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LPI-ASSESSMENT OF OUTSOURCING OF LOGISTICS SERVICES IN THE AGRO-INDUSTRIAL COMPLEX OF UKRAINE

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Abstract

The article considers the types and functions of outsourcing of logistics services in the agro-industrial complex and the content of each level of the logistics concept of PL based on the International Classification. The article assesses the state and directions of attracting PL operators in the outsourcing services market in international and domestic practice, and systematizes the advantages and disadvantages of outsourcing for agro-industrial enterprises. It is proved that the degree of involvement of PL operators by enterprises depends on the level of development of the external logistics environment. It is proposed to use the Logistics Performance Index (LPI) to assess the level and prospects for the development of the outsourcing services market in the agro-industrial complex of Ukraine. The relationship between the quality of outsourcing services and the estimated indicators of LPI – "Customs", "Infrastructure", "International ships", "Logistics competence", "Tracking & tracing", "Timeliness" - is established. The identified problems of outsourcing logistics services in the agro-industrial complex of Ukraine and the reasons for their occurrence made it possible to structure the directions for improving all LPI components in the context of the prospects for delegating logistics functions to industry intermediaries.

Key words**:** *outsourcing, logistics services, agro-industrial complex, PL operators, Logistics Performance Index*

INTRODUCTION

The Fourth Industrial Revolution, which humanity is constantly striving for, involves the development and fusion of automated production, data exchange and production technologies into a single self-regulating system, with minimal or no human intervention in the production process. As Klaus Schwab, founder of the World Economic Forum in Davos, points out: "the latest technologies firmly connect the physical, digital and biological world. New business models are emerging, and production, consumption, transportation, and supply systems are being rebuilt. These changes – no more or less – are transforming humanity, so we need to learn how to manage them" [15]. This approach changes the quality of business process management of an individual enterprise and its relationships with counterparties, especially in the implementation of logistics functions. A professional approach to solving logistics problems actualizes the need to attract external operators to provide outsourcing services. This model ensures the transfer of non-core and highly specialized areas of customer activity to the existing business process and infrastructure of external companies, focusing on the implementation of a specialized type of activity in their enterprise.

The evolutionarily formed agro-industrial complex (AIC) of Ukraine is a consequence of integration intersectoral processes caused by the need to ensure organic unity between suppliers of material resources for agricultural production, direct production of crop and livestock products and interaction with processing enterprises and other service sectors that give agricultural products a

marketable appearance and bring them to the end user [18]. Accordingly, the agro-industrial complex includes agriculture and certain industries, which is a complex sociotechnical system and partial or complete delegation of logistics functions to professionals will allow forming an effective logistics chain [8]. The quality of outsourcing services in the agro-industrial complex of Ukraine depends on the level of development of the external logistics environment, which requires an adequate assessment of the relevant indicators and the search for ways to use the identified reserves.

MATERIALS AND METHODS

To achieve this goal, we solved the following tasks: based on the dialectical method of cognition of objective reality and using the comparison technique, to assess the efficiency of logistics in Ukraine in the context of qualitative assessment logistics components adopted by the World Bank methodology in the global rating. Criteria for making appropriate decisions on the prospects for the development of the outsourcing services market in the agro-industrial complex of Ukraine are based on the method of structuring problems in the context of logistics components and determining the causes of their occurrence based on a historical approach. Using the monographic method of studying the activities of PL operators in the agri-food market of Ukraine, an abstract-logical research method was used for theoretical generalizations of the results of scientific research and the formation of conclusions and suggestions.

RESULTS AND DISCUSSIONS

The current stage of logistics development is characterized by the development of outsourcing as a method of focusing enterprise resources on the main activity with the delegation of non-core functions to ensure the smooth operation of individual systems to specialized companies for a long time.

