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INTERREGIONAL COOPERATION AS A TOOL FOR REDUCING SPATIAL DIFFERENTIATION: GOVERNANCE MECHANISMS AND SUCCESS FACTORS

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Abstract. This article examines interregional cooperation as a strategic instrument for reducing spatial differentiation in the Russian Federation. *The relevance of the study* is due to the persistence of significant regional disparities despite the prolonged use of equalization policies, highlighting the need for mechanisms that move beyond redistributive approaches toward coordinated development. *The aim of the study* is to identify governance mechanisms of vertical and horizontal cooperation and determine the factors that ensure their effectiveness in reducing spatial inequality. The central hypothesis is that the success of interregional initiatives depends on the presence of structured governance mechanisms capable of ensuring institutional synergy and overcoming administrative fragmentation. The research is based on a qualitative case study methodology. Four successful interregional projects are analyzed: the West Siberian Interregional Research and Education Center, the Oil and Gas Cluster of Tyumen Oblast, the Interregional Cluster for Nuclear Power Engineering, and subcontracting projects between the Chambers of Commerce and Industry of Arkhangelsk and Yaroslavl Oblasts. The empirical base includes official documents, analytical reports, expert assessments, and open-source materials. *The results* identify three key models of interregional cooperation: institutional, coordination, and network-based. The findings demonstrate that the most sustainable outcomes emerge from hybrid configurations combining vertical support (federal, institutional recognition, regulatory backing) with horizontal interaction (regional collaboration, business participation, and knowledge exchange). Key success factors include political commitment of regional leadership, reliance on established economic specialization, active involvement of private sector actors, the presence of dedicated project management structures, diversified financing mechanisms, and a results-oriented project approach. *The scientific novelty* lies in the systematization of governance models of regional cooperation and the empirical identification of success factors within the Russian spatial development context. *The practical significance* lies in the applicability of these findings for designing interregional initiatives and improving public policy instruments. The study concludes that interregional cooperation is an effective mechanism for reducing spatial differentiation when supported by institutional formalization, diversified, and coordinated stakeholder engagement. The greatest potential is observed in sectors critical to technological sovereignty, including the fuel and energy complex, nuclear power engineering, science and education. The study is limited by its focus on successful cases. *Future research* should examine unsuccessful projects, assess long-term impacts on regional inequality, develop quantitative evaluation tools, and explore the role of digital platforms in scaling cooperative models.

Keywords: interregional cooperation, spatial differentiation, governance mechanisms, industrial clusters, regional development, vertical integration, horizontal integration, economic geography

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МЕЖРЕГИОНАЛЬНАЯ КООПЕРАЦИЯ КАК ИНСТРУМЕНТ СНИЖЕНИЯ ПРОСТРАНСТВЕННОЙ ДИФФЕРЕНЦИАЦИИ: УПРАВЛЕНЧЕСКИЕ МЕХАНИЗМЫ И ФАКТОРЫ УСПЕХА

