

THE EVALUATION OF LOGISTICS SYSTEMS' COMPETITIVENESS IN THE CONTEXT OF GLOBAL ECONOMY

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Abstract

The authors of article are studying factors and indicators, which determine the competitive advantage of logistics systems in the context of global economy.

During the logistics systems research, analysis of variation tendencies of indexes of macro environment, external and internal capital and specific conditions of logistics systems, its qualificatory parameters were distinguished, methodised and compared in a view of economy globalisation by the evaluation of the main impact factors on logistics systems activity.

The authors conclude that factors and criteria, which determine and multiply the effectiveness of logistics systems, generate competitive advantage of the logistics systems in global economy. It comes through the multiplication of price and value advantages, the pursuit of criteria of product and process perfection in a view of economy globalisation.

Key Words: *logistics system, competitive advantage, effectiveness of logistics systems, global economy.*

JEL Classification: A10, F12, L91

1. INTRODUCTION

The tendency to define logistics as an integrated science, the main goal of which is to solve the problem of optimal management of the process of movement of material valuables is emerging in modern scientific literature. The scientific problem of the evaluation of competitiveness of logistics systems in the context of global economy emerged when investigating logistics systems. The authors of the article believe that assessment of competitiveness of a logistics system in respect of global economy is imperative, as the indicators of competitiveness describe and substantiate the principles of ensuring operation of the system of global economy.

Novelty of the research: systematization and comparison of the parameters describing logistics systems is carried out and, as a consequence, the factors ensuring competitive edge of logistics systems in respect of global economy are distinguished.

Object of the research: competitiveness of logistics systems in respect of global economy.

Goal of the research: to evaluate the competitiveness of logistics systems in the context of global economy.

Methodology of the research: qualitative analysis of economic literature by applying a systematic approach to the object; effectiveness assessment methods; logical and comparative analysis and synthesis of economic phenomena; graphic methods and generalization thereof.

Tasks of the research:

- to identify the parameters describing operation of logistics systems;
- to analyze the influence of the aforementioned parameters to competitiveness of logistics systems;
- to distinguish factors determining competitive edge of logistics systems in global economy.

2. PECULIARITIES OF OPERATION OF A LOGISTICS SYSTEM IN RESPECT OF GLOBAL ECONOMY

The opinion that logistics is a science about organization, coordination and planning of movement of material flows from the manufacturer to the consumer thereof prevails among scientists (Alderton,1995; Bowersox,1996; Johnson,1999; Palsaitis,2005). However, the authors of the article emphasize perception of logistics as a means based on a subject's goals and related to the processes of planning and implementation designed for ensuring optimal flow of materials, funds and information while implementing production, which starts from collection, treatment and transfer of the factors and information concerning production and ends with distribution of produced products.

From the theoretical point of view, taking into account the ideas of the scientists D. Lambert (1998) and A. Harrison (2002), a logistics system is a structural combination, the foundation of which consists of the elements (subjects) thereof as well as interaction and relations among them. From the dynamical point of view, operation of a logistics system is ensured by the whole of universal practical measures, which helps to investigate, determine and control the consistent patterns of organization and movement of economic flows in the process of production, distribution, exchange and consumption of (Held,2000; Minalga,2004). Economic decisions concerning achievement of the set goals are made on the basis of the results of application of the measures of such nature. In this way, rational use of recourses is ensured in this system and this emphasizes prevalence of economic principles in operation of logistic systems.

Operation of logistic systems was also investigated by such foreign scientists as D. Waters (2003), M. Christopher (2005), Л. Хазанова (2003). In Lithuania, the problematics of logistics was reflected in the works of R. Palsaitis (2005), R. Minalga (2004), J. A. Urbonas (2005), A. Baublys (2003).

Taking the scientists' theories into account, the authors of the article focus on the processes taking part in a logistics system: movement of the flows among the subjects of the system as well as organization, management and control thereof. The significance of a logistics system is reflected in the set goals and tasks of logistics. It is very important to perceive the tasks of logistics systems, which are reflected by respective types of logistics systems, as a part of the economic system.

