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INFORMATION SUPPORT OF THE SUPPLY CHAIN MODELING PROCESS

The widespread penetration of logistics into the economy has been made possible in large part by the computerization of material flow management. Continuous improvement of quantitative indicators of microprocessor technology (speed, memory, ease of communication with a computer, cost) provided a qualitative opportunity to integrate various participants in logistics processes into a single system, exceeding the traditional boundaries of enterprises and reaching national and international boundaries. However, in such integrated systems the requirements of operational management of material flows are actualized, which means the need to ensure parallelism in time of material and information flows, i.e. to ensure the collection, processing and transmission of information in real time. The creation of multi-level automated material flow management systems, although it requires significant costs for software development and database formation, on the one hand, should ensure the versatility of the system, and on the other - a high level of integration of all supply chain participants [1].

The rapid development of information technology actively affects all aspects of business development, including logistics. The various information flows circulating inside and between the elements of the logistics system, between the

logistics system and the external environment, form a logistics information system, which can be defined as an interactive structure containing personnel, equipment and technology combined with the information flow used by logistics. management for planning, regulation, control and analysis of the logistics system. Today, certain software packages have been developed to effectively solve some logistics problems [2].

Creating and managing a corporate database is possible using a well-known enterprise resource planning system (ERP). With this system perform [1, p.57]:

- collection, processing and transmission of unsystematized supply data;
- collection and dissemination of reports summarizing this data;
- transmission of information in the supply chain.

However, this system has some disadvantages:

- ERP system sets strict requirements for data and their processing, which is not always convenient for the user;
- ERP system is closed, ie it is impossible to integrate modules purchased from other manufacturers into the existing system;
- incompatibility of the ERP system with the supply system, ie it is impossible to integrate the database of the supply system with suppliers and consumers, especially with those who can not purchase ERP;
- the data needed for decision-making are redundant;
- it is difficult to choose the data that are needed for integration with other participants in the logistics chain.

These shortcomings do not allow the effective use of ERP systems for supply chain modeling. These shortcomings are reduced by the SAP R / 3 software, which handles very large databases using the four main modules "Financial Accounting", "Human Resources", "Production and Logistics", "Sales and Distribution".

The name MRP is used for material requirements planning (MRP I) and production resource planning (MRP II) systems.

MRP I aims to minimize inventories while maintaining a sufficient amount of materials needed to support the production process. This system allows [1, p. 275]:

- reduce stocks of raw materials and components;
- place orders, taking into account time intervals;
- get more accurate and reliable information about available and required stocks;
- promptly respond to market demands;
- reduce production costs.

However, this system has a number of disadvantages, namely:

- this system does not allow to optimize the cost of purchasing materials;
- increased risks of shortage of raw materials due to unforeseen restrictions on delivery;
- Standard computer software is not efficient enough, and custom development requires a lot of time and money.

The MRP I system is used by many enterprises and companies, but it is constantly improved, elements of financial, marketing and logistics subsystems are added to it. Thus arose MRP II.

This system has certain advantages over MRP I:

- reduction of stocks of raw materials and components;
- greater turnover of stocks;
- stability and timeliness of product delivery to consumers;
- reduction of costs for the purchase of materials.

These benefits make it possible to reduce the company's costs, but it should be borne in mind that the implementation and maintenance of this system during the first year may amount to more than 750 thousand dollars. [3, p. 277].

DRP (DRP I and DRP II) systems are widely used in distribution. DRP I is used for efficient distribution of finished products through the determination of demand, stocks in distribution centers and warehouses. is an extended version of DRP And thanks to the blocks of personnel, transport, finance.

In DRP II, logistics requirements determine the production schedule, which in turn is related to MRP and ERP systems.

The advantages of DRP II include [3, p. 282]:

- reduction of costs for delivery of products to distribution centers and end consumers;
- reduction of stocks of finished products;
- reduction of storage area;
- coordination of activities between producers and intermediaries.

However, the systems discussed above do not allow to obtain optimal solutions for the supply chain as a whole. For effective use of information support it is necessary to divide it into transactional and analytical information technologies (Fig. 1).

