



Strategic Guidelines for the Improvement of Logistic Activities of Trade Enterprises

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Abstract

Logistics has long been recognized as the main effective tool for generating competitive advantages in trading enterprises, and therefore there is an acute problem in finding strategic guidelines for improving logistics activities through the lens of organizational and economic support of logistic activity of a trading enterprise. The article compares the main reference models for the analysis of logistics activities and found the most appropriate for use - SCOR model, which identified the main indicators for evaluating the performance of logistics activities. An algorithm for determining the level of efficiency and performance of logistic activity have been constructed. According to the results of the study, the level of organizational and economic support, performance and efficiency of logistic activity of trade enterprises of Ukraine of the sample population have been determined.

Keywords: Trading Company, Logistics, Organizational and Economic Support, Reference Model, SCOR Model.

Introduction

Logistics of a trading company is closely related to other functional areas, its performance is estimated not so much by the indicators of productivity, reliability, flexibility, and efficiency (Chornopiska N.V, 2008), but by the dynamics of the main results of the trading enterprise (turnover, profit, assets). In this sense, logistic activity is considered as a factor in the development and competitiveness of a trading company, as well as any other business organization - a business entity. Effective logistics creates competitive advantages for the trading company, the main ones being: increase of the consumer value of goods due to timely response to consumer requests, optimization of working capital by accelerating the turnover of inventories and receivables, reducing current costs and other costs (Ilchenko N.B, 2016). In this way, through the performance indicators of economic activity, it reflects the performance of logistics activities.

In this regard, there is an urgent need to identify the main strategic orientations for improving the logistical activity of a trading company, as one of the main factors for shaping the competitive advantages of trading enterprise activity in both the external and internal markets. The most expedient is the research and determination of the main strategic orientations through the prism of organizational and economic support of the logistic activity of the trading enterprise, which reflects the logic of organization of the internal environment of the enterprise, in which all subsystems and processes occurring within them must be directed to the realization of the goals of the enterprise. Given this, it is appropriate to study the relationship between the characteristics of the level of organizational and economic support of logistics, its effectiveness, and the dynamics of economic activity. The result of such research is, firstly, the diagnosis of the correctness of the construction of internal links between the subsystems of organizational and economic support of logistical and economic activities, and secondly, the identification of problem areas during the construction of such links, which will determine the basis for establishing strategic guidelines. during the improvement of organizational and economic support of the logistic activity (Saeed S el al., 2017).

Methodology

In this scientific research, the methodology is represented by a set of general and specific methods, such as the method of analysis and synthesis, which is used for preliminary analysis of the problem statement, the definition of the goal, the disclosure of scientists positions about models and metrics for evaluating the efficiency of logistics activities and the study of the impact of logistics on the efficiency and performance of economic activity trading enterprise. The comparative method is also used to compare, identify the shortcomings of various existing reference models that are used to analyze the logistic processes of a trading enterprise. Besides, the comparative method was used to evaluate the organizational and

economic support of logistic activity of trading enterprises, as well as matrix and coefficient methods. The case study method was used to determine the efficiency and performance of the logistic activity of Ukrainian trade enterprises in the sample population. The conclusions are formulated based on methods of systematic analysis and scientific abstraction.

Results and discussion

The study of the correspondence of the level of organizational and economic support to the efficiency and effectiveness of logistic activity leads to the use of certain methodological tools - models and metrics of research. Regarding the organizational and economic support of a logistic activity, the system of indicators, and the sequence of calculations for determining its level are presented in (Uvarova A.E, 2019). Regarding models and metrics for evaluating the effectiveness of logistics activities and researching the impact of logistics on the efficiency of business activity of the enterprise, the analysis of scientific literature indicates a wide range of scientific and methodological approaches used by scientists to solve these issues. To evaluate and forecast the results of logistics activities, scientists propose the use of different methodological tools: a set of financial and non-financial indicators formed under the BSC system (Frolova L.V, 2005), the concept of "balanced indicators" (Christopher M, 2004), indicators of standards (Waters D, 2003), the efficiency of logistic business processes (Ilchenko N.B, 2006; Kochubey D.V, 2009), ENAPS, systems of planning and reporting indicators (T.O. Kolodzieva T.O, 2006) and others. To evaluate the effectiveness of logistics activities, it is recommended to use the characteristics: accuracy of time and place of delivery of goods, the formation of nomenclature and assortment of goods, quantitative and qualitative indicators of supply chain management, the formation of flexible pricing policy (Ilchenko N.B, 2006), a set of indicators by major projections of the BSC-model systematized by the blocks "Personnel management", "Logistics activity", "Customer indicators", "Marketing and sales indicators", "Financial indicators" (Ilchenko N.B, 2006), general logistics costs, quality of logistics customer service, duration of logistics cycles, productivity, return on investment in logistics infrastructure.

