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**DEVELOPMENT OF THE INDUSTRIAL SECTOR OF THE ECONOMY
WITHIN THE FRAMEWORK OF THE EXTENDED CLUSTER CONCEPT
AND ESG STRATEGIES**

Scientific specialty: 5.2.3. Regional and sectoral economics:

ANNOTATION

dissertations for the degree
of Doctor of Economics

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GENERAL CHARACTERISTICS OF THE WORK

Relevance of the research topic. Transformations in global economic systems and in world social production from the end of the twentieth century to the present have caused to changes in both the spatial organization of national economies and ideological approaches to their strategic development.

In the modern economy, local production and economic systems - technoparks, technopolises, free economic zones, territorial production clusters – are beginning to play an important role due to the fact that the management mechanisms of subjects and process regulations in them are effectively adjusted, adapted to the peculiarities of the external environment of functioning, specialization, target orientation and diversification of activities, correspond to the goals of sustainable development. The basis of the methodology for managing the country's industrial sector should be the development of management decisions that contribute to the effective functioning of socio-economic systems, which is accompanied by the integration of enterprises, industries and complexes into cluster formations that take into account economic, social and environmental requirements and ensure the achievement of a synergetic effect for the participants of such an association.

The external effects that have affected industries in recent years (the coronavirus pandemic, climate change, the trend towards decarbonization, stricter environmental legislation, geopolitical tensions, sanctions restrictions, disruption of established partnerships and traditional logistics chains, unpredictability of changes in the business environment, etc.), as well as internal production conditions that require modernization and reform from the standpoint of increasing the level of its innovation, contribute to the acceleration of digitalization, greening and technological renewal processes ("Industries 4.0 and 5.0"). This has led to the need to develop theoretical and methodological approaches to managing integrative structures in the industrial sector, in particular, territorial production clusters, which in the new economic conditions are tasked with intensifying import substitution processes and increasing innovation activity capable of ensuring the technological sovereignty of the country in many sectors of the economy. In this regard, it becomes advisable to develop a cluster management concept

for the industrial sector of the Russian economy in accordance with the ongoing changes related to its modernization.

In addition, the functioning of the latest industries (microelectronics, computing, robotics, nuclear and aerospace industries, microbiological industry, computer science industry and alternative energy) has stimulated the creation of innovative territorial production clusters in them, taking into account the prevailing social and environmental requirements. The above has determined the relevance of the topic, the statement of purpose and the content of the objectives of the thesis.

The purpose of the dissertation research is to develop theoretical and methodological provisions and practical recommendations for improving the management system of the industrial sector of the economy within the framework of the expanded cluster concept and principles of the ESG strategy, ensuring a synergetic effect in the context of the policy of economic and technological sovereignty of the country.

The object of the study is cluster structures in the industrial sector operating in an unstable competitive environment.

The subject of the study is a set of socio-economic relations that arise in the industrial sector as part of the implementation of the expanded cluster concept and ESG strategy.

The theoretical and methodological basis of the dissertation research was the works of domestic and foreign scientists, as well as practical developments of specialists in the field of management of the industrial sector of the economy of the Russian Federation and its regions, branches and enterprises of industry, legislative and instructional materials, Decrees of the President of the Russian Federation, resolutions and orders of the Government of the Russian Federation, sectoral and territorial regulatory documents regulating actions in the areas of digitalization, industrialization and greening of the production sector.

In the process of studying and processing the accumulated knowledge, methods of economic, systemic and financial analyses, economic and mathematical

modeling, and the apparatus of logical and meaningful analysis of information resources were used.

The information and empirical base of the study is represented by official documents of the statistical authorities of the Russian Federation and its regions, financial and accounting reports of enterprises and organizations belonging to the territorial production clusters of the industrial sector of the economy, information arrays reliably characterizing its state and dynamics of development.

The scientific novelty of the dissertation research lies in the development of theoretical and methodological provisions for improving the management of the industrial sector of the Russian economy as part of the implementation of an expanded cluster concept that ensures its sustainable and innovative development in conditions of increased environmental volatility.

