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## Contemporary issues of transport logistics development in Republic of Kazakhstan

The article studies the role of transport potential of the Republic of Kazakhstan in the development of logistics infrastructure in market conditions. The main attention is paid to solving management problems of materials and information flows in logistics. The materials flow of logistics is classified on certain grounds: in relation to the logistics system; the quantitative basis; the specific gravity and the consistency of the goods. The determined role of the information flow in the logistics system is aimed at achieving the efficient movement of the materials flow. Grouped logistic operations are performed in the process of production with materials resources, as well as operations for processing, transmission and storage of relevant information. The article also defines the role of logistics in the planning, management and control of movements of materials, information and financial resources in different systems. Moreover, the essence and importance of transport logistics are revealed by the authors. Because transport is characterized as the main link between the elements of logistics systems. There are main advantages and disadvantages of different transport modes which are related to the rational organization of the goods movement. The activity of Kazakhstan transport and logistics centers providing logistics services in the railway industry is analyzed. Which allows to propose a number of recommendations to address the problems of transport logistics development in the Republic of Kazakhstan.

*Keywords:* transport, transport potential, logistics, logistics infrastructure, transport logistics, logistics operations, customs warehouses.

In the annual Message of the President of Kazakhstan N. A. Nazarbayev to the people of Kazakhstan on January 31, 2017 «The third modernization of Kazakhstan: global competitiveness», the head of state defined the development of transport and logistics as one of the important priorities for the development of Kazakhstan, thus, set the task for the government of Kazakhstan on the need to increase the country's income from transit transportation by 5.5 times – up to 4 billion dollars a year [1].

It is obvious that modern Kazakhstan pays great attention to the development of infrastructure projects, for example, the international transit corridor «Western Europe – Western China». Which will reduce the time of cargo transportation from China to Europe by almost 3.5 times in comparison to the sea route, i.e. from 40 days of the waterway to 10 days of landway transportation.

Kazakhstan's high transport potential with the effective development of logistics infrastructure by using digitalization of the economy led to the disappearance of entire industries and the creation of fundamentally new industries resulting the emergence of a new model of economic growth. This can ensure the global competitiveness of the country.

The annual Message of the head of state to the people of Kazakhstan has become a milestone in the development of the Republic, as it determines the domestic and foreign policy of the country, which in turn emphasizes the strategic importance of this official document.

An efficient logistics system at the international level and within the country plays a key role in achieving the goal of Kazakhstan's development as a transit country between Europe and East Asia, as well as a regional transport and logistics center in Central Asia. Having created favourable conditions for transit and eliminated the existing physical and non-physical barriers, Kazakhstan acts as a land bridge between East and West, opening the way for goods from Western China to Europe, Russia, the Persian Gulf, Central Asia and the Caucasus.

Along with the realization of the transit potential, the transport and logistics system of the country should meet the prospective needs of customers in transport and logistics services. The implementation of this strategy, as well as the reduction in the cost of transported goods and the creation of competitive routes through Kazakhstan largely depend on the efficiency of the supply chain. This carries out the export and import of goods or transit.

Logistics is a science of planning, organization, control and management of transportation, warehousing and other materials and non-materials operations. These operations are conducted in the process of bringing raw materials to the manufacturing plant, in-plant processing of raw materials and semi-finished products, finished products to the consumer in accordance with the requirements of the latter, as well as the transfer, storage and processing of relevant information [2].

Solving problems of management of materials and information flows are the main ones that impact logistics.

The materials flow includes cargo, materials resources, inventory, considered in the process of logistics operations in a specific time interval.

The main task of logistics is the management of materials flows, which are classified by different features (Table 1).

Table 1

Classification of materials flow logistics

№	Signs of classification	Types of flow
1	In relation to the logistics system	- external; - internal; - incoming; - outgoing.
2	On quantitative grounds	- mass (large); - medium; - small.
3	According to the specific gravity	- heavy; - light.
4	The consistency of goods	- bulk; - liquid; - general.

*Note.* Source: compiled by authors on [3-5].

