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**METHODOLOGICAL APPROACHES OF FORMATION  
OF EDUCATIONAL CLUSTERS AS INNOVATION STRATEGY  
OF REGION'S DEVELOPMENT**

*Analysis of existing approaches of formation of educational clusters showed their diversity and ambiguity. One of the important points, which should be taken into account in formation of educational clusters, is an establishment of effective connections between its members and ensuring of interactions in the management decision-making. The article proposes a method of choosing appropriate directions of development of educational clusters by applying the coefficients of efficiency of interaction among its members that aims to increase the likelihood of achieving the main goals of formation of educational clusters.*

**Keywords:** *educational cluster, innovative strategy, the socio-economic development of the region.*

In the context of a dynamic update of world economic systems, tendencies of regional development are undergoing major changes, which increase the role of the conversion of the absolute and relative benefits of territorial entities in a sustainable competitive advantage. The main competitive advantage is the clustering process of economic systems in the region that perform an important social and economic role by creating qualitatively new job places, improving the efficiency of the institutional environment and the diffusion of innovation in the business environment. Special socio-economic role in this process should be given to the regional educational clusters as preferred supplier of highly skilled human resources and intellectual product, which, in turn, determine the possibility of developing high-tech and innovative product.

Issues of educational cluster were studied N. Belan, L. Galimova, N. Korchagina, O. Kuklin, O. Mocunova, O. Reshetniak, O. Semenova, N. Cherepovska, E. Chechkalova. Similar issues abroad were studied M. Porter, M. Shtayner, T. Andersson, T. Egan, H. Shmits, E. Bergman, E. Fezer etc.

Educational clusters should be aimed at attracting domestic and foreign reserves of human capital, generating educational products that are adapted to the characteristics of the information society, and forms of interaction between all economic agents in the region, that are focused on innovative type of development, determining the formation of its competitive advantage by generating synergies effect.

In this aspect educational cluster is considered as a set of educational institutions of different levels and profile of training, scientific and innovation structures, which are interconnected with each other and with relevant companies to ensure effective development of human capital in the region [1].

According to a survey of business executives, national education system is currently unable to provide growth of competitiveness of the country's regions in the context of globalization and the course of European integration, despite its relatively high quantitative indicators in the world rankings. Thus, Ukraine is the fortieth position according to the "Global Competitiveness Report 2015-2016" <sup>1</sup> ranking WEF global competitiveness, but according to the expectations of experts it will not be possible to maintain this position in the future without a substantial improvement of the education system as a whole, improving the quality of education and training in the workplace, increasing competitiveness of Ukraine's regions and their well-being.

Analyzing the situation in the system of national education such major challenges factors can be identified: the quality of education and professional training does not meet the expectations of employers, there are imbalances in the labor market as for supply and demand of specialists (surplus of "white collar" and the lack of "blue") and as for secondary level of education in different regions, rural and urban schools. According to the results of a survey of managers of Ukrainian companies in 2014 - 2016 year, every sixth manager as a major problem factor for their business considers low-skilled labor force, while 6% of managers consider it as the most problematic. The mismatch between supply and demand of skills and knowledge are explained by the decline in vocational education, "aging" of certain professions (mainly in the budgetary sector), poor quality of teaching management, financing of strategically important for the state areas of training and other reasons.

In addition, companies practically do not invest in training for their employees and retention of qualified personnel, which distinguishes the national system of postgraduate education from the education of the developed world. Average rating of staff development is very low - 2.65 points (at 10 point scale), when the world average is 4.32. Employers do not voluntarily invest in

staff development, without considering human capital as a strategic resource and competitive advantage, as well as due to lack of long-term planning skills.

