

Global Innovation Index 2023

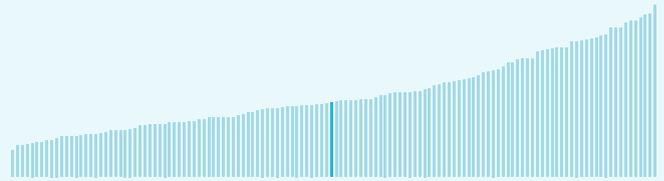


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Bahrain ranking in the Global Innovation Index 2023

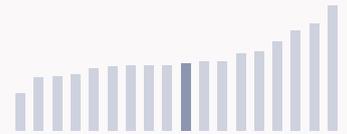
> Bahrain ranks **67th** among the 132 economies featured in the GII 2023.



> Bahrain ranks **46th** among the 50 high-income group economies.



> Bahrain ranks **9th** among the 18 economies in Northern Africa and Western Asia.



> Bahrain GII Ranking (2020-2023)

The table shows the rankings of Bahrain 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 Bahrain in the GII 2023 is between ranks 60 and 81.

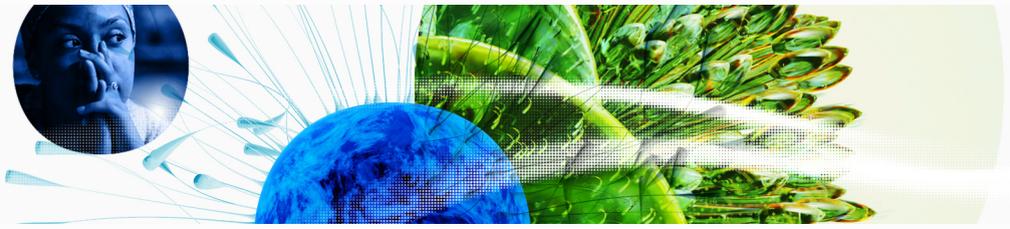
	GII Position	Innovation Inputs	Innovation Outputs
2020	79th	63rd	89th
2021	78th	63rd	99th
2022	72nd	50th	86th
2023	67th	47th	86th

Bahrain performs worse in innovation outputs than innovation inputs in 2023.

This year Bahrain ranks 47th in innovation inputs. This position is higher than last year.

Bahrain ranks 86th in innovation outputs. This position is the same as last year.

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→ Expected vs. observed innovation performance

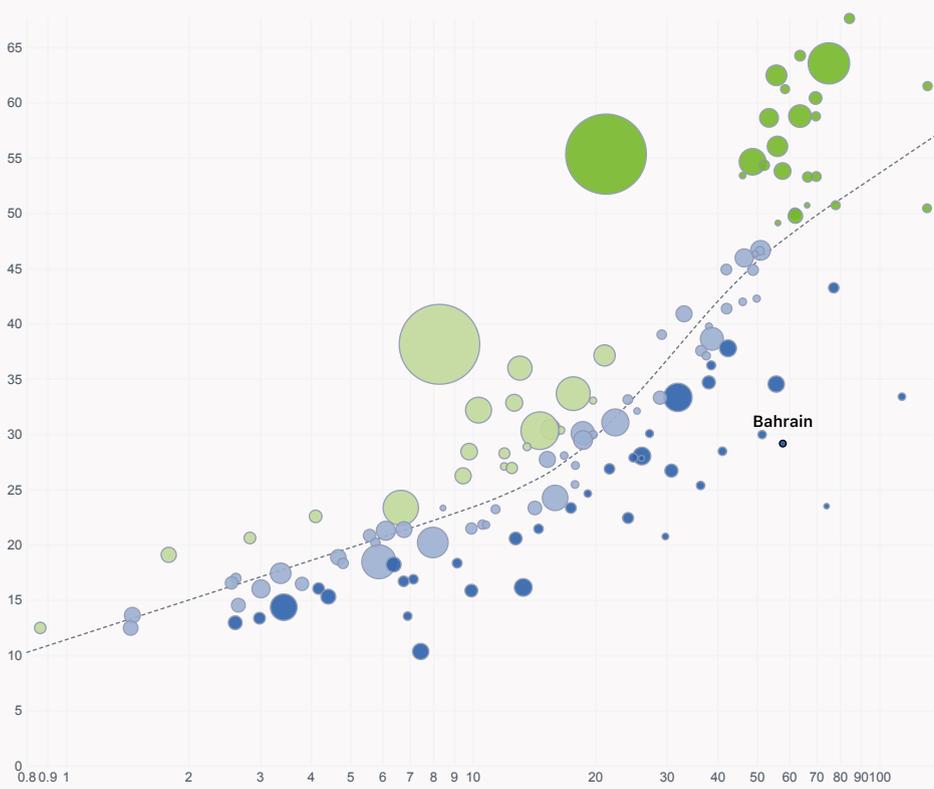
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



> Relative to GDP, Bahrain's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ **GII Score**



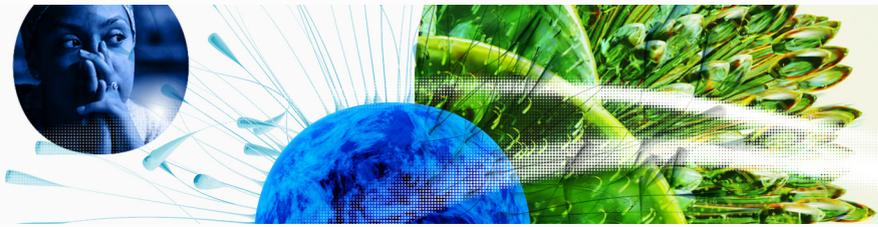
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



