Global Innovation Index 2022

UZBEKISTAN

82nd Uzbekistan ranks 82nd among the 132 economies featured in the GII 2022.

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 Uzbekistan 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 Uzbekistan in the GII 2022 is between ranks 81 and 87.

Rankings for Uzbekistan (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	93	81	118
2021	86	75	100
2022	82	68	91

- Uzbekistan performs better in innovation inputs than innovation outputs in 2022.
- This year Uzbekistan ranks 68th in innovation inputs, higher than both 2021 and 2020.
- As for innovation outputs, Uzbekistan ranks 91st. This position is higher than both 2021 and 2020.

10th Uzbekistan ranks 10th among the 36 lower-middle-income group economies.

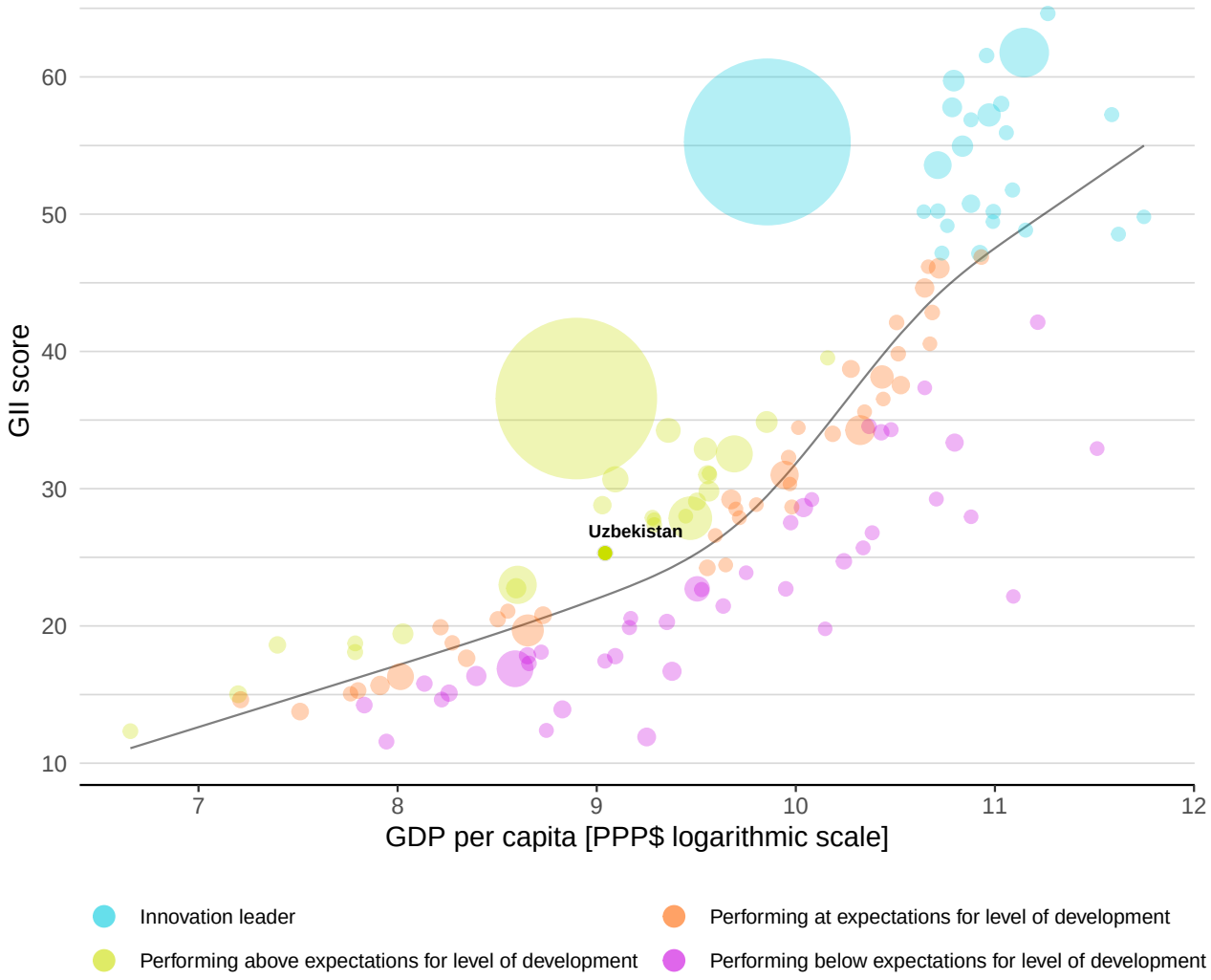
3rd Uzbekistan ranks 3rd among the 10 economies in Central and Southern Asia.

