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## **INFORMATION SUPPORT OF PROCESSES IN WAREHOUSE LOGISTICS**

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### **Abstract**

In the conditions of globalization and the world economic communications, the role of information support of business processes increases in various branches and fields of activity. There is not an exception for the warehouse activity. Such information support is realized in warehouse logistic systems. In relation to territorial administratively education, the warehouse logistic system gets a format of difficult social and economic structure which controls the economic streams covering the intermediary, trade and transport organizations and the enterprises of other branches and spheres. Spatial movement of inventory items makes new demands to participants of merchandising. Warehousing (in the meaning – storage) – is one of the operations entering into logistic activity, on the organization of a material stream, as a requirement. Therefore, warehousing as "management of spatial movement of stocks" – is justified. Warehousing, in such understanding, tries to get rid of the perception as to containing stocks – a business expensive. This aspiration finds reflection in the logistic systems working by the principle: "just in time", "economical production" and others. Therefore, the role of warehouses as places of storage is transformed to understanding of warehousing as an innovative logistic system.

**Keywords:** Warehouse Logistic System, Information Technological Support of Management of Warehouse Functions in Logistic System and Management of Communications, WMS - Warehouse Management System, Information Support of Warehouse Logistic Systems, ERP – Enterprise Resource Planning, WOCT - Warehouse Order Cycle Time

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### **1. Introduction**

It is a fact that traditional role of warehouses as places of storage is changed. It is required the accelerated turn of warehouse stocks and fast execution of consumer orders. The range of warehouse services extends. It demands a connection to rationalization of warehouse activity of logistic tools. On research of problems of warehouse logistics, we proceeded from the subject and object area of logistic knowledge which was considered within full logistic system, presented in Figure 1. In such understanding, the warehouse logistics represents the key competence (activity) which provides all functional areas of commercial logistics: supply, production and sale. The warehouse logistics is interpreted at different levels of economic system: national-regional-enterprise. So, for example, on a microlevel, many warehouses provide to clients a full set of services – from processing of their orders, to the execution of

production delivery in a final look. Services in stockpile management, preparation of goods for sale, carrying out check of their quantity and quality, transport and dispatcher services, drawing up documents and consultation on their registration are provided to clients (Afanasenko and Borisova, 2013). High-quality and timely performance of warehouse services in many respects depends on their information support.