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

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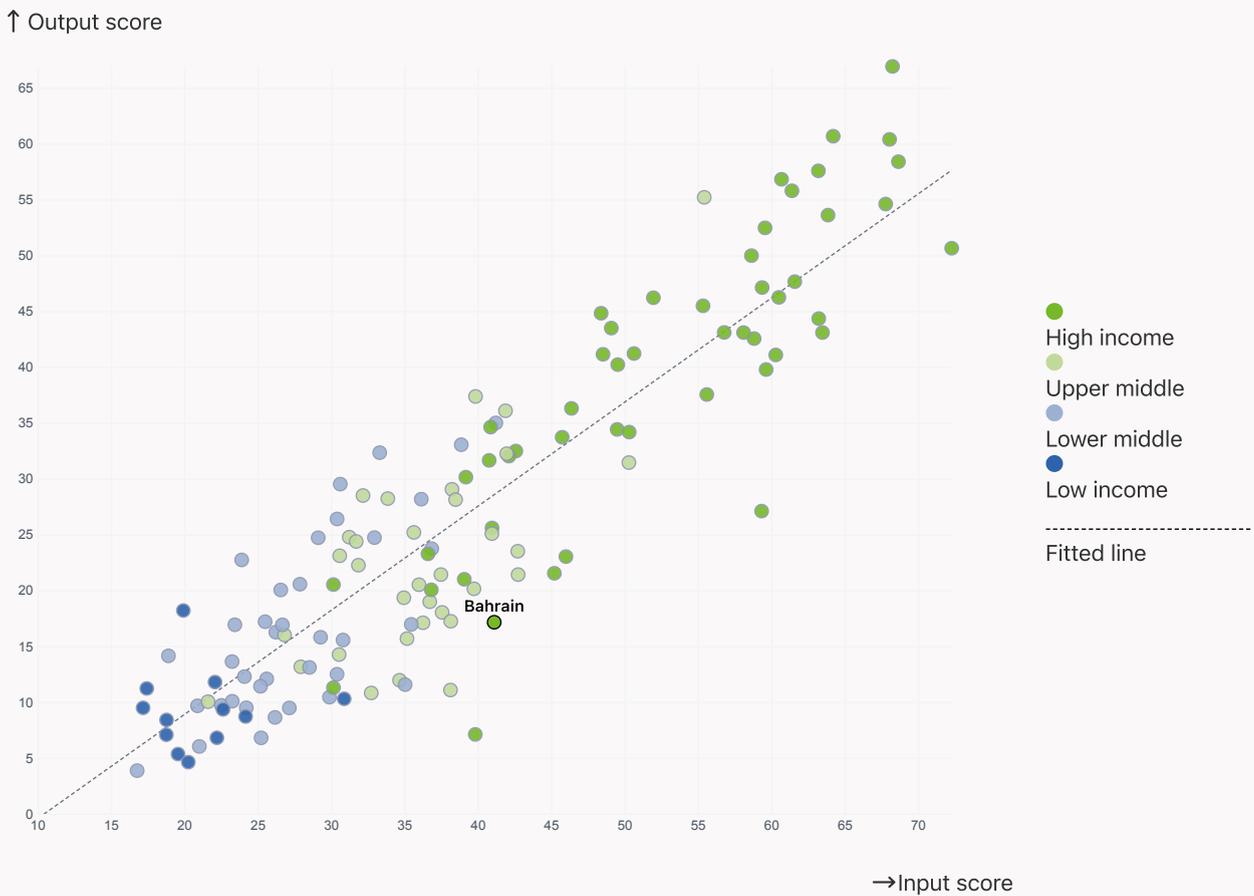
→ Effectively translating innovation investments into innovation outputs

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.



