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PUBLIC-PRIVATE PARTNERSHIP AS A TOOL FOR THE FORMATION OF A CLUSTER-BASED ECONOMY¹

Abstract: The article is dedicated to applying Public-private partnership (PPP) as a tool for the formation of a cluster-based economy, ensuring the actions of the main actors of the economic system - government and business community - on priority stimulation of the creation and development of clusters with a view to the socio-economic development of the region. The advantages of using the public-private partnership mechanism are maximizing the economic effect while minimizing risks due to the use of the strengths of the participants in public-private projects; increasing the quality of management decisions made in the implementation of joint projects due to the professionalism of the private side and taking into account the social importance of projects by the public side; the growth of trust between business and society due to the recognition of its role in solving regional and national problems; the growth of trust between business and government through the joint solution of problems on the basis of transparency.

The research examined the problem of the possible implementation of the institution of public-private partnerships in the practice of implementing cluster projects and cluster initiatives. The goal of the research is to assess the role of PPP in cluster projects, to form an institutional model of public-private partnership clustering, to evaluate the practice of implementing cluster projects in the PPP system, and to identify priority forms of PPP in a cluster-based economy. There are used such methods as documentary and statistical analysis, expert survey, modeling.

Keywords: public-private partnership, cluster, cluster policy, cluster-based economy, investment, cluster projects, forms of public-private partnership

1. PUBLIC-PRIVATE PARTNERSHIP AS THE INSTITUTIONAL ALLIANCE OF GOVERNMENT AND BUSINESS

Conditions for limited financing of both infrastructure and other projects for the development of industrial and economic systems, which entail a decrease in the positive dynamics of indicators of economic growth and social stability, shape the relevance of introducing new and improving the existing institutional regulation tools of the regional

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economy. This situation requires clarification of the nature of the interaction between the state and the market in order to determine the possible formats of partnerships that contribute to achieving the goals of the business community and ensuring socially important interests.

In this regard, the study of the process of applying the institution of public-private partnership (PPP) in the practice of cluster-oriented economy is promising. We propose the use of the concept of a cluster-based economy as an economy, characterized by efforts to support the formation and development of clusters, taking into account the possible multiplicative effect on other sectors and industries. PPP in this case becomes a tool of this process, ensuring the actions of the main actors of the economic system - government and business community - on priority stimulation of the creation and development of clusters with a view to the socio-economic development of the region.

PPP has an extensive history of use. In the era of ancient Rome, municipalities transferred infrastructure facilities (postal stations, ports, water pipes, markets and baths) to the management of individuals. In France and the United Kingdom, since the 16th century, private entrepreneurs have been attracted by the state to develop the transport and utilities markets in exchange for the right to charge consumers. In the 19th century, the concession institute was actively developed: with its help the Suez Canal and the Eiffel Tower were built. Emperor Nicholas I in 1836 granted a concession for the construction of a railway line from Petersburg to Tsarskoye Selo, land participants were provided free of charge and guarantees were provided (Vaslavskaya, Fattakhova, Khakimova, 2017, p. 8-9). Of course, in different epochs, the content and individual principles of PPP were transformed, but the institution of interaction between the state and business itself was actively used to solve pressing economic problems.

Expanding the concept of PPP, in our opinion, it is advisable to formulate it as an institutional alliance of public and private parties for the implementation of relevant projects in the areas of development of strategically important industries and the provision of public services. At the same time, focusing on the criteria of the social significance of projects when they are classified as PPP. There is a broader understanding of PPP. For example, from the point of view of the Organization for Economic Development and Cooperation Committee on Scientific and Technological Policy, PPP is defined as any official relationship or arrangement for a specific or indefinite period of time between public and private partners, in which both parties interact in the decision-making process and co-invest limited resources (money, personnel, equipment and information) to achieve specific goals in a specific area of science, technology and innovation ("Public/private partnerships for innovation: policy rationale, trends and issues", 2002). However, this definition does not reflect the nature of the public importance of PPP, as well as the expediency and necessity of forming an institutional partner alliance and the scale of such an alliance. Separately, it is worth emphasizing that PPP can be applied in any areas in which a private investor is willing to invest, without violating the level of state security (Klimov, 2011, p. 480).

