DOI: 10.61954/2616-7107/2024.8.4-8 *ISSN 2616-7107*

UDC 338.240.658
JEL: C63, L91, R41

NETWORK MODELLING OF ASSESSING THE IMPACT OF THREATS TO THE ECONOMIC SECURITY OF LOGISTICS OPERATORS

Oksana Vivchar*
Western Ukrainian National University,
Ternopil, Ukraine
ORCID iD: 0000-0001-9246-2226

Nataliya Tyukhtenko
Odesa I.I. Mechnikov National University,
Odesa, Ukraine
ORCID iD: 0000-0003-4634-9139

Liliia Mykhailyshyn
Vasyl Stefanyk Precarpathian National University,
Ivano-Frankivsk, Ukraine
ORCID iD: 0000-0001-7944-5317

Yurii Korovchuk
Vasyl Stefanyk Precarpathian National University,
Ivano-Frankivsk, Ukraine
ORCID iD: 0000-0002-3987-1319

*Corresponding author:
E-mail: o.vivchar@wunu.edu.ua

Received: 20/08/2024
Accepted: 16/12/2024

DOI: 10.61954/2616-7107/2024.8.4-8

Introduction. The increasing crisis phenomena affecting modern business structures and risks for the economic security of logistics organisations determine the relevance of their research. It is crucial to determine changes in the conceptual and categorical structure of enterprises' economic security and threats to the economic security of logistics entities in an unstable financial situation. Activity-on-node (AoN) modelling was used as an analytical tool for developing project measures, allowing for effective planning of implementing activities to improve logistics organisations' economic security.

Aim and tasks. This study aims to extend the presentation of the methodology related to the triple model of logistics actors (purpose-resources-time), which includes five stages of threat indicators in the context of ranking.

Results. Key factors influencing the economic security of a logistics entity have been identified, enabling the accumulation of resources in critical operational areas. This is achieved by prioritising economic security measures based on a quantitative (scoring) assessment of threat levels and the probability of their occurrence. According to experts, potential threats to the economic security of the Fozzy Group LLC (Ukraine) were identified to predict the corresponding threats based on their possible characteristics. The implemented measures to prevent potential threats to logistics activities showed an increase in the average comparable indicators by 21% (2022). The following trends in the probability of threat occurrence to the economic security of a logistics entity are identified: an increase in the percentage values of the indicators, specifically "very high" (6.0%), "high" (2.7%), "medium" (3.0%), "low" (2.0%), and "very low" (1.0%). The fingdings indicate the effectiveness of implementing measures to improve security, particularly regarding economic effects. The proposed approach for assessing threats to economic security in logistics activities prioritises and implements the most significant measures to strengthen security through a quantitative (scoring) assessment and using a network model (AoN) with plane representation.

Conclusions. It is emphasised that the main aspects of this article will allow domestic business structures to apply this network modelling approach, predict threats to economic security, and develop practical strategies for strengthening the security component in the context of modern challenges. These findings provide a promising fundamental basis for enhancing the economic security of logistics entities in the context of network modelling.

Keywords: logistics, threats, economic security, network modelling, AoN-type model.

1. Introduction.

In the rapidly evolving environment, a thorough analysis of threats' impact on logistics entities' economic security is becoming increasingly crucial and relevant. This analysis ensures the financial stability of participants in logistics processes, which is crucial for their operation in a dynamic setting. It is important to emphasise that the primary goal of these areas is to safeguard logistics entities' security. This is achieved through the implementation of preventive measures to mitigate existing threats as well as by identifying and avoiding potential risks.

It has been shown that the management system for ensuring the security of logistics entities is based on monitoring and analysing information about the company's internal environment and the impact of external factors (Vivchar, 2016). Logistics organisations are an important element in the development of business structures that face many problems in the practical implementation and security of business structures. The impact of tecnologies on logistics activities can be assessed using clear benchmarks that indicate opportunities and threats (Sun et al, 2024).

