NEW PARADIGM OF ECONOMIC SECURITY MANAGEMENT OF TRANSPORT LOGISTICS SYSTEMS

Bubnova, Galina V., *Moscow State University of Railway Engineering (MIIT), Moscow, Russia.*

ABSTRACT

While assessing the role of transport and logistics systems and supply chains, the author justifies a new management paradigm in which, in the market regulation of business relations, an acceptable level of economic security should be provided at all stages of freight transportation. Transport Logistics Systems' (TLS's) safety indicators are demonstrated, the significance of their value terms, conditions and mechanisms, information and organizational components necessary for design and implementation of the proposed schemes of commodity circulation are shown.

Keywords: economy, logistics, supply chain, transport and logistics systems, economic security.

Background. *The formation of a new system of economic interaction in the context of modernized, hybrid forms of external challenges determines the need for coordination of business processes within the areas of production–transportation–exchange–consumption using the global optimization criterion, which is the level of national security of the economy.*

To ensure the reliability and sustainability of national and regional systems of supplying the population with consumer goods, and for the rational conduct of business – supply chains of tangible products and means of production (SC), two interrelated blocks of tasks are becoming relevant: reducing logistical costs and reducing various risks. Their solution presupposes a more harmonious and socially directed development of the country, strengthening of its economic potential. A special role in solving these problems is played by transport logistics systems (TLS).

Objective. *The objective of the author is to consider a new paradigm of security management in terms of transport and logistics systems.*

Methods. *The author uses general scientific methods, economic assessment, comparative analysis.*

Results. *A number of scientists define the TLS as a «special case» of the transport system [1]. And this is legitimate from the position of technologists, operational logisticians (Supervisory / Operational level or ElogSO), engaged in organizing and managing the delivery of goods. The interests of business are at the forefront here, optimal solutions for a limited number of participants are being found, and the social and economic effects that society will have when assessing such schemes are not assessed. In the conditions of fair competition in the market of goods and services, the abundance of goods, the existence of many alternatives in choosing partners, the postulates of supply chain theory and methodology are unquestionable.*

For a situation in the market where demand exceeds supply, there is a socially significant product for the population of the country or a particular region, it becomes necessary to use a systemic criterion for optimization and attracting special specialists – logistics of strategic level (Strategic Level or ElogST. In this context, the transport system will be a special case of transport and logistics.

In this case, TLS, on the one hand, is perceived as the organizational form of an integrated logistics chain, formed by a market mechanism that takes into account the economic interests of organizations involved in logistical processes, and on the other hand, the object of state regulation ensuring the security of higher-order economic entities (region, country) with the element of security management of supply chains.

Now in practical circles the opinion prevails that supply chains should not be subject to state regulation, since they are the product of spontaneous self-regulation of the commodity market. Accordingly, the concept of «transport logistics systems» is not legitimate.

At the same time, in the field of economic sciences, «state regulation of logistics processes in supply chains by economic methods with the aim of optimal combination of a regulated and market mechanism» [2] is one of the central tasks. This means that the concept of the transport and logistics system, the targeted purpose of which is the organization of effective interaction of state structures and business in regulating economic processes connected with the formation of conditions for the effective functioning and development of transport infrastructure and technologies ensuring the reliability of supply chains and supporting the security of economic objects within the framework of common national security tasks.

To ensure the reliability of SC, both new approaches, criteria for the formation of supply chains, and rules of behavior in the market of transport and logistics services and mechanisms for monitoring their compliance are necessary. Conditions should also be created for the effective functioning of the exchange system, taking into account the commercial interests of organizations and enterprises operating in the sphere of material production and exchange, transport and logistics companies that support the movement of the commodity mass, and take into account the socio-economic interests of the population and society as a whole.

Uneasy conditions for the effective functioning of the Russian economy determine the need for reengineering of existing business processes. Obviously, the achievement of fundamental improvements in the main indicators of the activities of Russian organizations engaged in material production, transportation and trade is possible only with a fundamental rethinking and a radical change in business relations, redesign of transport and logistics systems. Here we are talking not only about the formation of new supply schemes using the existing transport infrastructure, but also the development of the latter. In fact, we speak about finding multimodal solutions that ensure the implementation of strategic directions for the movement of material flows through new transportation technologies and methods of managing economic processes, including methods for estimating transaction costs and specific assets in logistics systems [3].

Identifying position in the new paradigm of supply chain management is as follows: the formation and functioning of the transport and logistics system should be based on the use of market mechanisms for regulating processes at various levels of management of economic entities, ***while ensuring an acceptable level of security not only for economies of organizations related to business relations, but also regional and national economy.***

How to assess the economic security of TLS and the reliability of its supply chain (business relationship schemes)? Professor A. G. Nekrasov highlights those qualitative indicators that, in relation to our research facilities, allow for a comprehensive assessment of the risk of reducing the permissible level of safety in the supply chain:

– resilience (the ability of TLS or SC to withstand threats and recover quickly);

– stability (reaction of TLS or SC to limited (in magnitude) controlled and uncontrolled input impacts within acceptable limits);

– adaptation to a variety of risks (the ability of TLC or SC to eliminate consequences as a result of deviations and disturbances in the supply chain to restore a planned or transition to a new operating mode of TLS, which manages security of the supply chain and satisfies the needs of customers) [4].

