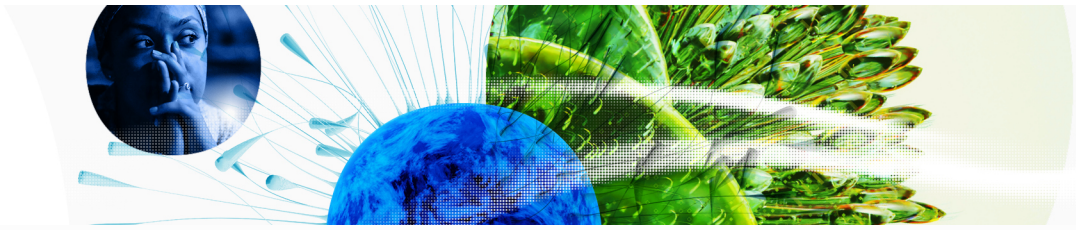
Global Innovation Index 2023



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

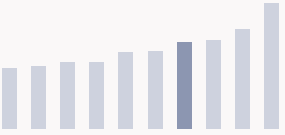
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Uzbekistan ranking in the Global Innovation Index 2023

> Uzbekistan ranks 82nd among the 132 economies featured in the GII 2023.

> Uzbekistan ranks 10th among the 37 lower-middle-income group economies.

> Uzbekistan ranks 4th among the 10 economies in Central and Southern Asia.



> Uzbekistan GII Ranking (2020-2023)

The table shows the rankings of Uzbekistan 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 Uzbekistan in the GII 2023 is between ranks 78 and 84.

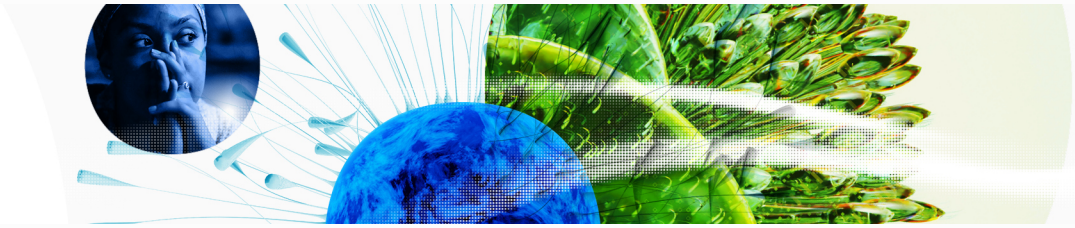
	GII Position	Innovation Inputs	Innovation Outputs
2020	93rd	81st	118th
2021	86th	75th	100th
2022	82nd	68th	91st
2023	82nd	72nd	88th

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

This year Uzbekistan ranks 72nd in innovation inputs. This position is lower than last year.

Uzbekistan ranks 88th in innovation outputs. This position is higher than last year.

Global Innovation Index 2023



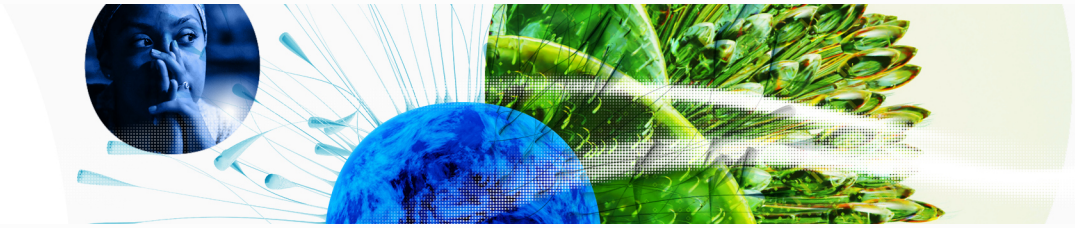
→ Expected vs. observed innovation performance

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, Uzbekistan is performing above expectations for its level of development.

