Regional conditions, economic performance and quality of management as support factors for innovative clusters in Russia

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The program of Russian pilot innovative clusters support started 3 years ago

The results of pilot innovative clusters selection in 2012

- Pilot innovative clusters, selected according to the results of their project presentations to the working group: 25
- Applications that received high expert estimations: 37
- The total number of cluster applications before April 20, 2012: 94

Disbursements of federal subsidies for the implementation of the regional innovative cluster development programs in 2013 – 2014 (mln rubles)

- Samara region
- Republic of Tatarstan
- Novosibirsk region
- Republic of Mordovia
- Tomsk region
- Moscow region ("Dubna")
- Moscow ("Zelenograd")
- Moscow region ("Phystech XXI")
- Nizhny Novgorod region ("Sarov")
- Kaluga region
- Moscow region ("Pushchino")
- Krasnoyarsk Krai
- Perm Region
- Republic of Bashkortostan
- Ulyanovsk region (Nuclear)
- Arkhangelsk region
- Altai region
- Kemerovo region
- Khabarovsk Krai
- Sverdlovsk region
- Ulyanovsk region ("Ulyanovsk-Avia")
- St. Petersbourg ("Pharmaceutical and Medicine")
- Moscow region ("Troitsk")
- Nizhny Novgorod region ("Automotive and..."
- Leningrad region ("Pharmaceutical and Medicine")
- St. Petersbourg ("Radionics")

- The scope of subsidy funds in 2013
- The scope of subsidy funds in 2014
Cluster is a complicated object, which should be evaluated on different levels.

- Evaluation of cluster framework conditions
- Evaluation of cluster actors
- Evaluation of cluster management and its personnel

To maximize the subsidy for regions from the federal budget it is necessary to answer the question about the support levels they should focus on.
Hypotheses: which factors affect subsidy amount apart from projects quality?

1) Innovation development level of regions and particularly the quality of their innovation policy. In the framework of cluster policy the strongest regions and regional teams get support.

2) Cluster size (the number of participants, the total revenue, the number of employees, the volume of investments, R&D, etc.). Pilot innovative clusters are economic growth points and therefore play a pivotal role on a national scale.

3) The quality of cluster management. This factor can be influenced in the short-term period.

4) The quality of cluster governance (cluster members` satisfaction, growth, private funding, sustainability).

5) The federal authorities` confidence to the cluster project team.
The database of the research

- 94 innovative cluster development programs, 2012
- Russian regional innovation development rating, issue 3, 2015
- The report of Ministry for Economic Development of the Russian Federation and Higher School of Economics, 2015
- Questionnaire of Ministry for Economic Development of the Russian Federation, AIRR, ASI, HSE (Cluster Excellence), 2015
- The data of Ministry for Economic Development of the Russian Federation on innovative infrastructure for SMEs support in Russian regions, 2010 - 2014
- Upcoming data on the participants of technology platforms
- RVC, HSE, CSR, Management system for Russian cluster management organizations, 2014
Russian Regional Innovation Index

1. **Complex analysis of the innovation process and its factors**: socio-economic conditions of innovation activity; scientific and technical potential; innovation activity performance; quality of regional innovation policy.

2. **Openness**: transparent system of indicators, calculation algorithms and input data; provability.

3. **Scientific validity**: compliance with international statistical standards, the hierarchical structure of indicators, benchmarking.

4. **Regular release of the rating**, which allows to assess the dynamics of regional development.
Russian Regional Innovation Index

4 subratings

16 groups of indicators

37 indicators
Indicators of “Quality of regional innovation policy” Index

The quality of the legal and regulatory framework of innovation policy
- The regional strategy (concept) of innovation development or a section on innovation development in the regional development strategy
- The regional scheme of territorial planning and its justification documents which include selected zones (areas) of innovation development
- The legislation defining the basic principles, directions and measures of state support of regional innovation
- The program or the set of measures for innovation support

The quality of organizational support of innovation policy
- Advisory bodies on innovation policy (innovation support) to the supreme regional executive body
- Specialized development institutions (funds, agencies, development corporations, etc.) that have the resources for innovation support and the implementation of innovative projects