The advantages of using the public-private partnership mechanism are as follows ("Organizational and economic development" .2012, p.170):

- maximizing the economic effect while minimizing the risks due to the use of the strengths of the participants in public-private projects;
- increase in the quality of management decisions made in the implementation of joint projects due to the professionalism of the private party and taking into account the social importance of projects by the public side;
- integration of business in the implementation of socially significant projects;
- the growth of trust between business and society due to the recognition of its role in solving regional and national problems;
- the growth of trust between business and government through the joint solution of problems on the basis of transparency.

At the same time, there is a point of view that the state does not have to be a partner, its task is to establish rules and follow them (Vaslavskaya, Fattakhova, Khakimova, 2017, p. 12). However, in our opinion, such an extreme approach does not allow to take into account the above-described advantages of public-private partnerships.

2. CLUSTER FORM OF COOPERATION BETWEEN THE STATE AND BUSINESS

Despite the mentioned advantages of using PPP in solving various levels of tasks, this tool has a significant limitation due to its high financial and investment capacity, which is why small and medium businesses are actually excluded from the process of implementing such projects. The solution to this problem, in our opinion, is seen in the use of the resource of the combined entrepreneurial activity. At the same time, we note that organizations' interfirm cooperation is prompted by the increasing complexity of the technological base, the acceleration of technological cycles, and the increase in cost and risk of innovation ("Institutions of competition", 2012). These reasons are of particular relevance in the industrial sector, where the adequacy of infrastructure and resource support is most acute. United business activities must be accompanied by a certain system of organizational and economic relations, a set of competitive advantages, a mechanism of mutual economic support, a high level of corporate responsibility and inter-firm trust. Such criteria are more consistent with the cluster form of cooperation, in connection with which we are invited to consider industrial clusters as subjects of public-private partnership. Separately, we note that in the conditions of re-industrialization, its exclusive form in the global economy is the use of the potential of cluster networks (Smorodinskaya, 2015, p. 291). This implies consideration of the modern economic basis at the regional level through the prism of cluster potential.

The regional cluster-based economy is positioned as a system of rational actions of economic entities for the priority stimulation of creation, development and financing of regional clusters, which constitute the main directions of the socio-economic development of the region. Estimates of market situations, the rationale for the need and rationality of joint actions of key economic actors of the market - government and business - involves connecting the mechanism of public-private partnership. This approach is also due to the problems of ensuring the competitiveness of the regions and attracting investments for infrastructure and socially significant projects. The formed interaction of cluster residents with the state is not always aimed at achieving socially important tasks, but, nevertheless, PPP is essential for the development of cluster potential. The lack of practice in the use of PPP in a cluster is a sign of the extremely simple interrelationships of enterprises without optimizing planning procedures.

3. THE ROLE OF PUBLIC-PRIVATE PARTNERSHIP IN CLUSTER PROJECTS

The advantages of using PPP in the framework of the implementation of cluster projects can be as follows (table 1).

