

**MANAGEMENT OF LOGISTICS ACTIVITIES AS A MECHANISM  
FOR PROVIDING SUSTAINABLE DEVELOPMENT  
OF ENTERPRISES IN THE DIGITAL ECONOMY**

*Yuliya Zaloznova and Nataliia Trushkina*

**Abstract.** In today's conditions of dynamic development of the digital economy, the problems of management of logistics activities of enterprises are actualized. There are such problems as the problems of effective use of material resources, improvement of management of warehouse economy, production and commodity stocks, transport streams and marketing activity and improvement of quality of logistic service. Comparative analysis of the dynamics of indicators of logistic activity of business entities in Ukraine and the EU countries is performed. Features are investigated and modern trends in the development of logistic activities of Ukrainian enterprises are determined. It is established that there are many risks in organization of logistics activities of enterprises that are conditionally classified into 2 groups: exogenous (political, institutional, market, financial, environmental) and endogenous (associated with the processes of logistics, inventory formation, economic, transport, marketing, information). International experience of strategic management of logistic activities of enterprises is analyzed and summarized. Strategic lines of improvement of management of logistic activities of enterprises are defined, taking into account international best practices, which include logistics management, inventory management, process management, customer service, managing sales activity, pricing improvement, formation of transport-logistic system, information support of the process of the logistic activities through the use of modern digital technologies and logistic concepts. Implementation of the above-mentioned measures will help to increase the level of competitiveness and sustainable development of business entities as a result of reducing the cost of organizing the logistic activities of enterprises, and to minimize the risks and losses from the acquisition of low-quality material resources, downtime of transport, late delivery of products to consumers and payment for shipped products.

**Keywords:** management of logistic activities, mechanism, sustainable development, enterprise, digital economy, strategic lines, efficiency

**JEL Classification:** L10, L81, L91, M11, R40

**Author(s):****Yuliya Zaloznova**

*Institute of Industrial Economics of the National Academy of Sciences of Ukraine, 2 Marii Kapnist Street, Kyiv, Ukraine, 03057*

*E-mail: zaloznova.iep@gmail.com*

<https://orcid.org/0000-0003-3106-1490>

**Nataliia Trushkina**

*Institute of Industrial Economics of the National Academy of Sciences of Ukraine, 2 Marii Kapnist Street, Kyiv, Ukraine, 03057*

*E-mail: trushkina@nas.gov.ua*

<https://orcid.org/0000-0002-6741-7738>

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## 1. Introduction

In order to improve the competitiveness, business entities should organize their logistics activities so that they could minimize the level of risks, losses and costs of logistics, production, inventory formation, customer service, transportation and marketing of finished products, as well as maximize profitability of its implementation.

Therefore, at present time the enterprises have to move on to qualitatively new technologies that can provide a level of service that meets the high demand and needs of consumers while at the same time maximizing possible costs. The key task of enterprises is to create an effective logistics information system capable of flexibly responding to changing market conditions.

Based on this, it is necessary to further develop the theoretical provisions and practical recommendations for improving the management of logistic activities of business entities in a global digital transformation of economic processes.

## 2. Literature review

A significant number of scientific works are devoted to the conceptual framework, scientific and methodological approaches, and practical recommendations to improve the efficiency of management of logistic activities of enterprises of various industries.

As the analysis of international scientific sources on logistics shows, the scientists paid much attention to the justification and the development of:

- logistic model of distribution (Boom, 2007);
- proposals for improvement of supply chain management (Huemer, 2006; Barratt & Whitehead, 2008);
- methodological approaches to determine the optimum volume of the delivery batch (Schreibfeder, 2006);
- measures to improve the level of service and customer service (Gunasekaran, 2005; Payne, 2005; Kotler, 2006; Lamben, 2007; Souitaris & Balabanis, 2007; Wallenburg, 2008);
- methodical approach to calculation of indicators of efficiency and productivity of customer service (Oke et al., 2007);
- concepts, optimization models and supply chain management strategies (Beresford et al., 2005; Harrison & Hauck, 2007; Sander & Shechter, 2008; Blaik, 2010; Murphy & Wood, 2017; Bowersox & Closs, 2017);
- scientific and methodological bases of risk management of enterprises, practical tools to determine the logistic risk under conditions of uncertainty and the use of risk management in the management of logistic systems of enterprises in order to optimize the process of rational decision-making (Damodaran, 2008; Fuchs & Wohinz, 2009; Andersen & Schreder, 2010; Crouhy et al., 2012);
- sustainable development (Amosha et al., 2016; Głowski & Kvilinskyi, 2017; Kharazishvili et al., 2016; Kvilinskyi et al., 2017; Laiko, O.; & Kwiliński, 2017; Lakhno et al., 2018; Payonk et al., 2015; Pajak et al., 2016; 2017; Yakubovskiy et al., 2017; Zaloznova et al., 2018);
- tools and methods of accounting of warehouse operations using automated, and information and communication technologies (Frazelle, 2013; Kwilinski, 2017; 2018a; 2018b; 2018c).

However, despite such close attention to the identified problems on the part of scientists, it remains relevant to conduct research in the line of improving the management of logistic activities of enterprises, which must meet modern requirements of management in the context of globalization and European integration.

