Prospects and Transformation Factors of the Institute of Logistics Providers in the Russian Federation

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Abstract. The selected topic of the analysis is relevant, since the restoration of the chains disturbed by the COVID-19 pandemic is possible on the basis of digitalization and consolidation of the logistics services market, increasing the innovative mobility of its entities. That is why the purpose of our paper we have chosen to make the analysis of the prospects and problems of the logistics provider development as a special subject of the logistics services market in the terms of contemporary challenges. In the course of working on the paper, the methodology of systems analysis, analysis methods, synthesis and comparative analysis were used. As a result of a comparative analysis of the main 3PL and 4PL providers, the competitive strategic advantages of the latter were revealed. In this regard, the authors have developed a hypothesis: as the time lag of uncertainty increases, the demand for 4PL provider services will grow. The paper considers the structure of the modern competitive environment, in which, according to the authors, the point of growing the domestic 4PL providers and increasing their innovative mobility will be the 3PL providers partnership with startups and their acquisition of new players in specific process areas. At the end of the paper, some barriers are specified that may prevent the implementation of the strategic partnership between the entities of the logistics services market. Conclusions: Formation of the 4PL providers institution is an advance tool for increasing the logistics industry resistance to stress. The scope of the analysis results can be advisory for logisticians, logistics intermediaries and public authorities.

Keywords: logistics services market, logistics provider, supply chain management, logistics digitalization, outsourcing, consolidation of the logistics services market.

1 Introduction

Factors such as globalization and internationalization, increasing competition and orientation to the end user, as well as the development of information and communication technologies and e-commerce have acted as the main drivers of quantitative and qualitative changes in the logistics services market [1, 2, 3]. At the turn of the 20th and 21st centuries, the control objects in logistics, along with the flows of material assets, become the accompanying information and financial flows. At the same stage, optimized logistics systems such as OPT (Optimized Production Technologies) have been created and new logistics concepts are being developed, for example, “Supply Chain Management” (SCM) [4, 5].

According to many authors, qualitative changes have also affected the subject matter of the market. The period of transition from the provision of individual operational services by niche logistics intermediaries (stevedores, warehouse operators, customs brokers, etc.) to the 3PL(Third Party Logistics) proposal by comprehensive service providers or already some 4PL providers (Fourth Party Logistics) of systematic optimization of logistics business processes has started. As a result of all these innovations, we can observe an increase in volume, diversification and digitalization of the services provided by logistics intermediaries from the side of the market offer. With regard to market demand, there is a tendency to gradual integration of logistics intermediaries into the activities of national and international logistics business based on outsourcing technologies, strengthening of cooperation between different stages of value chains in different regions [6, 7, 8]. As a result, the modern range of storage-retrieval tasks is increasingly added by managerial and strategic tasks, a stable trend of cooperation between intermediate links (sub-providers) and the development of system logistics providers is being formed. This will entail the development of a qualitatively new subject-object interaction in the market of logistics services based on the use of information and intelligent technologies. To our opinion, more and more preference will be given to the activities of system logistics providers that have an established digital infrastructure and create conditions for effective interaction between market entities [9, 10, 11].

New perspectives for activating the integration role of providers are forming a diversified process that takes various forms in the economy. Partly owing to this diversity, the logistics services market has a great adaptive potential. Unfortunately, it showed itself weakly during the crisis of 2014. Thus, in 2014, the average indicator of logistics costs in the world was 11.6% of GDP; it was about 19% in our country. During this period, the 2PL provider services (cargo transportation, forwarding and direct lease of warehouses) prevailed, the share of integrated logistics services (3PL) was 8% of the turnover of the Russian market of transport and logistics services. A similar indicator for the EU countries is 19%. The share of logistics outsourcing in the transport and logistics market was 39.3%, and in the world - 55% [12]. Unfortunately, these data suggested a low adaptation level of the logistics services market in the Russian Federation, which was largely due to the lack of appropriate qualified personnel in the provider institution, as well as distrust of outsourcing and unwillingness to practice it.

