ARMENIA

61st

Armenia ranks 61st 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 Armenia 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 Armenia in the GII 2020 is between ranks 56 and 64.

<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>61</td>
<td>83</td>
<td>47</td>
</tr>
<tr>
<td>2019</td>
<td>64</td>
<td>85</td>
<td>50</td>
</tr>
<tr>
<td>2018</td>
<td>68</td>
<td>94</td>
<td>50</td>
</tr>
</tbody>
</table>

- Armenia performs better in innovation outputs than innovation inputs in 2020.
- This year Armenia ranks 83rd in innovation inputs, higher than last year and higher compared to 2018.
- As for innovation outputs, Armenia ranks 47th. This position is higher than last year and higher compared to 2018.

15th

Armenia ranks 15th among the 37 upper middle-income group economies.

5th

Armenia ranks 5th among the 19 economies in Northern Africa and Western Asia.
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, Armenia is performing above 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.

Armenia produces more innovation outputs relative to its level of innovation investments.
BENCHMARKING ARMENIA AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

Armenia’s scores in the seven GII pillars

Upper middle-income group economies

Armenia has high scores in four GII pillars: Institutions, Market sophistication, Knowledge & technology outputs and Creative outputs, which are above average for the upper middle-income group.

Conversely, Armenia scores below average for its income group in three pillars: Human capital and research, Infrastructure and Business sophistication.

Northern Africa and Western Asia

Compared to other economies in Northern Africa and Western Asia, Armenia performs:

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

Armenia performs best in Knowledge & technology outputs and its weakest performance is in Human capital & research.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Armenia 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>1.3.1</td>
<td>Ease of starting a business*</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>4.3.2</td>
<td>Intensity of local competition†</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Knowledge creation</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>6.1.1</td>
<td>Patents by origin/bn PPP$ GDP</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>6.1.4</td>
<td>Scientific &amp; technical articles/bn PPP$ GDP</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>6.2.1</td>
<td>Growth rate of PPP$ GDP/worker, %</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6.3.3</td>
<td>ICT services exports, % total trade</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>7.1.1</td>
<td>Trademarks by origin/bn PPP$ GDP</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>7.2.2</td>
<td>National feature films/mn pop. 15–69</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>7.3.3</td>
<td>Wikipedia edits/mn pop. 15–69</td>
<td>7</td>
<td></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>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>2.2.2</td>
<td>Graduates in science &amp; engineering, %</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>2.3.3</td>
<td>Global R&amp;D companies, top 3, mn US$</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>2.3.4</td>
<td>QS university ranking, average score top 3*</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>3.3.3</td>
<td>ISO 14001 environmental certificates/bn PPP$ GDP</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>4.3.3</td>
<td>Domestic market scale, bn PPP$</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>6.2.4</td>
<td>ISO 9001 quality certificates/bn PPP$ GDP</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufacturing, %</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>7.1.2</td>
<td>Global brand value, top 5000, % GDP</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>
STRENGTHS

GII strengths for Armenia are found in five of the seven GII pillars.

- Institutions (64): the indicator Ease of starting a business (10) is a strength.
- Human capital & research (94): the indicator Pupil–teacher ratio (11) is a strength.
- Market sophistication (68): the indicator Intensity of local competition (36) is a strength.
- Knowledge & technology outputs (45): reveals strengths in the sub-pillar Knowledge creation (37) and in the indicators Patents by origin (29), Scientific & technical articles (18), Growth rate of GDP per worker (1) and ICT services exports (14).
- Creative outputs (56): has strengths in the indicators Trademarks by origin (14), National feature films (12) and Wikipedia edits (7).

WEAKNESSES

GII weaknesses for Armenia are found in six of the seven GII pillars.

- Human capital & research (94): has weaknesses in the indicators Expenditure on education (105), Graduates in science & engineering (96), Global R&D companies (42) and QS university ranking (77).
- Infrastructure (90): the indicator ISO 14001 environmental certificates (126) is a weakness.
- Market sophistication (68): the indicator Domestic market scale (118) is a weakness.
- Business sophistication (69): the indicator Firms offering formal training (84) is a weakness.
- Knowledge & technology outputs (45): displays weaknesses in the indicators ISO 9001 quality certificates (110) and High- & medium-high-tech manufacturing (100).
- Creative outputs (56): the indicator Global brand value (80) is a weakness.
**ARMENIA**

