

UDC 338:05.934(656)

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**PRECONDITIONS FOR ECONOMIC SECURITY
OF SUPPLY CHAINS OF BUSINESSES
IN MULTIMODAL TRANSPORTATION**

The paper reviews peculiar features of multimodal transportation and defines preconditions for economic security of businesses in their structural system. It is proved that the preconditions for economic security of supply chains in multimodal transportation should be defined and classified according to the following main directions, viz.: political, legal, technical, technological, innovative, communicative, labour, economic, etc.

At that, economic security is predetermined by a capacity of transport businesses to neutralize and counteract external and internal threats and challenges that impact quality and efficiency of multimodal transportation of cargo.

Political and legal preconditions prevail over other preconditions and exert certain functional impact on all of them. Absence of a special law concerning multimodal transport functioning and development as well as of the national legislative regulations governing the activity of multimodal transport operators and work of transport and logistic centres, that make essential precondition for organization and performance of international transportation of cargo, presents a major barrier for efficient operation and does not guarantee economic security of supply chains.

Technical, technological and innovative preconditions of higher efficiency of multimodal transportation constitute a basis for applying modern organizations forms of transportation process based on standardization and unification of the procedures, simplification of documents and their transition to electronic format, optimization of total costs for transport and logistical activities. Advantages of innovative preconditions should ensure economic security by establishing the appropriate infrastructure (modern logistic centres), a new system of information circulation (single window) and granting the status of authorized economic operators to the multimodal transport operators.

Communicative, labour and economic preconditions create internal and external environment of multimodal transportation system which should adhere to principles of consistency and integrity, standardization, coordination, integration and reliability of the information flow, accountability, outsourcing and cost optimization.

Key words: economic security, enterprise, multimodal transportation, preconditions, supply chain, competitiveness, efficiency.

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ПЕРЕДУМОВИ ЕКОНОМІЧНОЇ БЕЗПЕКИ ЛАНЦЮГІВ ПОСТАЧАНЬ ПІДПРИЄМСТВ У МУЛЬТИМОДАЛЬНИХ ПЕРЕВЕЗЕННЯХ

У статті розглянуто особливості розвитку мультимодальних перевезень та визначені передумови економічної безпеки підприємств у системі їх організації. Доведено, що передумови гарантування економічної безпеки ланцюгів постачання у мультимодальних перевезеннях мають бути визначені та класифіковані за наступними основними напрямками, а саме: політичними, правовими, техніко-технологічними, інноваційними, комунікаційними, кадровими; економічними тощо.

При цьому, економічна безпека визначається спроможністю підприємств транспорту нейтралізувати та протистояти зовнішнім й внутрішнім загрозам і викликам, що впливають на якість та ефективність мультимодальних перевезень вантажів.

Політичні та правові передумови є основоположними перед іншими передумовами і здійснюють певний функціональний вплив на всі інші. Відсутність спеціального закону з функціонування та розвитку мультимодального транспорту, а також національних законодавчих норм щодо операторів мультимодальних перевезень та роботи транспортно-логістичних центрів як важливої передумови організації та здійснення міжнародних перевезень вантажів, є вагомим бар'єром щодо ефективності та гарантування економічної безпеки ланцюгів постачання підприємств.

Техніко-технологічні та інноваційні передумови підвищення ефективності мультимодальних перевезень становлять основу застосування сучасних форм організації перевізного процесу на засадах стандартизації та уніфікації процедур, спрощення та переведення в електронний формат документообігу, оптимізації сукупних витрат на транспортно-логістичну діяльність. Реалізація переваг інноваційних передумов повинна забезпечити економічну безпеку шляхом створення відповідної інфраструктури (сучасних логістичних центрів), нової системи обігу інформації (єдине вікно) та затвердження для операторів мультимодальних перевезень статусу уповноваженого економічного оператора.

Комунікаційні, кадрові та економічні передумови формують внутрішнє та зовнішнє середовище системи мультимодальних перевезень, функціонування якої має базуватися на дотриманні принципів: системності та комплексності, стандартизації, координації та інтеграції, надійності інформаційного потоку, контрольованості, аутсорсингу та оптимізації витрат.

Ключові слова: економічна безпека, підприємство, мультимодальні перевезення, передумови, ланцюг постачання, конкурентоспроможність, ефективність.

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ПРЕДПОСЫЛКИ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ ЦЕПЕЙ ПОСТАВОК ПРЕДПРИЯТИЙ В МУЛЬТИМОДАЛЬНЫХ ПЕРЕВОЗКАХ

В статье рассмотрены особенности развития мультимодальных технологий и определены предпосылки экономической безопасности предприятий. Доказано, что предпосылки обеспечения экономической безопасности цепей поставок в мультимодальных перевозках выделяются и классифицируются по таким основным направлениям: политические, правовые, технико-технологические, инновационные, коммуникативные, кадровые, экономические и т.д.

