

Basic Principles of JIT Logistics Control of Information and Freight Flows

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ABSTRACT

The article presents the priority principles observed when creating a JIT logistics management system for information and cargo flows, the progressiveness of economic systems from the point of view of Internet logistics is achieved not by increasing the material and technical base, but by improving it on the basis of modern information and communication technologies.

Keywords: logistics, management, principle, material and information flow, organization

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INTRODUCTION

In industrialized countries, interest in the problems of creating a JIT logistics management system for material and information resources is primarily associated with reasons of a purely economic nature.

The prospects for the development of logistics of information and cargo flows in the transport sector have predetermined the following priority factors: increased requirements for the quality characteristics of the process, the transition from the seller's market to the buyers' market. This transition was accompanied by significant changes in product distribution systems and production strategies.

Main part

If earlier the sales system was adjusted to production, then in conditions of market oversaturation, production programs are formed depending on the volumes and divisions of market demand. In conditions of intense competition, adaptation to the interests of the clientele requires manufacturers of products to respond to incoming requests, which leads

to an improvement in the quality of service, the competitiveness of products manufactured by production facilities, minimization of the time spent on order fulfillment and strict adherence to the agreed schedule for delivering goods on time to the specified location. Time factors, together with the price and quality of products, have become decisive for the successful functioning of the enterprise. It is necessary to note the complication of the problem of implementation with a parallel interest in the quality of the distribution sphere. A similar reaction arose among manufacturing firms to their suppliers of resources, materials and services; as a result, a complex system of connections between various market representatives was formed, which required a modification of the already existing organizational models in the field of supply and sales.

Seven rules of logistics: an enterprise must supply a specific consumer with the right products of the specified quality in a specified quantity at a specified price in the right place at the right time.

In the JIT logistics of information and cargo flows, the following principles apply:

- a system, meaning the organization and maintenance of purchases, storage, production, sales and transportation as a single process;
- **completeness:** the formation of all types of equipment for the operation of the movement of streams in specific conditions; coordination of the actions of unauthorized and mediated participants in the movement of peasants and products; the implementation of a centralized control of the execution of tasks that stand before the logistic structures of firms; the desire of companies to work together with external partners on the power chain and the establishment of good connections between different times of the clock
- **Nychnocity:** strengthening of the calculated start at all stages of JIT control flow from planning to analysis, performing the same calculations in the course of the recognition of the status of the most important policy of the company's logistic structures by the qualified frames;
- **specificity:** clear definition of a specific result as the purpose of flow interruption in accordance with technical, economic and other requirements; performance of movement with the lowest costs of all types of pecypses; the leadership of the logistic from the side of the accounting-calcified subdivisions or structural organisms, the results of the work of which are measured very dusty;
- **performance:** flow control, continuous tracking of displacement and change of each flow object and operational optimization; careful identification of details of all operations of material and technical support and transportation of goods; Reliability: ensuring the safety and security of movement, backup of communications and technical means for changing in case of failure of movement; wide use of modern technical means of displacement and motion control; high speed and quality of information flow and technology of its processing;
- **options:** the ability to flexibly respond to the vibration of the speed and other vibrations of the external environment; purposeful creation of reserve powers, loading of which is performed in accordance with preliminarily developed reserve planes.

In order to master JIT logistics and its continuous improvement, consulting centers are being created at large manufacturing enterprises and firms. The intensive development of logistics of material and

information flows is carried out in conjunction with the development of the concept of transaction, JIT logistics and its basic principles. The principles that determine the nature and essence of the entire coordination device, in general, and its individual aspects in particular, are of paramount importance in the development and creation of JIT logistics systems. There are several of the most important principles that reflect logistic approaches to solving problems in industrial and economic activities.

Integration principle. Integration means the unification into a whole of any parts or properties. The integration principle is aimed at studying integrative properties and patterns in JIT logistics systems. Integrative properties are manifested as a result of combining elements to the whole, combining functions in time and space. A logistics system as an ordered set of elements with certain connections has special systemic properties that are not inherent in individual elements and allow a synergistic effect to be obtained.

