

Clustering As the Mechanism of Enhancement of the Technological Competitive Ability of the Enterprise

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ABSTRACT: The article generalizes the scientific approaches to understanding the concept of “clustering”. The conceptual approaches to definition of the function and meaning of clustering as a mechanism of enhancement of technological competitive ability of the enterprise received further development. The generalization of the scientific approaches to the conceptual and categorical instrument let separate the place of the mechanism in the system of management of the technological competitive ability of the enterprise. The systematization of the modern state of the technological development of the national industrial enterprises let detect actual problems of enhancement of their competitive ability on the basis of clustering.

Keywords: clustering; effectiveness; competitive ability; industrial production; technology; profit; synergetic effect; strategy

JEL Classifications: F20; F23; F63

1. Introduction

In the terms and conditions of globalization of the world economy, internationalization of the industrial system, intensification of the tax competence, diffusion of the resource and financial flows, technologization of the operational systems, computerization of the logistic flows, the problem of providing systems with one of the competitive advantages for the concrete industrial enterprise becomes urgent. One of the means of development of the competitive profile of the enterprise is the usage of a clustering tool. At that the functions and responsibilities of the state and individual industrial investors in different states are enough differentiated and depend on the formation of economic system, the development of the technological productions, logistic systems and system of staff management.

The aim of the research is development of the scientific and methodological approaches to evaluation of clustering as the mechanism of enhancement of the technological competitive ability of the enterprise.

While acknowledging the scientific works of foreign and national scientists delineated with the problem, should be noted that in the literature remains poorly investigated question in enhancement of the technological competitiveness of enterprises.

The importance of the problem in mechanism of increasing technological competitiveness of enterprises through clusterization, theoretical and practical importance, insufficient coverage in the scientific literature, these issues have caused the relevance of this article.

2. Review of Literature

The considerable part of the scientific works, particularly, of Girna (2011), Kvilinskii (2010), Lyulchak (2011), Nazarenko (2011), Nesterenko (2009), Stechenko (2010), Yushin (2010) and others are devoted to the issues of the research of clustering of the industrial systems of enterprises.

For example, O. B. Girna and Kh. M. Vyshn'ovska considered clustering as the method of enhancement of competitive ability of the domestic enterprises, as well as the economy generally (Girna, 2011).

In the research of D. M. Stechenko and Zh. M. Zhygalkevich the concept of a cluster and its typical signs were defined; the basic stages of formation of machine-building clusters were detected based upon the analysis of scientific researches; the conceptual arrangement of the development of a cluster strategy was represented (Stechenko, 2010).

In the article of Z.S. Lyulchak and Kh.M. Vyshn'ovska the definition of a "cluster" notion and its structural development in accordance with the specificity of the agroindustrial complex were stated. The principal aims and preconditions, as well as the principles of introduction of a cluster approach in functioning both domestic and foreign agroindustrial enterprises were considered. The advantages and disadvantages, and difficulties of clustering of the enterprises, which are conditioned by the available state of the enterprise of this sector of economy, as well the social conditions were defined in the offered solutions (Lyulchak, 2011).

The cluster mechanism of enhancement of the competitive ability of the regional enterprises was researched in the work of S.A. Nesterenko, and the basic advantages of participation of the companies and enterprises in a cluster were established (Nesterenko, 2009).

The analysis of the theoretical grounds of development of the agrarian sector of Ukraine at implementation of cluster systems was conducted in the article of S. O. Yushin, V. P. Pavlyk, M. A. Brusenko. The arrangement of incorporation of the methods of state regulation of the branch development with formal and logical instrument of cluster approach was offered – ideal and real models of management (Yushin, 2010).

In spite of the considerable contribution of the scientists into the research of this economic process, the generalization of development of clustering as the mechanism of enhancement of the technological competitive ability of enterprise is still studied incompletely.

3. Statement of the Materials and Results

The research of the economic essence of clustering as the mechanism of enhancement of the technological competitive ability of the enterprise must be appropriately started from the consideration of economic nature and signs of clustering.

In particular, O. S. Kvilinskii, T. O. Stepanova consider cluster as the network of interrelated subjects of industrial and commercial incorporation that contains producers, consumers, elements of industrial infrastructure, research institutes, interrelated in the process of creation of additional cost (Kvilinskii, 2010).

S. A. Nesterenko states that cluster is the result of vertical and integrated system that is composed of the enterprises, which perform different functions and are united by one technological process, resulting in the final product, created by the efforts of all participants (Nesterenko, 2009).

S. A. Nazarenko oppositely states that cluster is an aggregate of business systems, which aspire to win in the competitive fight as a result of availability of synergetic effect from interaction of the participants in cluster that is formed on the principles of depth and specialization of the participants (Nazarenko, 2011).

The group of scientists headed by Z. S. Lyulchak and Kh. M. Vyshn'ovska understand cluster as an arrangement that is composed of the enterprises, which perform different functions and are united by one technological process, resulting in the final product, formed by the efforts of all participants of incorporation (Lyulchak, 2011).

