# Global Innovation Index 2023

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**.

Bangladesh ranking in the Global Innovation Index 2023

> Bangladesh ranks 105th among the 132 economies featured in the GII 2023.
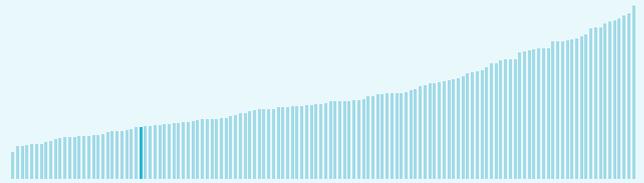
> Bangladesh ranks 22nd among the 37 lower-middle-income group economies.

> Bangladesh ranks 7th among the 10 economies in Central and Southern Asia.
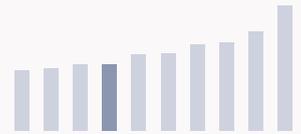
> ### Bangladesh GII Ranking (2020-2023)

The table shows the rankings of Bangladesh over the past four years. 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 2023 is between ranks 96 and 108.

	GII Position	Innovation Inputs	Innovation Outputs
2020	116th	119th	114th
2021	116th	121st	113rd
2022	102nd	112nd	90th
2023	105th	114th	89th

Bangladesh performs better in innovation outputs than innovation inputs in 2023.

This year Bangladesh ranks 114th in innovation inputs. This position is lower than last year.

Bangladesh ranks 89th in innovation outputs. This position is higher than last year.

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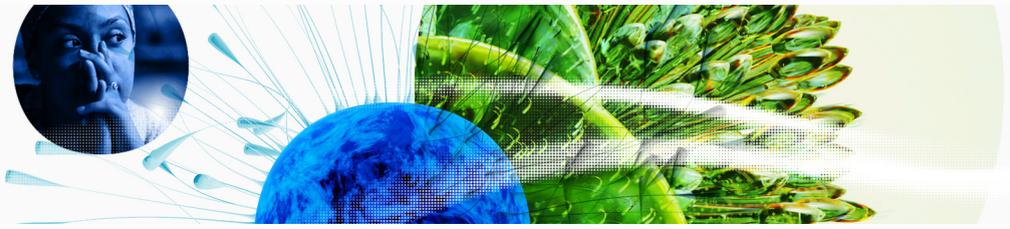
→ Expected vs. observed innovation performance

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's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ GII Score
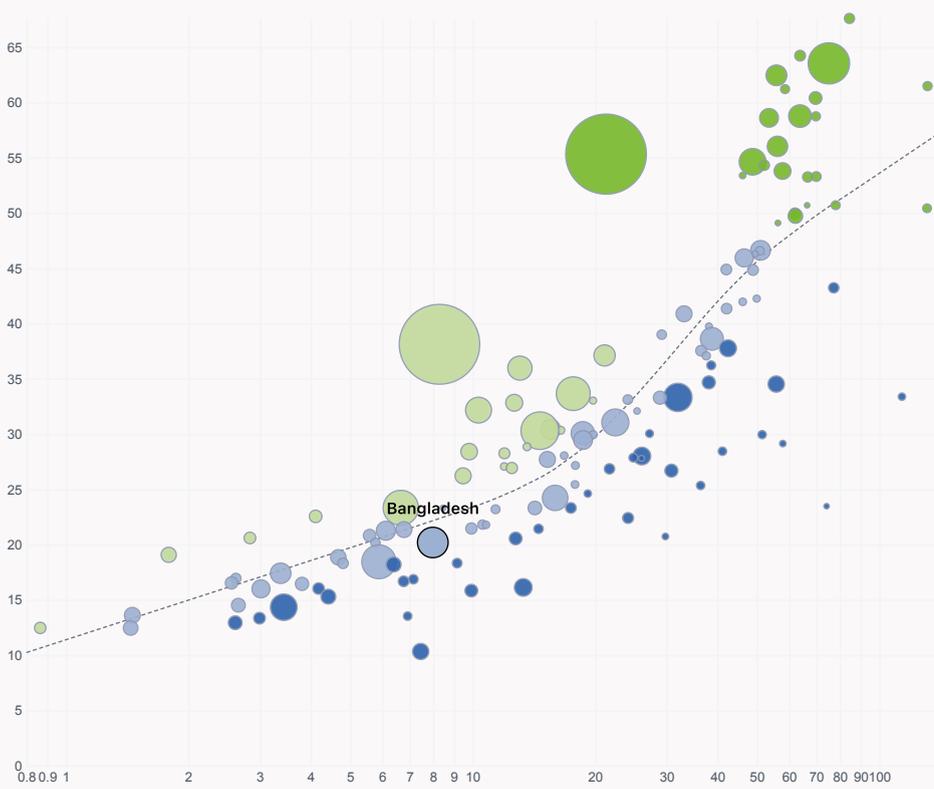
Innovation leader

Performing above expectations for level of development

Performing at expectations for level of development

Performing below expectations for level of development

Size legend (Population)

1.4B
713M
373K

→ GDP per capita, PPP logarithmic scale (thousands of $)

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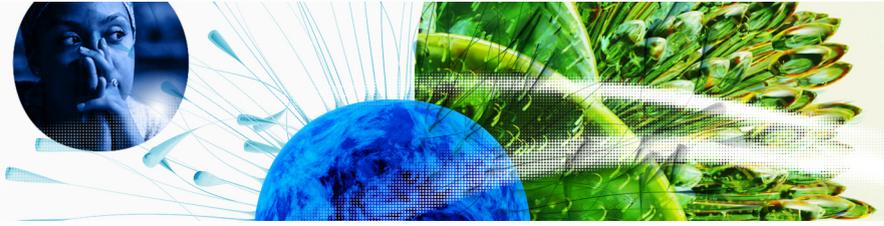
→ Effectively translating innovation investments into innovation outputs

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.

