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 Bangladesh 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 Bangladesh in the GII 2020 is between ranks 113 and 120.

### Rankings of Bangladesh (2018–2020)

<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>116</td>
<td>119</td>
<td>114</td>
</tr>
<tr>
<td>2019</td>
<td>116</td>
<td>117</td>
<td>108</td>
</tr>
<tr>
<td>2018</td>
<td>116</td>
<td>114</td>
<td>105</td>
</tr>
</tbody>
</table>

- Bangladesh performs better in innovation outputs than innovation inputs in 2020.
- This year Bangladesh ranks 119th in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Bangladesh ranks 114th. This position is lower than last year and lower compared to 2018.

Bangladesh ranks 24th among the 29 lower middle-income group economies.

Bangladesh ranks 10th among the 10 economies in Central and Southern 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, Bangladesh is performing below 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.

Bangladesh produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020

---

AU  Australia  BN  Brunei Darussalam  BG  Bulgaria  CN  China  CZ  Czech Republic  ET  Ethiopia  DE  Germany  IN  India  IL  Israel  KW  Kuwait  MG  Madagascar  ML  Mali  MY  Malaysia  NL  Netherlands  NO  Norway  OM  Oman  PH  Philippines  QA  Qatar  SA  Saudi Arabia  SG  Singapore  SE  Sweden  CH  Switzerland  UA  Ukraine  AE  United Arab Emirates  GB  United Kingdom  US  United States of America  VN  Viet Nam  ZW  Zimbabwe
BENCHMARKING BANGLADESH AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND CENTRAL AND SOUTHERN ASIA

Bangladesh’s scores in the seven GII pillars

Lower middle-income group economies

Bangladesh has high scores in one out of the seven GII pillars: Infrastructure, which is above average for the lower middle-income group.

Conversely, Bangladesh scores below average for its income group in six pillars: Institutions, Human capital & research, Market sophistication, Business sophistication, Knowledge & technology outputs and Creative outputs.

Central and Southern Asia

Compared to other economies in Central and Southern Asia, Bangladesh performs below average in all seven of the GII pillars.
OVERVIEW OF BANGLADESH RANKINGS IN THE SEVEN GII AREAS

Bangladesh performs best in Infrastructure 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 Bangladesh 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>3.1.3</td>
<td>3.1.3</td>
<td>Government's online service*</td>
<td>52</td>
</tr>
<tr>
<td>3.1.4</td>
<td>3.1.4</td>
<td>E-participation*</td>
<td>51</td>
</tr>
<tr>
<td>3.2.3</td>
<td>3.2.3</td>
<td>Gross capital formation, % GDP</td>
<td>25</td>
</tr>
<tr>
<td>3.3.1</td>
<td>3.3.1</td>
<td>GDP/unit of energy use</td>
<td>15</td>
</tr>
<tr>
<td>4.1.3</td>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>23</td>
</tr>
<tr>
<td>4.3.3</td>
<td>4.3.3</td>
<td>Domestic market scale, bn PPP$</td>
<td>29</td>
</tr>
<tr>
<td>5.3.2</td>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>56</td>
</tr>
<tr>
<td>6.1.5</td>
<td>6.1.5</td>
<td>Citable documents H-index</td>
<td>64</td>
</tr>
<tr>
<td>6.2.1</td>
<td>6.2.1</td>
<td>Growth rate of PPP$ GDP/worker, %</td>
<td>5</td>
</tr>
<tr>
<td>7.1.3</td>
<td>7.1.3</td>
<td>Industrial designs by origin/bn PPP$ GDP</td>
<td>47</td>
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</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>Human capital &amp; research</td>
<td>129</td>
</tr>
<tr>
<td>2.1</td>
<td>2.1</td>
<td>Education</td>
<td>129</td>
</tr>
<tr>
<td>2.1.1</td>
<td>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>115</td>
</tr>
<tr>
<td>2.1.5</td>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>122</td>
</tr>
<tr>
<td>2.2.2</td>
<td>2.2.2</td>
<td>Graduates in science &amp; engineering, %</td>
<td>103</td>
</tr>
<tr>
<td>2.2.3</td>
<td>2.2.3</td>
<td>Tertiary inbound mobility, %</td>
<td>109</td>
</tr>
<tr>
<td>2.3.3</td>
<td>2.3.3</td>
<td>Global R&amp;D companies, top 3, mn US$</td>
<td>42</td>
</tr>
<tr>
<td>3.3.2</td>
<td>3.3.2</td>
<td>Environmental performance*</td>
<td>123</td>
</tr>
<tr>
<td>5.2.1</td>
<td>5.2.1</td>
<td>University/industry research collaboration*</td>
<td>121</td>
</tr>
<tr>
<td>5.3.3</td>
<td>5.3.3</td>
<td>ICT services imports, % total trade</td>
<td>125</td>
</tr>
<tr>
<td>6.2.2</td>
<td>6.2.2</td>
<td>New businesses/th pop. 15–64</td>
<td>120</td>
</tr>
<tr>
<td>6.3.1</td>
<td>6.3.1</td>
<td>Intellectual property receipts, % total trade</td>
<td>103</td>
</tr>
<tr>
<td>7.2.2</td>
<td>7.2.2</td>
<td>National feature films/mn pop. 15–69</td>
<td>104</td>
</tr>
<tr>
<td>7.2.4</td>
<td>7.2.4</td>
<td>Printing &amp; other media, % manufacturing</td>
<td>99</td>
</tr>
</tbody>
</table>
STRENGTHS

