



AZERBAIJAN

93rd Azerbaijan ranks 93rd 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 Azerbaijan 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 Azerbaijan in the GII 2022 is between ranks 90 and 101.

Rankings for Azerbaijan (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	82	76	86
2021	80	74	91
2022	93	79	110

- Azerbaijan performs better in innovation inputs than innovation outputs in 2022.
- This year Azerbaijan ranks 79th in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Azerbaijan ranks 110th. This position is lower than both 2021 and 2020.

32nd Azerbaijan ranks 32nd among the 36 upper-middle-income group economies.

16th Azerbaijan ranks 16th among the 19 economies in Northern Africa and Western Asia.

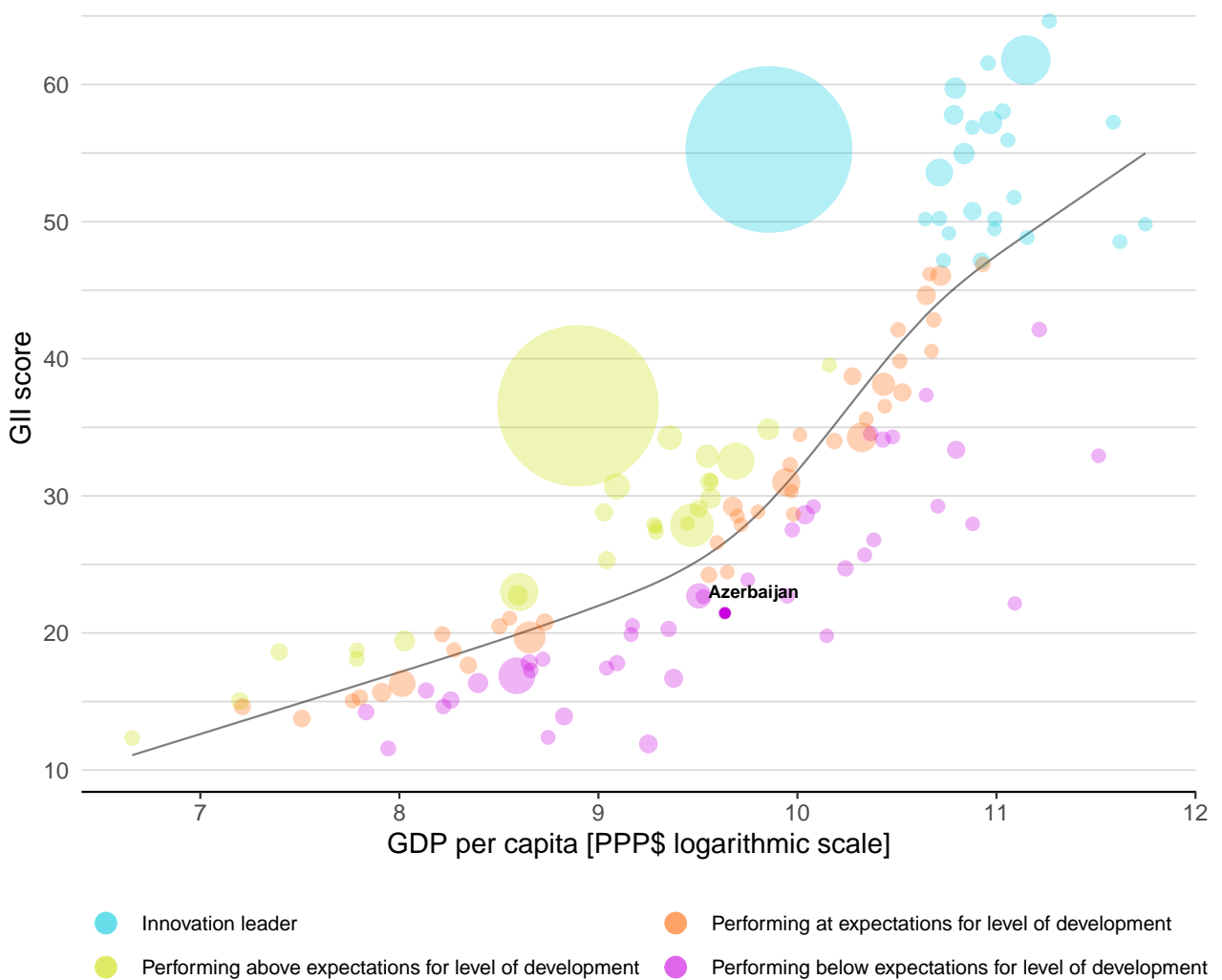


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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, Azerbaijan's performance is below expectations for its level of development.