> Relationship between innovation inputs and outputs

↑ Output score

- High income
- Upper middle
- Lower middle
- Low income
- ---------------------------- Fitted line

Bangladesh

→Input score
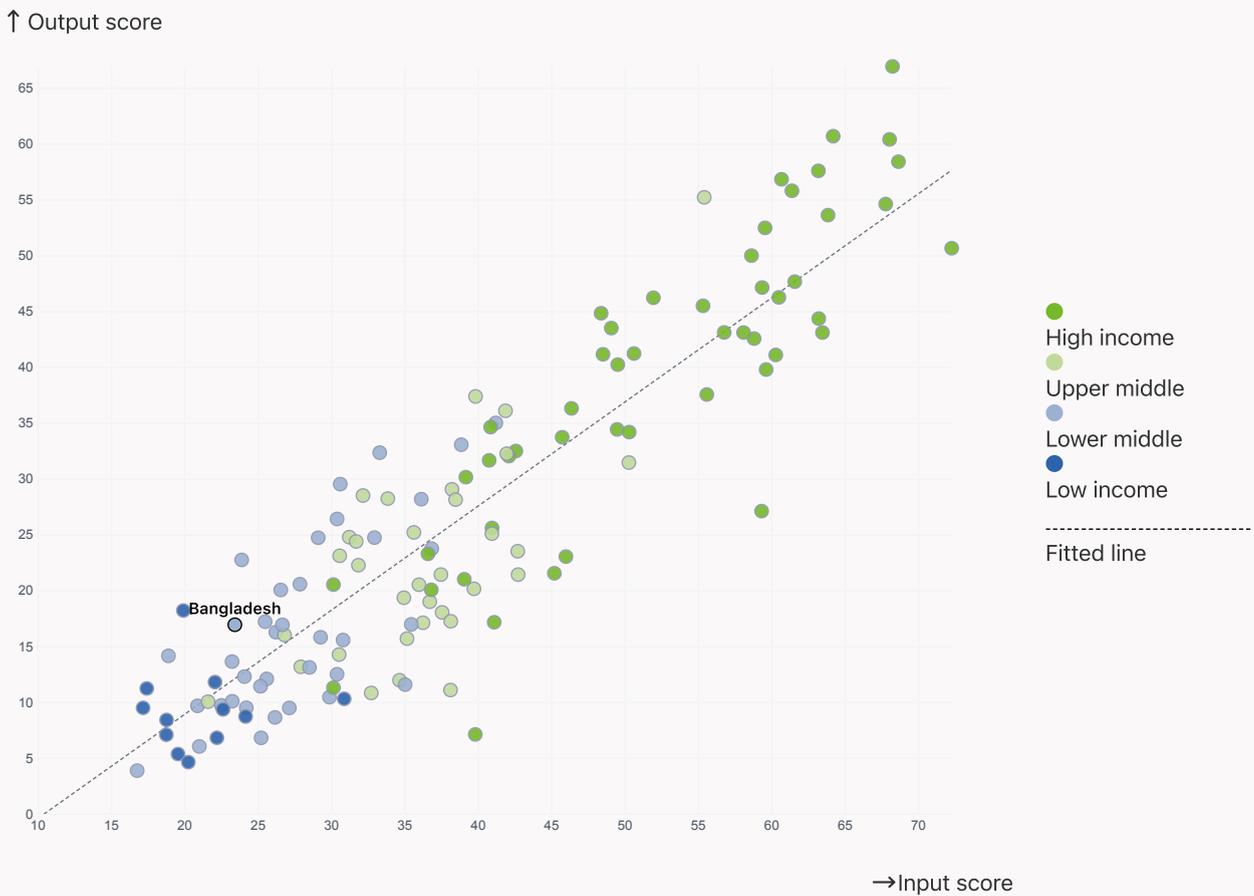
Global Innovation Index 2023

→ **Overview of Bangladesh's rankings in the seven areas of the GII in 2023**

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Bangladesh are those that rank above the GII (shown in blue) and the weakest are those that rank below.