> Innovation overperformers relative to their economic development

Global Innovation Index 2023

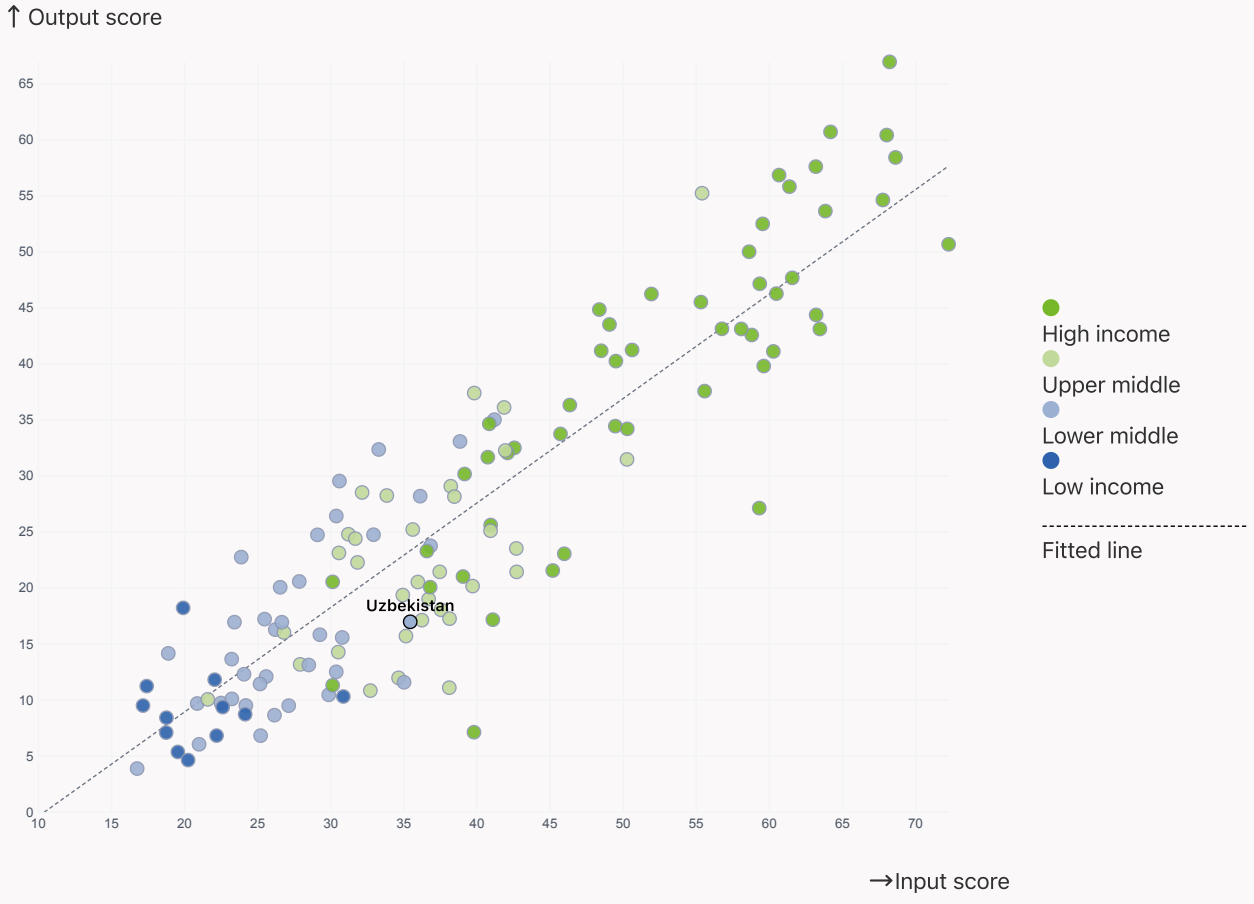


→ Effectively translating innovation investments into innovation outputs

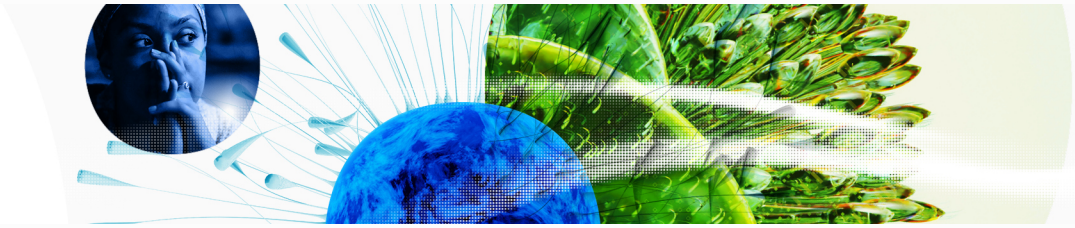
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

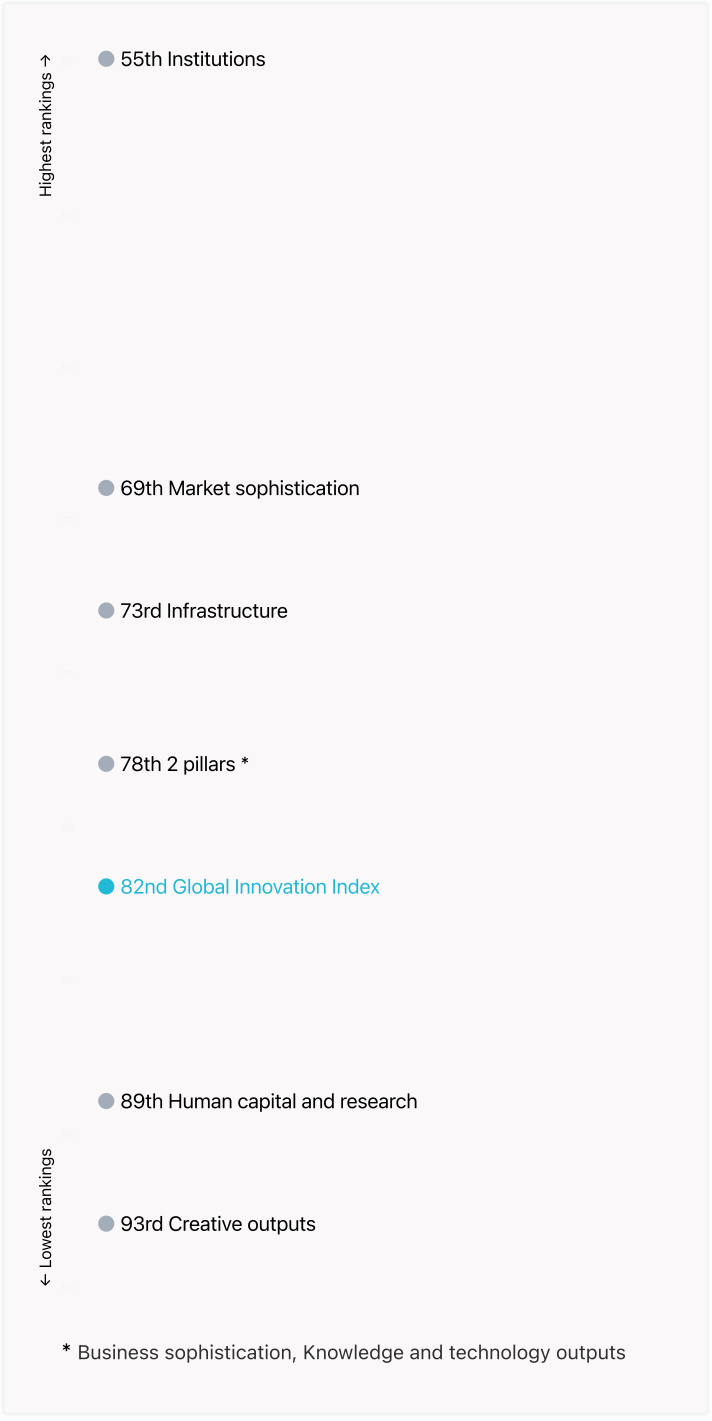


Global Innovation Index 2023



→ Overview of Uzbekistan'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 Uzbekistan are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

