The Global Innovation Index (GII) is a ranking of world economies based on innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.

The following table shows the rankings of the Czech Republic over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for the Czech Republic’s ranking in the GII 2019 is between 21 and 27.

<table>
<thead>
<tr>
<th>Year</th>
<th>GII</th>
<th>Innovation Inputs</th>
<th>Innovation Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>26</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>2018</td>
<td>27</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>2017</td>
<td>24</td>
<td>27</td>
<td>16</td>
</tr>
</tbody>
</table>

- The Czech Republic performs better in Innovation Outputs than Inputs.
- This year the Czech Republic ranks 29th in Innovation Inputs, better than last year but worse compared to 2017.
- As for Innovation Outputs, the Czech Republic ranks 21st. This position is worse than last year and compared to 2017.
EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are considered Innovation under-performers relative to GDP.

Relative to GDP, the Czech Republic performs at its expected level of development.

GII scores and GDP per capita in PPP US$ (bubbles sized by population)
EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

The Czech Republic produces more innovation outputs relative to its level of innovation investments.

Innovation input/output performance by income group, 2019

[Chart showing the relationship between innovation inputs and outputs across different economies, with the Czech Republic highlighted as an example of effective translation.]

Source: Global Innovation Index Database, Cornell, INSEAD, and WIPO, 2019.
BENCHMARKING THE CZECH REPUBLIC TO OTHER HIGH-INCOME ECONOMIES AND THE EUROPE REGION

The Czech Republic’s scores in the seven GII pillars

High-income economies

The Czech Republic has high scores in 3 out of the 7 GII pillars: Business sophistication, Knowledge & technology outputs, and Creative outputs, which are above the average of the high-income group.

Europe Region

Compared to other economies in Europe, the Czech Republic performs above average in 5 out of the 7 GII pillars: Institutions, Infrastructure, Business sophistication, Knowledge & technology outputs, and Creative outputs.

Top ranks are found in areas such as Ecological sustainability, Knowledge impact, Knowledge diffusion, and Creative goods & services where the country ranks in the top 20 worldwide.
OVERVIEW OF THE CZECH REPUBLIC’S RANKINGS IN THE 7 GII AREAS

The Czech Republic performs the best in Knowledge & technology outputs and its weakest performance is in Market sophistication.

The highest possible ranking in each pillar is 1.