Highest rankings →

● 82nd Creative outputs

● 89th Knowledge and technology outputs

● 93rd Infrastructure

● 100th Market sophistication

● 105th Global Innovation Index

● 108th Institutions

● 125th Human capital and research
● 126th Business sophistication
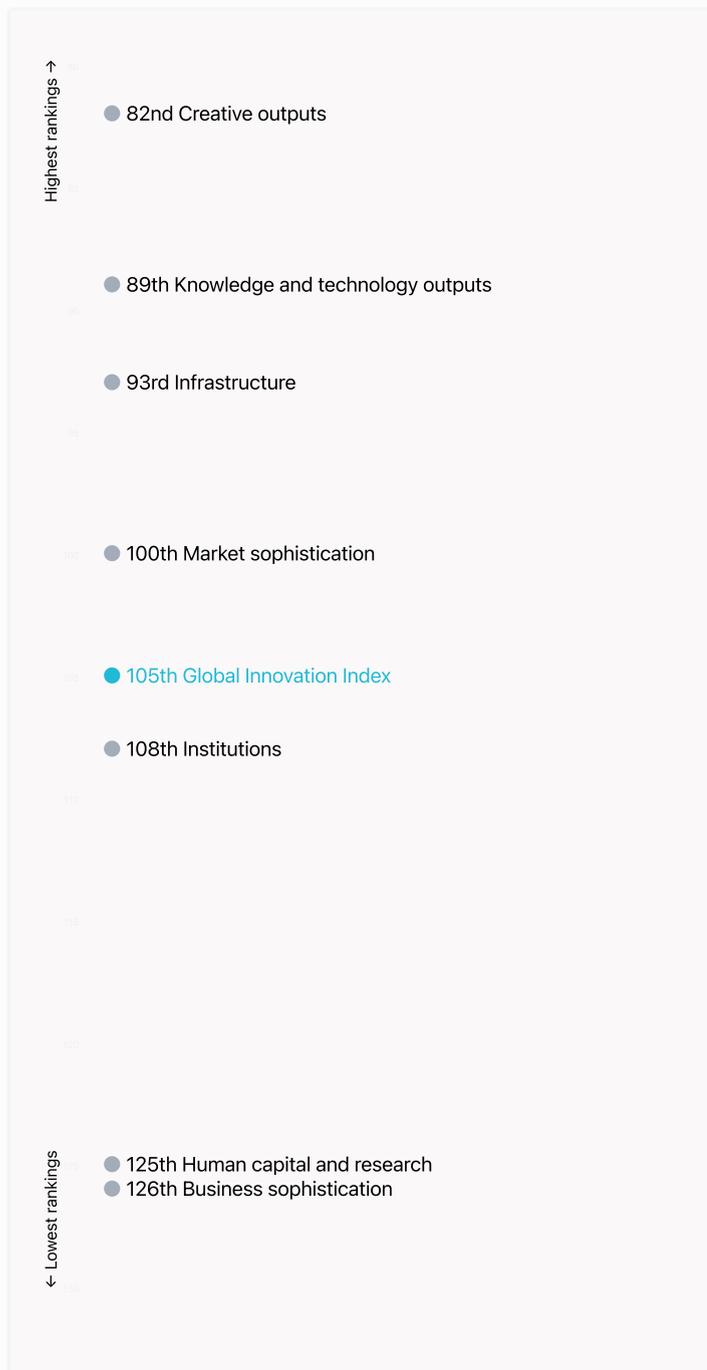
← Lowest rankings

> **Highest rankings**

Bangladesh ranks highest in Creative outputs (82nd), Knowledge and technology outputs (89th), Infrastructure (93rd) and Market sophistication (100th).

> **Lowest rankings**

Bangladesh ranks lowest in Business sophistication (126th), Human capital and research (125th) and Institutions (108th).

The full WIPO Intellectual Property Statistics profile for Bangladesh can be found on this link.

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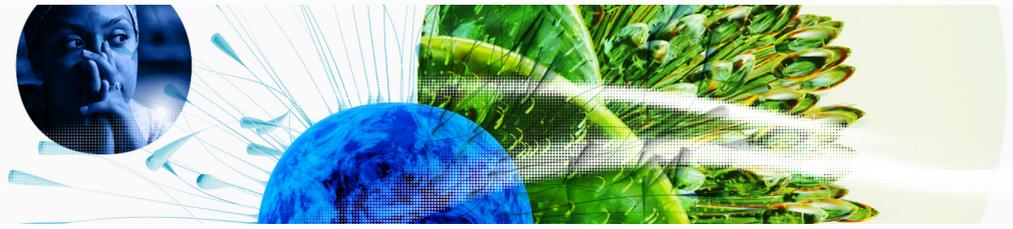
→ **Benchmark of Bangladesh against other country groupings for each of the seven areas of the GII Index**

The charts shows the relative position of Bangladesh (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> **Lower-Middle-Income economies**

Bangladesh performs below the lower-middle-income group average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Institutions.

> **Central And Southern Asia**

Bangladesh performs below the regional average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Institutions.

Knowledge and technology outputs

Top 10 | Score: 58.96

Central and Southern Asia | Score: 20.48

Lower middle income | Score: 17.21

Bangladesh | Score: 15.19

Creative outputs

Top 10 | 56.09

Bangladesh | 18.63

Central and Southern Asia | 17.93

Lower middle income | 16.35

Business sophistication

Top 10 | 64.39

Central and Southern Asia | 22.96

Lower middle income | 22.71

Bangladesh | 15.90

Market sophistication

Top 10 | 61.93

Central and Southern Asia | 33.20

Lower middle income | 28.01

Bangladesh | 23.71

Human capital and research

Top 10 | 60.28

Central and Southern Asia | 23.87

Lower middle income | 21.73

Bangladesh | 11.44

Infrastructure

Top 10 | 62.83

Bangladesh | 30.54

Central and Southern Asia | 30.45

Lower middle income | 27.83

Institutions

Top 10 | 79.85

Lower middle income | 39.43

Central and Southern Asia | 38.68

Bangladesh | 35.68

Global Innovation Index 2023

→ Innovation strengths and weaknesses in Bangladesh

The table below gives an overview of the indicator strengths and weaknesses of Bangladesh in the GII 2023.

> Bangladesh's main innovation strengths are **Labor productivity growth, %** (rank 7), **GDP/unit of energy use** (rank 14) and **Loans from microfinance institutions, % GDP** (rank 14).

Strengths

| Rank	Code	Indicator name
7	6.2.1	Labor productivity growth, %
14	3.3.1	GDP/unit of energy use
14	4.1.3	Loans from microfinance institutions, % GDP
19	3.2.3	Gross capital formation, % GDP
24	4.3.3	Domestic market scale, bn PPP$
36	7.1.1	Intangible asset intensity, top 15, %
63	6.1.5	Citable documents H-index
63	7.1.4	Industrial designs by origin/bn PPP$ GDP
66	2.3.4	QS university ranking, top 3

Weaknesses

Rank	Code	Indicator name
130	5.3.3	ICT services imports, % total trade
129	3.3.2	Environmental performance
123	2.1.5	Pupil-teacher ratio, secondary
122	2.1.1	Expenditure on education, % GDP
108	2.2.2	Graduates in science and engineering, %
96	2.1.2	Government funding/pupil, secondary, % GDP/cap
95	5.2.5	Patent families/bn PPP$ GDP
94	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