The functions of outsourcing logistics services are shown in Figure 1. In international practice, 73.7% of warehousing functions, 68.4% of external, 56.1% of internal and 38.6% of direct transportation, as well as 61.4% of cargo clearance/payments and 40.4% of cargo consolidation functions are outsourced [14]. The importance of logistics outsourcing in the development of the global economy is evidenced by the annual expenses of business entities for contract logistics in the amount of 120-140 billion euros.

Development of logistics infrastructure capabilities, as evidenced by the experience of European countries, has led to changes in the ways and forms of interaction between logistics entities and this made it possible to distribute network organizational forms of business, virtualization of logistics processes, the use of electronic document management, electronic payments, and so on. In international logistics terminology, it is usually customary to refer to companies that provide services for manufacturers, suppliers and sellers of goods with the abbreviation PL (Party Logistics), which literally translates as “logistics side”. The logistics concept determines the degree to which other companies are involved in the customer's supply chain of services in order to solve their business problems. Logistics service operators in the EU are divided into five types: 1PL, 2PL, 3PL, 4PL, 5PL [12]. The higher the PL level, the more logistics functions are delegated to intermediaries.

The 1PL concept, as a rule, is autonomous logistics, when the cargo owner provides the implementation of logistics functions of transportation, storage, cargo handling, with his own resources.

2PL (Second Party Logistics) is a form of primitive outsourcing that involves solving issues of transportation and technical inventory management based on contractual obligations with a third – party specialized company.

3PL (Third Party Logistics) is a more developed form of outsourcing, which involves expanding the standard list of services with non – standard ones, namely performing cargo handling, sorting, packaging or other manipulations with cargo that form added value. A characteristic feature of this stage is that the participation of transport and logistics companies is reduced to the high-

quality performance of a certain set of operations, and not the management of supply chains as a whole [10].

