Belgium ranks 22nd among the 131 economies featured in the GII 2020.

The Global Innovation Index (GII) ranks world economies according to their 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 Belgium over the past three years, noting that data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings.

The statistical confidence interval for the ranking of Belgium in the GII 2020 is between ranks 20 and 26.

<table>
<thead>
<tr>
<th></th>
<th>GII</th>
<th>Innovation inputs</th>
<th>Innovation outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>22</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>2019</td>
<td>23</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>2018</td>
<td>25</td>
<td>21</td>
<td>23</td>
</tr>
</tbody>
</table>

- Belgium performs better in innovation inputs than innovation outputs in 2020.
- This year Belgium ranks 21st in innovation inputs, the same as last year and the same compared to 2018.
- As for innovation outputs, Belgium ranks 25th. This position is lower than last year and lower compared to 2018.

Belgium ranks 21st among the 49 high-income group economies.

Belgium ranks 14th among the 39 economies in Europe.
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 performing below expectations.

Relative to GDP, Belgium's performance is above expectations for its level of development.

The positive relationship between innovation and development
EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

Belgium produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020
BENCHMARKING BELGIUM AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

Belgium’s scores in the seven GII pillars

High-income group economies

Belgium has high scores in four out of the seven GII pillars: Institutions, Human capital & research, Business sophistication and Knowledge & technology outputs, which are above average for the high-income group.

Conversely, Belgium scores below average for its income group in three pillars: Infrastructure, Market sophistication and Creative outputs.

Europe

Compared to other economies in Europe, Belgium performs:

- above average in five out of the seven GII pillars: Institutions, Human capital & research, Market sophistication, Business sophistication and Knowledge & technology outputs; and
- below average in two out of the seven GII pillars: Infrastructure and Creative outputs.
OVERVIEW OF BELGIUM RANKINGS IN THE SEVEN GII AREAS

Belgium performs best in Human capital & research and its weakest performance is in Infrastructure.

![Graph showing Belgium's rankings in the seven GII areas]

*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Belgium in the GII 2020.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.3</td>
<td>Business environment</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1.3.2</td>
<td>Ease of resolving insolvency*</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Human capital &amp; research</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>2.1</td>
<td>Education</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2.1.3</td>
<td>School life expectancy, years</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2.3.2</td>
<td>Gross expenditure on R&amp;D, % GDP</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>3.2.2</td>
<td>Logistics performance*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>Knowledge workers</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>5.4</td>
<td>GERD financed by business, %</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>5.2.3</td>
<td>GERD financed by abroad, % GDP</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>6.2.3</td>
<td>Computer software spending, % GDP</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>7.3.2</td>
<td>Country-code TLDs/th pop. 15–69</td>
<td>12</td>
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<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1.2.3</td>
<td>Cost of redundancy dismissal, salary weeks</td>
<td>82</td>
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<tr>
<td></td>
<td>2.2.2</td>
<td>Graduates in science &amp; engineering, %</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>3.3.1</td>
<td>GDP/unit of energy use</td>
<td>66</td>
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<tr>
<td></td>
<td>4.1.1</td>
<td>Ease of getting credit*</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>5.3.4</td>
<td>FDI net inflows, % GDP</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>6.2.1</td>
<td>Growth rate of PPP$ GDP/worker, %</td>
<td>87</td>
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<tr>
<td></td>
<td>6.3.4</td>
<td>FDI net outflows, % GDP</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>7.1.1</td>
<td>Trademarks by origin/bn PPP$ GDP</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>7.3.4</td>
<td>Mobile app creation/bn PPP$ GDP</td>
<td>59</td>
</tr>
</tbody>
</table>
STRENGTHS

GII strengths for Belgium are found in six of the seven GII pillars.

- Institutions (21): exhibits strengths in the sub-pillar Business environment (8) and in the indicator Ease of resolving insolvency (9).
- Human capital & research (11): shows strengths in the sub-pillar Education (2) and in the indicators Expenditure on education (9), School life expectancy (2) and Gross expenditure on R&D (10).
- Infrastructure (35): the indicator Logistics performance (3) is a strength.
- Business sophistication (16): displays strengths in the sub-pillar Knowledge workers (6) and in the indicators GERD performed by business (9), GERD financed by business (9) and GERD financed by abroad (6).
- Knowledge & technology outputs (17): the indicator Computer software spending (7) is a strength.
- Creative outputs (32): the indicator Country-code TLDs (12) is a strength.

WEAKNESSES

GII weaknesses for Belgium are found in seven of the seven GII pillars.