# Global Innovation Index 2023
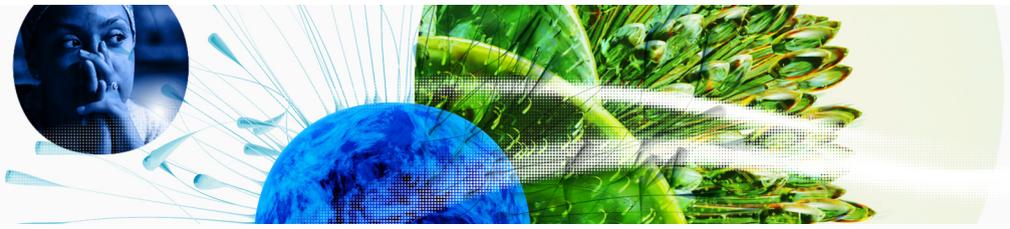
→ Bangladesh's innovation system

As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Bangladesh
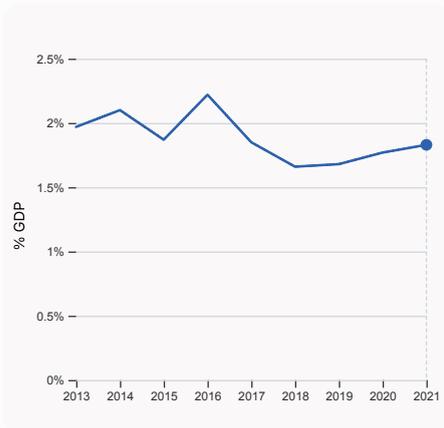
### 2.1.1 Expenditure on education, % GDP

was equal to 1.83% GDP in 2021, up by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 122.
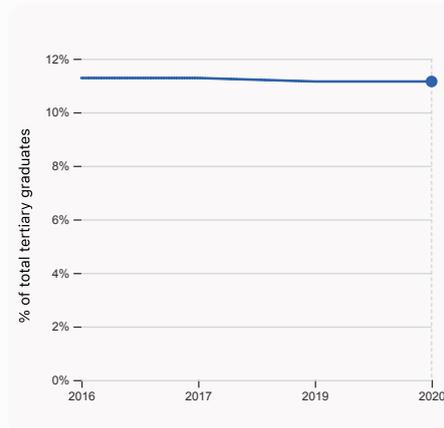

2.2.2 Graduates in science and engineering, %

was equal to 11.15% of total tertiary graduates in 2020, with no change from the year prior – and equivalent to an indicator rank of 108.
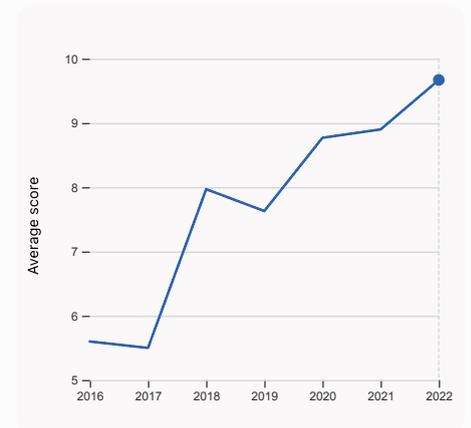

2.3.4 QS university ranking, top 3

was equal to an average score of 9.67 for the top 3 universities in 2022, up by 8.65% from the year prior – and equivalent to an indicator rank of 66.
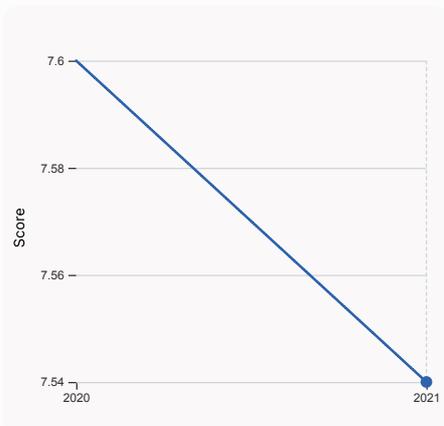
3.1.1 ICT access

was equal to a score of 7.54 in 2021, down by 0.79% from the year prior – and equivalent to an indicator rank of 95.
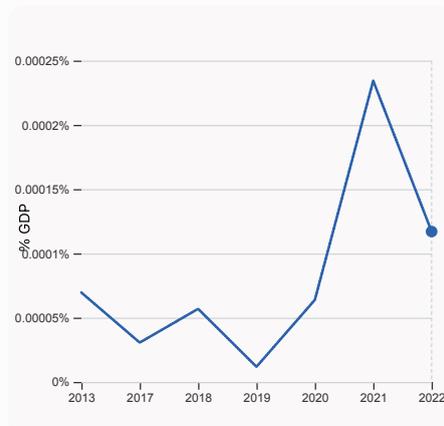
4.2.4 VC received, value, % GDP

was equal to 0.00012% GDP in 2022, down by 0.00012 percentage points from the year prior – and equivalent to an indicator rank of 78.
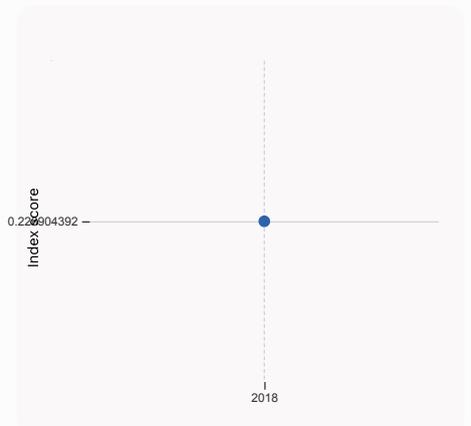
4.3.2 Domestic industry diversification

was equal to an index score of 0.229 in 2018, equivalent to an indicator rank of 79.

