

## **INTERACTION CONDITIONS BETWEEN TRANSPORT HUBS AND CUSTOMS IN LOGISTICS SYSTEMS (ILLUSTRATED BY VOSTOCHNY PORT)**

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*The article focuses on the organization of freight movement across the customs border of the state in terms of logistics systems modernization. The customs logistization includes a set of operations carrying out during cargo customs control with expenditure of time and finances, execution of which contributes to the efficiency of the customs bodies.*

**Keywords:** Global logistics systems, Trans-Syberian Railway, Port Vostochny, transport and logistics distribution center, Customs.

Growth of foreign trade is associated with buildup of freight flows across the customs border of the state. Logistics systems are designed to streamline such flows and to reduce time for their formation. Import of goods into the customs territory of the country is not possible without customs control. Therefore, one of the elements of logistics systems is the customs agency, which working activity setup affects the time required for freight transportation management.

On its way a freight flow undergoes a variety of actions called the logistics operations, which include the following items in customs sphere:

- temporary storage and warehousing of goods;
- transportation and distribution of raw materials and finished products;
- collection and concentration of consignments;
- loading and unloading of freight or containers;

- cargo consolidation;
- information flows data collection, storage and processing [2].

Development of global logistics systems (GLS) is affected by a huge number of factors, such as: international trade growth, large investments attraction into the country, transport system and infrastructure advance.

Movement of material flow depends on the nature of goods, customs taxes, charges and procedures, prohibitions and restrictions, infrastructure of the customs agency and state of customs ancillary areas. The effectiveness of material flows movement is largely determined by the efficiency of their management.

The process of freight flows management during customs inspections includes such tasks as below:

- volume and range of exports and imports prognostication;
- volume and direction of material flows prediction in general and by types of transport;
- storage of goods in warehouses and other storage places;
- customs and ancillary infrastructure development.

Therefore, the customs agencies are specified as a sophisticated system through which the traffic flows associated with the foreign commerce of the Russian Federation pass through.

The global logistics systems activity is impossible without adequate infrastructure, which includes, first of all, transportation systems and telecommunications. Globalization of business and national transport systems integration in to the world transport system require intensive development of the international transport corridors for main transit cargo flows [5].

Russia has several internationally significant transport corridors. One of the largest existing transit corridors is the Trans-Siberian railway with the further connection to Japan and other Asia-Pacific countries. The railway transportation component of the transit goods volume through the international transport corridors increases every year.

For example, in 2008-2011 the volume of traffic through the Trans-Siberian international transport corridor increased by 1.7 times.

It should be noted that the Russian railway network has enough potential for the development of transit transport. Today, the fast container trains cover about 1200 kilometers per day, so duration of

freight movement through the Trans-Siberian railway fluctuates from 5 to 14.5 days (Figure 1).

The Government of the Russian Federation and JSC “Russian Railways” have developed and implement a set of measures to further increase the transit capacity of the transport corridor between Europe and Asia-Pacific region, which is formed on the basis of the Trans-

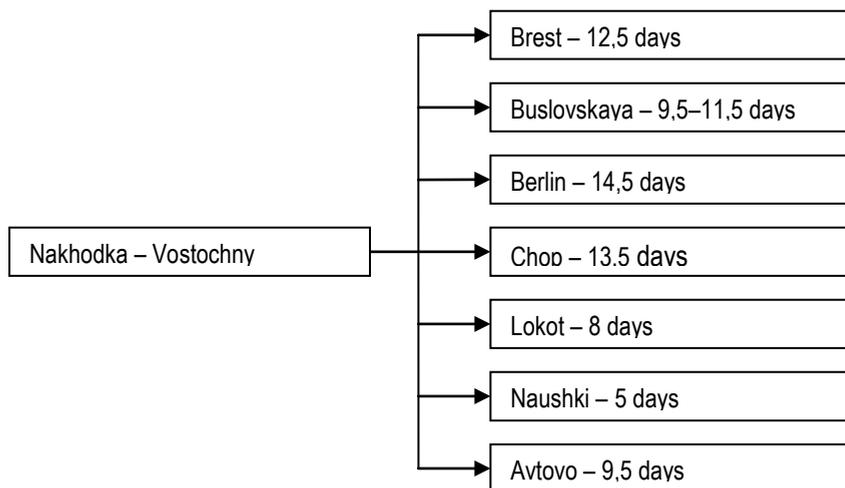


Figure 1. Duration of container transportation from Vostochny Port westward of Russia, as of January 01, 2011 [6].