Table 1: Benefits of using PPP as part of cluster projects

Benefits for regional authorities	Benefits for residents of regional industrial clusters
<ol style="list-style-type: none"> 1. Reducing the budget burden 2. Growth in the share of financing the implementation of socially significant projects from extrabudgetary sources of funding 3. Rationalization of the institutional structure of management of the regional economy in terms of the development of priority sectors 4. Refusal of targeted support policy (the possibility of including a variety of the level of economic development of cluster residents in the implementation of a PPP project) 5. Employment growth and labor productivity in the "growth points" of the regional economy 6. Reducing the risk of inappropriate and inefficient use of budgetary funds when delegating functions to the level of a private partner (as opposed to direct subsidies, which is due to the direct interest of the private partner in the qualitative fulfillment of the commitments made) 7. Raising the level of public trust and business in atransparent PPP project 	<ol style="list-style-type: none"> 1. The possibility of implementing a project significant for the residents of the cluster with the involvement of state support (including budget) 2. Reduction of the project implementation period due to the interest of the public partner in minimizing the time required for administrative procedures related to the execution and registration of design and estimate documentation, technical passports, registration of land ownership rights and other immovable and movable property 3. Reducing the level of distrust of society to business 4. Development of a differentiated portfolio of cluster projects in terms of increasing the share of projects with long-term income potential and hedging risks 5. Minimizing the costs of carrying out activities for the information promotion of the cluster due to the wide coverage of the implementation of the PPP project in the media 6. Minimizing the risk of losing partners (abandoning the project)

Source: Compiled by the authors.

The triple helix mechanism, which is one of the leading ones in the cluster-based economy, assumes the formation of a new network model of public-private partnership, characterized as a universal collaboration model in the 21st century. It involves self-organization without a hierarchical center and dynamic self-development based on innovative synergy (Smorodinskaya, 2015, p. 67). At the same time, when creating a cluster, a public and private partner may have diverging interests, since, for example, for enterprises joining a cluster can be a tool for reducing tax payments, and the government is interested in increasing them. For the state, in contrast to business, in addition to the criterion of investment efficiency (investment volume, payback period, IRR, NPV), the strategic focus of the project is important (Okolyshev, 2017). That is, in this case, the nature of the investment becomes significant. In world practice, they are called transformative investments (Impact investing), defined as capital investment in enterprises, companies, organizations and projects, aimed at both earning and achieving social or environmental effects (Moiseeva, 2016). In this case, the task of PPP is to balance the interests of the parties, in particular, their financial component.

4. INSTITUTIONAL MODEL OF CLUSTER INTERACTION BETWEEN PUBLIC AND PRIVATE PARTNERS

In this regard, we consider the following institutional model of cooperation between residents of the cluster and the state in the framework of the PPP project, adapting the mathematical model of the functioning of teams to the situation of economic partnership. At the same time, we note that the condition for sustainable team operation is the existence of such a resource allocation procedure, in which the choice of non-zero actions by the parties of the vector is simultaneously sustainable according to D. Nash and effective according to V. Pareto (Novikov, 2008, p. 109). Denote the action of the i -th agent (namely, the use of a certain amount of the resource) by $x_i \geq 0$, $i \in N = \{1, 2, \dots, n\}$, that is, the number of actors in the model is limited solely by the number of actors of the cluster system). Depending on their type of r_i (a representative of the public side or a representative of a business included in the cluster or acting in its interests) and its agreed choice x_i (or individual choice y_n), the i -th agent receives income $h_i(x_i, r_i)$ and incurs costs $\lambda_i(x)$, where $x = (x_1, x_2, \dots, x_n)$ is the vector of agent actions, that is, its objective function is $f_i(x, r_i) = h_i(x_i, r_i) - \lambda_i(x)$, $i \in N$ The

total cost function $C(X)$ is the sum of $\lambda_i(x)$, $i \in N$. For the stable operation of this model, the following condition must be met:

$$\max \left[\sum_{i \in N} h_i(x_i, r_i) - C(X) \right] \geq \sum_{i \in N} \max [h_i(y_i, r_i) - C(y_i)],$$

where the value of the first functions of maximizing the economic effect of all participants in the model in the case of concerted actions exceeds the sum of the individual functions of maximizing the income of the participants in the model.