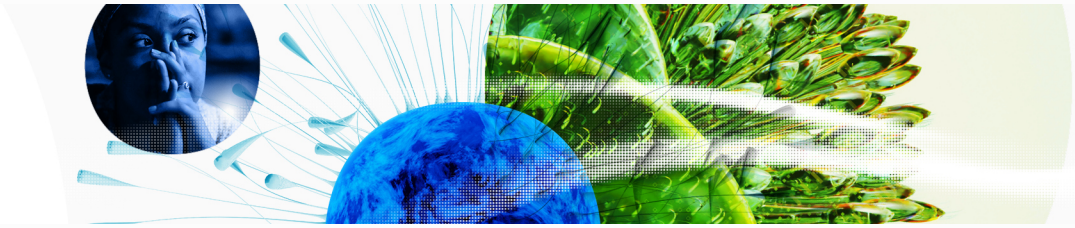
Uzbekistan ranks highest in Institutions (55th), Market sophistication (69th), Infrastructure (73rd) and Business sophistication, Knowledge and technology outputs (78th).

> Lowest rankings

Uzbekistan ranks lowest in Creative outputs (93rd), Human capital and research (89th) and Business sophistication, Knowledge and technology outputs (78th).

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

Global Innovation Index 2023



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

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

> Lower-Middle-Income economies

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

> Central And Southern Asia

Uzbekistan performs above the regional average in Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Central and Southern Asia | Score: 20.48
- Uzbekistan | Score: 19.32
- Lower middle income | Score: 17.21

Creative outputs

- Top 10 | 56.09
- Central and Southern Asia | 17.93
- Lower middle income | 16.35
- Uzbekistan | 14.56

Business sophistication

- Top 10 | 64.39
- Uzbekistan | 25.54
- Central and Southern Asia | 22.96
- Lower middle income | 22.71

Market sophistication

- Top 10 | 61.93
- Uzbekistan | 33.94
- Central and Southern Asia | 33.20
- Lower middle income | 28.01

Human capital and research

- Top 10 | 60.28
- Uzbekistan | 25.22
- Central and Southern Asia | 23.87
- Lower middle income | 21.73

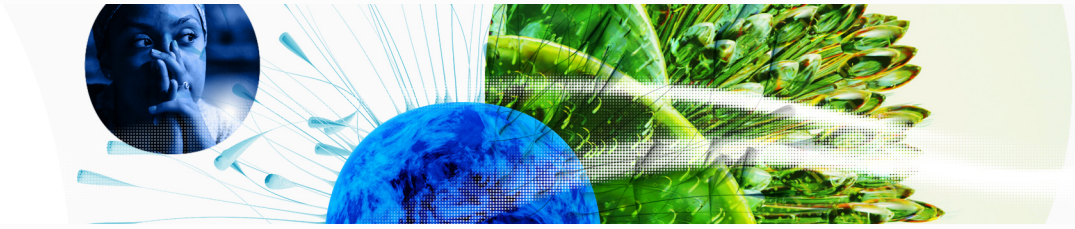
Infrastructure

- Top 10 | 62.83
- Uzbekistan | 37.95
- Central and Southern Asia | 30.45
- Lower middle income | 27.83

Institutions

- Top 10 | 79.85
- Uzbekistan | 54.75
- Lower middle income | 39.43
- Central and Southern Asia | 38.68

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Uzbekistan

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

> Uzbekistan's main innovation strengths are **Gross capital formation, % GDP** (rank 6), **Labor productivity growth, %** (rank 6) and **Graduates in science and engineering, %** (rank 12).

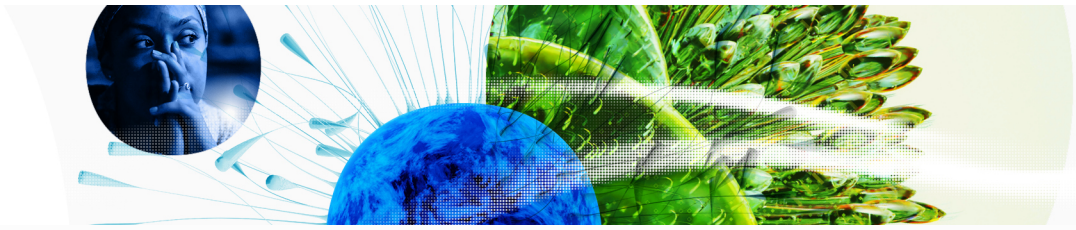
Strengths

Rank	Code	Indicator name
6	3.2.3	Gross capital formation, % GDP
6	6.2.1	Labor productivity growth, %
12	2.2.2	Graduates in science and engineering, %
17	6.1.3	Utility models by origin/bn PPP$ GDP
23	1.3.1	Policies for doing business
27	5.3.2	High-tech imports, % total trade
28	2.1.5	Pupil-teacher ratio, secondary
29	5.2.2	State of cluster development
32	5.2.1	University-industry R&D collaboration
41	5.3.4	FDI net inflows, % GDP