Over time, the theory and practice of logistics security have introduced numerous methods and tools to enhance the performance of these entities (Kolodiazhna & Bukrina, 2019). Logistics chains and the integrative role of logistics have recently become important in mitigating threats to logistics entities. Logistics firms face threats to the environment, incurring losses due to costs. This reduces firm competitiveness and leads to a drop in product quality. Additionally, it can deal with a drop in profitability and revenue. This leads to a reduction in market share.

This study provides the impact of threats on the economic security of logistics entities by systematically substantiating the application of network modelling in the current situation and threats.

2. Literature review.

Various researches have been devoted to assessing the impact of threats to the economic security of logistics entities (Cempírek et al., 2016; Bielecki, 2023).

Teremetskiy et al. (2024) substantiated the theoretical and methodological basis of economic security of logistics entities in the context of a comprehensive assessment. In turn, Dlukhopolskiy et al. (2023) revealed that the development of network modelling of economic security of logistics entities is closely related to regional development.

Zadorozhny et al. (2022) developed a model within the framework of inter-firm relations logistics processes to determine the security level within a cluster distribution.

Wołowiec and Gliszczyński (2022) studied necessary security issues and design solutions for the sustainable development of complex business structures. These issues are considered to be the components of the logistics systems. Vale et al. (2024) studied how companies use logistics systems. This concerns analytical networks and technological networks of business structures.

Segui et al. (2024) studied different aspects of technological logistics decision-making through analytical models of business structure implementation. The effectiveness of using a systems approach for the security of logistics facilities has been discussed by various scholars, as noted in the research of Skowron et al. (2022). A noteworthy case is the use of encrypted computers and information system support, emphasised by modelling logistics facilities' security. Vale and Barbosa (2024) substantiated the dependence of the business aspect of the security of a logistics organisation on the effective management of information flows.

Creating a system that allows the logistics strategy to ensure security by production and economic activities is necessary. It has been shown that more attention needs to be given to assessing threats to the economic security of logistics entities within the framework of network modularisation through matrix modularisation (Nazarova et al., 2022).

3. Methodology.

The study is structured using the deductive method. This approach, it describes the general context of threats to the economic security of logistics entities and presents the stages along with the corresponding threat indicators in the ranking framework.

The method of abstract logical generalisation is also used to distinguish between the concepts of "economic security of enterprises" and "threats to the economic security of logistics entities". In addition, the methodology of the level distribution of the network model used to systematise information on losses, time, and probability is presented.

To highlight the relevance of the article, the comparison method has been implemented to assess the level distribution of threats to the economic security of a logistics entity. Specifically, a theoretical and practical framework for comprehensive research is applied using the example of the logistics company Fozzy Group LLC.

The study utilises scientific abstraction and economic-mathematical modelling within the context of the PRT-matrix (purpose-resources-time) to rank threats based on their main characteristics, and types, and to identify key design decisions.

It also involves creating a matrix of threats to identify the most significant threats to the economic security of logistics entities. It is demonstrated that ensuring the effectiveness of economic security for logistics entities should follow the subsequent dependence (Vale & Barbosa, 2024):

$$E = 1 + \Pr = \frac{Pp + P}{C + Ce + Co + Cu} \quad (1)$$

E – the economic efficiency of the economic entity's logistics activities;

Pr – the profitability ratio of the logistics entity;

P – part of the total result from the project implementation of the logistics entity's effective activity;

Pp – part of the total project result of the logistics entity;

C – costs of inefficient operation of the logistics entity;

Ce – costs of eliminating the effect of inefficient operation of the logistics entity;

Co – costs of organising the efficient operation of the logistics entity;

Cu – unproductive expenses of the logistics entity.