> Bahrain produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

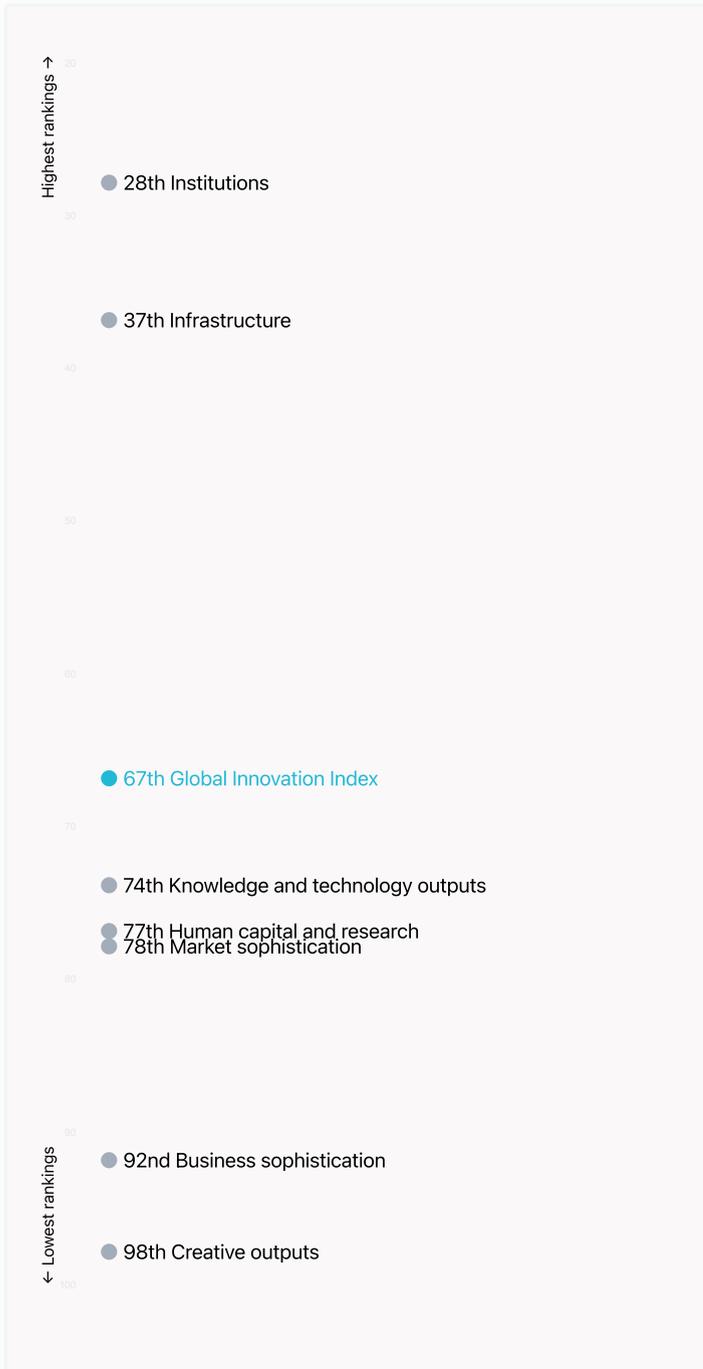


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→ Overview of Bahrain's rankings in the seven areas of the GII in 2023

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



> Highest rankings



Bahrain ranks highest in Institutions (28th) and Infrastructure (37th).

> Lowest rankings



Bahrain ranks lowest in Creative outputs (98th), Business sophistication (92nd) and Market sophistication (78th).



The full WIPO Intellectual Property Statistics profile for Bahrain can be found on [this link](#).

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

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

> High-Income economies

Bahrain performs below the high-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

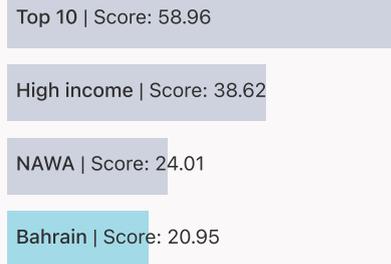


> Northern Africa And Western Asia

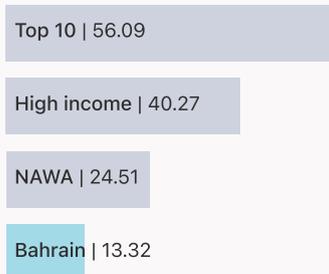
Bahrain performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research.



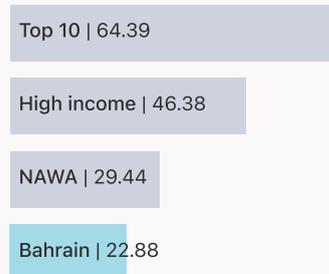
Knowledge and technology outputs



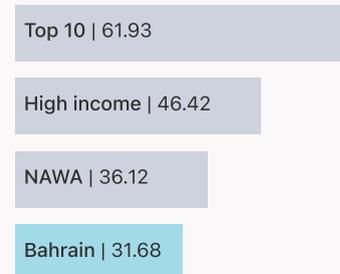
Creative outputs



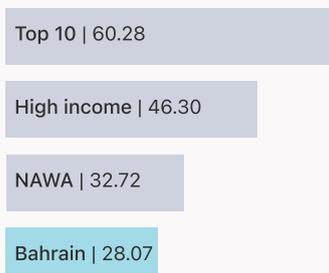
Business sophistication



Market sophistication



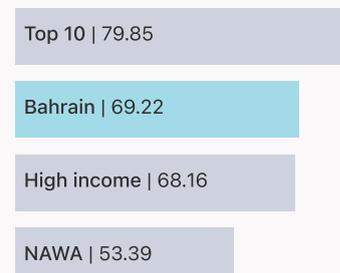
Human capital and research



Infrastructure



Institutions



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→ Innovation strengths and weaknesses in Bahrain

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



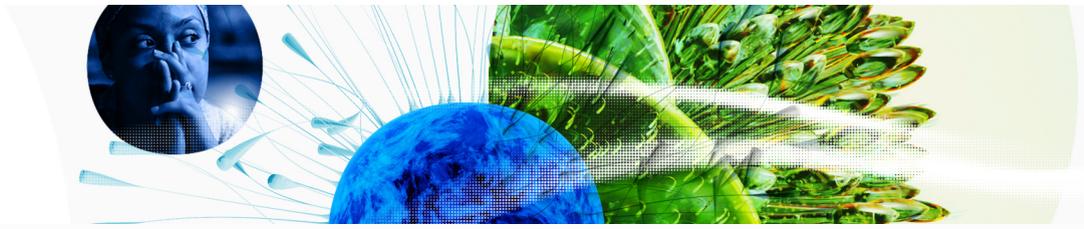
> Bahrain's main innovation strengths are **Electricity output, GWh/mn pop. (rank 1)**, **ICT access (rank 3)** and **Policies for doing business (rank 10)**.