- Institutions (21): the indicator Cost of redundancy dismissal (82) is a weakness.
- Human capital & research (11): the indicator Graduates in science & engineering (83) is a weakness.
- Infrastructure (35): the indicator GDP per unit of energy use (66) is a weakness.
- Market sophistication (29): the indicator Ease of getting credit (61) is a weakness.
- Business sophistication (16): demonstrates weaknesses in the indicators High-tech imports (66) and FDI net inflows (128).
- Knowledge & technology outputs (17): displays weaknesses in the indicators Growth rate of GDP per worker (87) and FDI net outflows (128).
- Creative outputs (32): has weaknesses in the indicators Trademarks by origin (61) and Mobile app creation (59).
### Belgium

#### Output rank: 25  |  Input rank: 21  |  Income rank: High  |  Region rank: 11.5  |  Population (m): 567.5  |  GDP, PPP$: 43,240.2  |  2019 rank:

#### Institutions

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>81.2</td>
<td>21</td>
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</tbody>
</table>

1.1 Political environment... 77.5 26 ○
1.1.1 Political and operational stability* 80.4 33
1.1.2 Government effectiveness* 76.3 27 ○
1.2 Regulatory environment... 77.5 32
1.2.1 Regulatory quality 74.5 25
1.2.2 Rule of law* 82.3 21
1.2.3 Cost of redundancy dismissal, salary weeks 19.7 82 ○
1.3 Business environment... 88.2 8 ○
1.3.1 Ease of starting a business* 92.3 44
1.3.2 Ease of resolving insolvency* 84.1 9 ○

#### Human Capital & Research

<table>
<thead>
<tr>
<th>Score</th>
<th>Value</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>57.8</td>
<td>11</td>
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</table>

2.1 Education... 75.4 2 ○
2.1.1 Expenditure on education, % GDP... 6.5 9 ○
2.1.2 Government funding/pupil, secondary, % GDP... 9.1 11
2.1.3 School life expectancy, years... 19.8 2 ○
2.1.4 PISA scales in reading, maths, & science... 499.9 19
2.1.5 Pupil-teacher ratio, secondary... 9.0 21 ○

2.2 Tertiary education... 38.4 49
2.2.1 Tertiary enrolment, % gross... 76.9 19
2.2.2 Graduates in science & engineering, %... 16.7 83 ○
2.2.3 Tertiary inbound mobility, %... 8.5 24 ○

2.3 Research & Development (R&D)... 59.6 14 ○
2.3.1 Researchers, FTE/million pop... 5.023.3 16
2.3.2 Gross expenditure on R&D, % GDP... 2.8 10 ○
2.3.3 Global R&D companies, avg. exp. top 5, mln $US... 66.3 20
2.3.4 QS university ranking, average score top 500... 54.9 16

#### Infrastructure

<table>
<thead>
<tr>
<th>Score</th>
<th>Value</th>
<th>Rank</th>
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<tbody>
<tr>
<td>52.2</td>
<td>35</td>
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</tr>
</tbody>
</table>

3.1 Information & communication technologies (ICTs)... 77.1 40 ○
3.1.1 ICT access* 80.2 27
3.1.2 ICT use... 76.6 27
3.1.3 Government’s online service* 75.7 56 ○
3.1.4 E-participation* 75.8 59 ○

3.2 General infrastructure... 41.4 20 ○
3.2.1 Electricity output, kWh/million pop... 4.886.6 31
3.2.2 Logistics performance* 92.4 3 ○
3.2.3 Gross capital formation, % GDP... 2.5 11 ○

3.3 Ecological sustainability... 38.0 41 ○
3.3.1 Ecological footprint, mln $US... 66.5 60 ○
3.3.2 Environmental performance* 73.3 15
3.3.3 ISO 14001 environmental certificates/pers. PPP$ GDP... 1.8 49 ○

#### Market Sophistication

<table>
<thead>
<tr>
<th>Score</th>
<th>Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>54.5</td>
<td>29</td>
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</tbody>
</table>

4.1 Credit... 47.5 46 ○
4.1.1 Ease of getting credit* 65.0 61 ○
4.1.2 Domestic credit to private sector, % GDP... 69.5 45 ○
4.1.3 Microfinance gross loans, % GDP... 9.7 9 ○

4.2 Investment... 42.0 46 ○
4.2.1 Ease of protecting minority investors* 68.0 44 ○
4.2.2 Market capitalization, % GDP... 75.2 20
4.2.3 Venture capital deals/pers. PPP$ GDP... 0.1 21 ○

4.3 Trade, competition, and market scale... 74.0 21 ○
4.3.1 Applied tariff rate, weighted avg. 17 22 ○
4.3.2 Intensity of local competition, %... 78.6 14 ○
4.3.3 Domestic market scale, bn PPP$ GDP... 56.7 36 ○

### Business Sophistication

<table>
<thead>
<tr>
<th>Score</th>
<th>Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.5</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

5.1 Knowledge workers... 68.7 6 ○
5.1.1 Knowledge-intensive employment, %... 47.3 12
5.1.2 Firms offering formal training, %... 9.6 9 ○
5.1.3 GERD performed by business, % GDP... 1.9 9
5.1.4 GERD financed by business, %... 63.5 9 ○
5.1.5 Females employed w/advanced degrees, %... 25.4 12 ○