To our opinion, one of the main reasons why the logistics services market could not implement its adaptive potential was the fact that many areas of the chain still had not learned how to approach strategically to solving problems, but began to look for ways of their elimination even in the time they appeared. We would like these lessons to be learned by the majority of participants in the logistics services market. Since it is only them who have to find ways to adapt to the more serious changes in the external environment caused by the Covid-19 pandemic. It is understood that the nature of the pandemic impact on the economy, including logistics, is fundamentally different from the nature of the impact of any economic crisis. Firstly, the pandemic factors have a great negative multiplier effect, in the shortest possible time, covering all new economies of the world and sectors of national economies. Secondly, due to the explosive nature of pandemic spread, the time taken by all governments to arrange restrictive measures is greatly reduced, and therefore, the speed and scale of supply chain disturbance increases, the time lag for the search for responses decreases, and thirdly, there is a sharp contraction in consumer and investment demand, etc. Taking into account these particularities of the pandemic impact on logistics, supply chains shall become pragmatic, dynamic, flexible and interconnected by means of the use of modern technology, digitization, routes optimization and enhanced navigation capabilities and the benefits that are put in the processes of commercial collaboration.

The problem of responding to the challenges of the external environment is complicated, on the one hand, by the fact that the Russian logistics market was unable to consolidate after the 2014 crisis and continues to lag behind the leading national economies, both in the quality of services provided and in the number of logistics providers. On the other hand, its further evolution is determined not only by the processes associated with overcoming the consequences of the pandemic, but also by the tasks of Russian economy transition from a raw material orientation to innovative development under the conditions of continuing economic sanctions.

The situation complexity requires accelerating the market consolidation and increasing the innovative mobility of its participants. This task can be solved with closer and long-term cooperation of enterprises with the integrated 3PL provider and the 4PL system provider. The present-day Russia is characterized, on the one hand, by a relatively small percentage of companies cooperating with 3PL on outsourcing terms, and, on the other hand, by the weak development of 4PL-provider mechanisms, as well as the absence of mechanisms and regulations intended for their work. Nevertheless, in Russia, some researchers identify the possibility of a breakthrough transition through the evolutionary order of logistics outsourcing development [13]. That is why questions about increasing the innovative mobility of providers are relevant. In this regard, the purpose of our study have been chosen the analysis of the prospects and problems of the logistics provider development as a special subject of the logistics services market in terms of contemporary challenges.

2 Materials and Methods

As a theoretical basis for the study, the authors used the concept of commercial intermediation logistics, in which the activities of logistics providers act as a necessary component of the entire theory and practice of logistics.

The study of the logistics providers behavior is a considerable difficulty, since the problems of interest to us shall be considered in dynamics, and not in a static state, and in conditions of high volatility and uncertainty of the external environment. In this case, the analysis problems have a multifaceted nature. Taking this into account, to identify the essential characteristics of the 4PL provider and a comprehensive analysis of the current state of the provider in the pandemic conditions, a systematic approach was used, to search for problems and determine the prospects for the 3PL and 4PL provider in the Russian market - methods of analysis and synthesis, methods of comparative analysis. The information base of the study composed legislative acts of the Russian Federation, information and analytical review materials of consulting companies, materials of logistics forums and scientific conferences on logistics and information and computer technologies in business, as well as publications in general economic, industry periodicals on the issues under study.

3 Results

With regard to a systematic approach, the logistics services market can be viewed as an open socio-economic system, which is affected by constant changes in the external environment. Until recently, the trajectory of its development and structural transformations were determined by such factors as the formation of global value chains in the process of internationalization of economic ties, changes in the space-temporal characteristics of market interactions in the process of mastering information and communication technologies, changes in the configuration of supply chains of Russian enterprises due to the introduced economic sanctions.

