

COMMUNICATIVE TECHNOLOGIES IN LOGISTICS AND INVENTORY MANAGEMENT

ALINA LOKTSEVA, ALENA MALEI
Polotsk State University, Belarus

In the article the logistics information systems, their types and scope are investigated. The solution of the problem of the optimal level of reserves at the company is given. Information logistics MRP and ERP systems are considered and studied, advantages and disadvantages are identified. As well as the stages of implementation of communication - MRP and ERP information systems are considered.

At the present stage of modern economic development, the logistics finds more and more broad application. This phenomenon was promoted by development of communication equipment and technologies, and also emergence of the new wave of scientific and technical revolution. In the conditions of fast forming of new information society, a large number of enterprises and firms start paying the attention to new managerial approaches and technologies.

As in the conditions of severe competition business methods are quickly changed, the companies start implementing different information and computer systems. Different information flows that circulate inside and between elements of logistic system, between logistic system and environment form logistic information system.

The Logistic Information System (LIS) is a definitely organized set of the interconnected computer aids, different reference books and necessary means of programming which provides the solution of these or those functional problems of material flows management [1].

Three types of logistic information systems are allocated directly at the enterprise. All types are considered in detail in table 1.

Table 1 – Types of logistic information system and their scope

Type of logistic information system	Application area	The solved tasks of this system
Planned IS	Are created at the administrative level of management for adoption of long-term decisions.	– creation and optimization of links of the logistic chain; – management of seldom changing data; – production planning; – general management by stocks; – reserves management.
Dispositive (dispatching) IS	Are created at the level of warehouse management or workshop for ensuring the debugged work of HP, for decision making on medium-term and long-term perspectives.	– detailed inventory management (warehousing places); – management of intra warehouse and intra factory transport; – selection of loads by orders and their picking, accounting of outward cargoes and other tasks.
Operational (executive) IS	Are created at the level of managerial or operational management for execution of daily affairs in real time	– management of warehouses and stock accounting; – sending preparation; – operational production management and its service.

Source: own development on the basis of sources [2–5].

Thus, from the above table it is visible that in planned information systems the highest level of standardization is at the tasks solution that allows adapting the standard software with the smallest difficulties. In dispositive information systems opportunity to use the standard software package is lower. In executive information systems at the operational level of management, as a rule, the individual software is used.

In management systems the enterprises apply the different methods of management based on the specific algorithms of preparation and managerial decision making with use of information technologies.

The main problem of many enterprises is that there is the optimum control of stocks. Methods of management of stocks are formalized in the form of the following standards of management which are the basis of development of IS:

- material requirement planning and production resources (Manufacturing Resource Planning, MRP);

– enterprise resource planning and resource management optimization (Enterprise Resource Planning, ERP).

The description of given systems is stated in table 2.

Table 2 – Informational logistic systems, their essence, benefits and shortcomings

Name of system	System Essence	Benefits	Shortcomings
MRP	The requirement planning methodology in material resources consists in determination of final resource requirement according to the volume schedule of production. Key concept of the methodology is the "explosion" concept, i.e. reduction of treelike structure of the product to the linear list according to which the requirement is planned and the order of component parts is performed. The material requirement planning system is one of the logistic concepts, most popular in the world, on the basis of which the large number of micro logistic systems is developed and functions.	<ul style="list-style-type: none"> – satisfaction of materials requirement, components and products for production planning and delivery to consumers; – production planning operations, delivery schedules, transactions purchasing; – allows to define how much and in what terms the end products must be made; – possibility of optimization (synchronization) of time of material entry and products release (sale); – decrease in the level of warehouse stocks; – more exact information for production accounting. 	<ul style="list-style-type: none"> – considerable amount of calculations and preliminary data processing; – increase of logistic processing orders costs and transportation when firm aspiration to reduce even more stocks of material resources or to pass to work with small orders with high frequency of their accomplishment; – nonsensitivity to short-term demand changes; – the large number of refusals because of big system dimension and its complexity.
ERP	The organizational strategy of production integration and transactions, managements of the manpower, financial management and asset management oriented to continuous balancing and resource optimization of the enterprise by means of the specialized integrated package of the applied software providing the general model of data and processes for all activity fields. The ERP system is the specific software package implementing strategy of ERP. ERP systems help to manage resources of the enterprise and to model its opportunities. Besides, all processes become transparent.	<ul style="list-style-type: none"> – consolidation of all the enterprise business processes for uniform rules within one system; – operational obtaining information by the management on all aspects of enterprise activity; – planning and control of the company activity (short-term and long-term plans of different divisions are coordinated); – increase of effective management of the company and its competitiveness; – it is possible to implement in parts (modules), having automated, for example, at first production, and then work with the personnel; – covers all activities that allows to automate practically all business processes. 	<ul style="list-style-type: none"> – high cost; – long and difficult implementation; – need of serious review of the company performance; – the system cannot be implemented at the enterprise where business processes are not debugged; – preliminary independent research of the enterprise by the consulting company is required.

Source: own development on the basis of sources [6–9].

ERP and MRP-systems are usually implemented in large organizations, at the enterprises with difficult production, the wide network branch, the big range of products raised by the volume of warehouse operations.

The advantage of the ERP system is that they allow to integrate some tasks: it is possible to take into account and plan monetary assets at the same time, and also to trace their movement; create cost value and estimate labor productivity at the enterprise. The possibility of "the dynamic analysis" and "dynamic plan change" for all chain of planning is an important difference from methodology of MRP. Specific opportunities of methodology of ERP significantly depend on program implementation. The concept of ERP "is vaguer", than MRP. If MRP obviously focuses on production companies, the methodology of ERP is applicable both in trade, and in the field of services, and in the financial sphere. ERP-concept is the first one directed on the business management, and not just production management as MRP.

All communication informational systems pass implementation process. The process of implementation

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of given systems includes some stages:

- the initial stage is connected with accumulation of experience in COMPUTER use and automation of accounting calculations at the task-specific level;
- the control stage is characterized by stabilization of COMPUTER park, determination of spheres of their application, information search on the Internet and the organization of local networks in the enterprise;
- the integration stage is characterized by use of network solutions of different level, COMPUTER-aided decentralization of management and the new organizational basis of the enterprises which is based on broad application of information technologies in management, application of the complex corporate information systems integrated into the Internet [10].

Thus, it is possible to draw the following conclusions:

1) MRP is a production planning strategy providing both operational and financial planning of production, providing wider scope of resources of the enterprise. MRP sets the principles of detailed production planning, including orders accounting, capacity utilization planning, requirement planning in all resources of production (materials, raw materials, component parts, the equipment, the personnel), manufacturing costs planning, production course modeling, its accounting, finished product output planning, the operational plan correcting and shop orders.

2) ERP strategy helps in management of finance, financial accounting, sales management and purchases, the relations with debtors and creditors, personnel management, production, inventory management. Also such systems allow managing customer relations, supply chains, to do trade via the Internet.

3) Using information technology allowed improving the efficiency of materials management on essentially new level. Using information technology results in reduction of logistical cycle, decrease in mistakes quantity, the personnel reduction, logistic service improvement, fast response of the company to internal and external changes, company competitiveness increase.

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