The scientific novelty is confirmed by the following author's results submitted for protection:

1. The theoretical provisions of the cluster concept of industrial sector management have been developed by combining it with the principles of the ESG strategy, taking into account the imperatives of the "green" economy and modern approaches to the theory of the allocation of productive forces, justifying promising areas for the formation of cluster structures as integrators of economic, social and environmental interests of economic entities in the territories allocated for this purpose.

2. A technology has been developed for using the extended cluster concept and ESG strategy in the industrial sector management system, which makes it possible to identify the functional role of each group of cluster participants, including scientific, educational, financial and credit organizations, in integration structures during the transition to the sixth technological order.

3. An algorithm has been developed to ensure the sustainable development of territorial production clusters, taking into account the adaptation of industrial enterprises to ESG goals under the conditions of sanctions restrictions, and methods for assessing limited types of resources to perform various functions in accordance with the requirements of their rational consumption have been identified.

4. By assessing the effectiveness of industrial enterprises included in the structure of territorial production clusters, the "anchor" enterprises in the latest industries were identified and recommendations were formulated to include measures to support advanced actors through targeted government funding in regional cluster development programs.

5. The methodological tools for implementing a programmatic approach to industrial sector management have been supplemented, related to the effectiveness of the functioning of territorial and sectoral clusters, the formation of prerequisites for the development of a circular economy and the creation of high-tech resource-saving industries with the introduction of advanced innovative technologies and principles of energy conservation.

6. A scheme has been designed for the formation of territorial production clusters based on the modernization of approaches to their structuring in the industrial sector by combining not only interconnected enterprises of various sectors of the economy, research, development organizations and financial and credit institutions, but also the inclusion of other independent integration structures in their composition.

7. An agent-oriented model for the implementation of an expanded cluster concept for managing the development of the industrial sector is proposed, which makes it possible to overcome the limitations of the traditional hierarchical approach to the formation of cluster initiatives and recommend effective organizational and economic tools for managing a territorial production cluster.

8. The objectives of the industrial sector development are substantiated within the framework of the expanded cluster concept and ESG strategy, which consist in enhancing the use of "green" financing tools for investment and adaptation projects, along with traditional ones, which will ensure additional preferences for cluster participants and the implementation of strategic priorities in key industries.

Theoretical and practical significance of the research. The theoretical significance of the dissertation research lies in substantiating the transition from the theoretical and methodological basis of the cluster concept, which considers a cluster as a system of interconnected firms and institutions bringing a synergetic effect, based on

the provisions of economic theory, regional economics and economic geography, to the postulates of the modern theory of the allocation of productive forces and the "green" economy, which made it possible to define cluster structures as a tool for coordinating the economic, social and environmental interests of all stakeholders in the development of an effective management system for the industrial sector of the economy.

The practical significance of the results of the dissertation research is confirmed by the fact that:

- a model of territorial production clusters in the newest branches of the industrial sector of the economy has been formed, as well as directions for the implementation of appropriate policies based on the use of the cluster concept and principles of sustainable development and obtaining a synergetic effect from measures in industries (information on the implementation of the Administration of Primorsky Krai and the municipality of Vladivostok (2015-2022): Administration of Vladivostok № 1-3/3683 from 11.10.2022);

- a scheme for the implementation of a cluster concept in alternative energy related to meeting the requirements of the climate agenda and carbon neutrality conditions is proposed, and requirements for the "anchor" enterprise of territorial production clusters in industry as a driver for achieving a synergetic effect are formulated, the methods of which have been implemented in the development programs of industrial policy and industrial entities for the medium and long term (Information on the implementation of 2018-2019: Department of Economic Sector Development of the Ministry of Economic Development of the Russian Federation (Ministry of Economic Development of Russia)

is/236.2 dated 29.11.2018; Department of Science, Industrial Policy and Entrepreneurship of the City of Moscow dated 19.02.2019 No. 87/2-np);

