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 Colombia 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 Colombia in the GII 2020 is between ranks 63 and 70.

<table>
<thead>
<tr>
<th>Year</th>
<th>GII</th>
<th>Innovation inputs</th>
<th>Innovation outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>68</td>
<td>56</td>
<td>74</td>
</tr>
<tr>
<td>2019</td>
<td>67</td>
<td>58</td>
<td>76</td>
</tr>
<tr>
<td>2018</td>
<td>63</td>
<td>50</td>
<td>72</td>
</tr>
</tbody>
</table>

- Colombia performs better in innovation inputs than innovation outputs in 2020.
- This year Colombia ranks 56th in innovation inputs, higher than last year and lower compared to 2018.
- As for innovation outputs, Colombia ranks 74th. This position is higher than last year and lower compared to 2018.

Colombia ranks 68th among the 131 economies featured in the GII 2020.

Colombia ranks 20th among the 37 upper middle-income group economies.

Colombia ranks 5th among the 18 economies in Latin America and the Caribbean.
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, Colombia’s performance matches expectations for its level of 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.

Colombia produces less innovation outputs relative to its level of innovation investments.
BENCHMARKING COLOMBIA AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND LATIN AMERICA AND THE CARIBBEAN

Colombia’s scores in the seven GII pillars

Upper middle-income group economies

Colombia has high scores in four out of the seven GII pillars: Institutions, Infrastructure, Market sophistication and Business sophistication, which are above average for the upper middle-income group.

Conversely, Colombia scores below average for its income group in three pillars: Human capital & research, Knowledge & technology outputs and Creative outputs.

Latin America and the Caribbean

Compared to other economies in Latin America and the Caribbean, Colombia performs:

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

Colombia performs best in Market sophistication and its weakest performance is in Human capital & research.

*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 Colombia 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>Strengths</td>
<td>3.1.4</td>
<td>E-participation*</td>
<td>23</td>
</tr>
<tr>
<td>Strengths</td>
<td>3.3.1</td>
<td>GDP/unit of energy use</td>
<td>10</td>
</tr>
<tr>
<td>Strengths</td>
<td>3.3.3</td>
<td>ISO 14001 environmental certificates/bn PPP$ GDP</td>
<td>27</td>
</tr>
<tr>
<td>Strengths</td>
<td>4.1.1</td>
<td>Ease of getting credit*</td>
<td>10</td>
</tr>
<tr>
<td>Strengths</td>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>16</td>
</tr>
<tr>
<td>Strengths</td>
<td>4.2.1</td>
<td>Ease of protecting minority investors*</td>
<td>13</td>
</tr>
<tr>
<td>Strengths</td>
<td>4.3.2</td>
<td>Intensity of local competition*</td>
<td>28</td>
</tr>
<tr>
<td>Strengths</td>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>6</td>
</tr>
<tr>
<td>Strengths</td>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>17</td>
</tr>
<tr>
<td>Strengths</td>
<td>6.2.4</td>
<td>ISO 9001 quality certificates/bn PPP$ GDP</td>
<td>21</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>Weaknesses</td>
<td>1.1.1</td>
<td>Political &amp; operational stability*</td>
<td>92</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>2.1.4</td>
<td>PISA scales in reading, maths &amp; science</td>
<td>62</td>
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<tr>
<td>Weaknesses</td>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>107</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>2.2.3</td>
<td>Tertiary inbound mobility, %</td>
<td>107</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>90</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>2.3.2</td>
<td>Gross expenditure on R&amp;D, % GDP</td>
<td>87</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>2.3.3</td>
<td>Global R&amp;D companies, top 3, mn US$</td>
<td>42</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>4.2.3</td>
<td>Venture capital deals/bn PPP$ GDP</td>
<td>72</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>5.2</td>
<td>Innovation linkages</td>
<td>108</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>5.2.3</td>
<td>GERD financed by abroad, % GDP</td>
<td>95</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>5.3.5</td>
<td>Research talent, % in business enterprise</td>
<td>75</td>
</tr>
</tbody>
</table>
STRENGTHS

GIll strengths for Colombia are found in four of the seven GIll pillars.

- Infrastructure (50): demonstrates strengths in the indicators E-participation (23), GDP/unit of energy use (10) and ISO 14001 environmental certificates (27).
- Market sophistication (45): shows strengths in the indicators Ease of getting credit (10), Microfinance gross loans (16), Ease of protecting minority investors (13) and Intensity of local competition (28).
- Business sophistication (52): displays strengths in the indicators Firms offering formal training (6) and High-tech imports (17).
- Knowledge & technology outputs (72): the indicator ISO 9001 quality certificates (21) reveals a strength.

WEAKNESSES

GIll weaknesses for Colombia are found in four of the seven GIll pillars.

