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TYPES, PURPOSES AND FORMATION PROCESS OF THE PROGRAM OF CHANGES IN LOGISTICS SYSTEM

The article describes the essence and the types of changes in logistics system, along with the purposes of changes depending on the condition of a company. Changes in a logistics system are presented as a project (program). Changes in logistics system is the most radical way of business transformation and an effective tool to increase competitiveness of enterprises. The concept of changes in logistics system has become one of the fundamental ones in the world literature on economics of large commercial complexes, due to high dynamics of contemporary business.

Keywords: logistics system; program of changes; functioning of subsystems.

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ВИДИ, ЦІЛІ І ПРОЦЕС ФОРМУВАННЯ ПРОГРАМИ ЗМІН В ЛОГІСТИЧНІЙ СИСТЕМІ

У статті ідентифіковано сутність і види змін в логістичній системі, визначено мету змін залежно від стану підприємства, представлено погляд на зміни в логістичній системі як на проект (програму). Такі зміни є найбільш радикальним способом перетворення бізнесу і ефективним інструментом підвищення конкурентоспроможності підприємства. Концепція змін в логістичній системі стала однією з основоположних у світовій літературі з економіки великих господарських комплексів, що обумовлено високою динамікою сучасного ділового світу.

Ключові слова: логістична система; програма змін; функціонування підсистем.

Рис. 1. Літ. 12.

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ВИДЫ, ЦЕЛИ И ПРОЦЕСС ФОРМИРОВАНИЯ ПРОГРАММЫ ИЗМЕНЕНИЙ В ЛОГИСТИЧЕСКОЙ СИСТЕМЕ

В статье идентифицированы сущность и виды изменений в логистической системе, определены цели изменений в зависимости от состояния предприятия, представлен взгляд на изменения в логистической системе как на проект (программу). Такие изменения являются наиболее радикальным способом преобразования бизнеса и эффективным инструментом повышения конкурентоспособности предприятия. Концепция изменений в логистической системе стала одной из основополагающих в мировой литературе по экономике крупных хозяйственных комплексов, что обусловлено высокой динамикой современного делового мира.

Ключевые слова: логистическая система; программа изменений; функционирование подсистем.

Problem statement. Constantly changing business environment puts stringent requirements to all enterprises, so various transformations of enterprises become a rather frequent practice. Deep changes take place in the structure and production technology, management of economic processes and marketing. And this consequently improves financial and general economic indicators. In some cases, not coping with given requirements of today's market, companies come to a state when for survival changes are necessary in logistics system. Other companies, successfully functioning and developing, have to move to a qualitatively new level, and again, changes in logistics system are needed.

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Recent publications analysis. Programs of changes in logistics systems are actively discussed in contemporary literature.

Methodology of changes in logistics systems was investigated by V.M. Bobrovnik and N.V. Ivanova (2001), M.A. Oklander (1996), T.A. Rodkina (2001), V.P. Tashbaev (2003).

Approaches to implementing change programs in logistics systems are considered by V.L. Cherevko (2004), E.V. Krikavskiy et al. (2007), S.O. Polkovnichenko et al. (2003).

Applied aspects of change programs in logistics systems are studied by D.J. Bowersox and D.J. Closs (2001), Y.V. Ponomarova (2005), changes in supply system are considered by K.V. Rutkowski (2000), O.O. Smehov (1995), changes at industrial enterprises were studied by I.K. Tsvirinko (2003).

The purpose of the study. Despite the active interest of researchers to the problem of changes in logistics systems, it should be noted that there are practically no tools that could become a technical and methodological basis for grounded decision-making in the processes of preparation and implementation of changes in logistics systems.

Accordingly, the purpose of this article is to summarize the existing approaches to identification of types and aims of changes in logistics systems, consideration of changes in these systems from the point of view of methodology of project management, and development of mathematical model according to the choice of optimal variant of change program in logistics.

Key research findings. Logistics system is a complex organizationally completed (structured) economic system, consisting of the elements (units) interconnected in a single process of management with material and associated with them flows. In other words, logistics system is a system, consisting of several subsystems, performing logistical functions and which has developed links with the environment, that is, with the market.