The classification of materials flow logistics is characterized by the following features:

1) in relation to the logistics system – external, internal, incoming and outgoing. The external thread flows in the external to the organization environment. For example, it is the materials flow of raw materials for the processing plant, until its delivery to the warehouse. Since the inventory receipt and movement within the company, this thread is to become internal. At the entrance to the enterprise materials flow will be incoming, and after processing and delivery from the warehouse of finished products-outgoing;

2) on quantitative grounds – mass or large, medium and small. Mass materials flow is transported by multiple vehicles: trains, dozens of vehicles; mid-single cars, cars, small – quantity production which is insufficient to load one vehicle;

3) by specific gravity-heavy (coal, metals, ore, etc.), lightweight (tobacco, cotton, etc.);

4) according to the consistency of goods – bulk, liquid and general. Bulk goods are transported, as a rule, in railway wagons (grain, raw sugar, wood, coal, etc.); liquid-oil and oil products, liquefied gas, which are delivered in tanks and pipelines; general - transported in containers, boxes (non-ferrous metals, household appliances and equipment, etc.).

Information flow is a set of messages circulating inside the logistics system, between it and the external environment. This is necessary for the management and control of logistics operations, logistics system and between the logistics system and the external environment, aimed at achieving effective movement of materials flow.

The information flow is ahead of the materials flow, which allows processing information about the delivered cargo in advance [6].

The information logistics system represents in a certain way the organized set of the interconnected means of computer equipment, various reference books and the necessary software providing the solution of these or those tasks of management of movement or storage of a materials stream.

Information logistics involves the availability of automated information systems that solve the following main tasks [6]:

- uninterrupted provision of reliable, relevant and adequate information on the movement of the materials flow;
- operational management of the organization by key indicators (cost, cost structure, profitability level);
- ensuring transparency of information for management on the use of investment capital;

- providing management with information for strategic planning and the structure of total costs and expenses;
- timely identification of «bottlenecks»;
- reallocation of the organization resources;
- terms estimation of consumer orders execution;
- ensuring the profitability of organizations by optimizing logistics business processes.

Materials flow is formed as a result of a combination of certain actions with materials objects. These actions are called logistics operations.

A logistics operation (in a narrow sense) is any action that does not fit the further division into smaller actions and is aimed at transforming the materials and (or) information flow.

Logistics operations (in a broad sense) are all operations that take place in the course of production with materials resources and objects of materials goods production, as well as operations for processing, transfer and storage of relevant information production.

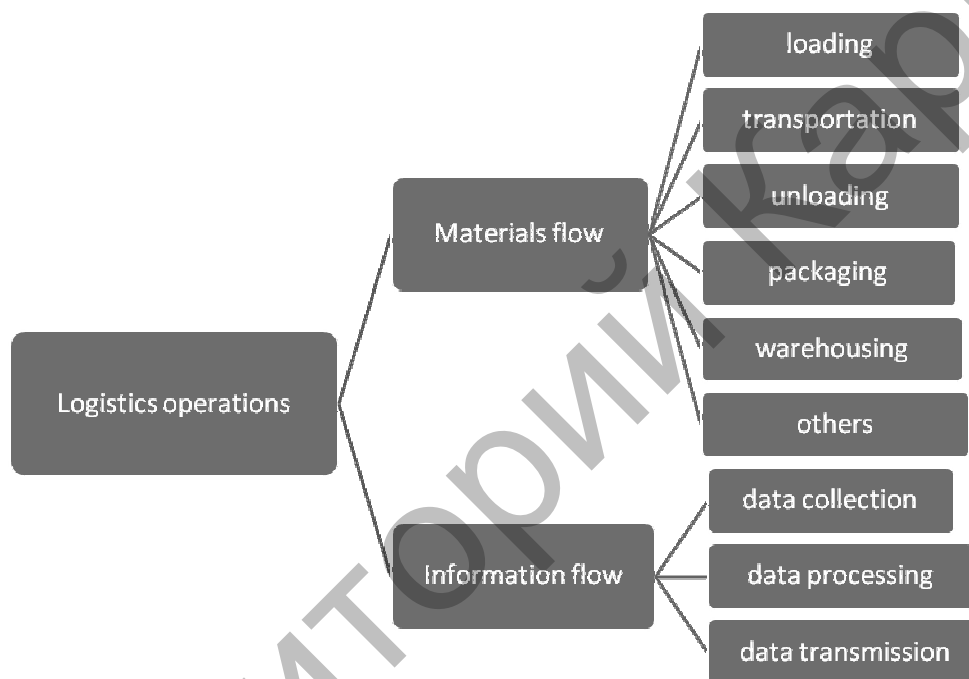


Figure. Grouped logistics operations Source: compiled by authors on [3, 4, 6]

As Figure shows, the materials flow logistics operation includes loading, transportation, unloading, packaging, warehousing, and other operations. Logistics operations with information flow include the collection, processing and transmission of materials flow data.