The principle of synergy. This principle defines an integrated and systematic approach to achieving certain goals. Taking into account the interaction of the mechanism of production and circulation, on the basis of this principle, it is possible to achieve a better result in the whole structure by coordinating actions in all interrelated processes than by improving the functioning of individual elements of the JIT logistics system. Synergy: the effect of mutual reinforcement of links between one system and another at the level of material flow; joint (corporate) effect of interaction of elements in the system. Synergistic effect - the effect of combining actions. A synergistic connection is a connection that, with the joint actions of independent elements of the logistic system, provides a general effect that exceeds the sum of the effects of the same elements acting independently, that is, an increasing connection between the elements of the system.

The principle of complexity: The essence of this principle is the formation of all types of support (developed infrastructure) for the implementation of the movement of flows in specific conditions, coordination of the actions of direct and indirect participants in the movement of resources and products, the implementation of centralized control over the implementation of tasks facing the logistics structures of firms and the implementation of close cooperation of firms with external partners in the product chain and the establishment of strong links between different divisions of firms in the framework of internal activities.

The principle of emergence. The larger the logistic system of the enterprise and the greater the difference in size between the part and the whole, the higher the likelihood that the properties of the whole can be very different from the properties of the parts. It is possible that the local optima of the goals of individual parts do not coincide with the global optimum of the goal of the enterprise's logistics system. Any JIT logistic system should be considered first at the macro level, that is, in interaction with the environment, and then at the micro level. The sum of optimal decisions made by employees of individual structural functional divisions of the enterprise does not guarantee optimization of the logistics system of the enterprise as a whole. Thus, emergence (integrity) is the property of a logistic system to perform a given target function, which is implemented only by the system as a whole, and not by its individual elements.

The principle of dynamism. Traditional logistic systems should reflect the essence of the processes they cover and should not be frozen organizational and economic formations.

The essence of the logistics process lies in progressive dynamics, which is determined in development, striving for continuous improvement. Dynamism determines supply and marketing operations, means and objects of labor, goals and objectives expressed at the next stage of development.

The principle of rationality. A characteristic feature of the development of the JIT logistic system of an enterprise is the choice of the most suitable variant of the logistic system. Such management decisions are selected that are the best in terms of a set of indicators for given conditions. The challenge is not to find a better solution than the existing one, but to find the best possible solution. From the point of view of rationality, it is possible to assess not only the quality level of management decisions (optimal problem solution, optimal plan, optimal control), but also the state of the logistics system or its behavior (optimal trajectory, optimal resource allocation, optimal functioning of the warehouse system).

The general principle of optimization: a decision is always made in such a way that, thanks to the chosen option, i.e. due to the selected ratio of costs and the achieved result, the rational achievement of the set goals of the JIT of the enterprise's logistics system was carried out.

The principle of consistency. The principle of consistency assumes an approach to the logistics system as an object represented by a set of interrelated private elements (functions), the implementation of which ensures the achievement of

the desired effect in the required time frame, with the necessary labor, financial and material costs, with minimal damage to the environment. The principle of consistency presupposes the study of a logistic object, on the one hand, as a whole, and on the other hand, as part of a larger system in which the analyzed object is in certain relationships with other systems.

The main principle on which the management of logistics is built is the principle of consistency, which means that the management of material flows on the way from the source of their origin to the user is carried out in the form of an integrated system of measures, and not in the form of a sequence of independent actions. On the scale of a single enterprise, the implementation of the principle of consistency means that the material flow at the stages of purchase, storage, production, marketing and transportation is planned and managed as a whole. Material flows in the economy are formed as a result of the actions of many participants, each of which actually pursues its own goal. If the participants are able to coordinate their activities in order to rationalize the joint object of management - the end-to-end material flow, then all together they will receive a significant economic benefit.

The systemic organization of JIT logistics of the material and information flow is possible within one enterprise or even its subdivision. However, the maximum effect can be obtained only by optimizing the aggregate material and information flow along the entire length from the primary source of raw materials to the end consumer or its individual significant sections. In this case, all links of the material-carrying chain must work as a single well-coordinated mechanism. To solve this problem, it is necessary to approach from a systemic point of view to the choice of technology, to the design of interconnected technological processes in various areas of the movement of materials, to the issues of harmonizing often conflicting economic interests and to other issues related to the organization of material and information flows.

