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SOURCES AND DIRECTIONS FOR DEVELOPING 3PL LOGISTICS PROVIDER FUNCTIONS IN THE MODERN SUPPLY CHAIN

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Abstract: The main point of the article is that logistics, in order to provide the world economy with its two major functions, service and integration, creates an objective need for changes in its own institutional settings of activity. Based on reports and references, the author of the article has analyzed the forms and scope of activities of logistics operators by seeking answers to a fundamental issue in this context: to what extent entities being part of third-party logistics providers (3PL) affect the economic order of the modern world and what are the forecasts for the role and place of 3PL companies, now known as orchestrator. This future role of the orchestrator is defined at three levels: transaction cost economics (TCE), resource-based theory (RBT), and network theory (NT).

Keywords: third-party logistics provider, orchestrator, supply chain, globalization.

Introduction.

In global expertise shows a resilient trend towards an increasing demand for logistic services and raising the bar of their quality in terms of, in particular, cost optimization and uninterrupted service along the whole value chain. This makes it necessary to create and develop logistics centers as focal companies that manage inventory and related flows in moving products along new transport routes [1].

There is probably no overestimation in asserting that present years are a time of general restructuring of traditional models of doing business, organization and functioning of economic processes. Elaboration of a modern economic order promoting the sustainable management addresses optimization guidelines in relation to new sets of market entities. Many factors and trends, mainly associated with globalization of management, informatics development, creation of new socio-political and economic systems, have an impact on the ongoing changes. For logistics, it is an evident and at the same time natural challenge that real development of an open global economy concept has not and will not be possible without introducing logistics tools and solutions that define modern supply chains [2].

A prerequisite for participation in today's global development processes is the active creation of innovative processes, understood as actions aimed at achieving competitive advantages. Integration of innovation processes is already at the enterprise level, but the opportunities to implement such clear innovations do not depend solely on enterprises, but also on network cooperation which is increasingly acquiring the features of regional, rather than sectoral systems [3].

The development of modern supply chains is possible due to new logistics solutions, the so-called logistics chains, i.e. logistics processes performing fundamental functions in the economy: service and integration. It is only the form and scope of the projection binding, and the implementation of these functions in economic reality that vary. Opportunities emerging as a result of new forms and tools for logistics services in advanced supply chains are causing fundamental changes in model economies that we may observe. The function of integration and logistics of services, noticed and used initially only in reference to certain areas of enterprises functioning, such as: supply, storage management, distribution, has forever entered the economic systems of many enterprises. In these agreements, everyone is focused on their core competencies, and together - on partnerships in supply chains. Thanks to its functions, logistics supports the interaction of groups of many enterprises aimed at creating value and competitive advantages through synergies achieved in the joint partner business. Within integration and service functions, relevant roles are assigned to supply chain leaders, changed technologies, and manufacturing and supply processes. Thanks to this strategy, the costs of storing goods at the stages of the highest production cost decline significantly, and the product itself is supplied after production straight to the customer without unnecessarily waiting for the real buyer.

Using the idea of production modularity combined with relevant logistic support for customer service, a massive customization of end products has been created. As a result, the competitive costs of producing highly processed goods were competitive compared to traditional ones.

The main point of the article is that logistics, in order to provide the modern global economy with its two major functions, service and integration, creates an objective need for changes in its institutional settings of activity, which mainly ensure further economic functions of logistics in reference to supply chains.

Therefore, the author of the article, based on reports and references published by institutions and international associations focused in market research, has analyzed the forms and scope of activities of logistics operators by seeking answers to a fundamental issue in this context: to what extent entities are the part third-party logistics providers (3PL) and how they affect the economic order of the modern world.

Method. The article has been written using axiomatic, formalization, hypothetical methods, abstraction, analysis, cognitive synthesis, as well as deduction and analogy.

Results and discussion.

1. The third-party logistics partner as an organizer of logistics services for supply chain.

A study by American researchers has shown that the role of logistics service providers in logistics support systems has changed. The motivation of enterprises to change the tasks and liabilities of logistics partners is explained on the basis of three theories: the network theory, the transaction cost economics theory, and the resource-based theory. enterprises therefore decide to outsource logistics activities based on:

- willingness to reduce transaction costs,
- gaining access to more diverse and scarce resources,
- benefiting from relationships that logistics partners have, and develop them in the supply chain.