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, Uzbekistan's performance is above expectations for its level of development.

The positive relationship between innovation and development

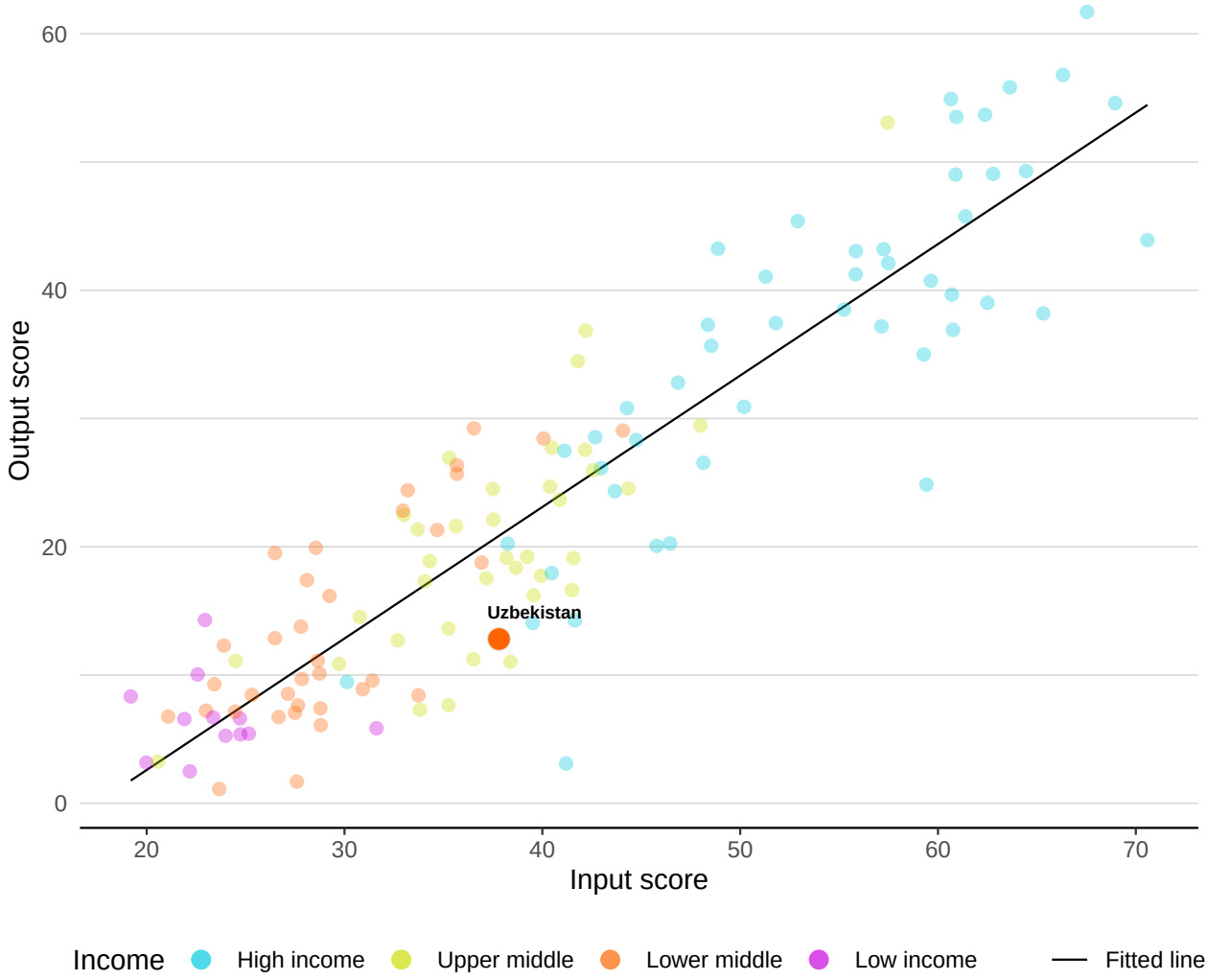


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND CENTRAL AND SOUTHERN ASIA

The seven GII pillar scores for Uzbekistan

Lower-middle-income group economies

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

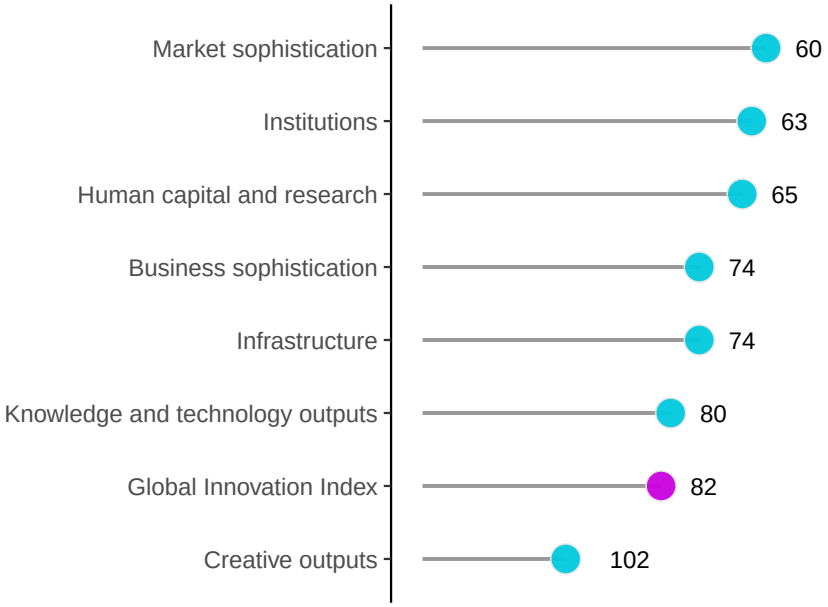
Central and Southern Asia

Uzbekistan performs above the regional average in five pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; and, Business sophistication.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Uzbekistan performs best in Market sophistication and its weakest performance is in Creative outputs.

The seven GII pillar ranks for Uzbekistan



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Uzbekistan can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=UZ.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Uzbekistan in the GII 2022.

Strengths and weaknesses for Uzbekistan

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.3.1	Policies for doing business	22	1.2.1	Regulatory quality	123
2.1.5	Pupil-teacher ratio, secondary	37	1.2.2	Rule of law	123
2.2.2	Graduates in science and engineering, %	6	2.2.3	Tertiary inbound mobility, %	106
3.1.3	Government's online service	46	2.3.3	Global corporate R&D investors, top 3, mn USD	38
3.2.3	Gross capital formation, % GDP	6	2.3.4	QS university ranking, top 3	72
4.3.2	Domestic industry diversification	37	3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	125
5.2.1	University-industry R&D collaboration	29	5.2.3	GERD financed by abroad, % GDP	93
5.2.2	State of cluster development and depth	27	6.1.4	Scientific and technical articles/bn PPP$ GDP	124
6.1.3	Utility models by origin/bn PPP$ GDP	18	7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	132
6.2.1	Labor productivity growth, %	7	7.3.4	Mobile app creation/bn PPP$ GDP	107