5.2 Innovation linkages... 50.5 15 ○
5.2.1 Industry/industry research collaboration* 68.7 12
5.2.2 State of cluster development* 64.9 17
5.2.3 GERD financed by abroad, % GDP... 0.3 6 ○
5.2.4 JV/strategic alliance deals/pers. PPP$ GDP... 0.1 29 ○
5.2.5 Patent families 24× offices/pers. PPP$ GDP... 3.5 15 ○

5.3 Knowledge absorption... 38.3 34 ○
5.3.1 Intellectual property payments, % total trade... 0.8 52 ○
5.3.2 High-tech imports, % total trade... 7.6 66 ○
5.3.3 ICT services imports, % total trade... 2.3 21 ○
5.3.4 FDI net inflows, % GDP... 2.2 128 ○
5.3.5 Research talent, % in business enterprise... 56.3 18 ○

### Knowledge & Technology Outputs... 42.3 17 ○

6.1 Knowledge creation... 52.6 13 ○
6.1.1 Patents by origin/pers. PPP$ GDP... 5.9 10
6.1.2 PCT patents by origin/pers. PPP$ GDP... 2.4 14 ○
6.1.3 Utility models by origin/pers. PPP$ GDP... 0.0 3 ○
6.1.4 Scientific and technical articles/pers. PPP$ GDP... 23.9 19
6.1.5 Citable documents H-index... 53.6 14 ○

6.2 Knowledge impact... 34.8 28 ○
6.2.1 Growth rate of PPP$ GDP/pers. 2001-10... 0.1 17 ○
6.2.2 New businesses/1000 pop. 15-64... 3.4 40 ○
6.2.3 Computer software spending, % GDP... 0.0 7 ○
6.2.4 ISO 9001 quality certificates/pers. PPP$ GDP... 5.7 48 ○
6.2.5 High- and medium-high-tech manufacturing, %... 37.0 28 ○

6.3 Knowledge diffusion... 39.6 27 ○
6.3.1 Intellectual property receipts, % total trade... 0.9 21 ○
6.3.2 High tech net exports, % total trade... 7.9 21 ○
6.3.3 ICT services exports, % total trade... 3.0 32 ○
6.3.4 FDI net outflows, % GDP... -1.2 128 ○

### Creative Outputs

<table>
<thead>
<tr>
<th>Score</th>
<th>Value</th>
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<tbody>
<tr>
<td>35.0</td>
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</tr>
</tbody>
</table>

7.1 Intangible assets... 33.9 40 ○
7.1.1 Trademarks by origin/pers. PPP$ GDP... 42.6 61 ○
7.1.2 Brand value, top 5000, % GDP... 58.9 32 ○
7.1.3 Industrial designs by origin/pers. PPP$ GDP... 2.7 41 ○
7.1.4 ICTs & organizational model creation... 72.2 16 ○

7.2 Creative goods and services... 30.3 26 ○
7.2.1 Cultural & creative services exports, % total trade... 1.3 20 ○
7.2.2 National feature films/million pop. 15-69... 10.9 16 ○
7.2.3 Entertainment & Media market size/pers. pop. 15-69... 54.6 13 ○
7.2.4 Printing and other media, % manufacturing... 0.2 128 ○
7.2.5 Creative goods exports, % total trade... 1.4 38 ○

7.3 Online creativity... 41.7 28 ○
7.3.1 Generic top-level domains (TLD)/million pop. 15-69... 21.0 27 ○
7.3.2 Country-code TLDs/million pop. 15-69... 62.8 12 ○
7.3.3 Wikipedia edits/million pop. 15-69... 86.0 21 ○
7.3.4 Mobile app creation/pers. PPP$ GDP... 3.7 59 ○

**Notes:** ○ indicates a strength; ◯ a weakness; ○ ○ a strength relative to the other top 25-ranked Gil economies; ◯ ◯ a weakness relative to the other top 25-ranked Gil economies; ' an index, ' a survey question, ○ indicates that the economy’s data are older than the base year, see Appendix F for details, including the year of the data at http://globalinnovationindex.org. Square brackets [ ] indicate that the data minimum coverage (MEC) requirements were not met at the sub-pixel or pillar level.
DATA AVAILABILITY

The following tables list data that are either missing or outdated for Belgium.

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>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>n/a</td>
<td>2016</td>
<td>UNESCO Institute for Statistics</td>
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<tr>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>Microfinance Information Exchange</td>
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<tr>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>n/a</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
<td>n/a</td>
<td>2018</td>
<td>World Intellectual Property Organization</td>
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</table>

Outdated data

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<tbody>
<tr>
<td>2.1.1</td>
<td>Expenditure on education, % GDP</td>
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<td>2018</td>
<td>UNESCO Institute for Statistics</td>
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<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2017</td>
<td>2018</td>
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<td>5.2.1</td>
<td>University/industry research collaboration†</td>
<td>2018</td>
<td>2019</td>
<td>World Economic Forum</td>
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<tr>
<td>5.2.2</td>
<td>State of cluster development†</td>
<td>2018</td>
<td>2019</td>
<td>World Economic Forum</td>
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</table>
ABOUT THE GLOBAL INNOVATION INDEX

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 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich 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 economies 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 include 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 consisting of three sub-pillars.