- Institutions (57): the indicator Political & operational stability (92) demonstrates a weakness.
- Human capital & research (82): shows weaknesses in several indicators: namely, PISA scales in reading, maths & science (62), Pupil–teacher ratio (107), Tertiary inbound mobility (107), Researchers (90), Gross expenditure on R&D (87) and Global R&D companies (42).
- Market sophistication (45): the indicator Venture capital deals (72) reveals a weakness.
- Business sophistication (52): displays weaknesses in the sub-pillar Innovation linkages (108) and in the indicators GERD financed by abroad (95) and Research talent (75).
## COLOMBIA

<table>
<thead>
<tr>
<th>Output rank</th>
<th>Input rank</th>
<th>Income</th>
<th>Region</th>
<th>Population (m)</th>
<th>GDP, PPP$</th>
<th>GDP per capita, PPP$</th>
<th>GII 2019 rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>56</td>
<td>Upper middle</td>
<td>LCN</td>
<td>50.3</td>
<td>783.0</td>
<td>12,567.9</td>
<td>68</td>
</tr>
</tbody>
</table>

### INSTITUTIONS

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>65.1</td>
<td>57</td>
</tr>
</tbody>
</table>

1.1 Political environment
1.1.1 Political and operational stability
1.1.2 Government effectiveness
1.2 Regulatory environment
1.2.1 Regulatory quality
1.2.2 Rule of law
1.2.3 Cost of redundant dismissal, salario Mayoreo
1.3 Business environment
1.3.1 Ease of starting a business
1.3.2 Ease of resolving insolvency

### BUSINESS SOPHISTICATION

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.8</td>
<td>52</td>
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</tbody>
</table>

5.1 Knowledge workers
5.1.1 Knowledge-intensive employment, %
5.1.2 Firms offering formal training, %
5.1.3 GERD performed by business, % GDP
5.1.4 GERD financed by business, %
5.1.5 Females employed w/advanced degrees, %
5.2 Innovation linkages
5.2.1 University-industry research collaboration
5.2.2 State of cluster development
5.2.3 GERD financed by abroad, % GDP
5.2.4 JV-strategic alliance deals/bn PPP$ GDP
5.2.5 Patent families 2+ offices/bn PPP$ GDP

### HUMAN CAPITAL & RESEARCH

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.9</td>
<td>82</td>
</tr>
</tbody>
</table>

2.1 Education
2.1.1 Expenditure on education, % GDP
2.1.2 Government funding/ pupil, secondary, % GDP/cap.
2.1.3 School life expectancy, years
2.1.4 Pisa scales in reading, maths, & science
2.1.5 Pupil-teacher ratio, secondary

2.2 Tertiary education
2.2.1 Tertiary enrolment, % gross
2.2.2 Graduates in science & engineering, %
2.2.3 Tertiary inbound mobility, %

2.3 Research & development (R&D)
2.3.1 Researchers, FTE million pop.
2.3.2 Gross expenditure on R&D, % GDP
2.3.3 Global R&D companies, avg. exp. top 3, mln $US
2.3.4 Q1 university ranking, average score top 3

### INFRAREDSTRUCTURE

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.4</td>
<td>50</td>
</tr>
</tbody>
</table>

3.1 Information & communication technologies (ICTs)
3.1.1 ICT access
3.1.2 ICT use
3.1.3 Government's online service
3.1.4 E-participation

3.2 General infrastructure
3.2.1 Electricity output, kWh/mn pop.
3.2.2 Logistics performance
3.2.3 Gross capital formation, % GDP

3.3 Ecological sustainability
3.3.1 GDP/unit of energy use
3.3.2 Environmental performance
3.3.3 ISO 14001 environmental certificates/bn PPP$ GDP

### MARKET SOPHISTICATION

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.2</td>
<td>45</td>
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</tbody>
</table>

4.1 Credit
4.1.1 Ease of getting credit
4.1.2 Domestic credit to private sector, % GDP
4.1.3 Microfinance gross loans, % GDP

4.2 Investment
4.2.1 Ease of protecting minority investors
4.2.2 Market capitalization, % GDP
4.2.3 Venture capital deals/bn PPP$ GDP

4.3 Trade, competition, and market scale
4.3.1 Applied tariff rate, weighted avg., %
4.3.2 Intensity of local competition
4.3.3 Domestic market scale, bn PPP$ GDP

### KNOWLEDGE & TECHNOLOGY OUTPUTS

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.9</td>
<td>72</td>
</tr>
</tbody>
</table>

6.1 Knowledge creation
6.1.1 Patents by origin/bn PPP$ GDP
6.1.2 PCT patents by origin/bn PPP$ GDP
6.1.3 Utility models by origin/bn PPP$ GDP
6.1.4 Scientific & technical articles/bn PPP$ GDP
6.1.5 Clemson databases H-index

6.2 Knowledge impact
6.2.1 Growth rate of PPP$ GDP/worker
6.2.2 New businesses/1k pop. 15-64
6.2.3 Computer software spending, % GDP
6.2.4 ISO 9001 quality certificates/bn PPP$ GDP
6.2.5 High end manufacturing, % GDP

### CREATIVE OUTPUTS

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.2</td>
<td>80</td>
</tr>
</tbody>
</table>

7.1 Intangible assets
7.1.1 Trademarks by origin/bn PPP$ GDP
7.1.2 Brand value, top 500, % GDP
7.1.3 Industrial designs by origin/bn PPP$ GDP
7.1.4 ICTs & organizational model creation

7.2 Creative goods and services
7.2.1 Cultural & creative services exports, % total trade
7.2.2 National feature films/mn pop. 15-64
7.2.3 Entertainment & Media market/bn pop. 15-69
7.2.4 Printing and other media, % manufacturing
7.2.5 Creative goods exports, % total trade

7.3 Online creativity
7.3.1 Generic top-level domains (TLDs)/bn pop. 15-69
7.3.2 Country-code TLDs/bn pop. 15-69
7.3.3 Wikipedia edits/bn pop. 15-69
7.3.4 Mobile app creation/bn PPP$ GDP
DATA AVAILABILITY

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

**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>5.1.1</td>
<td>Knowledge-intensive employment, %</td>
<td>n/a</td>
<td>2018</td>
<td>International Labour Organization</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>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>2017</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>2016</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in business enterprise</td>
<td>2017</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
</tbody>
</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.