Weaknesses

Rank	Code	Indicator name
132	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69
122	6.3.3	High-tech exports, % total trade
117	6.1.4	Scientific and technical articles/bn PPP$ GDP
95	5.2.5	Patent families/bn PPP$ GDP
92	5.2.3	GERD financed by abroad, % GDP
88	5.1.2	Firms offering formal training, %
73	7.2.2	National feature films/mn pop. 15-69
71	2.3.4	QS university ranking, top 3
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

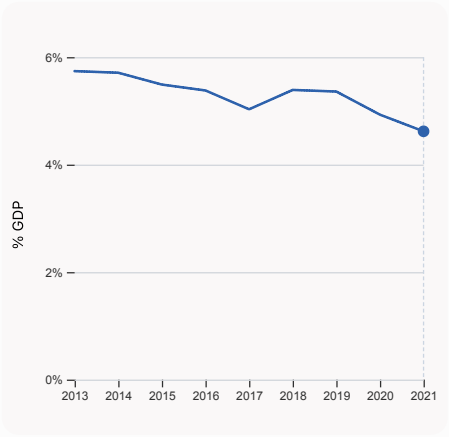
Global Innovation Index 2023



→ Uzbekistan's innovation system

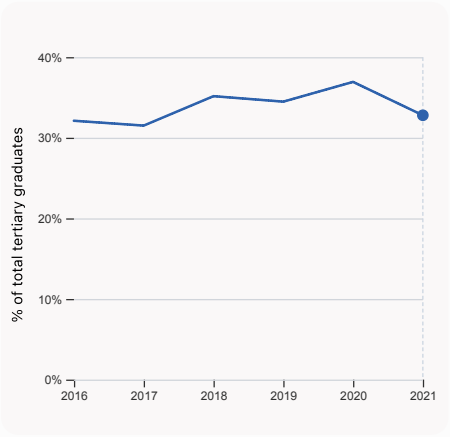
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Uzbekistan



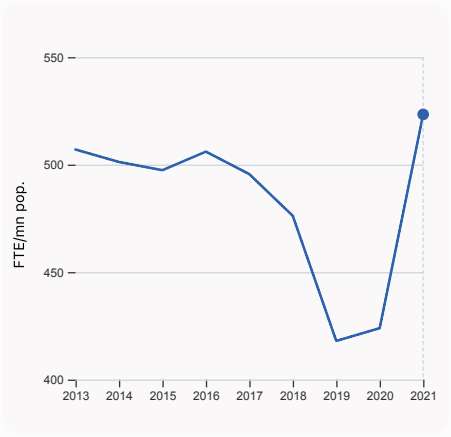
2.1.1 Expenditure on education, % GDP

was equal to 4.62% GDP in 2021, down by 0.31 percentage points from the year prior – and equivalent to an indicator rank of 52.



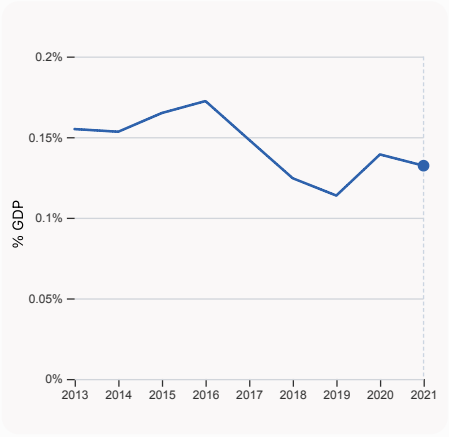
2.2.2 Graduates in science and engineering, %

was equal to 32.79% of total tertiary graduates in 2021, down by 4.14 percentage points from the year prior – and equivalent to an indicator rank of 12.



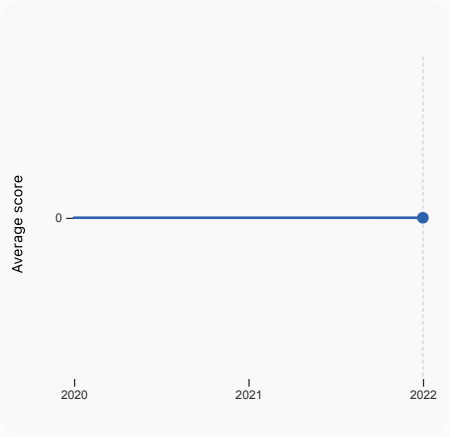
2.3.1 Researchers, FTE/mn pop.

was equal to 523.38 FTE/mn pop. in 2021, up by 23.46% from the year prior – and equivalent to an indicator rank of 69.



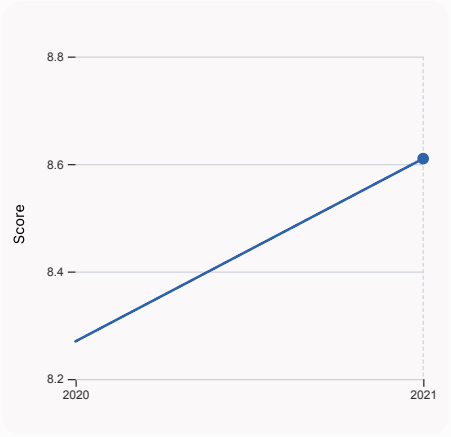
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.132% GDP in 2021, down by 0.007 percentage points from the year prior – and equivalent to an indicator rank of 99.