Thus, the goal of this research is to determine the strategic lines of improving the management of logistic activities of enterprises in the conditions of the global digital economy.

### 3. Methodology

As the World Bank studies show, in 2016 Ukraine took the 80<sup>th</sup> place among 160 countries in the ranking of Logistics Performance Index (LPI). Moreover, according to the criterion of "Efficiency of Customs Clearance" Ukraine took the 116<sup>th</sup> place, "Infrastructure Quality" – the 84<sup>th</sup>, "Ease of Arranging International Shipments" and "Quality and Competence of Logistics Services" – the 95<sup>th</sup>, "Tracking the Passage of Goods" – the 61<sup>st</sup>, "Promptness of Supply of Goods" – the 54<sup>th</sup> place among 160 countries in the world (Connecting to Compete 2016: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators, 2016). In 2017 in the ranking of global competitiveness prepared by the World Economic Forum in terms of "Infrastructure Quality", Ukraine took the 88<sup>th</sup> place among 137 countries of the world, including in terms of "Quality of Roads" – the 130<sup>th</sup>, "Quality of Port Infrastructure" – the 93<sup>rd</sup>, "Quality of Air Transport Infrastructure" – the 92<sup>nd</sup>, "Quality of Railway Infrastructure" – the 37<sup>th</sup> place (The Global Competitiveness Report, 2018).

According to experts, the low efficiency of logistic activities in Ukraine is connected with unreasonably high levels of port tariffs and fees (<https://comments.ua/money/595535-ukrainskaya-logistika-okazalas.html>). As the experts state, Ukrzaliznytsia meets the logistic needs of the industry only by 10-30% (Vikhrov, 2017).

On the basis of the analysis and generalization of statistical data, the tendencies and features of development of logistic activity of the enterprises in Ukraine are determined.

The ratio of sales and production of enterprises for 2012-2017 increased from 1.72 to 1.79 times. It is shown in *Table 1*.

**Table 1.** Dynamics of volumes of the sold and produced goods of enterprises

Years	Volume of the sold products, million UAH	Volume of produced goods, million UAH	Ratio, times
2012	4459818.8	2593346.7	1.72
2013	4334453.1	2468790.2	1.76
2014	4459702.2	2723971.2	1.64
2015	5716431.0	3215287.9	1.78
2016	6877077.3	3884617.6	1.77
2017	7797918.0	4367087.1	1.79

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2012-2017).

Excess of production costs over value added: in 2012 by 2.05 times, in 2017 by 1.52 times, is shown in *Table 2*.

**Table 2.** Dynamics of production costs and added value of enterprises

Years	Costs for production of goods, million UAH	Value added, million UAH	Ratio, times
2012	2077904.1	1015503.5	2.05
2013	1984065.5	977145.0	2.03
2014	1952582.8	1234090.1	1.58
2015	2434303.8	1329264.5	1.83
2016	2759943.0	1702670.5	1.62
2017	2986258.3	1969138.4	1.52

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2012-2017).

Increase in the ratio of sales and operating costs of enterprises from 1.52 to 1.67 times and the volume of sales and production costs from 2.15 to 2.61 times are shown in *Table 3*.

**Table 3.** Dynamics of sales volumes and operating expenses of enterprises

Years	Volume of sold products, million UAH	Costs of operating activity, million UAH	Ratio, times
2012	4459818.8	2938536.6	1.52
2013	4334453.1	2790647.9	1.55
2014	4459702.2	3296514.5	1.35
2015	5716431.0	4149202.2	1.38
2016	6877077.3	4258442.3	1.61
2017	7797918.0	4664271.9	1.67

Source: [Information and statistical materials of the State Statistics Service of Ukraine for 2012-2017].

Growth of profitability of operations for the years 2010-2017 by 6.1% is shown in *Table 4*.

**Table 4.** Dynamics of profitability level of operating activities of enterprises

Years	On average over Ukraine, %	Including main lines of business, %			
		Agriculture	Industry	Wholesale and retail trade	Transport, warehousing, postal and courier activities
2010	4.0	22.9	3.5	9.8	5.6
2011	5.9	23.2	4.7	15.0	6.1
2012	5.0	21.7	3.4	12.2	5.4
2013	3.9	11.3	3.0	10.2	3.5
2014	-4.1	20.6	1.6	-12.8	-1.7
2015	1.0	41.7	0.9	-0.9	1.1
2016	7.4	32.4	4.2	15.8	5.1
2017	10.1	3.8	8.3	25.9	6.6

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Decrease in the total volume of cargo transportation in 2010-2017 by 15.8% is the result of the 46.8% reduction in the volume of shipment by water transport – by 46.8%, by pipeline – by 25.2%, by railway transport – by 21.5%. Increase in the volume of cargo transportation by road is 11%; volume of cargo transportation by air remained unchanged. The results are shown in *Table 5*.

