Economics

UDC 658.78.011.1

THE LOGISTICS SYSTEM MANAGEMENT OF INDUSTRIAL ENTERPRISE

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The logistics system of the industrial enterprise is investigated. The paper presents the results of the analysis of the logistics system of OAO MAZ. The basic directions of efficiency maintenance of logistics system management is developed.

The concept of a logistics system is one of the basic concepts of logistics. A system is a set of elements interconnected with each other and forming a certain integrity, unity.

A logistics system is a complex set of elements that are in interrelations with each other, forming a single whole, in which the aggregate resource potential is brought, starting with the alienation of resources from the environment to the realization of the final output.

For management purposes, research and design of the logistics system can be divided into subsystems, links and elements.

The subsystem of the logistics system is a part of the logistics system, allocated in accordance with the organizational version of that in order to solve the tasks of both the logistics system as a whole and (or) a set of logistical functions in a separate business area of organizations [1].

The link of the logistic system is a certain economic and (or) functionally separate object (a subdivision of the company or a legally independent organization) fulfilling its local goal related to the implementation of one or several types of logistics activities. The element of the logistic system is the part of the link of the logistics system that is indivisible within the framework of the task of managing or developing a logistics system. For example, if the warehouse is considered as a link in the logistics system, then the picking, acceptance and shipping zones are elements of the logistics system [1].

The subjects of the logistic system can be industrial or commercial enterprises, a territorial production complex, a combination of production and infrastructure elements, as well as links at various levels (local, regional, state).

Competent management of the logistics system helps reduce the cost of material storage, reducing up to 75% of the time costs associated with the adjustment of equipment, reducing warranty costs up to 60%, increasing overall productivity by 30-45%, reducing the lead time to 80%, reducing the price of commodity units on average by 5%. For example, the use of a "just-in-time" logistics concept allowed Tayot's company to reduce the average annual cost of inventories to $ 40-50 per car, while at General Motors plants $ 500-600. The company Harley managed to reduce inventories of work in progress by $ 22 million, thanks to the use of the concept "just in time." Using a supply chain management system based on Internet technologies, Dell reduced production time to 4 hours. For six months of using this system, the company saved $ 15 million, and after three years - about $ 150 million [2].

When developing a logistics system, many factors that influence it are taken into account. At the enterprise, the logistics system performs the necessary services with minimal associated costs, due to the implementation of logistics operations. Therefore, the logistics policy takes into account two factors - the necessary level of logistics service and the minimum amount of logistics costs to achieve it, and the goal of logistics management is to establish a balance between these two components that are beneficial to both the consumer and the generator of material flow.

The effectiveness of a logistics system is called an indicator (or a system of indicators), which shows the level of quality of the logistics system at a given level of general logistics costs.

According to the opinion of the consumer, which is the final link of the logistics chain, the efficiency of the logistics system is characterized by the level of service quality of his order.

To increase the efficiency of the entire logistics chain, increased requirements are also needed for the system of performance indicators that must provide an assessment of logistics processes.

The following evaluation criteria are most common:

- expenses;
- customer satisfaction (quality);
- time;
- assets.

To determine the effectiveness of the logistics system, financial indicators are often used that allow a systematic approach to the problems analyzed and compare the results obtained. However, they reflect past results rather than current ones, they react slowly to changes, depend on a number of accounting methods and do not take into account important aspects of logistics. Sometimes financial indicators can show that something is going wrong, but do not show what exactly goes wrong or how it can be adjusted.

«MAZ» uses the tactics of direct marketing (the ability to purchase finished products directly from the warehouse of the enterprise).

«MAZ» uses both direct and indirect channels for the distribution of products at various levels.

The channels of the logistics system of "MAZ" are presented in Figure 1.

As can be seen from the presented scheme, the enterprise uses various channels of commodity circulation. Zero-level channel and a single-level distribution channel are the most costly (the content of branded stores, the salaries of store personnel, transportation costs for the delivery of products to the city's shops (without payment of transportation costs), etc.).