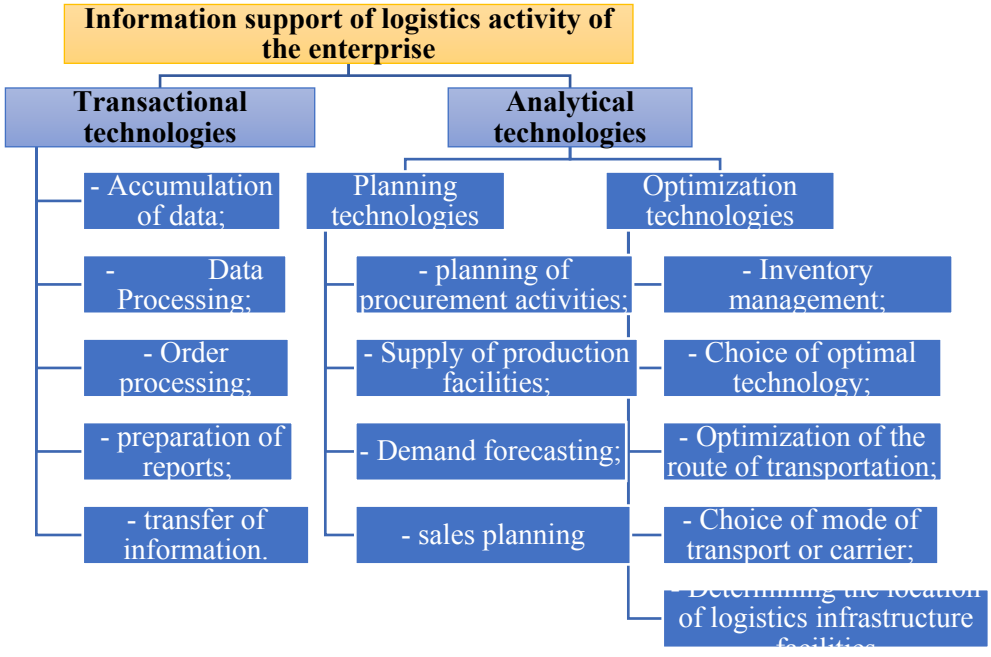

Figure 1. Tasks of transactional and analytical technologies

Investigating the features of each component of information support of the logistics activities of the enterprise, we can identify their main differences, which are presented in Table. 1.

Table 1

Differences between transactional and analytical information technology

№	Features	Transactional	Analytical
1	2	3	4
1	Action horizon	Current	Future
2	Goal	Accumulation, processing and transmission of data	Forecasting and decision making
3	Use of databases	Unsystematized and slightly changed data	Systematized, significantly changed and analyzed data
4	Query execution time	Upon admission in real time	If there is a problem with data processing in batch mode
5	The result for the system	Replacement or elimination of ineffective management decisions	Coordination of management decisions

The above main differences between transactional and analytical information technology allow us to conclude about a certain relationship between them. This is confirmed by the research of the American scientist J. Shapiro, who considers the hierarchy of supply chain management systems (Fig. 2).