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	3.2.1	Electricity output, GWh/mn pop.	123	6.1.1	Patents by origin/bn PPP\$ GDP
3	3.1.1	ICT access	122	3.3.1	GDP/unit of energy use
10	1.3.1	Policies for doing business	122	7.1.2	Trademarks by origin/bn PPP\$ GDP
16	5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	118	5.3.2	High-tech imports, % total trade
17	3.2.3	Gross capital formation, % GDP	115	2.1.1	Expenditure on education, % GDP
21	2.2.3	Tertiary inbound mobility, %	111	7.1.4	Industrial designs by origin/bn PPP\$ GDP
26	6.2.1	Labor productivity growth, %	48	6.2.2	Unicorn valuation, % GDP
26	6.3.4	ICT services exports, % total trade	40	2.3.3	Global corporate R&D investors, top 3, mn US\$
29	2.1.3	School life expectancy, years			
34	3.1.2	ICT use			

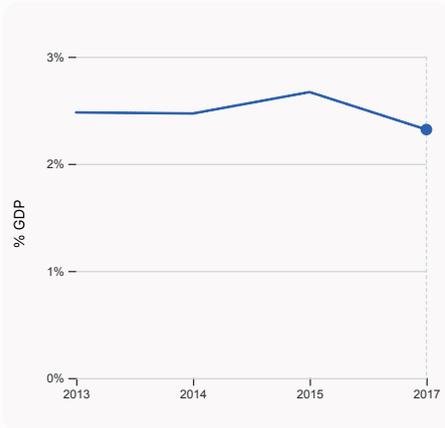
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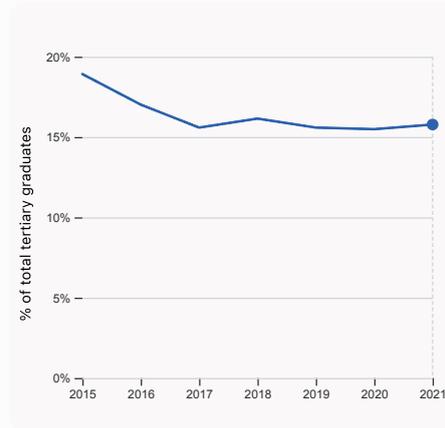
→ Bahrain's innovation system

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

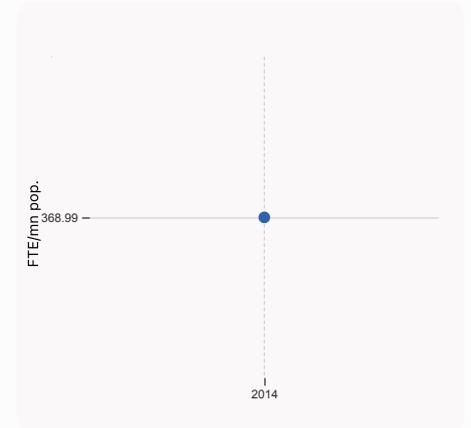
> Innovation inputs in Bahrain



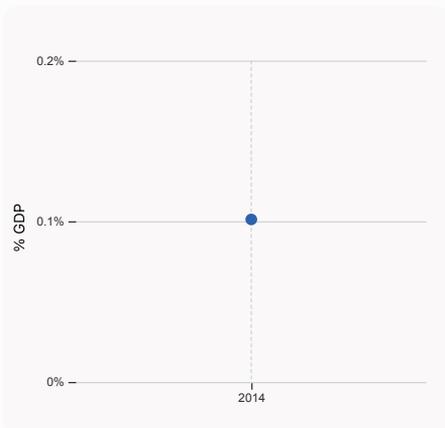
2.1.1 Expenditure on education, % GDP was equal to 2.32% GDP in 2017, down by 0.35 percentage points from the year prior – and equivalent to an indicator rank of 115.



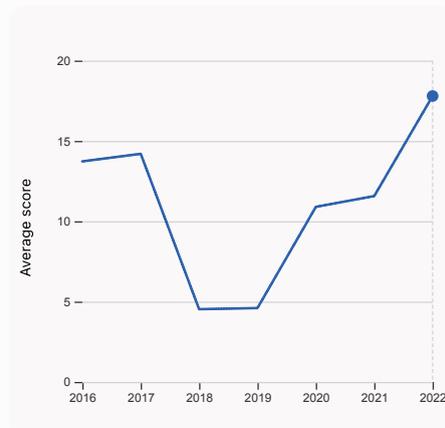
2.2.2 Graduates in science and engineering, % was equal to 15.78% of total tertiary graduates in 2021, up by 0.29 percentage points from the year prior – and equivalent to an indicator rank of 96.



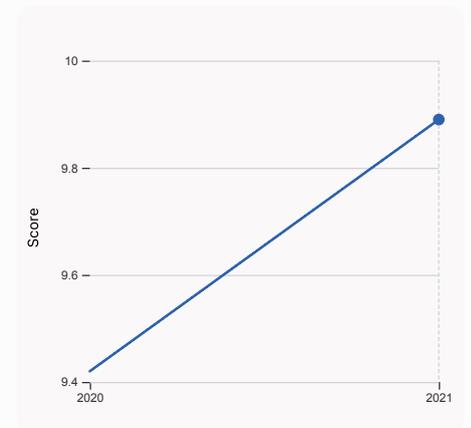
2.3.1 Researchers, FTE/mn pop. was equal to 368.99 FTE/mn pop. in 2014, equivalent to an indicator rank of 76.



2.3.2 Gross expenditure on R&D, % GDP was equal to 0.101 % GDP in 2014, equivalent to an indicator rank of 104.

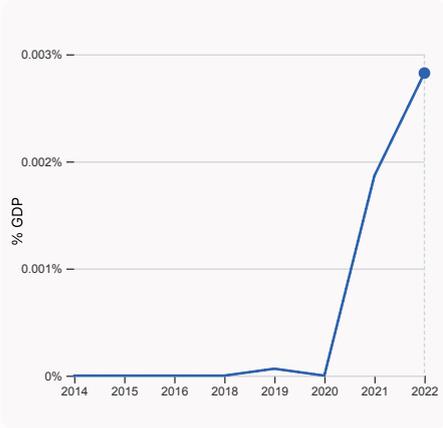


2.3.4 QS university ranking, top 3 was equal to an average score of 17.8 for the top 3 universities in 2022, up by 53.85% from the year prior – and equivalent to an indicator rank of 55.