**GI 2020 rank**: 61

<table>
<thead>
<tr>
<th>Output rank</th>
<th>Input rank</th>
<th>Income</th>
<th>Region</th>
<th>Population (mn)</th>
<th>GDP, PPP$</th>
<th>GDP per capita, PPP$</th>
<th>GI 2019 rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>83</td>
<td>Upper middle</td>
<td>NAWA</td>
<td>3.0</td>
<td>32.9</td>
<td>9,675.8</td>
<td>64</td>
</tr>
</tbody>
</table>

### INSTITUTIONS

**Score**: 64.3  
**Rank**: 64

1.1 Political environment: 54.5  
1.1.1 Political and operational stability*: 54.3  
1.1.2 Government effectiveness: 49.6  
1.2 Regulatory environment: 68.0  
1.2.1 Regulatory quality*: 48.9  
1.2.2 Rule of law*: 42.8  
1.2.3 Cost of redundancy dismissal, salary weeks: 13.0  
1.3 Business environment: 70.3  
1.3.1 Ease of starting a business*: 96.1  
1.3.2 Ease of resolving insolvency*: 44.6

### HUMAN CAPITAL & RESEARCH

**Score**: 20.5  
**Rank**: 94

2.1 Education: 34.4  
2.1.1 Expenditure on education, % GDP*: 2.7  
2.1.2 Government funding pupils, secondary, % GDP per cap.: 14.6  
2.1.3 School life expectancy, years: 13.1  
2.1.4 PISA scale in reading, maths, & science: n/a  
2.1.5 Pupil-teacher ratio, secondary: 8.0  
2.2 Tertiary education: 25.8  
2.2.1 Tertiary enrolment, % gross: 54.6  
2.2.2 Graduates in science & engineering, %: 45.2  
2.2.3 Tertiary in-bound mobility, %: 4.5  
2.3 Research & development (R&D): 1.2  
2.3.1 Researchers, FTE per 1,000: n/a  
2.3.2 Gross expenditure on R&D, % GDP*: 0.2  
2.3.3 Global R&D companies, avg. exp. top 3, mn $US*: 0.0  
2.3.4 QS university ranking, average score top 3*: 0.0

### INFRASTRUCTURE

**Score**: 34.4  
**Rank**: 90

3.1 Information & communication technologies (ICTs)*: 58.6  
3.1.1 ICT access*: 68.1  
3.1.2 ICT use*: 53.4  
3.1.3 Government's online service*: 56.3  
3.1.4 E-participation*: 56.7  
3.2 General infrastructure: 19.7  
3.2.1 Electricity output, kWh/mn pop.: 2,650  
3.2.2 Logistics performance*: 25.2  
3.2.3 Gross capital formation, % GDP*: 23.1  
3.3 Ecological sustainability: 24.8  
3.3.1 GDP in energy use, % GDP*: 7.9  
3.3.2 Environmental performance*: 52.3  
3.3.3 ISO 14001 environmental certificates bn PIPS$ GDP*: 0.1

### MARKET SOPHISTICATION

**Score**: 46.9  
**Rank**: 68

4.1 Credit: 39.0  
4.1.1 Ease of getting credit*: 70.0  
4.1.2 Domestic credit to private sector, % GDP*: 55.6  
4.1.3 Microfinance gross loans, % GDP*: 0.6  
4.2 Investment: 42.0  
4.2.1 Ease of protecting minority investors*: 42.0  
4.2.2 Market capitalization, % GDP*: n/a  
4.2.3 Venture capital deals/bn PIPS$ GDP*: n/a  
4.3 Trade, competition, and market scale: 59.8  
4.3.1 Applied tariff rate, weighted avg., %: 2.2  
4.3.2 Intensity of local competition*: 73.6  
4.3.3 Domestic market scale, bn PIPS$: 32.9

### BUSINESS SOPHISTICATION

**Score**: 24.6  
**Rank**: 69

5.1 Knowledge workers: 29.6  
5.1.1 Knowledge-intensive employment, % GDP*: 29.4  
5.1.2 Firms offering formal training, %: 16.2  
5.1.3 GERD performed by business, % GDP*: n/a  
5.1.4 GERD financed by business, %: 16.7  
5.1.5 Females employed in advanced degrees, %: 14.9  
5.2 Innovation linkages: 16.2  
5.2.1 University-industry research collaboration: 15.5  
5.2.2 State of cluster development: 46.3  
5.2.3 GERD financed by abroad, % GDP*: 0.0  
5.2.4 JV-strategic alliance deals/bn PIPS$ GDP*: 0.0  
5.2.5 Patent families 2+ offices/bn PIPS$ GDP*: 0.1