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Аннотация. В статье исследуется межрегиональная кооперация как стратегический инструмент снижения пространственной дифференциации в Российской Федерации. *Актуальность работы* обусловлена сохранением значительных межрегиональных диспропорций, несмотря на длительное применение политики выравнивания, что требует поиска механизмов, обеспечивающих совместное развитие, а не только перераспределение ресурсов. *Цель исследования* – выявление управленческих механизмов вертикальной и горизонтальной кооперации, а также факторов, определяющих их эффективность в снижении пространственного неравенства. Центральная гипотеза заключается в том, что результативность межрегиональных инициатив зависит от наличия структурированных механизмов управления, способных обеспечивать институциональную синергию и преодолевать административную фрагментацию. *Методологической основой* выступает качественный анализ кейсов. В работе рассмотрены четыре успешных межрегиональных проекта: Западно-Сибирский межрегиональный научно-образовательный центр, Нефтегазовый кластер Тюменской области, Межрегиональный кластер атомного энергетического машиностроения, а также проекты субконтрактации между торгово-промышленными палатами Архангельской и Ярославской областей. Эмпирическая база включает официальные документы, аналитические отчеты, экспертные оценки и открытые источники. В результате выделены три базовые модели межрегиональной кооперации: институциональная, координационная и сетевая. Установлено, что наибольшая устойчивость достигается при их комбинировании – через интеграцию вертикальной поддержки (федеральное финансирование, институциональное признание, нормативная поддержка) и горизонтального взаимодействия (межрегиональные соглашения, участие бизнеса, обмен знаниями). Ключевыми факторами успеха являются политическая воля региональных лидеров, опора на сложившуюся экономическую специализацию, активное участие бизнеса, наличие проектных офисов, диверсификация источников финансирования и применение проектного подхода. *Научная новизна исследования* заключается в систематизации моделей управления межрегиональной кооперацией и эмпирическом выявлении факторов ее эффективности в условиях российской пространственной экономики. *Практическая значимость* состоит в возможности использования полученных результатов при разработке межрегиональных инициатив и совершенствовании инструментов государственной политики. Сделан вывод о том, что межрегиональная кооперация является эффективным инструментом снижения пространственной дифференциации при наличии институциональной оформленности, диверсифицированного финансирования и согласованного взаимодействия участников. Наибольший потенциал демонстрируют проекты в сферах технологического суверенитета: топливно-энергетический комплекс, атомное машиностроение, наука и образование. Ограничением исследования является фокус на успешных кейсах. *Перспективы дальнейших исследований* включают анализ неудачных проектов, оценку долгосрочных эффектов кооперации, разработку количественных методов оценки эффективности и изучение роли цифровых платформ в масштабировании сетевых моделей.

Ключевые слова: межрегиональная кооперация, пространственная дифференциация, управленческие механизмы, промышленные кластеры, региональное развитие, вертикальная интеграция, горизонтальная интеграция, экономическая география

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Introduction

Spatial differentiation remains a persistent feature of national economies, particularly in large and heterogeneous countries such as Russia. Despite long-term regional policy interventions, disparities in economic performance, infrastructure, and income levels continue to exist [12, 15]. Studies of regional convergence record the persistence of the gap between resource-extracting, industrial, and depressed territories, as well as the formation of stable "clubs" of regions with similar development trajectories [10, 11]. In these conditions, the search for tools that not only redistribute resources from wealthy to poor regions but create conditions for joint development based on cooperation becomes particularly relevant.

Interregional cooperation is considered in modern economic literature as a mechanism that allows overcoming the limited resources of individual territories, combining competencies, and creating distributed value chains[1] [1, 5, 6, 17, 21, 24, 25]. Of fundamental importance is the distinction between vertical cooperation (interaction with the federal center and development institutions) and horizontal cooperation (direct links between regions, municipalities, and businesses). Their combination can generate synergistic effects that reduce interregional disparities.

Literature review

The theoretical justification for the effectiveness of cooperation is provided by theories of agglomeration effects and new economic geography, according to which the spatial concentration of economic activity generates positive externalities [5, 11, 16, 34]. However, in the context of Russian specifics – vast territory, fragmentation of scientific and industrial potential – the emphasis shifts from local agglomeration to interregional networks that allow connecting competencies without physical concentration.

Vertical cooperation is understood as the interaction of regional authorities and economic agents with federal authorities, development institutions (VEB.RF, Fund for the Development of Industry, ASI), and state corporations. This interaction provides access to federal resources, inclusion in national projects and state programs, and obtaining status advantages (for example, inclusion in the register of clusters of the Ministry of Industry and Trade). Horizontal cooperation covers direct links between regions, municipalities, enterprises, and organizations of different territories [6, 11, 21, 24, 25]. It can take the form of interregional agreements, joint development institutions, cluster associations, subcontracting exchanges, and business missions. It is horizontal links that create the basis for the formation of distributed value chains and overcoming local deficits.