Logistics system can be classified into subsystems. To the main subsystems (M elements) of a logistics system (LS) we'll refer the following 9: M1 – purchase; M2 – storage (warehousing); M3 – stocks; M4 – transport; M5 – production; M6 – distribution; M7 – marketing; M8 – information; M9 – staff. Let us consider each of them.

Purchase (M1) is a subsystem providing LS with material flows in the form of raw materials, other materials directly from sources.

Warehouses (M2) is a subsystem of LS, presented initially by storage territories in the form of buildings, structures, sites, as well as necessary technical facilities for handling and processing of material flows in the "storage space". The main purpose of warehouses is placement and storage of material flows, converted into reserves, their processing in warehouses and formation into the desired by user "format" for more convenient transportation.

Stocks (M3) – the indicator of the viability of LS. This is the "blood" of any logistics system. Availability of stock ensures system's high adaptability to changing market conditions. At the same time it is an expensive subsystem. Economy of LS depends on economically viable optimal capacity of stock.

Transport (M4) connects certain elements of LS (purchasing, warehouse, stocks, production, sales) ensuring continuity and timeliness of functioning.

Production (M5) provides transformation (processing) of incoming material flows into demanded by the market products at minimal cost and of necessary quality.

Distribution (M6) subsystem provides the outflow of material flows from the subsystem of production and its coming through logistics channels and chains at minimal cost to places of possible consumption.

Sales (M7) subsystem is integrated with marketing. Its main purpose is timely realization of ready-made products to consumers, with accompanying logistics services in a right place and at the appointed time.

Information (M8) subsystem is the main one since it provides activities of all LS subsystems. This subsystem supports information linkage between all the subsystems, while performing the function of management and control.

Staff (M9) an important element of the system involved in the performance of all logistics operations and providing purposeful activity of the logistics system.

Economic goals of these subsystems' functioning in a logistics system are the following:

Purchase (M1) – minimization of costs while purchasing raw materials, other materials etc.

Warehouses (M2) – minimization of costs for storage reserves and related cargo processing in a "warehouse space".

Reserves (M3) – optimization of stocks.

Transport (M4) – minimization of costs on material flows transportation.

Production (M5) – optimization of production costs.

Distribution (M6) – minimization of costs on products distribution.

Sales (M7) – minimization of costs on realization of products and associated logistics services.

Information (M8) – minimization of costs on storage, transmitting and processing of information.

Staff (M9) – optimization of logistics functions.

Tasks of the logistics system's subsystems are:

Purchase (M1) – organization and management by buyings.

Warehouses (M2) – organization of storage and management of cargo handling inside "storage space".

Reserves (M3) – inventory management.

Transport (M4) – organization and management of transport processes.

Production (M5) – organization and management of production processes.

Distribution (M6) – organization and management of material flows distribution.

Sales (M7) – organization and management of sales.

Information (M8) – organization and management of information flows.

Staff (M9) – organization and management of logistics operations.

Currently, the term "change in a logistics system" is used along with a number of related concepts like "reformation", "reorganization", "transformation". They are similar in contents, aim and methods of realization, but the most capacious is the term "restructuring".

The main disadvantage of the existing definitions of "restructuring" is the inability to distinguish between "restructuring" of other concepts, used to define any com-

plex of measures aimed at improving the efficiency of industrial activity: "program of improving competitiveness", "financial recovery plan", "sanation", "re-engineering" etc.

In our opinion, change in a logistics system of an enterprise can be defined as the process of interrelated significant changes in the structure of assets, liabilities and (or) functions of an enterprise, directed to overcoming (prevention) of a crisis in enterprise development, ensuring its solvency, sustainable long-term activities, implementation of new potential opportunities for profitable growth.

The program of changes in logistics system is a complex of measures, directed at realization of a chosen strategy, balanced by terms, performers and resources. Each program includes a variety of projects in the duration of which the common goal is decided (Rodkina, 2001).