Currently, the COVID-19 pandemic has become the main factor. Since the COVID-19 pandemic, most logistics enterprises have had disturbances to their logistics hubs and delivery routes due to their location in quarantine areas or complete closure. Many of them suffered due to a significant reduction in consumer demand and its transition to on-line channels, an increase in the time for goods passing through customs, etc. According to M.A. Research based on the consensus forecast of international organizations and banks, in 2020, the growth rates of the Russian market of transport and logistics services in real terms shall enter the area of negative values. In this case, a drop in the volume of traffic in all segments of the transport services market is expected (on the average by 3-4%, with a risk scenario - by 8-10%) due to narrowing the cargo base, a break in international supply chains, decrease in demand for imports and deterioration in the export situation. A relatively more favorable picture in terms of freight turnover is possible only in road transport (a decrease within 1.5%) as a result of an increase in the distance of domestic transportation (with a drop in international operations by 15%), as well as the dynamic development of the e-commerce segment [14].

The further development of the logistics services market seems to us as a process of reaction to new challenges of the external environment by changing the internal structure of the market and the formation of qualitatively new structural relations and interactions. Due to the "fault" of the pandemic, many challenges have arisen for the logistics services market, among which, to our opinion, the following are the main ones:

- ensuring stress resistance. Paradoxically, the term was borrowed by the socioeconomic science from ecology. Initially, stress resistance was interpreted as the ability of systems to withstand parameters variability as a result of exposure. Today, wider interpretations of this term have appeared. The definition given by the OECD is closer to the authors. When defining the concept of stress resistance, the organization experts place special emphasis on the ability not only to resist the adverse effects of factors and to recover, but also, gaining new experience, to become stronger. Therefore, "be stress-resistant" means learning to live under uncertainty [15]. This requires building supply chain adaptive the uncertainty based on adherence to fairly rigid principles, among which it is important to note such as network flexibility, digital interaction, tracking the value chain in real time, rapid generation of ideas and, finally, the presence of decentralized teams that independently accept management decisions;

- development of a mechanism for the application and renewal of modern competencies that allow the logistics business to adapt to the growth of complex socioeconomic problems under uncertainty. First of all, "digital readiness" is a serious challenge for the sector, because now the industry shall be ready for the maximum and reasonable use of breakthrough technologies, from automation and robotization to blockchain, cloud technologies and the “physical” Internet. However, in a recent PwC study devoting the Industry 4.0 concept, the share of transport and logistics companies that assess their current level of digitalization as “advanced” was only 28 % [16];
- ensuring self-organization, innovation and competitiveness of the logistics services market, which allows it to build new supply chains within a short time, with a greater focus on national contractors, taking into account the preservation of all restrictive measures and economic slowdown. Now it is important to realize that the quality and timeliness of reaction to unplanned events will depend on the depth of integration of services of all participants in the chain, on non-standard and innovative solutions of each participant. Therefore, the search for innovative mechanisms for self-development and evolution of the logistics system will become a new test for logistics management;

- the need for institutional transformations of the mechanisms of interaction between the state, business, and logistics providers to develop clear game rules under quarantine conditions for the entire business, including representatives of the logistics market. The market needs to simplify logistic formalities, transparency and openness of control and registration procedures. According to the authors, prospects for solving the problem will largely depend on the creation of an effective mechanism for public-private partnership, the ability and desire of all interested parties to coordinate their positions. Not only international logistics forums, but also digital information platforms can be used as a platform for a broad discussion of proposals on harmonization and leveling of the existing differences in applied standards and regulations, elimination of gaps in the regulatory structure in the field of logistics, customs administration. The government should certainly be an active participant in these discussions, making serious commitments to maintain the continuity and strength of supply chains. On April 7, only for the national governments the major international organizations: the International Road Transport Union (IRU) and the International Transport Workers Federation have issued an open letter requesting to support the transport industry under COVID-19 spreads.

To stand against serious challenges, firms need to not only respond quickly to current problems, but also seek answers to questions related to reorganization and relocation processes. This is not the first time when the companies have faced these problems. But now they take on particular importance. From the redistribution of competencies between the company and the logistics provider, the choice of areas for transferring activities to other countries being safe from the point of view of COVID-19 spread, and the rethinking of the management model of their supply chains, their stress resistance and strategic advantage will depend in future. To reach this objective, the companies shall use all means, including the competence of logistics providers and outsourcing opportunities.

