

## ANALYSIS AND EVALUATION OF THE LOGISTIC ACTIVITY OF AN ENTERPRISE

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**Introduction.** In current conditions of Ukrainian economics, a need in constant improving the enterprises' economic activity arises. Herewith it should be noted, that the extent of competitiveness and welfare of the manufacturers greatly depends on the effectiveness of their logistic activity. Logistics nowadays shall be regarded as an activity that, based on combined functions related to promoting of products flows, gives an opportunity to optimize such process, regarding the requirements of the employees and consumers, thus improving the processes of management and economic agents' development. The logistic approach also creates preconditions to improve other indicators of the enterprise's activity, which lies in improving its overall organizing capacity, building reliable cooperation, which allows ascertaining the increased controllability and obtaining of higher financial and economic indicators.

On the whole, logistics affects almost every single aspect of the enterprise's financial outcome build-up. Thus, logistics as a special type of management activity directs all its efforts towards the research and optimizing of processes, related to the product and information flows. Herewith, on account of its special means, an increase in main indicators of the enterprise's activity takes place. To ensure an introduction of the logistic management elements into the enterprise's activity, first of all, it is advisable to consider and to analyse an existing state of the supply organizing process, manufacturing and sales. For every specific enterprise such analysis, stipulated by situational peculiarities of the activity, with the possibility of further elaboration of suggestions on how to overcome identified problems, is of vital importance.

**An insight into the recent research sources and publications on the matter.** Aspects of this matter are widely outlined in the research works by such international and native authors, as H. Stewart, D. Bolt, A. Stirklend, Adel El-Ansari, E. Coughlin, D. Lancaster, D. Jobber, L. Balabanova, H. Bolt, Z.L. Bandura, L.S. Veikruta, I.I. Bazhyna, Y.V. Ponomariova, V.V. Volhina, A.I. Semenenko. However, as of today, situational aspects of each specific enterprise require applying of the complex approach to define and efficiently resolve the matters of the development of marketing logistics management.

**Task formulation.** The main target of this research is to analyse and evaluate a current state of the enterprise's logistic activity and elaborate recommendations regarding the identified problems solving.

**Fundamental materials and results.** The current state of the economy determines a need to shift priorities in shaping one's economic activity. A profound study of the market situation, improving vital systems of the enterprise functioning, based on the logistic approach to management, allows to improve the inner environment and develop a favorable outer functioning environment for manufacturers of up-to-date goods and services [1, p. 24]. A gradual transition from separate elements to creating adequate logistic systems becomes a necessary step towards increased effectiveness of enterprises belonging to different spheres of activities.

But such transition requires an elaboration of individual methodological approaches for each separate enterprise, taking into consideration situational aspects of an economic activity of a certain economic agent. The subject of this research is Public Joint Stock Community «Poltava Machinery Plant» (hereinafter referred to as PJSC «Poltavamash»), one of the leading Ukrainian manufacturers of equipment for the food industry, founded by means of reorganizing of state enterprise «Poltava Machinery Plant» into an public joint stock community on June 15, 1993, as per the President of Ukraine decree on the «Corporatization of State Enterprises» and the resolution № 1039 of the Ministry of Machine Manufacturing, Military Industrial Complex and Conversion of Ukraine, issued on July 11, 1994.

The mission of PJSC «Poltavamash» is to meet the requirements of the food industry enterprises in obtaining high-quality equipment and constituent parts, manufactured with the ISO standards taken into consideration, which will promote the increase of the enterprise cost in a long term perspective.

The performance of the enterprise, first of all, depends on the effective management process. That's why in order to study an actual position and strategic perspectives of PJSC «Poltavamash» on a basis of research of weak and strong points, market opportunities and risk factors, a SWOT analysis of the enterprise was conducted. In consequence of such analysis, it was defined that the enterprise is advised to learn how to adjust to environment changes, at the same time focusing on the internal environment. That is to say, that PJSC «Poltavamash» must use the strategy of overcoming its weaknesses by means of the outer environment opportunities.