The authors of the article, based on the scientific theories and ideas of the scientists K.D. Bischof, H.Meister, G. Pyell, G. Roj, U. Standler and G. Wagner (2002), distinguished six types of logistics systems, i.e. project logistics, urban logistics, regional logistics, national logistics, Euro-logistics and global logistics. In this way, depending on attribution of logistics and a system thereof to one or another type of logistics, different tasks will be set for logistics systems taking the peculiarities of the types of logistics systems into account.

On the basis of James C. Johnson (1999), the foundation of a logistics system consists of the process of movement of flows into the logistics system, inside the system and out of the logistics system into the surroundings in this way substantiating existence of a logistics system as an individual complex. In this way, it may be maintained that by forming individual complexes logistics systems compete among themselves by attracting respective flows and aiming to retain them and increase intensity thereof.

It is expedient to distinguish individual flows circulating in a logistics system. They are flows of material valuables in the forms of resources and ready-made products, financial flows and information flows. In this way, a logistics system can be investigated in respect of these flows and competitiveness thereof. Taking the change of the objects of logistics systems into account, it is necessary to analyze the length, form and intensity of the flows.

Scientists (Alderton,1995; Palsaitis,2005; Waters,2000) analyze logistics systems in respect of the conception of transport, integrated and strategic logistics, synchronization of the flows as well as systematically by emphasizing the necessity of development of logistics systems and inevitability of globalization processes in the economy and a logistics system, use of logistics systems when cooperating and creating alliances with partners aiming for competitive edge and interaction of the elements of the system. This reveals the expedience of operation of logistics as a balanced long-term system. It is necessary to mention that all actions constituting the content of a logistics system ensure achievement of economic goals and reflect the content of the infrastructure of an economic system.

Most (Alderton,1995; Bischof,2002; Christopher,2005; Minalga,2004; Urbonas,2005; and others), who investigate logistics systems as a relatively new phenomenon, agree that the importance of logistics systems is increasing in global economy, as it shortens the time of achieving economic goals and solves issues concerning location and expenses depending on them.

The authors of the article, based on the theories developed by the scientists of logistics, determined that increase of the importance of logistics in global economy was caused by plenty of factors, the most important of which are the change of the long-term transport development strategy, achievement of the indicators of maximum production, the change of the conception of accumulation of supplies, expansion of the assortment and nomenclature of goods, increase of information flows, the rise and development of information technologies, the rise and solution of environmental problems, the rise of mass trade networks with logistics systems implemented and perfected by those networks.

The functions and operations of logistics are reflected in the process of movement of valuables. The scientists J. Johnson (1999), D. Lambert (1998), J. A. Urbonas (2005) and the authors of the article believe that it is the need for application of the principles of logistics that causes optimization of movements of such nature, i.e. deliver the products meeting consumers' needs and expectations to the designated location at the designated time at the lowest expenditure.

Application of the principles of logistics determines a new nature of organization of this movement, i.e. movement of material flows is arranged at the linear principle in respect of the direction thereof, it is grouped and included in the logistics chain and operation of the links thereof is analyzed, optimized and synchronized. The linear arrangement of the links is important to assessment of effectiveness of a logistics system and increase of competitiveness.

Each link of logistics has a certain purpose when pursuing the common goal: increase of effectiveness of the system and acquisition of competitive edge. The purpose of logistics and the links thereof is called the functions of logistics which are implemented by carrying out operations of logistics, i.e. actions directed at achieving the set goal of logistics. Implementation of the functions of logistics as well as effectiveness and the level of competitiveness of the logistics system depends on the success of logistics operations. Solving the disagreements of operation of a logistics system by way of alternatives and optimization and synchronization of operation thereof ensuring rhythmicity and continuity of movement of the flows means formation and development of an effective and competitive logistics system.