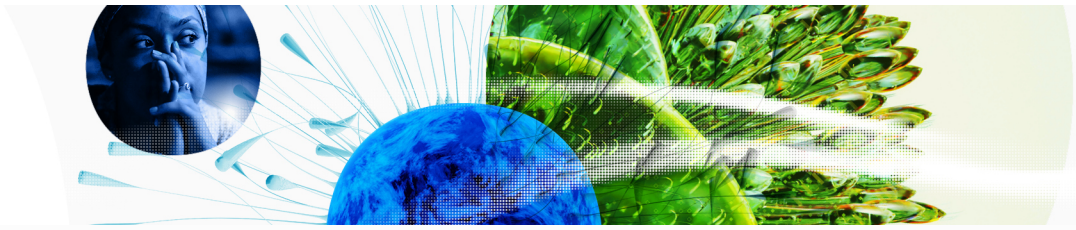
2.3.4 QS university ranking, top 3

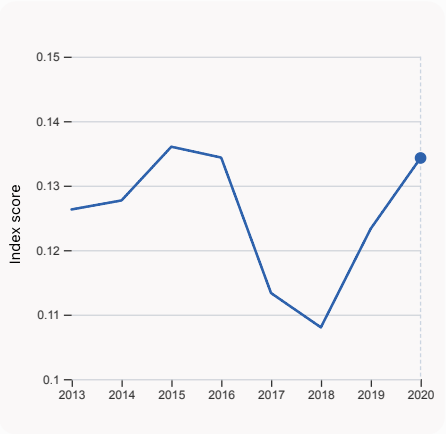
was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.



3.1.1 ICT access

was equal to a score of 8.61 in 2021, up by 4.11% from the year prior – and equivalent to an indicator rank of 75.

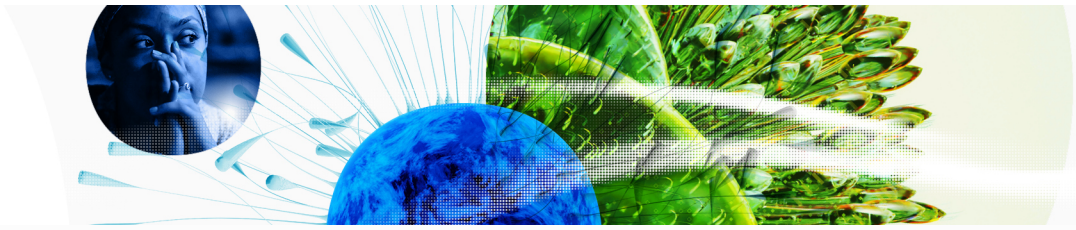




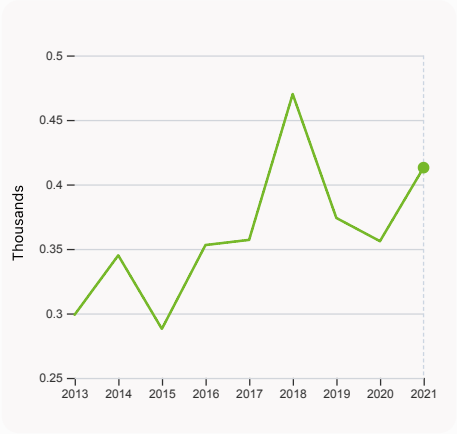
4.3.2 Domestic industry diversification

was equal to an index score of 0.134 in 2020, up by 8.89% from the year prior – and equivalent to an indicator rank of 42.

Global Innovation Index 2023

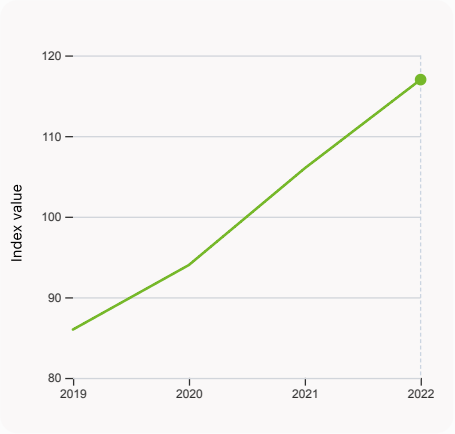


> Innovation outputs in Uzbekistan



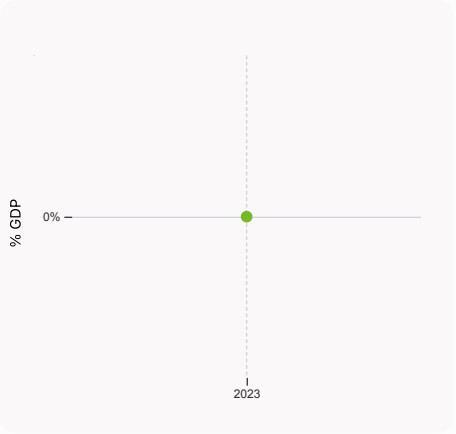
6.1.1 Patents by origin

was equal to 0.41 Thousands in 2021, up by 16.011% from the year prior – and equivalent to an indicator rank of 47.



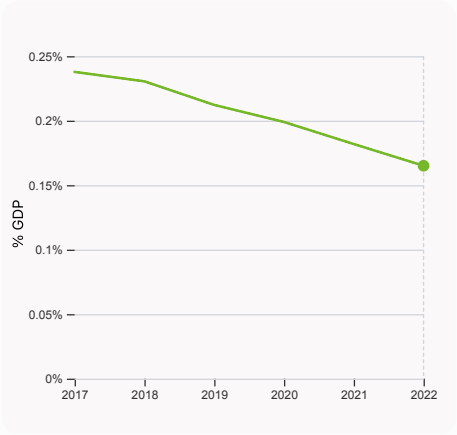
6.1.5 Citable documents H-index

was equal to an index value of 117 in 2022, up by 10.38% from the year prior – and equivalent to an indicator rank of 115.



