“Development of innovative forms of logistics provision”

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DEVELOPMENT OF INNOVATIVE FORMS OF LOGISTICS PROVISION

Abstract

The purpose of the article is to study and justify the need to use information technologies (IT), in particular financial, logistics provision and in the management of business processes. This will increase competitive advantages, improve the quality of logistics services and reduce the cost of their implementation.
In accordance with the goal, such interrelated tasks are solved: peculiarities of development of integrated logistics providers are defined and studied; priority directions in the work of providers are determined; the foreign and Ukrainian experience of implementation of services in the field of logistics are analyzed; necessity of using virtual logistics providers in the market of transport and logistics services is substantiated.
Scientific novelty of the conducted research consists in theoretical substantiation and experimental confirmation of methods and tools for development, management and organization of information support of logistics provider activity. The particular attention in the research is paid to modeling and designing of information support systems for innovative forms of logistics providers. Their activities are based on the automation of the implementation of logistics business processes, as well as capabilities of artificial intelligence when making managerial decisions in the field of logistics to improve the financial position of enterprises. The practical significance of the research is to develop an innovative virtual logistics provider in the market of logistics services and expand financial possibilities of using innovative logistics provider tools to improve processes of information support management for logistics operating activities.

Keywords innovation, logistics provider, logistics enterprises, logistics outsourcing, finances, financial position

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INTRODUCTION

Under the innovative conditions of the development of scientific and technological progress with improving economic and financial components of entrepreneurship development, logistics begins to perform one of the strategic functions, becoming necessary for its key competence. Applying basic principles of the implementation of the logistics concept, enterprises seek to solve the problem of medium- and long-term cooperation with partners to provide significant cost savings and better cooperation. Despite theoretical and practical developments in the field of logistics and logistic processes, there is a problem with the study on peculiarities of the formation of a logistics proving system as an financial innovative component of the logistics sphere. It is the scientific-theoretical and practical significance of this problem that determined the relevance of the chosen topic of the research.

The market of logistics services in the world is currently undergoing fundamental changes that have a fundamental impact on the role and scale of its participants' activities and the structure of their relationships. The main driving forces of the market of logistics services include: globalization processes of the world economy; development of

finance; development of logistics outsourcing related to key competencies and outsourcing of non-core areas; desire of enterprises to optimize costs at all levels of logistics chains; shortening the life cycle of products; new approaches to marketing and product distribution; growing role of innovation in logistics processes, especially as it relates to electronic methods and business practices.

Information technologies are the foundation of business, independence at the finance and a tool for optimizing operational processes of the provider network. The continuous improvement of informat tion technologies enables providers to solve new tasks, ensure the deep integration of all business processes into a single information field. Also it requires consolidation in the structure of the provider of a functional logistics complex, a professional logistics operator, the information and technological company, a contact center, a transport company, a fulfillment operator and a digital marketing agency (Amblar, 2016).

Consequently, in view of the widespread use of information technologies and their integration into all spheres of human life, in particular economic, finance and social ones, it is also necessary to introduce widely their use in the field of logistics.

Considering the mentioned aspects and in order to study specific features of the development of the market for logistics services, logistics outsourcing, management and implementation of logistics processes and use of the Internet-providing system in the field of logistics, the issue on the formation of innovative forms of logistics proving requires further research and innovative study. The specified causes the choice of topics and research direction.

1. LITERATURE REVIEW

Logistics as a science studies the basics of business planning for the management of goods, services, information and capital flows. It consists of information flows, communication and control systems that are needed in the modern business environment (Kumar & Chia, 1996).

Mate and Tiksie (1993) define logistics processes as ways and methods of coordination of relations between the company and its partners, means of coordination offered by the demand market and the implementation of the proposals put forward by the company. By the definition of Canadian Association of Logistics Management, logistics is a process of planning, implementation and control of efficient and cost-effective flows and storage of raw materials, in the process of inventory, finished products and related information from the point of departure to the point of consumption in order to fulfill their requirements.

Struk (2013) believes that the fundamental issue of providing logistics processes at enterprises is the creation of a logistics information system, which is considered as a subsystem of the general logistics system in the theory and practice of logistics. It ensures the receipt, processing, storage and transmission of information and, accordingly, formation, transformation and generation of information flows necessary for making managerial decisions on the planning, organization, control and regulation of the processes of realization of material flow movement.

Currently, information technologies are actively used to improve the management of an enterprise and its logistics system (Majewski, 2008). In practice, it is impossible to organize the work of the supply chain without an intense operational exchange of information and a rapid reaction to the changing needs of the market. IT implementation is the tool that will improve the efficiency of the enterprise activity (Skowronek & Sarjusz-Wolski, 2008).

The main direction in IT development of logistics is the integration of information flows and communication provision of goods transportation (Malkus, 2002). Information systems having their advantages and disadvantages are important in the system of making managerial decisions in the field of logistics.

Kryvoviaziuk and Kulyk (2013) think that the general feature is that information systems are able to respond quickly to market needs through IT active use among all the links of the logistics system of the enterprise providing a synergistic connection.