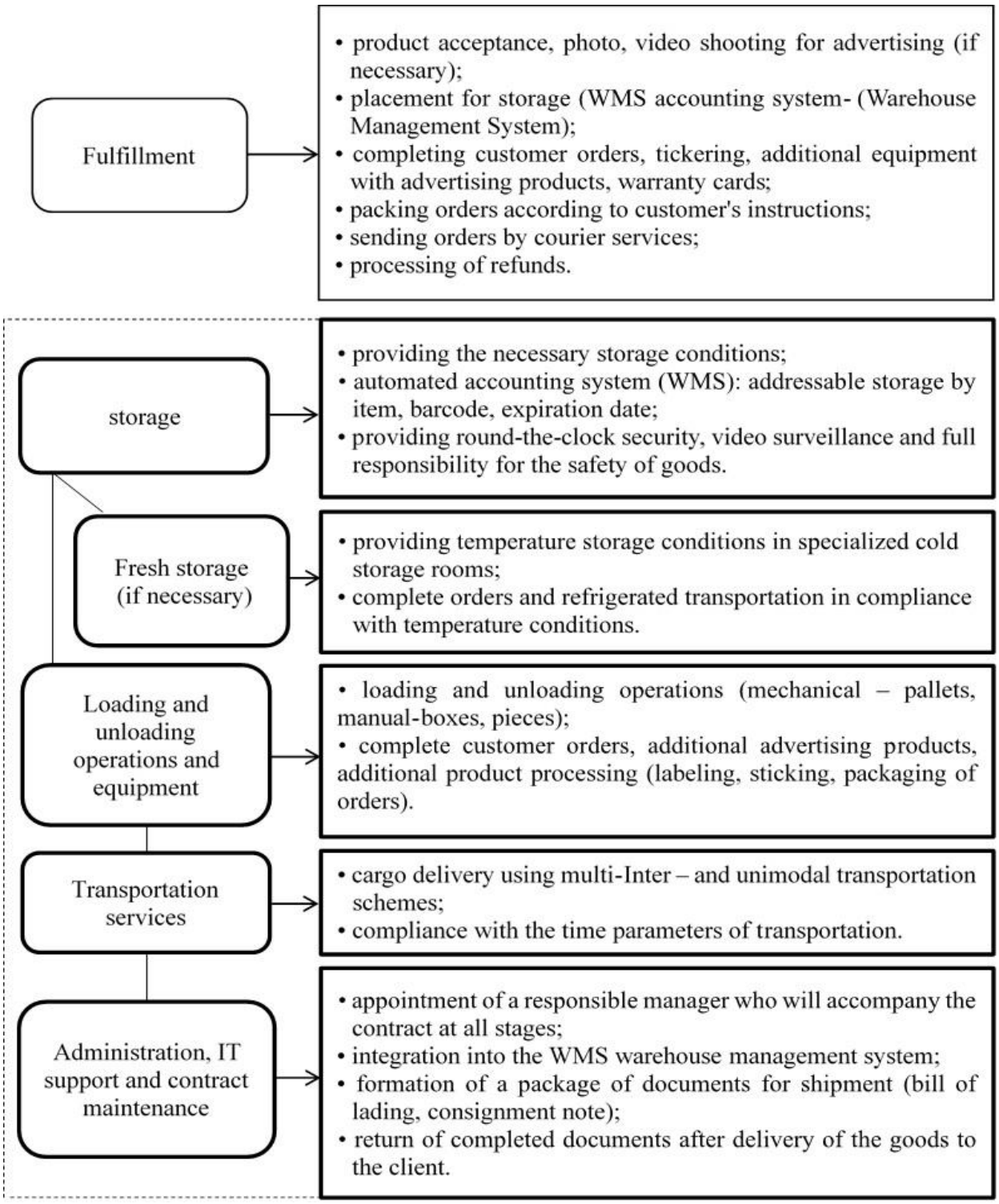

Fig.1. logistics service outsourcing functions.
Source: created by authors.

4PL (Fourth Party Logistics) – integration of all companies involved in the supply chain by an integrator company that accumulates its resources, capabilities and technologies with the potential of other, usually 3PL providers, to design and implement integrated supply chain management solutions. If the services of 3PL providers relate to the performance of tactical tasks of customers, then 4PL – strategic goals.

5Pl (Fifth Party Logistics) – the highest level of the conceptual model of logistics outsourcing, associated with the management of all components of a single cargo supply chain using modern network computer technologies. In fact, this is the orientation of the 4PL provider to a single virtual platform for performing a full range of logistics tasks using the global Internet. The 5PL concept is a strategic goal of Global Logistics, which is based on the creation of a single Logistics Information Network and takes time to implement.

The underdevelopment of logistics outsourcing in Ukraine is caused by the practical absence of 4PL and 5PL operators of logistics services. This determined the inefficient structure of services, in which 89% are transport services, 8% are storage services, and only 3% are forwarding and supply chain management [13, p. 138]. This indicates an underdeveloped institutional environment and an insufficient number of companies that provide the full range of logistics services, and are not limited only to transport and warehouse support for the movement of material flows. Creating a logistics service system at the expense of 4PL-and in the future 5pl-operators of logistics services is one of the ways to improve the efficiency of enterprises of the agro-industrial complex of Ukraine.

International experience in the development of logistics outsourcing in the agricultural market has shown the significant role of cooperatives in the implementation of logistics functions for agricultural enterprises. Thus, in the countries of the European Union, cooperatives engaged in the wholesale purchase of means of production with their subsequent supply to the farms of their members form the second largest group after the procurement, processing and Marketing Cooperatives of agricultural products themselves. In particular, in Finland, the Central Industry Supply Association of Finnish agricultural cooperation supplies agricultural producers with about 60% of the means of production [3, p. 11-12], including up to 40% of technical means and fuel [16, p. 67]. In Sweden, supply and sales activities account for about 30-35% of the total turnover of farmers ' cooperatives. Cooperatives supply the bulk of fertilizers, seeds, mixed feed, fuel and lubricants needed by farmers, 13% of tractors, 43% of combine harvesters, 35-60% of other land processing and harvesting equipment. In total, they provide about 60 % of the supply of means of production [17].

