The GII indicators are grouped into innovation inputs and outputs. The following table reflects the Russian Federation’s rankings over time.

<table>
<thead>
<tr>
<th>Year</th>
<th>GII</th>
<th>Input</th>
<th>Output</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>46</td>
<td>43</td>
<td>56</td>
<td>77</td>
</tr>
<tr>
<td>2017</td>
<td>45</td>
<td>43</td>
<td>51</td>
<td>75</td>
</tr>
<tr>
<td>2016</td>
<td>43</td>
<td>44</td>
<td>47</td>
<td>69</td>
</tr>
</tbody>
</table>

- The Russian Federation performs better in innovation inputs than outputs.
- Its innovation outputs deteriorate this year, ranking 56th, down 9 from 2016.
- The country has stable ranking in innovation inputs, holding the 43rd-44th position over the last three years.
- Its efficiency in translating innovation inputs into outputs has reduced during the last three years, as demonstrated by a lower ranking in the Innovation Efficiency Ratio (77th), which moved down from the 75th position in 2017 and the 69th in 2016. This is partly influenced by the lower ranking in innovation outputs (43rd) mentioned above.

Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.
Benchmarking the Russian Federation to other upper-middle-income countries and the Europe region

The Russian Federation’s scores by area

Upper-middle-income countries
The Russian Federation has high scores in 5 out of the 7 GII areas – Human Capital & Research, Infrastructure, Market Sophistication, Business Sophistication, and Knowledge & Technology Outputs, in which it scores above the average of the upper-middle-income group.

Top scores in the areas Education, Information & Communication Technologies (ICTs), Trade, competition & market scale, Knowledge workers, and Knowledge creation are behind these high rankings.

Europe region
Compared to other countries in the European region, the Russian Federation performs above-average in Human Capital & Research.

The innovation profile of the Russian Federation

Strengths
- The Russian Federation presents much more strengths on the innovation input side of the GII than the output side.
- Most of them are in Human Capital & Research (22nd), which itself is highlighted as a strength. The Russian Federation has a strong performance also in one of its three elements – Tertiary education (19th) – and in indicators Pupil-teacher ratio (16th), Tertiary enrolment (13th), Graduates in science & engineering (15th), and Quality of universities (22nd).
- The country shows several strengths in Business Sophistication (33rd), where it exhibits strength in indicators Knowledge-intensive employment (17th), Intellectual property payments (18th), and Females employed with advanced degrees – in which it ranks 1st.
- In Market Sophistication (56th), the Russian Federation performs strongly in the area Trade, competition & marker scale (13th) and in the indicator Domestic market scale (6th).
- On the innovation output side, all GII strengths are in Knowledge & Technology Outputs (47th), where the Russian Federation has strong performance in indicators Patents by origin (16th), Utility models by origin (9th), and Quality of scientific publications (22nd).

Weaknesses

- On the innovation input side, the Russian Federation has relative weaknesses in three out of the five GII areas.

- In Institutions (74th), two indicators are marked as relative weaknesses: Political stability and safety (105th) and Rule of law (110th).

- In Infrastructure (63rd), the country performs relatively weakly in indicators Logistics performance (97th), GDP per unit of energy use (111th), and ISO 14001 environmental certificates (107th).

- In Market Sophistication (56th), relative GII weaknesses are found in indicators Microfinance gross loans (75th) and Venture capital deals (71st).

- On the innovation output side, two out of the three GII weaknesses are demonstrated in Knowledge & Technology Outputs (47th) in indicators Productivity growth (89th) and ISO 9001 quality certificates (101st).

- In Creative Outputs (72nd), the Russian Federation has only one GII weakness in ICTs & business model creation (94th).

The following figure presents a summary of the Russian Federation's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.
**Expected vs. Observed Innovation Performance**

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better than what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, the Russian Federation performs below its expected level of development.
Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%). The following tables show data for the Russian Federation that is not available or that is outdated.

Missing Data

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator</th>
<th>Country Year</th>
<th>Model Year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>n/a</td>
<td>2014</td>
<td>UNESCO Institute for Statistics</td>
</tr>
</tbody>
</table>

Outdated Data

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator</th>
<th>Country Year</th>
<th>Model Year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>2012</td>
<td>2014</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2012</td>
<td>2016</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Graduates in science &amp; engineering, %</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>4.1.2</td>
<td>Domestic credit to private sector, % GDP</td>
<td>2015</td>
<td>2016</td>
<td>IMF, World Economic Outlook</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, % firms</td>
<td>2012</td>
<td>2013</td>
<td>World Bank, Enterprise Surveys</td>
</tr>
<tr>
<td>7.2.5</td>
<td>Creative goods exports, % total trade</td>
<td>2015</td>
<td>2016</td>
<td>UN COMTRADE</td>
</tr>
</tbody>
</table>
RUSSIAN FEDERATION

Country/Economy Profiles

1. Political environment
   - GDP per capita, PPP$: 144.0
   - Population (mn): 144.0
   - Efficiency ratio: 177

2. Human capital & research
   - Institutions: 57.8
   - Business sophistication: 39.9

3. Infrastructure
   - Information & communication technologies (ICTs): 70.3
   - Creative outputs: 26.9

4. Market sophistication
   - Credit: 32.4
   - Trade, competition, & market scale: 77.4

5. Knowledge & technology outputs
   - Knowledge creation: 32.8
   - Creative goods & services: 13.8

6. Knowledge absorption
   - GERD performed by business, % GDP: 0.6
   - Citable documents H index: 36.7

7. Creative outputs
   - Intangible assets: 39.0
   - Cultural & creative services exports, % total trade: 0.1

8. Notes: indicates a strength; ◯ a weakness; ● an income group strength; ○ an income group weakness; * an index; † a survey question

9. Score/Value Rank
   - Institutions: 74
   - Business sophistication: 33

10. GII 2018 rank: 46

11. GII 2017 rank: 45

12. Output rank: 56

13. Input rank: 43


15. Region: EUR

16. Population (mn): 144.0

17. GDP, PPP$: 4,000.1

18. GDP per capita, PPP$: 27,834.1

19. Notes: indicates that the country’s data are older than the base year; see Appendix II for details, including the year of the data, at http://globalinnovationindex.org.

20. Square brackets indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; see page 75 of this appendix for details.