

The Analytical Test of Methodological Approaches to the Increasing the Level of Automation of the Basic Functions of the Car Dispatching of the Cargo Delivery to Northern Regions of the Russian Federation

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Abstract

The object is: the analytical test of methodological approaches to the increasing the level of automation of the basic functions of the car dispatching of the cargo delivery to northern regions of the Russian Federation based on the classification of the factors which influence the route in terms of the operational traffic command; the identification of the optimal normative loading of the dispatchers in terms of the total number of the impacts and of the efficiency of the system; operational redistribution of the vehicle and the routes by the dispatchers, with increased or reduction of volumes transported; development of methods which let on-line to determine and to predict peak and no peak intervals of Load on dispatchers, based on not only the review of the current status of the transport process but the flow projection on the route.

Method or methodology of the work: the methodology of the location of the transport logistics center (TLC) with a dispatcher control in the system of the northern region was developed, liaising with all modes of transport involved in the delivery of energy, a model to optimize the parameters of the transport network was developed used for traffic, the most effective schemes of delivery of goods in multimodal report were justified, taking into account the specifics of the northern region, and funding.

Results: the Studies have applied nature and may be used by the federal and regional authorities and by the management in the development of the integrated programmes for energy supply of Northern regions. The theoretical researches and the methodological approaches which are proposed in the work are one of the way to increase the efficiency of the delivery of goods in the event of a little predictable situations on the route, TLC and transshipment points. The developed techniques are used and can be used by the northern regions to improve the control of the technological process of cargo delivery.

Conclusion: Therefore, based on the analysis of the status of the issue, it is quite obvious that the very topical area of

optimization of the transport needs of the region is the development and the implementation of methods to improve the efficiency and quality of freight traffic by improving organizational structures and technology traffic control of all transport space in the region.

Keywords: northern regions, multimodal system, information flows, transport and logistics system, transport and logistics center, the interaction modes, dispatcher control.

Information flows in the system of relations between the supplier and the customer determine the load and accompany the movement of material, transportation, and financial flows. The functions of information flows involve providing reliable information on the presence and movement of existing material objects conjecture market, stocks, routing and delivery of transport used, the conditions of the transactions and forms of payment.

Movement direction of information flow in the system of relations between the supplier and the consumer may agree with the direction of movement of the material until either be opposing him. So, if the directions are the same, then made the transfer of information on the quantitative and qualitative characteristics of the material flow as well as the transport used, the mode of transport, the time of arrival of cargo. In the case where the information flow is directed towards the material, it usually contains information about the acknowledgment of receipt of certain goods, their quality and quantity of state, as well as the possible future needs of the consumer.

At the moment it becomes particularly important area of information provision, involves the collection, processing and transmission of information needed to make sound management decisions now.

For effective management of logistics information system it is necessary to have reliable (reliable) information on the material, financial, traffic flows, both for input and output of the logistics system. But important for the carriers' company is

the technological and technical readiness for information exchange with the environment. This willingness to affect the efficiency of the core business of the company, which can be achieved only if there is a technologically and technically constructed internal logistics information systems company with a specific list of input and output parameters at all levels management decisions [5].

Efficient service to consumers of transport services, management and coordination of the work of many transport and logistics companies and intermediaries in cities and regions are not possible without the creation of territorial (regional) transport and logistics systems (RTLS). Coordinating and integrating the potential of these systems should be aimed at improving the efficiency of customer service due to the high quality of transport and logistics services, the introduction of modern logistics technology management of regional (territorial) material and related information and financial flows. The situation in the major cities of Russia requires a fundamentally new systems and cargo management technology based on terminal technology and logistics principles of physical distribution. In the development of logistics technology transportation of goods in this study we used logistic strategies and provisions set forth in the works of the leading scientists in the field of transport logistics [2].

Transport to become one of the key elements when considering the logistics and troubleshooting for the delivery of goods to the level of functioning of enterprises, companies, cities, regions (oblasts), regions and states. At the same time, the transport itself can be considered as a complex system with its own laws of operation, and in this case, is authorized to talk about transport logistics.

Therefore, the investigation, research and development activities to address the logistics support of cargoes at their delivery to various distances for all modes of transport will allow: reduce wasteful transportation and improve the ecological environment; improve the quality of transport services to end consumers.

Experience shows that the main requirements of the consumers to the transport services are: reliable transportation; minimum time (duration) of delivery; regularity of delivery; preservation of the goods; convenience for the reception and delivery of goods; perfect system of information and documentation; possibility of obtaining reliable information about the conditions transportation and the location of the goods; availability of additional services.

In both cases, the main problem is to ensure that the appropriate infrastructure (equipment transportation, loading - unloading, storage, information transmission system, etc.) which spanned the entire activity. In the works of the leading scholars in the field of transport services are defined as a subtype of transport activities aimed at meeting the needs and characterized by the necessary technological, informational,

legal and resource provision. Under the service is meant not only the transport of goods, and any operation that is not part of the transportation process, but associated with its preparation and implementation, such as packaging and labeling of goods, their packaging, interim storage, consolidation.

Logistics centers should be considered as a system of realizing the relationship between the "three parties": suppliers; consumers; logistics intermediaries.

The undoubted advantage of their establishment and operation, together with the effective movement of material assets, is the provision of information and analytical nature on the basis formed by the database on the state of the market, its dissatisfaction, needs and options deals.

For effective logistics necessary to correctly identify the leading link logistic system, which is entrusted with the duty of the coordinator of in order to achieve the planned objectives of the logistics system.