The said motives of the logistics service providers mean that logistics partners have expanded their scope of activities to competencies which they call in American references as an orchestrator (literally translated from English, a person who arranges music for an orchestra). In the new role, the logistics partner organizes the logistics support processes in such a way as to ensure cooperation, coordination and harmonization of the actions of the associations involved in providing resources, including information. The functions of associations are determined by the network orchestration concept, i.e., organizing the supply chain [4]. Therefore, it is about the provision of such a package of intended, deliberate actions by an entity acting as the network center that creates value. It is emphasized at the same time that the arranging partner is a co-ordinator without powers arising from the hierarchy.

Therefore, the concept of an orchestrator is used in the logistics context as:

- a neutral, third partner, engaged in developing the system architecture,
- an association that organizes business cooperation and provides its options to end customers,
- a manager who is focused on creating value, developing a general plan for all counterparts in the supply chain,
- an enterprise that riches an instrument in the rational use of partner resources to increase the value chain.

Although there exist various definitions describing logistics organizers, there is general agreement on the role of the organizer in the supply chain. This role has been identified and considered critical for the efficient operation of supply chains. Of particular importance this assertion is for the M. Christopher's theory, according to which enterprises compete not in the market, but in supply chains. The result of the quality and cost of supplies in the supply chain is closely linked to the 3PL activities. Therefore, the supply chain competitiveness depends on how actions of the logistics partner coordinate with the client, its suppliers, customers and, finally, with 3PL itself with subcontractors. A 3PL is at the center of the goods and information flow, it is affected by all counterparts of commercial transactions and influences them. Moreover, it participates at the same time in several different supply chains of its clients. From the "central centers" position, it may seek solutions and synergies not only within one supply chain, but within whole network interconnected with - a node, i.e., 3PL - supply chains. A logistics partner with such a large number of connections and influencing many processes at the same time becomes the center of risk and risk management in the supply chain. Some practitioners and academis, going into the concept and development strategy of the 3PL role, perceive many types of activities due to which a logistics partner may strive for the role of a risk softener, i.e., an association that consciously works to reduce, eliminate or transfer risk. The third-party logistics partner, as the "center of centers", can more easily see the risk, but it also has a wider range of risk management capabilities.

2. Previous stages of logistics partners development

New objectives and expectations of clients and suppliers in reference to logistics partners were created as a result of market evolution and development of relations between individual enterprises. Subsequent changes resulted from expanding cooperation and the transfer of increasingly important tasks to subcontractors in terms of business activity of service providers. Based on the study, four stages in the development of the role of a logistics partner in the relationship with its client, have been classified.

At the first stage of logistics outsourcing development, companies, as a rule, were focused on their core competencies and, separating individual operations from the whole spectrum of their activities, they delegated those operations to service providers in the form of assigned tasks.

In case of positive business experience, the service recipients were ready to clarify and formalize cooperation through contracts. They were transferred from a relationship based on contract work to a relationship based on trade agreements. Usually, this also meant an increase in the scope of tasks, liabilities and powers of the logistics partner. Logistics partners are increasingly assuming responsibility for managing processes performed on behalf of and for, the client. This historically observed trend is retaining, and the forecast data show that this type of cooperation is expected to increase, which is reflected in the projected higher revenues from the sale of 3PL services and anticipated development of the industry. The interest of enterprises in outsourcing logistics services and cooperation with logistics partners is also confirmed by other published studies conducted by Establish Inc., which surveyed companies from 32 industries around the globe. Following these reports, more than 65% replied that changes most often made recently are related to rationalization of the organization of distribution centers and logistics centers or introduction of new centers. Currently, logistics costs claimed by entrepreneurs amount to 10.9% -11% of sales revenue, of which 42% is the cost of services purchased from 3PLs.

At this point, referring to industry revenues and growth, mention should be given to the impact of the recent financial and economic crisis on the 3PLs role. The study findings analyzed by the authors show that the industry is still evolving, although the reported costs of individual enterprises for 3PL services have a smaller share in logistics costs.