The positive relationship between innovation and development



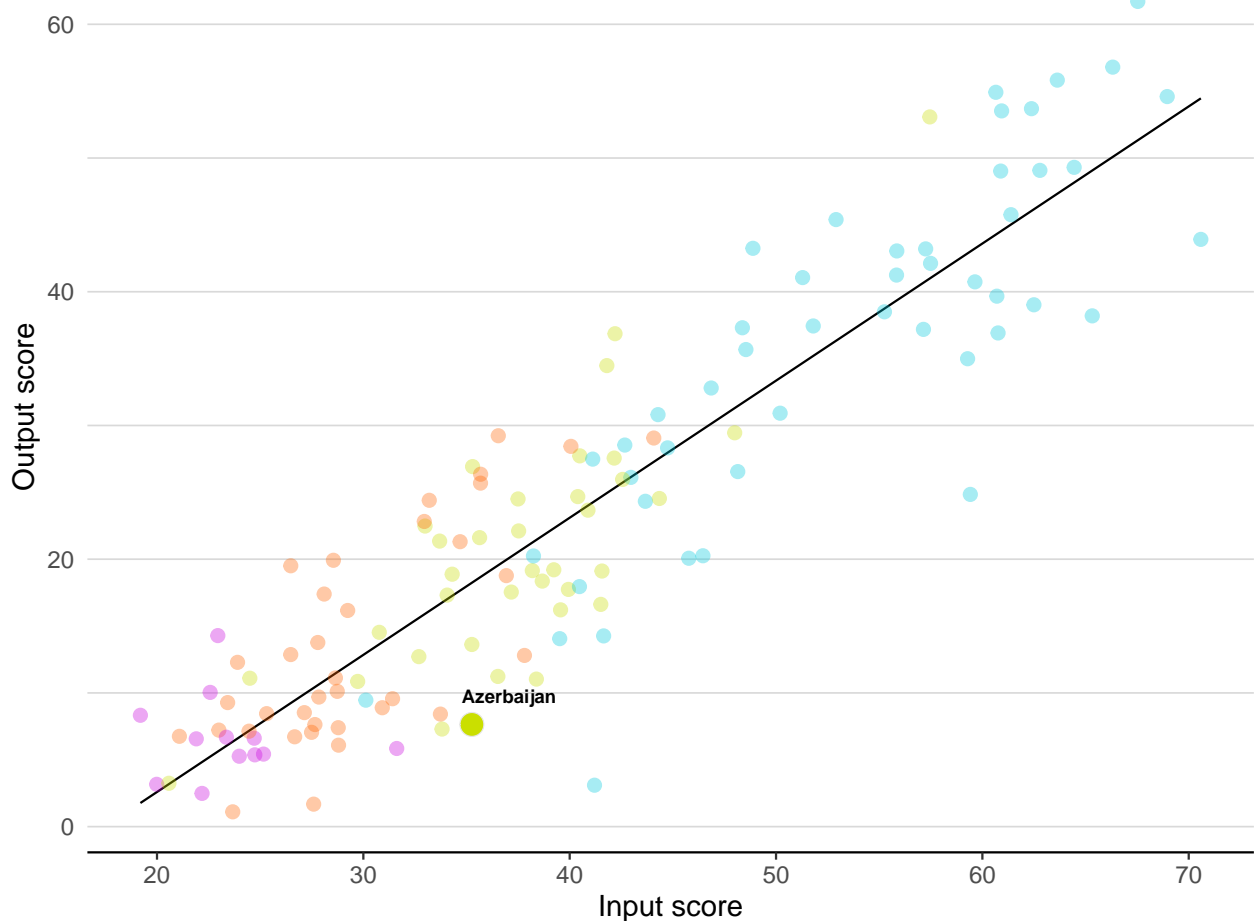


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance

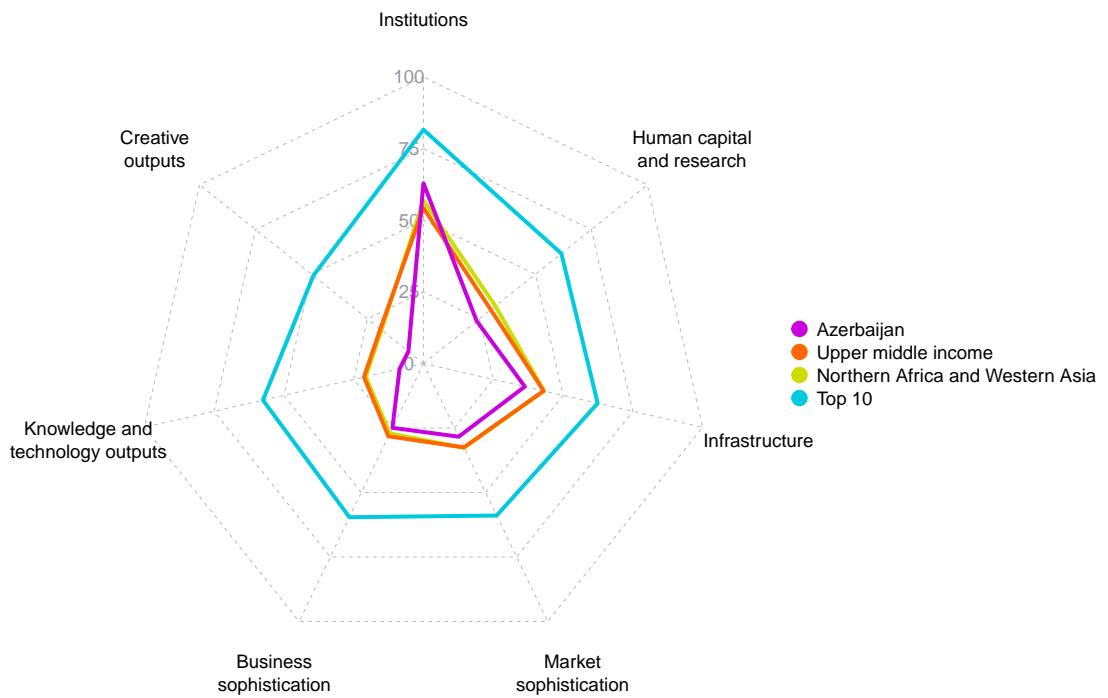


Income ● High income ● Upper middle ● Lower middle ● Low income — Fitted line



BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

The seven GII pillar scores for Azerbaijan