The connection between cooperation and the reduction of interregional differentiation is mediated by several mechanisms. First, cooperation allows less developed regions to gain access to the competencies, technologies, and markets of leading territories. Second, it helps overcome the fragmentation of the scientific and technological space by connecting knowledge-donor regions with knowledge-consumer regions. Third, joint projects create jobs and a tax base in the periphery, reducing migration outflows and stimulating local development.

At the same time, as noted in the literature, cooperation does not guarantee automatic equalization; purposeful governance efforts and institutional formalization of interaction are necessary. There is a scientific problem: while the benefits of cooperation are theoretically substantiated, there is a lack of empirical research identifying specific governance mechanisms and success factors for interregional cooperation in the Russian context.

The purpose of this article is to identify specific governance mechanisms of vertical and horizontal cooperation, as well as the factors that ensure their effectiveness in reducing spatial differentiation, based on an analysis of successful interregional projects in the Russian Federation.

The tasks of the study are:

1) to identify and typologize governance models of interregional cooperation;

[1] Полозов Л. (2025) Интеграция вместо изоляции как новая модель технологического развития регионов. Экономика и жизнь, 44 (10108). [online] Available at: https://www.eg-online.ru/article/500492/ [Accessed 08.09.2026].

2) to analyze the financing and coordination mechanisms of successful projects;
3) to determine the key success factors and their interrelations;
4) to formulate recommendations for regional policy.

Conceptual framework of interregional cooperation

To better understand the mechanisms through which interregional cooperation influences spatial differentiation, this study proposes a conceptual framework integrating three analytical dimensions:

1) governance structure,
2) resource flows,
3) value chain integration.

First, *governance structure* reflects the institutional arrangements that coordinate interaction between actors. This includes both vertical governance mechanisms (federal programs, regulatory frameworks, development institutions) and horizontal mechanisms (agreements between regions, business partnerships, and cluster initiatives) [6, 11, 21, 24, 25].

Second, *resource flows* represent the movement of financial, human, and technological resources across regions. Interregional cooperation allows regions with limited capacity to access external knowledge, investment, and infrastructure, thereby reducing structural disadvantages [16, 17, 21, 23].

Third, *value chain integration* refers to the extent to which regions participate in shared production and innovation processes. Unlike traditional models of regional development based on localized clusters, interregional cooperation enables the formation of distributed production systems, where different regions contribute complementary capabilities [3, 4, 17, 18, 21].

The interaction of these three dimensions creates synergistic effects, which can reduce spatial inequality through:

- diffusion of innovation;
- improved allocation of resources;
- increased productivity across regions.

This framework underpins the empirical analysis and allows for systematic comparison of governance models.

Materials and methods

The study was carried out in a qualitative case study approach, widely used in regional and innovation research. Case selection was based on the following criteria:

1) presence of formalized interregional interaction;
2) recognized success of the project by experts;
3) representativeness of various cooperation models;
4) availability of information from open sources.

The final sample included four projects:

1. West Siberian Interregional Research and Education Center[2];
2. Oil and Gas Cluster of Tyumen Oblast (involving 26 regions)[3];
3. Interregional Cluster for Nuclear Power Engineering[4];

[2] Ministry of Economic Development of the Russian Federation (2025) Russia successfully concludes its chairmanship of the Greater Tumen Initiative. [online] Available at: https://en.economy.gov.ru/material/news/russia_successfully_concludes_its_chairmanship_of_the_greater_tumen_initiative.html [Accessed 08.09.2026].

[3] 72.ru (2025) «Выбираем кооперацию». В Тюмени обсудили пути развития региона. [online] Available at: https://72.ru/text/business/2025/11/12/76117155/?ysclid=mtscgw0bq872945472 [Accessed 08.09.2026].