**Table 5.** Dynamics of the volume of cargo transportation in Ukraine by means of transport

Years	Total volume, million tonnes	Including by means of transport, million tonnes				
		railways	road	pipeline	water	air
2010	755.3	432.5	158.2	153.4	11.1	0.1
2011	811.7	468.4	178.3	155.0	9.9	0.1
2012	772.8	457.5	179.0	128.4	7.8	0.1
2013	757.6	441.8	183.5	125.9	6.3	0.1
2014	671.2	387.0	178.4	99.7	6.0	0.1
2015	601.0	350.0	147.3	97.2	6.4	0.1
2016	624.5	344.1	166.9	106.7	6.7	0.1
2017	635.9	339.5	175.6	114.8	5.9	0.1

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Increase in the share of cargo transportation by road is 6.7% of the total Ukrainian volume of shipments (from 20.9 to 27.6%); decrease in railway cargo transportation is 3.9% (from 57.3 to 53.4%), pipeline – 2.2% (from 20.3 to 18.1%), water – 0.6% (from 1.5 to 0.9%). Percentage of cargo transportation by air is insignificant and has remained unchanged in recent years.

Decrease of total cargo turnover is 15.2% due to decrease of water transport cargo turnover by 52.8%, aviation – by 27.9%, pipeline – by 23.8%, railway – by 12%. Increase in freight turnover of road transport is 6.4%. It is shown in *Table 6*.

**Table 6.** Dynamics of cargo turnover in Ukraine by means of transport

Years	Cargo turnover, million tkm	Including by means of transport, million tkm				
		railways	road	pipeline	water	air
2010	404572.9	218037.6	38697.2	138445.4	9014.5	378.2
2011	426427.7	243556.4	38438.9	136700.4	7365.2	366.8
2012	394648.1	237274.6	39194.1	112505.1	5324.8	349.5
2013	379045.0	224017.8	40487.2	109651.8	4615.2	273.0
2014	335151.7	209634.3	37764.2	82050.9	5462.3	240.0
2015	315341.8	194321.6	34431.1	80944.1	5434.1	210.9
2016	323473.9	187215.0	37654.9	94378.9	3998.6	225.9
2017	343057.1	191914.1	41178.8	105434.1	4257.1	272.7

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Increase in the share of cargo turnover of road transport in the General Ukrainian Cargo Turnover is 2.4% (from 9.6 to 12%); railway – 2% (from 53.9 to 55.9%); reduction in pipeline cargo turnover is 3.5% (from 34.2 to 30.7%); water – 1% (from 2.2 to 1.2%). The share of air transport cargo turnover is insignificant and amounted to almost 0.1% in 2017.

Growth of wholesale trade turnover of enterprises in comparable prices for 2012-2017 is 67.1%, of retail trade – 14.5%, volumes of retail turnover of enterprises – 53.3%. It is shown in *Table 7*.

**Table 7.** Dynamics of volume of wholesale and retail turnover of enterprises

Years	Wholesale turnover, million UAH		Retail trade turnover, million UAH		Retail trade turnover, million UAH	
	actual prices	comparable prices	actual prices	comparable prices	actual prices	comparable prices
2012	1076572.9	1111014.3	767026.0	668723.6	405114.0	360742.7
2013	1057768.0	1086004.1	838230.1	771850.9	433081.0	408181.9
2014	987957.0	1203358.1	901923.7	990037.0	438343.0	487047.8
2015	1178887.1	1342696.0	1018778.2	1284714.0	487558.0	607927.7
2016	1555965.7	1486118.1	1175319.2	1126864.0	555975.0	532033.5
2017	1908670.6	1856683.5	815344.3	765581.5	586330.1	553141.6

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2012-2017).

Reduction of export volumes of transport services for 2010-2017 is 23.5% as a result of reduction of railway transport export volumes by 60.8%, sea transport – by 45.4%, pipeline – by 10.7%, air transport – by 6.4%; increase in exports of services by road is 8.4%. The results are shown in *Table 8*.

**Table 8.** Dynamics of export volumes of transport services, million USD

Years	Total volume of export	Including by means of transport				
		sea	air	railway	road	pipeline
2010	7662.9	1120.5	1166.3	1481.0	252.5	3357.7
2011	8848.1	1104.6	1481.8	1772.9	391.9	3755.0
2012	8287.1	1099.4	1485.1	1574.3	447.3	3247.3
2013	7981.8	1022.3	1299.1	1531.9	438.9	3329.0
2014	6101.9	850.9	1071.3	1098.8	459.6	2207.9
2015	5263.2	735.9	853.6	751.3	249.1	2258.0
2016	5300.5	661.6	882.8	561.1	237.9	2630.7
2017	5861.4	612.1	1091.8	580.9	273.8	2998.2

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Growth of the share of export of services by pipeline transport is 7.4% (from 43.8 to 51.2%) of the total Ukrainian volume of exports of transport services; air – by 3.4% or from 15.2 to 18.6%; road – by 1.4% or from 3.3 to 4.7%; reduction in the share of railway service exports is

9.4% or from 19.3 to 9.9%; by sea – by 4.2% or from 14.6 to 10.4% of total exports of transport services.

Increase in the total volume of imports of transport services is 4.1% based on the growth of imports of services by pipeline by 132.8 times, by sea – by 71.9%, by road – by 22.6%, by air – by 1.1%; decrease in imports of services by railroad is 35.7%. The results are shown in *Table 9*.