Polish, German, French and Dutch cooperatives have made significant progress in ensuring agricultural production. In Germany, they supply 36% of machinery and equipment, up to 40% of mixed feed, 44% of fuel, about 50% of fertilizers and feed. In France, two – thirds of grain seeds, about 50% of fertilizers and feed are supplied through cooperatives, and in the Netherlands, the share of cooperatives in the supply of equipment to farms is 75%, mixed feed-53%, mineral fertilizers and plant protection products-60 % [17]. Significant success in cooperation of logistics functions in agricultural production has also been achieved in the USA, Great Britain, Canada, Switzerland and this experience is worth of attention for study and use by Ukrainian enterprises.

In procurement logistics, the "*Make-or-Buy Problem*" method is widely used, which in the process of managing the supply of resources for the enterprise solves the problem of expediency of independent production of the necessary parts, components, etc.or purchasing them from external sources. By analogy, we will consider the motivation in favor of using outsourcing schemes for the enterprise, namely:

-the need for individual services is low, so it is not profitable to produce them independently from the point of view of using the scale effect;

-there is great flexibility in choosing the right service providers for the enterprise, which creates the advantages of a competitive environment for the consumer;

-the company does not have the necessary resources and capacities, as well as administrative or technical experience to implement non-core functions for the enterprise.

Outsourcing for an enterprise may not be appropriate if::

-the need for individual services is stable, predictable, and quite large;
-existing service providers cannot provide the necessary standards for the quality of services, or specific requirements of the customer;
-the company has the appropriate resource potential for independent implementation of the necessary functions.

The advantages of outsourcing are:

-more efficient use of financial resources and increased profitability indicators by focusing the company's efforts on the core business with delegation of non core functions;
-the implementation of the main activity increases the competitive position of the enterprise and allows you to use all the advantages of specialization of production;
-using the experience of an outsourcing company for the enterprise will provide flexibility in the scale of production, since if the production program increases/decreases, the enterprise will need to hire/fire employees, not to spend on their training, workplace equipment, pay additional taxes, compensation, and so on. For an outsourcing company an increase or decrease in the customer's production scale will only be accompanied by a review of the cost of providing outsourcing services;
-the outsourcing company specializes in a certain type of activity and serves a large number of enterprises, which allows it to perfectly navigate all current issues and use the accumulated experience;
-delegating individual functions will ensure their reliability and stability, since the outsourcing company is responsible for the work performed in accordance with the service agreement and current legislation.

The disadvantages of outsourcing include:

-the threat of leakage of confidential customer information to competitors regarding the specifics of the technology, production and sales program, etc.;
-the time lag between the order and its execution by an outsourcing company in the case of periodic cooperation is usually longer than the implementation of the necessary functions by their own efforts.

To assess the effectiveness of logistics outsourcing, the service consumer evaluates the future effect of cooperation in relation to the costs incurred to achieve it [9]. When choosing a logistics operator, the main evaluation criteria are the cost of logistics services and the efficiency of their provision, as well as the accuracy of order fulfillment. At the same time, these criteria should be considered systematically in interrelation and interdependence.

A comprehensive assessment of Ukraine's place in the international logistics system is reflected in an internationally recognized evaluation indicator-the logistics efficiency index (*Logistics Performance Index – LPI*) [5, 1]. Of course, the degree of involvement of PL operators by enterprises depends on the level of development of the external logistics environment, so we suggest using LPI to assess the prospects for the development of the outsourcing services market in the agro-industrial complex of Ukraine.

The index was developed and first implemented in 2007 by the World Bank's Department of international trade and transport, together with the Turku School of Economics (Finland). In addition, the index has been approved and supported by the International Federation of Freight Forwarders Associations (FIATA), the Global Facilitation Partnership for Transportation and Trade (GFP) and the Global Express Association (GEA). LPI is formed from 1 to 5 points by evaluating six indicators [5]: "*Customs*" – efficiency of cargo clearance at the border and customs; "*Infrastructure*"- quality of infrastructure support for transportation and trade; "*International shipments*" - ease of organization and affordability of international transportation; "*Logistics competence*" – competence and quality of providing logistics services; "*Tracking & tracing*" – the ability to choose routes and control traffic; "*Timeliness*" – compliance with time parameters of deliveries. The value of the country's LPI indicator indicates the level of development of its integrated logistics system. Most of the functions that generate these metrics are implemented by PL operators.