Specifically, the graphical method was used to create a node network of threats to the economic security of Fozzy Group LLC. Based on this, a level distribution of the security of the logistics entity was presented within the range of: "very high", "high", "medium", "low" and "very low". This approach allowed for the identification of network components in the AoN model's network graph, which were categorised into five sectors, along with the corresponding vertex labeling scheme. It should be noted that the use of the Activities-on-Nodes methodology will make it possible to implement network planning using a graphical project chart and the planned implementation of strategic plans to consider threats to the economic security of a logistics entity. Through the method of generalisation, it has been revealed that network modelling of threats to the economic security of a logistics entity can provide a framework for addressing contemporary challenges.

4. Results.

Threats to the economic security of logistics entities include processes and factors that impede the economic advantages of business structures or threaten their uninterrupted operations (Diunova, 2020). Therefore, security is defined as a state of the economic system that protects objects from all threats to effectively implement measures and actions (Hevko et al., 2021). Threats to the economic security of logistics entities are often categorised. While supporting the distinction between external and internal threats, it is important to acknowledge that many classification criteria are not quantitative, complicating the process of making informed management decisions. The concept of threat will be perceived as a constant that is intended to exist as an objective reality potentially aimed at violating the properties (or objects) of the system, and the level of danger associated with it does not depend on the security measures of the system (Zadorozhnyy et al., 2022).

Based on the conducted research, it is proposed to rank the threats, which would allow responding to the most dangerous of them with a limited number of resources of logistics entities.

Data on the possible response order to different threats by the initial decisions on time and budgetary constraints are predicted. As a result, the first steps are taken to implement measures that are reasonably likely to be implemented but of high priority if there is sufficient time and budget. Steps are taken to implement measures that are also reasonably likely to be implemented but of high priority.

Finally, steps are taken to implement measures that are unlikely to be implemented. The proposed methodology enables the monitoring and mitigation of threats to the economic security of logistics entities, considering factors such as the time and financial potential of the damage, as well as its classification, including potential damage, timing, and probability of occurrence.

From a practical point of view, the study identifies the consequences of threats to the economic security of logistics entities and determines the existence of threats to the economic security of the logistics entity (LE) of the Trade and Industrial Group (TIG) of Ukraine Fozzy Group LLC.

For the objectivity of the proposed study, a company was selected that operates throughout Ukraine. Figure 1 shows the intensity of interest in the work of this company for the period from 2004 in Ukraine.

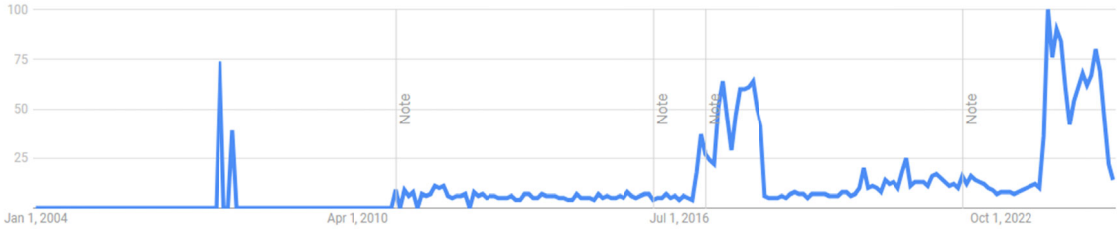

Fig. 1. Intensity of interest in the work of Fozzy Group LLC.

Source: based on ogle Trends. (2024).

As can be seen from Figure 1 the information presented, the conducted research corresponds both in scale and in the level of interest in the object of research for the compilation of a matrix summarising information on losses, time, and probability.

The Fozzy Group LLC is one of the largest trade and industrial groups in Ukraine, represented by a retailer with more than 700 retail outlets in the country. Fig. 2 shows the main dynamics of the financial indicators of the Fozzy Group LLC in 2020-2023.