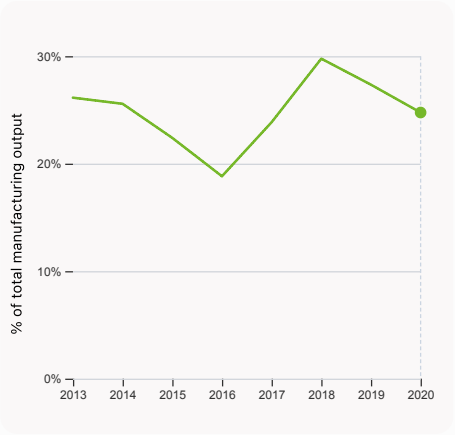
6.2.2 Unicorn valuation, % GDP

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



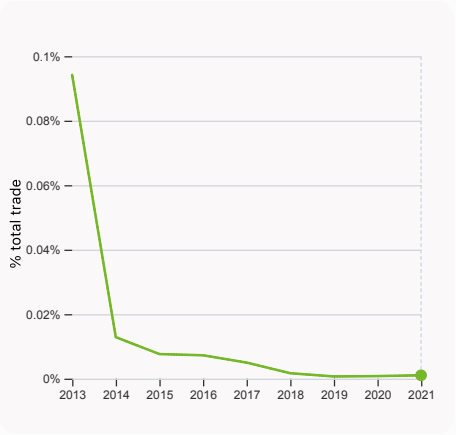
6.2.3 Software spending, % GDP

was equal to 0.165% GDP in 2022, down by 0.017 percentage points from the year prior – and equivalent to an indicator rank of 80.



6.2.4 High-tech manufacturing, %

was equal to 24.76% of total manufacturing output in 2020, down by 2.59 percentage points from the year prior – and equivalent to an indicator rank of 51.



6.3.1 Intellectual property receipts, % total trade

was equal to 0.001% total trade in 2021, up by 0.00025 percentage points from the year prior – and equivalent to an indicator rank of 104.

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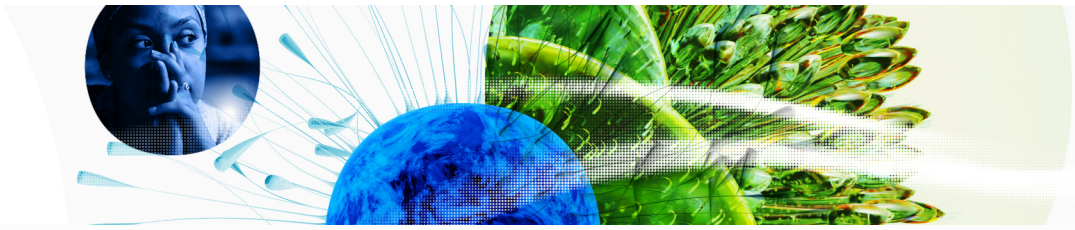
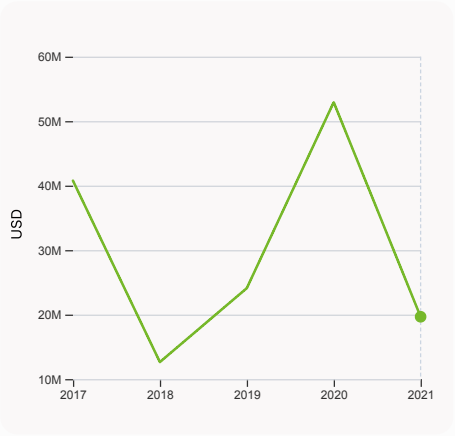


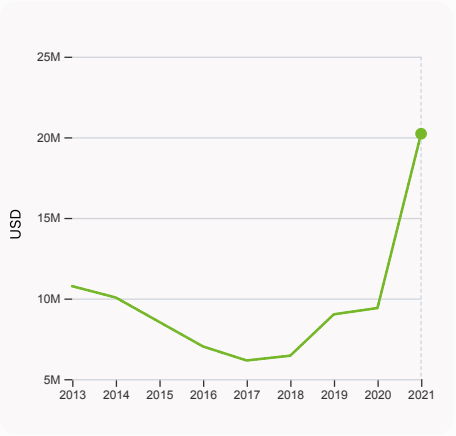
6.3.2 Production and export complexity

was equal to a score of -0.255 in 2020, up by 49.56% from the year prior – and equivalent to an indicator rank of 77.



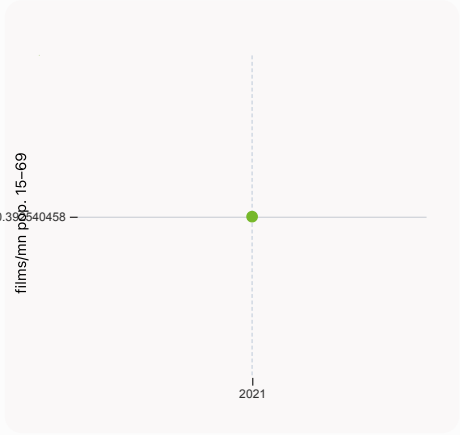
6.3.3 High-tech exports

was equal to 19,668,992 USD in 2021, down by 62.84% from the year prior – and equivalent to an indicator rank of 122.