For all the time of international comparisons, LPI was calculated six times and according to the results of monitoring trends and the degree

of logistics development among 160 countries of the world, Ukraine took the 66th position in 2018 (Table 1).

The integrated logistics system of Ukraine is characterized by the development of the Tracking & tracing parameter, which is equal to 3.11 and determines its 56th place in the world ranking, as well as compliance with the time parameters of deliveries (3.42 or 56th place). The least developed parameters include the quality of trade and transport infrastructure, which for Ukraine is equal to 2.22, determining its 119th Place among the 160 countries of the world for which the LPI rating is calculated.

The rating of the most developed countries in terms of logistics is consistently headed by Germany, where the final LPI value in 2018 was 4.20 points. Germany was the best country in the rating in three indicators – Customs (4.09 points), Infrastructure (4.37 points) and Logistics competence (4.31 points). The top five most logistically developed countries in 2018 also included Switzerland (LPI = 4.05 points), Belgium (4.04 points), Austria (4.03 points) and Japan (4.05 points). But in some indicators, these countries are ahead of others that are lower in the rating. For example, Finland, although ranked 10th in the global LPI, ranks first in the world in terms of Tracking & tracing (4.32), ahead of its closest competitor, Germany, by 0.08 points. The United Arab Emirates is only 0.01 points behind Germany in terms of Timeliness (4.38), but at the same time it is on the 11th place in the overall LPI rating.

Table 1. Rating assessment of Ukraine by the LPI index

Rating indicators		2007	2010	2012	2014	2016	2018
Logistic Performance Index (LPI)	place	73	102	66	61	80	66
	index	*2.55*	*2.57*	*2.85*	*2.98*	*2.74*	*2.83*
Customs	place	97	135	88	69	116	89
	index	*2.22*	*2.02*	*2.41*	*2.69*	*2.3*	*2.49*
Infrastructure	place	74	79	70	71	84	119
	index	*2.35*	*2.44*	*2.69*	*2.65*	*2.49*	*2.22*
International shipments	place	83	84	83	67	95	68
	index	*2.53*	*2.79*	*2.72*	*2.95*	*2.59*	*2.83*
Logistics competence	place	90	77	61	72	95	61
	index	*2.41*	*2.59*	*2.85*	*2.84*	*2.55*	*2.84*
Tracking & tracing	place	80	112	50	45	61	52
	index	*2.53*	*2.49*	*3.15*	*3.2*	*2.96*	*3.11*
Timeliness	place	55	114	68	52	54	56
	index	*3.31*	*3.06*	*3.31*	*3.51*	*3.51*	*3.42*

Source: Prepared by the authors based on [11].

Integrated assessment of the functioning of logistics chains, evaluated in the context of all components (Customs, Infrastructure, International shipments, Logistics Competence, Tracking & tracing, Timeliness), is the basis for using the corresponding reserves. To do this, Table 2 systematizes the problems of logistics outsourcing development in the agro-industrial complex of Ukraine.