THE CZECH REPUBLIC’S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the Czech Republic’s strengths and weaknesses in the GII 2019.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.2 Ease of resolving insolvency*</td>
<td>1.3.2</td>
<td>Ease of resolving insolvency*</td>
<td>14</td>
</tr>
<tr>
<td>3.3 Ecological sustainability</td>
<td>3.3</td>
<td>Ecological sustainability</td>
<td>16</td>
</tr>
<tr>
<td>3.3.3 ISO 14001 environmental certificates/bn PPP$ GDP</td>
<td>3.3.3</td>
<td>ISO 14001 environmental certificates/bn PPP$ GDP</td>
<td>3</td>
</tr>
<tr>
<td>5.2.3 GERD financed by abroad, %</td>
<td>5.2.3</td>
<td>GERD financed by abroad, %</td>
<td>13</td>
</tr>
<tr>
<td>5.3.2 High-tech imports, % total trade</td>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>8</td>
</tr>
<tr>
<td>6 Knowledge &amp; technology outputs</td>
<td>6</td>
<td>Knowledge &amp; technology outputs</td>
<td>16</td>
</tr>
<tr>
<td>6.1.3 Utility models by origin/bn PPP$ GDP</td>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
<td>6</td>
</tr>
<tr>
<td>6.2 Knowledge impact</td>
<td>6.2</td>
<td>Knowledge impact</td>
<td>10</td>
</tr>
<tr>
<td>6.2.4 ISO 9001 quality certificates/bn PPP$ GDP</td>
<td>6.2.4</td>
<td>ISO 9001 quality certificates/bn PPP$ GDP</td>
<td>3</td>
</tr>
<tr>
<td>6.2.5 High- &amp; medium-high-tech manufactures, %</td>
<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufactures, %</td>
<td>5</td>
</tr>
<tr>
<td>6.3.2 High-tech net exports, % total trade</td>
<td>6.3.2</td>
<td>High-tech net exports, % total trade</td>
<td>1</td>
</tr>
<tr>
<td>7 Creative goods &amp; services</td>
<td>7</td>
<td>Creative goods &amp; services</td>
<td>6</td>
</tr>
<tr>
<td>7.2.5 Creative goods exports, % total trade</td>
<td>7.2</td>
<td>Creative goods exports, % total trade</td>
<td>1</td>
</tr>
<tr>
<td>7.3.2 Country-code TLDs/th pop. 15–69</td>
<td>7.3.2</td>
<td>Country-code TLDs/th pop. 15–69</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.3 Cost of redundancy dismissal, salary weeks</td>
<td>1.2.3</td>
<td>Cost of redundancy dismissal, salary weeks</td>
<td>83</td>
</tr>
<tr>
<td>1.3.1 Ease of starting a business*</td>
<td>1.3.1</td>
<td>Ease of starting a business*</td>
<td>89</td>
</tr>
<tr>
<td>2.3.3 Global R&amp;D companies, top 3, in mn US$</td>
<td>2.3.3</td>
<td>Global R&amp;D companies, top 3, in mn US$</td>
<td>43</td>
</tr>
<tr>
<td>3.1.3 Government’s online service*</td>
<td>3.1.3</td>
<td>Government’s online service*</td>
<td>82</td>
</tr>
<tr>
<td>3.1.4 E-participation*</td>
<td>3.1.4</td>
<td>E-participation*</td>
<td>88</td>
</tr>
<tr>
<td>3.3.1 GDP/unit of energy use</td>
<td>3.3.1</td>
<td>GDP/unit of energy use</td>
<td>79</td>
</tr>
<tr>
<td>4.2 Investment</td>
<td>4.2</td>
<td>Investment</td>
<td>80</td>
</tr>
<tr>
<td>4.2.1 Ease of protecting minority investors*</td>
<td>4.2.1</td>
<td>Ease of protecting minority investors*</td>
<td>68</td>
</tr>
<tr>
<td>4.2.2 Venture capital deals/bn PPP$ GDP</td>
<td>4.2.2</td>
<td>Venture capital deals/bn PPP$ GDP</td>
<td>70</td>
</tr>
<tr>
<td>5.2.4 JV–strategic alliance deals/bn PPP$ GDP</td>
<td>5.2.4</td>
<td>JV–strategic alliance deals/bn PPP$ GDP</td>
<td>62</td>
</tr>
<tr>
<td>7.2.4 Printing &amp; other media, % manufacturing</td>
<td>7.2.4</td>
<td>Printing &amp; other media, % manufacturing</td>
<td>66</td>
</tr>
</tbody>
</table>
**STRENGTHS**

- GII strengths for the Czech Republic are found in five of the seven GII pillars, and mostly on the innovation output side of the GII.
- Pillar Knowledge & technology outputs (16) is a notable strength of this country. Most of the country’s strengths are found in this pillar.
- In Knowledge & technology outputs (16), strengths are sub-pillar Knowledge impact (10) and four indicators: Utility models by origin (6), ISO 9001 quality certificates (3), High- & medium-high-tech manufactures (5), and High-tech exports, where the country ranks 1st worldwide.
- In Creative outputs (21), GII strengths are found in sub-pillar Creative goods & services (6) and indicators Country-code TLDs (15) and Creative goods exports, where the Czech Republic places 1st globally.
- The other relative strengths for this country are:
  - Indicator Ease of resolving insolvency (14) in Institutions (29);
  - Sub-pillar Ecological sustainability (16) and its indicator ISO 14001 environmental certificates (3) in Infrastructure (32); and
  - Indicators R&D financed by abroad (13) and High-tech imports (8) in Business sophistication (25).

**WEAKNESSES**

- The Czech Republic’s weaknesses in the GII are found in six of the seven GII pillars, and mostly on the innovation input side of the GII.
- In Institutions (29), the Czech Republic’s weaknesses are indicators Cost of redundancy dismissal (83) and Ease of starting a business (89).
- In Human capital & research (34), the only relative weakness is indicator Global R&D companies (43).
- In Infrastructure (32), indicators Government’s online service (82), E-participation (88), and GDP per unit of energy use (79) are relative weaknesses of the Czech Republic.
- In Market sophistication (46), the Czech Republic’s weaknesses are sub-pillar Investment (80) and indicators Ease of protecting minority investors (68) and Venture capital deals (70).
- In Business sophistication (25), one weakness is found in indicator Joint Venture strategic alliance deals (62).
- In Creative outputs (21), only one indicator – Printing & other media (66) – is a relative weakness for this country.
CZECH REPUBLIC (THE)

**2018 GII RANK: 27**

**Score/value: 46.3/25**

### Institutions (Score/value: 78.6/29)

#### 1.1 Political environment
- 1.1.1 Political and operational stability: 75.6/31
- 1.1.2 Government effectiveness: 84.2/31