Conducted PEST analysis showed that economic and political factors, rated by 2.5 and 2.4 % respectively, under the condition of the unstable outer environment have the biggest impact on PJSC «Poltavamash». Thus, in the outer environment, a situation occurred, where a gradual transition to logistic management becomes a strategic advantage of an enterprise and an opportunity to undertake foreign economic activities more effectively; as nowadays quite a high percentage of the produce of PJSC «Poltavamash» is being exported. Table 1, in particular, illustrates graphically the structural dynamics of the produce sales revenues of the PJSC «Poltavamash», and its export.

On the whole, in 2015 the export production constituted 81.1% of the overall sales; and the export percentage tends to grow. Unique manufacturing lines, conveyors, equipment and other production, designed in the engineering office of the enterprise, facilitate this. The main exporting companies, dealing with PJSC «Poltavamash», are leading food industry and agricultural companies, as well as companies dealing with the purchase of spare parts and equipment for thermal and electric power stations.

Table 1.

**Structural dynamics of the produce sales revenues of PJSC «Poltavamash» for the years 2013 - 2015**

Indicator	Reported Years			Fluctuation, compared to 2015	
	2013	2014	2015	2013	2014
Produce sales revenues, <i>thousands</i> UAH	25271,5	24176,9	21203,4	(4068,1)	(2973,5)
Export, <i>thousands</i> UAH	21045,8	17190,3	17241,2	(3804,7)	(3804,5)
Domestic market sales, <i>thousands</i> UAH	4225,7	6986,6	3962,4	(263,3)	(3024,2)

It was found out, that the biggest exporter of the PJSC's production is Russia, the percentage of which constituted 87.7% of the overall export in 2015. Herewith, there is a tendency towards increase by 21% of the 2015 indicator, compared to the one of 2013. Also, PJSC «Poltavamash» maintains constant export relations with Belarus (3.2%, which is 553 300 hryvnias in 2015) and Moldova (0.6 %, which is 101 500 hryvnias in 2015). A tendency towards 8.2 % decrease in the volumes of the products' export to Moldova, compared to 2013, takes place. Such countries, as Uzbekistan, Kazakhstan, Tajikistan, Georgia and Lithuania, have been experiencing unstable foreign economic relations with the enterprise, and eventually stopped exporting the production of PJSC's «Poltavamash».

In order to trace a demand for certain products of the enterprise, let's look at the structural dynamics changes of the export of PJSC «Poltavamash» (refer to Table 2.)

Analysing data of the table, one can note that of the highest demand is engines and turbines manufacturing, the sales of which in 2015 constituted 1, 316, 2000 hryvnias, or 76.3% of the overall export amount. Herewith, a tendency towards the 37.3% increase in sales of this type of products for the years 2013 – 2015 was diagnosed. Also, a tendency towards the decrease in sales of the machinery and equipment for the agriculture and food industry processing from 8, 427, 000 hryvnias in 2013 to 3, 033, 000 hryvnias in 2015 was noticed.

It takes a place because prices for the enterprise's production have been increased, as prices for the raw materials, used for the equipment manufacturing, became fundamentally higher.

Activities of PJSC «Poltavamash» comprise supplies, domestic manufacturing, sales, transportation and storing facilities, which conditions the requirement of this whole complex being taking into consideration during evaluation of the overall effectiveness of the industrial enterprise logistics.

The organizing process of sales-oriented logistics can be described as the one comprising two directions: firstly, it shall ensure an ultimate combination and effective use of all kinds of economic resources in order to obtain financial results of the manufacturing and sales activities; secondly, organizing process via the realization of management functions shall coordinate and control sales-oriented logistics [2, p. 54].

Table 2.

## Export Structure of PJSC «Poltavamash» according to the assortment groups in 2013-2015 years

Export assortment	Reported years						Fluctuation (+; -) 2015 compared to			
	2013		2014		2015		2013		2014	
	Thousands UAH	Percentage, %	Thousands UAH	Percentage, %	Thousands UAH	Percentage, %	Thousands UAH	Percentage, %	Thousands UAH	Percentage, %
Manufacturing of engines and turbines	8205,2	39,0	8762,1	51,0	13162,2	76,3	4957	37,3	4400,1	25,3
Manufacturing of handling equipment	2537,3	12,1	1100,9	6,4	360,3	2,1	(2177)	(10,0)	(740,6)	(4,3)
Manufacturing of the machinery and equipment for agriculture and food industry processing	8427	40,0	6551,1	38,1	3033,7	17,6	(5393,3)	(22,4)	(3517,4)	(20,5)
Other production	1876,3	8,9	776,2	4,5	685,0	4,0	(1191,3)	(4,9)	(91,2)	(0,5)
Total	21045,8	100	17190,3	100	17241,2	100	(3804,7)	-	(3804,5)	-