This means that in order for the model to work effectively, the emergence property and the presence of synergistic interaction are required. In this case, the model is complicated by the condition for the consistency of the actions of the cluster residents in the implementation of the PPP project. At the same time, the institutional model of interaction between the public and private parties can be characterized by the following utility function:

$$U(w_i, P_u, P_{pr}, M, C, z) = (1 - P_u) * ((w_i - C) - P_r * M) + P_u * ((w_i - c) - P_{pr} * M - z_j)$$

where w_i is the average amount of contributions of the i -th cluster subject to finance the PPP project,

P_u is the probability of evasion of the i -th cluster subject from participation in a PPP project,

M - resource support by the authorities of cluster PPP initiatives,

P_{pr} - the probability of a positive decision on the allocation of resources to support the cluster entities participating in a PPP project,

C - the costs of the authorities to promote PPP projects for cluster members,

z_j - additional costs of the authorities associated with the underfunding of the territory.

Thus, describing the model of interaction between a public and private partner in a cluster-based economy, we note the following. Its maximum efficiency is achieved with the maximum involvement of the residents of the cluster and the public partner in the PPP project, including in terms of financial and other resource costs. At the same time, the factor of non-model costs associated with the need for the comprehensive development of the territory of the PPP project, which the state bears, negatively affects the efficiency of the model.

5. THE PRACTICE OF CLUSTER PROJECTS IN THE SYSTEM OF PUBLIC-PRIVATE PARTNERSHIP

Currently, state support for clusters in Russia is carried out in the form of a competitive selection of subsidy recipients in order to implement key activities of cluster development strategies or joint cluster initiatives in two directions. The first direction concerns the innovative territorial clusters, purposefully created by the state to enter international markets in advanced sectors of the economy (the competence of the Ministry of Economic Development of the Russian Federation). The second is in relation to industrial clusters aimed at the production of import-substituting products, which are formed directly by industrial subjects and need to be embedded in regional development systems (the Ministry of Industry and Trade of the Russian Federation) (Kutsenko, Abashkin, Fiyaksel, Islankina, 2017). The practice of using PPP under these conditions is absent, with the exception of some examples:

1. The company Procter and Gamble - Novomoskovsk, together with the Administration of the city of Novomoskovsk, in the framework of the Novomoskovsk industrial cluster, implemented projects for the construction of a network of multipurpose sports and recreation complexes "Olympus", for the construction of playgrounds, and the project for opening the laboratory building at The State Regional Center for Standardization, Metrology and Testing of the Tula Region (Babkina, Babkin, Pereverzeva, 2015).

2. The creation of the Kaliningrad Automotive Cluster on the basis of the Agreement between the Kaliningrad Automobile Holding, Vnesheconombank and the Federal Center for Project Finance is supposed to be financed using the TIF mechanism. The use of the mechanism will increase the production of 3 sites of BMW, KIA, Chevrolet, Opel and Hyundai from 250 thousand to 350 thousand cars in a year. The planned financing in the amount of 140 billion rubles was previously assumed on the principles of co-financing the federal and regional budgets, but later it was decided to apply a new for Russia mechanism of deferred payments. At the same time, foreign practice involves the creation of special TIF zones, within which the comprehensive development of the territory and the revival of industrial facilities is carried out by accumulating the amount of additional tax revenues, as well as the creation of special management companies and zones with a separate budget ("Deferred payment", 2013).

3. The project of the Angara-Yenisei industrial cluster provides for the construction of industrial and infrastructure facilities on the basis of PPP with budget investments in the amount of 62 billion rubles and private investment in the amount of 208.8 billion rubles. This is due to the fact that the lack of the necessary energy infrastructure does not allow us to develop and create actual production ("Energy infrastructure of Angara-Yenisei cluster will be built on the basis of PPP", 2014).

These projects are atypical for Russia, because traditionally PPP projects in Russia are implemented in three sectors - transport, social and municipal (including energy, MSW management and landscaping). Nevertheless, the use of PPP in industrial cluster projects seems to be most appropriate given the fact that individual Russian industries are critically dependent on imports: for example, machine tools - more than 90%, electronics and heavy engineering - 80-90%,

pharmaceuticals - by 70–80%, stainless steel production - by 70%, retail trade - by more than 40% (Smorodinskaya, 2015).