[4] Инвестиционный портал Калужской области (2025) В Калужской области создается новый промышленный кластер. [online] Available at: https://investkaluga.com/media/news/v-kaluzhskoy-oblasti-sozdaetsya-novyy-promyshlennyy-klaster/?ysclid=mtsdhcvtb3875359485 [Accessed 08.09.2026].

4. Subcontracting projects between the Chambers of Commerce and trade of Arkhangelsk and Yaroslavl Oblasts[5,6].

The source base consisted of official publications of authorities[2], analytical materials, expert assessments, and media publications.

A comparative analysis of organizational models, institutional conditions, and success factors was applied. The stages of the analysis included:

1) description of each case;
2) identification of governance mechanisms;
3) comparison of cases according to key parameters;
4) synthesis of success factors;
5) formulation of recommendations.

Analytical framework and indicators

To ensure comparability across cases, the study applies a structured analytical framework based on five evaluation criteria:

1. *Institutionalization level* – presence of formal governance structures;
2. *Financing structure* – diversity and stability of funding sources;
3. *Coordination intensity* – frequency and depth of interaction between actors;
4. *Economic integration* – degree of value chain linkage across regions;
5. *Scalability* – potential for replication and expansion.

Each case was qualitatively assessed against these criteria using a three-level scale (low, medium, high).

Results and discussion

Case studies of successful interregional projects

West Siberian Interregional Research and Education Center

The West Siberian Research and Education Center became one of the first interregional research and education centers in Russia, created within the framework of the national project "Science and Universities". The initiative came from Tyumen Oblast, which proposed to combine the potential of three constituent entities: Tyumen Oblast, Khanty-Mansi Autonomous Okrug Yugra, and Yamalo-Nenets Autonomous Okrug. **Governance mechanisms** include a specialized governing council with representatives of all participating regions, a project office coordinating the implementation of scientific and technological projects, and co-financing from the budgets of three regions and federal grants. **Success factors** are the political will of the governor of Tyumen Oblast, complementarity of competencies (scientific potential of Tyumen, resource base of the Okrugs), a clear applied task (introduction of innovations into the real sector), and support from the federal center.

Oil and Gas Cluster of Tyumen Oblast

The Oil and Gas Cluster is a unique example of horizontal cooperation, uniting companies from 26 regions of Russia[7]. The cluster is focused on import substitution and technological development of the fuel and energy complex. **Governance mechanisms** include a specialized organization ("Oil and Gas Cluster" Association), project management with the formation of technological chains from enterprises of different regions, a product marking and certification system, and working groups on key technological areas. **Success factors** are reliance on the established specialization of the region in the oil and gas

[5] Национальные проекты РФ (2025) Поморские предприниматели приняли участие в межрегиональной бизнес-миссии. [online] Available at: https://национальныепроекты.рф/news/pomorskie-predprinimateli-prinyali-uchastie-v-mezhregionalnoy-biznes-missii/?ysclid=mtscix-uoa2168758888 [Accessed 08.09.2026].

[6] Союз «Торгово-промышленная палата Архангельской области» (2026) Ярославль и Архангельск наладили мост для бизнес-кооперации. [online] Available at: https://arkhangelsk.tpprf.ru/ru/news/593684/?ysclid=mtsdz0x4l7164162143 [Accessed 08.09.2026].

[7] 72.ru (2025) «Выбираем кооперацию». В Тюмени обсудили пути развития региона. [online] Available at: https://72.ru/text/business/2025/11/12/76117155/?ysclid=mtscgw0bq872945472 [Accessed 08.09.2026].

sector, involvement of large customers (state corporations, vertically integrated oil companies), and the ability to offer small and medium-sized enterprises access to the markets of large businesses.

