

## **METHODS FOR ASSESSMENT OF THE LOGISTICS ACTIVITIES IN COMPANIES**

**Dimitar Chervenkov**

*Bishop K. Preslavski University of Shoumen*  
*Faculty of Technical Sciences, Department of Engineering Logistics – Shoumen*  
*e-mail: chervenkov\_50@abv.bg*

**Keywords:** *logistics, research, valuation, services, orders*

**Abstract:** *The paper suggests methods for assessment of the true conditions of the companies working in the field of logistics. Logistic indices for assessment of companies are proposed, which resolve successfully problems related with monitoring, control and operative management of logistic services. The same characterize as well the joint effectiveness of all operations, aimed to satisfy the consumers.*

## **МЕТОДИКА ЗА ОЦЕНКА НА ЛОГИСТИЧНИТЕ ДЕЙНОСТИ ВЪВ ФИРМИТЕ**

**Димитър Червенков**

*Шуменски университет „Епископ К. Преславски“*  
*e-mail: chervenkov\_50@abv.bg*

**Ключови думи:** *логистика, изследване, оценка, услуги, поръчки*

**Резюме:** *В разработения доклад се предлага методика за оценка на действителното състояние на фирмите, работещи в областта на логистичния сектор. Предложени са логистични показатели за оценка на фирмите, които решават успешно задачите по мониторинг, контрол и оперативно управление на логистичните услуги. Същите характеризират съвкупната ефективност на всички операции насочени към удовлетворяване на потребителите.*

The task of the logistic research consists in obtaining and analyzing the factual results of the activities of the companies [1].

The valuation of logistic activities and operations is directed to a united logistic process. This process may be examined by means of logistic indices, which give valuation of the true economic condition and tendencies in the future development of the companies, working in the field of logistics. This respectively compels the companies, doing logistic services to use effectively their resources.

The valuation of the quality of the information from the contrastive analysis, which the logistic experts from the team implement during the management of logistic activities at the time of the research, is reported with the respective measurement units.

The condition of the accounting forms, the type and the means by which they are accomplished, is also evaluated.

Tasks, that are solved at the development and the use of the system for assessment the activity results, are [3]:

- monitoring;
- control;
- operational management of logistic operations in the companies.

The monitoring indices allow the dynamics of the logistic system work in the past to be examined, according to the reports submitted by the managers and the consumers. Common monitoring indices, suitable for use, are: service activities rate and elements of the logistic supports structure.

Control indices reflect the rate of accomplishment of the current results of the activities. They are used to correct in certain limits the logistic process in case of derivation from set norms. Such index is tracing of certain defects in the work of the logistic system. The timely detection of such

current defects gives the opportunity of their immediate removal by determination of their emergence cause.

Operational management indices serve for personnel motivation as different indices for payment. Example: storage workers, involved in loading, accomplishing customers' orders and etc. logistic activities, which are or are liable to norming. When those workers do the given job faster, they receive certain stimuli for the additional job.

In the process of development and introduction the valuation system of the work results it is necessary one to determine the fields and diapasons in which the corresponding indices will be used. During the last years it is a common practice for the prosperous companies to assess all logistic activities in particular and the logistic process in general. The results obtained by the valuation are compared to the time spent, the expenses and the profit gained from the relevant activities, operations and for the companies in general.

The indices and the units of their measurement, corresponding to the types of activities (operations), give the result of the accomplishment of the separate tasks [4]. Typical examples of such measurement units are: the number of received customers' orders; the quantity of packing made, stamping, preparation of accompanying papers, quantity of deliveries, received from the provider, the quantity of the production, sent to the customers, and other similar logistic activities. Using those indices and the correspondent measurement units one can determine the volume of work done and the level of productivity (the volume of work done for a time unit).

The indices that are used in the research of the logistic operations are shown in Table 1 [1].

As far as the indices are resultants for the separate types of activities, one can measure the efficiency and productivity of elementary working operations.

They inherently don't allow such activities as customers' inquiries to the company and etc. to be evaluated.

Table 1. Measurement units for logistic operations

№ in sequence	Name of the measurement unit
1.	Time for accepting /registration/ of orders, planned for an order
2.	Time for delivering the orders, planned for an order
3.	Time for completing the orders, planned for an order
4.	Time for processing the orders, planned for an order
5.	Time for accepting /registration/ of orders, planned for a customer
6.	Time for completing the orders, planned for a customer
7.	Time for delivering the orders, planned for a customer
8.	Time for completing the orders, planned for a product
9.	Time for completing the orders, planned for a product
10.	Other

Example – people, responsible for accepting the orders in the company, whose work is evaluated through the number of accepted orders per hour, in some cases it can show high productivity of the company, which accepts the orders, but the insufficient time for listening to the wishes of every single client may lead to low levels of satisfaction among customers. That is why in the research one should judge and use those indices, which include all activities that represent the logistic process as a whole.

The indices orientated to the logistic processes, evaluate the level of satisfaction among users of the work of a logistic chain. They represent the overall productivity of the cycle "Accomplishment of the order", i.e. they characterize the joint efficiency of all operations, directed to satisfy users. Using such indices the company also is evaluated for quality accomplishment of the whole logistic process or of separate operations from it.