One of the innovative forms of logistics processes is the logistics provision. A logistics provider is a company that performs part or all logistics complex for its customer. Four main logistic functions include transportation, warehousing and cargo processing, order processing and inventory management. The services of logistics providers are directed at the general management of transportation and storage of goods.

A detailed description of economic and strategic factors affecting the choice and consideration of the reasons why it is worthwhile to use the logistics provider's services in various logistics activities, as well as advantages of specialization and difficulties in the formation of a key area of competence, are found in the works of modern researchers of this problem (for example, Baumgarten, 2004; Koch, 2003, Strube & Zadek, 2000; Ermakova, 2017).

The analysis of the modern market of logistics services, its capacity and growth rates point to the relevance of outsourcing as a logistics strategy. Outsourcing is one of the most up-to-date and successful business models, which enables you to achieve real competitive advantages (Dybskaya & Sergeev, 2012).

The peculiarity of outsourcing and its main difference from subcontracting is that the outsourcer has the freedom to choose the way to perform this function or process. It is not the supplier-consumer relationship, but the strategic partnership in which each partner wants to succeed by adapting its processes to servicing partner processes (Fulconis, Saglietto, & Paché, 2016).

In view of the somewhat fragmentary analysis of the study of the application of information technologies in logistics, development and implementation of innovative forms of logistics processes, the issues are defined, namely, the search for such a tool for the formation of innovative forms of logistics provision, which is capable of ensuring the proper level of logistics performance, determines the relevance, purpose and objectives of the study.

2. DATA AND METHODS

The theoretical and methodological basis of the research was the system of general scientific and special methods, which conceptually make it possible to investigate the processes of logistics of transport enterprises in a market environment. The authors used a systematic approach for analyzing the current state and identifying the essential characteristics of logistics operations of transport enterprises; methods of abstraction, analysis and synthesis for generalization of methodical aspects of logistic processes; methods of logical generalization to clarify the conceptual categorical apparatus of logistics provision.

In the course of substantiation of theoretical and methodical principles and in developing practical recommendations regarding the increase of efficiency from the use of logistics outsourcing, the following general scientific methods were used: abstract-theoretical, dialectic, induction and deduction, methods of economic and comparative analysis.

Common to all methods and techniques used is that they should not contradict the basic characteristic of the concept of logistics – the method of system approach. Therefore, the methodological basis for research is a complex and systematic ape proach in to the logistics, which is based on the use of information technologies (IT). Due to the come plex and systematic approach, logistics is given one of the main roles in regulating management processes of network structures of enterprises.

Changes in strategic logistics planning are related to the introduction of intelligent systems-based analysis technologies, as well as on expert technologies of automated machine management. Applying basic principles of the implementation of the logistics concept, enterprises seek to solve the problem of medium- and long-term cooperation with partners to provide significant cost savings and better cooperation, therefore, there is a need for a virtual logistics provider (VLP).

Solving the practical task regarding of modeling a VLP operator of logistics activities was accomplished through the use of the method of operational thinking. Consequently, a subjective model

of a predictable set of actions that provides a solution to the task is formed.

In research, for creation of a virtual logistics provider (VLP) in the market of transport and logistics services, in order to use information technologies (IT), in particular, logistics providers, in managing business processes, which will increase competitive advantages, improve the quality of logistics services and reduce the cost of their implementation, software Logist.ua and Rational Logistics was used. With the help of the virtual logistics provider (VLP) and due to algorithms and automation of communication and logistics business processes, the efficiency of logistic processes increases.

3. AIMS

The aim of the article is to study and justify the need to use information technologies (IT), in particular financial, logistics provision and in the management of business processes.

4. RESULTS AND DISCUSSION

4.1. Basic principles of formation of the logistics services market

The logistics services market is being reformed with the development of economic processes. Earlier, the forwarder (logistics specialist) was responsible for cargo transportation and delivery; today, logistics operations are supplemented by other tasks (for example, cargo tracking) and provided as a package of services by logistics providers (operators). Mostly, enterprises concentrate on their key competencies. Therefore, in the end, the logistics operator is assigned additional activities that give the product value added, as well as administrative functions.

The logistics provider becomes more responsible for the complex execution of the logistics order. This includes the delivery and processing of orders, payment transactions, transportation of products to end customers, as well as consulting and after-sales service. At the same time, logistics operators become partners of enterprises of the sphere of production, trade and services to a greater extent. Planning and controlling the results of activities when addressing the procurement of logistics services, as well as managing contractor networks, is an important task for enterprises. In this regard, the choice of logistics partners is important.

The emergence of complex logistics providers was due to the progressive expansion of logistics processes. Providers have a wide range of logistics know-how and offer enterprises system solutions that include the full execution of the logistics order and customer services.

The logistics provider is required client technological processes, as well as development and provision of innovative proposals for the management of processes by the Internet technologies, etc. He develops and independently manages logistics systems tailored to the needs of one or more client companies. The system logistics operator is fully adapted to customer requests, so its replacement is technologically and operationally unprofitable for the enterprise.