At that O. B. Girna and Kh. M. Vyshn'ovska state that cluster is concentration of the enterprises, which are able to make synergetic effect through their geographical closeness and interrelation, even including that their scale, area of employment can be expressive and notable (Girna, 2011).

D. M. Stechenko and Zh. M. Zhygalkevich indicate that cluster is an organizational form of scientific and industrial systems, which is realized in the conditions of partnership and common usage of the industrial an infrastructural potential, involvement of the administrative-managerial and investment resources with the aim of acquisition of new technologies and enhancement of the competitive ability of the products (Stechenko, 2010).

Based upon the general scientific approaches to understanding the notion of cluster the conclusion is made that it can be considered as:

- concentration of the enterprises at certain territory that function in one or adjacent branches and owing to closeness of logistic connection provide synergetic effect of the development;

- aggregate of the entities' activity of industrial and non-industrial area, united by common economic interest;

- vertical-integrated system, which functioning results in formation of common product.

Based upon separated approaches and taking into account triadic nature, the author offers to consider cluster as a structured aggregate of objective and subjective connections among participants of the industrial process and servicing subjects with the aim of provision of economy of the industrial-logistic expenses, integration of the scientific-research and research-construction work and diversification of the industrial capacities.

Formation and development of clusters on the certain geographical territory lead to the development of clustering process, i.e. to increase of the concentration of clusters, which function on this territory including economic potential and specialization of the region.

We should emphasize that formation of clusters and development of pasteurization is not a spontaneous economic process. Taking into account the restriction of resources in the conditions of increase of completion in the great deal of economic areas, the development of clustering process is a tool of provision of the additional competitive advantages to each enterprise that enter it. Including the development of the modern technologies and intensification of their implementation into industrial process the enhancement of the technological competitive ability of enterprise takes the first place.

Generalization of the scientific researches let detect the preconditions of clustering development (Girna, 2011; Lyulchak, 2011; Nazarenko, 2011; Stechenko, 2010), particularly:

- provision of the development of staff constituent both on the basis of the enterprise and on the basis of educational institutions integrated into cluster and subjects of enhancement of qualification and re-training of the staff;

- increase of labour productivity at the expense of usage of technological innovations and concentration of production in a separate region;

- saving of logistic expenses at the expense of approaching both final consumers and additional enterprises to the suppliers of raw materials;

- regulation of partner relations among counteragents, which function in one region;

- activation of the innovation activity and implementation of the SRRCW strategy into the industrial process;

- accumulation of the industrial capacities and increase of the issue of technologically competitive products;

- harmonization of the exchange of financial-logistic-information flows.

The basic function of the development of technological clustering is providing competitive advantages to the enterprises at the expense of consolidation of the industrial system. The author's vision of clustering as the mechanism of enhancement of technological competitive ability of the enterprise is represented at Figure 1.

Let's see clustering as the mechanism of enhancement of technological competitive ability of the enterprise. The notion of "a mechanism" has wide economic nature. Thus, a great deal of scientists interprets the mechanism as an internal development of the certain system, which contains the determined list of links. The changes and movements of some separate ones of them lead to the changes of the system on the whole. Also we understand a mechanism as an aggregate of processes and states of certain system. The stated understanding of clustering as the mechanism of enhancement of technological competitive ability of the enterprise allows consolidate the general scientific approaches to clustering as an economic process and at the same time research it from the part of a tool for provision of technological competitive advantages.

