a comprehensive assessment of export potential, its strengths and weaknesses, as well as economic risks that can significantly change the course of trade agreements and affect the amount of profit. Therefore, in the conditions created under the influence of intensified competition for markets, it is necessary to make full use of opportunities to assess threats to minimize and prevent [2].

The main commercial threats to business have a kind of mirror image from the standpoint of internal organization of management processes. This reflection is formed as a separate group – logistics risks, which, in turn, are associated with the existing logistics system at the enterprise. Chains of material carriers of a product at stages of activity occupy the basic positions among logistic directions of management. In practice, the logistics system of the enterprise covers the movement of goods from the purchase of raw materials to the processes of moving orders into the market space. It includes various aspects, the work of which is influenced by various factors and which are associated with specific risks. One of the principles of logistics activities of the enterprise is reliability. The main purpose of logistics is to minimize costs, so due attention should be paid to risk management, as the emergence of these problems leads to the loss of a significant part of the company's profits. Risk management is a set of methods, techniques and measures that allow to some extent to predict the occurrence of risk events and take measures to reduce them [3]. Thus, the risks will have to be minimized or neutralized, and the costs of risk management in the field of logistics will have to be justified.

In recent years, the term «threat to logistics» is increasingly used in the scientific literature, but there will be a common approach to the definition of this term. Very often the concepts of «threat of logistics activities» are equated to such concepts as «logistics

risk», «risks in logistics systems», «risks in distribution channels», «threat in logistics operations». To date, there is no single classification of risks of logistics activities of the enterprise.

According to Sterligov K. «logistics risks combine different types of risks of all components and elements in the process of changing material, financial and information flows, and in the process of managing the risks arising in the logistics system» [4].

In the work of Mirotin L.B. threats in logistics are defined as «external factors that affect the reliability of the system. These include risks from the reliability of management, the reliability of operational calendar planning of incoming and outgoing flows, risks from the assessment of insurance (or regulatory) stocks» [5, p. 37–38].

According to the author [6], «logistics threats are risks of logistics operations of transportation, warehousing, cargo handling and inventory management and risks of logistics management of all levels, including emerging management risks. when performing logistics functions and operations».

Kichaev T.Yu. defines a logistical threat as a case of «occurrence of potential failures (inconsistencies) in business processes due to established events, the critical consequences of which, from the standpoint of the subject of management, excludes the planned result or, conversely, allows to exceed it in the presence of alternatives» [7].

Instead, Yakhneev I.V. insists on the introduction into the scientific base of logistics of a new functional area of logistics, namely: «threat logistics as a theory and practice of risk flow management based on a systems approach» [8, p. 74].

The flow of threats is defined as «a group of random situations, the occurrence of which is associated with the movement of material or other flows and affects the nature of flow processes» [9, p. 73].

Foreign scientists have proposed to use the definition of threat in supply systems as «a factor of activity characterized by certain conditions, the strength of the resource potential, which acts as an indicator, integrator and regulator of the supply system» [10]. According to the interpretation of the Ukrainian dictionary, the term «threat» is defined as a conscious possibility of danger [11]. The risks of logistics activities of the enterprise can be divided into external and internal risks (Fig. 2).

Having identified key positions in the proposed theoretical calculations, we can conclude that understand the “factor of influence of internal and/or external factors that accompany the material, financial, information and service flows of the enterprise.”

The algorithm for managing threats to logistics activities must have a clear structure, but it must be