Upper-middle-income group economies

Azerbaijan performs above the upper-middle-income group average in Institutions.

Northern Africa and Western Asia

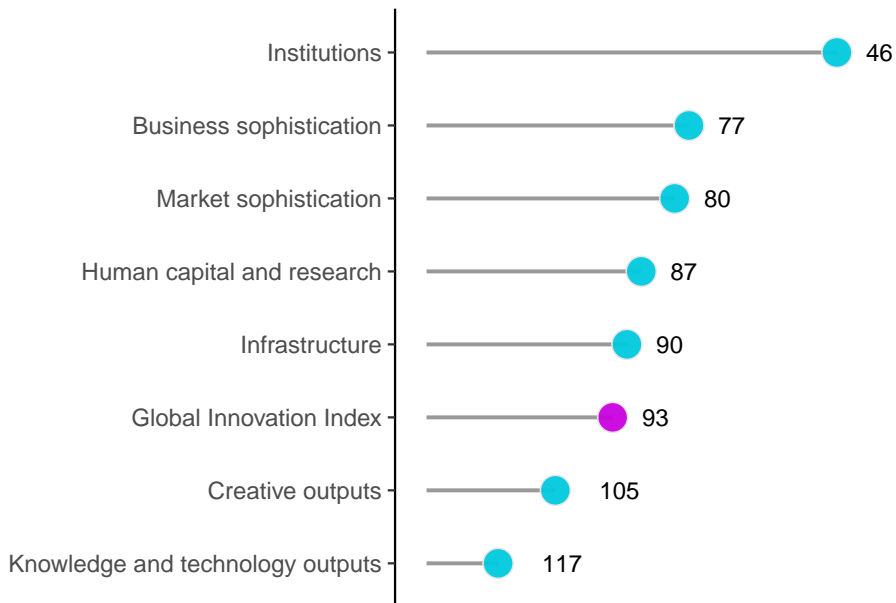
Azerbaijan performs above the regional average in Institutions.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Azerbaijan performs best in Institutions and its weakest performance is in Knowledge and technology outputs.