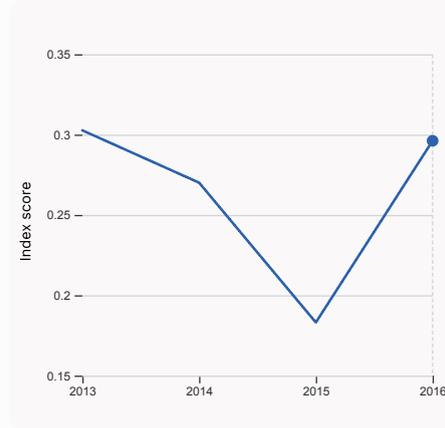
3.1.1 ICT access was equal to a score of 9.89 in 2021, up by 4.99% from the year prior – and equivalent to an indicator rank of 3.

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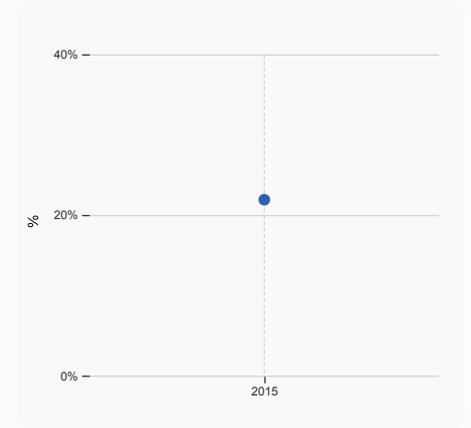
4.2.4 VC received, value, % GDP

was equal to 0.00282% GDP in 2022, up by 0.00096 percentage points from the year prior – and equivalent to an indicator rank of 38.



4.3.2 Domestic industry diversification

was equal to an index score of 0.296 in 2016, up by 61.75% from the year prior – and equivalent to an indicator rank of 94.



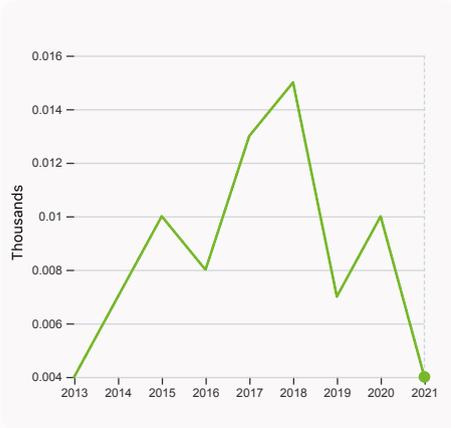
5.1.1 Knowledge-intensive employment, %

was equal to 21.9 % in 2015, equivalent to an indicator rank of 68.

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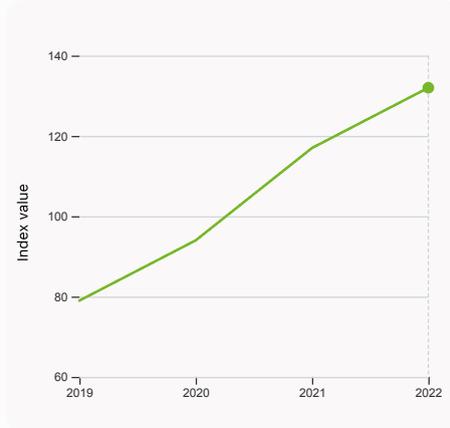


> Innovation outputs in Bahrain



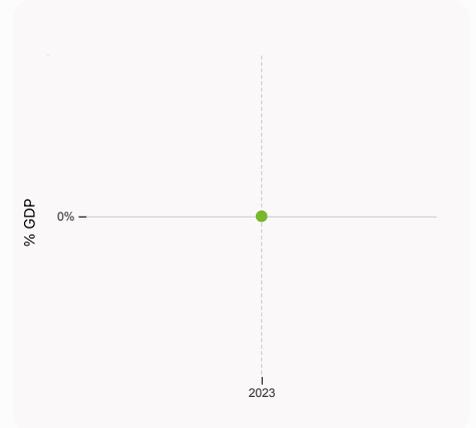
6.1.1 Patents by origin

was equal to 0.004 Thousands in 2021, down by 60% from the year prior – and equivalent to an indicator rank of 123.



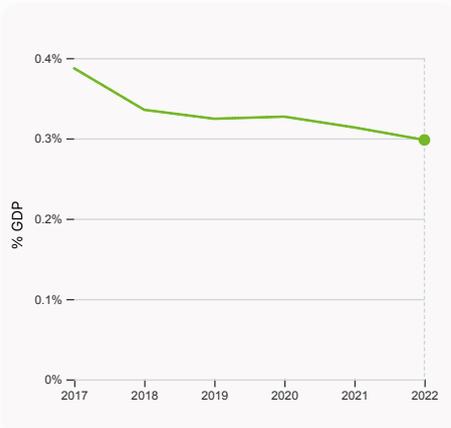
6.1.5 Citable documents H-index

was equal to an index value of 132 in 2022, up by 12.82% from the year prior – and equivalent to an indicator rank of 103.