To our opinion, now it is time for 4PL providers. The term itself was registered in 1996 by the consulting firm Andersen Consulting, currently “Accenture”. From their point of view, the fourth-tier logistics provider is a supply chain manager that brings the resources, capacities and technology of its organization with the resources, capacities and technology of another logistics enterprise and manages them in order to offer customers the most complete solution to problems in the supply chain. Other authors have also noted the 4PL provider role as a “solution integrator”, or even a “super integrator” [17, 18, 19]. It is fair to say that so far interest in this level of provider is more manifested in scientific publications than in practice. Let's try to understand this contradiction.

The companies’ interest in a gradual transition to interaction with a system logistics provider in the period when there is uncertainty in further progression of events may be due to the advantages that the 4PL system provider has over the integrated 3PL provider. These advantages are:

- a significantly expanded set of services offered by the 4PL system provider. The system provider adds the network analysis and design, consulting, business planning, change management, projects management, coordinating a wide supplier base in many modes and geographic regions, inventory planning and management, monitoring of order fulfillment in supply chains, leasing of logistics capacities, etc. to the 3PL provider's comprehensive services. Moreover, the system logistics solutions prepared due to the customer specific production customization are logistics service with high added value;

- the 4PL provider does not have physical assets. Possession of extensive information technology and technology-intensive assets allows it to provide mobility in the interaction of participants in the logistics chain; availability of logistics service by reducing the significance of the geographical factor or time constraints; reliability and continuity of supplies using information technology in relationships with consumers, suppliers and intermediaries; synchronization in the execution of operations for providing the services due to the streamlining of business processes and their standardization;

- the possibility of attracting niche logistics intermediaries, 3PL logistics providers, as well as an IT company to solve the client's problems. As a result, a reliable and well-balanced system is obtained from separate isolated participants, within which the system service provider can organize, integrate and manage individual services in accordance with the customer requests;

- the available potential for the 4PL provider to optimize the supply chain as a whole by effecting on four key components: increased service, reduced operating costs, reduced lead time and increased capital turnover. Note that outsourcing of the 3PL provider presents advantages mainly in certain parts of the supply chain. In this case if the 3PL provider provides saving based on the economies of scale, then the 4 PL provider also provides greater added value, the sources of which are ties, communications, service competence level and the ability to provide services in its own information system;

- the importance of transition to a different type of interaction between enterprises, without vertical hierarchical control, which contributes to the achievement of a common goal. This interaction is associated with the provision of informational services, not tied to a geographic location (for example, the warehouse geography), based on the integration of management actions, is based on an agreement between independent enterprises, which compensates for the blind sides and creates sustainable competitive advantages and contributes to the achievement of synergies [20,21].

It follows from our arguments that, firstly, the functionality of 4PL companies is qualitatively different from the range of 3PL provider services, including strategically important business processes (and not only logistics) for participants in supply chains.

Secondly, the 4PL provider creates and then manages the customer's complete supply chain system in real time based on modern information systems and technologies, which ultimately contributes to increasing the value of its business.

In terms of determining the time and trends of 4PL providers' appearance on the Russian market, it is important to understand how its actions are relevant to the needs of Russian companies in comparison with other logistics service providers.

The modern subjective structure of the logistics services market in the Russian Federation is characterized by a weak development of 4PL providers' mechanisms. The share of the Russian market of 3PL providers including about 80 Russian and 40 Western logistics operators was 8.1% in 2014. The market share represented by 4PL-management logistics was 0.6% [12]. In this case, representatives of transnational logistics providers (DHL, UPS, TNT, Itella Logistics, etc.) prevailed among them, who were the first to enter the Russian market and actively develop it.

The recent studies note that the number of logistics providers has noticeably increased, which can no longer be classified as 3PL type, but it is still too early to be classified as 4PL-providers. Among them, the leaders are PEC" "TTG" Rail Continent" "Delko" "DA-TRANS" "FM Logistic" (Russia) "AVTORITET" TEK "ZhelDorEkspeditsiya" "Baikal-Service" "Business lines", etc. We are talking about the so-called combined forms of provider. However, the statistical data should be treated with caution, understanding their conventionality. This is not just because when determining the level of 3PL and 4PL providers logistics services, confusion often arises, which is due to insufficient understanding of the theoretical basis and the lack of accurate information about the parameters of real-life services [18, 22,23, 24]. It is also important that logistics providers themselves, as a rule, declare the facts of the 4PL services provision.