Sales are regarded in terms of narrow and wide aspects. From the narrow point of view, sales are volumes oriented. From the general one – it's a process, which ensures its ultimate goals – marketing and products sale [3, p. 134]. This process is impossible without shaping of the product strategy, price policy, organizing of the products' distribution channel and advertising support. Sales cover the whole complex of means, directly affecting the sales volume [1, p. 134].

As any enterprise is characterized, first of all, by certain organizational structure, i.e. the content and subordination of interrelated management links, it is important, that the direct insight into the structure of the subdivision, dealing with organizing, functioning and sales control, is conducted; and this subdivision is Marketing and Sales Office of PJSC «Poltavamash» (Figure 1).

Six specialists are working in this structural subdivision, as follows: Head of the office, sales manager, sales representative, manager of foreign economic activities, marketing manager, business manager.

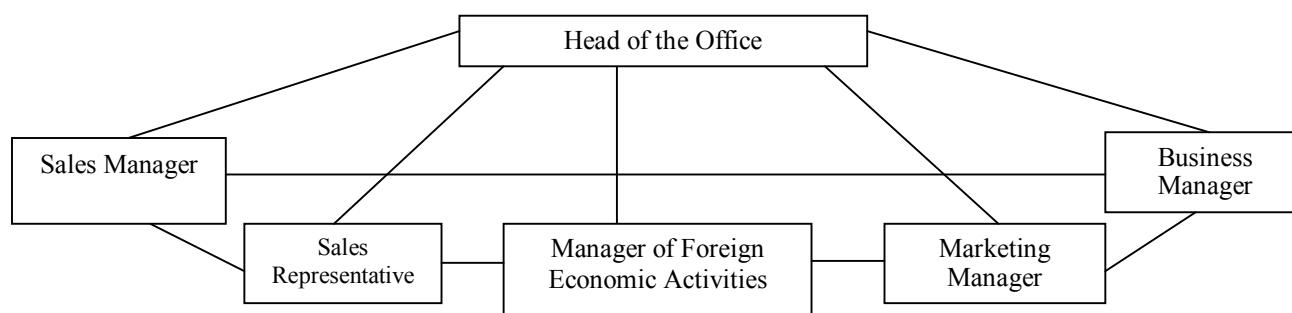


Fig. 1. Structure of the Marketing and Sales Office of PJSC «Poltavamash»

Forms of organizing the enterprise's sales, as an element of a functional subset, foresee union of employees, performing an interrelated set of operations.

Functions and duty connections between employees within the sales system and outside of it are based on a principle of mutual help and substitutability, while the Head of the office performs coordinating and controlling functions in the sales system. Besides, his responsibilities include task making, short-listing of specialists for all the sales support subdivisions, quality and employees performance evaluation, as well as the personnel welfare development. It should be noted, that absence of distinct functional responsibilities of employees has a negative impact and herein influences effective performing of professional duties. The

Bureau's employees in order to increase the volume of sales and gain a correspondent segment of the market, along with their default functions are carrying out other tasks – such as inventories planning, review of possible sketches for various equipment manufacturing, and tender proposals' analysis.

But in actual conditions it's quite difficult to cope with such a range of tasks, that's why often an inopportune response of the managerial system to the outer environment requirements, takes place. The situation is worsened by the loss of flexibility in the relations between employees of the managerial apparatus due to formal rules and procedures applied. A necessity to coordinate actions of various specialists fundamentally increases the supervisor's volume of work.

Nothing illustrates results of effective sales, as financial state indicators. To evaluate the financial state of the enterprise, let's draw an analysis of the economic activity indicators' dynamics of PJSC «Poltava Machinery Plant».