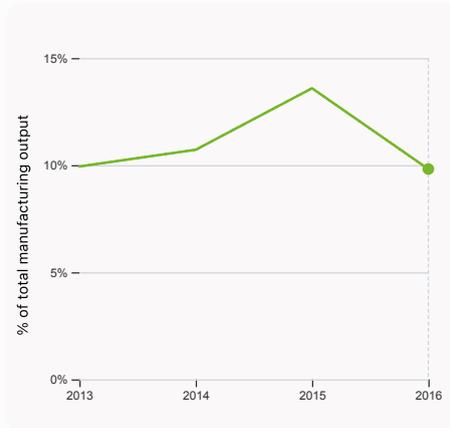
6.2.2 Unicorn valuation, % GDP

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



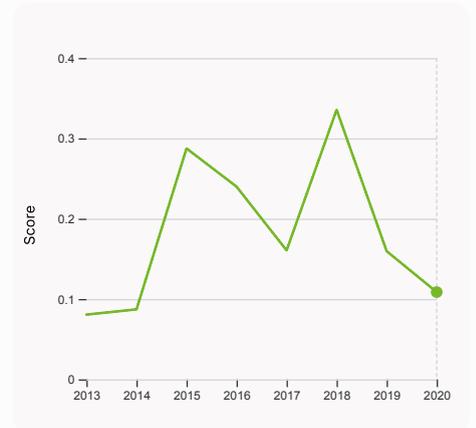
6.2.3 Software spending, % GDP

was equal to 0.298% GDP in 2022, down by 0.016 percentage points from the year prior – and equivalent to an indicator rank of 45.



6.2.4 High-tech manufacturing, %

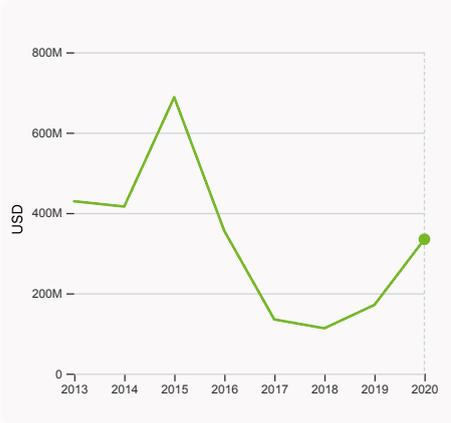
was equal to 9.82% of total manufacturing output in 2016, down by 3.77 percentage points from the year prior – and equivalent to an indicator rank of 93.



6.3.2 Production and export complexity

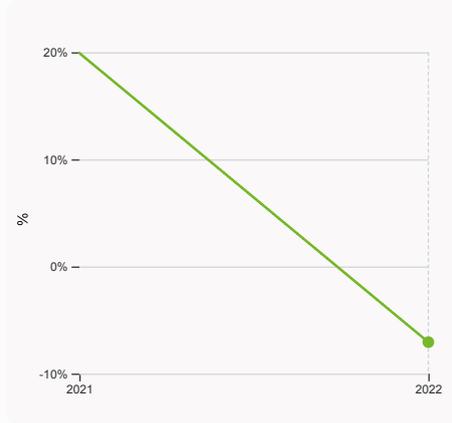
was equal to a score of 0.109 in 2020, down by 31.91% from the year prior – and equivalent to an indicator rank of 56.

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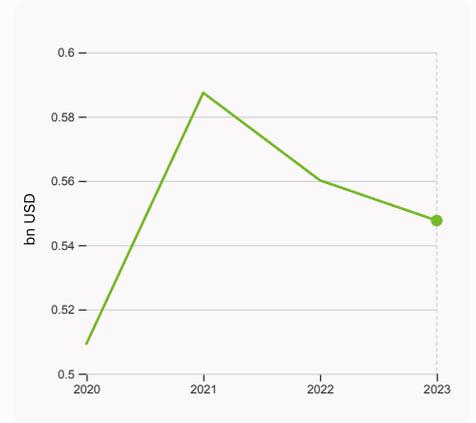
6.3.3 High-tech exports

was equal to 334,578,561 USD in 2020, up by 95.63% from the year prior – and equivalent to an indicator rank of 68.



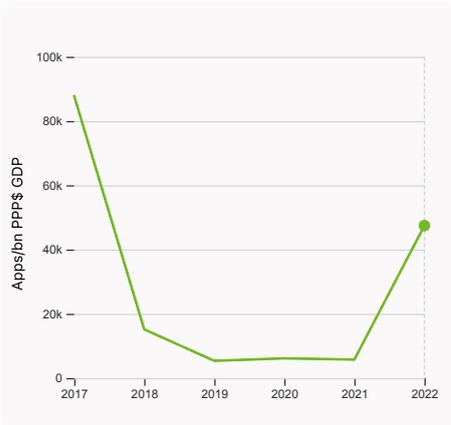
7.1.1 Intangible asset intensity, top 15, %

was equal to -7.059% in 2022, down by 26.99 percentage points from the year prior – and equivalent to an indicator rank of 71.



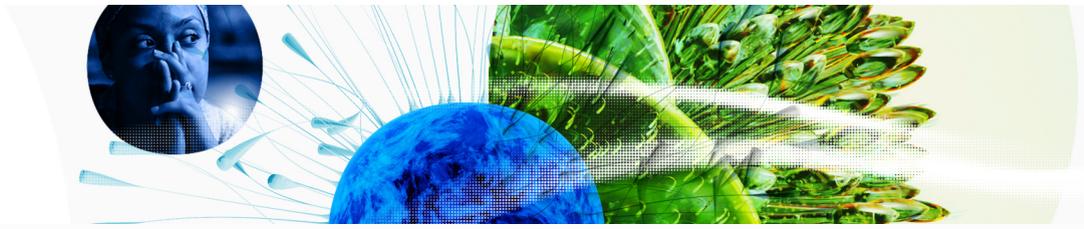
7.1.3 Global brand value, top 5,000

was equal to 0.548 bn USD in 2023, down by 2.24% from the year prior – and equivalent to an indicator rank of 53.



7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 47,458.07 Apps/bn PPP\$ GDP in 2022, up by 723.98% from the year prior – and equivalent to an indicator rank of 92.