When solving the issue of increasing competitiveness of a logistics system, it is necessary to determine the relations and relationships of the elements of a logistics system, i.e. to define interaction thereof in respect of economy. Taking into account the scientific theories of M. Christopher (2005) and J. A. Urbonas (2005) as well as the objects of a logistics system in the context of functions and operations in global economy, the authors of the article maintain that minimization of the general costs of operation is often planned as a condition of optimization of operation in order to increase effectiveness of the elements of a logistics system and to acquire competitive edge. The cost minimization process may be implemented both in individual groups of costs in accordance with respective operations and jointly in the system. Such direct dependence of the elements of the system substantiates the theory of existence of inter-relationships among the elements of the system.

Each element of a logistics system constitutes a part of the value of the executive functions of the general logistics system; therefore, while constituting a part of a solid continuously operating system, they must constantly coordinate their operation in order to ensure high competitiveness level of the logistics system.

3. DETERMINATION OF COMPETITIVE EDGE OF LOGISTICS SYSTEMS IN GLOBAL ECONOMY

The scientists J. Johnson (1999), M. Porter (1998), A. Baublys (2003) maintain that effective economic development of a country and success of operation of production and trade companies is based on effectiveness of the transportation system. The most important stage of movement of goods is considered to be transportation which is related to use of transportation means and is considered to be the main function of a logistics system; therefore, the most of competitive edge may be achieved by increasing effectiveness of the transportation system used in a logistics system. Competitiveness of a logistics system is determined by the level and intensity of competitiveness of individual types of transport. It is decided and substantiated with the help of technological, environmental, economic, information technologies and financial measures.

The authors of the article believe that movement in space creates added value or a location-related service. The value of time is usually created or added by storing and keeping a valuable as long as it becomes needed. However, transportation is also very important to the added value of time, as it

determines the speed and consistency of movement of a product from one place to another. These factors are defined by the concepts of duration of transportation and consistency of services.

Geographical location of the subjects of global economic relationships may influence the amount of benefit in case of the services provided by logistics systems. The principle of absolute competitive edge, which substantiates facts of absolute value as expressions of indicators of effectiveness and parameters of competitiveness, may also be highlighted. On the other hand, an efficient supply system influences relative indicators of operation of the logistics system (indicators of efficiency of work, efficiency of use of technologies etc), which, in turn, determine general indicators of relative effectiveness in global economy. The principle of relative competitive similarity is highlighted in this case.

Management and organization of the flows must be implemented in such a way that maximum final result would be achieved at minimum costs. It is the main economic criterion determining competitive edge of a logistics system. Only by preserving the amount and quality of goods in the logistics process and by delivering it to the location designated by the consumer, will the goal meeting the specified criterion be achieved.

The most important category in operation of a logistics system and its competitiveness is effectiveness. In the most general sense, effectiveness is the ratio of the result and the costs incurred while achieving that result. Economic effectiveness is a category describing macroeconomic results. In respect of the whole economy, effectiveness will be a situation when the needs of the society are met more thoroughly in case of limited resources.

A logistics system as a part of the economic system directly depends on achievement of the state of balance of the economic system. In this case, it is expedient to assess the macro environment of the logistics system and efficiency measures thereof. Besides, it is necessary to divide the factors of macro environment and efficiency measures thereof into groups: factors influencing the elements of the logistics system, factors influencing relations among the elements of the system and factors influencing and forming the logistics system in a complex way. If the state of balance the logistics system fails, the structure, form and target directions of logistics systems as well as quantitative and qualitative expression of the relations among the elements change. Therefore, when assessing competitiveness of logistics systems, it is imperative to determine the stage of existence of the logistics system and ratios describing approximation of the state of the system to balance.