The use of different elements in the performance of logistics functions and operations are related to the external environment which forms a logistics system.

Logistics is a science, the subject of which is the organization of the rational process of movement of goods and services from suppliers of raw materials to consumers, the functioning of the sphere of circulation of products, goods, services, inventory management and provisions, the creation of the infrastructure of commodity movement, the formation of which started at the beginning of the 50-ies of the twentieth century [6].

A broader definition of logistics treats it as a teaching on the planning, management and control of the movement of materials, information and financial resources in different systems.

From the management position of the organization, logistics can be considered as a strategic management of materials flows in the supply process: procurement, transportation, sale and storage of materials, parts and finished inventory (equipment and others). The concept also includes the management of relevant information flows as well as financial flows. Logistics is aimed at cost optimization and rationalization of production, sales and related services both within one enterprise and for a group of enterprises. The main link between the elements of logistics systems is transport.

Transport logistics is a type of logistics that controls the complex of operations that provide physical movement of inventory between the participants of the supply chain with minimal costs, i.e. the movement of the required amount of goods to the desired point, the optimal route for the required time and at the lowest cost [7].

In accordance with the legislation of the Republic of Kazakhstan, transport logistics is a set of interrelated actions of the participants of the transportation process for planning and management of goods transportation from the shipper (manufacturer) to the consignee along the optimal route using various modes of transport (railway, road, sea, air), including the monitoring movement of goods at each stage of transportation [8].

The subject of transport logistics is a set of tasks related to the rational organization of the movement of goods by General-purpose transport.

Consider the main advantages and disadvantages of modes of transport.

Air mode of transport is the most expensive way of transportation and has the highest capital intensity, material / energy intensity, but it has the highest speed of cargo delivery, high reliability, highest safety of cargo and the shortest routes. This mode of transport depends on weather conditions.

Unlike all other modes of transport, road transport is characterized by high accessibility, manoeuvrability, flexibility, dynamism, regularity and the possibility of door-to-door delivery. Road transport has the ability to use different routes and delivery schemes, coupled with high speed delivery. The wide choice of different carriers in the automotive industry is due to the lack of monopoly.

Road transport is characterized by the following disadvantages: low productivity, high cost of transportation over long distances, the presence of harmful emissions, reduced speed depending on weather and road conditions. The additional advantages of this type of transport is the consolidation of small consignments from different geographical areas, provided that the endpoints of their routes coincide.

High carrying capacity, independence from climatic conditions, time of year and day, regularity of transportation, high speed of delivery of goods over long distances characterize the railway mode of transport.

The railway industry is one of the fundamental branches of the country's economy and is the main vehicle in the transportation of goods in export, import and transit. This type of transport is intended for transportation of bulk and containerized cargoes. The low cost of transportation of goods over long distances is a significant advantage of rail transport.

The disadvantages of rail transport include a limited number of carriers. In Kazakhstan, the main carrier of goods and the owner of the main production assets in railway transport is the national company «Kazakhstan Temir Zholy».

In accordance with the state program documents on the reformation of the railway industry, corporate strategy and national legislation, in order to attract cargo in new segments of the market of transit and multimodal transportation, and in the traditional on the basis of JSC «locomotive» And the Directorate of the transportation process, a national freight carrier - JSC «KTZ - Freight», which began to carry out activities on the transportation of goods from 1 July 2016, was established.

Taking into account that railway transport has a leading role in the implementation of state objectives for the development of transit potential of Kazakhstan, the business strategy of «NC «KTZ» JSC provides for growth in the segment of transit and multimodal transport and logistics services through:

- development of new competencies and integration of services into a single logistics service;
- entering new market segments and offering new transport products;
- modernization of transport infrastructure;
- formation of internal and external network of transport and logistics centers;
- development of dry cargo fleet;
- forming partnerships and alliances;
- institutional development of international transport corridors [9].