GII 2022 rank

Uzbekistan

82

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
91	68	Lower middle	CSA	33.9	291.2	8,452

		Score/ Value	Rank	
Institutions		**57.3**	**63**	◆
1.1	**Political environment**	52.1	94	
1.1.1	Political and operational stability*	65.5	74	
1.1.2	Government effectiveness*	38.8	98	
1.2	**Regulatory environment**	50.7	104	
1.2.1	Regulatory quality*	21.3	123 ○	
1.2.2	Rule of law*	18.5	123 ○	◇
1.2.3	Cost of redundancy dismissal	17.3	73	
1.3	**Business environment**	69.2	[21]	
1.3.1	Policies for doing business†	69.2	22 ●	◆
1.3.2	Entrepreneurship policies and culture*	n/a	n/a	
Human capital and research		**30.8**	**65**	◆
2.1	**Education**	57.4	[50]	
2.1.1	Expenditure on education, % GDP	4.9	45	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	12.5	88	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	10.9	37 ●	◆
2.2	**Tertiary education**	33.9	54	◆
2.2.1	Tertiary enrolment, % gross	15.9	101	
2.2.2	Graduates in science and engineering, %	36.9	6 ●	◆
2.2.3	Tertiary inbound mobility, % ◴	0.2	106 ○	
2.3	**Research and development (R&D)**	1.2	93	
2.3.1	Researchers, FTE/mn pop.	423.9	73	
2.3.2	Gross expenditure on R&D, % GDP	0.1	98	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38 ○	◇
2.3.4	QS university ranking, top 3*	0.0	72 ○	◇
Infrastructure		**41.7**	**74**	◆
3.1	**Information and communication technologies (ICTs)**	76.1	55	◆
3.1.1	ICT access*	82.7	78	
3.1.2	ICT use*	62.3	66	◆
3.1.3	Government's online service*	78.2	46 ●	◆
3.1.4	E-participation*	81.0	46	◆
3.2	**General infrastructure**	32.6	56	◆
3.2.1	Electricity output, GWh/mn pop. ◴	1,891.9	84	
3.2.2	Logistics performance*	24.7	92	
3.2.3	Gross capital formation, % GDP	40.6	6 ●	◆
3.3	**Ecological sustainability**	16.4	117	
3.3.1	GDP/unit of energy use	5.2	118	◇
3.3.2	Environmental performance*	38.2	77	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	125 ○	
Market sophistication		**33.9**	**60**	
4.1	**Credit**	7.1	119	
4.1.1	Finance for startups and scaleups*	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	35.7	87	
4.1.3	Loans from microfinance institutions, % GDP	0.2	51	
4.2	**Investment**	n/a	[n/a]	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	n/a	n/a	
4.2.4	Venture capital received, value, % GDP	n/a	n/a	
4.3	**Trade, diversification, and market scale**	60.7	51	
4.3.1	Applied tariff rate, weighted avg., %	2.6	69	◆
4.3.2	Domestic industry diversification	92.9	37 ●	
4.3.3	Domestic market scale, bn PPP$	291.2	59	