Capital and forms of ownership in a logistics system determine the nature of the elements of the logistics system and the relations among them. The change of ownership forms causes new opportunities of investment and movement of capital in the logistics system. Taking into account the nature of the subjects, who make decisions, in different economic systems, effectiveness of the processes of investment and movement of capital is different in respect of the logistics system. When analyzing the factor of time in processes of investment and movement, the process of turnover may quicken when capital and investment sources as well as the responsibility for making decisions are concentrated and managed by one type of the subjects. However, that may cause the risk of vulnerability due to absence of alternative sources. Equal distribution of objects and sources may cause a synergic effect, if the process of movement of capital and investment activities is balanced, as they should take place parallelly. Besides, the ratio of distribution of the sources may fluctuate, i.e. the logistics system may become very flexible taking into account the changing conditions of macro environment.

The authors of the article understood, when assessing the elements of macro environment of the logistics system, it is imperative to distinguish the political-legal environment as one of the dominating influence factors to formation and development of a logistics system. In this way by political-legal measures could be formed exceptional conditions for the subjects of global economic relationships in the field of logistics services in respect of competition (for example – protectionism).

The factors of change in space and time are basic parameters describing effectiveness of a logistics system. They are also accompanied by assessment of the qualitative parameters of material, financial and information flows. When macro environment changes, the consumers' needs change cardinally; therefore, that may require introduction of new quality standards. When assessing competitiveness of a logistics system, it is imperative to analyze and determine the qualitative characteristics of the elements, relations and flows. They are determined by new macroeconomic conditions and dynamic efficiency measures, which form and develop the system.

In this way, acquisition of competitive edge may determine successful process of adaptation of a logistics system. During the adaptation process, some of the parameters characterizing the logistics system are changed in order to match the conditions of the environment. Taking into account the scientific theories of Л. Хазанова (2003), a logistics system may be described as a system with a feedback. Therefore, a logistics system may be defined as an open system, which has a feedback and certain relationships with the environment. The parameters of the logistics system deviate from the standards under effect of the factors of the environment. Disagreements, feedback, conditions for activeness of the system, the necessity for development and adaptation process occur because of these deviations and, as a result, competitive edge is acquired. Therefore, it is expedient to define acquisition of competitive edge and assessment of competitiveness as a stage of the process of development of the logistics system in the context of globalization of economy.

4. CONCLUSIONS

Having carried out the research, the authors of the article conclude the following:

1. The structure and content of a logistics system depends on the processes taking place in it, i.e. on the nature of movement of the flows of valuables among the subjects of the system as well as the ways and methods of organization, management and control thereof. A qualitative analysis of these processes allows revealing the factors of dependence and influence in the contexts of global economy taking into account the tasks and goals set for the types of logistics systems.
2. The authors of the article believe that the necessity of application of the general principles of logistics and economy caused optimization of the process of movement of valuables, i.e. to achieve maximum level of the consumer's satisfaction at the lowest expenditure. When determining the relations among the elements of a logistics system, the points of interaction are formed and the factors influencing operation of the logistics system in respect of global economy are distinguished.
3. The authors of the article determined that movement in space in the context of global economy creates added value, which is usually manifested by assessing the factor of time, which determines expenditure of operation of a logistics system, the prices of logistics services as well as the indicators of turnover of movement of the flows as one of the

expressions of effectiveness and competitive edge of the system. Therefore, when assessing logistics systems, they compete in respect of the parameters of time and space.

4. The authors of the article define the principles of absolute and relative similarity of logistics systems in respect of competition. Application of these principles enables assessing the spheres of influence of logistics systems in respect of global economy.
5. At the same time, the authors noticed that the indicators of assessment of macro environment may contribute to assessment of competitiveness of a logistics system, especially taking into account the political-legal and economic measures applied by a country. It can be relative changes of ownership forms, nature of capital, protectionist policy etc. Therefore, it is necessary to determine the stage of existence of the logistics system and ratios describing approximation of the state of the system to balance
6. Competitive similarity of logistics systems in global economy is generated by the factors determining and increasing effectiveness of logistics systems. This is manifested in increase of the similarities of the price and the value as well as implementation of the criteria of perfection of the product and the process in respect of globalization of economy. In this case, a logistics system consists of activity of economic system which ensures the foundation in respect of global economy.

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