In the scientific literature, there is a considerable number of developments concerning the description of actions in the field of logistics, which in the general form are represented by a set of analytical, statistical, heuristic and imitation methods of modeling of logistic processes (Christopher M, 2004). Despite their active use in logistics (in particular, in the implementation of management aspects of logistics, namely, justification of the choice of suppliers, demand forecasting, research of purchasing, warehousing, transport and other types of logistics in dynamics), scientists note the imperfection of these tools due to their static nature. Character (Krykavskyy E.V, 2005). The focus of these models on certain logistical functions (procurement, transportation, warehousing) and fragmentation regarding the

formalization of problems of logistic activity does not allow to recommend them for the description of the logistic activity in general.

These drawbacks are devoid of reference models based on the decomposition of business processes across supply chains. The most famous reference models are the SCOR (Supply Chain Operation Reference Model) developed by the International Supply Chain Council, GSCF model of the World Supply Chain Forum; the Collaborative Planning, Forecasting and Replenishment (CPFR) model of the VICS; model of John T. Mentzer's supply chain processes (Merzlyak A.V, 2015) (Table 1).

Table 1. Comparison of reference model characteristics. Based on [2, 12-13]

Characteristic	SCOR	GSCF	CPFR	John T. Mentzer Model
Basic business processes	Plan, Source, Make, Delivery, Return	Customer Relationship Management – CRM, Customer Service Management – CSM, Demand Management – DM, Order Fulfillment – FM, Manufacturing Flow Management – MFM, Supplier Relationship Management – SRM, Product Development and Commercialization – PDC, Returns Management – RM.	Collaborative Planning, Forecasting and Replenishment	Relationship management; sales, research and development, forecasting, production, purchasing, customer service
Value formation factor	Cost reduction, efficient use of assets	Increase value added	Management efficiency in distribution channels	Smart Supply Chain Management
Target	Transaction efficiency	Affiliate Management	Supply chain management efficiency	Competitive advantage based on customer satisfaction
Stage of development of logistics activities for effective implementation of the model	Supply chain formation	Supply chain development and maturity	Supply chain development and maturity	Supply chain development and maturity

Although these models are primarily concerned with the supply chain, the general principles for their formation, namely the principles of decomposition and hierarchy of logistics processes, and metrics are acceptable for identifying the quality of logistics processes that are implemented directly within the enterprise. Given that the supply chain model has been implemented at the enterprise, determines the composition of logistics

processes by decomposition levels, as well as the list of indicators for evaluating the effectiveness of their implementation, it is important to take into account the level of maturity of operating activities and the type of logistics model implemented at the enterprise when formalizing logistics activities by business processes and their decomposition.

The SCOR model focuses on transaction efficiencies, GSCF models on partner management, SPFR models on supply chain interaction, JT Mentzer models on in-depth coordination of business functions, and inter-corporate supply chain customer engagement approach across the supply chain from Tier 2 suppliers to Tier 2 consumers (Merzlyak A.V, 2015; Ramazanov, S et al., 2019; Ilchenko N.B, 2017). Despite criticisms of the SCOR model, its imperfection is due to the lack of several significant processes for the enterprise development (in particular, such as research, improvement, sales of goods and marketing strategies, customer service) over the SCOR model over other reference ones. models are easy to use because it describes the processes (planning, supply, production, marketing, return), which are key to the logistics of any enterprise. Also versatile are the metrics of the SCOR model represented by the three-tier system. Although the reasons for deviations from the planned values are determined by the results of calculations of the indicators of the second and third levels, the use of the indicators of the first level is already sufficient to diagnose the general state of logistic activity at the enterprise (Table 2).