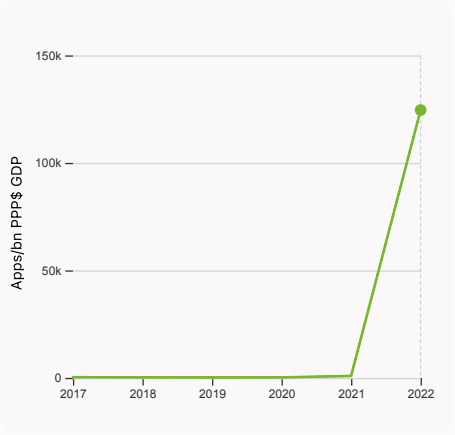
7.2.1 Cultural and creative services exports

was equal to 20,219,000 USD in 2021, up by 114.89% from the year prior – and equivalent to an indicator rank of 88.



7.2.2 National feature films/mn pop. 15-69

was equal to 0.393 films/mn pop. 15–69 in 2021 – and equivalent to an indicator rank of 73.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 124,596.4 Apps/bn PPP$ GDP in 2022, up by 13650.84% from the year prior – and equivalent to an indicator rank of 79.

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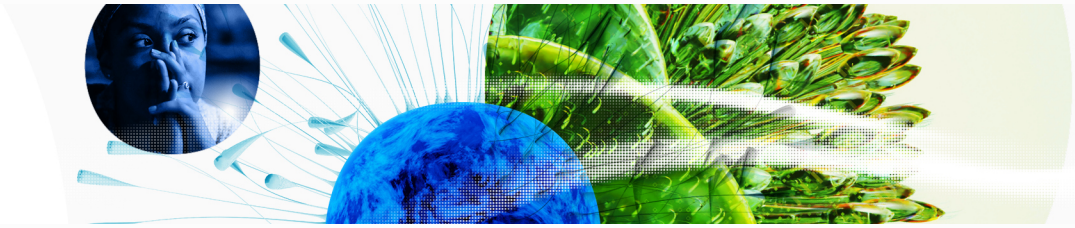


Uzbekistan

GII 2023 rank **82**

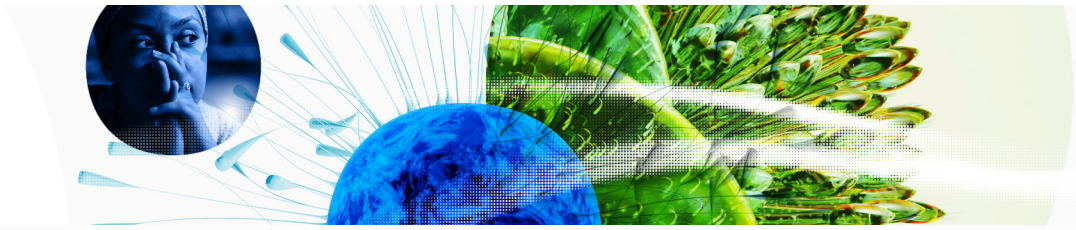
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
88	72	Lower middle	CSA	34.6	334.3	9,478.5

	Score / Value	Rank
Institutions	**54.7**	**55**
1.1 Institutional environment	**40.0**	**76**
1.1.1 Operational stability for businesses*	48.6	74
1.1.2 Government effectiveness*	31.3	84
1.2 Regulatory environment	**51.0**	**97**
1.2.1 Regulatory quality*	27.0	104
1.2.2 Rule of law*	13.8	115
1.2.3 Cost of redundancy dismissal	17.3	73
1.3 Business environment	**73.3**	**19**
1.3.1 Policies for doing business†	73.3	23 ●
1.3.2 Entrepreneurship policies and culture†	n/a	n/a
Human capital and research	**25.2**	**89**
2.1 Education	**46.4**	**78**
2.1.1 Expenditure on education, % GDP	4.6	52
2.1.2 Government funding/pupil, secondary, % GDP/cap	13.9	79
2.1.3 School life expectancy, years	12.1	93
2.1.4 PISA scales in reading, maths and science	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	9.8	28 ●
2.2 Tertiary education	**27.4**	**74**
2.2.1 Tertiary enrolment, % gross	21.2	99
2.2.2 Graduates in science and engineering, %	32.8	12 ●
2.2.3 Tertiary inbound mobility, %	0.7	97
2.3 Research and development (R&D)	**1.9**	**92**
2.3.1 Researchers, FTE/mn pop.	523.4	69
2.3.2 Gross expenditure on R&D, % GDP	0.1	99
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40 ○ ◇
2.3.4 QS university ranking, top 3*	0.0	71 ○ ◇
Infrastructure	**37.9**	**73**
3.1 Information and communication technologies (ICTs)	**71.4**	**63**
3.1.1 ICT access*	79.1	75
3.1.2 ICT use*	74.5	63
3.1.3 Government's online service*	71.7	57
3.1.4 E-participation*	60.5	55
3.2 General infrastructure	**27.3**	**62**
3.2.1 Electricity output, GWh/mn pop.	1,942.6	83
3.2.2 Logistics performance*	22.7	82
3.2.3 Gross capital formation, % GDP	42.1	6 ●
3.3 Ecological sustainability	**15.1**	**102**
3.3.1 GDP/unit of energy use	5.8	110 ◇
3.3.2 Environmental performance*	32.7	79
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.3	99
Market sophistication	**33.9**	**69**
4.1 Credit	**7.0**	**121**
4.1.1 Finance for startups and scaleups†	n/a	n/a
4.1.2 Domestic credit to private sector, % GDP	35.7	90
4.1.3 Loans from microfinance institutions, % GDP	0.2	49
4.2 Investment	**n/a**	**n/a**
4.2.1 Market capitalization, % GDP	n/a	n/a
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a
4.2.3 VC recipients, deals/bn PPP$ GDP	n/a	n/a
4.2.4 VC received, value, % GDP	n/a	n/a
4.3 Trade, diversification, and market scale	**60.8**	**51**
4.3.1 Applied tariff rate, weighted avg., %	2.6	68
4.3.2 Domestic industry diversification	92.4	42
4.3.3 Domestic market scale, bn PPP$	334.3	56