		Score/ Value	Rank	
Business sophistication		**25.3**	**74**	
5.1	**Knowledge workers**	28.4	70	
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	39	◆
5.1.5	Females employed w/advanced degrees, % ◴	13.7	56	◆
5.2	**Innovation linkages**	24.7	59	◆
5.2.1	University-industry R&D collaboration†	56.0	29 ●	◆
5.2.2	State of cluster development and depth†	59.9	27 ●	◆
5.2.3	GERD financed by abroad, % GDP ◴	0.0	93 ○	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	66	
5.2.5	Patent families/bn PPP$ GDP	0.0	91	
5.3	**Knowledge absorption**	22.8	100	
5.3.1	Intellectual property payments, % total trade	0.4	74	
5.3.2	High-tech imports, % total trade	9.1	54	
5.3.3	ICT services imports, % total trade	0.7	98	
5.3.4	FDI net inflows, % GDP	2.6	54	
5.3.5	Research talent, % in businesses ◴	12.9	58	
Knowledge and technology outputs		**17.9**	**80**	
6.1	**Knowledge creation**	9.1	78	
6.1.1	Patents by origin/bn PPP$ GDP	1.3	56	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	95	
6.1.3	Utility models by origin/bn PPP$ GDP	1.3	18 ●	
6.1.4	Scientific and technical articles/bn PPP$ GDP	2.4	124 ○	
6.1.5	Citable documents H-index	3.4	113	
6.2	**Knowledge impact**	33.9	42 ●	◆
6.2.1	Labor productivity growth, %	4.7	7 ●	◆
6.2.2	New businesses/th pop. 15–64	2.7	49	◆
6.2.3	Software spending, % GDP	n/a	n/a	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.5	92	
6.2.5	High-tech manufacturing, %	27.3	46	
6.3	**Knowledge diffusion**	10.7	101	
6.3.1	Intellectual property receipts, % total trade	0.0	106	
6.3.2	Production and export complexity	30.3	85	
6.3.3	High-tech exports, % total trade	0.3	98	
6.3.4	ICT services exports, % total trade	0.9	87	
Creative outputs		**7.7**	**[102]**	
7.1	**Intangible assets**	12.5	[94]	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	30.9	75	
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.6	82	
7.2	**Creative goods and services**	5.3	[100]	
7.2.1	Cultural and creative services exports, % total trade	0.1	92	
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	Printing and other media, % manufacturing	0.5	79	
7.2.5	Creative goods exports, % total trade	0.3	68	
7.3	**Online creativity**	0.5	109	
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	1.2	79	
7.3.3	GitHub commit pushes received/mn pop. 15–69	0.9	104	
7.3.4	Mobile app creation/bn PPP$ GDP	0.0	107 ○	

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/global_innovation_index/en/2022. 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 Uzbekistan.

Missing data for Uzbekistan

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2018	UNESCO Institute for Statistics
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	2021	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	2021	Refinitiv
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	n/a	2021	Refinitiv
4.2.4	Venture capital received, value, % GDP	n/a	2021	Refinitiv
5.1.1	Knowledge-intensive employment, %	n/a	2021	International Labour Organization
6.2.3	Software spending, % GDP	n/a	2021	IHS Markit
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance
7.1.3	Global brand value, top 5,000, % GDP	n/a	2021	Brand Finance
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

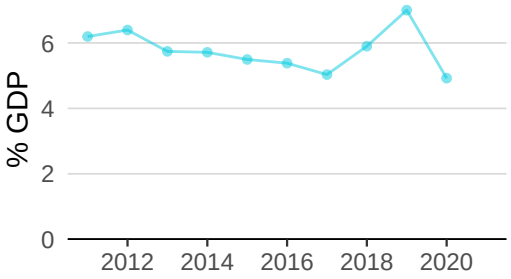
Outdated data for Uzbekistan

Code	Indicator name	Economy year	Model year	Source
2.2.3	Tertiary inbound mobility, %	2018	2019	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
5.1.3	GERD performed by business, % GDP	2018	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	2018	2019	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2020	2021	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2018	2019	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	2018	2020	UNESCO Institute for Statistics