The seven GII pillar ranks for Azerbaijan



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

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

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



INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Azerbaijan

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.1.1	Political and operational stability	53	2.1.1	Expenditure on education, % GDP	114
1.2.3	Cost of redundancy dismissal	51	2.3.3	Global corporate R&D investors, top 3, mn USD	38
1.3.1	Policies for doing business	21	2.3.4	QS university ranking, top 3	72
2.1.5	Pupil-teacher ratio, secondary	9	3.2.3	Gross capital formation, % GDP	112
2.2.2	Graduates in science and engineering, %	42	5.1.3	GERD performed by business, % GDP	88
2.3.1	Researchers, FTE/mn pop.	43	5.2.3	GERD financed by abroad, % GDP	97
5.1.5	Females employed w/advanced degrees, %	57	5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	115
5.2.1	University-industry R&D collaboration	23	5.3.1	Intellectual property payments, % total trade	122
5.2.2	State of cluster development and depth	25	6.3.1	Intellectual property receipts, % total trade	113
5.3.4	FDI net inflows, % GDP	61	6.3.2	Production and export complexity	114

Azerbaijan

93

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
110	79	Upper middle	NAWA	10.2	155.9	15,299

	Score/Value	Rank		Score/Value	Rank
Institutions	62.9	46 ●	Business sophistication	24.9	77
1.1 Political environment	58.5	69	5.1 Knowledge workers	30.9	65
1.1.1 Political and operational stability*	70.9	53 ●	5.1.1 Knowledge-intensive employment, %	23.1	65
1.1.2 Government effectiveness*	46.0	81	5.1.2 Firms offering formal training, %	33.9	47
1.2 Regulatory environment	60.7	78	5.1.3 GERD performed by business, % GDP	0.0	88 ○
1.2.1 Regulatory quality*	37.1	92	5.1.4 GERD financed by business, %	30.8	59
1.2.2 Rule of law*	28.2	105	5.1.5 Females employed w/advanced degrees, %	13.5	57 ●
1.2.3 Cost of redundancy dismissal	13.7	51 ●	5.2 Innovation linkages	24.9	56 ●
1.3 Business environment	69.6	[19]	5.2.1 University-industry R&D collaboration†	59.8	23 ● ◆
1.3.1 Policies for doing business†	69.6	21 ● ◆	5.2.2 State of cluster development and depth†	60.3	25 ● ◆
1.3.2 Entrepreneurship policies and culture*	n/a	n/a	5.2.3 GERD financed by abroad, % GDP	0.0	97 ○ ◆
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	115 ○
			5.2.5 Patent families/bn PPP\$ GDP	0.1	66
Human capital and research	23.8	87	5.3 Knowledge absorption	19.0	116 ○
2.1 Education	41.6	92	5.3.1 Intellectual property payments, % total trade	0.0	122 ○ ◆
2.1.1 Expenditure on education, % GDP	2.7	114 ○ ◆	5.3.2 High-tech imports, % total trade	6.3	104
2.1.2 Government funding/pupil, secondary, % GDP/cap	14.2	84	5.3.3 ICT services imports, % total trade	0.6	108
2.1.3 School life expectancy, years	13.5	78	5.3.4 FDI net inflows, % GDP	2.4	61 ●
2.1.4 PISA scales in reading, maths and science	402.2	65	5.3.5 Research talent, % in businesses	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	8.1	9 ● ◆	Knowledge and technology outputs	8.6	117 ○
2.2 Tertiary education	25.8	80	6.1 Knowledge creation	4.6	107
2.2.1 Tertiary enrolment, % gross	35.2	80	6.1.1 Patents by origin/bn PPP\$ GDP	0.7	71
