

UDC 658.787

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LOGISTICS MANAGEMENT IN INVENTORY SYSTEM

Introduction: inventory control in railway transport has integrated nature. Immediate task of the logistics is to establish conditions for effective core economic activities. **Target:** form the mechanism of logistics management in inventory system. **Results and discussions:** logistics support is intended to assist realization of strategic targets of railway transport system by means of forming the appropriate mechanism. Offered mechanism generates three groups of logistics management functions in the system of inventory accounting: planning and activities coordination of logistics process entity; control of order processing and coordination of parties' economic interests; control of inventory transactions. Effectiveness of enterprise logistics system is defined by its sensitiveness to information accuracy. **Conclusions:** logistics management allows minimize inventory or expenses on them; speed up the process of receiving information; enhance service level, and eventual result – costs saving on load-transfer process and work of transport infrastructure.

Keywords: logistics system, inventory, management, structural division, information exchange

Introduction

Restructuring terms and conditions and outside environment changes of Ukrainian transport functioning gave rise to transition to new control system, which gives an opportunity to do real-time estimation of market environment changes, gives equal respond to making optimal management decisions. Rise of Ukrainian economic exposure, competitive recovery in internal and external markets level up the role of logistics management in establishment of a new railway management system.

Statement of problem

Global practice shows that large, integrated companies are the most affluent in majority of economic sectors in developed countries. Motivation for the structure consolidation is market in conditions of which enterprises work. Transport system is illustrative example of such integration. But large integrated companies in the sphere of transport need system management for transport flows and inventory, which can be reached by implementation of logistics systems. Famous Ukrainian scientists - I. Aksonov, Yu. Barash, L. Golovkova, V. Dykan, L. Kostiuchenko, Yu. Kulaev made a contribution to research of practice use of the logistics in transport sector in the process of forming supply chain of different resources and planning of transport routs.

Inventory is the most important part of railway enterprise assets, they have dominate position in the structure of expenses, great influence on results of economic activity of the enterprise (structural division). Consequently, the major objective of article is forming the mechanism of logistics management in the system of inventory accounting in railway transport.

Results

Current market conditions for railway enterprise put on the first stage the task of meeting different and changeable demands for all types of transportation that is why organization and planning of transportation and cost management on all stages need increase of effectiveness. Thereby, it is essential to develop production logistics system, which is adapted to specific of railway transport.

The basic objective of production logistics in transport branch – provide well-timed, rhythmical and economic inventory transactions between stages and working places of transportation process in accordance to business plan and production realization in the form of transportation services or customer order in the form of maintenance of the rolling stock, infrastructure objects, etc.

Using the elements of production logistics in integrated control of railway transport lies in development of conditions for optimal and effective transportation process in transport system and time.

Development of productive logistics system will solve such important problems as: quality control of structural subdivisions and service agencies (which of them are the major centers of expenses and how it influences on traffic handling costs); control of components of transportation process and search of “bottle necks”, which generate the main production expenses; determination production costs of some services such as: maintenance of the rolling stock and infrastructure objects. After that on the base of received data, insert amendments in production structure and increase cost-effectiveness of different services.

The main objective of productive logistics system – arrangement of conditions for forming the system of cost control, which will provide maximum precision of output cost determination, division of customers’ economic interests and do not contradict the requirements of enterprises [1, p. 45].

Adaptation process of logistics systems to market system and specific of railway transport claims performance of the following conditions: achievement of high integration level in the framework of enterprise (structural subdivision) and among its contractors; rise of flexibility and adaptivity of activities to market environment; reduce maintenance time of the rolling stock, infrastructure objects; reserving of production assets; equipment universalization; provide services for customers and enterprises, etc.

In the process of logistics system development it is essential to take into account peculiarities of railway transport such as: cohesiveness, which reflects close links between separate railways and their structural subdivisions; complexity, which is characterized by a lot of feedback links; high level of response delay, which helps to do long-term forecasts; specific of transportation process and services financing, which are provide by railway structural subdivisions.

Development of transport infrastructure encourages the growth of material flows, which requires the organization of appropriate control level and optimization. In the center of their rational control should be effectively controlled information flow, which allows to keep the system open, i.e. be able to take to new market conditions. To provide flexible, customer-oriented logistics system, it is necessary that logistics system functioning parallel to information system.

Achievement of enterprise strategic objectives depends on integration of logistics function [2, p. 115]. Major components of logistics are physical distribution, material support and supply.

Physical distribution and resources management can be used for costs control. Physical distribution – activity, which is connected with customer services. It demands receiving and processing of orders; distribution, storage and processing of inventory; transportation to external customers. It contains the coordination with marketing plans regarding to price formation, sales promotion, service level, supply conditions, procedures of complaints processing, life cycle support. The main task – assistance in income creation from realization by means of providing service level of customers with minimal common costs [3, p. 81].