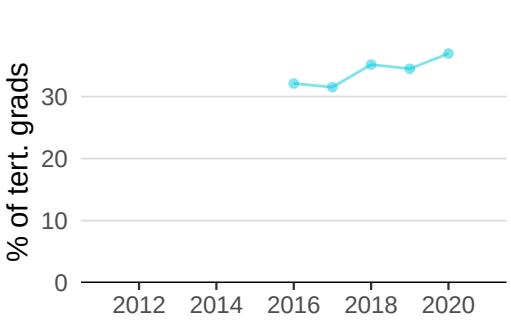
UZBEKISTAN'S INNOVATION SYSTEM

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

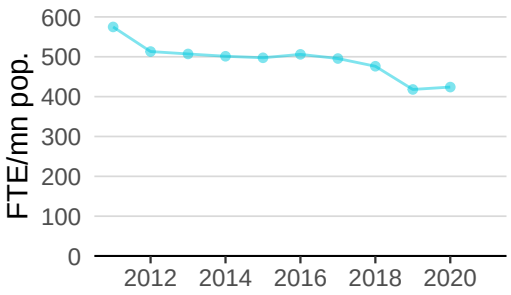
Innovation inputs



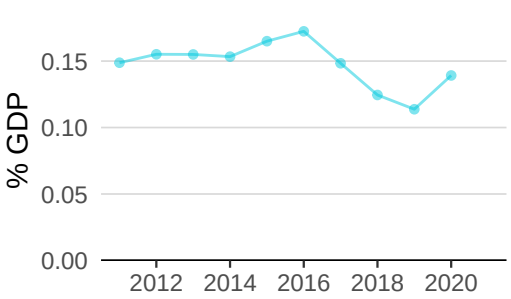
2.1.1 Expenditure on education was equal to 4.9% GDP in 2020–down by 30 percentage points from the year prior–and equivalent to an indicator rank of 45.



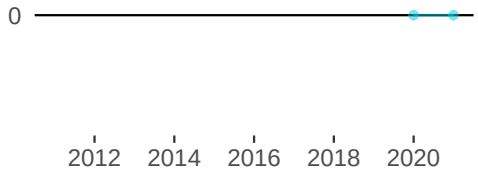
2.2.2 Graduates in science and engineering was equal to 36.9% of tert. grads in 2020–up by 7 percentage points from the year prior–and equivalent to an indicator rank of 6.



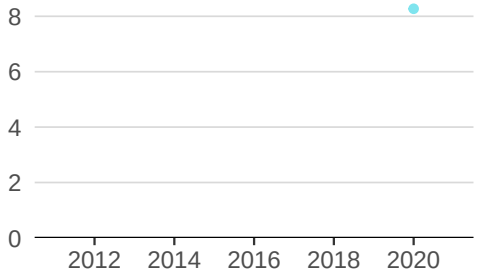
2.3.1 Researchers was equal to 423.9 FTE/mn pop. in 2020–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 73.



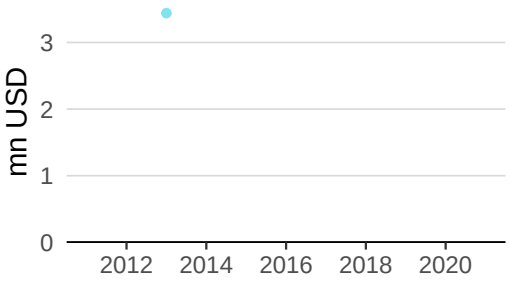
2.3.2 Gross expenditure on R&D was equal to 0.1% GDP in 2020–up by 22 percentage points from the year prior–and equivalent to an indicator rank of 98.



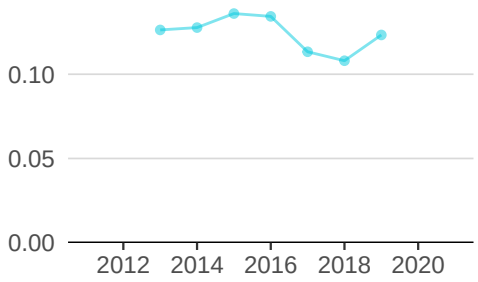
2.3.4 QS university ranking was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



