

Directions of Railway Transport Development for Prospective Cooperation with Logistics Providers

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Abstract: The article is devoted to the study and evaluation of the promising process of interaction of railway transport with high-level logistics providers who are responsible for conducting business processes of logistics organizations-shippers. The place of logistics outsourcing in the transport market of the Russian Federation at the current time and its prospects in the near future is described, the organizational structure of logistics providers is considered. The main strategic prospects for railway transport from interaction with high-level logistics providers in terms of the development of digital and logistics products are listed. The main indicators of the transportation process necessary for interaction with logistics providers in the operational mode are listed. The necessary directions for the development of railway transport in terms of digital logistics systems and the main structural transformations necessary for effective and synchronized interaction with logistics providers in the interests of shippers-customers have been identified.

1 INTRODUCTION

The modern logistics services market is constantly moving towards the search for advanced technologies and new logistics business process management systems and their synchronized interaction with other business processes of customer enterprises. As this movement progresses, there are some very significant and some barely noticeable shifts in trends that have a high impact on the general concept of logistics and its place in the world. Each person faces some logistical processes to a different extent, which he can notice in his gadget, a simple example is online stores in which the customer sees operational information about technological operations with his ordered goods. If you pay attention to enterprises, then for them operational information related to logistics processes is a tool for coordinating and generating reports necessary for forecasting their own production activities and its audit.

Thus, for a long period of recent years, the trend of logistics providers is gaining popularity, which, depending on their own capabilities and contractual relations with other organizations, provide a different range of services for organizations, from partial outsourcing to a full-fledged network business with

sales services. But in this article we will not talk about the classification of logistics providers and their technical capabilities, but about how railway transport does not stand aside when popularizing such an approach as logistics outsourcing, but on the contrary, get its own, strong competitive advantages that will work as drivers of the development of internal logistics services and attractiveness for logistics providers in the future.

The purpose of this work is to develop certain objective parameters and directions of railway transport development necessary for long-term integration and interaction with logistics providers of all levels.

The interaction of railway transport with logistics providers plays an important role in the direction of additional commercialization of the transportation process necessary for the self-development of this strategic industry as a whole. Given the importance and role of rail transport worldwide, its effective use in supply chains in cooperation with logistics providers opens up great frontiers for the development of global logistics systems and "green" logistics, as rail transport is rightfully considered the most environmentally friendly today.

2 MAIN PART

High-level logistics outsourcing has begun to occupy good positions in the transport market, as it gives enterprises additional opportunities, thanks to which, logistics-related issues are partially or completely removed from enterprises, because competent organizations that have relevant experience and skills behind their backs begin to deal with this area. Depending on the levels of service, services for transportation, warehousing, labeling and further on the list up to the sale and delivery of certain goods to the end consumer can be provided. Each customer can choose for himself the optimal volume of services provided necessary for his comfortable production activity. For example, many large manufacturing enterprises have the logistics business process completely outsourced to logistics providers, which allows enterprises to keep the focus on their core business.

At the moment, high-level logistics outsourcing in the Russian Federation, in which the transfer of business processes of the logistics of the enterprise takes place, is at the initial stage of popularization for a number of objective reasons:

- A non-standard format for the commercial sector - at the moment there is a certain distrust of such serious decisions as the transfer of the entire logistics business process into the "wrong hands", but in the near future a small adaptation is required in order for this to be perceived as a normal part of the production activity of the enterprise;
- It is perceived as technically difficult – indeed, the process of integrating a logistics provider into the customer's logistics business process takes some time, but given the qualifications of the provider's staff, this is not unattainable, the formed joint working group will solve this issue quite quickly and systematically;
- It has a number of "blind spots" for large manufacturing enterprises – a certain number of large manufacturing enterprises need to see the entire production chain before the fact of the transfer of goods to the customer online in order to have time to generate appropriate reports and analysis of situations for subsequent production adjustments on a daily or shift basis, but not all logistics providers have the technical capability for operational translation the entire process of working on the customer's logistics in online mode, since supply chains usually consist of a large number

of technical processes and not at all stages there is the possibility of such broadcasts online;

- Misunderstanding of the benefits of its use – not all organizations currently understand that logistics is not the purchase of several trucks and the maintenance of a certain staff, but a more complex and deep process that requires a large amount of maintenance and technical support. The savings when using outsourcing are in the range of 20-30% on average, and the efficiency of the organization can increase by a third (Simonova, 2018).