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

- Infrastructure (92): demonstrates strengths in the indicators Government’s online service (52), E-participation (51), Gross capital formation (25) and GDP/unit of energy use (15).
- Market sophistication (100): shows strengths in the indicators Microfinance gross loans (23) and Domestic market scale (29).
- Business sophistication (122): the indicator High-tech imports (56) displays a strength.
- Knowledge & technology outputs (95): demonstrates strengths in the indicators Citable documents H-index (64) and Growth rate of PPP (5).
- Creative outputs (115): the indicator Industrial designs by origin (47) reveals a strength.

WEAKNESSES

GII weaknesses for Bangladesh are found in five of the seven GII pillars.

- Human capital & research (129): reveals weaknesses in the sub-pillar Education (129) and in the indicators Expenditure on education (115), Pupil–teacher ratio (122), Graduates in science & engineering (103), Tertiary inbound mobility (109) and Global R&D companies (42).
- Infrastructure (92): displays weakness in the indicator Environmental performance (123).
- Business sophistication (122): demonstrates weaknesses in the indicators University/industry research collaboration (121) and ICT services imports (125).
- Knowledge & technology outputs (95): displays weaknesses in the indicators New businesses (120) and Intellectual property receipts (103).
- Creative outputs (115): shows weaknesses in the indicators National feature films (104) and Printing & other media (99).
### Bangladesh

**Output rank** 114  |  **Input rank** 119  |  **Income** 837.6  |  **Region** Lower middle  |  **Population (mm)** 163.0  |  **GDP, PPP$** 4,389.6  |  **GII 2019 rank** 116

#### Institutions
**Score/Value Rank** 45.4/124

1.1 Political environment 41.3/116
1.1.1 Political and operational stability 57.1/110
1.1.2 Government effectiveness 33.4/17

1.2 Regulatory environment 39.7/120
1.2.1 Regulatory quality 20.0/120
1.2.2 Rule of law 30.0/104
1.2.3 Cost of redundancy dismissal, salary weeks 31.0/120

