Cluster mechanism of industrial development based on the possibility of saving on the growth of production scales

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Abstract. In recent years, the economic development trend in Russia and other countries has been based on the cluster approach. Increasing competitiveness through the use of the cluster mechanism is an effective means of developing industrial production, where the main goal of any enterprise is to obtain maximum profit. For a good and successful confrontation in the conditions of market competition, Russia needs to create large industrial corporations - centers, conduct integration processes and form large regional clusters. The formation of large regional engineering clusters within the subjects of the Russian Federation will ensure the inflow of investment from outside, and will create conditions for competitive advantage for large, small and medium-sized businesses in general. Therefore, we can conclude that the development of the tasks presented in the research, which identified the main ways of cluster development based on the creation of a regional industrial engineering cluster, is relevant, and has novelty and practical significance.

1. Introduction

In economic theory, the term “cluster” was first used by economist Michael Porter in the 1990s, who defined this concept as a “bundle” – a community of firms, interconnected industries that contribute to the growth of each other’s competitiveness [3]. The main reason for creating clusters is to increase the synergy effect that occurs due to saving on production scales [2]. The scale effect, as we know, is caused by many reasons, including innovative technologies, full load of equipment, and so on [5,8]. The scale effect of industrial production as a result of the cluster approach is based on the fact that due to a large increase in production volumes, its cost price decreases, and the revenue and profit from its sale increase.

2. Purpose

The purpose of the research is to study the use of cluster development mechanism in the automotive industry on the example of the region development (Republic of Tatarstan), based on the possibility of saving on the growth of production scales.

3. Materials and methods

Today in the industrial sector there is mass clustering of enterprises and the formation of large auto holdings through mergers and acquisitions [6,7,9,10]. On the one hand, the integration of enterprises
leads to an increase in production efficiency, to a reduction in production costs for a given volume of output. For example, Russia and Belarus have agreed to create a large car holding “RosBelAvto” by combining the Belarusian state enterprise PC “MAZ” and the Russian enterprise PC “KAMAZ”. During the meeting, the parties reached an agreement on cooperation in the field of metallurgy, machine tools building and radio electronics. Plans were made to expand cooperation in the supply of Belarusian automotive components to Russian automotive assembling companies. On the other hand, the development of clustering of industrial enterprises leads to increase in the synergy effect and profit of firms, so the development of a separate firm in the cluster cannot be separated from the overall development of the cluster [1]. Industrial clusters can be formed in various ways; there are no universal and individual models of their creation. In particular, the industrial engineering cluster of the Republic of Tatarstan has been created, the main goal of which is to create competitive technologies, products and solutions of strategic importance for the engineering complex. 43 enterprises of large, medium and small businesses are the participants of the industrial engineering cluster of the Republic of Tatarstan. 12 participants among them are final manufacturers of industrial products. As experience and practice shows, the main “engine” for the emergence of clusters can be: geographical location, the availability of scientific and practical base, developed industrial infrastructure, etc. Therefore, prerequisites for the establishment of engineering cluster on the territory of the Republic of Tatarstan are: best and promising graphical location on the map (at the crossing of transport corridors “West-East” and “North-South”), a high concentration of engineering export-oriented enterprises of small and medium business on the territory of the Kama economic region, developed transport and industrial infrastructure, the presence of anchor producers, etc.

4. Results
The main results of creating an industrial engineering cluster in the Republic of Tatarstan are: increasing profits by saving on the production scale; introduction of modern and innovative technologies at all stages of the production process; reducing unemployment; increasing the cooperative relations of participants in the industrial engineering cluster; a high level of consumer potential; development of industrial parks, sites and incubators, developed transport and industrial infrastructure for sales and product realization.
Table 1. Stages of the program implementation.

| Stage | Year of implementation |
|-------|------------------------|
| 1     | 2016                   |
| 2     | 2017                   |
| 3     | 2018                   |
| 4     | 2019                   |
| 5     | 2020                   |

From the 1st to 3rd stage - creating conditions for enterprises in the engineering cluster to implement technical equipment, introducing the latest technologies, including by facilitating access to investment loans.

From the 3rd to 5th stage - continuing the reconstruction and modernization of production on a long-term basis, creating new competitive, high-tech industries that ensure the stability of high rates of industrial growth and increase the budget efficiency of engineering enterprises.

5. Conclusion

Thus, the problem field of the cluster approach in the economy is the study of problems of competitiveness (of country, region, and industry), analysis and development of national industrial policy and territorial development policy, as well as the study of innovative aspects of economic entities.

It is obvious that the cluster approach in economy is a synthesis of several areas, including local industry specialization, spatial economic agglomeration and regional development, as well as provisions for strategic and venture management.

The development of the industrial engineering cluster in the Republic of Tatarstan allows getting excellent results; receiving maximum profit by increasing the production scale and sales. Cluster growth has a positive impact both on its participants and on the development of the region as a whole. However, it should be noted that there is currently no unified approach to practical tools for cluster development at the level of the Russian constituent entities. Thus, it is necessary to take into account both the growth prospects of the industrial engineering cluster and the best modern practices of foreign partners [11]. Summing up, we note that the creation of an industrial cluster requires a high level of interaction of partnerships between firms, the state, educational institutions and public organizations. Each of them can become an important tool in the process of creating a cluster and can perform its functions and tasks effectively only within a well-established mechanism. The development of programs for identifying potential clusters at an early stage of formation and further state support for their development can, as practice shows, significantly accelerate the process of creating competitive industrial clusters [12]. The most important feature of an industrial cluster is the combination of
competition and cooperation between participating firms. Close cooperative relationships between firms in a cluster lead to synergistic positive effects, so the success of one firm in a cluster cannot be separated from the overall success of the cluster. Industrial clusters can be formed in various ways, but there is no single model for creating them. Experience shows that factors such as convenient geographical location, wealth of natural resources, availability of scientific base, professional staff, developed infrastructure, as well as the influence of a successful company can serve as an incentive for the emergence of clusters. Thus, on the basis of the specialized organization the Association “Engineering cluster of the Republic of Tatarstan”, the project “Industrial tourism in the Republic of Tatarstan” is being implemented, which provides for the arrangement and conduct of career excursions to industrial enterprises to familiarize students with the production, equipment, technologies of various enterprises and the main professions [4,8,13].

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