Material support in railway transport – activity connected with planning and maintenance of transportation process and its service. It demands to coordinate transport planning, make schedules of executed works of auxiliary production, storage of goods-in-process inventory; processing, transportation and well-timed replenishment of inventories. It contains storage of production supplies on manufacturing areas, and also flexible coordination among manufacture and physical distribution in geographical and temporary aspect.

Point out material support of manufacture as independent field – relatively new conception of logistics management. The necessity of separate analyses of life cycle of manufacture supply is explained with unique demands and limitations. Traditional paradigm of manufacture organization, which gives the main supply to economy at the cost of activity range, should be reorganized. Nowadays the priorities are given to the following criteria: flexibility and capacity for speedy renewal of services and manufacturing technologies. Logistics support should help to realize such strategies. The task of logistics in the sphere of material support of manufacture extends to where and when the action takes part, but not how it is done. The task of logistics support lies in the most effective and economic meeting of manufacturing requirements [1, p. 53].

Supply – activity connected with purchase of products and materials from outside suppliers. It demands requirements planning; selection of supply sources; negotiations concerning supply conditions; order placing; transportation, receiving, conformance inspection, storage, processing and con-

trol of resources quality. It includes coordination with suppliers in schedules, terms and certainty of supply; risks hedging; searching of new sources or development of new logistics structures. Primary objective – support of the manufacture by means of in-time purchasing with minimum common costs.

Disadvantages of supply, reducing of materials volume in straight-line resources can be compensated by their economy in the process of manufacture. To the contrary, overspending of material resources and their using other than as intended lead to nonfulfillment of a plan, when material supply is unsatisfactory.

Organizational structure of material support of railway enterprise must be based on the principles: maximum sequence, consolidation of responsibilities, consistency, compatibility; consideration of marketing environment. It is essential to use systematical approach for organization of material support of railway enterprises, which provide the supply of material resources on the level of modern requirements to increase their marketability [5, p. 53].

Integration of logistics methodology and functional activity of separate operations allow to rise the effectiveness of intermediary and eventual results.

On the base of [4, p. 28]: using the principles of integrated logistics gives an opportunity to rise the effectiveness of railway system operation as a consequence of reducing production cycle, servicing, which speeds up reaction on dynamic conditions of external environment; stabilization of relations with suppliers and clients.

Content of using production logistics in integrated railway transport control lies in conditions development for optimal and effective transportation process in time and space of transport system.

Production logistics allows to do operating planning and control of material flows in manufacture holding the following terms: rhythmical and team work of all operational centers of expenses localization; continuance and cyclicity of technological process; robustness and flexibility of cost accounting; providing conformance of operating control system.

Effectiveness of manufacture logistics system is defined by its sensibility to accuracy of information.

Information flow adds responsiveness to logistics system. Quality and timely information – key factors of logistics effectiveness.

Logistics is usually considered as mechanism of material and informational flows optimization in the enterprise and as component element of production records system. Therefore, mechanism of logistics control in the system of inventory accounting can be formed (fig.1).

Based on formed mechanism several groups of logistics management functioning can be distinguished: planning and coordination of activities of logistics process entities; regulation of received orders processing; control of material flow.

Function of planning and coordination lies in making inventory schedules, moreover, matching of schedules of local subdivisions, goals development of management and forming assessment criterion of their achievements, coordination of subdivisions work are done. In the process of regulation control of material flow is done, if there are any deviations from plans and schedules, procedures on their reduction are developed. Matching of all subdivisions work is foreseen, which are in charge of material flow.

In the process of control function realization is done the assessment of production support level and their effective use, cost analyses, which is connected with production flow, and taking decisions concerning improvement of logistics management effectiveness [7, p. 96-97].

Inventory, which is stored to the moment of their using, develops supply stock, which should be standardized. Stock level is fixed for each item, sort and size, which is compulsory condition of inventory accounting system. Standardization objects of railway enterprises are in the table 1.

In accordance to [6, p. 190]: carrying out inventory control in the sphere of material support of the railway using logistics methods will allow to reduce many groups of repair parts, which are very expensive and rarely used. That is why, it will be better to buy materials (repair parts) in such number as may be required by linear enterprises. Using these methods and models with the purpose to do inventory control in the sphere of railways material support will allow to reduce many groups of repair parts, which are very expensive and rarely used.

Logistics management gives an opportunity to minimize inventory or costs, speeds up the process of receiving information, rises the service level, and as a final result – costs saving on transportation and work of transport infrastructure.