1.3 Business environment 55.3/117
1.3.1 Ease of starting a business 82.4/101
1.3.2 Ease of resolving insolvency 28.1/123

#### Human Capital & Research
**Score/Value Rank** 9.0/129

2.1 Education 15.4/129
2.1.1 Expenditure on education, % GDP 2.0/115
2.1.2 Government funding/pupil, secondary, % GDP/CI 9.9/98
2.1.3 School life expectancy, years 12.0/94
2.1.4 PISA scales in reading, maths, & science 0/0
2.1.5 Pupil-teacher ratio, secondary 35.1/122

2.2 Tertiary education 7.7/117
2.2.1 Tertiary enrolment, % gross 20.6/93
2.2.2 Graduates in science & engineering, % 11.2/103
2.2.3 Tertiary inflow mobility 0.1/109

2.3 Research & Development (R&D) 3.8 [82]
2.3.1 Researchers, FTE/mn pop 315/113
2.3.2 Gross expenditure on R&D, % GDP 0/0
2.3.3 Global R&D companies, avg. exp. top 5, mn $US 0.0/42
2.3.4 QS university ranking, average score top 3% 7.6/67

#### Infrastructure
**Score/Value Rank** 33.9/92

3.1 Information & communication technologies (ICTs) 53.5/91
3.1.1 ICT access 33.6/117
3.1.2 ICT use 215/113
3.1.3 Government’s online service 78.5/52
3.1.4 E-participation 80.3/51

3.2 General infrastructure 23.2/81
3.2.1 Electricity output, kWh/mn pop 444.3/108
3.2.2 Logistics performance 23.8/96
3.2.3 Gross capital formation, % GDP 31.2/25

3.3 Ecological sustainability 25.1/81
3.3.1 Air quality index 45.1/15
3.3.2 Environmental performance 29.0/123
3.3.3 ISO 14001 environmental certificates/bn PPP$ GDP 0.2/112

#### Market Sophistication
**Score/Value Rank** 42.1/100

4.1 Credit 29.5/109
4.1.1 Ease of getting credit 45.0/101
4.1.2 Domestic credit to private sector, % GDP 46.9/73
4.1.3 Microfinance gross loans, % GDP 1.4/23

4.2 Investment 37.1/65
4.2.1 Ease of protecting minority investors 60.0/71
4.2.2 Market capitalization, % GDP 31.5/45
4.2.3 Venture capital deals/bn PPP$ GDP 0/0

4.3 Trade, competition, and market scale 59.3/75
4.3.1 Applied tariff rate, weighted avg, % 10.7/118
4.3.2 Intensity of local competition 67.5/71
4.3.3 Domestic market size, bn PPP$ GDP 837.6/29

#### Business Sophistication
**Score/Value Rank** 17.0/122

5.1 Knowledge workers 13.0 [118]
5.1.1 Knowledge-intensive employment, % GDP 8.3/109
5.1.2 Firms offering formal training, % 21.0/68
5.1.3 GERD performed by business, % GDP 0/0
5.1.4 GERD financed by business, % GDP 0/0
5.1.5 Females employed w/advanced degrees, % 1.3/108

5.2 Innovation linkages 18.2/85
5.2.1 University/industry research collaboration 26.4/121
5.2.2 State of cluster development 43.9/81
5.2.3 GERD financed by abroad, % GDP 0/0
5.2.4 JV-strategic alliance deals/bn PPP$ GDP 0.0/68
5.2.5 Patent families 24/office/bn PPP$ GDP 0.0/98

5.3 Knowledge absorption 19.7/102
5.3.1 Intellectual property payments, % total trade 0.1/105
5.3.2 High-tech imports, % total trade 8.1/56
5.3.3 ICT services imports, % total trade 0.1/125
5.3.4 FDI net inflows, % GDP 1.0/71
5.3.5 Research budget, % in business enterprises 0/0

#### Knowledge & Technology Outputs
**Score/Value Rank** 13.2/95

6.1 Knowledge creation 6.0 [97]
6.1.1 Patents by origin/bn PPP$ GDP 0.1/14
6.1.2 PCT patents by origin/bn PPP$ GDP 0/0
6.1.3 Utility models by origin/bn PPP$ GDP 0/0
6.1.4 Scientific & technical articles/bn PPP$ GDP 2.6/109
6.1.5 Citable documents 16.1 0.7/118