При этом, экономическая безопасность определяется способностью предприятий транспорта нейтрализовать и противостоять внешним и внутренним угрозам и вызовам, влияющим на качество и эффективность мультимодальных перевозок грузов.

Политические и правовые предпосылки являются основополагающими для других. Так, отсутствие специального закона, регулирующего функционирование и развитие мультимодального транспорта, а также национальных законодательных норм по операторам мультимодальных перевозок и работе транспортно-логистических центров как важной предпосылке организации и осуществления международных перевозок грузов, является весомым барьером для эффективности и экономической безопасности цепей поставок предприятий.

Технико-технологические и инновационные предпосылки повышения эффективности мультимодальных перевозок представляют основу применения современных форм организации перевозочного процесса на требованиях стандартизации и унификации процедур, упрощения и перевода в электронный формат документооборота, оптимизации затрат на транспортно-логистическую деятельность. Реализация преимуществ инновационных предпосылок должна обеспечить экономическую безопасность за счет современных логистических центров, системы оборота информацией «единое окно» и утверждения для операторов мультимодальных перевозок статуса уполномоченного экономического оператора.

Коммуникативные, кадровые и экономические предпосылки формируют внутреннюю и внешнюю среду системы мультимодальных перевозок, функционирование которой должно базироваться на соблюдении принципов: системности и комплексности, стандартизации, координации и интеграции, надежности информационного потока, контролируемости, аутсорсинга и оптимизации затрат.

Ключевые слова: экономическая безопасность, предприятие, мультимодальные перевозки, предпосылки, цеп поставок, конкурентоспособность, эффективность.

Background. While the market economy of Ukraine is being transformed, the extremely important problem is to save and improve competitiveness of businesses. This process is to be based on setting up conditions for safe organization of economic activity and functioning of businesses so that their economic security, optimization of costs, accessibility of resources, etc. are guaranteed.

At the same time the transport industry businesses, particularly in the sphere of international combined transportation, find themselves in a difficult situation as the regulatory basis is imperfect, the system of economic relations is being reformed slowly and there exists a necessity to simplify the international trade and logistic procedures.

Multimodal transportation of cargo (delivery by several transport modes according to a single contract and liability of a single operator) presents a reliable basis for provision of high-quality transport services and optimization of economic and time losses which facilitates higher competitiveness of the transport industry businesses and the industry as a whole.

Analysis of latest studies and publications. Problems of multimodal transportation and analysis of their economic security have been studied in the works of T. Akimova, A. Braikovska, Yu. Koleinikov, P. Pidlisnyi, O. Sokolova, L. Sulima, S. Tereshchenko, V. Chorny et al. [2,3,8 et al.]. Along with weighty results achieved in the combined transportation sphere, there is no systemic study of the preconditions for the development of multimodal transportation which can establish the basis for guaranteeing economic security of the organizers and other stakeholders that are involved in cargo delivery.

The paper is aimed at studying and classifying the preconditions of economic security of enterprise supply chains in multimodal transportation of cargo.

Discussion of the basic material. Specific features of organization and performance of international multimodal transportation of cargo formulate new requirements to guarantees of economic security of supply chains during multimodal transportation.

Known results of past studies [4,5] devoted to various aspects of supply chain economic security of businesses that ensure efficient multimodal transportation have determined that the economic security of the supply chains of businesses specifies the status of cargo delivery process which is characterized by a maximum restriction of negative factors that impact performance of an enterprise.

Along with that, economic security is also characterized by a capacity of businesses to neutralize and counteract internal and external threats and challenges that influence the supply chain in the multimodal transportation of cargo. In so doing, a threat to economic security is determined by certain losses which integral index describes a level of deterioration of the transport economic potential for a definite period.

Analysis of the transit potential of Ukraine identified a decrease of cargo traffic volume by all transport modes. The world economic crisis which lasts since 2008 and the political and economic situation in Ukraine present a threat to the economic security of transit transportation of cargo which essentially influenced the transportation volume and vividly indicated a decline in the production and economic potential of carriers.

When studying a strategy for provision of economic security, Ya. A. Zhalilo points out [1] that the terms «economic security» and «provision of economic security» are different notions. In asserting this point, the author emphasizes that «economic security» characterizes the dynamics of the social and economic system while «provision of economic security» is characterized by an aggregate of organizational and legal relations. Taking the interpretation of Ya. A. Zhalilo as the basis, it is possible to formulate, in the context of this paper, that «preconditions for the economic security provision» mean the previous

conditions of existence or emergence of a certain totality of legal and organizational and economic relations within the system of supply chains of the businesses that participate in the multimodal transportation of cargo.