Global Innovation Index 2023
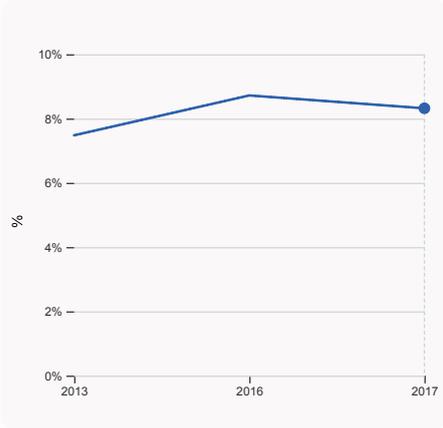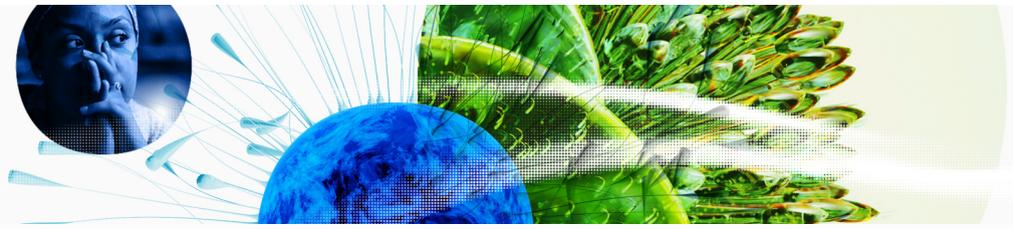
5.1.1 Knowledge-intensive employment, %

was equal to 8.32% in 2017, down by 0.4 percentage points from the year prior – and equivalent to an indicator rank of 110.
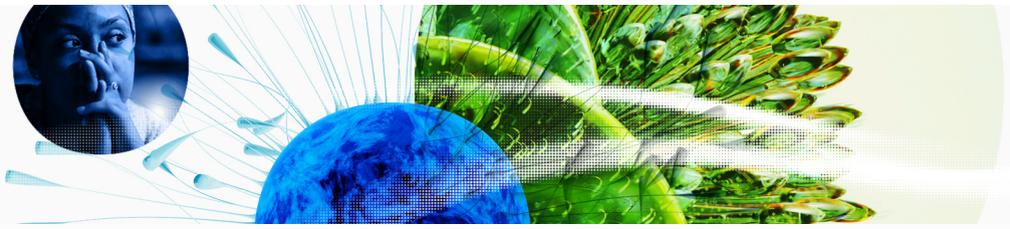
> Innovation outputs in Bangladesh
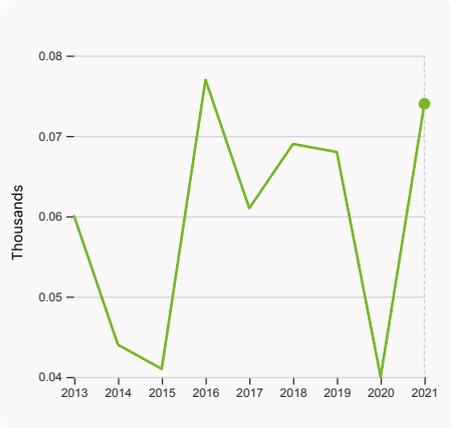
6.1.1 Patents by origin

was equal to 0.074 Thousands in 2021, up by 85% from the year prior – and equivalent to an indicator rank of 120.
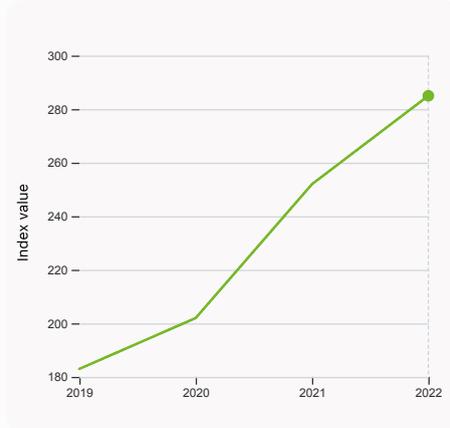
6.1.5 Citable documents H-index

was equal to an index value of 285 in 2022, up by 13.095% from the year prior – and equivalent to an indicator rank of 63.
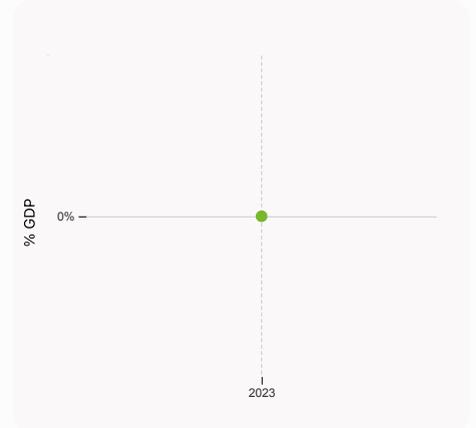
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.
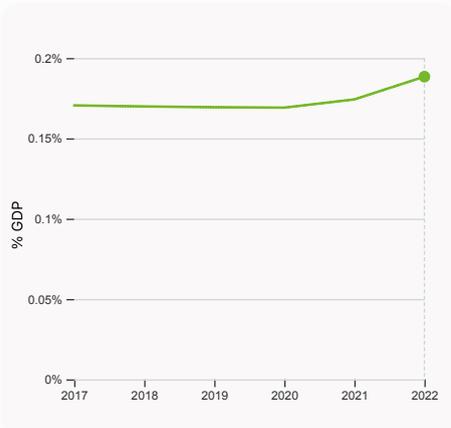
6.2.3 Software spending, % GDP

was equal to 0.188% GDP in 2022, up by 0.014 percentage points from the year prior – and equivalent to an indicator rank of 75.
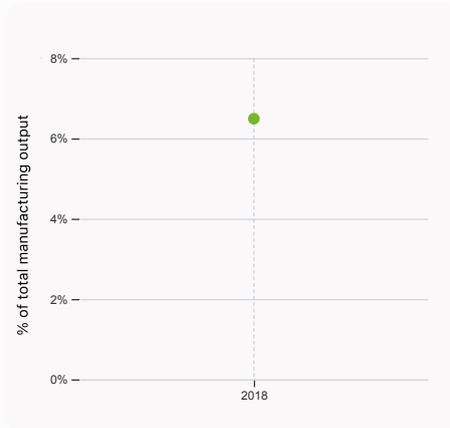
6.2.4 High-tech manufacturing, %