This situation is related to two trends arising from the uncertainty of the economic situation in the market. On the one hand, new enterprises decided to continue outsourcing (65%) and sign their first contracts with logistics partners, and on the other hand, those interacting with 3PLs and the service providers themselves, are working to reduce costs and consolidate services and suppliers. This results in clients expecting a consolidated, comprehensive and very broad logistics service from this entrepreneur. The second effect of the crisis, apart from the described consolidation, is the greater restraint of service recipients in outsourcing strategic activities. They are still willing to provide transactional, operational and repetitive activities to subcontractors. In times of economic uncertainty in the market, the use of 3PL services provides greater flexibility and makes it easier to manage significant increases and decreases in demand. A 3PL, by accumulating the demand of different clients, causes fluctuations in demand or shifts in the phase of demand. In the study, 59% of respondents said the crisis forced them to rethink the role of 3PLs in the supply chain.

In the past, in the case of particularly important and critical tasks in terms of business activity of recipients, when a high risk was at stake, clients used to decide and still decide to build long-term partnerships. In this arrangement, a client and a logistics provider jointly manage the processes. The development of this area of cooperation is also confirmed by European studies. 3PL respondents to these surveys point to the introduction of new, more technologically advanced services and consulting services based on high know-how quality. 17% - 21% of the clients surveyed said they purchase supply chain management consulting services from 3PLs [2]:

– integrated procurement and logistics services;
– low-temperature supply chains;
– the nature of air transport;
– medical and healthcare logistics services;
– temperature and humidity controlled storage;
– storage of hazardous materials and products.

Developed and mature partnerships provide far-reaching openness: access to data, costs and processes control, and participation in decision making. In many cases, the progressive development of collaboration in the market has transformed relationships arising from contracts or partnerships into strategic relationships and full outsourcing of logistics activities.

The evolution of partnership is characterized by studies focused on the form of contracts concluded by 3PLs. They show that most of the signed contracts are based on estimations that directly depend on results of the tasks performed. The parties to the contract agree on the revenue distribution, penalties for failure to achieve goals, rewards for services quality above a certain level. The 2020 studies show that 3PL buyers perceive their logistics partners as a key element of success and admit that service providers help in achieving critical level of client service, low costs and customer satisfaction.

Expanding the scale of outsourcing development and changing the role of 3PL logistics partners in supply chains would not have been possible without changes in information logistics itself. Computer science has been and remains the main driver of practical implementation and logistics concept development.

Advances in information technology has facilitated to integrate the systems and processes of logistics service providers, their clients and other structures of logistics support systems. Applications and IT-software have also led to increased competitiveness of logistics partners, since automation of certain elements of logistics processes has reduced costs compared to the costs in the client's company. In addition, IT solutions made it possible to simultaneously connect many participants in logistics processes: manufacturers, distributors, transport companies, wholesalers and retailers. New technologies have provided tools for developing inter-organizational relations and effective cooperation. For example, online data access and automatic communication have become important. A major feature of the tools in question is the reduction of risks and operating costs due to work processes automation and control. Finally, 3PLs were able to collect information critical to the supply chain, coordinate actions and significantly improve the quality and timeliness of processes and thus increase their value.

Thanks to the development of strategic relationships with customers, outsourcing expansion, network building, computerization development, more efficient management of specialized resources, logistics partners have offered the best practices becoming centers of knowledge and competence. Consequently, they took it upon themselves to act as orchestrator. The change in the role of partners are also reflected in the names of some companies that had been created to serve new types of services. Examples are DHL Exel Supply Chain, UPS Supply Chain Solutions.

Chain solutions. In the new role of 3PL, they collaborate with many partners in many supply chains at the same time. This, in turn, contributes to further standardization of data and processes passing through many enterprises, providing transparency and access to information about these processes. A logistics partner serving many clients at the same time definitely strives to introduce standards of cooperation with its partners, their customers or suppliers. Without such standardization, proper operational control over processes and their costs is impossible. Based on the role and place they play and take in modern economic processes, 3PL entities, if necessary, in their own interests inspire and motivate other economic entities to cooperate and standardize.

In many cases, 3PL assumes the role of an arbiter between traders, since most often it does not directly involved in trading, but is responsible only for the movement of goods and related information. Logistics partners become animators and mediators of changes that lead to more effective cooperation. Thanks to many organizational and IT-links, 3PL partners become agents and coordinators of introduced changes.