6. PRIORITY FORMS OF PUBLIC-PRIVATE PARTNERSHIP IN A CLUSTER-ORIENTED ECONOMY

Let us consider in more detail the forms of PPP, the use of which is advisable, in our opinion, within the framework of the formation of a class of astero-oriented economy (table 2).

Table 2 : Forms of PPP, the use of which is appropriate in the framework of the formation of a cluster-based economy

Item number	The form	Content
I. Quasi - forms of public-private partnership		
1	Government contracts (GC)	The system of government contracts can be used to identify clusters and assess their prospects in the regional economy
2	Long-term lease (leasing)	State (municipal) property forehand etsya private partner for temporary use for a fee on the basis of a lease agreement. At the end of the lease term in the case of a lease agreement, the lessee has the right to purchase the property
3	Production Sharing Agreement	The agreement, under which the state on a reimbursable basis and for a certain period provides the investor with exclusive rights to search, prospect, and extract mineral raw materials in the subsoil area specified in the Agreement. At the same time, manufactured products shall be divided between the state and the investor in accordance with the conditions and procedure established by the Agreement
II . Public-private partnership		
1	Long-term investment agreement (LTIA)	A mixed civil law contract, which includes the obligations of a private partner (performer) for the construction and operation of the facility and the obligations of a public partner to co-finance operating costs in the form of maintenance payments, as well as a phased reimbursement of private funds invested during the construction phase
2	Life cycle contract (LCC)	The contract provides for the subsequent maintenance, repair and, if necessary, operation and (or) disposal of the delivered goods or the object created as a result of the work
3	Special investment contract (SPIC)	An agreement between the investor and the state in which the obligations of the project initiator for the development of industrial production within the stipulated time are fixed, as well as the obligations of the public partner in terms of guarantees of stability of tax and regulatory conditions and the provision of support measures. The state does not make a direct investment at project and not provides infrastructure facility
4	Concession	The procedure for the assignment by the state to non-state foreign or domestic companies on certain conditions and for a certain period of their property rights and rights to certain types of economic activity. It is the main form of implementation of PPP projects in Russia. The concession is advisable for use at the stage of implementation of infrastructure projects, as it allows to reduce the costs of connecting facilities to utilities and communications and optimize the timing of project implementation while minimizing risks. There are the following forms of concession: 1. BOT (Build - Operate - Transfer) - "Construction - Management - Transfer". The concessionaire, during the established period, carries out the construction and operation of the object (mainly on the right of ownership) with the subsequent transfer of this object to the state. 2. BTO (Build - Transfer - Operate) - "Construction - Transfer - Management". Here the concessionaire builds the object, transfers it to the concessor (state) into ownership immediately after the completion of construction, then this object is transferred to the operation for the concessionaire. 3. BOO (Build - Own - Operate) - "Construction - Ownership - Management". The concessionaire builds the object and carries out its subsequent operation, while owning it on the right of ownership with an unlimited period of validity. 4. BOOT (Build - Own - Operate - Transfer) - "Construction - Ownership -

Item number	The form	Content
		Management - Transfer". This form provides for the concessionaire to own and use the constructed object on the right of private property for a certain period, after which the object becomes the property of the consented (state). 5. BBO (Buy - Build - Operate) - "Purchase - construction - management". This is a form of sale, which includes the restoration or increase of an existing object. The state sells the object to the business sector, which takes the necessary measures to improve the object for its effective management
5	TIF (Tax Increment Financing)	Compensation to investors of infrastructure costs due to the increase in tax payments in the future
6	Joint Venture (JV)	It can act as a base (anchor) enterprise cluster. The main disadvantage of existing works on spatial agglomeration is increased attention when considering the issue of motivation to merge enterprises into a cluster solely to reduce the costs of interaction through co-location. However, the focus remains on the fact that the greatest reduction in costs is likely to bring the union of activities and placing them in one property (Pilyasov, 2012, p. 652)
7	Infrastructure Mortgage (IM)	A promising form of PPP in the implementation of infrastructure facilities in the interests of clusters with the involvement of funds from lenders and institutional investors. It involves the use of the mechanism of bonds and reimbursement of costs due to maintenance payments.