Ukraine, exporting grain to more than 100 countries and providing more than 150 million people with relevant food products, is among the top 5 global grain exporters. In particular, in 2014, Ukraine ranked second among the world's countries in terms of grain and processed products exports, second only to the United States, and the domestic agro-industrial complex came out on top in terms of foreign exchange earnings to the state budget, ahead of the traditionally export-oriented metallurgical industry. In the world ranking, Ukraine ranked second after the United States in terms of grain and processed products exports in 2014, and in terms of foreign exchange earnings to the state budget, the domestic agro-industrial complex took first place, ahead of the export-oriented

metallurgical industry. The growth in the volume of grain exports and processed products from 33.4 million tons in 2014 to 42.9 million tons in 2018 [2, p.39] was caused by the positive dynamics of grain production from 63.9 million tons of grain and leguminous crops in 2014, up to 70.1 million tons. tons in 2018. Positive trends are also typical for the export of sugar (from 40 thousand tons in 2014 to 594 thousand tons in 2018), oil (from 4.5 million tons in 2014 to 6.0 million tons in 2018) [2, p. 42], vegetables (from 294 thousand tons in 2014 to 434 thousand tons in 2018) [2, p. 40], poultry products, etc. These data indicate a significant burden on customs and the attractiveness, given the scale, of providing outsourcing services to PL operators.

Table 2. Systematization of problems of logistics outsourcing development in Ukraine by LPI component

Logistics outsourcing functions	Main problems
Customs	
Customs broker services: ✓ preliminary calculation of the cost of export-import of cargo; ✓ registration of all documents required for customs formalities; ✓ making customs payments; ✓ legal support of foreign economic activity.	✓ bureaucratic barriers; ✓ inconsistency of Foreign Economic Policy (frequent changes in legislation and ambiguity of its interpretation); ✓ selective approach to various participants in foreign economic activity; ✓ slow work of Customs and border authorities.
Infrastructure	
✓ cargo handling (loading and unloading operations, order completion, etc .); ✓ storage (including fresh storage); ✓ transportation; ✓ IT support	✓ insufficient quantity and capacity of trade and transport infrastructure; ✓ obsolescence and physical deterioration of infrastructure facilities and vehicles.
International shipments	
✓ documentary support of cargo transportation; ✓ information support of product flows; ✓ organization of container transportation	✓ bureaucratization of licensing procedures; ✓ high transaction costs.
Logistics competence	
✓ implementation of functions at all stages of moving the material flow through logistics chains; ✓ administration, IT support, and contract maintenance.	✓ insufficient competence and awareness of transport operators and Customs Brokers; ✓ underdevelopment of logistics outsourcing.
Tracking & tracing	
✓ transportation; ✓ IT support.	✓ it is possible that the existing route does not correspond to the actual possibilities of its operation; ✓ availability of places on the territory of Ukraine where there is no technical possibility of cargo tracking.
Timeliness	
✓ cargo handling (loading and unloading operations, order completion, etc .); ✓ transportation.	✓ violation of delivery deadlines.

Source: created by authors.

The customs parameter, which evaluates the speed, simplicity and predictability of the cargo clearance process for the work of Customs and border authorities, is quite low in Ukraine (2.49 in 2018), which determines its 89th place in the global LPI rating. The main problems are the significant bureaucratization of Customs and licensing procedures, the lack of a clearly defined strategy for implementing the State Foreign Economic Policy, and a selective approach to individual subjects of foreign economic relations in terms of granting personalized permits, priority refund of Value-Added Tax, unjustified provision of quotas, preferences, etc. Many foreign companies that wanted to carry out their activities in Ukraine were forced to abandon their intentions precisely after independent contacts with Customs and border authorities. Imperfect legislation,

which is manifested in the absence of bylaws on licensing procedures, causes corruption risks that increase the cost of providing outsourcing services. To combat corruption in the licensing system of Ukraine, it is necessary to reform the public administration system and distance it from business, as well as improve the efficiency of the newly created anti-corruption bodies and activate public control over the activities of customs authorities.

In the global LPI rating, Ukraine ranks 119th in terms of the quality of trade and transport infrastructure, which is the least developed component of domestic logistics (Table 1). At the same time, this component is most attractive for PL operators in the process of implementing logistics functions.