The costs of the consolidated budget
- The share of appropriations for civil science from the regional consolidated budget in total costs of the regional consolidated budget
- The share of costs on technological innovations from the budget of the Russian regions and local budgets in total
- The ratio of the federal budget subsidies on innovation infrastructure for SMEs to GRP (per 1 mln rubles GRP)
Hypothesis 1. The role of regional framework conditions. Leading regions of the Russian Regional Innovation Index have received more funds for innovative clusters support.
But: disbursement of federal subsidy does not depend on the level of innovative activity of firms in the region.
1) At a low level of regional innovation policy (value of the index “Quality of Innovation Policy” < 0.35) regions supported no more than 1 innovative cluster

2) As the Index goes up the regions:
   • either focus on the development of the strongest innovative cluster (Republic of Tatarstan, Kaluga region, Tomsk region);
   • or extend the number of supported clusters (Novosibirsk region, Moscow region).
### Indicators used in the research

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source</th>
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<tbody>
<tr>
<td><strong>Cluster size</strong></td>
<td></td>
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<tr>
<td>The number of cluster members</td>
<td>Cluster development programs</td>
</tr>
<tr>
<td>The number of cluster members’ employees, thousand pers.</td>
<td>Report of Ministry for Economic Development of the RF</td>
</tr>
<tr>
<td>Cluster revenue in 2011, bln. rubles</td>
<td>Cluster development programs</td>
</tr>
<tr>
<td>Expenditure on R&amp;D by cluster members in 2007-2011, bln. rubles</td>
<td>Cluster development programs</td>
</tr>
<tr>
<td>The share of SME’s employees in total employment of the pilot innovative cluster members, %</td>
<td>Cluster development programs</td>
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<tr>
<td>The volume of cluster members’ investment costs, bln. rubles</td>
<td>Report of Ministry for Economic Development of the RF</td>
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<tr>
<td>The volume of shipped innovative products, works and services of cluster members’ own make, bln. rubles</td>
<td>Report of Ministry for Economic Development of the RF</td>
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<td><strong>The quality of cluster management</strong></td>
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<td>How many people were employed in cluster management bodies last year to work on the key cluster development issues?</td>
<td>Questionnaire (Cluster Excellence, 2015)</td>
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<td>How many new cluster members were registered within the last 2 years?</td>
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<td>How many strategic and current partnerships with development institutions were established?</td>
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<td>How often was the cluster mentioned in the media, on the Internet and in other sources of information at the regional / national and international levels last year?</td>
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## The average pilot innovative cluster

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<th>Value of the indicator</th>
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<tr>
<td><strong>Cluster size</strong></td>
<td></td>
</tr>
<tr>
<td>The number of cluster members</td>
<td>46</td>
</tr>
<tr>
<td>The number of cluster members` employees, thousand pers.</td>
<td>36,08</td>
</tr>
<tr>
<td>Cluster revenue in 2011, bln. rubles</td>
<td>74,51</td>
</tr>
<tr>
<td>Expenditure on R&amp;D by cluster members in 2007-2011, bln. rubles</td>
<td>44,39</td>
</tr>
<tr>
<td>The share of SME’s employees in total employment of the pilot innovative cluster members, %</td>
<td>12</td>
</tr>
<tr>
<td>The volume of cluster members` investment costs, bln. rubles</td>
<td>11,68</td>
</tr>
<tr>
<td>The volume of shipped innovative products, works and services of cluster members` own make, bln. rubles</td>
<td>22,47</td>
</tr>
<tr>
<td><strong>The quality of cluster management</strong></td>
<td></td>
</tr>
<tr>
<td>How many people were employed in cluster management bodies last year to work on the key cluster development issues?</td>
<td>5</td>
</tr>
<tr>
<td>How many new cluster members were registered within the last 2 years?</td>
<td>39</td>
</tr>
<tr>
<td>How many strategic and current partnerships with development institutions were established?</td>
<td>2</td>
</tr>
<tr>
<td>How many cluster members were involved into joint projects within the last two years?</td>
<td>27</td>
</tr>
<tr>
<td>How often was the cluster mentioned in the media, on the Internet and in other sources of information at the regional / national and international levels last year?</td>
<td>37</td>
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Federal support does not depend on economic value of clusters. However there is a preference for the traditional Russian high-tech against the development of new industries.