2.2.2 Graduates in science and engineering, %	24.2	42 ●	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.0	91
2.2.3 Tertiary inbound mobility, %	2.4	74	6.1.3 Utility models by origin/bn PPP\$ GDP	0.2	49
2.3 Research and development (R&D)	4.0	76	6.1.4 Scientific and technical articles/bn PPP\$ GDP	5.3	113
2.3.1 Researchers, FTE/mn pop.	1,734.9	43 ● ◆	6.1.5 Citable documents H-index	5.3	93
2.3.2 Gross expenditure on R&D, % GDP	0.2	86	6.2 Knowledge impact	15.7	106 ○
2.3.3 Global corporate R&D investors, top 3, mn USD	0.0	38 ○ ◆	6.2.1 Labor productivity growth, %	0.3	82
2.3.4 QS university ranking, top 3*	0.0	72 ○ ◆	6.2.2 New businesses/th pop. 15-64	1.3	75
			6.2.3 Software spending, % GDP	0.1	96 ○
Infrastructure	36.3	90	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	1.8	86
3.1 Information and communication technologies (ICTs)	71.6	71	6.2.5 High-tech manufacturing, %	11.4	84
3.1.1 ICT access*	86.2	67	6.3 Knowledge diffusion	5.4	120 ○ ◆
3.1.2 ICT use*	60.7	72	6.3.1 Intellectual property receipts, % total trade	0.0	113 ○ ◆
3.1.3 Government's online service*	70.6	65	6.3.2 Production and export complexity	13.7	114 ○ ◆
3.1.4 E-participation*	69.0	73	6.3.3 High-tech exports, % total trade	0.2	106 ○ ◆
3.2 General infrastructure	15.7	120 ○ ◆	6.3.4 ICT services exports, % total trade	0.4	106
3.2.1 Electricity output, GWh/mn pop.	2,555.9	71	Creative outputs	6.7	105 ○
3.2.2 Logistics performance*	n/a	n/a	7.1 Intangible assets	10.0	[101]
3.2.3 Gross capital formation, % GDP	16.7	112 ○ ◆	7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
3.3 Ecological sustainability	21.5	85	7.1.2 Trademarks by origin/bn PPP\$ GDP	27.1	80
3.3.1 GDP/unit of energy use	9.1	79	7.1.3 Global brand value, top 5,000, % GDP	n/a	n/a
3.3.2 Environmental performance*	38.6	75	7.1.4 Industrial designs by origin/bn PPP\$ GDP	0.2	103
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	0.5	83	7.2 Creative goods and services	5.9	97
			7.2.1 Cultural and creative services exports, % total trade	0.1	86
Market sophistication	28.4	[80]	7.2.2 National feature films/mn pop. 15-69	0.5	67
4.1 Credit	8.1	[118]	7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
4.1.1 Finance for startups and scaleups*	n/a	n/a	7.2.4 Printing and other media, % manufacturing	0.8	63
4.1.2 Domestic credit to private sector, % GDP	26.1	104	7.2.5 Creative goods exports, % total trade	0.1	95
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	7.3 Online creativity	1.1	99
4.2 Investment	n/a	[n/a]	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.9	96
4.2.1 Market capitalization, % GDP	n/a	n/a	7.3.2 Country-code TLDs/th pop. 15-69	1.5	76
4.2.2 Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a	7.3.3 GitHub commit pushes received/mn pop. 15-69	1.9	87
4.2.3 Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a	7.3.4 Mobile app creation/bn PPP\$ GDP	0.1	94
4.2.4 Venture capital received, value, % GDP	n/a	n/a			
4.3 Trade, diversification, and market scale	48.7	83			
4.3.1 Applied tariff rate, weighted avg., %	5.9	96 ○			
4.3.2 Domestic industry diversification	81.0	68			
4.3.3 Domestic market scale, bn PPP\$	155.9	75			

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 Azerbaijan.