3.1.1 ICT access was equal to 8.3 in 2020 and equivalent to an indicator rank of 78.

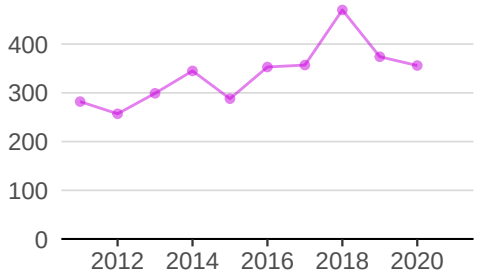


4.2.4 Venture capital received was equal to 3.4 mn USD in 2013 .

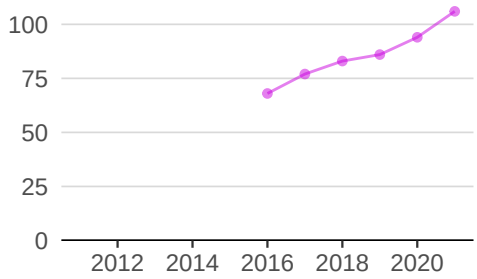


4.3.2 Domestic industry diversification was equal to 0.1 in 2019–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 37.

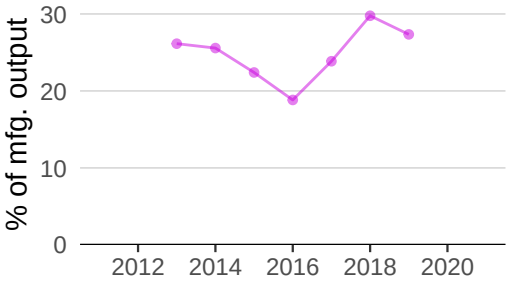
Innovation outputs



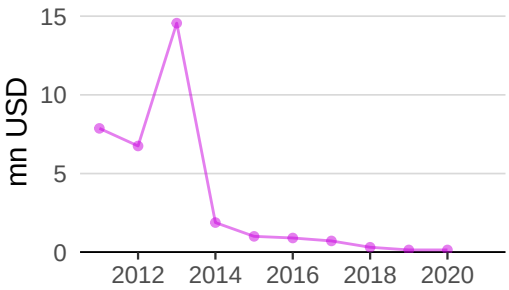
6.1.1 Patents by origin was equal to 356.0 in 2020–down by 5 percentage points from the year prior–and equivalent to an indicator rank of 56.



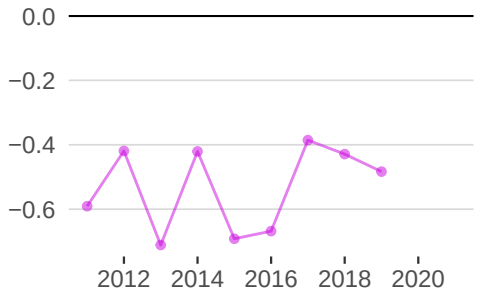
6.1.5 Citable documents H-index was equal to 106.0 in 2021–up by 13 percentage points from the year prior–and equivalent to an indicator rank of 113.



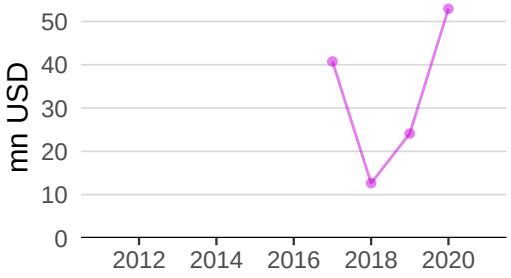
6.2.5 High-tech manufacturing was equal to 27.3% of mfg. output in 2019–down by 8 percentage points from the year prior–and equivalent to an indicator rank of 46.



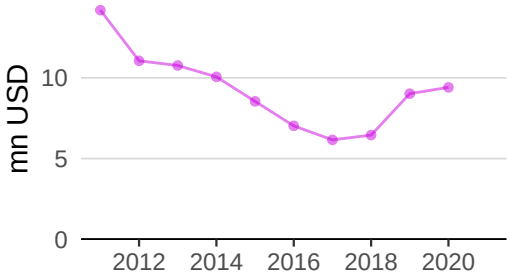
6.3.1 Intellectual property receipts was equal to 0.1 mn USD in 2020–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 106.



