The GII indicators are grouped into innovation inputs and outputs. The following table reflects Slovenia’s ranking over time.

<table>
<thead>
<tr>
<th></th>
<th>GII</th>
<th>Input</th>
<th>Output</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>30</td>
<td>31</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>2017</td>
<td>32</td>
<td>30</td>
<td>34</td>
<td>44</td>
</tr>
<tr>
<td>2016</td>
<td>32</td>
<td>31</td>
<td>33</td>
<td>39</td>
</tr>
</tbody>
</table>

- Over the last three years, Slovenia demonstrates stability in innovation inputs, positioning 30th-31st globally.
- This year the country improves in innovation outputs, reaching the 29th position, up 5 spots from last year.
- In the Innovation Efficiency Ratio, Slovenia ranks 27th, gaining 17 spots from the 44th position it held in 2017. This ratio shows that Slovenia is becoming more efficient in translating its innovation inputs into more outputs. Such higher ranking is partly influenced by the higher and improved ranking in innovation outputs (29th) relative to inputs (31st).

Slovenia is ranked 30th in the GII 2018, moving up 2 positions from the previous year.

Slovenia is ranked 29th among the 47 high-income countries in the GII 2018.

Slovenia is ranked 19th among the 39 countries in Europe.

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

**Slovenia’s scores by area**

**High-income countries**

Slovenia has high scores in 2 of the 7 GII areas – **Institutions** and **Creative Outputs**, in which it scores above the average of the high-income group.

Top scores in areas such as **Business environment** and **Intangible assets** are behind these high rankings.

**Europe region**

Compared to other countries in the Europe region, Slovenia performs above-average in 4 of the 7 GII areas: Institutions, Human Capital & Research, Business Sophistication, and Creative Outputs.

**Slovenia’s innovation profile**

**Strengths**

- Most of the comparative strengths for Slovenia are concentrated on the innovation output side of the GII where the country presents strengths in both the GII output areas.

- In **Knowledge & Technology Outputs** (34th), three indicators are marked as strong. These are **Patents by origin** (12th), **ISO 9001 quality certificates** (9th), and **Scientific & technical articles** where the country gains the 3rd position in the world.

- In **Creative outputs** (16th), Slovenia’s top-ranked GII area, the indicators **Trademarks by origin** (9th), **National feature films** (9th), and **Wikipedia edits** (12th) are GII strengths for the country.

- On the innovation input side, most of Slovenia’s GII strengths lie in **Institutions** (19th), where it has strong performance in the area **Business environment** (14th). At the indicator level, GII strengths are found in **Political stability & safety** (15th) and **Ease of resolving insolvency** (9th).

- Slovenia also shows strong performance in two other indicators, **ISO 14001 environmental certificates** (14th) within **Infrastructure** (35th) and within **Business Sophistication** (29th) **R&D financed by business**, where it ranks 5th in the world.
Weaknesses

- Slovenia’s relative GII weaknesses are mostly accrued among innovation inputs, and in particular in the following four GII input areas.

- **Market Sophistication** (78th), the lowest-ranked GII area for Slovenia, is highlighted as one of the weakness for Slovenia. Here the country performs weakly in one of its three components – Credit (83rd). At the indicator level, GII weaknesses are also found in Ease of getting credit (88th), Market capitalization (75th), and Domestic market scale (85th).

- The indicators State of cluster development (72nd), Joint venture–strategic alliance deals (77th), and High-tech imports (87th) are signaled as relatively weak within the area Business Sophistication (29th).

- In Human Capital & Research (28th), only one indicator – Tertiary inbound mobility (65th) – is indicated as a GII weakness.

- In Infrastructure (35th), one indicator, Gross capital formation (94th), presents relatively weak performance.

- On the innovation output side, only two relative weaknesses are found within the area Knowledge & Technology Outputs (34th). These are indicators Utility models by origin (47th) and Computer software spending (91st).