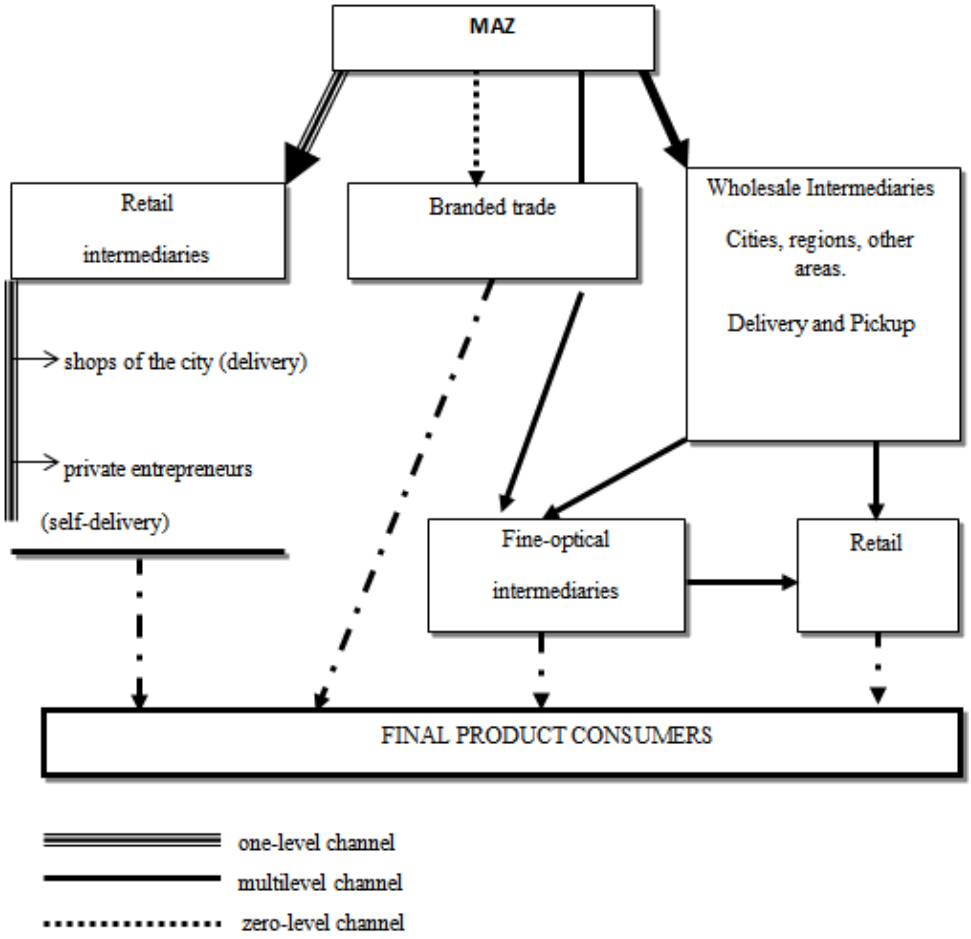

Fig. 1. Channels of the logistics system of the enterprise "MAZ"

Figure 2 shows the interaction scheme of the logistics system links.

The first level suppliers are:

1) Yaroslavl Motor Plant;
2) Volga Bearing Plant;
3) Bobruisk Tire Plant;
4) Forging plant of heavy stamping;
5) Baranavichy auto-aggregate plant;
6) Minsk Spring Plant;
7) Samara Bearing Plant.