**Table 3.**

**Economic activity indicators' dynamics of PJSC «Poltava Machinery Plant» for the years 2013 – 2015**

Indicators	2013	2014	2015	Fluctuation (+; -) 2015 compared to	
				2013	2014
Capital Productivity, UAH.	0,475	0,915	0,846	0,37	(0,069)
Capital Coefficient, UAH	2,106	1,092	1,183	(0,923)	0,091
Productivity, UAH.	83,2	107,19	151,9	68,7	44,71

Unstable indicators of capital productivity and capital coefficient of the enterprise during the analysed period signify about ineffective use of basic capital funds. Along with that, an increase in productivity can be ascertained, which is a positive factor of PJSC «Poltava Machinery Plant» activity.

Let's look at the sales productivity of PJSC «Poltava Machinery Plant» in terms of compared prices (refer to Table 4).

**Table 4.**

**Sales productivity indicators of PJSC «Poltava Machinery Plant» (prices compared)**

Indicator	Reported years			Fluctuation,% 2015 compared to	
	2013	2014	2015	2013p.	2014p.
Actual volume of products sale, thousands UAH	25271,5	24176,9	21203,4	(4068,1)	(2973,5)
Number of concluded contracts with customers	510	670	620	121,56	92,53
Number of closed contracts with customers	510	620	700	121,56	92,53
Average cost of each closed contract	44,17	51,94	58,89	133,32	113,38
End product sales turn-over coefficient	3,86	2,99	4,51	116,83	150,84
Volume of product sales per person in the division, thousands UAH	3 754,66	5367	6870,17	182,97	128

Results of sales by PJSC «Poltava Machinery Plant» gives an opportunity to characterize dynamics of these activities during the analysed period 2013 – 2015. The volume of product sales has been increasing year by year. Accordingly, during the above-mentioned period, the number of concluded and closed contracts was either increasing or decreasing.

An average cost of each closed contract had a tendency to increase: in 2013 it was 4 417 000 UAH, in 2014 – 5 194 000 UAH, in 2015 – 5 889 000 UAH. The main reason is the increase in a number of heavy buyers in total sales. This is the specifics of real economy: in a condition of a constant economic worsening, only major merchants survive.

A coefficient of the end product sales volume during the analysed period 2013 – 2015 – has increased, and in 2015 it was 4,51. A tendency towards an increase in coefficient of the end product sales volume is a positive moment in terms of sales and the work of the bureau. It signifies of decreased time of the end product being in the store, and to a certain extent improves a financial situation of the enterprise.

Another positive part of its activities is an increased volume of products sold per employee as a result of decreased number of employees in the enterprise sales department, which resulted in increased productivity.

Hence, results of a conducted analysis give grounds to state, that in the period of economic recession, despite the increased volume of products sold, it is necessary to develop contracts not only with existing customers but also to expand the clientele, seek new forms of cooperation with customers and create new logistic chains. On the whole, the company's sales are positive, as regulated end product sales signify successful realization, even though there are some problems, that shouldn't be forgotten.

Improving of the sales system is a constant process of reasoning and realization of the most rational forms, methods and techniques of its establishment and development, rationalization of separate parts, control and identifying of loose ends, based on a constant evaluation of correspondence of control systems to internal and external conditions of the organization's functioning. It would be advisable to improve the sales planning control [4, p. 106].

It is known, that the fundamental of the systematic approach, being a base of the company's logistics, consists of organization and integration of functional and information support processes in logistics; coordination of logistic strategy of the enterprise with the overall corporate management system; development and execution of the enterprise's logistics plan; its financing and stimulating; products manufacturing; supplying the customer with end product [5, p. 82 – 95]. That is to say, an effect of the systematic approach lies in integrated logistic activity, aimed at the optimal movement of raw materials, semi-prepared products and end products within logistic links towards the end-consumer.

The main activities of PJSC «Poltava Machinery Plant» are managing the supplies and manufacturing, as well as provision, sales, storing, and transportation. All the above-mentioned functions are performed through the centralized form of the company management. According to the traditional approach to centralization, an organizational structure of logistics, which would correspond to modern needs of the enterprise, must be formed as well.