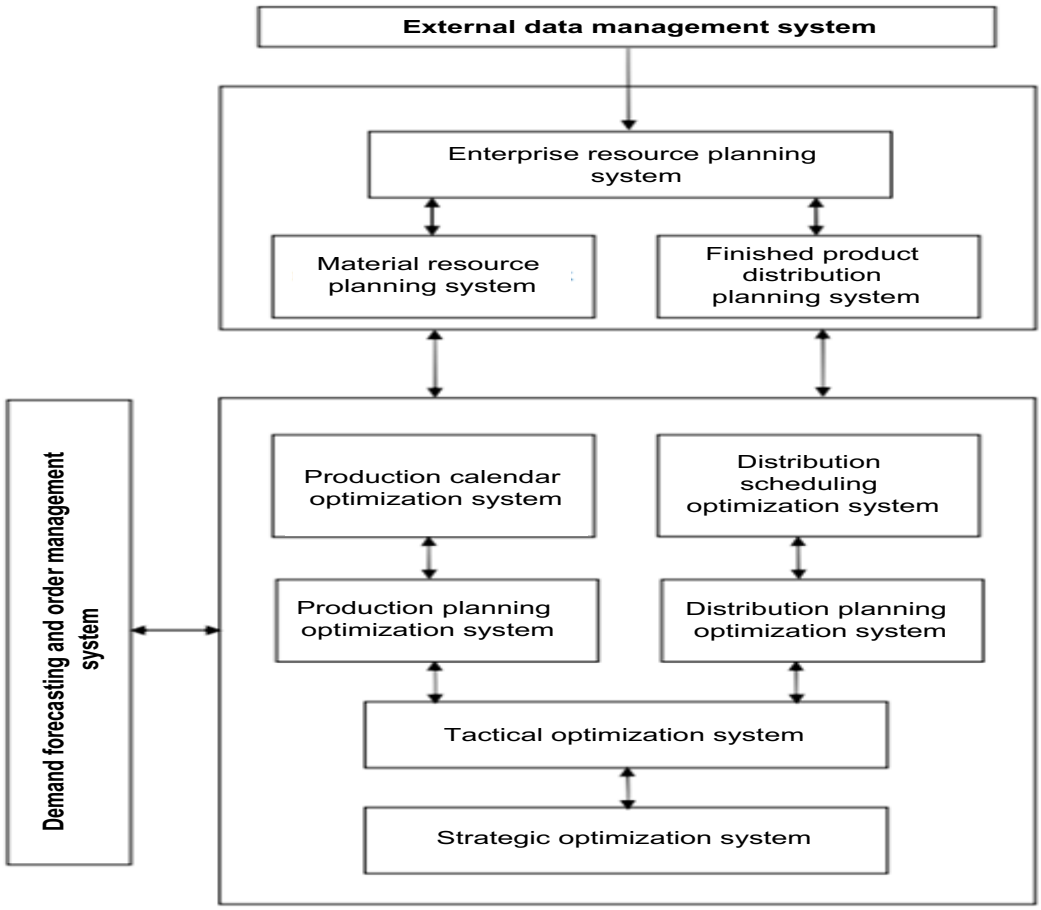

Figure 2. Structuring supply chain management systems

All proposed systems should contain a set of specific optimization models that will constitute the overall supply chain model. However, the first step in using such a model is a detailed analysis of the data that will make up the supply chain database.

Each of the input files must correspond to a specific supply chain object. These files are divided into two types: structural and numeric data.

To create a supply chain requires structural data, which must contain [3, p. 191]:

- names and locations of existing and potential suppliers, logistics infrastructure facilities and consumers;
- names of products that pass through the supply chain, which can be raw materials, components or finished products;
- names of processes that take place at all objects;
- names of resources consumed by objects;
- list of transport connections, which consist of points of departure and destinations.

Input data are converted into output data using an optimization model (Fig. 3).

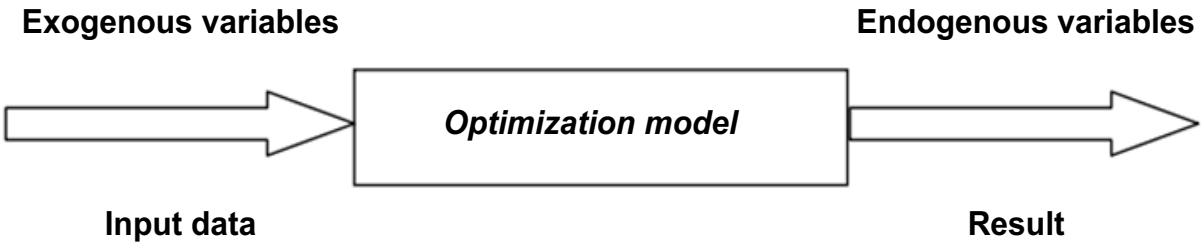

Figure 3. Scheme of optimal decision making

As for the source information, it should be in a user-friendly form and contain information about the optimal:

- the amount of raw materials that can be obtained from each of the suppliers;
- location and capacity of new facilities;
- the level of material flow from suppliers to facilities;
- the level of resources used at each facility;
- maintenance of semi-finished products in the supply chain;
- the level of material flow of finished products to end users;
- the level of logistics services to end users.

Therefore, application packages are widely used to solve logistics problems, which allow to obtain the optimal solution at a certain stage of activity. Systems such as ERP, MRP and DRP require that the various logistics and production activities of the enterprise work in coordination. In order to achieve such coordination, it is necessary to minimize conflicts between participants in the supply chain and introduce new information support for modeling the supply chain. This can be achieved through joint planning and decision making.

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DECISION MAKING PROCESS FOR STABILIZATION AND OVERCOMING THE CRISIS BY THE UKRAINE INTERNATIONAL AIRLINES

The complication of the epidemic situation in Ukraine and in the world related to the spread of COVID-19 has led to a sharp decline in demand for air transportation, as a result of which airlines have been forced to reduce the frequency or cancel the vast majority of flights. International passenger traffic is almost paralyzed: 98% of routes suffered from closed borders and quarantines. Airlines can only rely on government assistance and think about how to adapt to the realities of the post-coronavirus market. The anti-crisis action plan means to reduce everything as much as possible, not to spare resources for preserving the valuable and to introduce a new profitable business.

Ukraine International Airlines has significant problems in the field of financial management, as evidenced by low profitability and productivity. The main reasons for this situation are the excess of costs over revenues and, as a consequence, the loss of the enterprise. That is, there is a need to use adequate situations of modern methods of managing costs, cash flows, such as, for example, budgeting and so on.

The analysis of the main components of management efficiency encourages the development of effective stages of overcoming the crisis by the airline [1].

1. Financial assistance from the state.

The company worked at a loss solely due to the fact that it was increasing accounts payable, i.e. not fully paid for goods and services. To achieve financial stability and conduct a competitive business UIA is prevented by several negative factors. The main problems of the airline and other carriers are the lack of national priorities for the development of air transport, the cost of air navigation services