was equal to 6.49 % of total manufacturing output in 2018 – and equivalent to an indicator rank of 99.
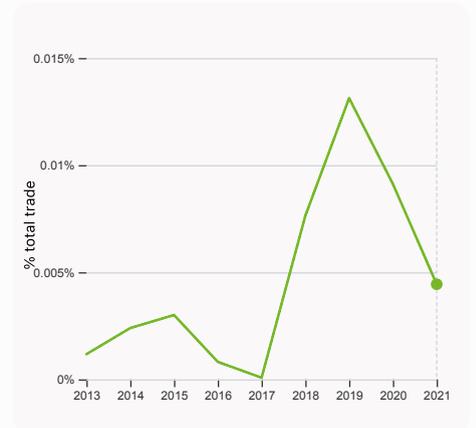
6.3.1 Intellectual property receipts, % total trade

was equal to 0.004% total trade in 2021, down by 0.0047 percentage points from the year prior – and equivalent to an indicator rank of 96.

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Innovation
Index 2023
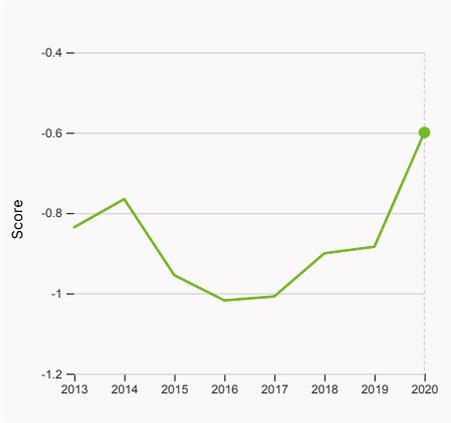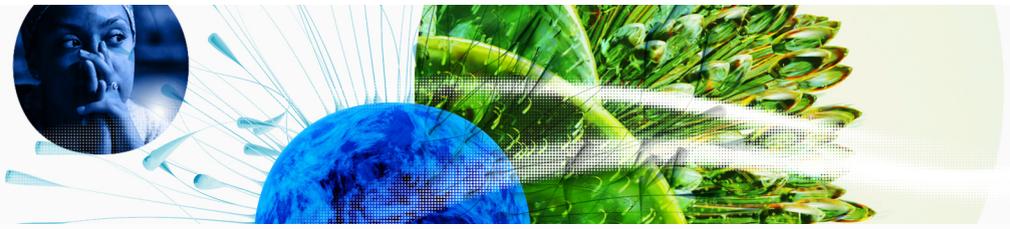
6.3.2 Production and export complexity

was equal to a score of -0.6 in 2020, up by 32.17% from the year prior – and equivalent to an indicator rank of 92.
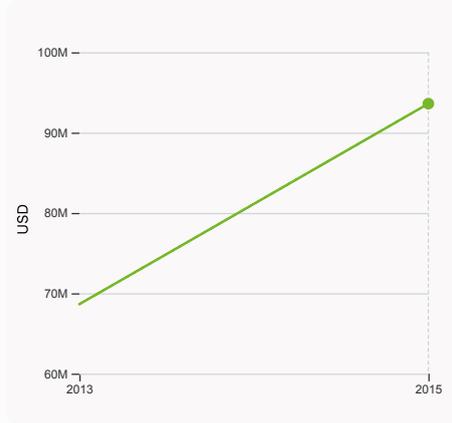
6.3.3 High-tech exports

was equal to 93,607,706 USD in 2015, up by 36.36% from the year prior – and equivalent to an indicator rank of 104.
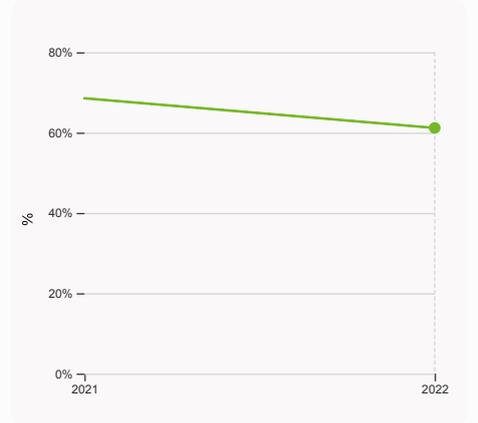
7.1.1 Intangible asset intensity, top 15, %

was equal to 61.17% in 2022, down by 7.39 percentage points from the year prior – and equivalent to an indicator rank of 36.
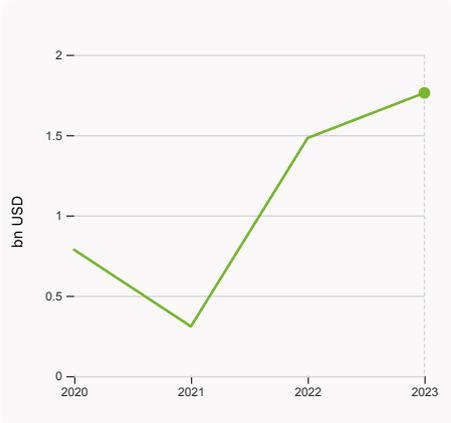
## 7.1.3 Global brand value, top 5,000