Integration of the network partnership requires consistent restructuring of the entire value added chain, that is, the reengineering of logistics and production business processes. In this case, the goal is to develop small structural units and their cooperation within a decentralized managed network. One of the conditions for such restructuring is to identify and establish key competencies of individual participants. At the same time, there are those activities and processes that are of strategic importance or provide the existing competitive advantages and benefits for each enterprise of the network. This is achieved with the presence of extensive experience in their field or the application of innovative technologies. As a rule, the network structure of enterprises is organized on the basis of the main enterprise, which is the system center of the network (the main supplier of the supply chain).

The main segments of the logistics market are cargo transportation and forwarding operations; integrated logistics services, including services in storage and distribution of goods; logistic business process optimization services (managerial logistics).

Due to the introduction of logistics innovations and development of the logistics network, the

demand of manufacturers for logistics services, which create value-added products, is increasing. Therefore, system logistics operators, which are responsible for organizing large sections of the logistics chain, offer additional services that increase their value. They are development, implementation and operation of information and communication systems, in particular cargo tracking systems or assistance in logistics planning.

Given the above, companies that are willing to keep up with the times and be competitive in the logistics market need to improve existing logistics business processes and apply innovative forms of logistics provision in Internet.

4.2. Analysis of integrated logistics outsourcing components

In the process of economic production and sales activity in some enterprises, there is a need to facilitate logistics processes due to lack of knowledge and small practical experience in the field of logistics. The specified conditions create the preconditions for the emergence of the so-called outsourcing need.

The process of providing partial or general transfer of logistics functions or complex logistics business processes of an external organization is called outsourcing. The outsourcer is a specialized company (logistic intermediary). A special place is occupied by logistics providers that are organizations providing a complex of logistics services on outsourcing among logistic intermediaries.

The feasibility of using logistics outsourcing is determined by the following main reasons:

- lack of knowledge and lack of experience in the company in the field of logistics;
- close relationship between manufacturing enterprises and product suppliers with the transport industry enterprises at all levels of the value added chain;
- opportunity for the manufacturer to abandon non-core activities (logistics);
- enhancement of flexibility, both in terms of developing its own organization and in relation to its activities in the market, achievement of the synergy effect, etc;
- use the benefits of a logistic approach to managing own activities without the need to develop their own competencies in this area;
- reduction of total costs and change in cost structure;
- comprehensive logistic service of high quality provided by the operator;
- improving the quality of services for the end user which positively affects the image of the customer company, etc.

Due to the development of integration processes, the number of logistics operator (intermediaries) providing integrated logistics services has increased.

According to the Western European classification of logistics activities, it is necessary to allocate 5 levels of logistics service (Party Logistics – PL), which differ in the range of services and technological level (Table 1).

PL (Party Logistics) comes from English as "the side of logistics". "Operator or provider" is added to 1PL, 2PL, 3PL, 4PL and 5PL. Numbers indicate how deeply involved the company is in the supply chain: 1 – the manufacturer-seller, 4 – the company takes on virtually all functions of the management of supply chains, except purchases and sales in certain situations; PL – the provider is involved in the organization and implementation of all logistics services.

1PL is First Party Logistics. This technology was formed in the 70's and 80's of the twentieth century. This type of service is also called logistics insuring and is characterized by the fact that the cargo owner himself performs all logistics operations.

2PL is Second Party Logistics. It is the traditional logistics, "second-party logistics" or partial logistics outsourcing. The company takes on part of logistics functions (planning, warehousing and logistics chain formation), but an outsourcing orga-

Table 1. Western European classification of logistics provision activity*

* Source is proposed according to the analysis of literary sources: Hosie et al. (2017), Contract Warehousing, Fulconis, Saglietto, and Paché (2016).

Type	Specific characteristics
1PL (First Party Logistics)	The cargo owner himself performs all logistics operations.
2PL (Second Party Logistics)	The company takes on a part of logistics functions (planning, warehousing and forming a logistics chain), but an outsourcing organization (contractor) is involved, since it does not own its own transport.
3PL (Third Party Logistics)	A specialized company entrusted with the outsourcing of all or most of the logistics operations, which means the cargo owner is not engaged in external logistics. The contractor provides a range of services, in particular transportation and warehousing of goods, technical management of warehouse stocks, packing and freight forwarding.
4PL (Fourth Party Logistics)	The cargo owner attracts an outsourced logistics company and gives it the right to render services not only for integrated transport logistics, but also for planning and designing supply chains, as well as assigns it the task of managing logistics business processes at the enterprise.
5PL (Fifth Party Logistics)	The logistics company's activity is based on the introduction of the Internet technology and electronic document management technology in the field of logistics outsourcing and is supported by modern network computer technologies. 5PL providers do not own tangible assets and are aimed at strategic management of supply chains and more oriented towards the model of "virtual enterprise".

nization (contractor) is involved, since it does not own its own transport. As a rule, the involved company is limited both functionally and in the region of transportation and uses own kinds of transport.

3PL is Third Party Logistics. It is the integrated logistics outsourcing or 3PL provider, which is the specialized company entrusted with the outsourcing of all or most of the logistics operations, which means the cargo owner is not engaged in external logistics. Providers of this type give a wide range of services and have a highly skilled staff.