Thus, high-level logistics outsourcing in the Russian Federation has not yet reached the desired result that would allow it to be identified as a major branch in the transport market, but the events of 2020 gave a strong impetus to digitalization and the creation of new logistics services for shippers.

The term Third-party logistics (3PL) appeared in the late 1980s and implies just the transfer of a part or a large volume of logistics to outsourcing, but from the Russian side the first requests for services of this level appeared in the early 2000s, while there was no offer (Polous, 2016). That is, there is a small time lag in this direction, which is now being compensated quite quickly.

Outsourcing, including logistics, is a fairly familiar segment of production activity. On large railways, at least 20% of work has been outsourced, in some types of activities this figure is up to 50% (Konstantinov, 2021). For this reason, high-level logistics outsourcing in the transport market will be quite widely used in the coming years, this is an inevitable process, because it is general trends that shape changes in approaches to logistics processes.

Now it is worth moving on to how rail transport can ensure its profitable and efficient coexistence next to logistics providers. Logistics is often compared to a chain: in it, individual links are closely interconnected (Solntsev, 2018). In the same way, high-level providers act, their activities are a chain of various processes, obligations and third-party interactions that are aimed at maintaining their own logistics infrastructure, into which the transported goods of customers are processed. Rail transport can be a very solid support in this chain, that is, to become a full-fledged part of it in the interests of the provider. In this case, a slightly different approach to interaction with a logistics provider is being considered than just contractual relations for the carriage of goods by rail, this is what will be discussed now. The main indicators of railway transport, which can be identified as key for logistics providers, are:

- High load capacity and carrying capacity;
- Relatively low cost of transportation;
- Cargo safety.

That is, with the participation of rail transport in the supply chain of a logistics provider, first of all it will affect the cost of providing services to the customer in the direction of its reduction, which is a competitive advantage for a logistics provider in a developing transport market. But there is a very important nuance, modern logistics is shifting towards IT solutions, under the management of which it is possible to build the entire process through an integrated data analysis system (Perepelitsa, 2017). Accordingly, this means that all logistics systems functioning for all participants interacting with a logistics provider should be able to promptly exchange information and form a common digital environment online.

The interaction of the logistics provider with the customer in terms of maintaining common information systems depends on the appropriate volume of services provided. If a logistics provider provides a small part of the services for the customer, then this may be a standard contractual relationship, but if we are talking about highly efficient service, when the entire logistics business process is transferred under the control of "the hands of a single person", then this is a completely different level of integration and mutual synchronization of information systems with the building of the necessary services for operational monitoring logistics activities by the customer and logistics provider. Accordingly, on the part of the Russian Railways holding, in the future there should be separate digital business blocks that will be able to interface with external systems, this is one of the key tools for the effective use of railway transport in cooperation with high-level logistics providers.

The development driver for digitalization and information systems of railway transport was both strategic goals in general and the global event of 2020, when remote access mode became one of the measures to prevent the spread of coronavirus infection. A sharp jump in the containerization of freight transportation in 2020 made container transportation the most relevant and fastest-growing segment of rail transport, and efficiency improvement was proposed through transportation routing (Gusachenko, 2020). A good example of digital railway transport products is an electronic trading platform in the field of freight transportation and integrated transport and logistics products (ETP GP), designed for electronic ordering, receiving services, reserving loading resources, making calculations and

tracking fulfillment. During 2020, there was an increase in demand for the services of this platform from shippers (Briefing: industry news: [rail transport], 2020), and in 2021, more than 70% of legally significant procedures are already being processed on the platform, digitalized: contractual work, transportation planning, order execution, payment, work with claims (Gusachenko, 2021) and the ETP GP turns into the main tool for organization of transit rail transportation from China to Europe (Konstantinov, 2021). This is an example of one of the products, how demand and market trends change in a short time in the direction of complex systems that must meet certain digital requirements to be able to access them from the outside.

Turning to the perception of a new trend that logistics providers have great prospects and the development of the transport market of the Russian Federation as a whole, it is necessary to develop a concept of what strategic tasks in this direction should be achieved in the near future, as well as identify the benefits for rail transport.