Precondition for guaranteeing economic security of supply chains in multimodal transportation should be determined and classified in accordance with the following main directions of origin: *political, legal, technical and technological, innovative, communicative, labour, economic, etc.*

Let us consider the basic content of the above mentioned economic security preconditions. It is political preconditions among all of them that are most complicated and unsettled. The grounds of such assertion may be as follows: for many years Ukraine permanently insists on a political decision of the state regarding development of transport infrastructure as the lever for raising efficiency of the national transport potential. However, the political will to activate all governmental components related to practical implementation of the actions aimed at transport development is insufficient and it is evident by a lack of completeness and complexity in the fulfilment of the norms and provisions of the national regulatory enactments. Political preconditions are basic ones as compared with other preconditions as they produce the key functional impact on all other preconditions.

Legal preconditions are accomplished by the following main ways: legislative securing of the multimodal operator and logistic centre legal status, development and approval of the regulations that govern activities of the combined transportation and logistic centres engaged in international traffic; harmonization of the national statutory instruments that regulate transit of goods in accordance with the international obligations of Ukraine; staged accession of Ukraine to international conventions and multilateral agreements in the transport sphere and accession to international transport organizations with due indication of the priorities connected with integration of the road-and-transport complex of Ukraine into the transport systems of the EU and C.I.S. followed by further development of transit traffic; completion of the formation of the regulatory instruments governing legal relations connected with international transit of cargo, organization of combined transportation and functioning of the logistic centres, etc. [6].

Apart of that, the 2002 – 2010 comprehensive program for establishing Ukraine as a transit country envisaged to ensure simpler and faster mode of control of transit cargo at the state border crossing points of Ukraine. To achieve this goal it was necessary to ensure standardization and simplification of the border crossing procedures and to prescribe simplified requirements to cargo and transport vehicles that proceed in transit.

Absence of a special law on multimodal transport, national legal base for the operators of multimodal transportation and logistic centres that make an important precondition for organization and performance of the international multimodal transit traffic of cargo presents a certain barrier for efficient provision of economic security of the supply chains of businesses. At the same time the national legal enactments that determine judicial basis for functioning of the transport as a whole and of its individual modes are not directed at comprehensive and integrated use of various transport modes during delivery of cargo, including international cargo.

All topical issues related to application of a single shipping document (agreement, contract of carriage) for all kinds of transport engaged in such international traffic present a separate line of political and legal preconditions for organizing and implementation of the supply chains in multimodal transportation. Solution of problematic aspects of the single documentary cover goes beyond the national scope and necessitates political will of the countries that are concerned about such international transportation of cargo.

Hence, the political preconditions need to create legal preconditions for organization and provision of economic efficiency of supply chains of the businesses engaged in international transportation of cargo.

Technical and technological preconditions for raising efficiency of the supply chain economic security in multimodal transportation were earlier determined in the Comprehensive program for establishing Ukraine as a transit state [6]. The key aim, i.e., setting up logistic centres for international traffic of cargo was not accomplished in practice. Along with that, logistic centres are to provide not only for optimization of the transport and logistic leg, save idle time of transport vehicles and speed up delivery of cargo and increase cargo turnover but also facilitate profitability of the transport industry as a whole which will ensure a sufficient level of economic security of multimodal transportation. Thus, solution of technical issues by setting up logistic centres makes the preconditions for higher efficiency of economic security of the supply chains in multimodal transportation of cargo.

Innovative preconditions for higher efficiency of the supply chain economic security in multimodal transportation are complex and multifactor component of the international carriage of cargo background. Innovative preconditions depend on political, legal and other preconditions because the very implementation of multimodal transportation in the domestic practice of international trade is, by itself, an innovation to a certain extent. Alongside with it, innovations may also include a necessity to establish the national logistic centres along the routes of international cargo traffic, particularly in the key points of international transport corridors where it is required to change the transport mode.

At the same time there remained one more component of modern innovations, namely: the information circulation systems that are required for exercising state control of the international transportation of cargo in compliance with the «single window» concept [7]. This concept has been developed by the UN Centre for facilitation of trade procedures and electronic business transactions (CEFACT UN) which is aimed at removal of non-tariff barriers for international cargo traffic. The «single window» mechanism should provide information and/or documents required for import (export) of cargo simultaneously with the use of a single check channel. The UN experts are of opinion that the preconditions of implementation and use of the «single window» in the national territory depend on political will of the government and appropriate state authorities with the support and participation of business representatives [p. 4,7]. UN experts propose a simple four-level process for developing the national simplified and standardized data array required to satisfy the needs of state control bodies in the required information [9].