**Table 9.** Dynamics of import volumes of transport services, million USD

Years	Total volume of import	Including by means of transport				
		sea	air	railway	road	pipeline
2010	1164.9	129.6	447.6	463.3	108.3	0.6
2011	1581.5	137.4	685.9	599.7	141.2	0.5
2012	1713.5	196.4	635.9	641.9	193.6	0.9
2013	1689.8	187.8	628.3	626.3	194.9	3.5
2014	1376.6	243.7	431.0	431.3	189.8	52.6
2015	1153.4	191.7	466.9	287.0	91.8	98.1
2016	989.3	141.2	357.5	259.9	114.9	87.2
2017	1213.1	222.8	452.4	297.7	132.8	79.7

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Increase in the share of imports of sea transport services is 7.3% (from 11.1 to 18.4%) of total imports of transport services, pipeline – by 6.5% (from 0.1 to 6.6%), road – by 1.6% (from 9.3 to 10.9%) and by railroad; reduction is 15.3% (from 39.8 to 24.5%), air – by 1.1% (from 38.4 to 37.3%).

Reduction of the balance of export-import operations in the transport sector for 2010-2017 is 28.5% or from 6498 to 4648.3 million USD. Reduction of the ratio of exports and imports of transport services: if in 2010 this figure was 6.58 times, in 2017 it was 4.83 times.

Increase in the total volume of exports of services for processing of material resources for 2010-2017 is 37.7% due to the growth of exports of services for processing of goods for sale in the international markets by 46.3%. It is shown in *Table 10*.

**Table 10.** Dynamics of export volumes of services for processing of material resources

Years	Export volume, thousand USD	Of which services for the processing of goods for sale			
		in the Ukrainian market		abroad	
		thousand USD	%	thousand USD	%
2010	1030658.9	74167.4	7.2	956491.5	92.8
2011	1445719.8	120255.0	8.3	1325464.8	91.7
2012	1577828.2	89340.2	5.7	1488488.0	94.3
2013	1722083.1	15256.0	0.9	1706827.1	99.1
2014	1334394.1	18695.3	1.4	1315698.8	98.6
2015	1078345.1	18892.4	1.8	1059452.7	98.2
2016	1125705.2	8702.3	0.8	1117002.9	99.2
2017	1419720.3	20227.1	1.4	1399493.2	98.6

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Reduction of the total volume of import of services for the processing of material resources is 96.7% due to a decrease in import of services for the processing of goods for sale in the Ukrainian market by 99.9% and abroad – by 94.1%. It is shown in *Table 11*.

**Table 11.** Dynamics of import volumes of services for processing of material resources

Years	Import volume, thousand USD	Of which services for the processing of goods for sale			
		in the Ukrainian market		abroad	
		<i>thousand USD</i>	%	<i>thousand USD</i>	%
2010	81069.4	35986.2	44.4	45083.2	55.6
2011	174562.2	74150.8	42.5	100411.4	57.5
2012	169262.5	90096.6	53.2	79165.9	46.8
2013	11627.5	571.9	4.9	11055.6	95.1
2014	51248.7	34.2	0.1	51214.5	99.9
2015	63415.8	0.1	0.0	63415.7	100.0
2016	5299.1	56.7	1.1	5242.4	98.9
2017	2703.9	31.8	1.2	2672.1	98.8

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Increase in the balance of export-import operations in rendering services for the processing of material resources is 49.2%.

Increase in export volumes in the structure of international trade of goods of Ukraine with the EU countries is 34.3%, import is 8.9%; reduction in the ratio of import and export: if in 2010 this figure amounted to 1.46 times, in 2017 it was 1.19%. The results are shown in *Table 12*.

**Table 12.** Dynamics of the international trade of goods of Ukraine with EU countries, million USD

Years	Export	Import	Balance
2010	13051.9	19101.2	-6049.3
2011	17969.9	25752.9	-7783.0
2012	17081.3	26156.4	-9075.1
2013	16758.6	27046.5	-10287.9
2014	17002.9	21069.1	-4066.2
2015	13015.2	15330.2	-2315.0
2016	13496.3	17140.8	-3644.5
2017	17533.4	20799.4	-3266.0

*Source:* (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Export volume growth in the structure of international trade of services of Ukraine with EU countries is 10.8%, decrease in import volumes is 15.4%; increase in the ratio of export and import: if in 2010 this figure amounted to 1.04 times, in 2017 it was 1.36 times. The results are shown in *Table 13*.

**Table 13.** Dynamics of volume of international trade of services of Ukraine with EU countries, million USD

Years	Export	Import	Balance
2010	3117.0	2994.4	122.6
2011	3525.4	3363.3	162.1
2012	3744.9	3630.3	114.6
2013	4195.7	4212.0	-16.3
2014	3991.6	3148.8	842.8
2015	2927.9	2750.1	177.8
2016	3004.9	2421.6	583.3
2017	3452.7	2532.5	920.2

Source: (Information and statistical materials of the State Statistics Service of Ukraine for 2010-2017).