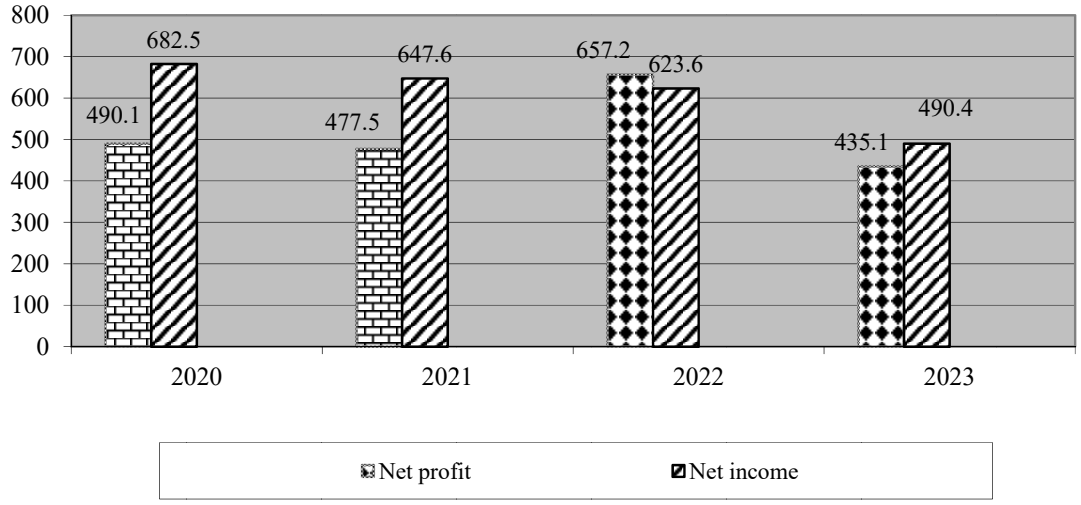

Fig. 2. Dynamics of financial performance parameters Fozzy Group LLC, 2020-2023 (mln. UAH).

Source: based on Fozzy Group LLC (2023).

A matrix was presented using expert assessments for the company under study. The maximum potential damage associated with the occurrence of a threat is evaluated based on the probable timing of the threat: 1 point for short-term occurrence, 2 points for medium-term, and 3 points for long-term occurrence. The methodology determines the degree of priority of the threat to the countermeasures. Assessing the potential damage to the economic security of a logistics entity primarily focuses on the total possible damage (P) and the period of the threat (T). The ratio of these two numbers is used to determine the degree of threat according to the indicators: "very high", "high", "medium", "low", and "very low". We present the results and identify the primary causes of threats to the economic security of Fozzy Group LLC.

Therefore, the damage incurred by a company may be substantial. Possible reasons include disclosing information related to innovative technologies, multi-vector projects and contracts, service reorganisation, internal staffing challenges, lack of funds, and external factors such as a negative reputation. The disclosure of this information could alter the strategies of competitors, partners, and customers, negatively affecting a company's viability and profitability.

Furthermore, the stock of the Fozzy Group LLC may reflect information about the company's internal situation. A comprehensive approach for assessing threats to the economic security of a logistics entity is proposed, focusing on resource allocation in key areas of activity. This approach prioritises economic security measures based on a quantitative (scoring) evaluation of the threat levels and the probability of their occurrence. The study methodology identifies threats to the economic security of a logistics entity, along with an assessment of potential losses, the timeline for these threats to materialise, and their likelihood of occurrence.

This methodology explores the principle of making security-related design decisions. This approach enables the establishment of appropriate threat ratings for planning activities and the implementation of measures to address the identified threats. The next step involves the optimisation and analysis of the economic security of a logistics entity using network planning methods.

Graphical models were employed to identify the relationships between the measures and estimate the time needed for implementation. A network model is created based on the two main principles of the project approach: minimising the time required to implement measures within the established cost of project proposals and reducing costs within the planned timeline for implementing project solutions (Dluhopolskyi et al., 2023).