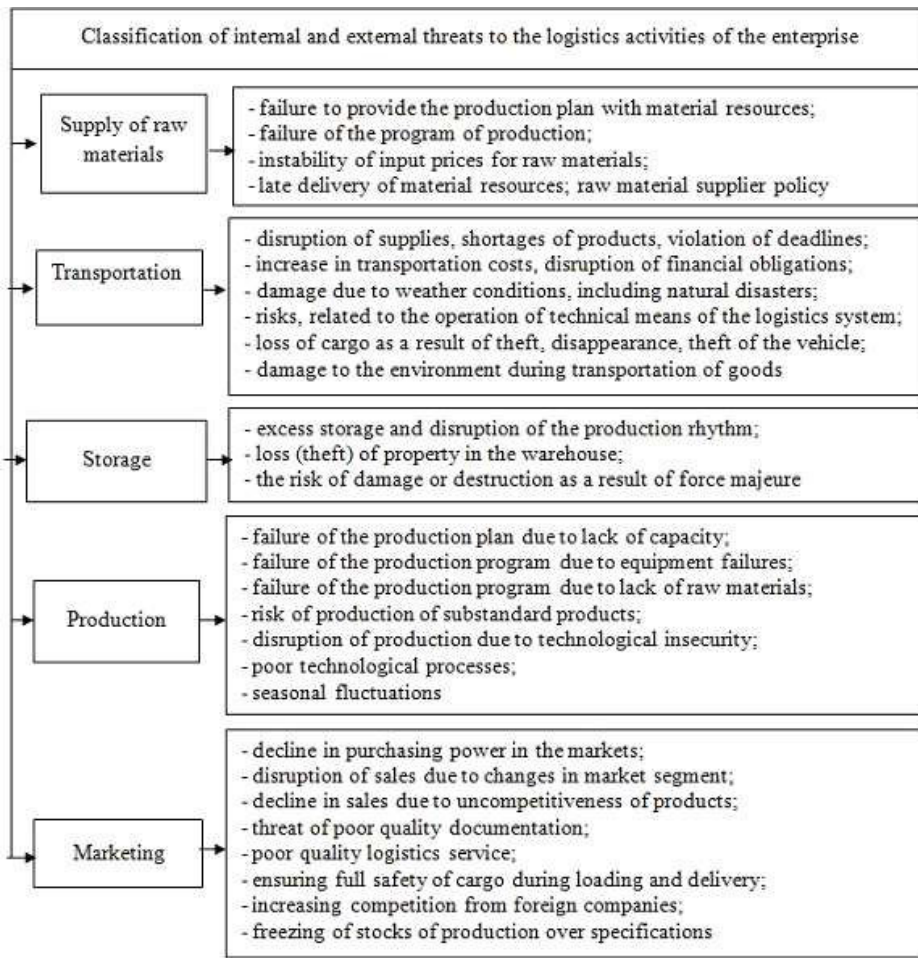


Fig. 2. Classification of threats to logistics activities of the enterprise

Source: developed by the author

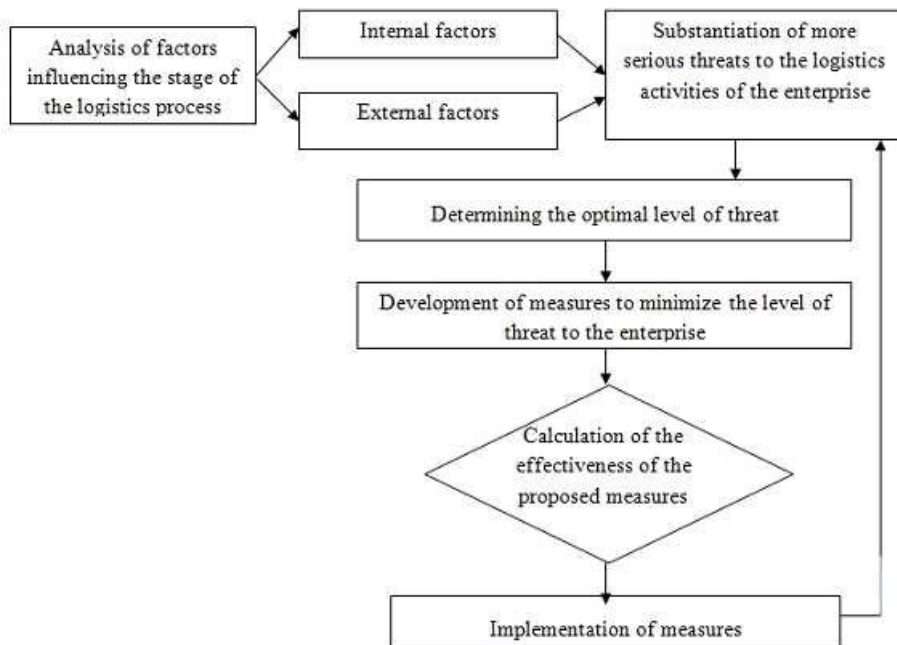


Fig. 3. Algorithm for managing threats to the logistics activities of the enterprise

Source: developed by the author

flexible (Fig. 3). The algorithm allows to optimize the influence of factors on the logistics activities of the enterprise.

To develop the algorithm is important to determine the factors that affect the logistics process. STEP analysis identifies the impact of factors such as political, economic, social and technological.

SWOT analysis identifies threats and opportunities to take into account the strengths and weaknesses of logistics activities at a particular stage of the logistics process. Then the rank of each threat is determined and set from maximum to minimum rank [12].