Based on the international comparison of the volume of cargo transportation of Ukraine with different EU countries, it was established that, as a rule, these countries have developed road and rail transport. It was established that the volume of cargo transportation increased in 2010-2016 in a number of European countries: Lithuania – by 42.2%; Latvia – by 35.4%; Estonia – by 26.7%; UK – by 25.5%; Czech Republic – by 21.3%; Austria – by 13.7%; Germany – by 12.1%; Slovakia – by 9.2%; Poland – by 8%.

In 2010-2016 the volume of cargo transportation by railroad increased in most EU countries: Italy – by 117.8%; Czech Republic – by 18.3%; Germany – by 15.7%; Slovakia – by 14.4%; Hungary – by 9.3%; France – by 4.8%. During this period there was a trend of significant growth in the volume of inland water transportation of goods only in Poland. Thus the value of this indicator increased by 38.8%. In other EU countries the inland water transport is not used efficiently enough as evidenced by the reduction in the volume of shipment that is shown in *Table 14*.

**Table 14.** Dynamics of the volume of cargo transportation in the EU countries by modes of transport, th. tonnes

Countries	Railway transport		Road transport		Inland water transportation	
	2010	2016	2010	2016	2010	2016
Austria	107670	99784	330988	376326	11052	9071
United Kingdom	104374	78549	1566016	1964743	3456	3394
Estonia	46705	25363	27294	34585	–	–
Italy	42348	92249	1527762	901518	1259	269
Latvia	49164	47819	46809	63389	–	–
Lithuania	48061	47651	44716	63571	99	52
Germany	343774	397754	2734098	3066128	229607	221349
Poland	234568	222523	1216083	1313657	2753	3821
Slovakia	44327	50727	143071	156279	10103	6758
Hungary	45794	50047	199848	197762	9952	8224
France	85045	89107	2015327	1777645	69244	64216
Czech Republic	82900	98034	355911	431889	833	832

Source: (Transport and Communication of Ukraine, 2017)

#### 4. Results

**Table 15.** Risk classification of logistic activities of enterprises

	Risk name	Risk content
Exo ge no us	Political	- unstable political situation
	Institutional	- not effective enough action of legislative and regulatory documents, governing process of purchasing, sales, commercial and transport activity
	Market	- unpredictability of the market; - inflexibility of the existing logistic systems of enterprises in the constantly fluctuating consumer demand, market environment changes and risks
	Financial	- constant changes in exchange rate fluctuations; - increase in debt for products sold;
		- difficulties in attracting credit resources due to financial and economic instability; - limited financial resources of enterprises
Environmental	- negative impact on the environment as a result of violation of the conditions of transportation of products	
En do ge no us	Economic	- balance reduction of export-import operations in the transport sector; - reduction of profitability from operating activities of enterprises; - lack of sufficient organizational and economic support for the provision of quality logistic services
		- limited number of consideration of many factors in the calculation of the optimum supply of material resources;
	Associated with logistics	- unevenness of suppliers' work; - inability of the enterprise to plan orders effectively; - inability to fulfill the terms of the contract for the supply of material resources
		- increase in production and inventory volumes; - inefficient inventory management
	Transport	- inopportune delivery of cargo due to breakage or unexpected downtime of vehicles; - unavailability of goods at the required period; - loss of cargo due to unfavorable transportation conditions
Sales		- insufficient consideration of service features of various categories of consumers in the context of the relationship marketing concept; - imperfect system of contractual relations between enterprises and consumers; - late payments by consumers
Informational	- insufficient use of modern information and communication technologies and electronic platforms as tools for information support of logistic activities and customer relationship management	

Source: own research.

The changeable development of the international market environment results in various types of risks of economic activity, including logistics. Therefore, it is advisable to apply a systematic

approach to risk management of logistic activities in the risk management system of the enterprise in present-day conditions. As research shows, it is advisable to take into account many risks, which can be classified into 2 groups: exogenous and endogenous risks, on managing the logistic activities of enterprises. It is shown in *Table 15*.

Therefore, in order to efficiently operate enterprises in an unstable institutional environment, it is advisable to create conditions that would enable enterprises to obtain maximum benefits from organizing logistics activities taking into account the specifics of the development of the global economy, maintaining an optimal level of costs, and increasing the service quality to customers.

All this requires the introduction of a complex of various logistics information technologies, which can include:

- *MRP* (Material Requirements Planning) – allows optimal regulation of components delivery to the production process, control of stocks in warehouse and production technology. The main task is to provide a guarantee of the availability of the required number of relevant materials and components at any time within the planning period along with possible reduction of permanent stocks;

- *MRPI* – material requirement planning;

- *ERP* (Enterprise Resource Planning System) – expands the range of supply chain management beyond the enterprise, allows you to control and regulate the communication among the supply chain members. It is oriented on processes and internal integration (logistic and financial);

- *OPT* (Optimized Production Technology) – the basic principle is to identify “bottlenecks” of production or critical resources (stocks of raw materials, materials, equipment); to solve the tasks of operational and short-term management of production, including the formation of a production schedule for one day, week, etc.;

- *SCM* (Supply Chain Management) – the integration of key business processes from the beginning to the end-user and the covering of all suppliers of goods, services and products that add value for consumers and other stakeholders. This is the technology that ensures the corporate strategy of an enterprise with optimal cost of resources. It allows you to solve the tasks of integrated management of functional areas and to coordinate the logistics process of an enterprise with business partners depending on the electronic platform (B2B or B2C);