Monitoring the economic security of a logistics entity within the framework of planning production systems through a network involves the following key stages:

1) the overall action plan is divided into individual tasks, with specific network schedule details described in terms of time characteristics and justification for implementation;

2) identification of the individuals or teams responsible for executing the activities;

3) organisation of the process for managing the limited timeframes for implementing the measures;

4) creating network diagrams;

5) time analysis: the duration required for implementing the event is calculated;

6) resource analysis: evaluation of the availability of physical resources, considering both current limitations and potential resources for each event concerning the entire project;

7) financial support: assessment of the positive financial balance of resources;

8) optimisation of the overall action plan based on the network model (Teremetskyi et al., 2024).

Network planning is founded on the core principles of the economic and organisational mechanism for ensuring the security of a logistics entity. These principles include managing risk factors within the network model, specifically focusing on the time required to implement logistics decisions (Franco, 2024). The project approach is employed to achieve a defined goal within a specified timeframe and budget. Effective planning facilitates the creation of a list of projects needed to accomplish the objectives, estimation of required materials and staffing, and scheduling of the time necessary to complete project tasks. Consequently, three key components of any project plan can be identified: tasks, resources, and intended use.

The objective is to execute a sequence of activities within the project's framework to achieve the desired outcome-enhancing the financial security of the logistics entity. To ensure the plan is straightforward to implement, the planned tasks are divided into distinct phases (Zadorozhnyi et al., 2022). The range of project phases represents the lifecycle during which results are evaluated, errors are addressed, and the project plan is adjusted accordingly.

It has been demonstrated that the critical path method is widely used in management practice. The investment potential is determined by addressing issues related to planning, organisation, monitoring, and implementation of projects, as well as their financial and personnel challenges (Vale & Barbosa, (2024).

To characterise the implementation of the economic security project of a logistics entity, it is worth using a network model based on the methodology of the corresponding graphs (Fig. 3).

The threat network to the economic stability of Fozzy Group LLC (Fig. 4) is represented as a node network. The model used is Activities-on-Nodes (AoN), where the graph nodes represent activities, and brackets indicate the transition from the end of one activity to the start of another.

The network model identification is shown in the diagram and also corresponds to the distribution of measures (*t, M*) within the coordinate system. The network graph visually represents the structure of the network model within the system.

	THREATS	***Threat-consequence***	***Threat Level***	***Probability***
U1	*Receiving losses due to damage*		*ДВ*	1
U2	*Decreased competitiveness*	*U1*	*ДВ*	1
U3	*Decrease in revenue from sales realization*	*U1*	*ДВ*	2
U4	*Decrease in sales profitability*		*B*	2
U5	*Decrease in the rate of production*	*U3*	*B*	2
U6	*Failure to fulfill certain tasks promptly*	*U5*	*C*	2
U7	*Decrease in efficiency*	*U5*	*C*	2
U8	*Reduced human resources for the network system*	*U5*	*C*	2
U9	*Loss of sales markets*	*U3*	*C*	3
U10	*Reduced availability of credit resources*		*H*	3
U11	*Penalties for violations of the law and costs of eliminating losses*	*U1, U10*	*ДН*	2
U12	*Decrease in product quality*	*U2, U4, U3*	*ДН*	3

Fig. 3. Draft a scheme for threats to the economic security of Fozzy Group LLC.

