

Cluster Model of the Organization of Logistic Activity

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Abstract— The development of logistics in domestic economy considerably lags behind the European countries both in the area of logistics' availability to business entities and on the implemented competences. In many respects it is connected with the application of hierarchical forms of the organization of logistic activity that constrains the efficiency of adoption of managerial decisions in the field of logistics and also interfere with fast adaptation to dynamically changing business conditions. In this regard it becomes necessary to reconsider the approach to the organization of logistic activity which has to focus on dynamic relations between enterprise structures which demonstrate logistic activities, innovation, and communication transparency and to promote efforts concentration on key competences. Specified circumstances increase the interest in the business environment in such form of economic organization and social influence as a cluster. It defined the relevance of the research of cluster approach to the organization of logistics and its goal. The goal is to develop the theoretical views on cluster model of logistics' organization in modern conditions that will allow defining scientific and methodical approaches to the process of its creation. As the main research methods of network organization were used general scientific methods of obtaining knowledge that enable to investigate objectively and comprehensively conceptual provisions of clusters in logistics and private techniques (system and complex approaches to studying of clusters, a dialectic method of scientific knowledge, comparative and analytical, situation analysis). The main results of the research are specification of the categorical logistics device by means of the representation of author's interpretation of the category "logistic cluster" and formation of methodological approaches to the scenario of its creation. Results can be used for the research in the field of logistics management at the company level and the economy of the region.

Keywords— *logistics, logistic cluster, structure of a logistic cluster, condition of clusters' formation, model of cluster's formation.*

1. INTRODUCTION

The relevance of the studied problem is caused by the economic macrochanges so new approaches to the organization of logistics should be applied. Integration unity between logistic partners should be provided, as it is a guarantor of achievement of each participant economic interests of logistic processes. In this regard the enterprises try to look for the new ways of cooperation guaranteeing stable functioning of the enterprise in the dynamic market environment at the low level of expenses and simplified management structure that pays their attention to cluster model of relations.

Conceptual bases of economic clusters as economic category were studied in the works both of foreign authors (Andersen [1] Dakhmen [5], Melander, Carlson [8], Porter [13], Suominen [17]), of Russian scientists and neighboring countries (Boytsov [3], Dreving [6], Migranyan [9], Melman [10], Pankova [12], Tsikhan [19], Chernikova [20] and others) Structurization of formation stages of economic clusters, is offered by Melman [10], Mukhanbetovy [11], Tereshiny [15]. Nevertheless, there is no complex consideration of the problem of cluster model application to the organization of the logistics that provides stream processes in a cluster that appears in the lack of unitary approach to methodological approaches to the scenario of its creation. In this regard, to eliminate methodological gaps in theoretical judgment of cluster approach to the organization of logistic activity we consider the research of the problem of logistic activity clustering to be relevant and timely. The importance of the conducted research is to develop the theory of cluster formations in logistics and to definite scientific and methodical approaches to formation process that will allow eliminating "narrow" places in the theory of the organization of logistics in modern conditions.

2. RESULTS

Logistic capacity of the Russian Federation is used not at full now. The proof is the unfavorable rating efficiency assessment of logistics that is formed by the World Bank. Following the results of specified assessment the Russian Federation worsened the indicators in 2016 and moved back from 90 to the 99th place among 160 economies of the world. By the analysts' assessments the main problems of logistics organization in Russia are connected with the inefficient work of customs services, with insufficient forming of delivery chains and insufficient level of logistic infrastructure development. The negative dynamics demonstrates it according to such subindexes as "overall performance of customs authorities" (- 0,19), " infrastructure quality" (- 0,16), "simplicity of the organization of the international goods deliveries" (-0,19), "opportunity to track goods on all delivery chain" (-0,23) . One of the reasons for such situation, in our opinion, is the insufficient level of cluster initiatives implementation in the field of logistics.

In relation to the concept "cluster" as an economic category the most appropriate definition is given by M. Porter [13] who focuses attention on the independent status of cluster

participants, their target orientation on the unity of the implemented processes and attachment to a certain territory. Specialization of cluster participants allows achieving the decrease in expensive parameters of activity, to increase effectiveness and, as a result, to ensure competitive advantages. [17].

Structurally the cluster can be considered as integration unity of business units from different kinds of specializations. Informatization processes, innovative orientation of society development and creation of modern industrial economic basis are the reasons for their active development. In this regard, clusters are capable to provide sustainable development both of the entities that they comprise and of the territories. [2]. Target cluster orientation is an opportunity for business and for the region to form not the inertial, but systematic scenario of the development.

As for logistic clusters, [7] functioning of economic clusters is carried out with the high level of logistic support which means good organization of transportation, storage, and management of delivery chains, etc. From this point of view, the logistic cluster is the supplementing structural element providing functioning and capacity of "core" of an economic cluster. At the same time cluster approach in logistics enables to escape rigid hierarchy in management systems to flat organizational structures with the domination of horizontal management communications which are based on the electronic information and communication mechanism that creates communication at all management levels (personal, company, regional) with the involvement of an administrative resource.