Table 2. The score of the SCOR model. Based on (Ilchenko N.B, 2016)

Supply chain functioning parameter group		Level 1	Source of information
External	Reliability	Perfect order	internal reporting form
	Response speed	Duration of the order execution cycle	internal reporting form
	Maneuverability	The level of supply flexibility	internal reporting form
		Supply chain adaptability level	internal reporting form
		Total cost of risk	internal reporting form
Internal	Costs	Supply chain management costs	internal reporting form
		Cost of goods sold (% of net income)	financial statements, f. 2
	Assets	Asset turnover	financial statements, f.1, f. 2
		Return on non-current assets	financial statements, f.1, f. 2
		Return on current assets	financial statements, f.1, f. 2

Based on the composition of performance indicators of logistic processes of level 1 SCOR-model and considering the availability of information on key parameters of logistics activity in the enterprise, to evaluate the efficiency of logistics activities, it is recommended to use indicators of cost of goods sold, asset turnover, as well as return on current and current assets. These metrics are included in the list of logistic performance indicators and are based

on the open data of the enterprise, which provides their objectivity, measurability, comparability, usefulness for other types of analysis, and clarity for stakeholders (Krykavsky E.V and Pokhilchenko O.A, 2012).

Given the complexity of unambiguous estimation in the case of a set of indicators for the conclusion on the effectiveness of logistics activities, it is recommended to use an integral indicator - the coefficient of efficiency of logistic activity of the enterprise - which is calculated by consolidating the normalized values of analytical indicators, followed by the ranking of enterprises by the level of efficiency. It is recommended to make the transition from absolute values to their normalized values by distinguishing indicators of stimulants and stimulators; to rank enterprises by the level of logistic efficiency - to consider the value of the integral coefficient.

Determining the level of efficiency of logistics activities involves the consistent implementation of the following steps:

1. Formation of an array of input analytical indicators on the effectiveness of logistics activities.
2. Standardization of analytical indicators and the formation of an array of normalized values of analytical indicators:

for stimulant indicators:

$$k_{ij} = \frac{a_{ij} - a_{i(\min)}}{a_{i(\max)} - a_{i(\min)}} \quad (1)$$

for destimulant indicators:

$$k_{ij} = \frac{a_{i(\max)} - a_{ij}}{a_{i(\max)} - a_{i(\min)}} \quad (2)$$

where a_{ij} is the value of the i -th indicator for the j -th enterprise;

k_{ij} is the normalized value of the i -th indicator for the j -th enterprise;

$a_{i(\max)}$, $a_{i(\min)}$ are the maximum and minimum values of the i -th indicator.

1. Calculation of integral indicator of logistic activity efficiency.

Calculate the integral index by the formula:

$$P_j = \sqrt{\sum_{i=1}^n k_{ij}^2} \quad (3)$$

Where P_j is the integral indicator of logistic activity efficiency for the j -th enterprise; n is the number of indicators.

2. The calculation of the coefficient of efficiency of logistics activities. Calculate the coefficient by the formula:

$$K_j = \frac{P_j}{P_{\max}} \quad (4)$$

where P_{\max} is the maximum value of the efficiency of logistic activity per enterprise group;

K_j is the coefficient of efficiency of logistic activity for the j -th enterprise.

3. Identification of the level of efficiency of logistic activity. If the ratio is in the range from 0 to 0.33, it is diagnosed as low, from 0.34 to 0.66 - the average, and from 0.67 to 1.0 - high levels of efficiency of logistics activities.

In turn, it is suggested to evaluate the performance of the logistic activity of trade enterprises under the following assumptions:

- to investigate the performance of the logistic activity of trading enterprises, it is recommended to choose the DuPont model, which reflects the object of logistic activity of the trading enterprise - the commodity-material flow;
- to formalize logistical activity as a factor of influence on the efficiency of activity of a trading enterprise to use indicators of logistics costs and logistic assets;
- to determine the logistical costs of trading enterprises given their level of income;
- to include in the logistic assets of trade enterprises intangible assets and fixed assets, stocks of goods, raw materials, and finished goods accounts receivable.