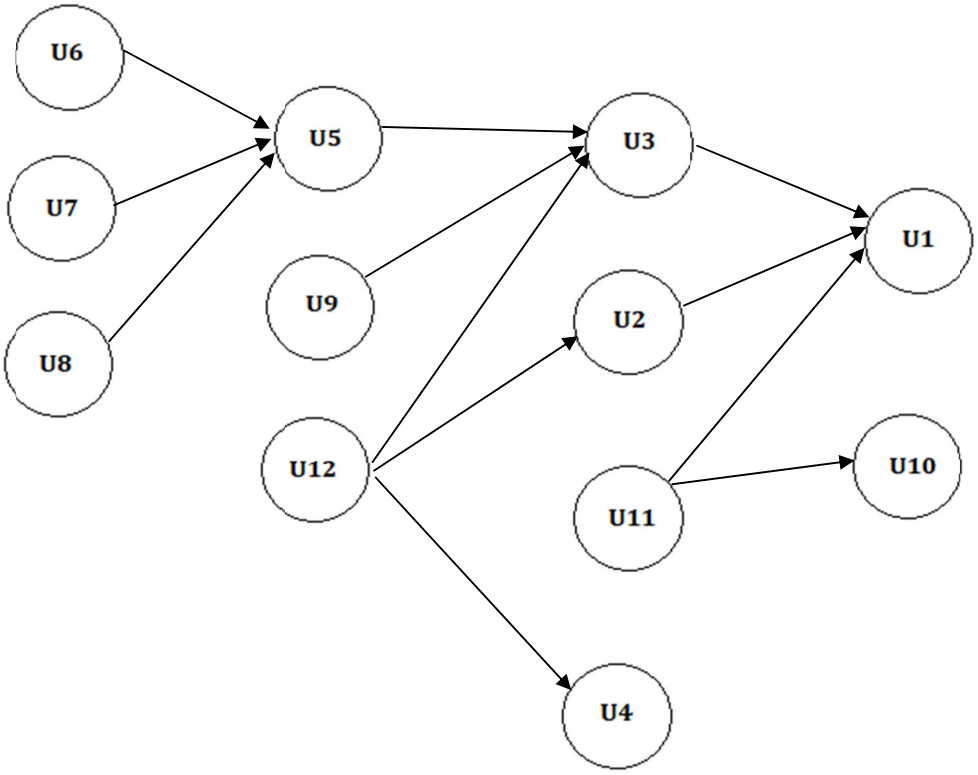

Fig. 4. The node network of threats to the economic security of the Fozzy Group LLC.

In the AoN model's network graph, the components of the activities are defined by five sectors. The parameters of the network model are crucial for the project management analytical system, which can calculate, develop, and optimise these parameters. To evaluate, improve, and optimise these indicators, a network representation of the project implementation is developed. The key attributes of the network model include the duration of the work (*ti*), early start time (*Esti*), early end time (*Efti*), late start time (*Lsti*), and late end time (*Lfti*). The corresponding sequence in the network model system is a path, the number of which is not limited (Wołowiec & Gliszczyński, 2022).

The calculation of the critical project path within the network model of economic security serves as the foundation for the logistics entity's management system. Final deadline monitoring ensures the timely completion of critical projects, achieved by establishing a structured system of deadlines for their execution. Decisions on the non-critical path of a project can follow set timeframes and may be postponed if needed, provided the delay does not exceed the permissible limit.

To maintain flexibility in management decision-making, managers should evaluate the factors essential for executing each activity, assess the significance of delays and downtime, and identify which activities must proceed without postponement.

Network modelling helps managers assess and understand potential delays associated with each activity without altering the project plan, based on the total time available for completion (*Tfi*).

If the primary objective of network management is to complete the project as quickly as possible with minimal delays, a key indicator to consider is the available reserve of working time (*Ffi*). When planning resource allocation and defining their intended purposes, it is essential to consider the possibility of starting each activity as scheduled. To address this, the reserved time allocated for task execution (*Ifi*) is calculated (Dluhopolskyi et al., 2023).

For smaller network graphs, time parameters and the critical path are determined by analysing each vertex individually and then examining the transitions between them.

It is crucial to acknowledge that as the scale of the model grows, the risk of error increases. Project planning aimed at ensuring the financial sustainability of a logistics entity depends on accurately determining the duration of planned activities (Parhi et al., 2022; Penev et al., 2024). The benefit of this network modelling method is its ability to establish a set of measures with structural and logical connections, including the critical path. Furthermore, it can estimate the time needed for individual projects that do not fall within the critical path (Nguyen et al., 2024).