3PL provider does not participate in the planning of the logistics chain of the enterprise and does not enter into the economic activity of the client. The contractor provides a range of services, in particular: transportation and warehousing of goods, technical management of warehouse stocks, packing and freight forwarding. 3PL providers are those companies that provide contract services on logistics and freight, such as freight forwarding, courier and other companies.

According to Inbound Logistics data, the following situation is observed in the market of 3PL providers: 80% of shippers claim that their priority requirement for the provider is the quality of provided services. And only 20% say that they are considering the cost of services when cooperating with the logistics company. At the same time, 51% of freighters claim that bad customer service is the first reason for the breakup of cooperation (Market Research: 3PL Perspectives, 2014). The results show that companies are ready to pay for quality services. Affiliate relationships built around financial performance are risky. The emphasis on services leads to the conclusion of unnecessary contracts with a large number of logistics companies.

It should be noted that 90% of logistics companies believe that customers should consider partnership with more than one service provider, while only 10% of companies conclude that customers should work with one partner. In this case, freighters are of the same opinion: 84% use more than one 3PL provider, while only 16% of them use the services of one company (Market Research: 3PL Perspectives, 2014).

Thus, customers are working with 4PL providers, which, in turn, take over the management of 3PL providers whose services are used by the customers themselves.

The company is recognized as 3 PL provider if it meets the formula:

$$3PL = FF + VAT. \quad (1)$$

where FF is freight forwarding services, VAT is value-added services (loading/unloading, assortiment services, warehousing services, freight traffic management in the chain, marketing and financial services).

Application of 3PL approach allows to reduce logistics costs, logistics assets, the average product order cycle and overall stocks (Odrazhyi & Lysenko, 2010).

It would be impossible without the information and computer support of these structures to implement most of the logistics concepts and manage processes with subsequent operational consideration of provided services.

One of the factors of 3PL provider success is the readiness to integrate as much as possible into the customer's business processes.

3PL providers are important players in the logistics market and operate in accordance with the laws of a free market economy.

4PL (Fourth Party Logistics) is the integrated logistics outsourcing. It is the service in which the cargo owner attracts an outsourced logistics company and gives it the right to render services not only for integrated transport logistics, but also for planning and designing supply chains, as well as assigns it the task of managing logistics business processes at the enterprise.

There is the field of activity of system logistics integrators, called logistics providers of the fourth level (4PL providers), when expanding technological capabilities of the logistics operator and the client base (increasing the number of enterprises-clients of the logistics operator), as well as applying SCM concept using information and communication technologies.

4PL providers give services in the development, construction and operational management of supply chains of enterprises in various fields of activity. The "4PL" term was first proposed in 1996 by Andersen Consulting, currently operating under the name of Accenture. Andersen Consulting gives the following definition of 4PL providers: "4PL provider is a supply chain manager integrating and coordinating logistics resources, capacities and technologies of its organization and other logistics contractors in order to provide the customer with an integrated supply chain solution".

The leaders in the market of logistics services are such companies as DHL, Kuehne & Nagel, DB Schenker Logistics, FedEx (Contract Warehousing, 2017).

5PL (Fifth Party Logistics) is "virtual" logistics. When 4PL provider starts providing network business services, it becomes 5PL operator. That is, 5PL is the outsourcing of the logistics sphere, which is able to provide the whole spectrum of services using the global information and technological space (Baumgarten, 2004).

The emergence of the concept of 5PL provision is due to the fact that the rapid development of modern information systems and technologies enables the introduction of the most powerful and advanced technologies in the field of economics, business and logistics services and provides an unprecedented, previously impossible scale of data processing, forming the basis for decision making of the operational level, as well as strategic one.

5PL provision technologies include the Internet technologies and technologies of electronic document circulation implemented in the field of logistics outsourcing.

In our opinion, changes in strategic logistics planning are related to the introduction of intelligent systems based on neurocybernetic data analysis technologies, as well as on expert technologies of automated machine management decision-making and influence on subordinate objects.

The activities of 5PL providers are supported by modern network computer technologies. 5PL providers do not own tangible assets and are aimed at strategic management of supply chains and more oriented towards the model of "virtual enterprise".

The basis of the Internet system for 5PL provider is the cycle chain, which is the main means of improving and optimizing transportation *(*Figure 1).

The specified cycle chain must ensure that the order processing sequence is of such a level that it will enable to use all the information contained in the order system upon receipt of the next order, while finding orders with similar criteria (destination, arrival point, intermediate points, travel time, distance, type of transport, etc.).

Priority directions for 5PL provision are:

- development of international communication;

Source: Proposed by the author.