Source: Compiled by the authors.

Thus, the forms of PPP, the use of which is appropriate in the framework of the formation of a cluster-based economy, are diverse. Conditionally described forms can be divided into 2 groups:

- direct financing (co-financing) by a public partner of the cost of infrastructure investment projects, which is used in the presence of the potential multiplier effect of public investment costs (at least 3-4 rubles per invested ruble), compliance with regulatory requirements and the achievement of significant social effect;
- co-financing of priority industrial projects, which requires the creation of a specialized management company, close cooperation with organizations of education and science to increase the innovative capacity of the project (Safiullina, 2011).

In 2018, the authors conducted an expert survey as part of a study of the institutional environment of a public-private partnership in the implementation of cluster projects in the Omsk Region. The respondents were experts representing the interests of a public authority and business. One of the research directions was related to the assessment of PPP forms in the region. In the first place, all experts put the most common and at the same time the most understandable form of implementation of public-private partnership projects - the PPP agreement. The same unanimity of experts is observed with respect to the form not used in the region: a management contract. The distribution of priority forms of PPP in the cluster policy according to the results of an expert survey is presented in table 3.

Table 3: Distribution of priority forms of PPP

PPP form	Average score of public sector experts (on a 5-point scale)	Average score of private sector experts (on a 5-point scale)
Management contract	1.58	0.6
Long term rental	3.00	2.5
PPP Agreement	3.25	3.1
Life cycle contract	2.33	2.1
Creating a joint venture with public and private capital	3.08	1.9

Source: Compiled by the authors.

According to the results of the study, the authorities prefer long-term leases, an agreement on PPP, and the creation of an SEC with public and private capital. The private sector believes that the most beneficial forms of cooperation between government and business include a PPP agreement and long-term lease. At the same time, both groups of experts did not indicate such a form of PPP (deliberately not highlighted in the list) as a concession. This is due to the fact that this form of PPP does not imply ownership of the infrastructure object by a private partner: it remains with the public partner.

Each form of PPP has its own advantages and disadvantages affecting the quality of projects and the efficiency of the cluster-oriented economy. We will conduct our own analysis of the most promising forms of PPP in the context of the appropriateness of their application at the regional level (Table 4).

Table 4: Analysis of PPP Forms in the Formation of a Cluster-Based Economy

Forms	GC	LCC	LTIA	Concession	SPIC	JV	Tif	IM
Criteria								
State guarantees	+	-	-	+	+	-	+	+
The possibility of reimbursement of pre-project costs	-	-	-	+	-	+	+	-
Cluster motivation for high-quality project implementation	Low	Average	High	High	Average	High	Average	High
Promoting the development of related industries of the cluster	Minimal	The average	High	High	High	High	The average	The average
Risks of an increase in the timing of the project	High - on the state	High - on the state	Low - on the private side	Low - on the private side	High - on the state	Middle - on both sides	Low - on the private side	Low - on the private side
Risks of increasing the cost of the project	High - on the state	Average - on the state	Low - on the private side	Low - on the private side	High - on the state	Middle - on both sides	Low - on the private side	Low - on the private side
Cluster risk manageability	-	Low	Low	Average	Low	Average	Average	Average
Protection from changes in legislation (including tax)	-	-	-	+	-	-	+	-
Attractiveness for institutional investors	low	low	high	high	low	high	high	high

Source: Compiled by the authors.