- *CRM* (Customer Relationship Management) – an information technology that implements a client-oriented approach to management of an enterprise. The essence of this system consists of the personalization of relations with clients, the achievement of a favorable attitude of clients to the enterprise and products, the understanding of the process of sale as a permanent process with involvement of each employee of the enterprise;

- *QR* (concept “Quickly Reaction”) – quickly customer service that is used to manage the movement of goods with a short life cycle. This is the system of delivery service to the end-customer based on the electronic data exchange between retailers and wholesalers and manufacturing areas;

- *ECR* (the system of organization of the economic relations between the producers and trade enterprises) – this system is based on the principle of JIT and on the exact

synchronization of production and sales, which involves a specific approach to the control of the state of stocks and reorganization of the functions of distribution centers. The principle of continuous replenishment of stocks is used, according to which the powers of the suppliers are extended in order to provide the necessary amount of supply and the delivery terms;

- *LP* (concept "Lean Production") – realizes the idea of combining low costs with large volumes of mass production, and product diversity with the flexibility of small-scale production. The main idea is to identify the operations that consume resources but do not create added value and to eliminate them completely;

- *DDT* (concept "Demand Reaction") – allows to maximize the response time reaction of an enterprise to the demand changes through the rapid replenishment of stocks at those points of the market where the growth of such demand is predicted; it improves the coordination and relationship of producers, intermediaries and retailers as links of the integrated logistics chain;

- *DRP* (planning system of products and resources in distribution) – *DRP I* allows not only to take into account conjuncture, but also to actively influence on it. This system ensures stable ties between supply, production and sales. The ultimate function of *DRP I* system is the planning of transport traffics. In the system, the requests for transport services are processed, the traffic schedules are drawn up and adjusted in real time. Due to the *DRP II* technology, the tasks of medium to long-term forecasting of consumer demand, system indicators of work of warehouses and other parameters are solved;

- *E-SKLAD* (automated management system of warehouse) is an integrated suite that contains software, barcode printers, radio terminals or data collection terminals. The main purpose of the system is automation of operational management of all warehouse processes. It allows business partners to control individual transactions in their own warehouses via the Internet. In this system the following set of warehouse functions is implemented: acceptance, placement, replenishment of stocks, selection and shipment of goods, inventory;

- *CALS-technologies* – integrated system strategy for increasing the efficiency, productivity and profitability of the processes of production-economic activity of the enterprise, which directly influence the competitiveness of its products. The task of this technology is to increase the efficiency of all participants of the processes of creation, production and use of the product by expediting the process research and development of the product; to provide the product of new properties; to reduce costs; to increase the level of service in the processes of production the product, its operation and technical maintenance.

The use of information and digital technologies will increase the efficiency of logistics management by obtaining the synergistic effect due to an increasing average profitability from organization of logistics activities by 15-20%; it will increase the indicator of the consumer retention by 5%; time reduction on performing current operations by 25-30%. There will be an increase in the accuracy of forecasting volumes of shipment products up to 99%; reduction of costs on sales, marketing and customer support by 10-15%; increase in the speed of customer orders processing and level information security; reduction of time losses on organization exchange of information between the enterprise and economic contractors; formation of client-oriented approach to management of relations with different groups of consumers of the enterprise.

## 5. Conclusions

To improve the efficiency of management of logistic activities of business entities in Ukraine, it is advisable to develop a set of strategic measures on:

- the improvement of legal regulation of the development of transport and logistics system taking into account the best European experience (making the appropriate amendments to the National Transport Strategy of Ukraine for the period up to 2030, formation of the concept of inland water transport development);
- the management of material and technical supply (calculation of the optimum volume of batch supply of material resources, optimization of procurement strategy of the enterprise, improving the management of the procurement process by multi-criteria evaluation of the choice of the optimum supplier of material resources);
- the inventory management (analysis of inventory volumes in the warehouse, forecasting of the inventory volumes, formation of optimum inventory management strategy, development of inventory management system at enterprise, optimization of volume of production, warehouse and commodity inventory);
- traffic management (implementation of cargo management information systems, application of automated processing of documents on completion of transportation of goods, development of proposals to optimize the load of transport, use of Internet technology for automation of transport processes);
- management of customer service processes (analysis of the volume of shipment of products, forecasting of volumes of shipment of products to consumers, development of algorithms for servicing different categories of consumers, development of proposals to improve the level of logistic services);
- sales activity management (rationale for the use of a network approach to the organization of sales activities of enterprises, formation of a system of contractual relationships with consumers, improvement of customer-oriented approach to the service of different categories of consumers in the context of the concept of relationship marketing, mechanism of implementation of public-private partnership in the management of sales activities of enterprises on the basis of the legal form of syndicate, methodical approach to the selection of the optimum sales channel of finished product, identification of priority areas of e-commerce development as an effective tool for product promotion in the market);
- improvement of pricing (pricing of material resources and products ready for shipment);
- information support of the organization of processes of logistic activity on the basis of use of modern digital technologies.