Carrying out transportation, creating logistics services, developing national infrastructure and new sectors of the economy, «NC «KTZ» JSC makes a significant contribution not only to the development of the national transport and logistics system, but also international transport corridors and transport and logistics services on the Eurasian continent.

Currently, Kazakhstan Railways as a single multimodal transport and logistics operator forms its own external and internal network of transport and logistics centers.

Terminals where transit containers are loaded into wagons are essential in the supply chain. These terminals are usually also engaged in the processing of specialized cargoes, such as loading of vehicles into special wagons, containers from the EU, China or countries within the Customs Union. Containers from foreign countries undergo customs clearance at the temporary storage warehouse on the territory of the terminal. Operator the basic quantity of terminals is Kazakhstan railway in the face of its subsidiaries kaztransservis and KedenTransServis that is capable of processing per year 102 thousand and 184 thousand containers 17 terminals in all regions of the country.

JSC Kedentransservice has a wide terminal network of branches in 14 regions of Kazakhstan and two representations:

- representation in Xinjiang Uygur Autonomous region of the people's Republic of China (Urumqi);
- representation in the Republic of Uzbekistan (Tashkent).

The terminal network of the company consists of the cargo sites located at 18 railway stations across all territory of Kazakhstan.

It is the largest network in Kazakhstan in terms of volume of processed goods in wagons and containers and the second largest in Kazakhstan network of railway terminals after the station network of JSC «NC «KTZ» [10].

In the market of terminal cargo handling it is necessary to separate a segment of the market of rendering services of customs clearance and customs warehouses of temporary storage. In accordance with the customs legislation of the Republic of Kazakhstan, all goods arriving in the country before the completion of customs procedures must be under customs control in the customs control zones, which are temporary storage Warehouses (TSW). The production process of customs clearance consists of the following components:

– first, the design of the DCD (delivery control document). The DCD is needed to control the delivery of goods under the procedure of internal customs transit. According to the Customs code of the Republic of Kazakhstan, when importing, exporting and transit of goods through the territory of the Republic of Kazakhstan, it is necessary to draw up a document of delivery control;

– secondly, when goods are placed on the SVH, a brief Declaration is issued;

– thirdly, it is the registration of GTD (cargo customs Declaration) – a document provided for the goods at the main customs clearance. For import or export of goods and transport services, Kazakh companies and individuals must issue cargo customs declarations to customs authorities.

The period of storage at the SVH is limited by law to 60 days, and therefore many participants of foreign economic activity (FEA) are forced to resort to placing their goods in Customs warehouses (TS). SWH market refers to the fast-growing and profitable business environment with the requirement of a license to engage in these activities.

However, in this segment there are problems connected with low transparency of customs procedures and complexity of registration. The participants of foreign economic activity note the problems associated with the imperfect procedure of customs valuation, high cost of agricultural services and non-transparent system of customs classification of goods.

Thus, considering the current problems of transport logistics development of the Republic of Kazakhstan, the following conclusions can be drawn:

– in Kazakhstan, as in other CIS republics, there is a fairly high share of the transport component in the final price of the goods, bearing in mind the competitiveness in the international dimension. Transport component, however, affects the development of companies operating in the domestic market, as it is necessary to compete with Chinese products, goods from other countries entering Kazakhstan;

– the market economy in Kazakhstan is in the process of development. At the present stage, it is not yet possible to fully and effectively implement, for example, intersectoral coordination. And the transport industry is also not yet fully using its potential, does not fully contribute to the effective integration of modes of transport, the introduction of modern logistics technologies. This is quite a natural process of growth. Hence, the increase in turnover of railway cars, and the irrational use of trucks, and certain distortions in the structure of rolling stock in General;

– state support of logistics systems should become one of the forms of state regulation of the economy, which is to coordinate the economic interests of enterprises and participants of logistics links, promoting mutually beneficial relations between them. This requires the creation of new or the transformation of existing principles of management of the state, society and business structures to achieve the main goal of logistics-to obtain final results-to reduce total costs and obtain competitive advantages through rationalization, optimization of economic processes with a high degree of coordination;