#### 1.2 Regulatory environment
- 1.2.1 Regulatory quality: 75.0/31
- 1.2.2 Rule of law: 75.9/26
- 1.2.3 Cost of redundancy dismissal, salary weeks: 20.2/83

#### 1.3 Business environment
- 1.3.1 Ease of starting a business: 83.6/31
- 1.3.2 Ease of resolving insolvency: 80.1/28

### Human Capital & Research (Score/value: 43.4/34)

#### 2.1 Education
- 2.1.1 Expenditure on education, % GDP: 5.8/23
- 2.1.2 Government funding/pupil, secondary, % GDP/cap.: 23.7/31
- 2.1.3 School life expectancy, years: 16.8/19

#### 2.2 Tertiary education
- 2.2.1 Tertiary enrolment, % gross: 63.7/38
- 2.2.2 Graduates in science & engineering, %: 23.5/39
- 2.2.3 Tertiary labour mobility, %: 11.5/15

#### 2.3 Research & Development (R&D)
- 2.3.1 Researchers, FTE/mn pop.: 3,689.9/25
- 2.3.2 Gross expenditure on R&D. % GDP: 1.8/20
- 2.3.3 Global R&D companies, avg. exp. top 3, mn US$: 0.0/43

### Infrastructure (Score/value: 56.4/32)

#### 3.1 Information & communication technologies (ICTs)
- 3.1.1 Internet access*: 71.9/60

#### 3.2 General infrastructure
- 3.2.1 Electricity output, KWh/mn pop.: 8,107.4/21
- 3.2.2 Logistics performance*: 75.6/22
- 3.2.3 Gross capital formation, % GDP: 26.5/37

#### 3.3 Ecological sustainability
- 3.3.1 GDP/unit of energy use: 7.8/79
- 3.3.2 Environmental performance*: 67.7/32
- 3.3.3 ISO 14001 environmental certificates/bn PPP$ GDP: 11.7/3

### Market Sophistication (Score/value: 52.4/46)

#### 4.1 Credit
- 4.1.1 Ease of getting credit*: 70.0/40

#### 4.2 Investment
- 4.2.1 Ease of protecting minority investors*: 58.3/38
- 4.2.2 Market capitalization, % GDP: n/a/28
- 4.2.3 Venture capital deals/bn PPP$ GDP: 0.0/70

#### 4.3 Trade, competition, & market scale
- 4.3.1 Applied tariff rate, weighted avg.: 1.8/33
- 4.3.2 Intensity of local competition: 78.2/16
- 4.3.3 Domestic market scale, bn PPP$: 396.4/46

### Business Sophistication (Score/value: 46.3/25)

#### 5.1 Knowledge workers
- 5.1.1 Knowledge-intensive employment, %: 38.0/31

#### 5.2 Innovation linkages
- 5.2.1 University-industry research collaboration*: 50.9/39

#### 5.3 Knowledge absorption
- 5.3.1 Intellectual property payments, % total trade: 0.8/47

#### 5.4 Knowledge diffusion
- 5.4.1 Growth rate of PPP$ GDP/worker: 1.7/47

### Knowledge & Technology Outputs (Score/value: 43.8/16)

#### 6.1 Knowledge creation
- 6.1.1 Patents by origin/bn PPP$ GDP: 2.7/34

#### 6.2 Knowledge impact
- 6.2.1 Growth rate of PPP$ GDP/worker: 1.7/47
- 6.2.2 New businesses/th pop. 15: 6.0/34

#### 7.1 Intangible assets
- 7.1.1 Trademarks by origin/bn PPP$ GDP: 61.9/34

#### 7.2 Creative goods & services
- 7.2.1 Cultural & creative services exports, % total trade: 0.5/47

### Creative Outputs (Score/value: 43.1/21)

#### 7.3 Online creativity
- 7.3.1 Generic top-level domains (TLDs)/th pop. 15-69: 17.1/30

### Notes
- * indicates a strength; o a weakness; ◆ an income group strength; ♦ an income group weakness; * an index; † a survey question. ○ indicates that the economy'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.
The following tables list data that are missing or are outdated for the Czech Republic.

**Missing data**

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</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>2017</td>
<td>Microfinance Information Exchange</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Market capitalization, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>World Federation of Exchanges</td>
</tr>
</tbody>
</table>

**Outdated data**

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</th>
<th>Country year</th>
<th>Model year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2013</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
<td>2016</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
</tr>
</tbody>
</table>
The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2019, the GII presents its 12th edition devoted to the theme Creating Healthy Lives—The Future of Medical Innovation.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for countries that incorporate the GII into their innovation agendas.

The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each containing three sub-pillars.