As a result of study it was established that there are many risks, which should be considered on the organization of logistic activities of enterprises. Therefore, it is advisable to perform continuous monitoring, system risk analysis of logistic activities of enterprises and on this basis to manage risks using a set of methods, tools and activities, which allow to a certain extent to predict the occurrence of risk events and to take opportune measures to minimize them.

Implementation of the above measures will contribute to the competitiveness of enterprises as a result of improving the management of logistic activities by reducing the time of execution of

orders, reduction of inventory volumes, growth in the level of demand satisfaction and quality of logistic services, cost minimization, optimization of the material, transport, information and financial flows, increase in the level of profitability of operating activities.

## References

- Activity of Business Entities for 2016: statistical abstract (2017). Kyiv: *The State Statistics Service of Ukraine*. Retrieved from <http://www.ukrstat.gov.ua/> (in Ukrainian).
- Amosha, O., Kharazishvili, Y., Liashenko, V., & Kvilinskyi, O. (2016). Economic security of sustainable development of the regions (based on the example of the Donetsk region). In K. Pająk (Ed.), *Gospodarka niskoemisyjna i jej wpływ na rozwój województwa wielkopolskiego [Low-carbon economy and its impact on the development of the Wielkopolska voivodship]* (pp. 19-34). Warszawa: Wydawnictwo Naukowe PWN.
- Andersen, T. & Schreder, P. (2010). *Strategic risk management practice; How to deal effectively with major corporate exposures*. Cambridge: Cambridge University Press.
- Arvis, J.-F., Saslavsky, D., Ojala, L., Shepherd, B., Busch, Ch., Raj, A. & Naula, T. (2017). *Connecting to Compete 2016: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators*. Washington: The World Bank. Retrieved from <https://openknowledge.worldbank.org/handle/10986/24598>.
- Barrat, K. & Whitehead, M. (2008). *Buying for Business: Insights in Purchasing and Supply Management*. Moscow: Olymp-Business. (in Russian).
- Beresford, A.K.C., Pettit, S.J. & Whittaker, W. (2005). Improving supply chain performance through quality management in a global distribution environment. *International Journal of Services and Operations Management*, 1(1), 75–89. <https://doi.org/10.1504/IJSOM.2005.006319>.
- Blaik, P. (2017). *Logistyka. Koncepcja zintegrowanego zarządzania. IV Wydzanie*. Warszawa: Polskie Wydawnictwo Ekonomiczne.
- Boom, Andre van den (2007). *Fachkonzeptuelle Modellierung eines Kooperationsinformatiossystems. Unter Berücksichtigung von Informationssystem–Konzeptualisierungen und institutionenökonomischen Ansätzen*. Aachen: Shaker Verlag, GmbH.
- Bowersox, D.J. & Closs, D.J. (2017). *Logistical Management: The Integrated Supply Chain Process. 2nd edition*. Moscow: Olymp-Business. (in Russian).
- Crouhy, M., Galai, D. & Mark, R. (2012). *Risk management*. New York: McGraw-Hill.
- Damodaran, A. (2008). *Strategic risk taking: A framework for risk management*. Pennsylvania: Pearson Prentice Hall.
- Frazelle, E. (2013). *World-Class Warehousing and Material Handling*. Moscow: Alpina Publisher. (in Russian).

- Fuchs, H. & Wohinz, J.W. (2009). Risk management in logistics systems. *Advances in Production Engineering & Management*, 4(4), 233–242. Retrieved from [http://apem-journal.org/Archives/2009/APEM4-4\\_233-242.pdf](http://apem-journal.org/Archives/2009/APEM4-4_233-242.pdf)
- Głowski, P., & Kvilinskyi, O. (Eds.). (2017). *Economic transformation in Ukraine: comparative analysis and European experience*. Warsaw: Consilium Sp. z o.o.
- Gunasekaran, A. (2005). Editorial: New service and manufacturing environments: challenges for operations management researchers and practitioners. *International Journal of Services and Operations Management*, 1(1), 1–6. <https://doi.org/10.1504/IJSOM.2005.006313>.
- Harrison, A. & Hauck, R. (2007). *Logistics Management and Strategy*. Moscow: Balance Business Books. (in Russian).
- Huemer, L. (2006). Supply Management: Value creation, coordination and positioning in supply relationships. *Long Range Planning*, 39(2), 133–153. <https://doi.org/10.1016/j.lrp.2006.04.005>.
- Kotler, P. & Keller, K. L. (2014). *Marketing Management. 14th edition*. Upper Saddle River, New Jersey: Prentice Hall.
- Kharazishvili, Y., Lyashenko, V., Zaloznova, Y., & Kvilinskyi, O. (2016). Impact of infrastructure component on socioeconomic approach to modernization of the region. *European Cooperation*, 8(15), 108-119.
- Kvilinskyi, O., Mieshkov, A., & Bondaryeva, I. (2017). Investigation of the social factors of development of society in the territories with transforming environment. *Research Papers in Economics and Finance*, 2(2), 13-19. <https://doi.org/10.18559/ref.2017.2.2>
- Kwilinski, A. (2017). Development of industrial enterprise in the conditions of formation of information economics. *Thai Science Review, Autumn 2017*, 85 – 90. <https://doi.org/10.5281/zenodo.1414236>
- Kwilinski, A. (2018a). Mechanism for assessing the competitiveness of an industrial enterprise in the information economy. *Research Papers in Economics and Finance*, 3(1), 7-16. <https://doi.org/10.18559/ref.2018.1.1>
- Kwilinski, A. (2018b). Mechanism of modernization of industrial sphere of industrial enterprise in accordance with requirements of the information economy. *Marketing and Management of Innovations*, 4, 116-128. <http://doi.org/10.21272/mmi.2018.4-11>
- Kwilinski, A. (2018c). Trends of development of the information economy of Ukraine in the context of ensuring the communicative component of industrial enterprises. *Economics and Management*, 1(77), 64-70.
- Laiko, O.; & Kwiliński, A. (2017). Tools for the Improving of Investment Climate in Territorial Communities: Challenges and Perspectives for Ukrainian Economy. *Economics. Ecology. Socium*, 1(1), 93-103. Retrieved from <https://ees-journal.com/index.php/journal/article/view/9/3>
- Lakhno, V., Malyukov, V., Bochulia, T., Hipters, Z., Kwilinski, A., & Tomashevskaya, O. (2018). Model of managing of the procedure of mutual financial investing in information technologies and smart city