The correlation between Cluster Economic Value Index and disbursements of federal subsidies
Correlation between the main indicators of cluster economic value index and disbursement of federal subsidies

Cluster revenue in 2014, bln. rubles

The share of SME's employees in total employment of the pilot innovative cluster members, %

The volume of shipped innovative products, works and services of cluster members’ own make, bln. rubles

Number of cluster members
The quality of cluster management teams is more important in terms of attractiveness for the federal government than cluster size.

The first group of pilot innovative clusters (supported in 2013 and 2014) has more qualified cluster management than the second one (supported only in 2014). Clusters of the first group received greater amount of federal support.
Hypothesis 4. The quality of clusters’ governance

Management VS governance

**Management** is the coordination of employees to achieve organizational goals.
- management includes planning, organizing, directing, coordinating and monitoring;
- management is sometimes identified as an additional factor of production, along with labor and capital;
- management involves hierarchy and is implemented by the chief’s instructions to the subordinates.

**Governance** is the system of interactions between participants of a cluster and its management, as well as with other stakeholders, by which the rights of shareholders are exercised; it is a set of tools that helps cluster participants control executives` activities and solve problems with other actors.
There are positive financial incentives to increase the quality of cluster governance.

- Number of cluster members
- Quality of decision-making on cluster development
- Availability of cluster management assessment methodologies or quality control systems
- Availability of assessment system to measure cluster management performance satisfaction of cluster members
- The number of cluster members involved in joint projects in the past two years
- The share of private funding of cluster management organization (through membership fees, donations, sponsorship fees, etc.)

![Graph showing the relationship between federal subsidies volume and index of corporate governance quality.](image)
Hypothesis 5. The federal authorities` confidence to the cluster project team

- Hypothesis: government supports the teams that have proven their effectiveness.
- The importance of trust: not only from region communities to the state but also from the state towards the project teams.
- Clarification of the hypothesis: to what extent the federal subsidies* volume is related to the volume of financial support for cluster members from the previous programs

* In this case the subsidies for the development of innovative infrastructure for SMEs and promotion of technological platforms are concerned
The hypothesis cannot be rejected. But the interrelation between the amount of subsidies received within the framework of various federal programs needs additional studies.
Results of the research – recommendations for the optimal cluster strategy in the region (1)

1. Although the level of regional innovative development is related to the amount of allocated subsidies, the regions analyzed can be divided into 2 groups according to the amount of federal subsidy in 2014. Hypothesis: the sample is heterogeneous, there are other significant indicators.

2. Disbursements of federal subsidies for cluster support are more related to the level of regional socio-economic conditions and the quality of innovation policy than to innovation activity of enterprises.

3. Cluster policy is usually carried out in regions with sufficiently high level of innovation policy quality. It is possible to distinguish 2 strategies of such regions:
   - focusing on a single-cluster development;
   - establishing equal conditions for multi-cluster support.
5. Federal support does not depend on economic value of clusters. However there is a preference for the traditional Russian high-tech against the development of new industries.

6. Cluster management quality is more important than economic value of clusters for the federal subsidies attraction. The success story is cumulative: funding from the state allows to form a team and create a management structure that, in turn, improves the quality of applications from the cluster to the next round of funding.

7. Russian pilot innovative clusters have obvious issue of corporate governance quality. Perhaps, this is due to the problems of growth that are explained by centralization and weak horizontal links. At the same time, the Ministry for Economic Development of the Russian Federation creates positive financial incentives for Russian pilot clusters promotion to the EU level.

8. The hypothesis about significance of federal authorities confidence in regional project teams and therefore about correlation between disbursements of federal subsidies for cluster support and innovation infrastructure for SMEs can not be rejected.