Technological processes in the logistics chain for delivery of goods to consumers, have their own characteristics, depending on the traffic characteristics (physico-mechanical and physico-chemical properties of the cargo, its volume and weight, the type of packaging), the amount of cargo (bulk cargo, break-bulk cargo, loads of packages, containers, full), the mode of transport and its carrying capacity, the nature of industrial facilities included in the transport process, the technological features of the process, service vehicles, and industry it.

In general, delivery of cargo to the consumer is distributed over a number of successive stages of the specific individual, often unrelated and performed by different entities. Therefore, the optimization of such a space-time system under the Nordic region is a rather complicated task.

To deliver goods on time in the North, and with less resources should be developed and implemented by a single process based on the integration of production, transportation and consumption. Under a single process is understood as a complex technology, in which on the basis of a systematic approach performed better integration of all elements of a logical system [6].

Amid rising demand for transport services, and even more significant increase in its term, freight logisticheskoi system as a whole and the individual subsectors are still a number of unresolved systemic problems: lacks the necessary complexity in the management of the development and peration of freight logisticheskoi system; transport not complete structural reforms; high level of irregularity in the use of production capacity of the existing infrastructure; state and pace of development of roads do not match the pace of motorization; in all sectors of the transport complex continuing trend of aging of fixed assets and their inefficient use; there are significant regional disparities in the development of the

transport network; insufficient technological level of transport systems.

Therefore, the strategic goal of the operation and development of the transport and logistics system is to ensure, by means of transport, economic growth and improve the quality of life for present and future generations of the country's population. In this connection the problem of transport and logistic system directly takes into account the following long-term socio-economic priorities of the state: improvement of optimal control; gradual transition from price control to free market prices; creating conditions to ensure non-discriminatory access consumer transportation and logistics services to the transport infrastructure; elimination of unnecessary administrative and economic barriers to competition transport operators; use in cases where, for whatever reasons, direct competition in the market is not possible or is destructive system of public tenders operators (in particular in the sector of local and regional transport); commercialization use of transport infrastructure with the involvement of private operators; improvement of access to transport on the basis of mechanisms of state regulation; a gradual transition to a milder form of the state management (including voluntary certification); support for small and medium-sized businesses in the transport sector; encouraging consolidation of transport business in some segments of the market.

Developing the transport system should not be a monopoly, thus leaving each mode its operations in the transport area of the country, region, city or municipality. Coordination of all transport modes (which is very difficult in terms of the diversity of ownership of transport, freight forwarding, repair and service companies) will increase the capacity of transport networks in order to improve the viability of modern society and the degree of satisfaction of its needs for transport services.

For the development of logistics technology freight requires a systems approach as a set of interrelated subsystems united by a common purpose: to achieve synergy.

Another important source of increasing the intensity of use of the vehicles is to coordinate the work of various modes of transport, improve the efficiency in the use of multi-modal technologies, which facilitates the introduction of technology combined transport of goods, ensuring uninterrupted their "door to door", the centralization of forwarding service, the feasibility of using trans-facilities, warehouses and labor in transport nodes [3].

Equally important is the development of land transport modes, adapted to work in the North. Increasing the capacity of vehicles, increased permeability and reducing staff. The use of all of these steps will increase the efficiency of the transport service of the Northern regions.

Applying the principles of logistics is crucial. When the intelligent transport systems logistics technologies become available not only for large companies, but also for individual

enterprises. On the one hand increasing competition in the business of logistics, on the other hand, the problems of logistics management contributes to the development of intelligent transport systems. Intelligent transportation systems provide the basic condition of the optimization of logistic systems - integration of information and access to it at any time during the transport process to all participants through the following functions: Data shippers, carriers and consignees are integrated into a single flow of information; all participants in the supply chain have a direct and immediate access to the data; control of all cargo operations and shipment tracking is done automatically with the conduct of electronic document.

The use of intelligent transport systems (ITS) in the Northern region to ensure - the integration of information and access to it at any time period all participants in the transport process due to the following: [1] data shippers, carriers and consignees are integrated into a single flow of information; all participants of transportation process have a direct and immediate access to the data; management of all cargo operations and shipment tracking is done automatically with the conduct of electronic document.

One of the main features of the traffic management in the conditions of the ITS is to solve problems, optimize routes of vehicles in real time [4].

Therefore, when solving optimization problems of traffic routes in real time, consider the following features: ITS provide a solution to problems of optimization and selection of the route of the vehicle at any time; the collection, transmission and processing of information about the vehicles and routes should be carried out in a continuous manner with the aim of having it for the last time; models, algorithms and software must be able to solve the problem of optimizing routes and at any given time, taking into account the real state of the route; vehicle equipment and technical means of the organization of movement on the route must be capable of receiving and implementation of management information in real time; the time of collection, processing (modeling, calculation), information transmission, reception and implementation of the control action must comply with real-time, ie, rerouting (modes) of the motion should be adequately state route traffic.

The practical value of this is the possibility of a preliminary assessment of the effectiveness of the design and management decisions and optimization of the transport operation in ITS.

Scope of application of intelligent transport systems is constantly expanding, respectively, and increases the capacity of the market of hardware and software, increasing amounts of funding for the development of ITS [1].

Thus, the development of the functions of dispatcher control of cargo by different ways of traffic to the northern regions of the Russian Federation of the road network of year-round, the construction of the railway communication and the

involvement of other modes of transport, is one of the most important factors in improving the efficiency of the continuous supply of goods.

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