Missing data for Azerbaijan

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
3.2.2	Logistics performance	n/a	2018	Logistics Performance Index, World Bank
4.1.1	Finance for startups and scaleups	n/a	2021	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)
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
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics
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
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

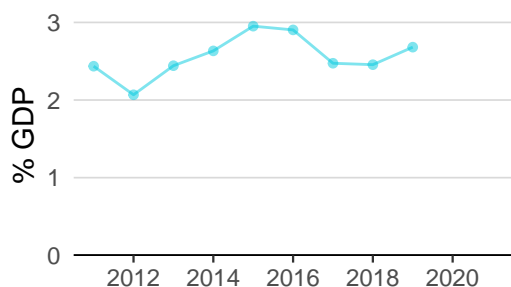
Outdated data for Azerbaijan

Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	2019	2020	UNESCO Institute for Statistics
5.1.1	Knowledge-intensive employment, %	2020	2021	International Labour Organization
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

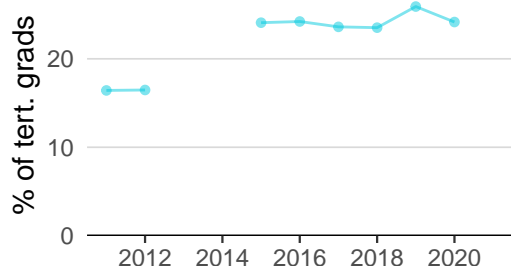
AZERBAIJAN'S INNOVATION SYSTEM

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

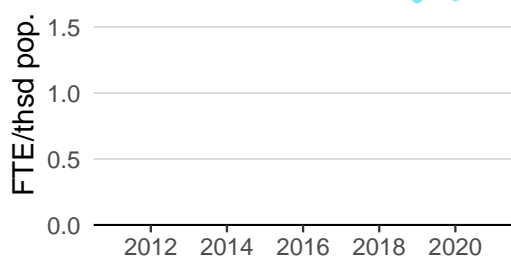
Innovation inputs



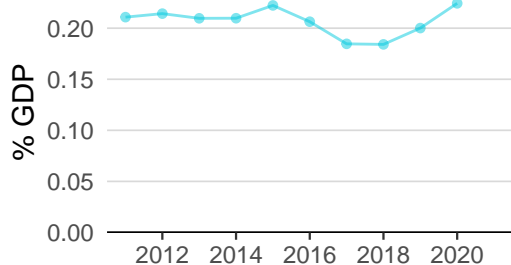
2.1.1 Expenditure on education was equal to 2.7% GDP in 2019—up by 9 percentage points from the year prior—and equivalent to an indicator rank of 114.



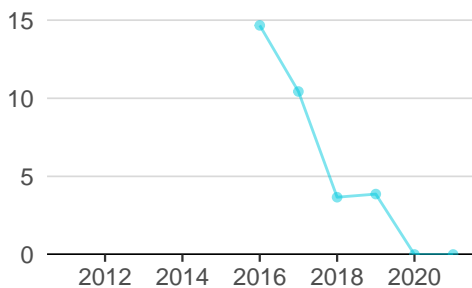
2.2.2 Graduates in science and engineering was equal to 24.2% of tert. grads in 2020—down by 7 percentage points from the year prior—and equivalent to an indicator rank of 42.



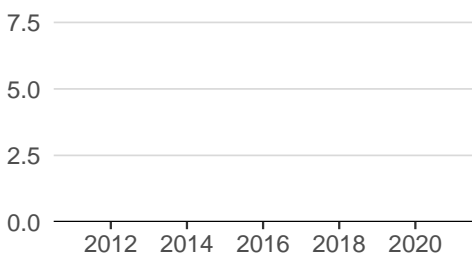
2.3.1 Researchers was equal to 1.7 FTE/thsd pop. in 2020—up by 1 percentage point from the year prior—and equivalent to an indicator rank of 43.



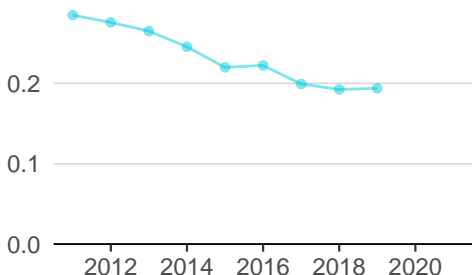
2.3.2 Gross expenditure on R&D was equal to 0.2% GDP in 2020—up by 12 percentage points from the year prior—and equivalent to an indicator rank of 86.