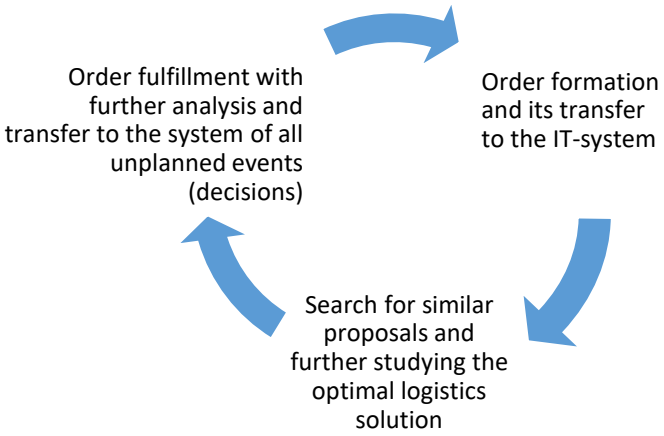

Figure 1. Cycle chain of the logistics process of 5PL provider

- database development, which will include a system of interaction of all factors that affect the optimization of transport processes;
- development of technologies that facilitate the improvement of material flow processes, in particular GPS tracking and cargo transfer monitoring, electronic databases of documentation and IT- structures which informally link the transport chains.

The most important condition for efficiency in the logistics chain is cost minimization in all links. At the same time, the task is not only to ensure the safety of goods and their consumer properties, delivery timeliness, but also to keep with the market objectives and interests of each of the participants in the logistics chain.

5PL provider can not only become a leader in the logistics market, but also undoubtedly absorb all others, with the correct system development of interacting elements.

A project for the creation of a virtual logistics provider (VLP) in the market of transport and logistics services is proposed in order to use information technologies (IT), in particular, logistics providers, in managing business processes which will increase competitive advantages, improve the quality of logistics services and reduce the cost of their implementation (Figure 2).

The most important step in creating any logistics structure is to choose the optimization criteria that will contribute to the improvement of the entire logistics chain. With the help of the newly created Virtual Automated Transport Manager and due to algorithms and automation of communication and logistics business processes, it is planned to increase the efficiency of logistic processes by:

- saving working hours of managers in the transport and logistics segment of the market;
- minimization of temporary and cost expenditures for transportation of goods, reflected on the final price of goods;
- leveling the negative impact of the human factor in the implementation of business communications and adoption of managerial decisions in the field of logistics and SCM.

In order to achieve this goal, it is necessary to analyze the virtual logistics provider modeling process (VLP). In particular, it should be noted that the proposed scheme of VLP functioning reflects the solution of the most important problems of participants in the market of transport services related to the need:

1. To automate work in this market:

- automated ranking of available offers on the sites of transport portals;
- automated choice of the best variant of an agreement;

Source: Proposed by the author.

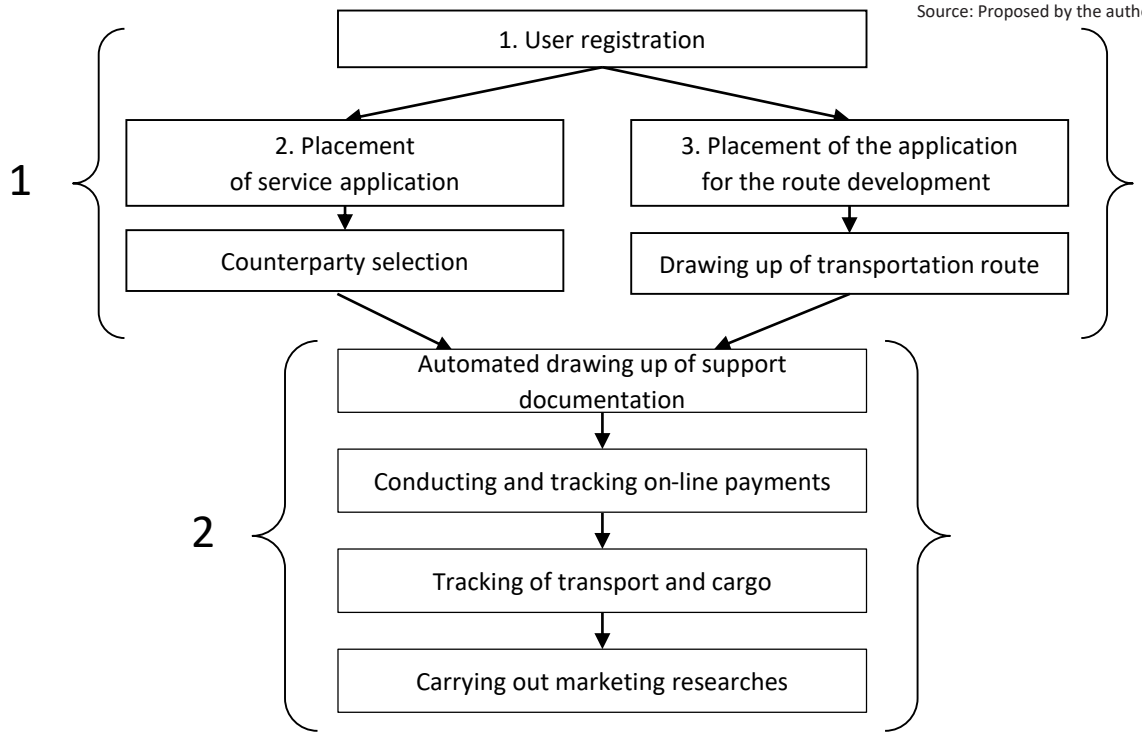

Figure 2. Virtual logistics provider (VLP) modeling scheme

2. To draw up the most profitable schedules of cargo transportation and routes of freight transport:

- drafting of schedules of cargo transportation on the basis of advantages of the vehicle owner, profitability criteria, adopted at the motor transport enterprise, experience of drawing up similar schedules and travel sheets manually;
- drawing up schedules on the desired segments of the road or at actual time intervals;
- presentation of text schedules in the form of a sequence of addresses of destinations, as well as in the form of routes on the map;

