PROBLEMS AND TERMS OF THE IMPLEMENTATION OF OPTIMAL FLOW PROCESSES MANAGEMENT

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The relevance of the logistics concept while dealing flow processes optimal control problems of industrial enterprises has been discussed in this article. The notion of "variability" has been proposed as the fundamental reason of inconsistency. The current management of an enterprise should take into consideration integration and innovation aspects of economy, as well as it should be based on consistency and compliance of flow processes of an enterprise. The conditions for implementation of optimal (logistics) management of flow processes have been outlined.

Key words: flow processes, management, logistics, logistics supply chain.

ПРОБЛЕМИ ТА УМОВИ РЕАЛІЗАЦІЇ ОПТИМАЛЬНОГО УПРАВЛІННЯ ПОТОКОВИМИ ПРОЦЕСАМИ

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Розглянуто актуальність використання концепції логістики при вирішенні проблем формування оптимального управління потоковими процесами промислових підприємств. Досліджено причини неузгодженості потокових процесів.
Запропоновано використання поняття варіабельності як фундаментальної причини неузгодженості процесів. Показано, що сучасне управління підприємством
повинно враховувати інтеграційно-інноваційний аспект економіки, базуватися на узгодженості та відповідності потокових процесів підприємства і носити попереджуючий характер. Окреслено умови реалізації оптимального (логістичного) управління потоковими процесами.

Ключові слова: потокові процеси, управління, логістика, логістичні ланцюги поставок.

ПРОБЛЕМЫ И УСЛОВИЯ РЕАЛИЗАЦИИ ОПТИМАЛЬНОГО УПРАВЛЕНИЯ ПОТОКОВЫМИ ПРОЦЕССАМИ

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Рассмотрена актуальность использования концепции логистики при решении проблем формирования оптимального управления потоковыми процессами промышленных предприятий. Исследованы причины рассогласованности потоковых процессов. Предложено использование понятия вариабельности как фундаментальной причины несогласованности процессов. Показано, что современное управление предприятием должно учитывать

интеграционно-инновационный
аспект экономики, базироваться на согласованности и соответствии потоковых процессов предприятия и носить упреждающий характер. Очерчены условия реализации оптимального (логистического) управления потоковыми процессами.

Ключевые слова: потоковые процессы, управление, логистика, логистические цепи поставок.

Current integration tendencies in Ukrainian economy are defined by inner logic of market transformations combined with globalization of international economic relations. Readiness of a society for international cooperation forces each business entity to organize its activity so that to correspond to international standards and to ensure an appropriate level of competitive capacity.

Therefore the creation of Integration systems is becoming more and more acceptable. Integration of organizational, technological, economic, informational processes aiming at their optimization is known to be the key-note of logistics. Modern logistic tools make it possible to resolve existing contradictions in Ukrainian economy by means of consolidation of business structures into a unitary efficient system. S. Naglovsky, who had particularly described the practicability of integrated structures, emphasized their ability to smooth down contradictions, to solve problems that were impossible to sort out separately and to achieve new effects due to their consolidation.

In the course of development and transformations of economic terms a lot of enterprises face the need to improve their economic structures. Thus, the main goals they have to achieve are to increase efficiency of internal resources use as well as to adapt to variable external conditions.

Distribution and delivery of goods are becoming the weakest point in modern industrial society. The negative factors defining these processes are as follows: the uneven and inadequate level of transportation links in different regions and poor service level in the field of production goods and services automation.

Thereby, there is untapped economic potential concerning the advanced level of technics and production technology in comparison with the level of infrastructure development, where the distribution processes dominate.

Particularly, the final stage of goods' transferring from manufacturers to customers within mediation service (when profound transformations re impossible) appears to provide the main potential for saving time and money, what determines the expediency and relevance of logistics as a science.

When dealing with problems of optimal enterprise management as a scope of flow processes, logistics plays a significant role regulating relations between an enterprise and the raw material market on the one hand and an enterprise and the product market on the other hand. The possible way to reach the optimal (balanced) management of enterprise development is to allocate the flow processes movement design through the logistic system formation [1].

Considering the current stage of economic development Ukrainian enterprises are implementing new information management systems along with business reorganization, introduction of specialized systems providing labour productivity and production management, etc. in order to ensure more efficient management of flow processes. However, these measures are half-hearted, and do not meet the demands of manufacturers, customers and suppliers' integration. As a result the enterprise cannot achieve its goals.

Using the basic integration idea of logistics, it is essential to consider any enterprise as a continuous flow of processes [2; 3]. Moreover, the effectiveness of such an enterprise will depend on well co-ordinated work of suppliers (servicing system) and mediators-consumers (served by the system) rather than its own system work. Thus, constant exchange (supply) of matter, energy and information between links of a continuous chain (supply chain) takes place [4; 5].

To develop an effective tool of enterprise management as a part of supply chain a more detailed analysis of these links should be conducted.

According to the dialectical approach in analysis, links of the supply chain can be replaced by simplified models, constructed from idealized units. In this case we apply two types of idealized sections comprising inputs and outputs: a perfect conversion system in the form of product manufacturers and distributors as well as a flawless distribution system in the form of mediators. In elementary examples a model of real supply chain product delivery can contain a pair of idealized sections, in more complicated examples, it is a combination of several pairs of idealized sections.