The analysis revealed a disparity in the coverage of higher education. So, the maximum indicators (about 90%) has Kiev city and Kharkov region, and the minimum - Transcarpathian (29.06%) and Kiev (34.06%) regions, that can be explained by uneven distribution of major universities around the country. The quality of education in all Ukrainian regions is estimated lower than average. Its average for the region is 3.87 points, whereas in the world - 4.01 points. In addition, spread of estimates of the quality of education in universities with the same specialty (e.g., the economy) in the region is significant, so the highest score belongs to Kiev (4.27 points), and the worst score - Kherson region (2.08), with an average of 3.26.

Thus, the market of educational services is largely determined by socio-economic conditions of the region, and regional development is determined by education level, that forces to move away from traditional models of education, giving priority to innovation, ensuring the diffusion of contemporary knowledge and relevant information.

The aim of the article is to review the methodological approaches of formation of educational clusters as innovative strategy of region's development.

Analysis of existing methodological approaches to the process of formation of educational clusters as innovative development strategy showed the absence of a unified approach. Thus, formation of educational clusters can be considered as the process of developing a competitive strategy of the region. In this case, we can use either the approaches used to develop the strategy of organizations, such as the model of Harvard Business School (Harvard group), which is based on a popular procedure of the SWOT-analysis, model by I. Ansoff that uses the concept of formalized goals and procedures not only for strategy development, but also specific measures as for its implementation, or the model by G. Steiner, which combines two previously discussed models. These models generally consider factors of internal and external environment. Taking them into account and on the basis of the priorities, the development strategy can be chosen. In addition to the matrix SWOT or augmented matrix of strategic choice, such well-known methods of strategic analysis can be used: PEST / STEP-analysis, which allows to track trends in the external environment, SNW-analysis which allows to determine strengths and weaknesses in the region's development, the method of PIMS (Profit Impact of Marketing Strategy), which gives an opportunity to define a set of effective strategic factors to establish their optimal level under suitable

conditions, possible changes in the deviation from the intended strategic direction, as well as to make recommendations to improve the results, taking into account factors of external and internal character; matrix of evaluation of capabilities by Kerina Roger and Robert Peterson, that makes it possible to identify the foreground sales markets of the region; risk matrix and other methods and models [2, 3, 4].

More effective can be application of not only one, but several methods of analysis. Thus, it should be noted that the simultaneous use of a large number of methods of justification and choice of strategy for regional development, which allow to analyse various aspects on the one hand allow to make a comprehensive analysis, on the other hand, because of difficulty and complexity of the calculations, are not expedient [1].

However, dynamic changes in the environment and the need to develop adaptability, flexibility of actors of socio-economic development of the regions lead to the emergence of new, specific approaches and methods of analysis of internal and external environment to determine the orientation of development. So, Dubrovina N.A. [5] suggests an algorithm that includes such steps as: definition of the goals of planning, evaluation of the external environment, evaluation of internal opportunities, preparation of alternative plans for development of the region, the choosing and formulation of the development strategy, its implementation and evaluation. Lapygin D. [6] sees the working-out of strategy of region's development as the fulfillment of two stages: 1. Informational support of the process of development of a plan for strategic development of the region, that includes actualization of the need of the strategy development, defining and detailing of regional goals and a system of indicators of region's development, the current condition, condition of the environment and also defining of evaluation criteria and limits. 2. Working-out of a plan for strategic development of the region, including the formation of a collection of standard alternatives, development of original alternatives, the choice of the strategy of the region's development and high-priority measures to solve the major operational problems, the formation of a strategic plan of region's development (including adjustment of policies, programs, projects and activities as for their implementation, as well as the philosophy of development of the region), and the specification and adjustment of system of indicators of region's development.

Analysis of existing approaches to the formation of educational clusters allowed us to identify several possible scenarios [7]: technical and realizational scenario that sets the necessary forms of interactions between fundamental science and developers of specific decisions; organizational and productive, that

determines the specificity of training of specialists, depending on the industry sector; marketing, which defines the possible demand for a certain product-service-technology - infrastructure, as well as creating conditions for working with employers - customers in the region; investment scenario, that implies a comprehensive assessment of perspective projects on creation of a product (service-technology-infrastructure) in the interests of regional development; HR scenario, that is aimed at training human resources which are capable to work in conditions of high uncertainty; institutional and organizational scenario, that is aimed at optimization of work of cluster structures and mechanisms of interaction between its separate elements [8].

