

Formation of the Innovative Drivers of Regional Economic Development

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Abstract—The research focuses on the formation of regional diversified corporate structures with the participation of defense enterprises with high innovative potential. The aim of the research is to increase the innovative activity of the defense complex enterprises as drivers of regional development, based on the optimization of pricing for defense products and the formation of additional revenues to finance the development and introduction of civilian products production, which ensures the diffusion of innovation. The hypothesis of the research: it is advisable to increase the innovative activity of the regions diversified corporate structures by deepening their clustering and expansion of cooperation with research, development and innovation structures of the Russian defense industry. Methods of expert assessments, pricing methods, integrating methods for assessing competitive advantages are used. The current problems and prospects of Russian defense enterprises are investigated, possibilities of their activation as drivers of regions economic development are revealed. The features of pricing for the products of defense industry enterprises are studied. Method of the prices optimization as the tool for programs of civil appointment production is offered. The results of the assessment of competitive advantages are presented for defense enterprise when implementing the proposed method.

Keywords—*Region, Clustering, Innovation, Pricing, Competitive Advantages.*

I. INTRODUCTION

A. Relevance of the Research

The relevance of research is conditioned by the necessity of improving the competitiveness of the Russian economy, which largely depends on the level of innovative development of the regions. The increase in innovative activity of diversified corporate structures of the regions is possible due to the deepening of their clustering and expansion of interaction with research, development and innovation structures of the Russian defense-industrial complex enterprises.

B. Scientific Significance of the Research

The researched subject is widely covered by numerous authors. A number of works by A. Alexander, I.T. Balabanov, T.A. Burtseva, G. Hamel, D. Martin, E.A. Novitskiy, M.E. Porter, C.K. Prahalad, G.V. Semenov, A. Toffler, R.A. Fatkhutdinov, J.A. Schumpeter and others are devoted to the problems of competitiveness and innovation [1-10]. Theoretical and practical questions of clustering and regional economic development are reflected, in particular, in works by E.N. Alexandrova, M.J. Campbell, E.N. Dunenkova, P. Krugman, R. Mar-

tin, P. Sunley, S.J. Walters, S. Yang and others [11-18]. At the same time, Russian and foreign researchers did not pay enough attention to the research of regional development mechanisms based on the active involvement of research and innovation structures of defense enterprises producing defense and civilian products. The scientific significance of the research is to improve the innovative activity of regional industrial clusters on the basis of interaction with defense enterprises implementing the function of regional development drivers.

C. Statement of the Problem research

The object of the research is innovative drivers of regional economic development, the subject of the research is the mechanism of formation the innovative drivers of regional development. The aim of the research is to identify opportunities to increase the innovative activity of defense enterprises as drivers of regional development based on the optimization of pricing for defense products and generation of additional income for financing the development and implementation of civilian production, which provides diffusion of innovation. The objectives of the research include studying the role of clusters in ensuring the competitiveness of regions, improvement of mechanisms for forming the innovative drivers of regional development on the basis of stimulation of transfer (diffusion) the new technologies of defense enterprises is in other spheres of economy. The paper uses the methods of expert evaluations, pricing methods, integrated methods for assessing competitive advantages.

II. THEORETICAL PART

World practice shows that the regional development is often hampered by insufficient material and financial support, weakness of the research base, insufficient availability of qualified personnel, specifics of the existing industrial structure and mixed economy. This determines the transition from sectoral managing of the economy to a new clustered approaches based on the mechanisms of indirect effects and stimulation of regions innovative activity [2, 3, 12].

The criterion for the modern region development is to increase its competitiveness on the basis of formation the effective clusters and the innovative development of their member organizations. The concept of cluster is the alternative for traditional dissipative models of regional development based on horizontal communication and relations between direct com-

petitors with similar types of activities and product line. The cluster model focuses on the improvement of the vertical relations business and synergistic interactions [3, 14, 15, 17], supplemented by the provisions of the "knowledge – based economy" [16, 19].

Feature of cluster approach to regional development management is that the competitiveness of each member organization depends on the activities of other organizations involved in the value chain, which as a result leads to an overall increase in the competitiveness of clusters and the region as a whole. Stimulation of innovative self-development processes of the region on the basis of cluster approach allows to form purposefully the conditions promoting transition to the most perspective technologies and new technological ways [2-5, 12, 20].

Taking into account the Russian specificity, it should be assumed that in order to launch new innovative processes of the region, existing defense enterprises with a powerful scientific and industrial potential, having a powerful scientific and industrial potential, can provide significant support to the development of its clustering [12]. However, defense enterprises, which in recent years, the share of equipment directly related to research and development has decreased and is no more than 35%, and the Fund armament of an employee engaged in R&D, is 25 times lower than the US and 15 times – the European level, have their own problems. During the period 1991-2015, the relative number of complaints per unit of supplied arms and defense equipment steadily increased. As a result, the share of defense enterprises engaged in innovative development of defense models does not exceed 10%. The share of innovative products is not more than 5.5% of the volume of defense products, which is due to the imperfection of the current system of defense models pricing, as well as other problems of creating high-tech products, which discourages defense enterprises to participate in high-tech projects [22-20]. Accordingly, the implementation of their functions as drivers of regional development is hampered, including the current pricing system.