- the approaches and elements of the management mechanism of the industrial sector of the Russian economy proposed by the author on the basis of the cluster concept are reflected in the methodological support of academic disciplines (references on implementation: from the Moscow State University of Food Production (MGUPP) – No. 187/42/un dated 11/23/2018 on the discipline of the working curriculum of the

implemented areas; from the Federal State Budgetary Educational Institution of Higher Education «Dalrybvtuz» in the master's and bachelor's degree educational programs of the enlarged group 38.00.00 "Economics and Management", as well as disciplines of areas/specialties providing for the development of the disciplines "Industry Economics", "Enterprise Economics" according to the approved RUP of the University dated 02/20/2022 № 175/15).

Approbation of the research results. The results of the research at various stages were reported and discussed at the XIV International Scientific and Practical Conference "Integration of Science and Practice as a mechanism for the effective development of modern society" (Moscow, 2014), the international scientific and practical conference "Economics. Theory and practice. Prospects of the 21st Century" (Saratov, 2014), the VII International Scientific and Practical Conference "21st Century: Fundamental Science and Technology" (North Charleston, USA, 2015), III International scientific and practical conference "State and prospects of development of modern science: socio-economic, natural science research" (Penza, 2017), VI International Scientific and technical conference "Actual problems of development of biological resources of the World Ocean" (Vladivostok, 2020), All-Russian scientific and practical conference "Strategy of scientific and technological development of Russia: problems and prospects of implementation" (Petrozavodsk, 2020).

List of the author's publications. The main theoretical provisions and applied results presented in the dissertation have been reflected in 53 scientific works with a total volume of 62.73 author's pages, including 4 monographs, 35 articles in peer-reviewed publications from the list recommended by the Higher Attestation Commission of the Ministry of Science and Higher Education of the Russian Federation for the scientific specialty of the dissertation submitted for defense, classified as K-1 and K-2; 7 articles in publications included in the international abstract database Scopus.

Scope, structure and content of the work. The thesis includes an introduction, four chapters, a conclusion, a list of references of 227 items, illustrated by 43 tables and 41 figures.

The introduction substantiates the relevance of the dissertation topic, presents the degree of its scientific development and the issues that require additional study, defines the purpose and objectives, describes the theoretical and methodological tools and the empirical base of the research, reveals the concept and scientific novelty, and outlines the theoretical and practical significance of the work.

The first chapter, "Theoretical and Methodological Foundations of the Cluster Concept Development in the Industrial Management System," examines the essence, content, and evolution of the cluster concept in relation to the problems of the country's socio-economic development, highlights the diversity of approaches to the formation of territorial production clusters, and reveals the need to manage the domestic industrial sector of the economy based on the implementation of the extended cluster concept and ESG principles.

In the second chapter, "Methodological Provisions and Mechanisms for Managing the Industrial Sector Based on the Cluster Concept," the author substantiates the methodological approaches to applying a systematic approach to implementing the cluster concept for domestic industrial enterprises in the context of modern challenges. The author develops algorithms for the joint implementation of the cluster concept and ESG strategy in the management of industrial sector development and the necessary mechanisms for this purpose. Additionally, the author proposes a unique technology for selecting "anchor" enterprises in territorial industrial clusters.

In the third chapter, "Models for the Formation of Territorial and Production Clusters in Industry," the author identifies trends and objective conditions for the formation and functioning of state and business structures based on organizational and economic tools and the institutional system for implementing the expanded cluster concept and the provisions of the ESG strategy. The author proposes a methodology for assessing the effectiveness of industrial enterprises' participation in a cluster and develops a model for the formation of a territorial and production cluster for alternative energy.

The fourth chapter, "Priority Directions for Improving Socio-Economic Policy in the Implementation of the Cluster Management Concept," explores the prospects for

the industrial sector's functioning under the influence of external macro- and meso-level factors and the cluster concept in combination with ESG principles. The role of national projects and government programs in the management of the industrial sector is substantiated, and alternative sources of financing for domestic high-tech industries are identified.

The conclusion presents the main findings and suggestions based on the research results, and argues for their practical application in the industrial sector.