The prospects for cooperation between rail transport and high-level logistics providers are the following key criteria:

- Attraction of a large range of goods for transportation by rail, including goods that left the railway during the Soviet era due to relatively low rates of route speeds on the common network;
- Accumulation of infrastructural changes in terms of terminal and warehouse facilities and transportation process;
- Development and unification of information and digital systems of railway transport production processes;
- Diversification of the activities of the Russian Railways Holding;
- Parallel additional commercialization of activities, which in modern conditions is a normal practice for large manufacturing enterprises;
- Attractiveness for international cooperation with logistics providers, as a large volume of transit passes through the railway common network;
- Accumulation of the development of new logistics equipment for commercial operations with customer cargo – new warehouse accounting and control systems, sealing devices, monitoring systems, etc.;
- Increased interaction with other modes of transport and a higher level of connectivity with their information platforms.

It follows that promising cooperation with high-level logistics providers in the future looks like an opportunity for the railway to take a leading position in digital services and flexibility in the transport market, but based on current conditions, the development of local and international logistics providers will happen much faster than it may seem.

A logistics provider acts as a system in which a regularly interacting or interdependent group of elements forms a single whole (Ross, 2015). The task of all elements is to satisfy customer requests in terms of performing certain logistics tasks and maintaining a built-up common logistics infrastructure in terms of efficiency of interaction and synchronized work process.

Each logistics provider has its own way of building a logistics system, someone has an extensive own infrastructure and a small amount of parallel contractual relations with carriers of regional or international destination, some logistics providers act as a management company, which has a large volume of contractual relations, allowing the logistics system to work and maintain its own chain elements.

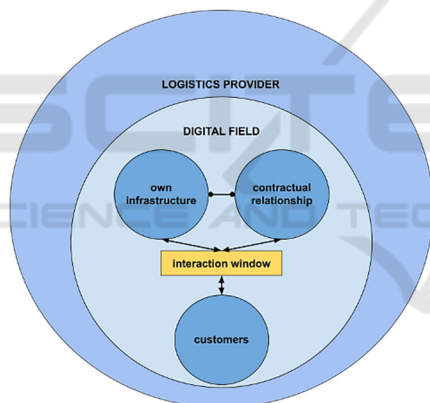


Figure 1: Logistics provider structure.

But all types of logistics providers agree on one thing, if we are talking about a high level of service, the entire logistics business process is in a transparent digital environment in which both the customer and the logistics provider are present. The customer conducts his own observations necessary for accounting, and the logistics operator conducts his work – the process of controlling warehouse operations, transportation, labeling, shipment, processing, customs operations, reports, etc. Accordingly, it is in this system that there will be a need for the presence of railway transport to monitor the accounting and control processes necessary for the provider.

This is why a number of structural changes are needed within the functioning of railway transport, aimed at ensuring the possibility of external interaction with logistics providers and local customers, as well as ensuring the internal information security of the holding. The first step in this direction is the division of the freight transport sector into strategic and commercial. Strategic ones assume direct obligations of the Russian Railways holding to the state, while commercial ones are aimed at attracting additional profits for the holding. The need for such a separation is caused by ensuring the security of the railway software complex systems as a whole, since it includes a large number of different systems of different levels of administration, therefore, if the block of interaction with external logistics providers is in the common tree of all digital railway transport systems, any cyber attack or disruption of one of the elements of production processes can disable other elements, including those strategically important for the overall functioning.

The next important stage is the creation of logistics products that have similar characteristics to logistics providers, that is, the formation of a logistics system based on the railway transport network that will be responsible for commercial freight transportation. But, given the prevailing conditions of the transport market, when preference is given to road transport, logistics services should provide high route speeds, this is a strategically important issue, because in order to build interaction with logistics operators, an urgent need is to raise route speeds in domestic traffic. Such opportunities also open up prospects for railway transport and the accumulation of domestic freight traffic, including interaction with small and medium-sized businesses of the Russian Federation.

The overall digitalization of rail transport also plays an important role in shaping it as a participant in the supply chain in the interests of logistics providers. Digitalization of the elements of the production processes of railway transport will make it possible to represent all the individual elements of internal interaction in the form of business processes and form effective tools for servicing shippers and the overall functioning of the network from them.