For a comprehensive assessment of the security of the transport and logistics system, it is advisable to use the indicator and criterion of optimization – «security of transport and logistics processes and systems». This criterion reflects the fulfillment of the basic conditions (ensuring the quality of transportation, transport services by supply chains) and minimizing the risks, threats, damages of the interconnected national security subsystems.

Formally, the indicator of safety of transport-logistic processes and systems will have the form: $R = f(R^b, R^u)$,

where R^b – economic security of the transport and logistics system;

R^u – integrated security of the transport and logistics processes in the supply chain.

In turn, the first basic element includes:
$R^b = f(R^b_n, R^b_v, R^b_q, R^b_t, R^b_r, R^b_c)$,
where R^b_n – damage (additional costs) associated with the supply of products different from the required nomenclature of tangible goods;

R^b_v – damage (additional costs) associated with the supply of tangible goods, products in quantities other than those required;

R^b_q –damage (additional costs) associated with the supply of material goods, products of the quality below the original;

R^b_t – damage (additional costs) associated with the supply of material goods, products with a violation of the delivery time;

R^b_r – damage (additional costs) associated with the supply of tangible goods, products in violation of the rhythm of supply;

R^b_c –damage (additional costs) associated with the supply of tangible goods, products at a price different from the planned price.

The second element has the following structure:
$R^u = f(R^u_f, R^u_r, R^u_k, R^u_m, R^u_s, R^u_e, R^u_p)$,
where R^u_f – financial loss associated with the loss of funds when using inefficient technologies, supply schemes;

R^u_r – financial and economic damage associated with violations of the law on the protection of competition, abuse of the carrier, having a dominant position in the market (refusal to enter into a contract, imposing unfavorable conditions of the contract, creating discriminatory conditions).

R^u_k – commercial damage, related to the loss of the reputation of the company as a reliable partner, market share, ultimately – volumes and proceeds from sales;

R^u_m – material damage associated with the safety of goods, products, property risks and related costs;

R^u_s – social damage associated with the disruption of the functioning of life support systems, supply, the order of providing the population with the necessary products, goods, which can be expressed through a number of socio-economic indicators;

R^u_e – environmental damage associated with damage to the environment, as well as life and health of people, determining the need for costs to eliminate negative consequences;

R^u_p – political damage associated with lost income or loss of property by a foreign entrepreneur or investor.

All elements of the indicators of integrated security of transport and logistics processes in SC and economic security of the TLS have a cost expression, which implies a comprehensive economic assessment of losses and damages.

Conclusion. *The integration of participants in the transportation of goods, as well as those engaged in transport services and the provision of logistics services in the proposed paradigm for managing the economic security of transport and logistics systems, will create new mechanisms to increase the competitiveness of Russian companies.*

For formation of such mechanisms, first of all, it is necessary:

– to develop the concept of a supply chain management system, management of security of transport and logistics systems and processes;

– to improve the methodology of tools for monitoring and analysis of «costs –output» models, the formation of trade and economic, transport and economic balances;

– to develop methods, information systems and technologies for monitoring, analyzing, evaluating and forecasting trade, production, transport and economic relations in the Eurasian space.

An obligatory block in the system of conditions and mechanisms is also the information and organizational components. Namely, the presence of:

– a single information base of international contracts, concluded at an entrepreneurial level;

–an organization responsible for monitoring and managing the development of international supply chains for targeted products on special terms;

– personnel working in the field of logistics with a wide range of competencies for solving the problems of strategic supply chain management and economic security management of transport and logistics systems, the formation of intercountry, regional, sectoral, cluster and other types of transport and economic balances necessary for the design of general schemes of goods movement, international supply chains for targeted products on various terms.

REFERENCES

1. Belyaev, V. M., Mirotin, L. B., Nekrasov, A. G., Pokrovsky, A. K. Management of processes in transport logistics systems: educational guide [*Upravlenie processami v transportnyh logisticheskih sistemah: ucheb. posobie*]. Gen. ed. by A. G. Nekrasov. Moscow, MADI publ., 2011, 127 p.

2. Passport of the scientific specialty 08.00.05 «Economics and management of the national economy (logistics)» [*Pasport nauchnoj special'nosti 08.00.05 «Ekonomika i upravlenie narodnym hozjajstvom (logistika)»*].

3. Astafiev, A. V., Bagimov, A. V., Bubnova, G. V. *et al.* Innovation Logistics: Concepts, Models, Mechanics: Monograph [*Innovacijna logistika: koncepcii, modeli, mehanizmi: monografija*]. Scien.ed. M. Yu. Grigorak and L. V. Savchenko. Kyev, Logos publ., 2015, 548 p.

4. Nekrasov, A. G. Fundamentals of security management of supply chains: educational guide [*Osnovy menedzhmenta bezopasnosti cepej postavok: Ucheb. posobie*]. Moscow, MADI publ., 2011, 130 p.

Information about the author:
Bubnova, Galina V. – D.Sc. (Economics), professor of Moscow State University of Railway Engineering (MIIT), Moscow, Russia, gbubnova@gmail.com.

Article received 15.08.2016, accepted 28.09.2016.