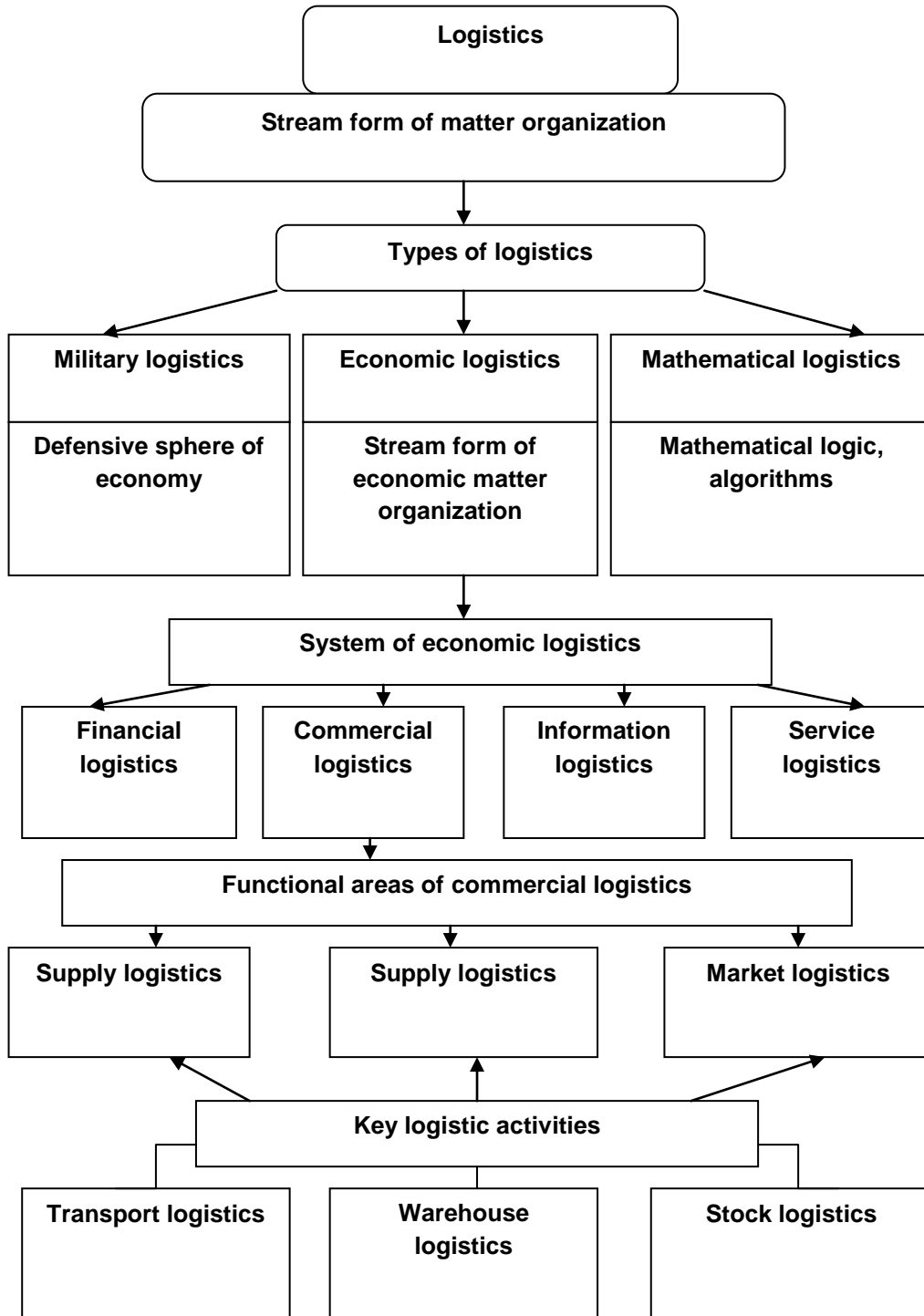


Figure 1. Logistic system

The work organization in a warehouse can be estimated by means of an indicator of speed of commodity turnover. It reflects quantity of turns of goods during the certain period. On this indicator, it is possible to judge that, how many times goods were sold, and stocks are renewed. Speed of commodity turnover depends on the weight of wrapped goods and an average stock. The speed of a turn is influenced by time of overcoming of spatial division and stay time in a pause (not only warehousing as planned storage, but also the compelled pause because of increase in time at passing of customs control, the transport jams, out of time performed loading and unloading works which haven't been correctly processed documents, etc.) Warehousing creates the following service benefits: approach of stocks to the market; assistance to formation of the full market range; possibility of completing of the mixed cargo sendings; supply of production by raw materials and materials in the conditions of instability and duration of deliveries or at fluctuations of production requirements; creation of effect of presence in the market at the expense of existence of stocks in a local warehouse.

## **2. Informational Technological Support of Management in Logistic System**

The technology of unloading performance, acceptance, stowage, storage, sampling, bundling, packing, loading and intra warehouse movement of goods is influenced by level of mechanization and automation of warehouse works. Replacement of manual skills with the machine is accompanied by expeditious regulation of a material and information stream. It is connected with ensuring warehouse functions with tools and development tools and practical use of the modern information and computer technologies, which are focused on realization of the purposes of warehouse logistic system.

Formation process of conditions for satisfaction of participant information needs of warehouse logistic system isn't isolated. It is the result of the analysis of potential opportunities of a warehouse and its logistic partners in this direction. Therefore, it is important to consider interrelation of information resources of a warehouse with information resources of other participants of merchandising system and level of their integration in a full logistic cycle.