It is worth mentioning that position of the logistics partner makes it easiest to detect shortcomings and shortcomings in synchronization between process participants in the supply chain. Therefore, logistics partners are more likely to

offer improvements in logistics cost-raising processes, especially in the area of standardization and transparency of information about processes performed. For example, at the Georgia Institute of Technology, 64% of surveyed service consumers expect logistics reports and analyses showing the total cost of delivery, i.e., the sum of all costs associated with the production and delivery of a product from the production facility to the facility where sales revenue is generated. This means that 3PL operators become the main source of cost information and therefore are involved in cost management processes since they have detailed cost data from various associations which are part of supply chains.

The Americans describe this special role of 3PL as an organizer of modern economic processes, four interdependent influences: standardization, information transparency, neutral arbitration, and cooperation.

The interdependence of these four interactions is confirmed by interview findings which give ground for the following statements:

1) the higher the standardization of data and processes implemented in 3PL, the higher the value achieved by organizing (orchestration);

2) standardization has a positive effect on the information transparency in the logistics support system;

3) the higher the level of transparency of data and processes in the logistics support system, the greater the value achieved through organization (orchestration);

4) data and processes transparency positively affects 3PL's capacity to act as a neutral arbiter;

5) the higher the level of arbitration neutrality, the greater the achievable value through organization (orchestration);

6) neutral arbitration has a positive effect on cooperation development between supply chain partners;

7) the higher the level of cooperation development, the higher the value achieved by an agreement (orchestration).

The described model of perception of the 3PL's role in business systems of enterprises is confirmed by other opinions of both clients and service providers. Both of them believe that the main factors of business success as a result of cooperation with 3PL operators are [2]:

– openness, transparency, good communication (74% of clients, 77% of 3PLs);

– effective partnership and cooperation (61%, 72%);

– achieving cost reduction goals (54%, 58%);

– improving customer service quality (54%, 71%);

– promoting (providing recommendations) and sponsorship (44%, 51%);

- providing 3PLs with valuable ideas for improvements and innovations in supply chains (35%, 57%).

Such important effects of the function called orchestration performed by 3PL determine that logistics will develop towards forms that ensure extraction of additional layers of synergetic effects resulting from cooperation of companies in supply chains, with the 3PL orchestration function.

Conclusion

The increased efficiency of using logistics infrastructure and improving the conditions of logistics activities is one of priority directions in developing logistics system in the Republic of Belarus. To achieve this objective, it is necessary not just to increase investments in the logistics sector, but to create conditions to build an optimized logistics infrastructure [5].

Taking into account the desire of Belarus to improve its position in LPI logistics performance index to at least 50 by 2030, as well as to increase the volume of logistics, freight services and transit revenues by two times against 2016 [6], the creation of modern logistics infrastructure facilities that would allow market participants to receive the necessary services in the process of goods movement is one of the areas of developing the logistics system in our country. However, Belarus experiences a clear lack of developing logistics infrastructure, quality and complexity of logistics services.

The case studies reviewed show that the future of medium-sized logistics partners is tied to SME development initiatives. During and after the crisis, small and medium-sized entrepreneurs are interesting (because of low costs and geographical proximity) for large corporations and retail networks. However, they do not meet modern and precise requirements regarding the way products are packaged and labeled, order management and delivery, and transportation. Practice shows that logistics partners can fit perfectly into this space between small manufacturers and large customers. 3PL can provide consolidation of deliveries in appropriate group packaging and full loading for large trucks, as well as de-consolidation of large orders and redistribution of small packages to recipients, while the documentation accompanying these operations is delivered electronically using appropriate interfaces. This will help to achieve the level of requirements defined in English as traceability, new verification, meeting customer expectations. This combination of small and large enterprises would never have been possible without 3PL, because small entrepreneurs could not invest in information technology, storage, packaging or transportation, and the know-how required by corporations and retailers. 3PL, by strategically partnering with a large chain such as Wal-Mart, is able to provide the logistical requirements on the one hand and organize the cooperation of small suppliers on the other hand, and ensure their development. Therefore, the future organizes supply chains based on so-called Networked IT Capabilities for end-to-end execution. In terms of small and medium-sized manufacturers, this would be called universal outsourcing or full outsourcing in one step with one service provider.