Thus, the principle of consistency covers all aspects of an object and an object in space and time. This principle means that systems in logistics should be built as a community of several or many elements, closely interconnected. Within the framework of the JIT of the logistics system, the constant autonomous functioning of any individual elements is not allowed. Emergencies and non-standard situations are an exception.

The principle of initiative. Practiced logistic systems, built on the principle of initiative, imply the manifestation of the emerging structures of the ability

of a definitive reaction to probable events, together with the ability to create and regulate subjective conditions that have a positive effect on the processes of economic activity.

The principle of expediency. Basically, it focuses on attracting the potential that plays a positive role in achieving production goals. In the choice of organizational, technical and technological structures, selectivity is manifested, expressed by the desire to reduce material and labor costs or travel time in conditions of the possibility of solving certain problems in several ways.

The concentration of interrelated functions in the combined structures for the warehouse and transport facilities under a single leadership determines, first of all, the implementation of the principles of JIT logistics. The transition to integrated management is carried out with a logistic approach, in contrast to the traditional one, where management is often isolated. The progressiveness of economic systems from the point of view of Internet logistics is achieved not by increasing the material and technical base, but by improving it on the basis of modern information and communication technologies. With a logistic approach, all factors that relate to the economic system and which are associated with it are consistent. The most effective indicators in the organization of economic activity are achieved as a result of the parallelism of the mechanism of production, transportation, supply and sales with the maximum integration of interconnected systems and subsystems on the principles of logistics. A decrease in the volume of inventories, inconsistencies in material flows, a reduction in storage costs, the movement of material resources and manufactured products occurs as a result of the implementation of JIT logistics principles.

The principles of logistics are generalized empirical data, a law of phenomena found from the observations of logistics experts. Knowledge of some principles by logistics experts makes it easy to compensate for the uncertainty of some environmental factors. When forming JIT logistics systems, mistakes can be made only because the advantages and disadvantages of certain principles of logistics have not been revealed.

The principles of logistics make it possible to improve the methodology and improve the quality of organizational design, provide a systematic approach to the design of transport and warehouse, production, communication and information subsystems.

The principle of hierarchy. Hierarchy is the order of subordination of lower-level elements to higher ones

in strictly defined steps (hierarchical ladder) and the transition from a lower level to a higher level. Hierarchy is a type of structural relations in complex multi-level logistics systems, characterized by orderly and organized interactions between individual levels along the vertical. Hierarchical relations take place in many logistic systems, which are characterized by both structural and functional differentiation, that is, the ability to implement a certain range of logistic functions. Moreover, at higher levels, the functions of integration and coordination (coordination) are carried out. The hierarchical structure of logistics systems is due to the fact that management in them is associated with the use and processing of significant amounts of data. At the lower levels, more detailed and specific information is used, covering only certain aspects of the functioning of the logistics system. Higher levels receive generalized information characterizing the conditions for the functioning of the entire logistics system; at these levels, decisions are made regarding the logistics system as a whole. The hierarchical structure of JIT logistics systems is never absolutely rigid. This is due to the fact that the hierarchy is combined with more or less autonomy of the lower levels in relation to the higher levels. In the management of logistics systems, the self-organization capabilities inherent in each level are used.

The principle of concreteness characterizes a clear and precise definition of the consumption of all types of resources per unit of a unit of material flow moving along an end-to-end chain.

The principle of constructiveness determines the process of flow dispatching, continuous tracking of the movement and changes of each flow object and prompt adjustment of its movement; careful identification of the details of all significant operations of transportation of goods.

The principle of reliability is focused on ensuring the reliability and safety of traffic, reservation of communications and technical means to change, if necessary, the trajectory of the flow;

The principle of variability allows a flexible response of the firm's activities to fluctuations in demand and other disturbing influences of the external environment, the purposeful creation of reserve capacities, the loading of which is carried out in accordance with the previously developed reserve plans of the firm.

Conclusion

Compliance with the listed most acceptable principles of the JIT logistics management system for information and cargo flows, to ensure the timely

delivery of goods by various vehicles to the designated place on time. Rational use of the proposed principles of organizing material and cargo flows significantly reduces the downtime of vehicles at the place of unloading and shipment, timely dispatch of goods is ensured.

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