However, several aspects can be improved using this method. Because most problems are currently sets of a large number of tasks, the model becomes very cumbersome and difficult to use directly, which complicates the analysis and management of the project, especially when it is necessary to consider many dependencies (Kalender & Žilka, 2023).

Another issue is the lack of visualisation of the duration on the arrows, which complicates the analysis of the time characteristics of project execution. Since the project is not a rigid system, flexible systems are needed for analysis, which the AoN model does not. Additional training of the team members performing the analysis may be necessary to eliminate this drawback. In addition, for inexperienced users, the model appears incomprehensible and impossible to understand intuitively (Coppola et al., 2021).

This model needs to consider the limited resources. The model needs to consider situations in which it is necessary to make decisions on optimising available resources. There are also risks of losing important data when analysing many connections. The complexity of the graph increases the likelihood of losing important data or errors in interpretation (Hoque et al., 2024).

5. Conclusions.

Consequently, network planning methodologies facilitate the practical implementation of economic security for a logistics entity and help establish primary vectors for executing the PRT matrix. The methodology developed for assessing threats to the economic security of a logistics entity is grounded in the PRT matrix for threat ranking. Based on the principles of security management in terms of "purpose-resources-time", it is proposed the use of these three components to assess the risk of threats: the probability of threats, the potential damage associated with the threats, and the period of threats.

The proposed methodology of a logistics entity in the context of limited resources significantly affects the most dangerous threats. It makes it possible to test an approach to assessing threats to economic security in managing a network system and implement project-based.

The proposed approach enables the implementation of a mechanism to enhance the economic security of a logistics entity within the network modelling framework. The use of AoN network modelling and the implementation of project activities allows calculating the "critical path" of the network activity schedule and creating probabilistic estimates of the successful completion of the project based on the presented time frames for the implementation of measures aimed at strengthening the economic security of the logistics entity.

It should be noted that in the current state of the country, the topic of economic security and the impact of threats on the activities of a logistics entity, and accordingly, the search for methods and approaches to counteract them, requires further research.

REFERENCES

Bielecki, M. (2023). Logistics 4.0: Challenges, opportunities and threats. Tehnički Glasnik, 17(3), 455–461. https://doi.org/10.31803/tg-20230505142802

Cempírek, V., Nachtigall, P., & Široký, J. (2016). Security in logistics. Open Engineering, 6(1). https://doi.org/10.1515/eng-2016-0082

Coppola, A., Maggiori, M., Neiman, B., & Schreger, J. (2021). Redrawing the map of global capital flows: The role of cross-border financing and tax havens. The Quarterly Journal of Economics, 136(3), 1499–1556. https://doi.org/10.1093/qje/qjab014

Diunova, T.V. (2020). Economic security management of enterprises: Systems, mechanisms, tools. Kharkiv: Striped Typography.

Dluhopolskyi, O., Kozlovskyi, S., Popovskyi, Y., Mazur, H., & Kozlovskyi, A. (2023). Formation of the model of sustainable economic development of renewable energy. Innovative and Economics Research Journal, 11(2), 51–78. https://doi.org/10.2478/eoik-2023-0050

Franco Seguí, J., & Alsina, Á. (2024). Specialized knowledge of in-service primary education teachers to teach probability: Implications for continuous education. International Electronic Journal of Mathematics Education, 19(4), em0792. https://doi.org/10.29333/iejme/15153

Google Trends. (2024). Interest over time for Fozzy Group. Google. https://trends.google.com/trends/explore?date=all&geo=UA&q=%2Fm%2F0nhjgbn&hl=en

Hevko, V., Sharko, V., Radchenko, O., Budiaiev, M., & Tarasenko, O. (2021). Cloud technologies in business management. Financial and Credit Activity: Problems of Theory and Practice, 4(39), 294-301. https://doi.org/10.18371/.v4i39.241318