was equal to 1.763 bn USD in 2023, up by 18.94% from the year prior – and equivalent to an indicator rank of 68.
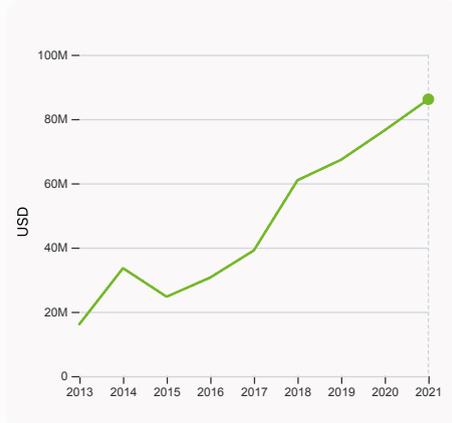
7.2.1 Cultural and creative services exports

was equal to 86,148,000 USD in 2021, up by 12.59% from the year prior – and equivalent to an indicator rank of 79.
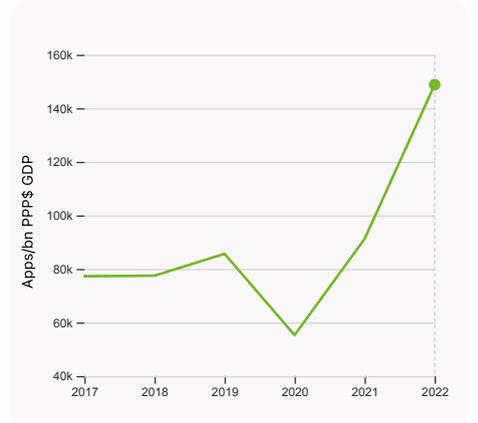
7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 148,841.24 Apps/bn PPP$ GDP in 2022, up by 63.1% from the year prior – and equivalent to an indicator rank of 67.
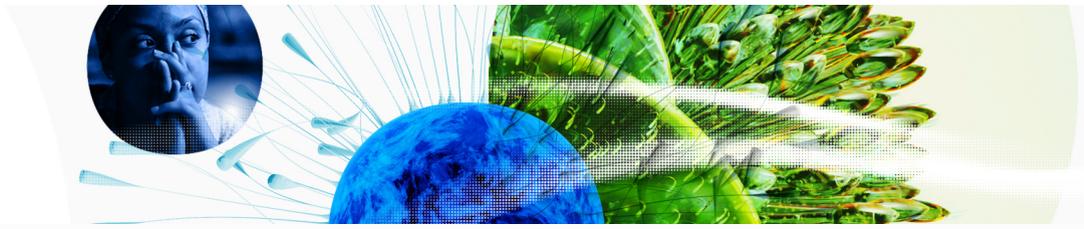
→ Bangladesh's innovation top performers

> 2.3.4 QS university ranking of Bangladesh's top universities

Rank	University	Score
801-1000	BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY	14.50
801-1000	UNIVERSITY OF DHAKA	14.50
1001-1200	NORTH SOUTH UNIVERSITY	10.20

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 7.1.1 Top 15 intangible-asset intensive companies in Bangladesh

Rank	Firm	Intensity, %
1	GRAMEENPHONE LTD	77.37
2	WALTON HI-TECH INDUSTRIES LTD	61.94
3	RENATA LTD	76.00

Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Bangladesh with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	DERBY	Tobacco	1,547.9
2	ROBI	Telecoms	214.8

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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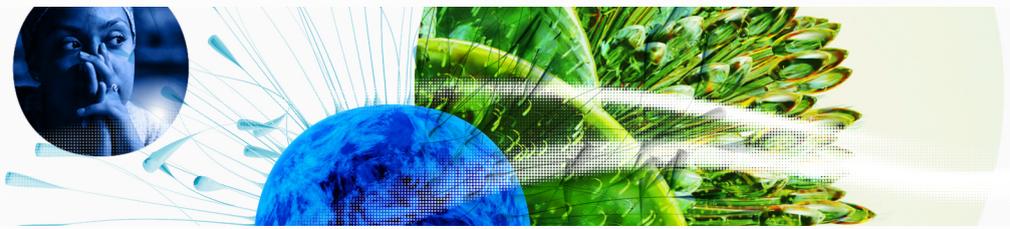
Bangladesh

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
89	**114**	**Lower middle**	**CSA**	**171.2**	**1,345.7**	**7,985.1**

	Score / Value	Rank	
🏛 **Institutions**	**35.7**	**108**	
1.1 Institutional environment	26.7	109	
1.1.1 Operational stability for businesses*	34.0	112	
1.1.2 Government effectiveness*	19.4	108	
1.2 Regulatory environment	37.7	122	
1.2.1 Regulatory quality*	20.2	118	
1.2.2 Rule of law*	21.8	102	
1.2.3 Cost of redundancy dismissal	31.0	121	
1.3 Business environment	42.6	76	
1.3.1 Policies for doing business†	42.6	79	
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
👥 **Human capital and research**	**11.4**	**125**	◇
2.1 Education	19.1	128	◇
2.1.1 Expenditure on education, % GDP	1.8	122	○◇
2.1.2 Government funding/pupil, secondary, % GDP/cap	6.5	96	○◇
2.1.3 School life expectancy, years	12.4	90	
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil-teacher ratio, secondary	33.1	123	○◇
2.2 Tertiary education	10.3	111	
2.2.1 Tertiary enrolment, % gross	25.1	92	
2.2.2 Graduates in science and engineering, %	11.1	108	○◇
2.2.3 Tertiary inbound mobility, %	n/a	n/a	
2.3 Research and development (R&D)	4.9	76	
2.3.1 Researchers, FTE/mn pop.	n/a	n/a	
2.3.2 Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40	○◇
2.3.4 QS university ranking, top 3*	9.8	66	●
⚙ **Infrastructure**	**30.5**	**93**	
3.1 Information and communication technologies (ICTs)	55.1	90	
3.1.1 ICT access*	63.0	95	
3.1.2 ICT use*	44.7	109	
3.1.3 Government's online service*	61.5	74	
3.1.4 E-participation*	51.2	74	
3.2 General infrastructure	19.2	93	
3.2.1 Electricity output, GWh/mn pop.	🕑 514.7	110	
3.2.2 Logistics performance*	22.7	82	
3.2.3 Gross capital formation, % GDP	31.7	19	●
3.3 Ecological sustainability	17.3	96	
3.3.1 GDP/unit of energy use	17.1	14	●
3.3.2 Environmental performance*	7.1	129	○◇
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.2	115	
📊 **Market sophistication**	**23.7**	**100**	
4.1 Credit	22.4	86	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	39.2	83	
4.1.3 Loans from microfinance institutions, % GDP	2.7	14	●
4.2 Investment	3.1	92	
4.2.1 Market capitalization, % GDP	22.1	57	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	94	○◇
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	88	
4.2.4 VC received, value, % GDP	0.0	78	
4.3 Trade, diversification, and market scale	45.7	96	
4.3.1 Applied tariff rate, weighted avg., %	11.0	123	◇
4.3.2 Domestic industry diversification	🕑 79.3	79	
4.3.3 Domestic market scale, bn PPP$	1,345.7	24	●