The second area for the future development of logistics partners is industry collaboration and establishing new relationships and ties. Global clients expect global presence and global services. Suppliers cannot meet such requirements, but they see an option to create a competitive advantage in organizing groups. For example, Supply Chain Services which, in order to increase flexibility in adapting to changes in demand and the geographic diversity of partners and supplies, began cooperating with a logistics partners network called "Value-Added Warehouse and Distributors". Thanks to this cooperation, customers are satisfied, and medium-sized logistics partners can grow their business. However, this is only possible thanks to the information platform created by Supply Chain Services, which provides customers with full transparency of information. For example, detailed stock analysis, an overview of all SKUs, stock rotation and aging analysis, timely reports and quality of deliveries in and out of individual warehouses, and cost analysis.

The next direction of 3PL development will be based on the so-called convergence of services. Similar to the converged services in the telecommunications market, where voice, video, data, Internet and television services are integrated in one telecommunications channel, and as a result, in one service, the 3PL market seeks the convergence of logistics services. Traditional co-production services are added to traditional transportation, forwarding and storage services, which are necessary in the case of a shift in the point of distribution and implementation of customization, that is, the individualization of the product and any actions regulating the product and delivery in compliance with the quality, packaging, labeling, transportation and documentation requirements (including certificates, permits, licenses, etc.).

It should be noted that the above directions of developing 3PL activities are related to the organization of a network of cooperating logistics service providers, provision of services and integration of different economic systems of manufacturers, distributors and retailers. The achieved effects of the described areas of change may differ from those anticipated due to observed gap in IT technology, which is the difference between the IT capabilities of 3PL and increased customer expectations, as well as the financial crisis and the dynamic transformation of enterprise ownership.

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PRODUCTIVITY OF LOGISTICS BUSINESS PROCESSES IN THE CONDITIONS OF SUSTAINABLE DEVELOPMENT OF ECONOMIC SYSTEMS

Kalischuк E.L., Nebelyuk V.V.

Annotation. The article considers the issues of ensuring the effectiveness of logistics business processes in supply chains. The authors propose methods for determining the effectiveness of management according to the principles of sustainable development of the International Standard ISO 9004:2018 series.

The object of the study is logistics business processes in economic systems. Management results are identified by measuring and self-evaluating the levels of manageability of business processes. The focus is on the «quality loop» and the evaluation of its components in the field of «procurement» and «implementation».

In the process of measuring the reserves of a sustainable effect, the costs necessary for the formation of forces for the development of logistics functions and the commercial effect are compared. The method of evaluating the effectiveness of business processes is demonstrated on the performance indicators of a logistics company and a regional logistics system.

Keywords: productivity, sustainable management, logistics functions, self-assessment, manageability level, economic system.

Introduction. The object of the research is the methods of managing logistics business processes and determining their effectiveness in economic systems. Innovative approaches to business process management in the context of Industry «4.0» form new methods for evaluating production performance. The new National Strategy for Sustainable Development of the Republic of Belarus, as a series of five-year projects for the future until 2025-35, etc., contains the main integral indicator «quality of life». The paper suggests approaches to solving the tasks defined in the Set of Measures, such as programs for the introduction into practice of methods and mechanisms that ensure the improvement of management in organizations and sectors of the country's economy, as coordinated with the challenges of the external and internal environment. The tools that will provide a timely «targeted» response to changes are presented, will allow to implement forecasting and prevention of negative processes associated with the loss of stability and, as a result, the competitiveness of the organization.

In the course of the work, key studies in the field of modern management in the field of logistics are highlighted, taking into account the international standard ISO 9000 series, in particular the works of D. V. Antipov., Vysotsky O. A., Sedegov R. S., Bazilevich V. D., Ivutya Garchuk I. M., Danilova N. S., Narushevich S. A., Uvarov S. A., Trifilova, A. A., Slonimskaya, M. A., Budrin, A. G., Lafta D. K., Bagiev, G. L., Deming E., Fayol A., Duncan J., Kotler F., Dichtel E., Hershgen H. Bauersox D. J., Kloss D. J., Vumek J. P., Jones D. T., Agarkov, A. P., Grigoriev L. Yu., Koryshev I. I. and others.