- systems. *International Journal of Civil Engineering and Technology*, 9(8), 1802-1812. Retrieved from [http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET\\_09\\_08\\_181/IJCIET\\_09\\_08\\_181.pdf](http://www.iaeme.com/MasterAdmin/UploadFolder/IJCIET_09_08_181/IJCIET_09_08_181.pdf)
- Lamben, J.-J. (2007). *Market-driven Management. Strategic & Operational Marketing*. St.-Petersburg: Peter. (in Russian).
- Murphy, P.R. & Wood, D.F. (2017). *Contemporary Logistics, 8th edition*. Moscow: I. D. Williams LLC. (in Russian).
- Oke, S.A., Ayomoh, M.K.O. & Oyedokun, I.O. (2007). An approach to measuring the quality of maintenance performance. *IMA Journal of Management Mathematics*, 18(1), 17–32. <https://doi.org/10.1093/imaman/dpi045>
- Pająk, K., Kamińska, B., & Kvilinskyi, O. (2016). Modern trends of financial sector development under the virtual regionalization conditions. *Financial and Credit Activity: Problems of Theory and Practice*, 2(21), 204-217. <https://doi.org/10.18371/fcaptp.v2i21.91052>
- Pająk, K., Kvilinskyi, O., Fasiiecka, O., & Miśkiewicz, R. (2017). Energy security in regional policy in Wielkopolska region of Poland. *Economics and Environment*, 2(61), 122-138.
- Payonk, K., Lyashenko, V., & Kvilinskyi, O. (2015). Operation of a business entity in the context of globalization. *Economic Herald of the Donbas*, 4(42), 18-23.
- Payne, A. (2005). *Handbook of CRM. Achieving Excellence in Customer Management*. Oxford: Butterworth-Heinemann is an imprint of Elsevier Linacre House.
- Sander, G. & Shehter, D. (2008). *Delivering the Goods: The Art of Managing Your Supply Chain*. Moscow: Pretext. (in Russian).
- Schreibfeder, J. (2006). *Efficient Inventory Management*. Moscow: Alpina Business Books. (in Russian).
- Schwab, K. & Xavier, S.M. (2017). *The Global competitiveness Report 2017-2018*. Geneva: World Economic Forum. Retrieved from <https://www.weforum.org/reports/the-global-competitiven>
- Souitaris, V. & Balabanis, G. (2007). Tailoring online retail strategies to increase customer satisfaction and loyalty. *Long Range Planning*, 40(2), 244–261. <https://doi.org/10.1016/j.lrp.2006.11.006>
- The Ukrainian logistics appeared to be one of the most expensive in the world*. Retrieved from <https://comments.ua/money/595535-ukrainskaya-logistika-okazalas.html> (in Ukrainian).
- Transport and Communication of Ukraine for 2017: statistical abstract (2018). *Kyiv: The State Statistics Service of Ukraine*. Retrieved from <http://www.ukrstat.gov.ua/> (in Ukrainian).
- Vikhrov, M. (2017). Train to Nowhere. How Ukrzaliznytsia Hinders the Development of the Country. *Ukrainskiy Tyzhden*, 46(522). Retrieved from <http://tyzhden.ua/Politics/203972> (in Ukrainian).
- Wallenburg, C. (2008). Der differenzierte Einfluss unterschiedlicher Performance-Level auf die Kundenbindung bei Logistikdienstleistungen. *Zeitschrift für Betriebswirtschaft*, 4, 55–82.

Yakubovskiy, M., Liashenko, V., Kamińska, B., & Kvilinskyi, O. (2017). Economy modernization of industrial regions (based on the example of Ukraine). In P. Głowski, & O. Kvilinskyi (Eds.), *Economic transformation in Ukraine: comparative analysis and European experience* (pp. 12-29). Warsaw: Consilium Sp. z o.o.

Zaloznova, Y., Kwilinski, A., & Trushkina N. (2018). Reverse logistics in a system of the circular economy: theoretical aspect. *Economic Herald of the Donbas*, 4(54), 29-37.