The optimal threat level is then determined. At the next stage, measures are developed to minimize the level of threat to the logistics process, primarily for the group of risks that have the highest rank.

The algorithm has clearly defined steps. The algorithm has clearly defined stages. The first stage is to determine the external and internal factors that affect the stage of the logistics process.

In the second stage, the substantiation of more serious threats to the logistics activities of the enterprise is carried out. Then the optimal level of threat is determined.

One of the main stages of algorithm development is to calculate the effectiveness of the proposed measures. If the measures are ineffective, it all starts with the second stage.

The last stage is the implementation of effective measures in the logistics activities of the enterprise.

### Conclusion

The conducted researches allow to draw the following conclusions, namely: for today activity of the enterprise it is necessary to consider logistic activity through a prism of model of logistic system. The main elements of the system should be procurement logistics, production logistics, sales logistics and control of logistics activities. By improving the model of the logistics system increases the level of competitiveness of the enterprise.

Separately, based on the research and work of domestic scientists, with the help of scientific analysis the concepts of «threat of logistics activities», «logistics risk», «risks in logistics systems», «risks in distribution channels», «threat in logistics operations», and the definition of «threat to the logistics activities of the enterprise» is also proposed. The author has developed an algorithm for managing threats to the logistics activities of the enterprise. Further research requires the development of a set of measures to reduce the impact of the level of threats on the logistics activities of the enterprise.

## REFERENCES

1. Bowersox, Donald J., & Kloss, David J. (2012). *Logistika: integrirovannaj shep postavok [Logistics: an integrated supply chain]*. Moscow: ZAO OlympBusiness [in Russian].
2. Kuchkova, O. & Govorukha, V. (2018). Osinka logisticheskogo potentsiala predpriatiu ypravlenia regiona [An Estimation of the Logistics Potential of Enterprises in the Region's Management]. *Montenegrin Journal of Economics*, 14, 2, 79–89 [in Montenegrin].
3. Korotkyi, Yu.V. (2014). Osinka logisticheskogo riskov mashinocitroitelnuh predprtsatu [Assessment of logistical risks of a machine-building enterprise]. *Ekonomichni nauky – Economic sciences*, 159–167 [in Ukrainian].
4. Sterligov, K. (2006) Mexanizm ypravlenia riskami v logistske [Risk management mechanisms in logistics]. *Logistika i sistema – Logistics and system*, 4, 49–55 [in Ukrainian].
5. Mirotina, L.B (Eds.). (2004). *Effektivnost logisticheskogo ypravlenia [The effectiveness of logistics management]*. Moscow: «Ekzamen Publishing House» [in Ukrainian].
6. Pletneva, N.G. (2006). Analiz riskov logistiki i tsepei postavok: podkhod k klassifikatsii i algoritm prinatia resheniu [Logistics and supply chain risk analysis: classification approach and decision algorithm]. *Vestnik INZhEKONa – Bulletin of INJECON*, 4 (13), 213–220 [in Russian].
7. Kichaeva, T.Y. (2013). Upravlenie logisticheskimi riskami seti distribjtorov molochnoi produkty [Management of logistical risks of a network of distributors of dairy products]. *Extended abstract of candidate's thesis*. Samara [in Russian].
8. Yakhneeva, I.V., & Burkov, A.V. (2012) *Organizasia ypravlenia riskami v shepax postavok [Organization of risk management in supply chains]*. Yoshkar-Ola: Colloquium [in Ukrainian].
9. Bauersocks, D., & Kloss, D. (2008) *Logistika: integrirovannaj shep postavok [Logistics: an integrated supply chain]*. Moscow: Olimp-Business [in Ukrainian].
10. Akademichnyi tlymachnyi slovnyk [Academic explanatory dictionary of the Ukrainian language]. (n.d.). *eslovnyk.com*. Retrieved from <https://eslovnyk.com/risk> [in Ukrainian].
11. Grishko, V.V., & Gunchenko, M.V. (2020) Systemnyi analiz riskov v logisticheskoi deiatelnosti promushlennogo predpriatia [System risk analysis in the logistics activities of an industrial enterprise]. *Naukovyi visnyk Mizhnarodnoho humanitarnoho universytetu – Scientific Bulletin of the International Humanities University*, 24-27 [in Ukrainian].
12. Shtal, T. V., Uvarova, A. Ie., & Ostapenko, I. I. (2018). Evaluation of the Influence of External Environmental Factors on Logistics Activities: Case Study of Ukrainian Retail Trade Enterprises. *Journal of Environmental Management and Tourism*, 9 (7), 193–201 [in Ukrainian].

