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Valuation methods of logistic innovations implementation results

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Abstract

Logistic innovations, as the most important area of active development of logistics activities, in the theoretical plan of researches and practical use of innovations require a certain systematization of methods, processes, indicators and criteria which are used in supply chain management. An investigation was undertaken to explore valuation methods of logistic innovations implementation results. Results show that the methods are based on three components: the type of approach, systems of results assessment, logistics areas. Then based on the three components three groups of valuation methods of logistic innovations implementation results can be presented: methods of productivity, methods of costs, methods of services.

Keywords: logistic activities, logistics areas, logistic innovations, methods of evaluation, systems of an assessment

1. Introduction

As logistic innovations are the main driving forces at the present stage it seems appropriate to give the definition of "logistics innovation." There are many of them. Various scientists interpret the concept "logistic innovations" in different ways. The most famous foreign scientists who gave definitions of "logistic innovations" were P. Bajec, J. M. Curran, M. L. Meuter, G. Marzocchi, A. Zammit, J. Schliewe, F. F. Cunningham, E. Y. Clifford, J. H. Gerlach, K. Pezoldt, R. Gebert and Russian scientists such as A. G. Ivasenko, Ya. I. Nikonova, A. O Sizova, O. Rykalina, A. Unanyan, A. A. Kizim, O. A. Sivushkina, V.V. Scherbakov, D. P. Ivanova and E. Zavoronkov [5].

Innovations in logistics are seen as ways to develop more rational (optimal) procedures and operations on the basis of logistic processes or as use of innovations in logistics in the form of achievements of scientific and technical progress in the relation to the improvement and modernization of vehicles, warehouse and handling machinery, packaging and prepackaging machinery, new types of packaging materials etc. [1, 2].

Many articles have been published on the subject of valuation methods of logistic innovations implementation results. Beyond the scope of this article, the analyses of important component of methodological support implementation of logistics innovation are techniques which are developed in various areas of logistics. As an example it is possible to give series of basic methods which recently represented innovations tending perspective development at the moment.

These methods include: method of optimum selection of potential supplier in case of beginning stage of production of new products; method of determining period of renovation of technical devices; method of rational distribution of products in warehouse based on ABC method and XyZ; method of determining location of a distribution warehouse based on calculation of gravity center of cargo traffic; method of calculating rational movement of goods based on the combination of circular and pendulum routes [3].

The aim of the study was to develop general valuation methods of logistic innovations implementation results. The article is based on findings from recent research of Russian scientists such as O. Rykalina and V.V. Scherbakov.

2. Results

There are two approaches to valuate methods of logistic innovations implementation results: introduction of internal innovation and introduction of external innovation. Then, it is necessary to classify valuation methods of logistic innovations implementation results on logistics areas according to the problems which are set and solved in sales activities, inventory, manufacturing, warehousing, transportation management, purchasing activity.

Also there are four types of the assessment system which are used to valuate methods of logistic innovations implementation results (Table 1): simplified system; multi-purpose system; system oriented to profit; system oriented to decrease logistic expenses.

Table 1 – Content of systems of valuation methods of logistic innovations implementation results [3, 4]

Type of system	Content
Simplified system	valuation of general innovations implementation results in logistic activities of the company without differentiation of the logistics area
Multi-purpose system	combination of expendable and profitable types of systems used in comparison of innovations implementation results in each area of logistics
System oriented to profit	evaluation of direct and indirect contribution of innovations implementation results to the profit made by an enterprise in the planning period
System oriented to decrease logistic expenses	estimation of the technological expenses in each logistics area and their relative share in total expenditures on merchandise distribution process

Based on the proposed types of approaches, valuation systems results, separation on logistics areas according to the solved tasks, it is possible to constitute three groups of valuation methods of logistic innovations implementation results (Table 2): methods of productivity, methods of expenses, methods of services.

Table 2 – Content of valuation methods of logistic innovations implementation results [3, 4]

Methods	Content
Methods of productivity	based on measurement of innovation results in natural indicators - volumes of ordered material and technical resources, volumes of transported and reworked cargos in warehouses, volumes of intermediate products in technological production processes; volumes of the stored stocks of material and technical resources;

Methods of expenses	expressed in cost parameters and characterizing expenses which are related to logistic procedures and operations - purchase, delivery, acceptance and control, warehousing, storage, order consolidation, formation of freights shipment and units, release to production, industrial consumption, products delivery to consumers;
Methods of services	expressed in absolute or relative parameters, characterizing the level of satisfaction of company needs in material and technical resources, service for end product consumers, usage of production distributors in sales activities of the company, long-term industrial and economic relations with participants of the supply chain.

The provided groups of methods allow to compare parameters of logistic activities before and after implementation of logistic innovations in enterprise. At the same time estimative parameters can be divided into general and private indicators.

General indicators include the following: profitability (products, production); productivity (means of transport, workforce, various mechanisms, and equipment); level of consumer service (filling of orders); information capacity coefficient (ratio of quantity of actively used information to its total quantity); profit (from sales, from production and business activities); rationality merchandise distribution coefficient (calculated on basis of production cycle duration).

In turn, private indicators can be subdivided into two types. The first type - parameters which estimate valuation methods of logistic innovations implementation results at the same time in several areas of logistics. The second type – parameters which estimate implementation of logistic innovations in specific areas of logistics.

3. Conclusion

In the article the attempt to do generalize a lot of methods of evaluation was done. Scientific novelty of article consists in forming of valuation methods of logistic innovations implementation results based on the use model approaches, systems evaluation and logistics the type of approach, systems of an assessment of results, logistics areas.

The most significant scientific results and scientific novelty consists in the following:

• the main directions of valuation methods of logistic innovations implementation results which are found in modern scientific literature that allows to plan approaches to development of methods of objective and comprehensive determination of efficiency from implementation logistic innovations for its different participants;

• in accordance with selected direction evaluation offered three groups of methods which are the basis for the development of tools of valuation methods of logistic innovations implementation results and allowing to estimate more precisely influence of implementation of innovative idea on resulting effect.

The practical importance of article is determined by possibility of use the proposed methodological researches at carrying out complex comparative evaluation valuation methods of logistic innovations implementation results and choice of the option, most preferable to realization.

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