The construction of educational cluster can be based on three approaches: the "top-down" when firstly coordinating management bodies are formed, its development strategy and resource support are defined; "Bottom up", that implies the development of individual projects and programs taking into account the integration of individual cluster members; mixed option that combines both approaches [1].

However, it should be taken into account that in the process of formation of educational clusters in order to increase the efficiency of the region there is a need to solve several interrelated tasks, the main of which are the following: identification of priority directions of economic integration of all elements of the economic system of the regions; the implementation of the integration of scattered educational and business structures within the formation of regional educational cluster [9]; determining of coordinating center of educational cluster on the basis of educational institutions and the formation of mechanisms of its functioning; ensuring the integration of control systems and components of the training facilities of all subjects of the educational cluster; the development of legal and regulatory basis defining the mechanism of functioning of educational cluster in the region [10].

These main aspects make it possible to conclude that the priority at the moment of formation of educational clusters is the need to formalize the procedures of interaction between its participants. In this regard, the technique, which allows the simulation of the basic procedures of interaction between the processes of clustering in order to ensure the growth of their effectiveness, is proposed. The proposed methodology is based on a combination of formalized procedures for the organization of interaction of the regional educational cluster, as well as the development of a model that takes into account the uncertainty of the impact of external factors and heuristic approaches in coordination with all decisions that are taken.

Method of coordination of administrative influences in the formation of educational clusters includes the following steps: 1. Identification of the main prerequisites for the creation of educational cluster, the main participants, as well as the conditions of its functioning, taking into account the factor of uncertainty. 2. Formation of the purposes of socio-economic development of the region and the priorities for their implementation, the establishment of criteria of minimums and allowable losses. 3. Formation and evaluation of rationality of alternative methods of goals achievement. 4. The choice of the best alternative to achieve the goals in accordance with the criterion of utility maximization based on the calculation of the coefficient of efficiency of interactions and specified level of priority. 5. Implementation of the chosen alternative, taking into account the definition of economic indicators, characterizing the condition of educational cluster in the region. 6. Evaluation of the results, taking into account the effect of uncertainty. 7. Adjustment of objectives and criteria, taking into account the changes in the socio-economic indicators of the region.

Usage of the developed methodology of choosing appropriate directions of development of educational clusters by applying the coefficients of efficiency of interaction among its members, aims to increase the likelihood of achieving the main goals of educational clusters formation.

In summary, it can be noted that the presented theoretical model can serve as a basis for evaluation and decision-making in the process of formation and functioning of educational clusters at the implementation of the strategy of region's development. Practical application of the proposed method can provide effective economic results, because it is based on the consideration of uncertainties factors and evaluation of the level of risk, when evaluating alternative strategies and management decisions that are generated in the process of preparation of experts on the basis of regional educational cluster.

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**Решетняк Е.И., Заика Ю.А. Методические подходы формирования образовательных кластеров как инновационной стратегии развития региона.** В статье предлагается метод выбора соответствующих направлений развития учебных кластеров путем применения коэффициентов эффективности взаимодействия между его членами, целью которых является повышение вероятности достижения основных целей формирования образовательных кластеров.

**Ключевые слова:** образовательный кластер, инновационная стратегия, социально-экономическое развитие региона.

**Решетняк О.І., Заїка Ю.А. Методичні підходи формування освітніх кластерів як інноваційної стратегії розвитку регіону.** У статті запропоновано метод вибору відповідних напрямів розвитку освітніх кластерів шляхом застосування коефіцієнтів ефективності взаємодії між його членами, метою яких є підвищення ймовірності досягнення основних цілей формування освітніх кластерів.

**Ключові слова:** освітній кластер, інноваційна стратегія, соціально-економічний розвиток регіону.

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