The presentation of logistics assets in this form most closely reflects the tools of influence of logistics on the results of the trading enterprise. The criterion for the effectiveness of logistics activities is the positive impact of logistics costs and investment in inventories and logistics infrastructure on changes in return on equity. The negative impact of these factors on the dynamics of return on equity indicates the need to find ways to reduce investment in the logistics of a trading company and optimize logistics costs.

The evaluation of logistic activity results in the following steps:

1. Formation of an array of data on logistical costs (JIB_j) and logistics assets (JIA_j) by j -th enterprise.

2. Analysis of the impact of the dynamics of logistics costs, logistics assets, and other factors on the dynamics of return on equity.

$$\Delta PBK_j = f(\Delta JB_j; \Delta JA_j; \Delta I\Upsilon_j) \quad (5)$$

where ΔKKK_j – change in the return on equity of the jth enterprise;

ΔJB_j – change in logistics costs of the j-th enterprise, thousand UAH;

ΔJA_j – change of logistical assets of the j-th enterprise, thousand UAH.

$\Delta I\Upsilon_j$ – change of other factors (except logistics costs and logistics assets)

Identification of the level of efficiency of logistics activities. For this purpose, it is necessary to take into account the factors of influence on the return on equity of the enterprise (Table 3).

Table 3. Conditions for identifying the level of logistic performance

Condition	Interpretation	Conclusion
$\Delta PBK_j^+ = f(\Delta JIB_j; \Delta JIA_j)$	increase in profitability of the company's own capital is caused by changes in logistics costs and logistics assets	high level of efficiency of logistic activity
$\Delta PBK_j^+ = \begin{cases} f(\Delta JIB_{minj}) \\ f(\Delta JIA_{minj}) \end{cases}$	increase in return on equity is due to changes in logistics costs and logistics assets	the average level of efficiency of logistic activity
$\Delta PBK_j^+ = f(\Delta I\Upsilon_j)$	the increase in the return on equity of the company is caused by changes in factors other than logistics costs and logistics assets	low level of efficiency of logistic activity
$\Delta PBK_j^- = f(\Delta JIB_j; \Delta JIA_j)$	changes in logistics costs and logistics assets have a negative impact on the dynamics of return on equity	

To make a final decision on maintaining or changing the organizational and economic support of logistics, it is necessary to combine the results of the evaluation of the organizational and economic support, efficiency, and effectiveness of logistic activity obtained using SCOR and Dupont models.

The high level of organizational and economic support, accompanied by effective and efficient logistical and economic activities is a testament to the optimal formation of organizational and economic support at the enterprise and the absence of problems in this matter. The low level of organizational and economic support, combined with the low-efficiency and low-performance logistics activities, indicates the need for radical changes in the organizational and economic support of logistics activities in all its elements. Other options for correlating the level of organizational and economic support with the efficiency and effectiveness of logistic activity of a trading company indicate the presence of problems in this area and are the basis for forming a portfolio of measures to improve its organizational and economic support.

The sequence of determining the feasibility of improving the OES logistics activity is as follows.

1. To evaluate the level of organizational and economic support of the logistic activity.
2. To evaluate the level of logistic activity efficiency.
3. To evaluate the effectiveness of logistics activities.
4. To summarize the results of the assessment of the level of organizational and economic support of a logistic activity, efficiency, and effectiveness of the logistic activity.

Positioning results are used to determine strategic directions of the development of organizational and economic support of the logistic activity of a trading enterprise (Table 4).

The objective is the preservation and support of organizational and economic support, the level of which is defined as high and which provides a high and medium level of efficiency and effectiveness of logistics activities. In the case of medium level of organizational and economic support, with medium and high levels of efficiency and effectiveness of the logistic activity, the system of organizational and economic support needs modernization, the content of which will depend on the problem area of security. If the results of the analysis establish other ratios of the level of organizational and economic support, efficiency and effectiveness of the logistic activity, it is necessary to radically review and change the system of organizational and economic support, because it is or is not related to the results of logistical activity (quadrants "low level of organizational and economic providing – high/medium level of efficiency/effectiveness of logistic activity ") or causes their low levels (quadrants " low level of logistics organizational and economic support - low efficiency/effectiveness of logistics activities").