Thus, the problem of regional development can be solved on the basis of an integrated approach that stimulates innovation, both defense enterprises and enterprises of regional clusters.

III. PRACTICAL SIGNIFICANCE OF THE RESEARCH

The practical significance of the research lies in formation the effective drivers of regional development based on the expansion of the participation the defense enterprises in innovative programs of regional development, ensuring the competitiveness of diversified corporate structures of regional clusters.

After 2008-2009, many defense enterprises have sharply reduced civilian production and has concentrated its resources on the implementation research Institute of the state defense order, which curtailed the possibility of innovative development financing through the accumulation and redistribution of funds according to the orders. With the low profitability of the state defense order, this led to an overall reduction in the financing of innovation at the expense of its own free resources and to a decrease in the transfer (diffusion) of innovations. At the same

time, the possibilities of diversifying defense enterprises and implementing their functions as a driver of regional economic development are significantly reduced. The current situation is predetermined by the existing norms of innovative developments budget financing and the pricing practice of the state defense order [20-22].

Generalization and systematization of existing problems in the state pricing sphere of defense products led to the conclusion that there are significant shortcomings in the development of economically sound baseline data for the formation of financing plans for the development of weapons and defense equipment. In the last 5-10 years sharp fluctuations of initial information for forecasting macroeconomic indicators of socio-economic development of the state, inflation rates lead to a decrease in the rate of profitability of the tasks of the state defense order, up to negative values, and the refusal of defense enterprises to fulfill them due to economic unattractiveness [21, 22].

IV. PROPOSALS AND RESULTS OF IMPLEMENTATION

Increase of innovative activity the defense enterprises as regional development drivers is possible by correction of the operating system of pricing for production of the state defense order. The cost approach to pricing [20-22] is focused on the use of a fixed-price contract of the state defense order, the use of which, as a rule, does not compensate for unforeseen expenses of the enterprise in the creation of high-tech products. To solve this problem, it is proposed to use the flexible contract price method, which has two components: 1) the base part of product price, which is determined by cost methods; 2) the variable part of price, which is determined by experts as a point estimate of the premium to the company for achieving quality indicators, urgency of the order, etc. This allows you to stimulate the defense enterprise to the accumulation and reallocation of resources for the financing of innovation activities, including in the field of innovations diffusion is in the civilian sector of industry in the region. The evaluation of growth the organization competitive advantages is accepted as a criterion of the offered approach efficiency by a technique [9]. For the integral evaluation of competitive advantages growth for defensive enterprise are encouraged to use the following multiples of the model, the parameters of which are determined by expert methods:

$$\Delta CA_D = \sum_{g=1}^G \gamma_g \cdot \Delta F_g ; \quad (1)$$

$$\Delta F_g = \sum_{h=1}^H \delta_h \cdot \Delta U_h , \quad (2)$$

where ΔF_g - changing g -factor of the organization competitive advantage; γ_g - the importance of the g -factor competitive advantage; G - set the factors of the organization competitive advantage; ΔU_h - change of h -parameter for competitive advantage g -factor; δ_h – weighting ratio of the evaluation h -parameter for the g -factor of the competitive advantage; H –

number of selected parameters to estimate the change of the organization competitive advantage g -factor.

The list of external and internal U_h -parameters of the organization competitive advantage (defense enterprise) is selected in accordance with the recommendations [9].

The use of the flexible pricing method for defense products provides competitive advantages of these products and the formation of funds of financial resources to enhance innovation. In turn, the use of flexible prices for these products requires the use of adequate organizational structures and management systems of the enterprise, which determines the growth of the defense enterprise competitive advantages ΔCA_D .

V. EXPERIMENTAL RESULTS OF THE RESEARCH

Experimental verification the proposed model of competitive advantage assessment is carried out on the example for the defense enterprise of the Middle Urals. For this purpose, the Delphic method was used, 21 experts took part in the survey, who assessed ΔU_h , δ_h и γ_g model parameters level is in the forecast situation with the use of a flexible order price. The assessment of consistency degree of the experts' opinions had been based on the Kendall-Smith concordance coefficient.

Calculations by formulas (1) and (2) in the implementation of the flexible prices method for defense products is in the defense enterprise have shown that the level of growth of the organization competitive advantages is 12.57 points on a 100-point scale with sufficient consistency of expert opinions on changes in ΔU_h -parameters and δ_h , γ_g -coefficients (the concordance coefficients were 0.56, 0.72 and 0.61, respectively).

VI. CONCLUSION

The positioning of Russian defense enterprises as drivers of regional economic development is an important economic task, which is determined both by increasing competition in the world market of arms and defense equipment and by the low transfer (diffusion) of new technologies. For expansion of diversification opportunities of the defensive enterprises and realization of their function as the driver of regional economy development have been offered the method of the flexible price for production of defense purpose on the basis of integration a calculation method and a method of an expert assessment of quality. This allows the defense enterprises to profit for the formation of programs for the production of innovative products for civilian use, ensuring the diffusion of innovation in other sectors of the regional economy.

The integrated expert assessment of the defense enterprise competitive advantages in case of implementation of the flexible price method for the contract of state defense order is carried out: growth of the organization competitive advantages made 12.57 points on a 100-point scale at sufficient coordination of experts opinions.

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