Siberian Railway. These measures include such important steps as large-scale investment projects already partially implementing for the eastern part of the Trans-Siberian Railway to ensure the growth of transit between Russia and China; necessary development and modernization of the railway stations on the border with Mongolia, China and North Korea; enhancing approaches to the seaports; container terminals reconstruction and upgrading in accordance with the international standards and requirements; comprehensive reconstruction of railway section between Karymskaya and Zabaikalsk to ensure increasing volumes of cargo, especially oil, transportation to China.

It is also launched the project of “Trans-Siberian Railway for seven days”, a complex of technological measures to ensure containers rapid delivery from the Far Eastern ports to the western borders of Russia. In order to implement this project there have been developed the schedules for experimental container trains on such directions as: Martsevo

– Nakhodka-Vostochnaya, Vladivostok – Perovo and Nakhodka-Vostochnaya – Moscow-Tovarnaya. Shortening of transportation period will be achieved by reducing quantity and time of technical inspections. Maximum speed enroute will be 1400 km / day. As result of the project in the end of 2012 it will be provided a real opportunity to deliver cargo from the eastern to the western borders of Russia for 7 days, and by 2015 for the same period the trains will overcome distance to Brest [3].

Development of the holding company’s logistics business with terminals and logistics systems creation throughout the network has an important role. To reduce the transit containers waiting time at the entering ports and border crossings points the simplified customs procedures have been adopted that allows shortening the idle time up to several hours. The simplified customs procedures and monitoring of transit goods extended to the third country containers in all directions.

Transit of goods through the Trans-Siberian Railway is carried out in two directions: eastward and westward. The main countries of origin to the west are the countries in the Asia-Pacific region and the recipients - Europe and Central Asia ones and vice versa. The transport corridor accesses to the sea through Vostochny Port located in Nakhodka Customs agency’s area of operations. Currently, this port has about 90% volume of all transshipment goods transporting through the Trans-Siberian Railway and processing at the ports of the Far East Federal District.

Vostochny Port has such largest terminals as below:

- coal terminal;
- container terminal;
- timber and bulk cargo terminal;
- fertilizers terminal;
- JSC “Agrohimvostokexport” ’s terminal;
- LLC “Stevedore company “Maliy port” ‘s terminal for general, bulk and timber cargo.

In general, the port area includes 27 berths with overall length about 6.46 km. Also there is the enhanced warehousing area there. Several major stevedoring companies such as Joint stock company “Port Vostochny”, “East Stevedoring Co., Ltd.” (VSK), “East Ural Terminal Co., Ltd.” (VUT), “Wind of New Technologies Co., Ltd.”(VNT) operate in the area along Wrangel Bay . All together they are collectively

called Vostochny Port. Today JSC “Port Vostochny” is the largest stevedoring company in the Russian Far East, which specializes in coal transshipment using conveyor equipment.

The automated management system of Vostochny Port has been created since origin of this facility and is an important peculiarity of the port. And now, all the participants of the transportation process i.e. the port facility itself, freight forwarding companies, carriers, declarants, railway company and customs station being located in the integrated information environment have operators connected to the corporate computer network. This provides additional opportunities for customs procedures optimization.

Basic operation with the goods in the area of the customs station in Vostochny Port is a clearance of imports. The port customs works with such items such as machinery and equipment, plastics and its products, nuclear reactors, boilers and their equipment, ferrous metal products, vehicles and other transportation means, their parts and accessories. In recent years procurements of nuclear reactors, machinery and mechanical appliances, electrical machinery, audio- and video-devices and radio equipment have been increased simultaneously with the production shift to other countries. The major importers are: “Samsung Electronics Rus Co., Ltd.” with the share in turnover of 19% of the cost; “LG Electronics Rus Co., Ltd.” with the share of 9%; “Samsung Electronics Rus Kaluga Co., Ltd.” with 4%. While importing goods from China, Republic of Korea and Japan they transit through Vostochny Port.

The export operations occupy 25.6% of all traffic. This segment consists of mineral fuel, oil and products of their distillation, mineral waxes, salt and sulfur, plastering materials, lime and cement. In general the export sphere includes mainly raw materials and primary goods. The main exporters are: “Irkutsk Oil Company Co., Ltd.” with the share of 30.76%; OJSC “Oil Company “Rosneft” with the share of exports in turnover by value of 22.68% and CJSC “Alliance Oil” with the share of 10.73%. Transit goods are shipped for export to Republic of Korea, China, Switzerland, Japan.