6.2 Knowledge impact 21.6/76
6.2.1 Growth rate of PPP$ GDP/worker, % 5.7/5
6.2.2 New businesses/15 mn pop 15-64 0.0/120
6.2.3 Computer software spending, % GDP 0.0/72
6.2.4 ISO 9001 quality certificates/bn PPP$ GDP 0.7/116
6.2.5 High- and medium-tech manufacturing, % GDP 9.4/85

#### Creative Outputs
**Score/Value Rank** 9.4/115

7.1 Intangible assets 15.2/110
7.1.1 Trademarks by origin/bn PPP$ GDP 10.4/110
7.1.2 Brand value, top 500, % GDP 2.5/76
7.1.3 Industrial designs by origin/bn PPP$ GDP 2.5/47
7.1.4 ICTs & organizational model creation 42.1/108

7.2 Creative goods and services 1.2/124
7.2.1 Cultural & creative services exports, % total trade 0.1/80
7.2.2 National feature films/mn pop 15-69 0.3/104
7.2.3 Entertainment & Media market/mn pop 15-69 0.0/110
7.2.4 Printing and other media 0.2/99
7.2.5 Creative goods exports, % total trade 0.1/108

7.3 Online creativity 5.9/104
7.3.1 Generic top-level domains (TLDs)/mn pop 15-69 0.4/113
7.3.2 Country-code TLDs/mn pop 15-69 0.1/123
7.3.3 Wikipedia ed/mn pop 15-69 26.8/99
7.3.4 Mobile app creation/bn PPP$ GDP 0.4/73

**Notes:** • indicates a strength; ○ a weakness; ◊ an income group strength; ◊ a income group weakness; ● an indicator; + 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 (MIC) 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 Bangladesh.

### 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>
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<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>2.3.2</td>
<td>Gross expenditure on R&amp;D, % 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>4.2.3</td>
<td>Venture capital deals/bn PPP$ GDP</td>
<td>n/a</td>
<td>2019</td>
<td>Thomson Reuters</td>
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<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>
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<tr>
<td>5.1.4</td>
<td>GERD financed by business, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
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<tr>
<td>5.2.3</td>
<td>GERD financed by abroad, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
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<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>
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<td>6.1.2</td>
<td>PCT patents by origin/BN PPP$ GDP</td>
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<td>2019</td>
<td>World Intellectual Property Organization</td>
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<tr>
<td>6.1.3</td>
<td>Utility models by origin/BN PPP$ GDP</td>
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<td>2018</td>
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<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>
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### Outdated data

<table>
<thead>
<tr>
<th>Code</th>
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<th>Model year</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>2.2.3</td>
<td>Tertiary inbound mobility, %</td>
<td>2009</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
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<tr>
<td>4.3.1</td>
<td>Applied tariff rate, weighted avg., %</td>
<td>2016</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>International Labour Organization</td>
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<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>
<tr>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>2015</td>
<td>2018</td>
<td>United Nations, COMTRADE</td>
</tr>
<tr>
<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufacturing, %</td>
<td>2012</td>
<td>2017</td>
<td>United Nations Industrial Development Organization</td>
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<td>6.3.2</td>
<td>High-tech net exports, % total trade</td>
<td>2015</td>
<td>2018</td>
<td>United Nations, COMTRADE</td>
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<tr>
<td>7.2.4</td>
<td>Printing &amp; other media, % manufacturing</td>
<td>2012</td>
<td>2017</td>
<td>United Nations Industrial Development Organization</td>
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<tr>
<td>7.2.5</td>
<td>Creative goods exports, % total trade</td>
<td>2015</td>
<td>2018</td>
<td>United Nations, COMTRADE</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.