Thus, the innovative precondition for higher efficiency of the supply chain economic security in multimodal transportation of cargo depends on the existing political preconditions that bring about innovations. Implementation of innovative preconditions should ensure economic security by setting up the appropriate infrastructure (modern logistic centres), new data circulation system (single window) and give the multimodal transportation operators the authorized economic operator status.

Communicative preconditions for guaranteeing economic security of supply chains in multimodal cargo traffic is an important element of any economic relations, including in contemporary world trade and logistics. Transition from documents and sheets made on hard copies to similar documents and sheets prepared in the e-form is not a formal step forward of the international trade participants if viewed from the economic security viewpoint. Besides, interaction of various kinds of transport and participants of multimodal transportation will be efficient only in case the priority of such relationship is giv-

en to a high level of integration of the participants and to coordination of their actions aimed at achieving the systemic synergy effect when performing efficient delivery of cargo at satisfaction of the client requirements.

Proper provision of labour for the supply chain of businesses dealing with international multimodal transportation is also an important precondition for efficient performance of that market segment. First of all it is necessary to point out that formation of political and legal preconditions depends on professional level of the persons who formulate the national and interstate basics of organization and performance of multimodal cargo transportation. Formation of the political will means that the appropriate persons should understand the urgent necessity to implement a new national philosophy of organization and performance of the international cargo traffic which should ensure efficient economic security of the entire supply chain. In particular, about 40 persons are direct potential participants of the international supply chain as the experts of the UN European Economic Commission state [pp. 315, 10] – these may be classified into 4 «types of participants», namely: consumer, supplier, regulating (controlling) body and intermediary.

It is worthwhile to note that innovative preconditions also require professional competence of the multimodal transportation supply chain participants, specifically, the requirements are: to carriers using various transport modes who are obliged to organize cargo carriage under a single shipping document and transfer cargo from one kind of transport to the other; to the personnel of the transport and logistic centres where the supply chain begins and ends and where transport kinds are being changed due to multimodal cargo transportation; and to officials of the state control authorities who exercise control of cargo using the «single window» concept, etc.

Under these conditions an absence of the professionally trained personnel at one of the multimodal transportation supply chain links presents threats to economic security which reduces, potentially, the efficiency of the entire international supply chain in combined transportation.

Economic preconditions of efficiency and security of the multimodal cargo transportation supply chain are connected with the cost parameters of operations that guarantee international transfer of cargo from the consignor to the consignee within the predetermined period and to the indicated destination. It should be noted that the main costs of the multimodal transportation of cargo stays with the cost of transportation. The arising cost advantages may be vividly described by carriage of one 20' container by Istanbul – Klaipeda route, in doing so the approximate transportation costs are: by road – EUR 3,700 – 4,000; by two modes of transport (ferry-boat (sea) – block train «Viking») – about EUR 1,400 [2, 2012].

Economic preconditions of efficiency of the economic security in multimodal cargo transportation supply chain should also be formulated at the stage of design and implementation of the «single window» mechanism [4,5,7,9,10]. In doing so, the feasibility study is an inherent element that includes a comparison of the expected results with the associated costs (for workstation preparation, development and adjustment of software, communication channels, information exchange, etc.). At the same time it is still necessary to raise funding for such innovations, to have the state participation, involve the private sector diversify financial sources, etc.

Solution of the problematic issues of economic security of the international multimodal transportation supply chains needs a complex substantiation of approaches. In doing so it is necessary to analyze all possible factors and indicators and appraise their integral impact upon the financial and economic condition of particular businesses. Spe-

cifically, it is important to ensure an increase of transport businesses profitability due to attraction of additional traffic by following a flexible and scientifically grounded tariff policy and implementation of through rates in multimodal transportation. Hence, sophisticated railroad tariff policy on the international cargo carriage market is an important precondition for economic security of the supply chains of businesses engaged in multimodal transportation of cargo as it is the tariffs that make the basis for gaining profits sufficient for efficient activity and development of transport.

Conclusions and proposals. Consequently, a complex of considered preconditions is aimed at updating economic security of the supply chains of businesses engaged in multimodal transportation of cargo. In parallel it is necessary to stress the fundamental role of the political preconditions proper as these are to give an impulse for developing multimodal transportation which activates economic activity. At the same time just economic preconditions that make basis for the transport service sector are most dependent on the state of other preconditions that guarantee secure supply chains in multimodal transportation of cargo. In doing so, it is necessary to further studies of the substantiation of organizational and economic mechanism of multimodal transportation development which is based upon earlier studies of the preconditions, factors and principles of economic security of the supply chains of businesses.

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