Program-Targeted Approach to Labor Organization in Industrial Clusters

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Abstract. The article reflects the organizational and economic methods and approaches to the organization of labor in industrial clusters, provides an analysis and systematization of the views of foreign and domestic scientists and practitioners on the concept of "cluster", analyzes the implementation of the program-targeted approach in the development and organization of labor in industrial clusters, reveals features functioning, labor organization, requirements for a modern employee in the conditions of interaction of enterprises in the industrial regional cluster.

1. Introduction
The modern period of economic development is characterized by high rates of development of scientific and technological progress, information and communication technologies, cooperative ties between enterprises, and clustering of the economy. These transformations are reflected in increasing the level of technical equipment of industrial enterprises, including the technologies used. In this regard, the development of labor organization within the framework of existing industrial clusters acquires innovative features, as the content of labor, requirements for the level of knowledge and skills of the worker, the system of regulation and assessment of labor are changing [2].

2. Methodology
As research methods were used: program-target and system approaches, economic-statistical, abstract-logical, sociological methods, methods of system analysis and comparisons, morphological analysis, methods of mathematical modeling and forecasting. The validity of the conclusions and suggestions received during the study is due to the chosen research methodology, the use of existing regulatory documents and statistical data [5].

The program-targeted approach used in the study involves the use of a set of methods aimed at achieving specific goals and obtaining predetermined results in a timely manner, through the implementation of a system of measures.

3. Discussion

A classic understanding of the cluster was proposed by Michael Porter, according to which the cluster is "geographically concentrated groups of interconnected companies, specialized suppliers, service providers, firms in relevant industries, as well as organizations related to their activities (for example, universities, standardization agencies, and also trade associations) in certain areas, competing, but at the same time leading joint work " [10].

S. Rosenfeld defines a cluster as a geographically limited concentration of similar, related or additional firms with active channels for business transactions, with infrastructure, labor market and services, which can benefit from common opportunities as well as general risks [11]. According to L. Young, a cluster is a group of companies located nearby, which are located near large universities, have the structure of small private companies, are characterized by highly qualified employees [13]. V. Price considers the cluster as a new way to take advantage of the industry location of organizations and effective regional management, involving close interaction between government and business and the transformation of isolated firms into an entrepreneurial community [1]. D. Jacobs, A. De Man defines a cluster as a geographical or spatial definition for economic activity, which involves horizontal and vertical relationships between industries, the use of common technology, the presence of a "core"[8]. K. Ketels says that the cluster is a group of enterprises of interrelated industries, state authorities, educational institutions, financial and public organizations [15].

Domestic scientists express their own point of view. According to A. Voronov and A. Buryak, a cluster is an ordered, relatively stable set of specialized enterprises that produce competitive products, taking into account the territorial localization of the economic sector [20]. According to B.K. Shcherbin, industrial or innovative clusters are complexes of enterprises (industrial companies, research centers, scientific institutions), government bodies, trade unions, public organizations based on the territorial concentration of networks of specialized suppliers, major manufacturers and consumers connected by the technological chain [13]. S.A. Pomitov defines clusters as associations of manufacturing companies, research and educational institutions, suppliers of equipment and services, geographically closely located and working together in order to obtain competitive advantages, create high-tech and high-tech products [9].

Russian legislation defines the industrial cluster as a set of business entities in the industry related to relations in the specified field due to territorial proximity and functional dependence and located on the territory of one or more constituent entities of the Russian Federation [16]. The cluster-oriented economy is, in our opinion, an effective mechanism to increase the competitiveness of the region through a combination of cooperation and competition.

4. Results

The formation and functioning of industrial clusters is the transformation of an existing production system into a qualitatively new, more organized state. This process involves the development of a specific program (plan), which will reflect the necessary activities.

An analysis of production practice shows that in an industrial cluster, in order to increase productivity and job satisfaction, reduce absenteeism, it is necessary to determine the optimal ratio of technological management and personnel management. This means that technological change must be complemented by an appropriately planned integration of new social relations [16].

The implementation of this condition is possible within the framework of the creation of working groups / teams / teams. This raises the question of the degree of autonomy of working groups / teams / teams. The solution is to highlight the main task of the brigade. Indeed, the more autonomous the task of the working group / team / team is, the more differentiated the team itself is from other organizational units, which increases the level of cooperation in the production team and allows it to

better control how much the main task is deviating from the normative level within the work group / team itself / brigades.

The process of forming working groups / teams / teams is proposed to be presented as an integrated target program, which will include several main stages [18].

Let us consider in detail the content of each stage.

1 Adaptation. At this stage, members of the brigade / group / team search for the best way to solve the problem. Workers come together with a sense of alertness and coercion.

At this stage, it is important to prevent possible conflict situations by diagnosing a person's tendency to conflict behavior once a month using the method of Ken Thomas and Ralph Kilmann.

Timely diagnostics will allow you to identify a conflicting person in the team, carry out the necessary work and avoid aggravation of the situation, the occurrence of conflict [7].

2 Grouping. Its instrumental content consists in counteracting the members of the brigade / group / team with the requirements imposed on them by the content of the task, due to the identification of discrepancies in the personal motivation of individuals with the goals of joint activity. There is a union of all members of the subgroup around its leader, which can cause non-critical perception of the latter by individual members of the brigade / group / team [14].

3 Cooperation. At this stage, there is an awareness of the desire to work on solving a problem. It is characterized by more open and constructive communication than in the previous stages; elements of group solidarity and cohesion appear. However, in this group there are no sufficiently pronounced psychological connections.