The following figure presents a summary of Slovenia’s ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

**Slovenia’s rank in the GII 2018 and the 7 GII areas**

<table>
<thead>
<tr>
<th>Area</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative outputs</td>
<td>16</td>
</tr>
<tr>
<td>Institutions</td>
<td>19</td>
</tr>
<tr>
<td>Human capital and research</td>
<td>28</td>
</tr>
<tr>
<td>Business sophistication</td>
<td>29</td>
</tr>
<tr>
<td>Global Innovation Index 2018</td>
<td>30</td>
</tr>
<tr>
<td>Knowledge and technology outputs</td>
<td>34</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>35</td>
</tr>
<tr>
<td>Market sophistication</td>
<td>78</td>
</tr>
</tbody>
</table>
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, Slovenia performs at 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 Slovenia 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>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>n/a</td>
<td>2016</td>
<td>Microfinance Information Exchange, Mix Market</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Entertainment &amp; Media market/th pop. 15–69</td>
<td>n/a</td>
<td>2016</td>
<td>PwC's Global Entertainment and Media Outlook, 2017–2021</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>2.1.3</td>
<td>School life expectancy, years</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</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 (UIS)</td>
</tr>
<tr>
<td>2.2.3</td>
<td>Tertiary inbound mobility, %</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/ bn PPP$ GDP</td>
<td>2010</td>
<td>2016</td>
<td>WIPO, Intellectual Property Statistics</td>
</tr>
<tr>
<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufactures, %</td>
<td>2014</td>
<td>2015</td>
<td>UNIDO, Industrial Statistics</td>
</tr>
<tr>
<td>7.1.1</td>
<td>Trademarks by origin/ bn PPP$ GDP</td>
<td>2010</td>
<td>2016</td>
<td>WIPO, Intellectual Property Statistics</td>
</tr>
<tr>
<td>7.1.2</td>
<td>Industrial designs by origin/ bn PPP$ GDP</td>
<td>2011</td>
<td>2016</td>
<td>WIPO, Intellectual Property Statistics</td>
</tr>
<tr>
<td>7.2.1</td>
<td>Cultural &amp; creative services exports, % total trade</td>
<td>2015</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
<tr>
<td>7.3.3</td>
<td>Wikipedia edits/mn pop. 15–69</td>
<td>2016</td>
<td>2017</td>
<td>Wikimedia Foundation</td>
</tr>
</tbody>
</table>
SLOVENIA

Gil 2018 rank 30

<table>
<thead>
<tr>
<th>Output rank</th>
<th>Input rank</th>
<th>Income</th>
<th>Region</th>
<th>Efficiency ratio</th>
<th>Population (mn)</th>
<th>GDP, PPP$</th>
<th>GDP per capita, PPP$</th>
<th>Gil 2017 rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>31</td>
<td>High</td>
<td>EUR</td>
<td>27</td>
<td>2.1</td>
<td>70.4</td>
<td>34,407.1</td>
<td>32</td>
</tr>
</tbody>
</table>

**Human capital & research**

- **Education**
  - 2.1 Expenditure on education, % GDP: 5.8 6
  - 2.2 Government funding/pupil, secondary, % GDP/cap: 24.7 26
  - 2.3 School life expectancy, years: 17.2 16
  - 2.4 PISA scales in reading, maths & science: 509.3 9
  - 2.5 Pupil-teacher ratio, secondary: 10.2 30

- **Tertiary education**
  - 2.6 Tertiary enrolment, %: 80.0 18
  - 2.7 Graduates in science & engineering, %: 25.7 27
  - 2.8 Tertiary mobility, %: 27.0 65

- **Research & development (R&D)**
  - 2.9 Researchers, FTE/mn pop: 3,899.2 24
  - 2.10 Gross expenditure on R&D, % GDP: 2.0 18
  - 2.11 Global R&D companies, top 3, mn US$: 51.3 28
  - 2.12 QS university ranking, average score top 3*: 10.9 63

**Infrastructure**

- **Information & communication technologies (ICTs)**
  - 3.1 Information & communication technologies (ICTs): 74.6 29
  - 3.2 ICT access*: 79.1 28
  - 3.3 Government online services*: 84.8 19
  - 3.4 E-participation*: 72.9 37