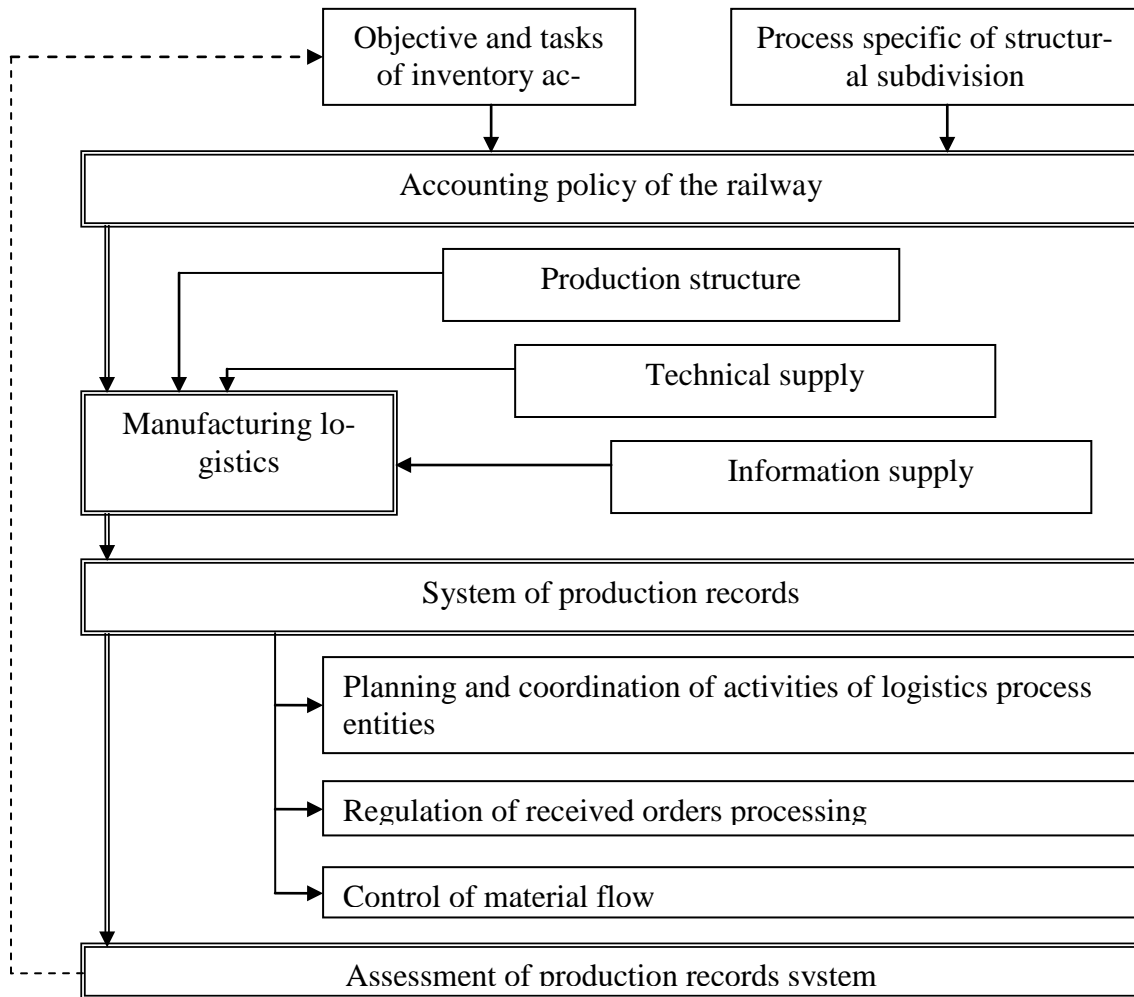


Fig. 1. – Mechanism of logistics management in the system of inventory accounting

Two branches of logistics depends on information, they are forecasting and control of orders. Forecasting is necessary to determine future demands, but managers need exact information to have an opportunity to compensate inexact forecasts by fast responses on demands, which are changing. Such management systems as “exact in time”, “fast response”, “uninterrupted replenishment of inventory” appeared thanks to modern information technologies.

In the process of operating planning and management of the manufacture should be interaction of regulatory bodies on all stages of operating processes (from receiving materials to sales of products in the form of transportations and auxiliary production services) with the purpose to complete the plan of final products supply in necessary volume, quality, in time and with minimal total costs.

The base of operating planning is production plan in the framework of which are developed detailed planned tasks for each producing department (workshop, section, working place) for the certain period of time, and after that there is control of operating process. Modern integrated systems of management allow to computerize the connection among managers of the enterprise and partners.

Domestic enterprises for operating planning use a range of methods for production processes calculation such as: calendar (analogue MPR I), extensional-calendar (used in conceptions MRP II and ERP) and perspective extensional-dynamical method of planning. Work of such systems is possible only within the framework of information environment.