	Score / Value	Rank
Business sophistication	**25.5**	**78**
5.1 Knowledge workers	**23.3**	**87**
5.1.1 Knowledge-intensive employment, %	n/a	n/a
5.1.2 Firms offering formal training, %	16.9	88 ○ ◇
5.1.3 GERD performed by business, % GDP	0.1	69
5.1.4 GERD financed by business, %	42.4	40
5.1.5 Females employed w/advanced degrees, %	8.1	84
5.2 Innovation linkages	**26.3**	**51**
5.2.1 University-industry R&D collaboration†	62.4	32 ●
5.2.2 State of cluster development†	66.1	29 ●
5.2.3 GERD financed by abroad, % GDP	0.0	92 ○
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	96
5.2.5 Patent families/bn PPP$ GDP	0.0	95 ○ ◇
5.3 Knowledge absorption	**27.0**	**92**
5.3.1 Intellectual property payments, % total trade	0.5	75
5.3.2 High-tech imports, % total trade	10.9	27 ●
5.3.3 ICT services imports, % total trade	0.6	101
5.3.4 FDI net inflows, % GDP	3.3	41 ●
5.3.5 Research talent, % in businesses	12.9	57
Knowledge and technology outputs	**19.3**	**78**
6.1 Knowledge creation	**12.4**	**72**
6.1.1 Patents by origin/bn PPP$ GDP	1.4	47
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	99
6.1.3 Utility models by origin/bn PPP$ GDP	1.3	17 ●
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	4.1	115
6.2 Knowledge impact	**33.9**	**44**
6.2.1 Labor productivity growth, %	5.0	6 ●
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.2	80
6.2.4 High-tech manufacturing, %	24.8	51
6.3 Knowledge diffusion	**11.6**	**100**
6.3.1 Intellectual property receipts, % total trade	0.0	104
6.3.2 Production and export complexity	47.2	77
6.3.3 High-tech exports, % total trade	0.1	122 ○
6.3.4 ICT services exports, % total trade	0.8	92
6.3.5 ISO 9001 quality/bn PPP$ GDP	1.2	103
Creative outputs	**14.6**	**93**
7.1 Intangible assets	**19.5**	**86**
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
7.1.2 Trademarks by origin/bn PPP$ GDP	35.3	65
7.1.3 Global brand value, top 5,000	n/a	n/a
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.8	77
7.2 Creative goods and services	**3.0**	**96**
7.2.1 Cultural and creative services exports, % total trade	0.1	88
7.2.2 National feature films/mn pop. 15-69	0.4	73 ○
7.2.3 Entertainment and media market/th pop. 15-69	3.2	49
7.2.4 Creative goods exports, % total trade	0.4	64
7.3 Online creativity	**16.2**	**90**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.0	132 ○ ◇
7.3.2 Country-code TLDs/th pop. 15-69	1.4	78
7.3.3 GitHub commits/mn pop. 15-69	2.6	94
7.3.4 Mobile app creation/bn PPP$ GDP	60.8	79

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 Uzbekistan.

> Uzbekistan has missing data for ten indicators and outdated data for nine indicators.

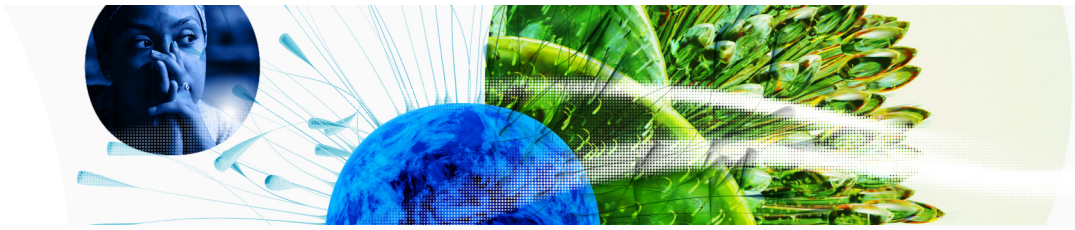
> Missing data for Uzbekistan

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
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2022	Refinitiv; International Monetary Fund
5.1.1	Knowledge-intensive employment, %	n/a	2022	International Labour Organization
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.1.3	Global brand value, top 5,000	n/a	2023	Brand Finance; International Monetary Fund

> Outdated data for Uzbekistan

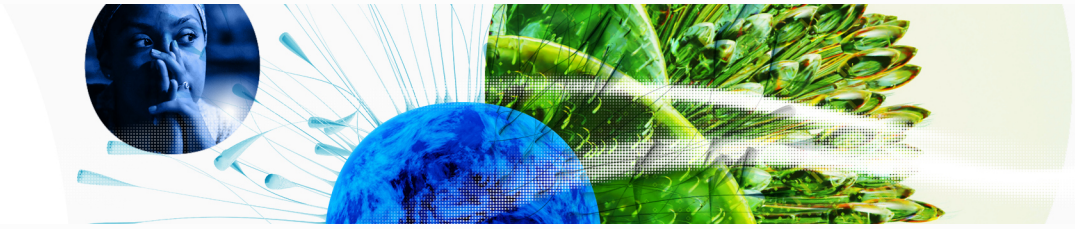
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
5.1.3	GERD performed by business, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2023



Code	Indicator name	Economy Year	Model Year	Source
5.1.5	Females employed w/advanced degrees, %	2020	2022	International Labour Organization
5.2.1	University-industry R&D collaboration	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	GERD financed by abroad, % GDP	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

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.

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.