State Organization «Institute of Market and Economic&Ecological Researches of the National Academy of Sciences of Ukraine»

Summary of scientific novelty for the research

3.1.8.61/ Б "Formation of the principles of state policy for the development of intermodal and multimodal transportation of national and transit cargo"

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The following scientific results have been obtained:

Originally developed:

- the theoretical foundations of the national transport policy are substantiated by considering it in a two-level context, firstly, as a general transport policy that forms economic relations at the external and national levels between the world community, the national transport complex, and the Ukrainian state, and, secondly, as an informal transport policy that forms economic relations between participants in the transport process, and the main task of which is to ensure a balance of interests between them;

- the scientific and methodological support of the principles of the state policy for the development of multimodal transport in Ukraine, the basis of which is the developed structural and econometric model of program complexes of the dynamic system of decision-making support and management in the organization of multimodal transport, adapted for Ukraine, which takes into account both risks - dependent on stochastic parameters and risks determined by fuzzy variables, as well as monitoring system for assessing and minimizing threats with the determination of mechanisms for state guaranty of the adequacy and effectiveness of the measures taken;

-theoretical principles for the formation of a system for assessing and minimizing threats in multimodal and intermodal transportation, which is based on the analysis and assessment of factors of negative impact on the transportation process, as well as on determining the appropriate state guarantee mechanism, the purpose of which is to identify the adequacy and effectiveness of the measures taken;

- an algorithm for pre-project verification of the throughput capacity of information system routes in the conditions of a dynamic information processing option with a significant increase in information flows, which conceptually corresponds to solving the problem of decision-making, burdened by large-scale crises and accidents;

- conceptual principles for exercising state influence on the formation of the freight transportation market and the development of intermodal and multimodal transportation by defining the English or French model of the functioning of the transport complex as the economic basis, which are used in accordance with the target objectives of the country's transport policy and are implemented at a certain stage of its economic situation;

- scientific substantiation for the feasibility of introduction of the institute of attorneys in multimodal transportation sphere at the Coordination Council for

Logistics and Infrastructure has been developed, as a solution to the social problem of increasing the responsibility of the multimodal transportation operator, with their appropriate certification and assignment, along with the performance of their direct functions, as well as monitoring compliance by all participants of the organization of the transportation process with the requirements of laws and by-laws regulating multimodal transportation. A two-level structure of the institute of attorneys in the field of multimodal transportation has been proposed, which meets the objective need for division into two groups: transportation of goods of state institutions, especially important and dangerous, for the transportation of which access to state secrets is required, and second, transportation of commercial goods;

Improved:

- scientific approach to the selection of state transport policy instruments for the development of multimodal and intermodal transportation of national and transit cargo , built on the basis of a systemic and comprehensive assessment of risk factors, internal and external factors of the formation of the architecture of cargo transportation process management systems, which incorporate the parameters of the logistical dependence of production and transport activities, taking into account the needs of target markets and by determining the proportions of "production-sales" and rationalization of transport flows;

- scientific and methodological support of the organizational and economic foundations of the creation of a distribution control center and information support for mixed transportation in the form of a DFD diagram, which provides the reduction of operational downtime, loss of cargoes, and which will allow the creation of territorial management systems and increase the efficiency of integrated management of various types of transport in the multimodal transportation system;

- scientific and applied approach to identifying the dependence of the volumes of products sold (goods, services) from the volume of goods transported by modes of transport has been improved, which is based on the use of the statistical method of multiple regression , and which forms a methodological toolkit for describing the dependence and forecasting the volumes of goods transported by rail, sea and river modes of transport;

- theoretical principles for the formation of a system for managing the logistics activities of business entities based on the identification of their structure, integration into the enterprise management system or the unification of the tools for managing marketing activities and logistics processes in the implementation of sales procedures. At the same time, it has been established that the interrelationship of sales and logistics activities is unconditionally given the objectivity of the combination of the processes of physical and commercial movement of goods, their transportation and storage, while marketing activities, along with their main functions, connect the sales and logistics activities of the entity with its production activities, and not only determines the formation of a production program taking into account the needs of the target market, but also rationalizes multimodal flows by determining the proportions of production and sales;

- scientific approach to determining the interdependence of gross regional product per capita on freight turnover by mode of transport by using the

methodological tools of the theory of systems analysis in order to allocate transport regions and effectively place multimodal terminals (transport hubs), which will contribute to the introduction of effective tools for stimulating interregional integration and integrating regional economic, informational, and educational spaces into a single transport space, overcoming interregional alienation and introducing effective tools for state support for interregional integration, and implementing interregional programs and projects;

- instrumental support for dynamic management of mixed transportation taking into account, at certain stages of routes, absorbing or integral risks of a different nature, significant in magnitude and those that are absent under normal conditions, using an algorithm for identifying and considering their multiplicative nature and an algorithm for minimizing economic losses connected with desynchronization risks at the stage of cargo transshipment.

Have been further developed:

-theoretical principles for the formation of a mechanism for state regulation of mixed transportation developed based on system-forming mechanisms according to their instrumental influence and the criterion of optimality of the vectors of development of the country's transport system;

-theoretical principles for coordinating the tasks of efficiency and minimization of transportation costs by the way of forming an algorithm for managing multimodal and intermodal transportation of national and transit cargo, which develops a universal mathematical model of the development of management and forecasting of intermodal transportation;

-the scientific principles for the formation of the classification of basic threats and risks of the implementation of multimodal transportation for the Ukrainian economy, which include, among other things:

- threats and risks of bankruptcy of multimodal transportation operators;
- economic losses of national cargo owners due to the low level of financial responsibility of multimodal transportation operators for the loss or damage to the cargo which they have accepted for transportation;
- methodological aspects of the formation of port dues tariffs by way of determining the global pattern of their distribution into two groups and rationalizing the procedure for port dues charging;

-theoretical principles for the use of cloud technologies in the activities of the distribution center, which will allow to accelerate information exchange between stakeholders of multimodal and intermodal transportation, and will facilitate the management of multimodal and intermodal transportation of national and transit cargo basing implementation of criteria for reducing subjectivity in decision-making, minimizing the time for their adoption and ensuring high efficiency in the provision of transport and logistics services;

- scientific and methodological approach to systematization and optimization of normative regulation of intermodal transportation which contains international and national hierarchical levels and allows to streamline the processes of managing cargo transportation by various modes of transport;

- definition of structural indicative changes and directions for improving state regulation mechanisms for various modes of transport, which will allow to optimally form the directions of state policy in the field of multimodal and intermodal transportation, and to identify promising directions of intermodal transportation of national and transit cargo;

- classification division of institutions that form the institutional support for regulating the development of the transport industry into producer institutions, providers and consumers of transport services, regulatory institutions and service quality controllers; This made it possible to determine the functionality of the main regulatory institutions in the transport sector of Ukraine with the coordination of normative, regulatory, political, infrastructural, financial, economic, and coordination functions; the research focus on different types of institutions allows us to substantiate the priorities for increasing the efficiency of management decisions regarding transport regulation in the system of sectoral development of the national economy.

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