Centralized logistics management foresees the availability of the logistics department and a position of a logistics manager, reporting directly to the higher management of the enterprise. The advantages of this form of administering are as follows: creating and functioning of the single supply, manufacturing, sales, transportation and storing policy of the enterprise; the possibility of using the highly effective information systems, which, in its turn, will fundamentally change interrelations between functional subdivisions of the enterprise. With the above mentioned form of logistics, management expenses on goods turnover are reduced due to increase in the number of batches of goods, being purchased from suppliers. More favorable conditions for goods transportation are being created, and there is an opportunity to receive incentives for their purchase [6, p. 616]. Cutting the goods turnover expenditures may be achieved by means of inventory decrease in each subdivision of the enterprise; as well as by means of cutting the design expenditures and exploiting the smaller number of information systems. As a result of increasing of the activities coordination between other subdivisions of the enterprise, grounds for more effective control over the use of resources and products sales is created.

A special attention should be paid to the state of such element of logistics as inventories for the economic activity, planning, resource search, and purchase. This activity focuses on increasing the economic effectiveness of purchase activities. It's being influenced by external and internal factors [7], such as relations of the enterprise with its creditors and suppliers, development of an optimal plan of the supply chains activities, seeking the economic compromise between subdivisions, etc.

A gradual shaping of the effective logistics system of the enterprise, which must be based on the established logistics concept and a modern development strategy, will help to solve those issues.

Therefore, the enterprise's logistics will be aimed at the rational organization, rhythmic work support and optimize an overall economic activity, thus ensuring such competition advantages, as the leading position with minimum expenses; guaranteed on-time completion of all orders and end-product delivery by the due time; manufacturing of the unique (customized) products on customer's request; possibility of flexible regulation of the manufacturing volume, depending on the conditions of demand and proposition; services expanding; increasing the competitiveness of manufactured products, etc [8].

As of today, the competition is growing to the extent, when only those companies are able to succeed, that are understanding the necessity of combining interests of all the structures, and are interested in the innovational development of the enterprise's logistics management, which is the key to increased effectiveness of the economic activity.

**Conclusions.** In the context of research, it was detected that the enterprises, introducing the elements of the logistic management into their activities, appear to be in the more favourable situation, than other enterprises, which are not applying the logistic approach, and display a list of advantages. An analysis of the current state of logistics conducted at PJSC «Poltava Machinery Plant», based on correspondent calculations,

allowed us to identify weak points of specific logistic functions. It should be noted, that logistics has not been fully implemented in the enterprise's activities, with only certain aspects being in use. Calculations of the integrating efficiency indicator gave an opportunity to find out that the biggest issues occur in sales. Possible ways of improving the state of the enterprise have been suggested. The objective of the further applied research will be a detailed and relevant set of suggestions on how to shape an effective system of the enterprise logistics and create management structure, able to respond to the competitive market environment challenges.

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UDC 658.7:621 (043.3)

**Olena Zerniuk**, PhD (Engineering Sciences), Associate Professor. **Aliona Pastukh**, Master Student. Poltava National Technical Yuri Kondratyuk University. **Analysis and Evaluation of the Logistic Activity of an Enterprise.** In article the authors define the role of logistics in the modern industrial enterprise in a highly competitive environment. The analysis of the current state of logistics conducted at PJSC «Poltava Machinery Plant». Based on the calculations it is identified and investigated the problem areas in the management of individual logistics functions. The possible ways to improve the marketing of the company have been suggested.

**Keywords:** logistics, logistics activities, logistics system, competitiveness, sales management, logistics management, system approach.

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**Ключові слова:** логістика, логістична діяльність, логістична система, конкурентоспроможність, збутова діяльність, логістичне управління, системний підхід.

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**Зернюк Елена Вячеславовна**, кандидат технических наук, доцент. **Пастух Алена Николаевна**, магистрантка. Полтавский национальный технический университет имени Юрия Кондратюка. **Анализ и оценка логистической деятельности предприятия.** Определена роль логистики в деятельности современного промышленного предприятия в условиях высококонкурентной среды. Проведен анализ современного состояния логистической деятельности ПАО «Полтавский машиностроительный завод». На основе осуществленных расчетов определены и исследованы проблемные зоны в управлении отдельными логистическими функциями. Предложены возможные пути улучшения состояния сбытовой деятельности предприятия.

**Ключевые слова:** логистика, логистическая деятельность, логистическая система, конкурентоспособность, сбытовая деятельность, логистическое управление, системный подход.