	Score / Value	Rank	
💼 **Business sophistication**	**15.9**	**126**	◇
5.1 Knowledge workers	11.4	119	
5.1.1 Knowledge-intensive employment, %	🕑 8.3	110	
5.1.2 Firms offering formal training, %	🕑 21.9	73	
5.1.3 GERD performed by business, % GDP	n/a	n/a	
5.1.4 GERD financed by business, %	n/a	n/a	
5.1.5 Females employed w/advanced degrees, %	🕑 1.3	114	
5.2 Innovation linkages	14.4	100	
5.2.1 University-industry R&D collaboration†	21.6	115	
5.2.2 State of cluster development†	34.1	84	
5.2.3 GERD financed by abroad, % GDP	n/a	n/a	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	117	
5.2.5 Patent families/bn PPP$ GDP	0.0	95	○◇
5.3 Knowledge absorption	21.9	120	
5.3.1 Intellectual property payments, % total trade	0.1	99	
5.3.2 High-tech imports, % total trade	🕑 8.1	67	
5.3.3 ICT services imports, % total trade	0.2	130	○◇
5.3.4 FDI net inflows, % GDP	0.5	114	
5.3.5 Research talent, % in businesses	n/a	n/a	
🚀 **Knowledge and technology outputs**	**15.2**	**89**	
6.1 Knowledge creation	7.5	95	
6.1.1 Patents by origin/bn PPP$ GDP	0.1	120	
6.1.2 PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3 Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	13.5	63	●
6.2 Knowledge impact	27.4	62	
6.2.1 Labor productivity growth, %	4.5	7	●
6.2.2 Unicorn valuation, % GDP	0.0	48	○◇
6.2.3 Software spending, % GDP	0.2	75	
6.2.4 High-tech manufacturing, %	🕑 6.5	99	
6.3 Knowledge diffusion	10.7	106	
6.3.1 Intellectual property receipts, % total trade	0.0	96	
6.3.2 Production and export complexity	40.0	92	
6.3.3 High-tech exports, % total trade	🕑 0.2	104	
6.3.4 ICT services exports, % total trade	0.9	90	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.6	117	
🎨 **Creative outputs**	**18.6**	**82**	
7.1 Intangible assets	28.0	73	
7.1.1 Intangible asset intensity, top 15, %	61.2	36	●
7.1.2 Trademarks by origin/bn PPP$ GDP	9.2	112	
7.1.3 Global brand value, top 5,000	0.4	68	
7.1.4 Industrial designs by origin/bn PPP$ GDP	1.1	63	●
7.2 Creative goods and services	1.7	108	
7.2.1 Cultural and creative services exports, % total trade	0.1	79	
7.2.2 National feature films/mn pop. 15-69	n/a	n/a	
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	🕑 0.1	104	
7.3 Online creativity	16.8	87	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.4	114	
7.3.2 Country-code TLDs/th pop. 15-69	0.1	126	
7.3.3 GitHub commits/mn pop. 15-69	2.2	98	
7.3.4 Mobile app creation/bn PPP$ GDP	64.4	67	

NOTES: ● indicates a strength; ○ 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 appendices for details, including the year of the data, at https://www.wipo.int/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

Global Innovation Index 2023

→ **Data availability**

The following tables list indicators that are either missing or outdated for Bangladesh.

> **Bangladesh has missing data for fourteen indicators and outdated data for nine indicators.**

> ## Missing data for Bangladesh

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.2.3	Tertiary inbound mobility, %	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
5.1.3	GERD performed by business, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.2	National feature films/mn pop. 15–69	n/a	2021	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

Global Innovation Index 2023

> Outdated data for Bangladesh

Code	Indicator name	Economy Year	Model Year	Source
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.3.2	Domestic industry diversification	2018	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2017	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2017	2022	International Labour Organization
5.3.2	High-tech imports, % total trade	2015	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
6.2.4	High-tech manufacturing, %	2018	2020	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2015	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development; Trade Data Monitor.
7.2.4	Creative goods exports, % total trade	2015	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development

Global Innovation Index 2023

→ About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

- 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.

Institutions
Institutional environment / Regulatory environment / Business environment

Human capital and research
Education / Tertiary education / Research and development (R&D)

Infrastructure
Information and communication technologies (ICTs) / General infrastructure / Ecological sustainability

Market sophistication
Credit / Investment / Trade, diversification, and market scale

Business sophistication
Knowledge workers / Innovation linkages / Knowledge absorption

Innovation Input Sub-Index

Global Innovation Index

Innovation Output Sub-Index

Knowledge and technology outputs
Knowledge creation / Knowledge impact / Knowledge diffusion

Creative outputs
Intangible assets / Creative goods and services / Online creativity

Source: Global Innovation Index Database, WIPO, 2023.

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.