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**КОМПЛЕКСНИЙ АНАЛІЗ ВПЛИВУ ЗАГРОЗ НА ЛОГІСТИЧНУ СИСТЕМУ ПІДПРИЄМСТВ**

**Кучкова О.В.**

Стаття присвячена проблематиці комплексного аналізу впливу загроз через призму дослідження елементів логістичної системи. При формуванні та реалізації логістичної діяльності на перший план виходять завдання розробки методологічних принципів і теоретичних проблем, пов'язаних із комплексним дослідженням питань постачання сировини та матеріалів, забезпеченням виробничих процесів, налагодженням каналів збуту готової продукції. У роботі доведено, що системне врахування різних складових логістичної діяльності підприємств слід здійснювати за блочним принципом на основі модельного розгляду його елементів. В статті побудована модель логістичної діяльності підприємств, яка складається з чотирьох відокремлених елементів: логістика закупівель, логістика виробництва, логістика збуту та системи контролю логістичної діяльності. Розвиток сучасних економічних відносин формується під впливом посилення глобалізаційних змін, які переважно виявляються у розширенні ринків збуту виробленої продукції, пошуку найбільш оптимальних і безпечних бізнес-партнерів. Підвищуються вимоги до умов укладення контрактів, якості товару, що передбачає необхідність комплексного оцінювання експортного потенціалу, його сильних і слабких сторін, а також економічних ризиків, які можуть істотно змінити хід проведення торговельних угод і вплинути на кількість отриманого прибутку. Тому в умовах, створених під впливом посиленої конкурентної боротьби за ринки збуту, необхідно повною мірою використовувати можливості оцінювання загроз для мінімізації та запобігання. У межах обґрунтування механізмів і заходів стабілізації внутрішнього стану підприємства обґрунтовано порядок оцінювання внутрішніх і зовнішніх загроз розвитку логістичної діяльності за допомогою виокремленого (за ваговими коефіцієнтами) й інтегрованого (за запропонованим порядком їх зведення) оцінювання.

**Ключові слова:** підприємство, логістична система, загрози, постачання, ефективність, конкурентоспроможність.

**КОМПЛЕКСНИЙ АНАЛІЗ ВЛИЯНИЯ УГРОЗ НА ЛОГИСТИЧЕСКУЮ СИСТЕМУ ПРЕДПРИЯТИЙ**

**Кучкова О.В.**

Статья посвящена проблематике комплексного анализа влияния угроз через призму исследования элементов логистической системы. При формировании и реализации логистической деятельности на первый план выходят задачи разработки методологических принципов и теоретических проблем, связанных с комплексным исследованием вопросов поставки сырья и материалов, обеспечением производственных процессов, налаживанием каналов сбыта готовой продукции. В работе доказано, что системный подход составляющих логистической деятельности предприятий следует осуществлять по блочному принципу на основе модельного рассмотрения его элементов. В статье построена модель логистической деятельности предприятий, которая состоит из четырех обособленных элементов: логистика закупок, логистика производства, логистика сбыта и системы контроля логистической деятельности. Развитие современных экономических отношений формируется под влиянием усиления глобализационных изменений, которые в основном проявляются в расширении рынков сбыта продукции, поиска наиболее оптимальных и безопасных бизнес-партнеров. Повышаются требования к условиям заключения контрактов, качества товара, предполагает необходимость комплексной оценки экспортного потенциала, его сильных и слабых сторон, а также экономических рисков, которые могут существенно изменить проведения торговых сделок и повлиять на количество полученной прибыли. Поэтому в условиях, созданных под влиянием усиливающейся конкурентной борьбы за рынки сбыта, необходимо использовать возможности оценки угроз для их минимизации. В рамках обоснования механизмов и мер стабилизации внутреннего состояния предприятия обоснованно порядок оценки внутренних и внешних угроз развития логистической деятельности с помощью обособленного (по весовыми коэффициентами) и интегрированного (по предложенному порядку их возведения) оценок.