3. To automate drawing up and filling out application forms of forwarding documents, payment and account documents.

4. To ensure the reliability and safety of the virtual transport services market:

- drawing up a report for State Fiscal Service of Ukraine regarding the verification of the selected counterparty in accordance with the transport agreement on its safety and reliability which is connected with requirements and rules of tax control;
- automated verification of potential counterparties for solvency.

In VLP modeling, three options are in its main module "Counterparty selection":

- counterparty selection for an application of cargo transportation and/ or special transport and the provision of a list of possible executors of his application;
- drawing up and providing the customer with a ranged list of possible counterparties on the basis of criteria selected by the customer;
- selection of the best variant of the counterparty for the customer by the considered transaction, taking into account all requirements of the logistics operation at predefined cost, duration, security level of the transaction, etc.

The variability of VLP final results will depend on the wishes of customers to receive one or another variant of the degree of automation of counter-

party selection maintaining the ability of users to get acquainted with all the offers and choosing a future partner, since in any variant of the implementation of the module "Counterparty selection", the mechanism of automated coordination and approval of the transaction is established. At the same time, this module has the function of refusing customers to provide their coordinates to possible application executors. The specified function automatically eliminates the need for managers of customer companies to "squeeze out" unwanted phone calls and e-mails.

At the beginning of the twentieth century, logistics began to coordinate in an integrated manner transitional areas of enterprises of various industries. Planning, regulation and control of material and information flows began to be carried out not only between units inside the enterprise, but also outside it. The increased involvement of suppliers and customers in the electronic information flow has started, based on the acceleration of integration processes and application of the concept of Supply Chain Management (SCM), implemented through Enterprise Resource Planning (ERP) in conjunction with Advanced Planning and Scheduling (APS) and Electronic Data Interchange (EDI). At the same time, the productivity of the entire logistics system increases, there takes place the optimization of processes and elimination of inefficiencies both inside and among the participants of the chain.

The further development of information and communication technologies makes possible the implementation of new logistic concepts with more dense information interaction inside and between enterprises. E-business involves the use of the Internet tools for the efficient organization of information exchange and communication, in particular for managing global networks and integrating end customers in business processes. However, the competitive advantages of using e-business concept will be profitable only if there are efficient logistics processes. E-logistics concept covers the strategic planning and development of logistics systems and processes necessary for e-business, as well as the processing of an administrative and operational component for their implementation (Koch, 2003).

Active integration processes that take place in the domestic market, as well as intensification of competition in commodity markets, necessitate the use of modern logistics approaches to the solution of important economic tasks. In this regard, the Ukrainian enterprises are forced to turn to the experience of modern euro-logistics, studying and using its latest trends.

Modern trends in the logistics development in Europe include the transformation of logistics companies into logistics operators (5PL providers) and in the future logistics integrators, that is, virtual logistics service providers. Such example of 5PL provider in the global logistics market is Contract Warehousing New Zealand Limited.

Contract Warehousing Group has gone a long way from the simple road transportation of the 70s of the last century to the provider of warehouse and logistics solutions (3PL) and supply chain management services (4PL) with an annual turnover of more than USD 3 million and more than 90 customers in New Zealand and Australia. In 2010, the company signed a contract with the largest Australian provider of transport and logistics software (TransLogix) on the introduction of a new software product (Integrated Sapphire Transport & Logistics Management Suite).

The modules purchased by the company for management of transport, warehouse, accounting and web-services allowed it to enter a new level of outsourcing. For example, on the basis of Sapphire Customer Web Portal module, the company provides its clients with a service to use the client's web-portal, where clients can independently: place orders and information on vacancies; track the status of orders; view quotation, confirmations of delivery, invoices and reports; track the amount of account balance; track the level of stocks and their movement; print invoices, reports and other documents (Contract Warehousing, 2018).

Today, there is a company the structure of which includes 4PL operator (Metro Cash & Carry) in the Ukrainian market of logistics services. In 2005, there was a tender for the logistic maintenance of METRO network. The winner was the German company (SCHENKER). It is a logistics provider of METRO in Russia and Poland. The company's operating standards in Eastern Europe were adopted in Ukraine as well.

Today, in Ukraine, there are several logistics companies, such as UBK, Raben Ukraine, SCHENKER, freight forwarding company ETI-TRANS Ltd., MarkExpress, RosUkrExpress, First Logistic Company LLC, freight forwarding company Logistics Technologies Ltd., Your Logistics Company, Ukrlogistics and Limco Logistics.