### KNOWLEDGE & TECHNOLOGY OUTPUTS

**Score**: 28.5  
**Rank**: 45

6.1 Knowledge creation: 27.2  
6.1.1 Patents by origin/bn PIPS$ GDP*: 3.4  
6.1.2 ICT patents by origin/bn PIPS$ GDP*: 0.1  
6.1.3 Utility models by origin/bn PIPS$ GDP*: 1.1  
6.1.4 Scientific & technical articles/bn PIPS$ GDP*: 24.3  
6.1.5 Cleared documents H-index: 12.2  
6.2 Knowledge impact: 26.7  
6.2.1 Growth rate of PIPS$ GDP/worker: 9.8  
6.2.2 New businesses/1k pop. 15-64*: 3.1  
6.2.3 Computer software spending, % GDP*: 0.0  
6.2.4 ISO 9001 quality certificates/bn PIPS$ GDP*: 0.9  
6.2.5 High- and medium-high-tech manufacturing, % GDP*: 10.4  
6.3 Knowledge diffusion: 31.6  
6.3.1 Intellectual property receipts, % total trade*: 0.0  
6.3.2 High tech net exports, % total trade*: 0.6  
6.3.3 ICT services exports, % total trade*: 4.5  
6.3.4 FD inflows, % GDP*: 0.3  
6.3.5 Research, % in business enterprise: n/a

### CREATIVE OUTPUTS

**Score**: 25.8  
**Rank**: 56

7.1 Intangible assets: 26.6  
7.1.1 Trademarks by origin/bn PIPS$ GDP*: 16.0  
7.1.2 Global brand value, top 5000, % GDP*: 0.0  
7.1.3 Industrial designs by origin/bn PIPS$ GDP*: 2.0  
7.1.4 ICTs & organizational model creation: 52.8  
7.2 Creative goods and services: 20.9  
7.2.1 Cultural & creative services exports, % total trade: 0.6  
7.2.2 National feature films/mn pop. 15-66*: 13.2  
7.2.3 Entertainment & Media market/1k pop. 15-66*: n/a  
7.2.4 Printing and other media, % manufacturing: 1.3  
7.2.5 Creative goods exports, % total trade: 0.8  
7.3 Online creativity: 25.0  
7.3.1 Generic top-level domains (TLDs)/hn pop. 15-69*: 2.9  
7.3.2 Country-code TLDs/1k pop. 15-69*: 3.2  
7.3.3 Wikipedia editions/1k pop. 15-69*: 9.0  
7.3.4 Mobile app creation/bn PIPS$ GDP*: 15.6

**NOTES:**  
- *indicates a strength; o a weakness; an income group strength; an income group weakness; + an indicator; s a survey question; o indicates that the economy's data are older than the base year; see Appendix:1 for details, including the year of the data, at http://globalinnovationindex.org. Square brackets [ ] indicate that the data's minimum coverage (MC) requirements were not met at the sub-pillar or pillar level.
DATA AVAILABILITY

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

### 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>2.1.4</td>
<td>PISA scales in reading, maths &amp; science</td>
<td>n/a</td>
<td>2018</td>
<td>OECD Programme for International Student Assessment (PISA)</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Market capitalization, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>World Federation of Exchange</td>
</tr>
<tr>
<td>4.2.3</td>
<td>Venture capital deals/bn PPP$ GDP</td>
<td>n/a</td>
<td>2019</td>
<td>Thomson Reuters</td>
</tr>
<tr>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Intellectual property payments, % total trade</td>
<td>n/a</td>
<td>2018</td>
<td>World Trade Organization</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in business enterprise</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Intellectual property receipts, % total trade</td>
<td>n/a</td>
<td>2018</td>
<td>World Trade Organization</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Entertainment &amp; Media market/th pop. 15–69</td>
<td>n/a</td>
<td>2018</td>
<td>PwC</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>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>2017</td>
<td>2018</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>2014</td>
<td>2016</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Applied tariff rate, weighted avg., %</td>
<td>2017</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>5.1.1</td>
<td>Knowledge-intensive employment, %</td>
<td>2017</td>
<td>2018</td>
<td>Source: International Labour Organization</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>2012</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>5.1.5</td>
<td>Females employed w/advanced degrees, %</td>
<td>2017</td>
<td>2018</td>
<td>International Labour Organization</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.

![Framework of the Global Innovation Index 2020](image)

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.