**Ключевые слова:** предприятие, логистическая система, угрозы, поставка, эффективность, конкурентоспособность.

COMPREHENSIVE ANALYSIS OF THE IMPACT OF THREATS ON THE LOGISTICS SYSTEM OF ENTERPRISES

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The article is devoted to the problems of complex analysis of the impact of threats through the prism of the study of the elements of the logistics system. In the formation and implementation of logistics activities come to the fore the development of methodological principles and theoretical problems associated with a comprehensive study of the supply of raw materials, production processes, the establishment of sales channels for finished products. Logistics activities of enterprises should be carried out on a block basis on the basis of model consideration of its elements. The article builds a model of logistics activities of enterprises, which consists of four separate elements: procurement logistics, production logistics, sales logistics and control systems for logistics activities. The development of modern economic relations is formed under the influence of intensifying globalization changes, which are mainly manifested in the expansion of markets for products, finding the most optimal and safe business partners. Requirements to the terms of contracts, product quality, which requires a comprehensive assessment of export potential, its strengths and weaknesses, as well as economic risks that can significantly change the course of trade agreements and affect the amount of profit. Therefore, in the conditions created under the influence of intensified competition for markets, it is necessary to make full use of opportunities to assess threats to minimize and prevent. Within the limits of substantiation of mechanisms and measures of stabilization of an internal condition of the enterprise the order of an estimation of internal and external threats of development of logistic activity by means of the separated (by weighting factors) and integrated (according to the offered order of their summary) estimation is proved.

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REFERENCES

1. Bowersox, Donald J., & Kloss, David J. (2012). *Logistika: integrirovannaj shep postavok [Logistics: an integrated supply chain]*. Moscow: ZAO OlympBusiness [in Russian].
2. Kuchkova, O. & Govorukha, V. (2018). Osinka logisticheskogo potentsiala predpriatiju upravlenia regiona [An Estimation of the Logistics Potential of Enterprises in the Region's Management]. *Montenegrin Journal of Economics*, 14, 2, 79–89 [in Montenegrin].
3. Korotkyi, Yu.V. (2014). Osinka logisticheskogo riskov mashinostroitelnyh predpratsu [Assessment of logistical risks of a machine-building enterprise]. *Ekonomichni nauky – Economic sciences*, 159–167 [in Ukrainian].
4. Sterligov, K. (2006) Mexanizm upravlenia riskami v logistiske [Risk management mechanisms in logistics]. *Logistika i sistema – Logistics and system*, 4, 49–55 [in Ukrainian].
5. Mirotina, L.B (Eds.). (2004). *Effektivnost logisticheskogo upravlenia [The effectiveness of logistics management]*. Moscow: «Ekzamen Publishing House» [in Ukrainian].
6. Pletneva, N.G. (2006). Analiz riskov logistiki i tsepei postavok: podkhod k klassifikatsii i algoritm prinatia resheniu [Logistics and supply chain risk analysis: classification approach and decision algorithm]. *Vestnik INZhEKONa – Bulletin of IN-JECON*, 4 (13), 213–220 [in Russian].
7. Kichaeva, T.Y. (2013). Upravlenie logisticheskimi riskami seti distribjtorov molochnoi produkty [Management of logistical risks of a network of distributors of dairy products]. *Extended abstract of candidate's thesis*. Samara [in Russian].
8. Yakhneeva, I.V., & Burkov, A.V. (2012) *Organizatsia upravlenia riskami v shepax postavok [Organization of risk management in supply chains]*. Yoshkar-Ola: Colloquium [in Ukrainian].
9. Bauersocks, D., & Kloss, D. (2008) *Logistika: integrirovannaj shep postavok [Logistics: an integrated supply chain]*. Moscow: Olimp-Business [in Ukrainian].
10. Akademichniy tlymachnyi slovnyk [Academic explanatory dictionary of the Ukrainian language]. (n.d.). *eslovyk.com*. Retrieved from <https://eslovyk.com/risk> [in Ukrainian].
11. Grishko, V.V., & Gunchenko, M.V. (2020) Systemnyi analiz riskov v logisticheskoi deiatelnosti promyshlennogo predpriatia [System risk analysis in the logistics activities of an industrial enterprise]. *Naukovyi visnyk Mizhnarodnoho humanitarnoho universytetu – Scientific Bulletin of the International Humanities University*, 24–27 [in Ukrainian].
12. Shtal, T. V., Uvarova, A. Ie., & Ostapenko, I. I. (2018). Evaluation of the Influence of External Environmental Factors on Logistics Activities: Case Study of Ukrainian Retail Trade Enterprises. *Journal of Environmental Management and Tourism*, 9 (7), 193–201 [in Ukrainian].