The main aim of the program is crisis overcoming or its prevention. It is necessary to achieve such subgoals as: increasing production efficiency, changing of the way of assets management.

Change in logistics system can be applied in 3 main situations:

- Firstly, when organization is in a deep crisis, is actually insolvent, that is typical for many industrial enterprises.
- Secondly, when the current position of a company can be considered as satisfactory, but predictions on its future activities are unfavorable.
- Thirdly, changes in logistics system can be at successfully working enterprises in order to enhance their competitiveness.

Programs of changes in logistics system may require additional investments in modernization, introduction of new technologies, development of new products, entering new markets (Krikavskiy et al., 2003).

These programs are connected with project activities and in special literature "programs of changes in logistics system" represent a special category of programs. According to the established terms, the program of changes in logistics system is a plan (task, problem) and necessary means of its realization in order to achieve the desired economic, technical, technological or organizational result (Rutkovskiy, 2000).

We can note that each type of program of changes in logistics system is a separate project, in addition, for large enterprises it can consist of several sub-projects.

According to the corporate approach to management, company can be represented as a business portfolio (a set of strategic business units (SBU)). From the point of view of project management, as a subproject we can perform the activities carried out under the program on the level of a separate subunit.

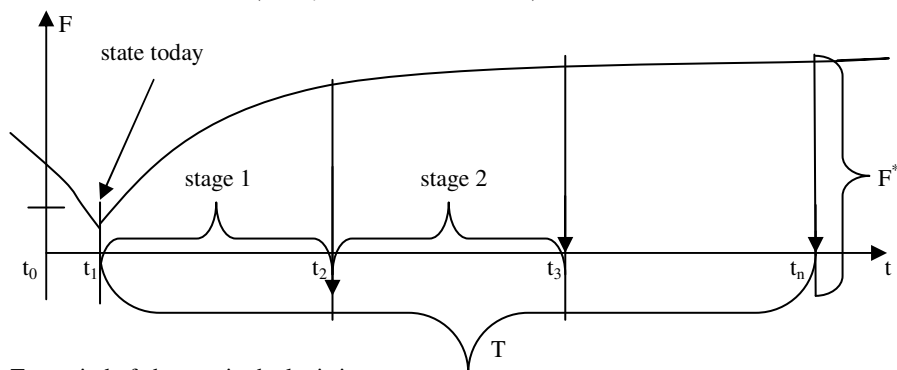
Program of changes in a logistics system should take into account its dynamics, since the desired state is achieved within a certain period of time (Figure 1).

An important moment while developing the program (project) of changes in logistics system is the selection of criteria to evaluate the activities' success.

Accounting of technological requirements and the ability to develop adequate technological solutions to a large extent determine the competitive position of a company. Technology chosen affects the following indicators of company's activity:

- economic – the level of production costs, quality and price of ready-made products;

- rating of the company within the industry, prestige (or lack of it) of the brand produced;
- the degree of its technological adaptability to changing market conditions – the ability to "adjust" technologies to new market requirements without significant investment of resources (time, material and labor).



T – period of changes in the logistics system;

F – the resulting indicator;

F^* – the expected result of a change in the logistics system.

Figure 1. Gradual changes in the achievement of results in logistics system, authors' design

Conclusions. The basic notion in logistics is the concept of logistics system, which can be regarded as one of the earliest among all socioeconomic systems.

To study the concept "logistics system" it is necessary to start from the analysis of subsystems that form a system, its properties and relationships.

Logistics activity extends from arising demand for a product or a service till its satisfaction. The main aim of logistics is timely and quantitative delivery of produced goods to the right place at minimum costs. The role of logistics increases with the number and intensity of goods flows, during the expansion of the company's activity or under the conditions when the nature of products itself and the market demand high efficiency.

Thus, the program of changes in the logistics system of the enterprise (company) is directed to solving two main tasks:

- Firstly, to ensure enterprise survival as soon as possible.
- Secondly, to restore or improve the adaptation of a company to the market.

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