When necessary one can use inner valuation indices, apart from the aforementioned.

The inner indices valuation system is designed for comparison of the current results from activities, operations and processes to analogical activities, past results and for analysis of the norms accomplishment rate and the month plan. Example, the current rate of customers' service can be compared to factual indices from previous periods or to service norms, set for the current period. Inner valuations are used by managers for clarifying the sources of the required information, which data to be easily gathered. During the research in order to ease the activities, it is advisable logistic indices to be separated into different categories. Example, 1- costs, 2-customers' service, 3-productivity, 4-assets management, 5-quality, etc.

Costs are direct reflection of the result from the logistic activities and the factual quantity of the cost, connected to the accomplishment of a given operational task. For this purpose it is necessary a table with the daily expenditure to be created – Table 2. [1]

The determination of expected costs actually is the budget planning. The quantity of the logistic costs can be counted as a total sum of money on expenditure, or as a sum of money per product unit (specific costs). Characteristic indices of the logistic daily costs for production, wholesale trade, and retail trade and so on, are shown in Table 3.

The activities that are not done in the company are not entered, while there can be entered other, which are actually accomplished. In Column 4 the norm is entered and with a virgule – the work done. The same table is drawn for weeks, as in Column 5 the expenditure from week days is summed up. In case of daily account there may not be income data.

The customers' service is relevant to the relative capability of the company to satisfy the inquiries and the users' needs. Table 4 shows exemplary service indices for the production, wholesale trade, and retail trade.

Productivity is a complex parameter for the company activity. It is measured with the ratio of the indices between the end result from the work of the logistic system/company on the exit (i.e. the volume of products and services produced) and the volume of resources on the entrance, used by the system/company for obtaining the final result. This determination may be used when on the entrance and the exit there are such elements that are measurable.

At the research there are the following possibilities:

-there is a difficulty in measuring the result on the exit, and the resources on the entrance do not correspond to even periods of time;

-the structure and the type of the ready product and the input resources are constantly changing;

-the necessary data is hard to be obtained or is inaccessible.

Conceptually it is possible for this research to be used the following indices: static, dynamic, and indirect.

The static indices are those ones, which the system uses in the equitation for the productivity of all input and output results. The given results at that ratio are to be considered static, because they are based on single measurement. The dynamic indices cover only a certain period of time when the statistic ratio on the exit and the entrance is compared to one from different periods and this way the dynamic productivity index is obtained.

Example:

Table 2. Daily expenditure analysis

№ In sequence	Activities	Expenditure per unit	Worked for the day	Expenditure for the day total	Income
1	2	3	4	5	6
1.	Transportation				
2.	Storage				
3.	Custom service				
4.	Shipping				
5.	Cargo consolidation				
6.	Reverse logistics				
7.	Redistribution				
8.	Transportation management				
9.	Transportationstock management				
10.	Packaging, stamping, assembly				
11.	Consultations on delivery chain management				
12.	Entrance, processing and accomplishment of the orders				
13.	LLP / 4PL type services				
14.	Customers' service				
15.	Reverse logistics				

*Exit2009 / Entrance2009*

*Exit2008 / Entrance2008*

When any statistic data is missing, indirect indices on the dimension of market of logistic services are used. Among that data is the dimension of economic efficiency, import, export, volume of cargo transportation under species and in total for all the activities.

On the basis of the obtained results from the researches one can conclude for the real condition of the companies, working in the field of logistics, and to offer suggestions for structural and functional changes in order to optimize their production.

Table 3. Logistic costs indices

№ in sequence	Valuation indices	Used in different business types in %		
		Production	Wholesale trade	Retail trade
1.	Common costs analysis			
2.	Specific costs			
3.	Sales costs share			
4.	Expenditure on incoming deliveries			
5.	Expenditure on outgoing goods			
6.	Storage expenses			
7.	Administrative expenses			
8.	Order processing expenditure			
9.	Direct cost on labour payment			
10.	Comparison of the factual expenses to the budget indices			
11.	Analysis of the dynamics of costs expenditure			
12.	Direct profitableness of the product			

Table 4. Logistic service indices

№ in sequence	Valuation indices	Used in different business types in %		
		Production	Wholesale trade	Retail trade
1.	Norm of market saturation			
2.	Deficiency reserve			
3.	Unshipping faults			
4.	Season ability of the deliveries			
5.	Undeliverable quantities			
6.	"Accomplishment of the order" cycle duration			
7.	Feedback with the users			
8.	Feedback with the merchandisers			
9.	Quantity of users' complaints			

#### References:

1. П а в е л Д. и колектив. Развитие на логистичния сектор в България, Университетско издание, „Стопанство”, 2007 г.
2. К о р ч а к, Б. Що е логистика ?, Университетско издание, „ Стопанство”, 1993 г.
3. Д и м и т р о в. Логистиката в променящия се свят, Университетско издание, „Стопанство”, 1996 г.
4. Д и м и т р о в. Логистиката в икономиката на прехода, Университетско издание, „Стопанство”, 1999 г.
5. Г а т о р н а, Дж. Основи на логистиката и дистрибуцията, ”Делфинпрес”, Бургас, 1996 г.