→ Bahrain's innovation top performers

> 2.3.4 QS university ranking of Bahrain's top universities

Rank	University	Score
561-570	APPLIED SCIENCE UNIVERSITY - BAHRAIN	22.00
651-700	AHLIA UNIVERSITY	18.70
801-1000	UNIVERSITY OF BAHRAIN	12.70

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 Bahrain

Rank	Firm	Intensity, %
1	NATIONAL BANK OF BAHRAIN BSC	52.33
2	BAHRAIN TELECOMMUNICATIONS CO BSC	63.01
3	BBK BSC	24.86

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 Bahrain with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	AHLI UNITED BANK	Banking	327.8
2	ALBA	Mining, Iron & Steel	219.8

Source: Brand Finance (<https://brandirectory.com>).

Note: Rank corresponds to within economy ranks.

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GII 2023 rank

67

Bahrain

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
86	47	High	NAWA	1.5	87.9	57,921.5
Score / Value Rank				Score / Value Rank		
Institutions 69.2 28 ●●				Business sophistication 22.9 92 ◇		
1.1 Institutional environment 54.7 45 ◇				5.1 Knowledge workers 19.5 [100]		
1.1.1 Operational stability for businesses* 52.8 65 ◇				5.1.1 Knowledge-intensive employment, % ● 21.9 68		
1.1.2 Government effectiveness* 56.5 40				5.1.2 Firms offering formal training, % n/a n/a		
1.2 Regulatory environment 73.9 36				5.1.3 GERD performed by business, % GDP ● 0.0 80		
1.2.1 Regulatory quality* 64.1 36				5.1.4 GERD financed by business, % ● 21.8 65		
1.2.2 Rule of law* 53.5 43 ◇				5.1.5 Females employed w/advanced degrees, % n/a n/a		
1.2.3 Cost of redundancy dismissal 13.6 49				5.2 Innovation linkages 27.6 49		
1.3 Business environment 79.1 [7]				5.2.1 University-industry R&D collaboration+ 33.3 91 ◇		
1.3.1 Policies for doing business* 79.1 10 ●●				5.2.2 State of cluster development+ 61.2 36		
1.3.2 Entrepreneurship policies and culture* n/a n/a				5.2.3 GERD financed by abroad, % GDP ● 0.0 71		
Human capital and research 28.1 77 ◇				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.1 16 ●●		
2.1 Education 47.8 74 ◇				5.2.5 Patent families/bn PPP\$ GDP 0.0 75		
2.1.1 Expenditure on education, % GDP ● 2.3 115 ○◇				5.3 Knowledge absorption 21.5 122 ○◇		
2.1.2 Government funding/pupil, secondary, % GDP/cap ● 17.4 64				5.3.1 Intellectual property payments, % total trade n/a n/a		
2.1.3 School life expectancy, years ● 16.3 29 ●●				5.3.2 High-tech imports, % total trade ● 4.7 118 ○		
2.1.4 PISA scales in reading, maths and science n/a n/a				5.3.3 ICT services imports, % total trade 0.5 107 ◇		
2.1.5 Pupil-teacher ratio, secondary ● 10.4 35				5.3.4 FDI net inflows, % GDP 3.8 36		
2.2 Tertiary education 30.6 63 ◇				5.3.5 Research talent, % in businesses ● 0.4 82		
2.2.1 Tertiary enrolment, % gross 64.5 49				Knowledge and technology outputs 20.9 74 ◇		
2.2.2 Graduates in science and engineering, % 15.8 96 ◇				6.1 Knowledge creation 5.0 113 ◇		
2.2.3 Tertiary inbound mobility, % 11.7 21 ●●				6.1.1 Patents by origin/bn PPP\$ GDP 0.1 123 ○◇		
2.3 Research and development (R&D) 5.8 71 ◇				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.1 64		
2.3.1 Researchers, FTE/mn pop. ● 369.0 76				6.1.3 Utility models by origin/bn PPP\$ GDP n/a n/a		
2.3.2 Gross expenditure on R&D, % GDP ● 0.1 104				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 0.0 40 ○◇				6.1.5 Citable documents H-index 5.0 103 ◇		
2.3.4 QS university ranking, top 3* 18.0 55				6.2 Knowledge impact 26.2 68 ◇		
Infrastructure 53.8 37				6.2.1 Labor productivity growth, % 2.3 26 ●●		
3.1 Information and communication technologies (ICTs) 75.0 48				6.2.2 Unicorn valuation, % GDP 0.0 48 ○◇		
3.1.1 ICT access* 98.6 3 ●●				6.2.3 Software spending, % GDP 0.3 45		
3.1.2 ICT use* 85.9 34 ●●				6.2.4 High-tech manufacturing, % ● 9.8 93 ◇		
3.1.3 Government's online service* 72.6 54				6.3 Knowledge diffusion 31.6 49		
3.1.4 E-participation* 43.0 86 ◇				6.3.1 Intellectual property receipts, % total trade n/a n/a		
3.2 General infrastructure 65.8 2 ●●				6.3.2 Production and export complexity 54.8 56 ◇		
3.2.1 Electricity output, GWh/mn pop. ● 19,600.5 1 ●●				6.3.3 High-tech exports, % total trade ● 1.4 68 ◇		
3.2.2 Logistics performance* 63.6 33				6.3.4 ICT services exports, % total trade 4.2 26 ●●		
3.2.3 Gross capital formation, % GDP 32.6 17 ●●				6.3.5 ISO 9001 quality/bn PPP\$ GDP 6.6 43		
3.3 Ecological sustainability 20.5 79 ◇				Creative outputs 13.3 98 ◇		
3.3.1 GDP/unit of energy use 4.2 122 ○◇				7.1 Intangible assets 15.2 97 ◇		
3.3.2 Environmental performance* 39.2 66 ◇				7.1.1 Intangible asset intensity, top 15, % -7.1 71 ◇		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 2.2 42				7.1.2 Trademarks by origin/bn PPP\$ GDP 5.1 122 ○◇		
Market sophistication 31.7 78 ◇				7.1.3 Global brand value, top 5,000 1.2 53		
4.1 Credit 27.0 [72]				7.1.4 Industrial designs by origin/bn PPP\$ GDP 0.1 111 ○◇		
4.1.1 Finance for startups and scaleups+ n/a n/a				7.2 Creative goods and services 5.5 [86]		
4.1.2 Domestic credit to private sector, % GDP ● 73.9 47				7.2.1 Cultural and creative services exports, % total trade n/a n/a		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 n/a n/a		
4.2 Investment 15.1 46				7.2.3 Entertainment and media market/th pop. 15-69 3.5 46 ◇		
4.2.1 Market capitalization, % GDP 66.1 26				7.2.4 Creative goods exports, % total trade ● 0.6 57		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.1 33				7.3 Online creativity 17.3 83 ◇		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.0 52				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 5.5 56		
4.2.4 VC received, value, % GDP 0.0 38				7.3.2 Country-code TLDs/th pop. 15-69 1.4 81 ◇		
4.3 Trade, diversification, and market scale 52.9 81				7.3.3 GitHub commits/mn pop. 15-69 6.2 66 ◇		
4.3.1 Applied tariff rate, weighted avg., % 2.0 61				7.3.4 Mobile app creation/bn PPP\$ GDP 56.1 92 ◇		
4.3.2 Domestic industry diversification ● 69.9 94 ◇						
4.3.3 Domestic market scale, bn PPP\$ 87.9 91						