The criteria used in the table are chosen by us as having, in our opinion, the greatest importance in the conditions of the implementation of a PPP project by the subjects of a regional cluster-based economy. The characteristics “minimum - low - medium - high - maximum” conditionally determine whether a particular criterion is applicable to a particular form of PPP: the values “minimum” and “low” characterize actual non-applicability, “high” and “maximum” - applicability, “medium” - absence of causal dependence on the selected form of PPP (influence of other factors). Thus, according to a set of criteria, such forms of PPP as concession, TIF, infrastructure mortgage and joint venture can be considered the most promising for use in the formation of a cluster-oriented economy.

The issue of financing the implementation of such forms is resolved. Due to the problems of development of the bank financing market, at present, participation in PPP projects in Russia is mainly taken by large investment funds, state corporations (Kulakova, 2015). According to research conducted by experts at InfraOne Research, the liquidity of the banking sector is sufficient to finance all infrastructure projects (as of January 2018, the liquidity surplus in the banking sector exceeded 2.7 trillion rubles). At the same time, growth of investment activity from international development banks is expected. Insurance companies and investment funds are not interested in this kind of investment. The greatest flow of private funds in the years 2018-2020. It is expected from the largest banks with state participation (300 billion rubles), private pension funds with experience in investing in infrastructure (55-65 billion rubles) and the RDIF (40 billion rubles). Private banks with available for investments in infrastructure the amount of 70-80 billion rubles in the next 2 years according to the forecast will invest no more than 10 billion rubles. At the same time, banks are interested in issuing loans under concession agreements, since they fall into the second category of reservations (with reserves of no more than 20%) or, in the case of concessions, are more expensive than 1 billion rubles - in the first category that does not require reservations, unlike conventional loans for construction (third category of reservation, 21-50%) ("Infrastructure Investment 2018. Analytical Review. Where do the interests of investors and government intersect? Results of 2017. The forecast for 2018-2019", 2018, p. 54-55).

Note that for successful operation and expanded reproduction, industrial clusters need diversification of funding sources. PPP allows cluster policy to be implemented at the expense of extrabudgetary investments supported by budget commitments (Moiseeva, 2016). Using the potential of the cluster allows you to consolidate financial resources for the implementation of a joint project.

A promising tool is also attracting credit resources of a group of borrowers. Thus, in accordance with Federal Law No. 486-FZ of December 31, 17 "On the Syndicated Credit (Loan) and Amendments to Certain Legislative Acts of the Russian Federation", it becomes possible to provide a borrower with a loan or credit by several lenders (lenders) acting jointly (syndicate lenders) ("On a Syndicated Credit (Loan) and Amendments to the Certain Legislative Acts of the Russian Federation"). Creditors can be credit institutions, the state corporation Vnesheconombank, foreign banks and

international financial organizations, non-state pension funds, as well as other legal entities in accordance with the law. This creates the necessary conditions for the implementation of large PPP projects, including cluster members, including small and medium-sized businesses, whose infrastructure, as a rule, includes financial and credit organizations.

Within the framework of the topic under consideration, we also note that an important area of application of PPPs in the transition to a cluster-oriented model of economic growth is the development of cooperation between business and scientific institutions. In world experience in countries such as France, Belgium, Denmark, the United Kingdom and others, such cooperation is embodied in the form of creating public-private research centers. In Russia, PPP in this area is implemented not only by creating joint innovation enterprises (including state corporations), but also by creating specialized small innovative enterprises at state-owned scientific organizations, as well as by implementing cluster initiatives and innovation infrastructure development projects (Nikitenko, Goosen, Klishin, 2013).

Thus, we note the following main areas of PPP application in the framework of the formation of a cluster-oriented economy:

1. The use of PPP as a tool for the formation of a cluster-oriented economy allows for balancing the interests of the parties in the context of synergistic interaction and optimal allocation of resources and risks.
2. The most applicable forms of PPPs within the framework of a cluster-oriented economy are a concession, a TIF, an infrastructure mortgage, and a joint venture.
3. The use of PPP as a tool for the formation of a cluster-oriented economy allows for maximum access to financial resources for the project.

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