Intermediary organizations are referred to scattering – type distribution systems, that simultaneously accumulate and distribute products to customers.

Both heterogeneous systems (a manufacturer and intermediary), united by a material flow, together form a harmonized pair of supply chain. Each link of this pair performs a definite function, complementing functions of the other section rather than replacing it.

This system is based on the synergetic effect of smooth interaction of heterogeneous systems based on specialization. The harmonized pair of dissimilar parts is called a logistic unit.

Thus, a logistic unit formed within the process of self-development is argued to be a harmonized organizational and technical framework referring to the supply chain, that carries out effective manufacturing and distribution of finished commodity to numerous consumers on the basis of specialization of its constituent pair of elements.

A logistics supply chain, obtained from the original one, in the event of replacing of each original link by a simplified model, formed by idealized units, can be called a simulation. Further presentation and consideration of an

enterprise as a modeling logistics supply chain will enable the development of an effective tool for supply chain management, taking into account objectives of own, serving and served systems, as well as creation of a platform for further development of the enterprise.

Within the formation of flow processes optimal management it is essential to consider terms of this management implementation. Provided that an enterprise's activity is defined as a set of related flow processes it will be necessary to study the system integrity of these flows.

The system optimization position of logistics chain as a single system of flow processes, whose efficiency is determined by the coherence level of these processes, supposes application of the term "variability". The concept of variability is described as any deviation of results at input / output of processes from desired or ideal values. From that angle out the reduction of this variability can be interpreted as the fundamental way of system efficiency improvement.

This variability is the fundamental cause of inconsistency of processes regarding their timeliness, provision of the required level (quantity), quality of incoming and internal flows, as well as formation of 'weakest points'. The consequences of inconsistency are characterized by the category of 'losses from inconsistency of flows.' Reduction and elimination of losses can be interpreted as additional productive resources economic use.

So, a great amount of untapped resources can be referred to indirect (actual) losses which should be defined as mismatched flows. The mismatched flows are caused by transactions 'money – lack of equivalent exchange (goods)' and 'product – no equivalent of exchange (money)'. At the same time financial and information flows should be considered not only as the basic reflecting material flow, but as the possible way to regulate deviations in material flows and the whole logistic system.

The existence of inconsistencies induces the necessity of flow regulation organization, whose main target will be to achieve three aims: elimination of inconsistencies, acceleration of working capital turnover and profits increase, which define conditions for effective enterprise management implementation.

Unfortunately, nowadays management conducted only by local flows without clear identification of links between them. Flows in the circuit of operation cycle are the object of management without consideration of external environment flowing characteristics.

Thus, the current enterprise management should take into account integration and innovation aspects of economics, should be based on consistency and compliance of flow processes of an enterprise, as well as be predictive. Traditional activity of an enterprise has to be revised through the logistics concept, as shown in table.

Table

Fundamental difference between traditional and logistics organization of an industrial enterprise activity

Traditional organization of an industrial enterprise activity	Logistics organization of an industrial enterprise activity
Resources	
The resources of enterprise are formed spontaneously due to the accepted technology and organization of production, internal company interrelation, formed at the enterprise, and external transactions	Conscious formation of economic flows according to the criterion of optimality, which sometimes enables changes of traditional technologies and production n organization
Business contacts	
Business contacts in traditional organization often develop accidentally and are inflexible	Business contacts are formed with consideration of cost optimization and interests of participants. In general, interaction is optimal if it provides achievement of company's aims with minimal costs
Flow of resources	
Flow of resources is relatively autonomous, because it is often accidental due to formation of certain types of resources	Technologies of the resources flow should coincide within economical flows. In summary the logistics process is aimed at reduction of total and transaction costs, and profit increase as well
Production program	
While designing the production program, total costs spent on product manufacturing and selling should be taken into account. Thus, incurred costs of an enterprise regarding its turnover, are interpreted as overhead costs, and their influence on production price is difficult to estimate	The production plan is created considering not only production costs, but delivery and distribution costs too, because only coordinated activity of all enterprises structures provides an efficient performance of all tasks

Table indicates that improvement of management efficiency requires working out practical mechanisms of logistic activity implementation, based on the process of logistics in management activity. Implementation of this approach will enable enterprises to reduce unnecessary costs, to find out latent resources and to achieve through optimization of flow processes.

Thus, the main conditions of optimal management implementation of flow processes are as follows:

1) focus on a specific phenomenon, processes, and within them on particular relationships of specific subjects;

2) targeted systemic integration of structures, components and flow processes concerning time, space, scale, and other institutional, economic and technological conditions of human activity so that to create fundamentally new positive characteristics of successful activities and to provide opportunities to achieve benefits;

3) sufficient adaptation, correlation and system hierarchy in space and time structures, elements, their flow processes and their mutual influence concerning environment activities;

4) optimization orientation, integration, timeliness, continuity, multiplicity;

5) optimal systemacy, frugality, and

appropriateness of potential spending involved in flow processes of an enterprise.

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