Table 4. Problems of organizational and economic support of logistic activity (OES LA)

Level of OES LA	Logistic activity		Problems of OES LA	Solutions
	level of efficiency	level of performance		
high	high	high	absent	OES LA support
high	high	average	underutilization of the potential of OES LA	OES LA support, search for optimization of logistics processes, including OES
high	average	high		
high	average	average		
average	high	high		
average	high	average	inconsistency of the composition of OES to LA business processes	revision of the OES LA structure
average	average	high		
average	average	average		
high	high	low		
high	average	low		
high	low	high		
average	high	low		
average	average	low		
average	low	high		
high	low	low		
average	low	low		
low	high	high		
low	high	average		
low	high	low		
low	average	high		
low	average	average		
low	average	low		
low	low	high		
low	low	low		

Note: OES LA - organizational and economic support of logistics activities

Experimental

Thus, based on the developed sequences, the efficiency and effectiveness of logistic activity of the Ukrainian trade enterprises of the sample population is determined, as well as the key guidelines for the organizational and economic support of the trade enterprises of the sample population.

According to the results of the calculations, it is found that the majority of the surveyed retail and wholesale enterprises (15 out of 18 enterprises) are characterized by a ratio of high and medium levels of organizational and economic support with high and medium levels of efficiency and effectiveness of logistics activities, which indicates the need for review and

ordering composition of organizational and economic support according to logistic processes at trading enterprises (Table 5).

Table 5. Problems and Decisions on Improvement of Organizational and Economic Support of Logistics Activities in the Enterprises of the Selected Entity

Enterprise	Level of OES LA	Logistic activity		Problems of OES LA	Solutions
		level of efficiency	level of performance		
<i>Retail enterprises</i>					
Fozzy-Food LLC	AL	LL	HL	inconsistency of the composition of OES business processes	revision of the OES LA structure
Modern Art LLC	AL	AL	LL		
Basis PJSC	AL	HL	LL		
Grocery Company JSC	AL	AL	LL		
Vostorg LLC	AL	HL	LL		
Argon LLC	HL	HL	LL		
Retail Group PJSC	HL	HL	LL	mismatch of OES to LA business processes	cardinal changes of OES LA
Tavriya-V LLC	HL	LL	LL		
<i>Wholesale enterprises</i>					
LLC "TPK" Omega-Auto Delivery"	HL	HL	LL	inconsistency of the composition of OES business processes	revision of the OES LA structure
PJSC "TK" BARVINOK "	AL	HL	LL		
PF "Brigantina"	AL	AL	LL		
JSC "Ukrainian Mining and Metallurgical Company"	HL	HL	LL		
JV in the form of Optima Farm LLC	HL	HL	LL		
PJSC "Uzhgorodoptorg"	AL	AL	HL		
PJSC "Montform"	HL	HL	LL		
JV in the form of Metal Holding LLC	AL	HL	LL	mismatch of OES to LA business processes	cardinal changes of OES LA
Sigma PJSC	AL	LL	LL		
LLC "VEGA-PLAST"	AL	LL	LL		

Note: OES LA - organizational and economic support of logistics activities; HL – high level; AL- average level; LL – low level.

Thus, for the three enterprises of the sample population (PJSC "Sigma", LLC "Tavriya-B", LLC "VEGA-PLAST") in accordance with the obtained results, it is recommended to make drastic changes in organizational and economic support.

Conclusion

The main guidelines for improving the logistic activity of a trading company should be determined through the prism of determining the level of organizational and economic support, efficiency, and effectiveness of the logistic activity. In this study, a comparison of the main reference models used for the overall description of logistics and its decomposition was made. Thus, the comparative characteristic made it possible to identify the most appropriate reference model to use - SCOR-model, which, first of all, allowed to determine the main indicators for evaluating logistics efficiency. Activities of a trading company. In addition, an algorithm for determining the efficiency and effectiveness of logistics activities was built. According to the results of the study, the level of organizational and economic support, effectiveness, and efficiency of logistic activity of trade enterprises of Ukraine of the sample population were determined. Comparison of these three components according to these trading companies helped to identify the main problems of organizational and economic support of logistic activity present at the studied enterprises and to formulate general solutions to these problems.

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