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.



→ Data availability

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



> Bahrain has missing data for eleven indicators and outdated data for eighteen indicators.

> Missing data for Bahrain

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
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	n/a	2022	International Labour Organization
5.3.1	Intellectual property payments, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
6.3.1	Intellectual property receipts, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development
7.2.1	Cultural and creative services exports, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development
7.2.2	National feature films/mn pop. 15-69	n/a	2021	OMDIA; United Nations, World Population Prospects

> Outdated data for Bahrain

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2017	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2019	UNESCO Institute for Statistics

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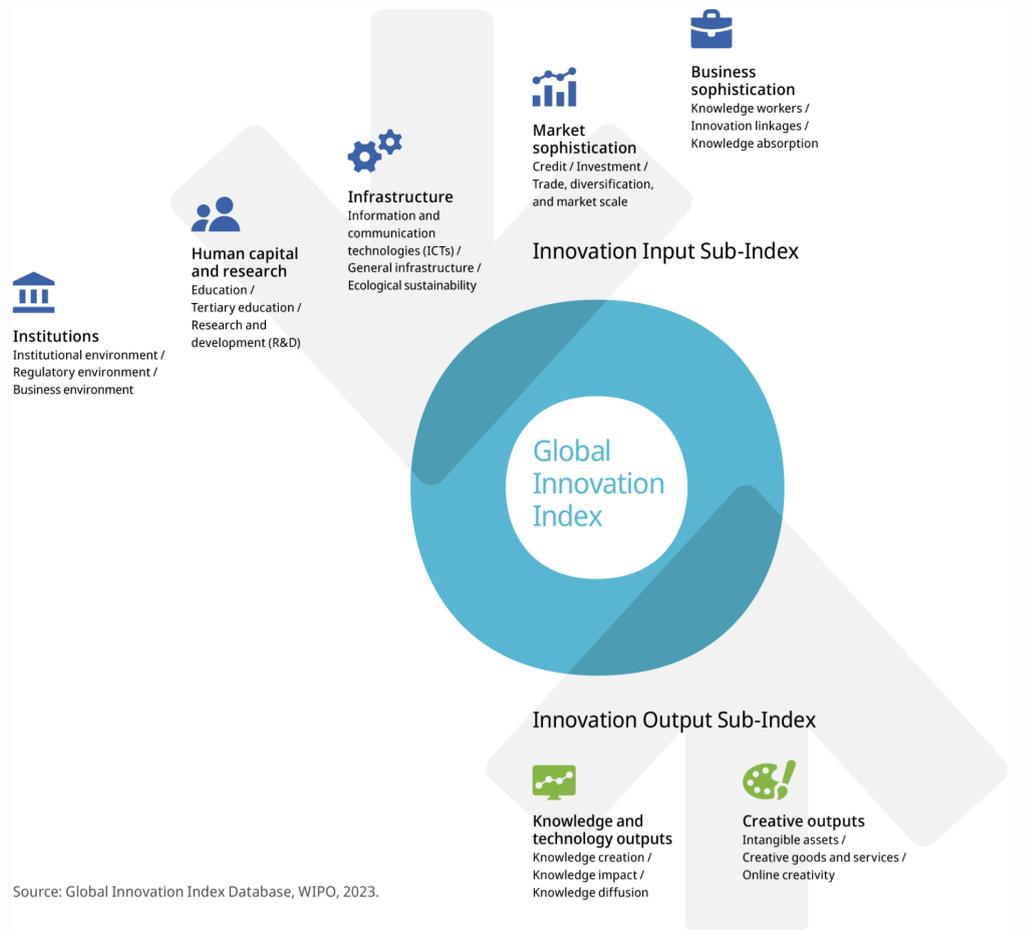
Code	Indicator name	Economy Year	Model Year	Source
2.1.3	School life expectancy, years	2019	2020	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2019	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.2	Domestic credit to private sector, % GDP	2015	2020	International Monetary Fund; World Bank and OECD GDP estimates.
4.3.2	Domestic industry diversification	2016	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2015	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.2	High-tech imports, % total trade	2020	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
5.3.5	Research talent, % in businesses	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2016	2020	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2020	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	2020	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development

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→ 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.



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.