A characteristic feature for Ukraine is unsatisfactory quantitative and qualitative parameters of existing vehicles and infrastructure facilities. For example, at the beginning of 2018, out of the existing 14.5 thousand grain wagons (Hoppers), only 84% were in satisfactory working condition, because their average age was approximately 26.4 years. The mobile hopper fleet in Ukraine is one of the weakest links in grain logistics, which limits the development parameters of other elements of the logistics system, since it satisfies only 50-60% of agricultural traders' request. For full-fledged grain transshipment by rail, at least 22 thousand hoppers are needed, this forces traders to use Road Transport for Port grain transshipment during peak periods, and this increases transport costs of transporting a ton of grain from $ 10 to $ 41.3 [7].

The Infrastructure indicator is also affected by the obsolescence of infrastructure facilities in Ukraine that were built during back in Soviet times [6]. This explains their physical wear and tear and obsolescence, which hinder the development of logistics systems in Ukraine, while reducing the export and transit parameters of cargo flows. For example, in the grain market, most grain elevators use floor-standing grain storage technology (54%) compared to tower grain storage technology (46%). Enterprises with predominantly floor-standing storage tanks can provide much lower shipment intensity than enterprises equipped with vertical silo tanks. In general, at high-power grain elevators in Ukraine, the average speed of loading grain into railway cars is approximately 12 cars per day, which is 4.5 times lower than the optimal speed (54 cars). The problem of cargo handling at Grain Elevators is complicated by the lack of modern receiving devices that are not able to serve heavy-duty grain carriers, which increases the harvesting time.

In Ukraine, the width of railway tracks is wider compared to European countries and is 1520 mm against 1435 mm., which creates significant barriers to transit transportation, since at the border cars need to either be overloaded or change wheelsets. This increases transportation time and costs by addressing additional organizational and technological issues.

Adaptation of railway tracks to European standards is hindered due to:

(i)lack of locomotives and railcars for the width of European rails, as well as other infrastructure facilities for servicing railway rolling stock in Ukraine;

(ii)limited train speed due to the use of 25-meter rails, which are monopolistically manufactured at the Azovstal iron and steel works, while the average length of the European rail is 100 meters.

The country's attractiveness for transit traffic is largely determined by the international shipments indicator, which for Ukraine is 2.83, determining its 68th place in the global LPI rating.

The ease of organizing international transportation at competitive prices is significantly hindered by the bureaucratization of licensing procedures. Against the background of the corruption of the licensing and control system in Ukraine, legislative contradictions and the low level of awareness of international transportation operators, transaction costs for organizing transportation are significantly increasing. To simplify transit through the country's territory in modern realities, it is advisable to transfer the vast majority of logistics functions to Ukrainian PL operators. However, in the future, the current situation requires

simplification of licensing procedures and increasing their transparency for foreign transit, organization of Call centers to form an appropriate information field, as well as activation of container transportation.

For Ukraine, as a grain exporter and a powerful international transit country, container transportation is extremely relevant and qualitative changes are already noticeable in this direction. In particular, according to the results of 2018, Ukrainian seaports handled 846.5 thousand TEU of container cargo, which is 18.7% more than in the previous year. The ports of Odesa, Pivdennyi and Chornomorsk became the leaders in container transshipment, while the Port of Pivdennyi increased container cargo transshipment in 2018 by 75%, and the port of Odessa – by 15%.

Insufficient competence of transport operators and Customs Brokers, complicated by the underdevelopment of logistics outsourcing in the country, determined the 61st place of Ukraine in the global rating according to Logistics competence. The reason for the decline in this component of LPI is the lack of effective training programs and trainings adapted to global requirements. The imperfection of educational services and the lack of effective advanced training programs and trainings, as well as the lack of adaptation of the knowledge of Ukrainian specialists to global requirements, significantly reduce this component of LPI.

The ability to set routes and track the passage of goods (Tracking & tracing) is the most developed component and determines the 56th place of Ukraine in the global rating. It should be noted that the presence of a road track on the map, especially in rural areas, does not always correspond to the possibilities of using it due to the state of emergency. We see the solution to these problems in ensuring high-quality repairs of roads and transport infrastructure, improving cartography and communication systems.