Table 1

Production estimate in railway transport

Object of standardization	Brief characteristic
Stock level	Calculated minimal amount of material resources of given type, which provides continues of transportation process and auxiliary production in the railway transport (settled in days)
Current stock	Value over the year, which is essential to provide uninterrupted operations in the intervals between 2 supplies
Unreduced stock (insurance, guarantee, emergency-response)	Part of inventory, which is necessary to guarantee transportation process when terms, volumes of supplies and materials intakes are different
Standard stock	Gives characteristic to absolute, lower limit of the inventory and defines in kind or money equivalent

International enterprises use technologies of workflow, which are time-ordered, consequential tasks within the framework of enterprise rules. Business process in the system of workflow - factory conveyer, which has its own technology, and work stream (e.g. customers' orders), which are received, are analogical to the flow of components, which come to the conveyer. If there is software, workflow system can be used for management of logistics technologies, which can also be represented as time-ordered process of material and informational flows. Workflow system can be considered as a tool of workflow integration in logistics[8].

Using of information technologies in logistics system supports to rise the effectiveness of enterprise work, allows to establish information exchange among partners in real-time mode, provides analytical base for managers.

Conclusions

Administration of Ukrzalisnytsia needs appropriate information about estimated costs and incomes for management decisions making concerning inventory control, increase or reduce of services, modernization list of additional services because any decision is future-oriented. Control of material expenses should be done taking into account specific activity of each railway enterprise (structural subdivision). One more important issue is recording some factors, which determine the main principles and peculiarities of forming material costs by types of economic activities. Nowadays, on the first stage are such criteria as flexibility and capacity for speedy renewal of services and

manufacturing technologies. Logistics support must help to realize such strategies, the main task of it – meet manufacturing requirements of entities of the transport sphere.

Logistics systems allow to do the realization of logistics approach for management of inventory accounting in railway enterprises and their structural subdivisions on the ground of theoretical bases of inventory management analyses and determine the cause of gap between theory and practice.

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ЛОГІСТИЧНЕ УПРАВЛІННЯ В СИСТЕМІ ОБЛІКУ ЗАПАСІВ

Вступ. Управління запасами на залізничному транспорті має інтегрований характер. Створення умов для ефективного і результативного виконання основних видів економічної діяльності є безпосереднім завданням логістики. Мета. Формування механізму логістичного управління в системі обліку запасів. Результати та обговорення. Логістична підтримка покликана сприяти реалізації стратегічних цілей системи залізничного транспорту шляхом формування відповідного механізму. Запропонований механізм генерує три групи функцій логістичного управління в системі виробничого обліку запасів: планування і координація діяльності суб'єктів логістичного процесу; регулювання процесів щодо виконання замовлень та узгодження економічних інтересів сторін; контроль руху матеріальних потоків. Ефективність логістичної системи підприємства визначається її чутливістю до точності інформації. Інформаційні потоки надають динамічності логістичній системі. Висновки. Логістичне управління дозволяє мінімізувати запаси або витрати на них, прискорює процес отримання інформації, підвищує рівень сервісу, а в кінцевому результаті – наявна економія витрат на здійснення перевізного процесу та роботи всієї транспортної інфраструктури.

Ключові слова: логістична система, запаси, управління, структурний підрозділ, інформаційний обмін

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ЛОГИСТИЧЕСКОЕ УПРАВЛЕНИЕ В СИСТЕМЕ УЧЕТА ЗАПАСОВ

Введение: управление запасами на железнодорожном транспорте носит интегрированный характер. Создание условий для эффективного и результативного выполнения основных видов экономической деятельности – является непосредственной задачей логистики. **Цель:** формирование механизма логистического управления в системе учета запасов. **Результаты и обсуждения:** логистическая поддержка призвана оказывать содействие реализации стратегических целей системы железнодорожного транспорта путем формирования соответствующего механизма. Предложенный механизм генерирует три группы функций логистического управления в системе производственного учета запасов: планирование и координация деятельности субъектов логистического процесса; регулирование процессов касательно выполнения заказов и согласование экономических интересов сторон; контроль движения материальных потоков. Эффективность логистической системы предприятия определяется ее чувствительностью к точности информации. Информационные потоки придают динамичность логистической системе. **Выводы:** логистическое управление позволяет минимизировать запасы или расходы на них, ускоряет процесс получения информации, повышает уровень сервиса, а в конечном результате – имеет место экономия расходов на осуществление перевозочного процесса и работы всей транспортной инфраструктуры.

Ключевые слова: логистическая система, запасы, управление, структурное подразделение, информационный обмен