The most important issue that is responsible for the interaction within the logistics provider's system is the creation of an information cargo platform, the task of which is to further integrate with the logistics provider's information platforms, which will ensure a strong connection of rail transport in the logistics provider's supply chain. This cargo platform should deal specifically with new logistics services, because the fundamental format of transportation is irrelevant

for high-level logistics providers. This is an absolutely different product from all current digital systems operating in the Russian Railways holding, its task is to ensure work with logistics providers on the principle of a "single window", without any intersection with current systems, it should be isolated and responsible only for that part of the infrastructure that will concern only logistics processes, related to interaction with a logistics provider. That is, at the stage of agreeing on the terms of interaction with a logistics provider in terms of the volume of services provided, specific directions of movement with specific transportation conditions, the volume of necessary infrastructure facilities for this interaction, specific monitoring levels and conditions related exclusively to the logistics provider should be entered into the information platform:

- data on shipments in logistics systems – real-time operational information about shipments to different destinations;
- data on the movement of freight trains – operational information about the departure and destination stations, the location of the rolling stock, information about additional operations to which the rolling stock is subjected (change of locomotive, locomotive crew, etc.);
- operational information on emergency situations – informing the logistics provider in case of emergency situations on the way of the freight train;
- data on cargo operations performed – operational information about performed and upcoming cargo operations in the logistics system of railway transport.

Monitoring of almost all processes on-line is vital for logistics providers, because their logistics is built on the principle of "just in time" and deviations from the delivery time of goods needed by the customer can cost logistics providers reputation, and a damaged reputation when organizing the logistics business process on the principle of "in the wrong hands" puts an end to subsequent joint projects of the logistics operator and its customer. Providing a high level of service to the logistics provider's requests is a guarantee of long-term and mutually beneficial relations in the transport market.

When achieving such levels of interaction with logistics providers, the issue of cybersecurity is also important. Maintenance and upkeep of information systems should be accompanied by multi-level cyber defense systems, which is necessary to prevent, first of all, deliberate attacks on logistics platforms. Quite often, information platforms are faced with cyber

attacks by intruders, after which it takes some time to restore all systems, because the damage stretches from simple disruptions to complex ones. That is why it is better to keep a commercial logistics platform separate from the main vital information platforms of railway transport, which ensure the fundamental operability of systems. This will allow you to always win if the logistics provider's system is under attack or there is a standard failure, by rail its part of the contractual obligations will be fulfilled due to the fundamental principles of the organization of transportation.

3 CONCLUSIONS

Thus, in the near future, logistics outsourcing will receive further growth and prospects for development in the transport market of the Russian Federation, this is primarily due to the constant increase in the needs of shippers, because supply chains are becoming more complex due to the commitment to the principle of "just in time". In any case, high-level logistics outsourcing will be reduced to information platforms that interact and synchronize between participants in the transportation process in the interests of the provider. The approach of interaction with logistics operators makes it possible to focus specifically on targeted production activities.

Rail transport is a promising mode of transport for interaction with logistics providers due to its own strengths – load capacity and relatively low tariffs for cargo transportation. For this reason, an important aspect is the setting of strategic goals related to the self-identification of railway transport in the Russian Federation market as a full-fledged logistics system that is amenable to digitalization and functions both at the fundamental level and at the level of complex logistics systems linked and coupled into a single information space in which the elements of the system interact.

This leads to the key development directions for rail transport as a promising participant in the supply chain of a logistics provider, described above:

- 1) Division of the cargo transportation business process into strategic and commercial;
- 2) Creation of new logistics products aimed at the commercial sector and increasing route speeds;
- 3) Continuation of work in the direction of digitalization of railway transport;
- 4) Creation of a separate logistics information cargo platform, which will be responsible for the interaction of rail transport and logistics

providers on the principle of a "single window";

5) Providing a multi-level cybersecurity system.

Together with these criteria, we can talk about the diversification of the activities of the Russian Railways holding, which has the makings for complex progressive transportation process management systems using external interaction with high-level logistics providers.

Also, looking ahead to the future, logistics systems are highly likely to be reduced to full monitoring of all technical means associated with the performance of any operation along the route of any vehicles. This means that in addition to identifying and monitoring cargo operations, it will be possible to monitor the condition of technical means online, as this area is actively developing, because the safety of the transportation process is a priority. The availability of such systems is a significant competitive advantage for rail transport in the long term.

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