In recent years the international freight traffic has been increased significantly. Material flow growth causes processed vessels quantity increase. So in 2010 the Vostochny port customs registered and

processed 1338 arriving vessels and 1338 departing ones. In compare with the same period in 2008 the number of processed ships both arriving and departing increased approximately by 10 %.

*Table 2. Number of vessels, registered for arrival&departure in Vostochny Port (according to Nakhodka Customs agency, Vostochny Port)*

Years	Arrival			Departure		
	Quantity	Basic growth rate %	Continued growth rate %	Quantity	Basic growth rate %	Continued growth rate %
2008	1116	10,1	–	1113	5,5	–
2009	1087	-2,6	-2,6	1079	-3,1	-3,1
2010	1338	12,3	11,9	1338	12,4	12
2011	1443	12,9	7,9	1576	14,1	17,8

In 2011 the customs post processed 1443 arriving vessels and 1576 departing ones. In compare to the same period in 2010 the number of processed ships both arriving and departing increased approximately by 11.2 percent.

Vostochny Port is designed for multimodal transportation, which is the most flexible type of container transportation. Combining different types of transport such as sea, railway or automobile we can select the optimal way to deliver the goods to the destination that provides the maximum transportation reliability with minimum costs.

Multimodal transportation includes:

- delivering an empty container for loading to the sender's warehouse;
- registration of necessary export documents for the cargo in the sender's country customs;
- railway or/and sea transportation of the container;
- customs transit clearance for the cargo;
- container delivery to customsterminal and import clearance execution;
- container unloading and cargo delivery to the purchaser's warehouse.

As the advantages of multimodal container transportation we can mark out the following:

- ability to use any type of containers;
- any convenient port of destination;
- cargo delivery "House-House";

- port forwarding;
- containers delivery by autotransport to ports and railway stations;
- cargo monitoring at any stage of its movement;
- full range of services for cargo processing and handling at ports around the world etc. [4].

The material flow movement is directly dependent on the time of customs procedures. Customs formalities begin with execution of the customs clearance for the vessel conveying the transit goods arrived in Vostochny Port, and with adoption of the carrier's border crossing notification. For exporting the transit goods the customs procedures begin with container for loading arrival.

The process of containers receiving, processing and dispatching at Vostochny Port is automated and approximated to the modern world standards as much as possible. Vostochny Port is equipped with an Integrated Transportation Hub Automated Control System ITHACS (see Figure 2), which records and processes all freight movements at the port in an automated mode.

The ITHACS interacts with an Automated Information Management System of the Nakhodka Customs Agency, an Automated Control System of Nakhodka-Vostochnaya railway station, a main information computer center and other services of the Far Eastern Railway.

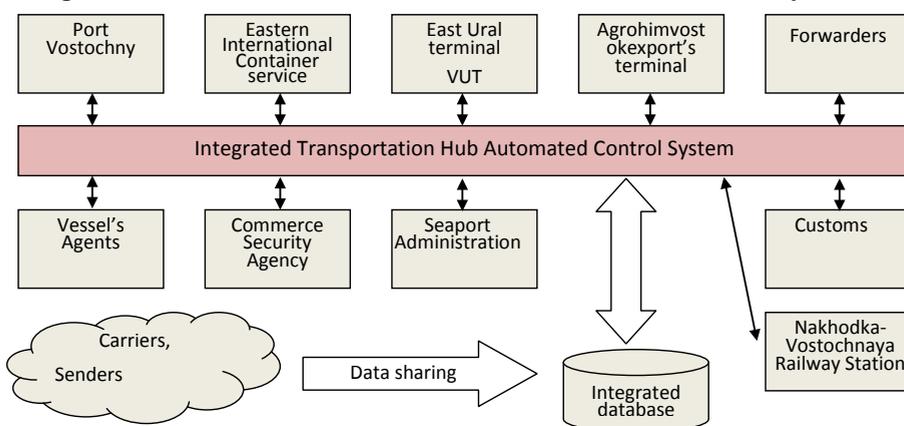


Figure2. Integrated Transportation Hub Automated Control System - Vostochny Port

All computer terminals are manned with experts from the main information computer center of the JSC Vostochny Port. The system

covers all major shipments e.g. container transit, export, import, cabotage and dry bulk cargo transport.