Today, new market players, such as IT companies, including start-ups filling information niches and using new business models based on data analysis, the introduction of blockchain and other innovative technologies, are starting to compete with conventional 3PL and 4PL providers. They form on-line platforms for providing transport and logistics services targeted at individual segments of the industry or an individual client, and often become independent platform-aggregators that provide access to various carriers. The use of advanced robotics, unmanned warehouse equipment, automation of many processes in logistics gives them a competitive edge over conventional providers. Already today, they can offer customers a reduction in the number of delays or a reduction in the number of chains disturbance, limiting the influence of the human factor, as well as saving transaction costs associated with the interaction of supply chain management partners, for example, when processing international trade documents. Another advantage is the absence of outdated processes and hierarchical structures.

The competitive environment is also beginning to develop at the expense of companies that now act as suppliers for the industry enterprises. If the complexity level of warehouse solutions increases (which can result from the heavy use of advanced robotics, drones and unmanned warehouse equipment), conventional logistics providers fail to provide staff with the necessary professional skills to operate these assets. In this case, the demand for logistics services of technology companies with their own specialized experience will increase.

Thus, the competition between new participants and, firstly, 3PL providers ready to rise to the fourth level is intensifying now. The competitive advantages in breakthrough technologies are called upon to play a key role in the competitive activity.

Is a modern 3PL provider capable of developing to the 4PL level in conditions of violent confrontation to startups? When answering this question, we must take into account Russian realities. And they are such that, on the one hand, the information technology structure of many 3PL providers running to the transition to the 4PL level is outdated enough and reflects the needs of the logistics provider itself. Therefore, it does not allow for general management, even if the interfaces for data exchange with customers and subcontractors function well. Accordingly, the 3PL providers are starting to gradually intensify the search for opportunities to introduce new products and services. However, their investments volume in digital startups currently does not exceed 6% of the total flows of venture capital [16].

On the other hand, the network size and efficiency are increasingly recognized by many logistics companies as the main sources of competitive advantage. In this regard, startups and IT companies also have a chance of becoming the 4PL provider. However, the scientific developments themselves are often of interest to most startup founders. We also note that many of them have no experience in the logistics business. That is why there is always a risk that startups, having received the opportunity to launch and implement innovative projects, will not be further interested in turning the IT startup into an independent logistics provider business.

Thus, if we consider the realities existing on the logistics services market, it seems that the scenario for the 4PL provider development will be the partnership of 3PL providers with startups or the acquisition of new players in specific process areas. Startups will add the service proposal of conventional 3PL players, especially in the segments of the latest delivery and supporting functions. Consequently, the transition of current 3PL providers to the next level, 4PL, can occur either through selecting a strong cooperation partner, or through the qualitative improving their own skill. To a large extent, this scenario assumes the growth of mergers and acquisitions due to large players seeking to expand their operations and services. However, taking into account the breakthrough technologies revival, the transactions can also be used as a tool to optimize capacities and resources in key areas.

Nevertheless, there are many barriers that can “slow down” this process.

The first barrier: the demand for the 4PL provider services, since the logistics services market peculiarity is the fact that a demand forms the need to supply. However, there is no economic interest for companies so far to bind themselves by a long-term contract with the 4PL provider. It is worth to identify that the main reasons for keeping the conventional mistrust of domestic companies in the conclusion of long- term outsourcing agreements for services with high added value are the lack of operations transparency, concerns about the loss of control over the company's property, concerns about maintaining data security or uncertainty in the level of making and implementing management decisions, etc. In addition, the most domestic 3PL and 4PL providers rely on their own corporate standards and organizational and technological mechanisms built based on the western regulatory foundations and traditions. Currently, in conditions of reorientation to new markets, primarily national markets, this trend can be considered rather a negative driver of development for high-level domestic providers. To overcome the existing stereotypes, to our opinion, the 4PL providers shall not only focus on providing a good portfolio service, but acquire the necessary skill in the field of effective building relationships with their customers based on trust.