Interregional Cluster for Nuclear Power Engineering

In 2025, Kaluga Oblast initiated the creation of an interregional industrial cluster for nuclear power engineering. The project passed the pre-defense within the framework of the methodological program of the Ministry of Industry and Trade of Russia "PROCLUSTERS" and received high expert assessment. **Governance mechanisms** include anchor participants (Kaluga Plant of Nuclear Power Engineering, Kaluga Turbine Plant, Power Machines, Vorotynsky Energy Repair Plant, Elektrostal Manufacturing and Trading Company), clear specialization (development and production of turbines with a capacity of 4 to 60 MW, modernization of existing installations), coordination through the Agency for Innovative Development of Kaluga Oblast, and participation in the federal program for cluster support. **Success factors** are the high level of elaboration of the project and import substitution, the presence of recognized competencies in nuclear engineering in the region, and support from the federal ministry.

Subcontracting projects between the Chambers of Commerce and Industry of Arkhangelsk and Yaroslavl oblasts

In January 2026, a project for the development of subcontracting projects between the Chambers of Commerce and trade of Arkhangelsk and Yaroslavl Oblasts was launched. The initiative was supported by the "National Partnership for the Development of Subcontracting" Association. **Governance mechanisms** include the use of subcontracting and engineering exchanges as platforms for finding partners, organization of specialized negotiations between customers and suppliers, inclusion of enterprises in economic missions, and methodological support from a specialized association. **Success factors** are solving a specific problem of enterprises (unreasonably expensive import of components in the presence of Russian analogues), business interest in reducing costs and simplifying logistics, and the active role of development institutions.

Identification of organizational models

Based on the analysis of the cases, three basic models for organizing interregional interaction can be identified (Fig. 1):

1. *Institutional model* (creation of a specialized organization with a legal entity, budget, and staff).

1. Advantages: transparency, stability, a single center of responsibility, accumulation of resources.

2. Disadvantages: bureaucratization, difficulty of exit, dependence on founders.

Examples: Oil and Gas Cluster of Tyumen Oblast, West Siberian Interregional Research and Education Center.

2. *Coordination model* (council or committee without formation of a legal entity, cooperation agreements).

1. Advantages: ease of launch, flexibility, preservation of autonomy.

2. Disadvantages: dependence on the goodwill of participants, difficulty of control.

Example: early stages of cluster projects.

3. *Network model* (exchange) (digital platforms, subcontracting exchanges, regular events).

1. Advantages: low entry threshold, focus on specific transactions, scalability.

2. Disadvantages: superficiality of contacts, weak institutionalization.

Example: Subcontracting cooperation initiatives between the Chambers of Commerce and Industry of Arkhangelsk and Yaroslavl Oblasts.

4. *Hybrid model* (combination of institutional, coordination, and network mechanisms, with a formal coordinating structure complemented by flexible digital and project-based interaction).

1. Advantages: combination of institutional stability and network flexibility, diversification of funding and resources, adaptability to different types of projects, stronger coordination while preserving the autonomy of participants.

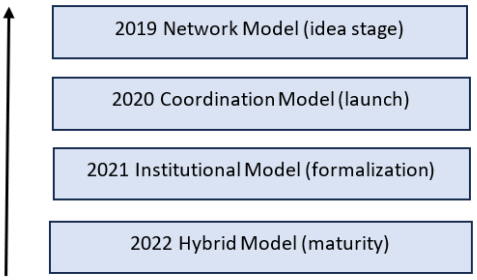


Fig. 1. Organizational models of interregional interaction

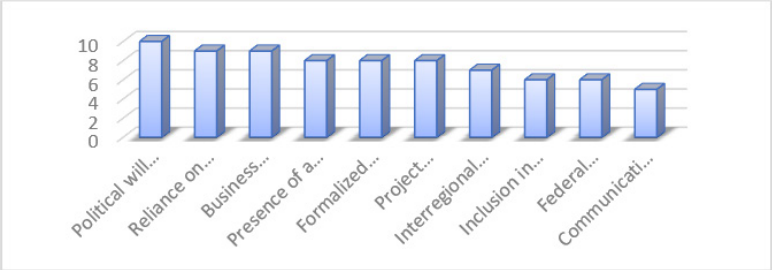


Fig. 2. Success factors of interregional projects

2. Disadvantages: greater organizational complexity, potential overlap of responsibilities, higher coordination costs, and the risk of conflicts between formal and informal mechanisms.