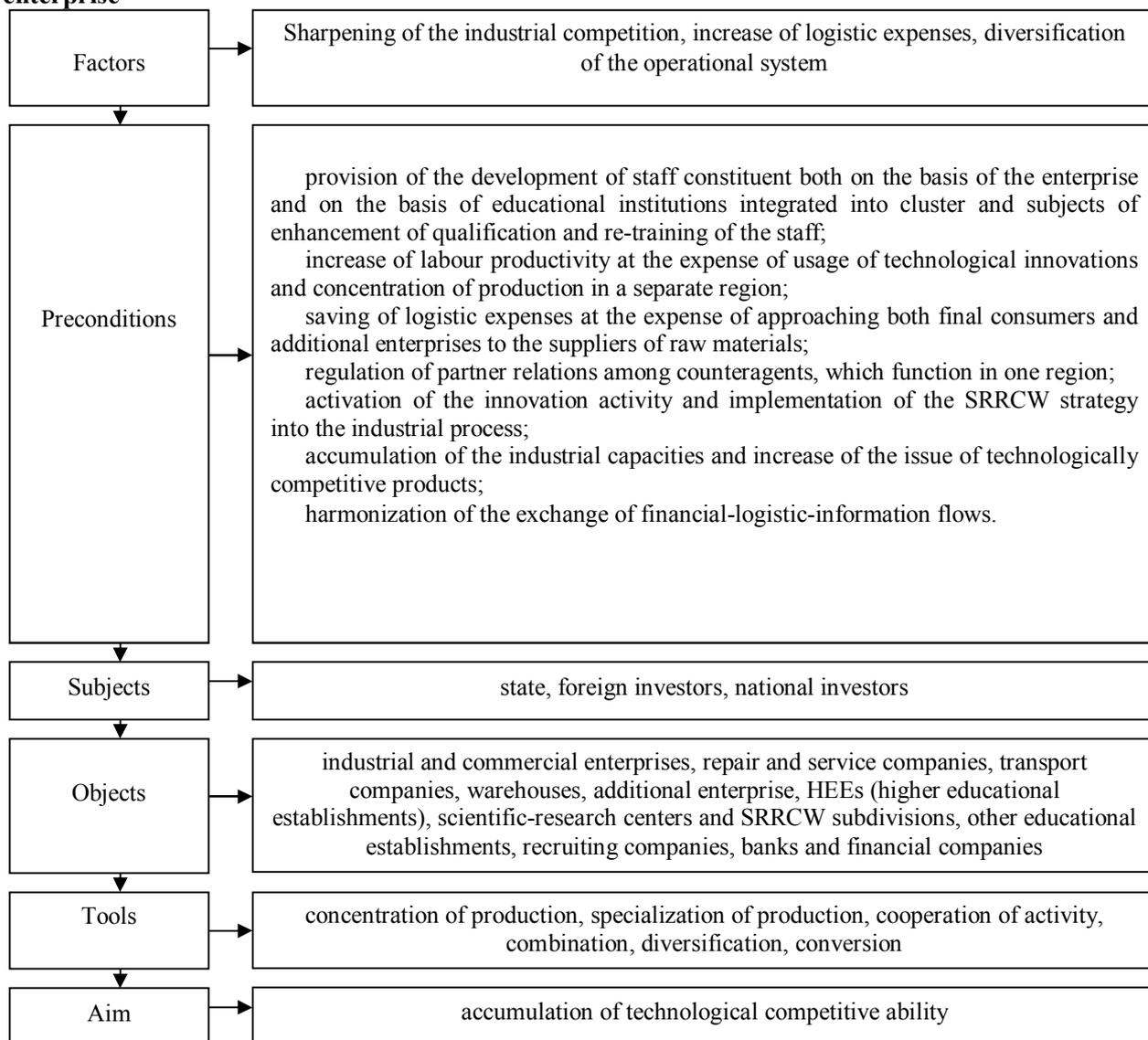
One of the most objective generalized evaluations of the technological development of the national economies is the Global Competitiveness Index that takes into account 82 indicators of entities' functioning (Global Competitiveness Report ...).

According to the data of Global Competitiveness Index of Ukraine in 2013 the high level of threats in the national economy in technological area is emphasized, and the index of technological readiness has no rapid dynamic to the increase, and meaning of an indicator for implementation of innovations into the industrial activity even demonstrate inconsiderable reduction.

In order to overcome the stated problems of provision of clustering and enhancement of the technological competitive ability of the enterprises of Ukraine, we offer the following:

- the development of state strategy of clustering for the economy of Ukraine;
- outlining the most priority areas of economy of Ukraine and firstly development of the technological competitive ability in them;
- involvement of the private and foreign investors into the development of clusters;
- activation of SRRCW financing and technological renovation of the industrial equipment;
- implementation of the innovation technologies and Internet not only into production, but also in the process of management of warehouses and logistics;
- the development of interaction among authority and control bodies and entities based upon the principle of “open window” and “investment interaction”.

Figure 1. Clustering as the mechanism of enhancement of the technological competitive ability of the enterprise



Source: developed by the author

4. Conclusions

According to the results of research of clustering as the mechanism of enhancement of the technological competitive ability of the enterprise the following conclusions and offers were made:

1. The cluster was defined as a structured aggregate of objective and subjective relations between the participants of the industrial process and servicing subjects with the aim of provision of economy into industrial and logistic expenses, integration of the scientific research and research construction work and diversification of the industrial capacities.

2. It was established that the main reasons for forming clusters are provision of the development of staff constituent, enhancement of labour productivity, economy of logistic expenses, regulation of partner relations among counteragents, activation of innovation activity and implementation of SRRCW strategy, accumulation of industrial capacities, and harmonization of exchange of financial-logistic-information flows.

3. Clustering was considered as the mechanism of enhancement of the technological competitive ability of the enterprise owing to assistance of concentration of the enterprises, specialization of productions, cooperation of activity, combination, diversification, conversion in the conditions of expansion of technologically complex systems of industrial process management.

4. In the modern conditions usage of the clustering mechanism is less-spread that considerably restrains technological development of the industrial production systems. Increase of financing into renovation of technologically complex production systems, increase of financing of the scientific research and research construction investigations, acquisition of the prospective licenses, and activation of the engineering staff training etc. are actual for Ukraine in order to improve and activate implementation of clustering as the mechanism of enhancement of the technological competitive ability of enterprise.

The further scientific research will be devoted to consideration of objective and subjective interaction of the participants of clustering in the process of enhancement of technological competitive ability of the enterprise.

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