The use of special systems for Transport Management is becoming relevant for logistics operators, which will allow them to quickly solve their production tasks, as well as optimize growing costs. The implementation of TMS (Transport Management System) helps to move cargo much more efficiently, and in combination with the warehouse management system (“WMS (Warehouse Management system) Logistics. Warehouse management”) you can get a full-fledged supply chain management system, which encourage further cost reductions and reduce the inefficiency of the company as a whole. WMS automates and optimizes warehouse processes at the enterprise with an accuracy of 99.5%, and allows you to reduce the number of staff required by 30% and increase the warehouse capacity by 10-15%.

In the practical activities of national agro-industrial companies and in the food distribution system for logistics and transportation, the following software products are popular:

(1)Antor LogisticsMaster, which has a mobile version of the service on the Ukrainian market and is called ASTOR: TMS (users: Cash & Carry, The Coca Cola Company, Groupe Danone, Nestle S.A., Global Spirits (TM “Khortytsia"), "Slavutych", etc.);

(2)MapXPlus Distribution, which monitors the operation of vehicles using GPS/GLONASS (users: “Nebesna Krynytsia”, “Heineken N. V.", "Royal Canin”, “Ukrsoyuz”, “Danone Ukraine”, “Rud”, “Lactalis-Ukraine”, "Galnaftogaz", etc.);

(3)Logist.ua, which includes enterprise transport planning, GPS monitoring and management functions (users: "Kuehne + Nagel Ltd.", "Agromars" (TM "Gavrylov’s chickens"), Acme Color, etc.) [7].

In addition, the Ukrainian market uses such software products as 1C BIT, which can be integrated with standard configurations of the 1C: Enterprise 8 platform (“Trade Management", "Integrated Automation" and” Production Enterprise Management"), as well as Rational Logistics, which is used by more than 50 companies. Individualization of software products is provided on the basis of outsourcing services of IT companies. Of course, the active use and implementation of new software products can significantly improve the Tracking & tracing indicator of

the global LPI index, which is facilitated by the powerful IT sector of Ukraine.

Another indicator of the LPI rating is Timeliness, according to which Ukraine is on the 56th place in the world ranking (Table 1). This indicator is determined by subjective (human factor) and objective organizational and technical reasons. Inconsistency of actions between elements of the logistics chain (insufficient organization of Integrated Systems) [4] is particularly critical for the logistics of milk, dairy products and other food products that quickly deteriorate and require special temperature storage conditions.

CONCLUSIONS

Thus, the experience of Europe has that with qualitative changes in logistics systems, modern management methods based on the PL concept are being updated. This concept is based on the degree of involvement of other companies to solve the business problems of the service customer. For the effective functioning of the Ukrainian agro-industrial complex, priority should be given to the development of 4PL–, and in the future- 5PL-logistics service operators. In the development of 4PL-and in the future 5PL-operators of logistics services, which are practically absent in Ukraine, we see a way to improve the efficiency of the functioning of agricultural enterprises.

The degree of involvement of PL operators by enterprises depends on the level of development of the external logistics environment, so we suggest using the Logistics Performance Index (LPI) to assess the prospects for the development of the outsourcing services market in the agro – industrial complex of Ukraine.

The LPI methodology developed and implemented by the World Bank takes into account the assessment of six indicators: “Customs”; “Infrastructure”; “International ships”; “Logistics competence”; “Tracking & tracing”; “Timeliness”. At the same time, there is a direct proportional relationship between the country's LPI indicator and its integrated logistics system. The LPI Rating study covers 160 countries, among which in Ukraine the most developed components are “Tracking & tracing” and “Timeliness”, and the least developed – the quality of trade and transport infrastructure (parameter “Infrastructure”).

The identified problems and the reasons for their occurrence made it possible to structure the main directions for improving all components of the global index, as the proposed basis for assessing the level of PL, which will help improve the efficiency of outsourcing logistics services in the agro-industrial complex of Ukraine.

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