Example: interregional development initiatives combining a formal coordinating organization or council with project-based cooperation, digital platforms, and regular interaction among regional authorities, universities, businesses, and development institutions.

Analysis of the cases shows that the most sustainable projects combine elements of different models. For example, the West Siberian Research and Education Center has institutional formalization but is coordinated through a council of participants. The Oil and Gas Cluster of Tyumen Oblast, being an association, actively uses network mechanisms of enterprise interaction.

Financing mechanisms

The analysis identified three main sources of financing for interregional projects:

1) federal funds (grants within national projects, subsidies from the Ministry of Industry and Trade for clusters included in the register);

2) regional budgets (shared participation of participating regions);

3) business funds (investments of participating companies in joint projects).

Success factors

The Republic of Bashkortostan, which topped the cluster development rating, received 140 million rubles of federal funding in 2024 (40% of all funds allocated in Russia). A key success factor is the diversification of sources, which reduces dependence on any single channel and increases project sustainability.

Based on a comparative analysis of the cases, the following key success factors can be identified:

• *Institutional factors*: presence of a project office or specialized structure; formalized financing mechanisms; inclusion in federal registers and programs (e.g., inclusion in the register of clusters of the Ministry of Industry and Trade opens access to resources and increases attractiveness for participants).

• *Political factors*: political will of regional leaders; interregional coordination of interests; support from the federal center.

• *Economic factors*: reliance on established specialization; business involvement; focus on import substitution and technological sovereignty.

• *Organizational factors*: project approach; development of communications (regular events, contact exchanges, digital platforms); monitoring and evaluation.

As noted by the Governor of Tyumen Oblast Alexander Moor, "Cooperation allows regions and businesses, and therefore the country as a whole, to make the most efficient use of the limited resources we have: qualified personnel, money, and time"[8]. The analysis confirms that the most successful projects are those initiated "from below" (by regions and businesses) but supported "from above" (federal resources and status).

Impact of interregional cooperation on spatial differentiation

The analysis demonstrates that interregional cooperation contributes to reducing spatial differentiation through three main channels.

First, cooperation enhances technological diffusion. Regions with lower innovation capacity benefit from access to advanced technologies and research infrastructure located in more developed regions. This supports findings from international studies on innovation networks [5, 6, 16, 21, 24].

Second, cooperation improves resource allocation efficiency. By linking complementary regional economies, cooperation reduces duplication of investments and allows for specialization based on comparative advantages [17–21].

Third, cooperation strengthens economic resilience. Regions integrated into interregional networks are less vulnerable to external shocks, as they can rely on diversified economic linkages.

However, the results also indicate that the impact is not automatic. Without strong governance structures, cooperation may remain symbolic and fail to produce measurable outcomes.

Table 1. Comparative analysis of interregional projects

Project	Institutionalization	Financing	Integration	Scalability
West Siberian Interregional Research and Education Center	High	High	High	High
Oil and Gas Cluster of Tyumen Oblast	High	High	High	Medium
Interregional Cluster for Nuclear Power Engineering	Medium	Medium	High	High
Subcontracting projects between the Chambers of Commerce and Industry of Arkhangelsk and Yaroslavl oblasts	Low	Low	Medium	High

Conclusion

The conducted analysis has confirmed that interregional cooperation can serve as an effective tool for reducing spatial differentiation, provided that adequate governance mechanisms are applied. Successful projects demonstrate a combination of institutional formalization, diversified financing, political support, and business involvement.

The key findings of the study are:

1. *Three organizational models* of interregional cooperation have been identified: institutional (creation of a specialized organization), coordination (council without a legal entity), and network (subcontracting exchange), each with its own advantages and risks. The most sustainable are hybrid forms that combine elements of different models.