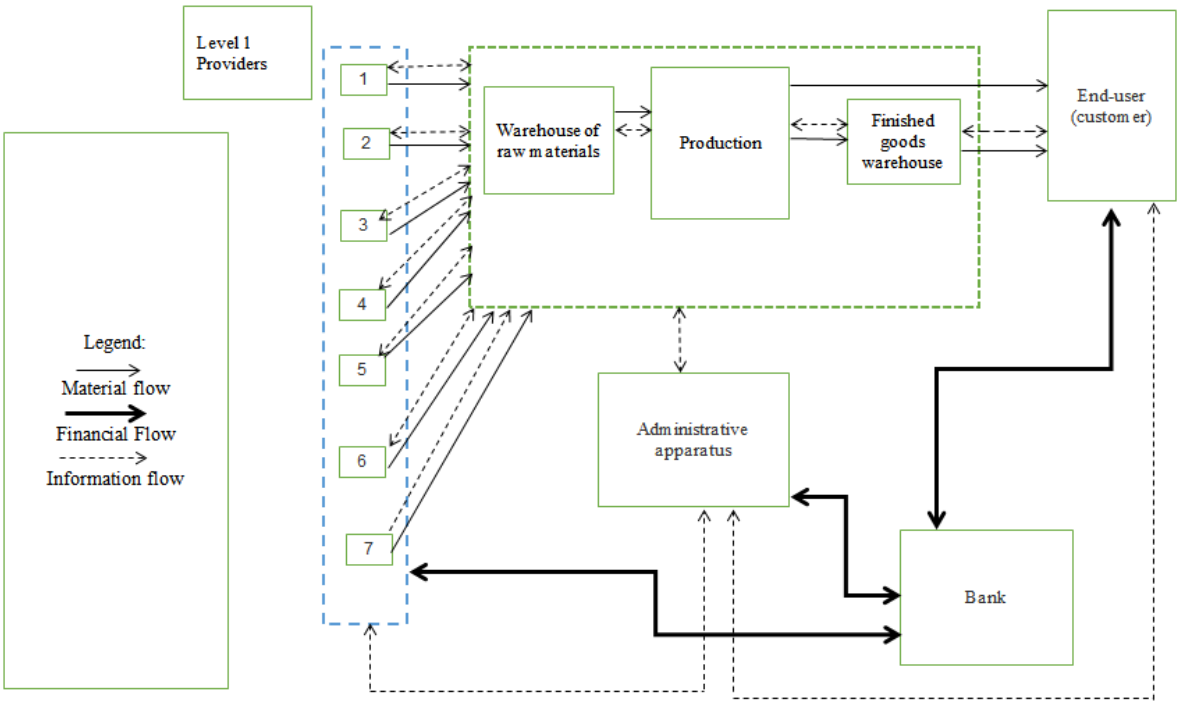

Fig. 2. Scheme of interaction of links in the logistics system

The long and wide network structure on the part of the supplier with the shifted focus company towards the consumer is combined with a short and narrow structure on the part of the consumer.

When describing and distributing business processes along the links of a logistics system, we can use the following classifications of business processes:

1) According to the APQC's model, the Process Classification Framework, the model includes 12 aggregated groups of business processes:

1. Develop a vision and strategy.
2. Develop products and services and manage them.
3. To carry out marketing and sell products and services.
4. Deliver products and provide services.
5. Manage the customer service.
6. To develop and manage human capital (personnel).
7. Manage information technology (IT).
8. Manage financial resources.
9. Acquire, erect real estate and manage it.
10. Manage environmental protection, health and safety (EHS).
11. Manage external links.
12. Manage knowledge, improvements and changes.

2) According to the model developed by J. Stoke and D. Lambert [3], which includes 8 key business processes: 1) customer relationship management; 2) customer service; 3) demand management; 4) managing the execution of orders; 5) management of production / operations; 6) supply management; 7) product development and bringing it to commercial use; 8) management of returnable material flows.

3) According to ISO standards [4]:

– basic business processes;
– auxiliary business processes;
– business process management.

For the modeling of business processes, various information technologies can be used to reflect the interconnection and interdependence of business processes in the logistics system, and to shorten the time for their design. For example, you can use such software products as Business Studio 4.0, Visio, IBM BPM, ARIS Express, BPMS (Business Process Management System), BPWin, ELMA BPM, etc.

The main problem of functioning of the MAZ logistics system is high overall logistics costs due to inefficient organization of transportation, deterioration of rolling stock, underload of rolling stock, and also because of insufficient quality of logistics services.

To increase the efficiency of the functioning of the logistics system of MAZ, a number of proposals can be made:

- renewal of rolling stock;
- improving the quality of transport services;
- search for reverse loads for cars;
- rational organization of internal and external routes.

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