6.3.2 Production and export complexity was equal to -0.5 in 2019–down by 13 percentage points from the year prior–and equivalent to an indicator rank of 85.



6.3.3 High-tech exports was equal to 52.9 mn USD in 2020–up by 120 percentage points from the year prior–and equivalent to an indicator rank of 98.



7.2.1 Cultural and creative services exports was equal to 9.4 mn USD in 2020–up by 4 percentage points from the year prior–and equivalent to an indicator rank of 92.

UZBEKISTAN'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

2.3.4 QS university ranking

University	Score	Rank

No observations

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).

7.1.1 Intangible asset intensity, top 15

Firm	Rank

No observations

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank

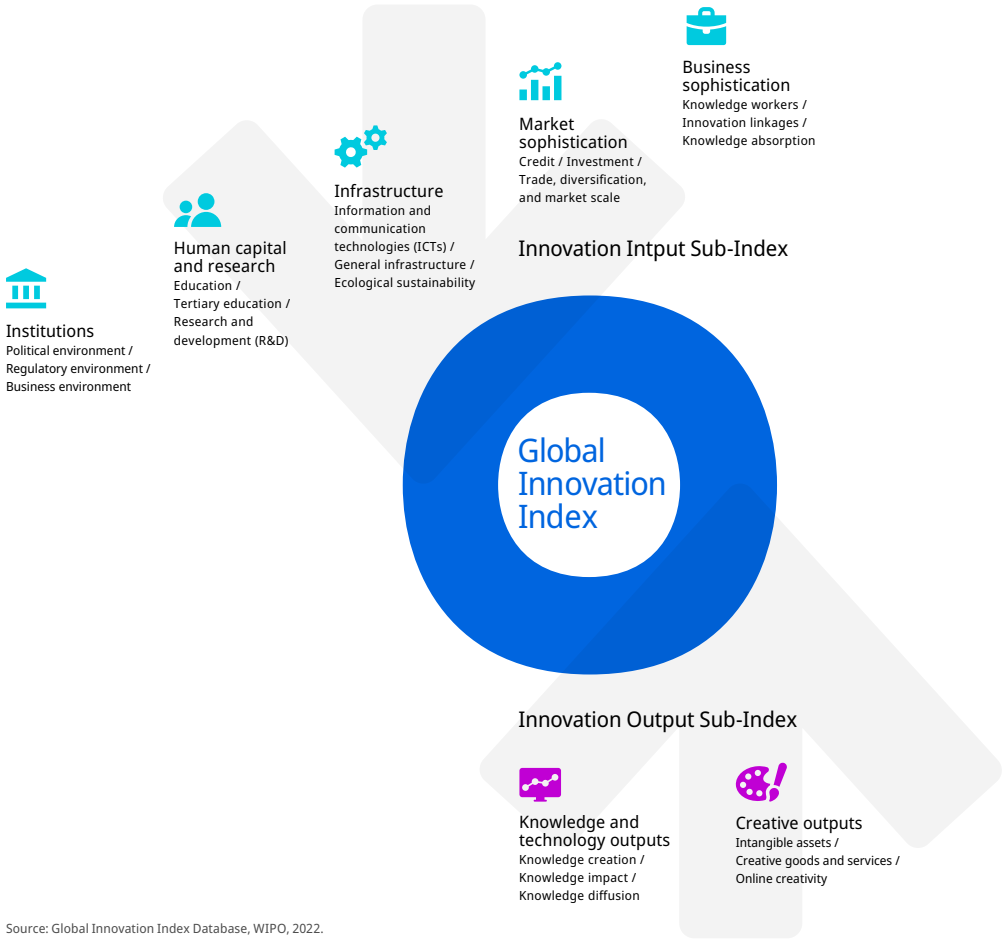
No observations

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

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, 2022.

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.