Hoque, M. E., Billah, M., & Alam, M. R. (2024). Does news related to digital economy and central bank digital currency affect digital economy ETFs? Evidence from TVP-VAR connectedness and wavelet local multiple correlation analyses. Global Finance Journal, 100992. https://doi.org/10.1016/j.gfj.2024.100992

Kalender, Z. T., & Žilka, M. (2024). A comparative analysis of digital maturity models to determine future steps in the way of digital transformation. Procedia Computer Science, 232, 903–912. https://doi.org/10.1016/j.procs.2024.01.090

Kolodiazhna, I.V., & Bukrina, K. A. (2019). Economic security in the system of sustainable functioning of the enterprise. Scientific Bulletin of the Uzhhorod National University, 23(1), 135-140.

Nazarova, H., Kashchena, N., Nesterenko, I., Kovalevska, N., & Kashperska, A. (2022). Theoretical and methodological aspects of improving the functioning of the accounting system. Revista Amazonia Investiga, 11(54), 243–255. https://doi.org/10.34069/ai/2022.54.06.23

Nguyen, T. H., Van Nguyen, B., Nguyen, T. T., & Luu, D. H. (2024). Productivity unleashed: An ARDL model analysis of innovation and globalization effects. Journal of Infrastructure Policy and Development, 8(8), 5694. https://doi.org/10.24294/jipd.v8i8.5694

Parhi, S., Joshi, K., Gunasekaran, A., & Sethuraman, K. (2022). Reflecting on an empirical study of the digitalization initiatives for sustainability on logistics: The concept of sustainable logistics 4.0. Cleaner Logistics and Supply Chain, 4(100058), 100058. https://doi.org/10.1016/j.clscn.2022.100058

Penev, N., Shyriaieva, L., Legeza, D., Merkulov, M., & Honcharova, I. (2024). Marketing analysis of multimodal transportation dynamics in logistics infrastructure. E3S Web of Conferences, 558, 01030. https://doi.org/10.1051/e3sconf/202455801030

Skowron, Ł., Manzhula, V., Sak-Skowron, M., & Wołowiec, T. (2022). Towards climate management of district heating enterprises' innovative resources. Energies, 15(21), 7841. https://doi.org/10.3390/en15217841

Sun, X., Kuo, Y.-H., Xue, W., & Li, Y. (2024). Technology-driven logistics and supply chain management for societal impacts. Transportation Research Part E: Logistics and Transportation Review, 185(103523), 103523. https://doi.org/10.1016/j.tre.2024.103523

Teremetskyi, V., Kovalchuk, O., Kolesnikov, A., Korniienko, M., & Dir, I. (2024). Improving the information and legal support of the judicial system of Ukraine: Experience of the European Court of Human Rights. Journal of Ecohumanism, 3(3), 61–74. https://doi.org/10.62754/joe.v3i3.3349

Vale, I., & Barbosa, A. (2024). Exploring the creative potential of mathematical tasks in teacher education. International Electronic Journal of Mathematics Education, 19(4), em0790. https://doi.org/10.29333/iejme/15075

Vivchar, O. (2016). Management system interpreting financial and economic security business in economic processes. International Electronic Journal of Mathematics Education, 11(4), 947–959.

Wołowiec, T., & Gliszczyński, G. (2022). Smart transition to climate management of the green energy transmission chain. Sustainability, 14(18), 11449. https://doi.org/10.3390/su141811449

Zadorozhnyi, Z.-M., Muravskyi, V., & Pochynok, N. (2022). Transformation of accounting methods with the use of robotic equipment with artificial intelligence proceedings. International Conference on Advanced Computer Information Technologies (ACIT), 285–289. https://doi.org/10.1109/ACIT54803.2022.9912753

Zadorozhnyy, Z.-M., Muravskyi, V., Semaniuk, V., & Gumenna-Derij, M. (2022). Global management accounting principles in the system of providing resource potential of the enterprise. Financial and Credit Activity: Problems of Theory and Practice, 3(44), 63–71. https://doi.org/10.55643/fcaptp.3.44.2022.3765