The second barrier: the lack of the appropriate quality and the required range of services provided to firms at the moment, a low skill level of logistics providers management. The firms are interested in logistics services with high added value, i.e. selection of services for each specific order, for an individual customer. In this regard, the main objective of the provider shall be to provide the customer with the entire package of services that the customer itself cannot perform better and more economically through a combination of equivalent individual and complex services. In addition, the providers shall improve their own planning, analytics and activity monitoring capabilities and prepare information on potential skill that 4PLP may need in future for regular customers.

The third barrier: the level of 4PL provider's activities informatization. Particular attention should be paid to the availability of the IT platform. In this case, this is not so important if the 4PL itself creates and hosts such a platform, or rather obtains it from an external IT provider and then simply controls the operations. In any case, it is fair to say that the available effective IT platform can have a positive effect on the integration of supply chain partners, especially because it allows for on-line real time data exchange and ensures transaction transparency, and thus increases the level of trust. On the other hand, risks associated with data integrity, data security and confidentiality, etc., are reasonably increasing. Doubts about data security and confidentiality can slow down the integration processes implementation. Difficulties in integrating various information systems may also arise, since the developers of different systems initially made different decisions, assumptions and admissions that conceptually do not fit together. As a result, one may encounter incompatibility of data exchange formats, communication protocols and interfaces or incompatibility of licenses.

The fourth barrier: the sectoral structure of the national economy. The sectoral, spatial, institutional structure of the economy predetermines, on the one hand, the level and quality of transport and logistics infrastructure development, volume and structure of the transport and logistics services market, and, on the other hand, they form the demand for logistics services of the respective niche. For example, the raw-material economy focused on the pipeline mode of transport does not generate demand for a current package of even complex services, due to which demand is limited even for the 3PL provider services.

Thus, currently there are opportunities for growing the professional provider segment. Currently, the specific scenario for the development of this process in practice is difficult to predict due to the unprecedented high level of uncertainty regarding the rate and extent of COVID-19 spread. However, it will also depend on the development and implementation of a set of socioeconomic, institutional and legal measures aimed at overcoming barriers. In case of an optimistic scenario, providers of a qualitatively new level will be able to make a significant contribution not only to stress resistance of the logistics industry, but also to the innovative development of the Russian economy.

4 Discussion

Considering that 4PL is the next generation tendency of supply chain in a digitalized economy, existing research focuses on its role in the supply chain, its competitive advantages, its dominant factors, on the optimization decision model of 4PL. However the Russian market of logistics services and activities of the logistics providers does not attract particular attention of foreign researchers, as a consequence, the number of academic papers in the international peer reviewed journals, dedicated to this problem, is very low. For this reason, the authors considered such sources as the reports of the leading consulting companies, publications in specialized journals , dedicated, on the one hand, to the theory of providers, on the other hand, to the practice of providers in Russia.

In this paper, most of the issues discussed are polemical, taking into account the novelty of the topic and the emergency situation associated with the pandemic. Therefore, in future, we still have to expect new developments on the qualitative transformation of the provider market, including the issues for identification of its boundaries, detecting the specifics of their interaction in the information space, assessing the prospects for the emergence of level 5 and 6 providers on the market, assessing the risks of their activities, as well as developing the principles and methods of state regulation of their activities. This will require involving all the variety of methodological approaches and tools of economic analysis.

Conclusions

Summarizing the above reasoning, we can conclude that the transformation of 3PL logistics into 4PL is not a simple evolutionary process. Its duration cannot be determined now. But one thing is clear that the development of system logistics and the consolidation of the logistics market can lead to the redistribution of service functions to providers that accumulate strategic, informational and other additional modern competencies in logistics. The 3PL and 4PL logistics provider formats will obtain the main growth resource, which have key competencies and widely use information technologies.

Mergers and acquisitions will result in appearing of such providers that are flexible, innovative and have some financial strength. They must be able to provide a full service, taking into account the potential of e-business, coordinating the start and end points of a business operation, ensuring a straight-through transaction. On this evidence, mergers of logistics suppliers representing the new and old economies are most desirable.

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