4 Rationing activities. At this stage, the principles of group interaction are developed. The process of isolating a cohesive, well-trained, unified in organizational and psychological relations brigade, can turn it into a group-autonomy, which is characterized by isolation on their goals, selfishness.

5 Functioning. At this stage, the team / group / team reaches the highest level of socio-psychological maturity, characterized by a high level of preparedness, organizational and psychological unity, characteristic of the team subculture [19].

The effectiveness of the work of working groups / teams / teams can be assessed as part of a team approach based on criteria such as productivity, cohesion, training, integration.

Productivity is an important criterion for success. It is largely related to the goals of the group / team / team, as well as its ability to adapt and modify goals, taking into account new information, changing cluster priorities and market conditions.

The productivity of a group / team / team can be assessed using the methodology for assessing communicative and organizational inclinations (CBS-2). Training is a criterion for the successful functioning of both an individual group / team / team and the organization (cluster) as a whole.

However, not only the effectiveness of an individual group / team / team is important, but also their integration in the strategic interests of the cluster. In this regard, the results of the group should be made public and adjusted from the point of view of the entire cluster [9].

5. Conclusion

Each component of the enterprise and the management system as a whole undergo significant changes in the state in the process of passing through these stages in the context of using a cluster approach to industrial development.

The production system, including interlinked links (jobs, operations), should be optimally structured. Without this, the rational organization of labor and the use of the enterprise's information system, which makes it possible to track the production process, perform work at specific workplaces, and take appropriate management decisions, are impossible.

To assess the impact of individual system parameters on regional development, as well as to a certain extent to predict it, statistical analysis methods were applied. The construction of economic and statistical models will reliably and sufficiently evaluate the activity, as well as develop many acceptable options for its development, provide forecasting, optimal planning and the development of sound control actions [12].

References

[1] Ismagilov D D 2010 Evolution of theoretical research in the field of cluster formations *Bulletin of Samara State University of Economics* **8** 21-27

[2] Lukinova O A, Guseva L P 2018 A study of the development of innovative activities of the regions of the Russian Federation International scientific-practical conference "Innovative entrepreneurship: the experience of the regions" (Voronezh: Voronezh branch of REU named after G V Plekhanova) 41-45

[3] Lukinova O A, Pisarenko N D, Guseva L P 2019 Innovative and technological development as a factor of economic growth *Innovations and Investments* **1** 16-21

[4] Lukinova O A, Pisarenko N D 2018 Mathematical modeling of the system of unrelated regulation of the composition of extractive distillation products in industry II All-Russian scientific-practical conference "Mathematical methods and information technology in modeling systems" (Voronezh: Voronezh branch of REU named after G V Plekhanova) 97-101

[5] Lukinova O A, Pisarenko N D, Guseva L P 2018 Selection of priority options for innovative sustainable socio-economic development of the region using management decision-making methods *Innovations and investments* **3** 6-11

[6] Lukinova O A, Pisarenko N D 2017 Solving the problems of evaluating the effectiveness of commercial activities by the methods of factor analysis and modeling in the market of transport services *Monograph "Commercial, marketing and merchandising activities: conceptual and applied issues"* 26-51

[7] Nagibina N A, Griboedova I A 2013 Team building in the organization's personnel management system *International scientific-practical conference* (Voronezh: Voronezh state technical university) 47-53

[8] Nesmachnykh O V, Litovchenko V V 2013 Formation of a synergistic effect in an economic cluster based on the law of increasing returns *Fundamental Research* **6** (part 5) 1220-1223

[9] Pomitov S A Clusters: characteristics and models EKportal.ru -Information site for the economy URL: http://ekportal.ru/page-id-1805.html

[10] Porter M 2002 Competition Williams 496

[11] Rosenfeld S 2002 Creating smart systems A guide to cluster strategies in less favored regions Report to European Union Regional Innovation Strategies (USA)

[12] Salikov Yu A, Vandysheva S V, Smarchkova L V, Chudakova E A 2018 The use of cluster approach in the development of industry in the region *Vestnik VGUIT* vol 80 **4** pp 493–498

[13] Shcherbin V K 2010 Infrastructure components of an innovative economy *Center for System Analysis and Strategic Research of the NAS of Belarus* 312

[14] Shendrikova O O, Vandysheva S V, Lutsenko M S 2017 Industrial cluster: organizational and managerial aspects *Bulletin of the Southwestern State University* **1(70)** 115-125

[15] Sokolenko S I 2002 Globalization Production Systems: Networks *Alliances Partnership Clusters. Logos* 645

[16] Vandysheva S V 2017 Industrial clusters as the basis for the development of subjects of small and medium entrepreneurship *International scientific-practical conference* G V Plekhanov Russian University of Economics (Voronezh branch) 31-34

[17] Vandysheva S V 2016 Software and target approach as a tool for implementing social management in industrial clusters Collective monograph "Tactical and strategic directions of innovative development of product management and commerce tools" 61-66

[18] Vandysheva S V, Ryzhkov E I, Chudakova E A 2016 Organizational aspects of creating cluster formations *Economics and Management in Mechanical Engineering* **1** 13-17

[19] Vandysheva S V, Kuzevanov G L 2016 Issues of social management in industrial clusters International scientific and practical conference "Goods management: economic, logistics and marketing aspects" (Voronezh: Voronezh branch of REU named after G V Plekhanova)

[20] Voronov A V 2003 Cluster analysis - the basis of competitiveness management at the macro level (Marketing) **1** 11-20