- insufficient use of modern automated cargo management systems, electronic document management reduces the speed and reliability of transportation, making transport companies in Kazakhstan relatively unattractive for the provision of transport and logistics services in the global market;
- transport infrastructure of Kazakhstan plays an important role in ensuring the connection of transport links with other States, the integrity of the territorial space, the conduct of trade, exchange of information, ensuring the passage of transit goods and goods, integration into international trade flows of the world, as well as in creating the possibility of unhindered transport of export products of the country;
- the main problem of the logistics system of Kazakhstan is a narrow range of services and unreliability of the supply chain. These problems are caused by low coordination and integration between the participants of the transportation process, the lack of modern information systems, storage and handling systems.

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### Қазақстан Республикасындағы көлік логистикасы дамуының өзекті мәселелері

Мақалада Қазақстан Республикасындағы көлік әлеуетінің нарықтық жағдайдағы логистикалық инфрақұрылымын дамытудағы рөлі зерттелген. Логистикадағы материалдық және ақпараттық ағындарды басқару шараларын шешуге басты назар аударылған. Авторлар белгілі бір сипаттарына сәйкес логистиканың материалдық ағындарын жіктеген: логистикалық жүйеге қатысы бойынша; сандық сипаты негізінде; нақты ауырлық дәрежесі бойынша; жүктердің құрамы бойынша. Материалдық ағынның тиімді қозғалысын қамтамасыз етуге бағытталған логистикалық жүйенің ақпараттық ағынының рөлі айқындалған. Авторлар өндірістік үдеріске материалдық ресурстармен, сондай-ақ өндіруге қатысты ақпаратты өңдеу, беру және сақтау жөніндегі операцияларды жүзеге асыруға қатысты логистикалық операцияларды топтастырған. Мақала әртүрлі жүйелердегі материалдық, ақпараттық және қаржылық ресурстардың қозғалысын жоспарлау, басқару және бақылаудағы логистиканың рөлі айқындалған. Көлік логистикалық жүйелердің элементтері арасындағы негізгі байланыстырушы буын ретінде сипатталған. Көліктік логистиканың мәні мен маңызы теориялық негізде ашылған. Жүктердің қозғалысын ұтымды ұйымдастыруға байланысты әртүрлі көлік түрлерінің негізгі артықшылықтары мен кемшіліктері қарастырылған. Темір жол саласындағы логистикалық қызметтерді ұсынатын қазақстандық көлік-логистикалық орталықтардың қызметі талданған. Авторлар Қазақстан Республикасында көліктік логистиканы дамыту мәселелерін шешу бойынша бірқатар ұсыныстар берген.

*Кілт сөздер:* көлік, көлік әлеуеті, логистика, логистикалық инфрақұрылым, көлік логистикасы, логистикалық операциялары, кеден қоймалары.

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## Актуальные проблемы развития транспортной логистики в Республике Казахстан

В статье исследована роль транспортного потенциала Республики Казахстан в развитии логистической инфраструктуры в рыночных условиях. Основное внимание уделено решению задач управления материальными и информационными потоками в логистике. Авторами классифицирован материальный поток логистики по определенным признакам: по отношению к логистической системе, по количественному признаку, удельному весу, консистенции грузов. Определена роль информационного потока логистической системы, направленная на достижение эффективного движения материального потока. Авторами сгруппированы логистические операции, которые совершаются в процессе производства с материальными ресурсами, а также операции по обработке, передаче и хранению соответствующей производству информации. В статье определена роль логистики в планировании, управлении и контроле движениями материальных, информационных и финансовых ресурсов в различных системах. Транспорт охарактеризован как главное связующее звено между элементами логистических систем. Раскрыты сущность и значение транспортной логистики. Рассмотрены основные преимущества и недостатки разных видов транспорта, связанные с рациональной организацией перемещения грузов. Проанализирована деятельность казахстанских транспортно-логистических центров, оказывающих логистические услуги в железнодорожной отрасли. Авторами предложен ряд рекомендаций по решению проблем развития транспортной логистики Республики Казахстан.

*Ключевые слова:* транспорт, транспортный потенциал, логистика, логистическая инфраструктура, транспортная логистика, логистические операции, таможенные склады.

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