[8] 72.ru (2025) «Выбираем кооперацию». В Тюмени обсудили пути развития региона. [online] Available at: https://72.ru/text/business/2025/11/12/76117155/?ysclid=mtscgw0bq872945472 [Accessed 08.09.2026].

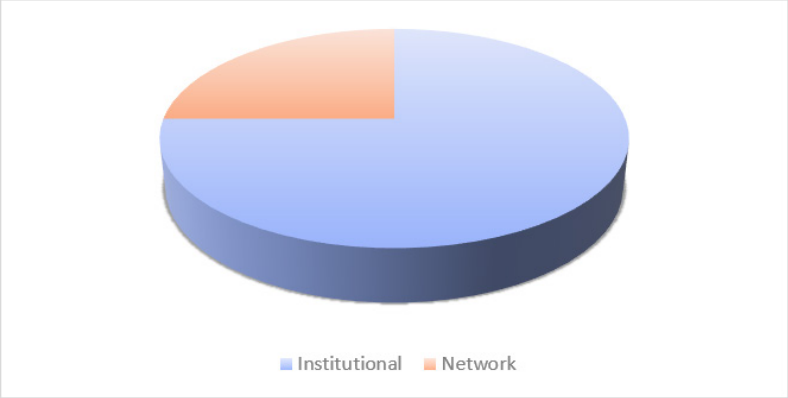


Fig. 3. Distribution of projects by cooperation model

2. *Diversified financing* (federal, regional, and business funds) is a critical condition for sustainability, reducing dependence on a single source and increasing the resilience of projects.

3. *Presence of a project office* or specialized coordination structure is an institutional success factor that ensures continuity, transparency, and accountability of interaction.

4. *Political will of regional leaders* and their personal involvement are a critical driving force for the launch and sustainability of interregional projects.

5. *Reliance on established specialization* and the involvement of large anchor businesses are economic factors that ensure the market foundation of cooperation.

The main conclusion is the need for a project approach to interregional interaction: not declarations of intent, but specific projects with measurable results, creating real value chains and providing a synergistic effect for participants. The greatest potential today is demonstrated by projects in areas critical to technological sovereignty – fuel and energy, nuclear engineering, science and education.

The practical value of the results lies in the possibility of using the proposed models and success factors in the design of new interregional initiatives and the improvement of state support instruments for spatial development.

The limitations of the study are related to the focus on successful cases, which requires further analysis of unsuccessful projects to identify barriers and risks. The long-term effects of cooperation on the dynamics of interregional inequality remain insufficiently studied.

Directions for further research

Future research should be directed towards:

1. Analysis of unsuccessful interregional projects to identify barriers, risks, and failure factors that may be more informative for policy design than the analysis of successes alone.

2. Assessment of the long-term effects of cooperation on the dynamics of interregional inequality, including the impact on the growth rates of GRP, investment activity, and the level of per capita income of participating regions.

3. Study of the possibilities of international cooperation in new geopolitical conditions, including the development of ties with the BRICS countries and the countries of the Global South.

4. Development of methods for quantitative assessment of the effectiveness of interregional projects, including the construction of indices of cooperation activity and the assessment of their impact on the integral indicators of regional development.

5. Investigation of the role of digital platforms in scaling up the network model to a large number of participants, including the study of the effectiveness of subcontracting exchanges and other forms of digital interaction.

Practical implications for regional policy

The findings of this study have direct implications for policymakers.

First, regional policy should shift from isolated interventions toward project-based interregional initiatives.

Second, governments should prioritize the creation of institutional platforms that facilitate cooperation, such as cluster organizations and project offices.

Third, financing mechanisms must be designed to encourage private sector participation, ensuring long-term sustainability.

Fourth, digital tools and platforms should be used to scale network-based cooperation models.

Finally, monitoring systems should be implemented to assess the effectiveness of cooperation initiatives and adjust policies accordingly.

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