- **General infrastructure**
  - 3.5 Electric power output, kWh/cap: 7,830.4 21
  - 3.6 Logistics performance*: 51.9 49
  - 3.7 Gross capital formation, % GDP: 19.5 94

- **Environmental sustainability**
  - 3.8 Energy use*: 475.3 37
  - 3.9 Environmental performance*: 8.8 63
  - 3.10 ISO 14001 environmental certificates/bn PPP$: 6.9 14

**Market sophistication**

- **Credit**
  - 4.1 Ease of getting credit*: 45.0 88
  - 4.2 Domestic credit to private sector, % GDP: 46.7 75
  - 4.3 Microfinance gross loans, % GDP: n/a n/a

- **Investment**
  - 4.4 Investment*: 38.9 76
  - 4.5 Ease of protecting minority investors*: 7.0 24
  - 4.6 Market capitalization, % GDP: 13.6 75
  - 4.7 Venture capital deals/bn PPP$: 0.0 37

- **Trade, competition, & market scale**
  - 4.8 Trade*: 61.2 62
  - 4.9 Applied tariff rate, weighted mean, %: 1.6 19
  - 4.10 Intensity of local competition*: 73.4 35
  - 4.11 Domestic market scale, bn PPP$: 70.4 85

**Business sophistication**

- 5.1 Knowledge workers: 62.8 18
  - 5.2 Firms offering formal training, % firms: 41.5 31
  - 5.3 GERD performed by business, % GDP: 1.5 13
  - 5.4 GERD financed by business, %: 69.2 5
  - 5.5 Females employed w/advanced degrees, %: 21.1 21

- 5.6 Innovation links
  - 5.7 State of cluster development*: 44.6 72
  - 5.8 GERD financed by abroad, %: 10.6 41
  - 5.9 JV–strategic alliance deals/bn PPP$: GDP: 0.0 77

- 5.10 Patent families + offices/bn PPP$: GDP
  - 5.11 Knowledge absorption: 37.2 37

**Knowledge & technology outputs**

- 6.1 Knowledge creation: 32.7 29
  - 6.2 PCT patents by origin/bn PPP$: GDP: 1.4 24
  - 6.3 Utility models by origin/bn PPP$: GDP: 0.2 47
  - 6.4 Scientific & technical articles/bn PPP$: GDP: 377.1 3

- 6.5 Citable documents H index: 16.7 42

- 6.6 Knowledge impact: 45.0 29

- 6.7 Growth rate of PPP$: GDP/worker, %: 0.5 67

- 6.8 New businesses/thp: 15 – 64: 3.1 40

- 6.9 Computer software spending, % GDP: 0.0 77

- 6.10 ISO 9001 quality certificates/bn PPP$: GDP: 278.8 9

- 6.11 High- & medium-high-tech manufactures, %: 0.4 19

- 6.12 Knowledge diffusion: 21.0 56

- 6.13 Intellectual property receipts, % total trade: 0.2 37

- 6.14 High-tech net exports, % total trade: 5.8 30

- 6.15 ICT services exports, % total trade: 18.5 55

- 6.16 FDI net inflows, % GDP: 0.7 59

**Creative outputs**

- 7.1 Intangible assets: 56.3 20

- 7.2 National feature films/mn pop: 15–69: 13.4 9

- 7.3 Entertainment & Media market/th pop: 15–69: n/a n/a

- 7.4 Printed & other media, % manufacturing: 17.0 20

- 7.5 Creative goods exports, % total trade: 11.4 43

- 7.6 Online creativity: 36.0 23

- 7.7 Generic top-level domains (TLDs)/th pop: 15–69: 20.8 28

- 7.8 Country-code TLDs/th pop: 15–69: 24.0 25

- 7.9 Wikipedia edits/mn pop: 15–69: 83.0 12

- 7.10 Mobile app creation/bn PPP$: GDP: 42.8 12

**NOTES:** ● indicates a strength; ○ a weakness; * an income group strength; © an income group weakness; * an index; © a survey question.

● 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.

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.