Since 2015, there has been a service center for optimizing transport logistics services in Ukraine. It is an analogue of 4PL provider (iLogist).

Transport logistics optimization of iLogist service center includes research and study of the current situation in the company, in particular:

- definition of cost areas and areas for increasing the efficiency of transport logistics management;
- development of measures aimed at eliminating problems and improving transportation processes;
- study on current principles of organization of the transport logistics system in the enterprise: volumes of transported cargoes, location of warehouses, directions, frequency of cargo flows, use of control automation systems (TMS, FMS) and traffic control systems (GPS).

If modern automated cargo traffic management systems are not used in the company, the development of recommendations is discussed for the implementation in accordance with the agreement or refinement of existing IT developments; analysis of efficiency indicators of existf ing transport logistics; detailed development of recommendations for optimization of the transport logistics system (updating of delivery routes, use of different kinds of transport, changes in volumes of consignments or frequency of deliveries, etc.); study of expediency of development of own cargo transportation system of the enterprise (including purchase of vehicles) or use of external methods of delivery of goods (outsourcing).

Studying and taking the world experience in the field of development, improvement and implementation of innovative logistics processes proves the growth of the role of outsourcing in modern logistics. Therefore, a similar tendency to increase this kind of providing can be expected in the near future.

CONCLUSION

Information and technological progress has opened new scope of logistics and has led to an innovative upgrade of logistic tools contributing to further strengthening and self-determination of logistics as an independent form of the economic activity. The answer to such economic development trends was the emergence of logistic intermediaries offering integrated logistics services to customers. Companies that provide integrated logistics services are called logistics operators or logistics service providers. The process of transferring logistics operations to an external counterparty (logistics operator) is one of the main logistics strategies. It is logistics outsourcing. Logistics outsourcing has certain advantages, but their implementation is associated with some problems and risks, for example, the issues of trust and interdependence of partners on outsourcing. Successful outsourcing projects demonstrate a high level of collaboration and the role of such aspects of interaction as trust and decency.

Globalization processes of the global economy lead to the need for a global management of logistics systems. In our opinion, the future of logistics is focused on combining separate IT logistics networks that together form the global logistics system. These trends contribute to the emergence of global logistics counterparties. They are 5PL providers, able to optimally configure and manage logistics processes at the inter-organizational level of supply chains, helping to minimize production and economic burdens. The transition option is to create or redirect existing subsidiaries to a new type of logistics activity with the transfer of all necessary powers to implement 5PL management. Thus, the management of their supply chains is carried out by the partner enterprises themselves.

As a result of the study, a foreign example of the application of the concept of 5PL provision by the New Zealand Company was described (Contract Warehousing New Zealand Limited), as well as the Ukrainian analogue of 4PL provider logistics system (iLogist). It is found that the activity of iLogist provider is focused on the design of logistics processes and the management of supply chains. The result achieved by iLogist shows that the concept of 4PL provision can be successfully implemented in practice. By introducing innovative technologies in business, in particular in the field of logistics, enterprises increase their competitiveness and expand their presence on the world market.

In the course of the research, a virtual logistics provider (VLP) project in the market of transport and logistics services is proposed. It is planned to increase the efficiency of logistic processes with the help of newly created VLP and due to algorithms and automation of communication and logistics business processes. The main issues within VLP competence are automation and ranking of available offers on the portals' websites; drafting of schedules of cargo transportation and routes of freight transport; automated drawing up and filling out application forms of forwarding documents, payment and account documents; ensuring reliability and safety of the virtual transport services market.

Thus, choosing the European vector of movement by the Ukrainian society, intensification of processes of transport and logistics services and introduction of innovative forms of providing in the field of logistics in combination with the Internet technologies will influence positively the economic development and make it competitive on the world market of logistics services.