The main objective of a logistic cluster is to provide effective management of delivery chains created in a certain geographical space due to the integration unity of all participants of cluster organization, which is different in sectoral profile, status in a technological chain, scales of economic activity and obtaining synergetic effect within a unified chain of value creation. Economic benefits are revealed in the lower level of transaction expenses and in the increase of effectiveness of business activities which are provided by the proximity of communication entities and transparency of the communications that have been created between them. Besides, all the participants of a logistic cluster perform under the leading organizations which define the coordination of entities interaction and participate in the unified system of creation of the final product with high added value. Due to revealed features we can formulate the definition of the logistic cluster that will enable to identify it from all the variety of economic clusters which are outlined in scientific literature [1,4,8,16,18]: the logistic cluster is the polycentric, territorial localized formation providing stream processes on the basis of intercompany personified long-term communications and through the optimization of all types of resources in delivery chains.

The product of such cluster is the logistic service which feature is the opportunity to consume it beyond the borders of the territorial dislocation of cluster integration entities. In this regard it becomes obvious that the logistic cluster can operate

stream processes of the participants of other territories in case delivery chains include entities of the economic relations which are outside cluster borders. Depending on the fields of activity of logistic cluster entities, it is possible to allocate the following forms: transport – logistic, industrial and logistic, customs and logistic, innovative and logistic, each of which has the target orientation and entity structure. [7]

In modern conditions logistic clusters are created naturally and initiated, as a rule, by the bodies of municipal or public administration. However, all the initiatives can be capable only if there are certain conditions and opportunities for formation of a logistic cluster assessment can be implemented through economic, spatial, resource, institutional, infrastructure, competitive conditions. The special attention should be focused on the accounting of the interests of the participants of this formation, on the compromises to define mechanisms of creating communications (legal, organizational, economic, innovative, information and etc). The critical analysis of the available views of formation process of clusters [2,9,11,14,15], allowed us to define author's approach to creation of a logistic cluster. The sequence of stages and their characteristics is reflected in the table 1.

Table 1. Methodical approach to the formation of a logistic cluster

Stage	Stage features
1. Assessment of opportunities and conditions of cluster formation	Analysis of the condition of cluster formation Conjunction market assessment Development of a legal basis of a cluster initiative
2. Defining of goals, tasks and principles of cluster formation	Defining of construction principles Defining of strategic cluster problems Defining of tactical cluster problems Defining of tasks of cluster integration
3. Defining of cluster structure	Defining of spatial cluster structure: • dislocation territory • service zones cluster Defining of subject structure of participants: • formation, ranging and choice of selection criteria of the participants, • identification of potential participants, • analysis of the production and resource potential of participants, • defining of the actual participants
4. Development of the mechanism of cluster functioning and system of relations	Formation of the interaction mechanism: • cost - distributive mechanism • credit - cooperation mechanism • tax-optimizing mechanism • innovative mechanism, • information mechanism

Stage	Stage features
5. Assessment of potential logistic cluster	Defining of cumulative potential includes: <ul style="list-style-type: none"> • natural and resource potential • material and production potential • scientific technical potential • innovative potential • institutional potential • human potential
6. Defining of cluster vectors development	Defining of goals development Defining of tasks for goals fulfillment Defining of the problems constraining progressive cluster development Development of the complex of actions to overcome revealed problems Defining of desirable result.
7. Efficiency assessment of cluster formation	Creation of indicators system of efficiency assessment: <ul style="list-style-type: none"> • at the cluster level of a • at the entity level Defining of the degree of goal achievement: <ul style="list-style-type: none"> • at the cluster level • at the entity level Efficiency assessment of cluster functioning: <ul style="list-style-type: none"> • at the cluster level • at the entity level

The suggested methodological aspects of formation of a logistic cluster include the necessity for accounting of three fundamental moments: defining basic formation principles, developing conceptual model of the created cluster, defining the development trend and implementation mechanism of a cluster initiative. The offered approach allows setting the mode of the development of a logistic cluster and to avoid inefficient participants to enter into a cluster. Besides, this model is initially able to create the integration mechanism of communications for participants.

3.CONCLUSION

Logistic activity in modern conditions demands serious reconsideration to the search for approaches, methods and technologies of its implementation. The companies look for more and more effective ways of its organization which allows providing sustainable development and receiving positive results at the same time. One of such ways of the organization is the cluster model that enables to adapt logistic activity of market entities quickly and innovatively and their external interrelations to unstable market conditions. For this purpose it is necessary to create a complete comprehension of basic conceptual provisions of logistics" clustering. The goal has been achieved achieved by means of solution of the following tasks: theoretical basics of cluster model of economic activity organization have been considered and its features in relation to logistics have been revealed; the available approaches to clusters" formation have been generalized and scientific and methodical approaches to process of logistic clusters creation have been formulated. In this regard, considered features of

the cluster model of the logistics organization and approach to their formation will allow us to solve a problem of creation of a logistic cluster in a certain territory objectively and to define priorities of its further development.

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