Flexibility of warehouse system becomes more and more demanded for consumers. This property of system is provided on the basis of information support of planning, control of acceptance, placement, storage, search, a complete set and production delivery from a warehouse.

Uniting in various options modules of acceptance, packing, bundling and transportation, such system is capable quickly to be adapted for changing parameters of processed production and environmental conditions. The mechanism of "start" of such system is provided on the basis of information support of logistic system of planning, control of acceptance, placement, storage, search, bundling and production delivery from a warehouse. It represents providing a subsystem of warehouse logistic system. Within this information, subsystem functional modules work: control of a stock condition in a warehouse; control of deliveries; management of technological processes of a processing, etc. Its methodical basis is made by software products, methods and algorithms of planning and work control of warehouse logistic system. It is directly connected with the solution of problems of the operational block – a bundle of orders, route optimization of the warehouse equipment, maintaining documentation and the accounting block - calculations with suppliers and consumers, the receipt accounting of production on a warehouse, production deliveries from an account warehouse.

Considering information support of processes in warehousing, it is expedient to emphasize that it includes not only providing information technological support of management by warehouse functions in logistic system, but also management of communications.

## **3. WMS - Warehouse Management System**

Management of communications and information tools is carried out by introduction of WMS - Warehouse Management System.

Information support of warehouse processes allows not only to collect and generalize information in real time, but also to process it for receiving a full situational picture and further to

model admissible operating influences on subordinates objects, including development of optimum decisions.

The information management system significantly facilitates work and promotes increase of productivity of warehouse workers. The role of information systems and databases on the basis of information coding increases. Their introduction allows to increase efficiency of warehouse operations, to automate processes of sorting, packing, shipment of goods, to accelerate reception, processing and issue of orders, to expand possibilities of trade and intermediary activity. Full paperless and wireless technologies in a warehouse include: hardware of work of a warehouse (servers, workstations); the identification devices, which allow to work at a basis of paperless technologies (radio terminals, scanners of bar codes, plastic cards, systems of light management, a font for voice selection); the software for databases (Oracle, Sybase, Informix, etc.) ; the software for management of a warehouse (WMS - Warehouse Management System); the software for interaction with corporate system the interface between ERP – Enterprise Resource Planning - planning of resources of the enterprise and WMS); the software established on the warehouse equipment (conveyors, AS/RS systems, etc.) and the devices of identification, which ensure functioning on paperless technology (Frazzeli, 2012). The warehouse operations are supported by modern technical systems and they allow to automate registration procedures and decision-making processes.

We connect information support with management of communications in warehouse logistic system. Management of communications provides interaction of participants of logistic system of warehousing; transfer of the administrative information, which is directed on achievement of its purposes. Management of information communications within logistic system of warehousing includes planning system of communications; analysis and processing of a condition of warehouse works; a ratio plan fact; forecasting; collecting and timely transfer of necessary information to participants of system; formation of databases, documenting, storage and information updating (Afanasenko and Borisova, 2010).

#### **4. Conclusion**

We should pay attention that the system of communications is based not so much on program and technical means of logistic system, but how much on organizational culture and humanization of interactions of various structural divisions.

We will group the information tools, which are used in warehouse logistics as follows:

- 1) Software of management of warehouse functions;
- 2) Tools of analytical character (Borisova, 2010); for example, estimates of time of goods processing at acceptance and placement (DTS - Dock – to-stock) or time which has passed from the moment of arrival of goods at a warehouse till the moment when it is ready for selection or shipment; assessment tools of duration a production cycle of preparation the order - WOCT - Warehouse Order Cycle Time or time which has passed since the moment when the order arrived at a warehouse, till the moment when it is selected, packed and ready for shipment;
- 3) Software of economic and marketing analysis;
- 4) Automation equipment of document flow, management of documents and business processes (Afanasenko and Borisova, 2012).

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