REFERENCES

1. Amblar, S. (2016). Для успеха бизнеса e-commerce необходим единый провайдер [Dlya uspekha biznesa e-commerce neobkhodim edinyy provayder]. *Logistika, 2,* 14-17. Retrieved from http://www.logistika-prim.ru/articles/dlya-uspeha-biznesa-e-commerce-neobhodim-edinyy-provayder
2. Baumgarten, H. (2004). *Trends in der Logistik. Supply Chain Steuerung und Services Logistik-Dienstleister managen globale Netzwerke. Best Practices*. Springer-Verlag. Retrieved from https://www.springer.com/de/book/9783540443087
3. Canadian Association of Logistics Management (n.d.). Retrieved from http://www.btb.termiumplus.gc.ca/tpv2alpha/alpha-fra.html?lang=fra&i=1&index=alt&srchtxt=CANADIAN%20ASSOCIATION%20SUPPLY%20CHAIN%20LOGISTICS%20MANAGEMENT
4. Contract Warehousing & Logistics (n.d.). *Contract Warehousing: 5PL – the way of the future.* Retrieved from http://www.cwlnz.co.nz/latest-news/5pl---the-way-of-the-future
5. Dybskaya, V. V., Sergeev, V. I. (2012). Модели операционной деятельности логистических центров [Modeli operatsionnoy deyatelnosti logisticheskikh tsentrov]. *Logistika i upravlenie tsepiami postavok, 1,* 13-21. Retrieved from https://rucont.ru/file.ashx?guid=3e9ed908-66de-4e0d-b658-554aa2521d11
6. Ermakova, P. A. (2017). Виртуальные логистические провайдеры в системе классификации логистических операторов [Virtualnye logisticheskie provaydery v sisteme klassifikatsii logisticheskikh operatorov]. *Inzhenernyy vestnik Dona, 1.* Retrieved from ivdon.ru/ru/magazine/archive/n1y2017/3948.
7. Fulconis, F. Saglietto, L., & Paché, G. (2016). Exploring new competences in the logistics industry: the intermediation role of 4PL. *Supply Chain Forum: An International Journal. Taylor & Francis, 7*(2), 68-77. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/16258312.2006.11517170
8. Garver, M. S., & Mentzer, J. T. (1999). Logistics research methods: employing structural equation modeling to test for construct validity. *Journal of business logistics, 20*(1), 33-39. Retrieved from http://www.scirp.org/(S(vtj3fa45qm1ean45vvffcz55))/reference/ ReferencesPapers.aspx?ReferenceID=1927926
9. Hosie, P. et al. (2017). Determinants of fifth party logistics (5PL): service providers for supply chain management. *International Journal of Logistics Systems and Management, 3,* 287-316. Retrieved from http://ro.uow.edu.au/dubaipapers/188/
10. Inbound Logistics (2014). *Market Research: 3PL Perspectives 2014.* Retrieved from http: //www.inboundlogistics.com/cms/article/market-research-3pl-perspectives-2014/
11. Koch, J. (2003). Logistik im Wandel. Andersen; DEG; FAZ-Institut. Chancen in Emerging Markets Logistik Fokus Mitten und Osteuropa / Asien. *Frankfurt am Main,* 10-15.
12. Kryvoviaziuk, I., & Kulyk, Yu. (2013). Проблеми застосування інформаційних технологій в

управлінні логістичною системою підприємства [Problemy zastosuvannia informatsiinykh tekhnolohii v upravlinni lohistychnoiu systemoiu pidpryiemstva]. *Aktualni problemy ekonomiky.* Retrieved from http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21D BN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/ape_2013_12_35.pdf

13. Kumar, S., & Chia, A. (1996). Commercial Logistics vs. Military Logistics: A Conceptual Analysis. *Logistix Partners Oy, Helsinki, FI.* Retrieved from http://www.irma-international.org/viewtitle/62171/

14. Majewski, J. (2008). *Informatyka dla logistyki* (3rd ed.). ILiM: Poznnan. Retrieved from https://merlin.pl/informatyka-dla-logistyki-jerzy-majewski/2183767/

15. Malkus, T. (2002). Kryteria oceny outsourcingu uslug logistycznych. *Gospodarka Materialowa i Logistyka, 1,* 25-29. Retrieved from http://bazekon.icm.edu.pl/bazekon/element/bwmeta1. element.ekon-element-000000010293

16. Mate, E., & Tiksie, D. (1993). *Logistic support of the company's activity: first from fr.* Moscow: Progress.

17. Odrazhyi, O. O., & Lysenko, D. E. (2010). [Doslidzhennia PL-provaideriv v Ukraini. Problemy podhotovki professionalnikh kadrov po lohistyke v uslovyiakh hlobalnoi konkurentnoi sredy]. *Proceedings of VIII Межд. научно-практическая конференция [VIII Mezhd. nauchno-praktycheskaya konferentsiya]* (pp. 191-193). Kiev: NAU. Retrieved from http://er.nau.edu.ua/bitstream/NAU/18084/1/%D1%81%20%D0%9E%D0%B4%D1%80%D0%B0%D0%B6%D0%B8%D0%B9,%20%D0%9B%-D1%96%D1%81%D0%B5-%D0%BD%D0%BA%D0%BE.docx.

18. Skowronek, Cz., & Sarjusz-Wolski, Zd. (2008). *Logistyka w przedsiebiorstwie.* Warszawa: PWE. Retrieved from http://bazhum.muzhp.pl/media//files/Annales_Universitatis_Mariae_Curie_ Sklodowska_Sectio_H_Oeconomia-r2003-t37-s164-193.pdf

19. Strube, F., & Zadek, H. (2000). Mit E-Logistics zum End-to-End im E-Business. *Technologie und Management Jahrgang,* 24-28.

20. Struk, N. (2013). Забезпечення логістико-орієнтованого управління потоковими процесами на підприємствах АПК [Zabezpechennia lohistyko-oriientovanoho upravlinnia potokovymy protsesamy na pidpryiemstvakh APK]. *Ahrarna ekonomika*. Retrieved from http://irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis64.exe?C21COM=2-&I21DBN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/ae2013_6_1-2_21.pdf.

21. Tranchenko, L. V. (2015). Contemporary management models and their impact on enterprises economic efficiency. *Actual Problems of Economics, 7*(169), 454-464. Retrieved from http://irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/ape_2015_7_2.pdf