Work of actors within the ITHACS framework allows:

- to reduce amount of internal documents at all stages of the cargo passage through the port hub;
- to reduce the shipping documents executing time;
- to reduce the processing time of transportation means due to cargo operations preliminary planning with elimination of non-productive freight movement within the port area;
- to improve the safety of goods;
- to improve services for senders and receivers of cargo;
- to organize carriers' and senders' containers tracking.

Thus, the process of freight handling at Vostochny Port is automated as much as possible, that allows to minimize the number of technological operations for containers processing and to reduce vessel idle time. This reduces to minimum the port's container transshipment costs and permits to avoid additional expenses of idle transportation means at the port for the carriers.

Introduction of transit goods preliminary information process has significantly reduced the time of customs procedures that is important because the railroad provides time limits for transit cargo customs clearance. For example, a transit container customs clearance takes 15-20 minutes depending on number of cargo items inside. But there are some problems such as: large number of manual operations making by customs personnel; large quantity of clearance documents, which must be stamped or marked by a customs officer.

In order to make the Trans-Siberian Railway freight flows competitive it is necessary to implement the four main terms of logistics: speed, stability, safety and service. Service and safety of cargo mainly the railroad provides. That's why the toughest demands are made to the time and quality of customs formalities of transit goods transporting through the Trans-Siberian Railway. Using logistic methods allow achieving the desired results with minimal time and resources, through the end-to-end freight flow control within business or customs organization.

In the context of globalization and integration of the world economy the modern sea port plays a key role in the logistics delivery chain.

This is where different interests of the transport process participants such as cargo owners, carriers, freight forwarders and agents, customs officers, border guards, environmental control agents are joined. The main directions of Vostochny Port development are:

- Admittance to Asian finished products distribution structure as well as to Asia-Pacific trading system.
- Southern Primorye transit potential development and realization.
- Logistics transportation and distribution center (LTDC) creation on Vostochny Port basis.

Factor impeding container transportation development in Russia is lack of logistics centers. The Logistics Center coordinates the storage and transport services, provides information support and monitors the movement of goods. It must possess well-developed infrastructure, which includes a number of class A storage terminals consisting of modern warehouses specialized by ceiling heights of ten meters, floors with dust-proof surface, video monitoring systems, air conditioning, etc.; loading and unloading equipment and facilities; access ways; customs offices and administrative places. Currently there is a catastrophic shortage of storage facilities in Russia. LTDC creation will provide an opportunity for Vostochny Port to obtain the status of “fourth generation port”.

Such significant factors as an absence of recreational areas in vicinity of the port, high-performance handling equipment, the integrated computer network for traffic control within the hub area and high traffic handling capacity of the port’s railway station provide constant development opportunity to the port [3].

The main functions of LTDC include:

1. Provision of transport infrastructure development; creation on the regional transport hubs basis the multi-purpose multimodal terminal facilities providing users with a package of forwarding, information, consulting and analysis, commercial etc. services.
2. Ensuring the competitiveness of the regional transport system in the international market of transport services through the development of marketing and logistics activities as well as implementation of logistics services as a form of business service to customers.
3. Involvement of Russian and foreign investments for development of the regional transport network in accordance with the international standards,

as well as for construction of the transport and logistics infrastructure.

4. Contribution to the system of qualified logistics specialists training.

5. Creation of the trans-regional and international integrated transport and logistics systems for development of the Russian part of the international transport corridors and increasing the volume of cargo transportation.

The necessity of LTDC creation also is defined by the fact that in contrast to global trends in Russia currently the institution of multimodal transport operators is undeveloped, but in foreign countries these specialists provide almost the whole volume of trade flows formation and monitoring. There is no statutory term “multimodal transport operator” in the customs legislation and its legal status is not defined as well as the operators’ rights, duties, licensing etc. In addition, in the Customs Union legislation there are no ancillary powers or privileges given to the term [1].

The LTDC is to combine activity of all stakeholders in multi-modal transportation hub i.e. the customs, carriers, cargo operators, warehouses, terminals, storage companies, insurance companies, banks, information and communication structures [7]. Thus, Logistics Transport and Distribution Center supposes to be the coordinating structure ensuring the most efficient movement of goods, products and services in the area of influence of the international hub of Vostochny Port.

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