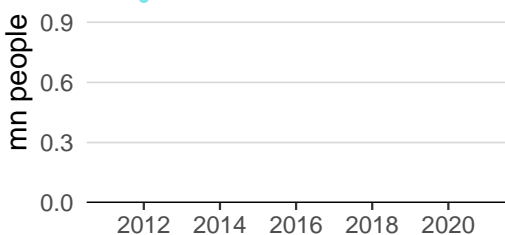
2.3.4 QS university ranking was equal to 0.0 in 2021—effectively unchanged from the year prior—and equivalent to an indicator rank of 72.



3.1.1 ICT access was equal to 8.6 in 2020 and equivalent to an indicator rank of 67.

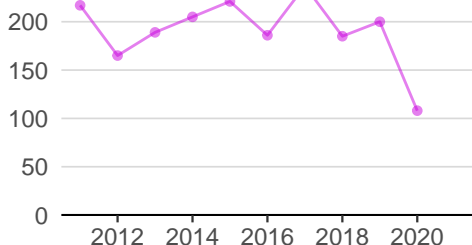


4.3.2 Domestic industry diversification was equal to 0.2 in 2019—up by 1 percentage point from the year prior—and equivalent to an indicator rank of 68.

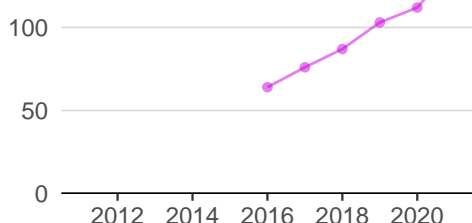


5.1.1 Knowledge-intensive employment was equal to 1.1 mn people in 2020—down by 1 percentage point from the year prior—and equivalent to an indicator rank of 65.

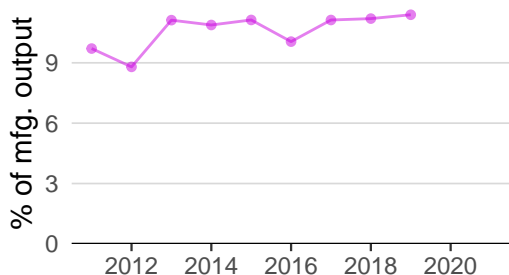
Innovation outputs



6.1.1 Patents by origin was equal to 108.0 in 2020—down by 46 percentage points from the year prior—and equivalent to an indicator rank of 71.



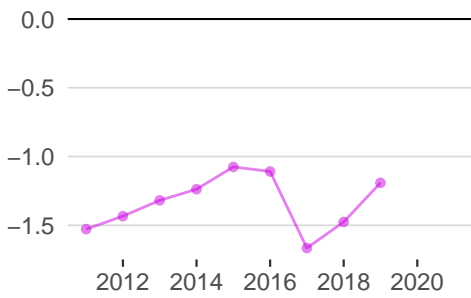
6.1.5 Citable documents H-index was equal to 138.0 in 2021—up by 23 percentage points from the year prior—and equivalent to an indicator rank of 93.



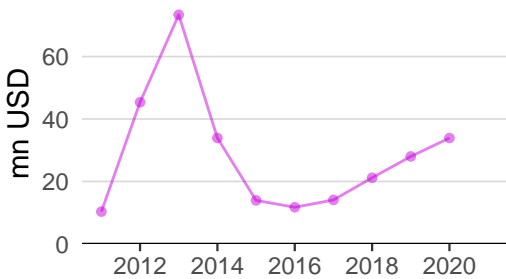
6.2.5 High-tech manufacturing was equal to 11.4% of mfg. output in 2019—up by 2 percentage points from the year prior—and equivalent to an indicator rank of 84.



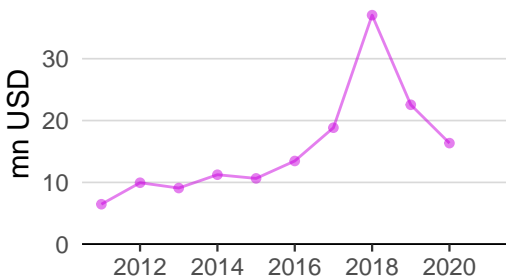
6.3.1 Intellectual property receipts was equal to 0.0 mn USD in 2020 and equivalent to an indicator rank of 113.



6.3.2 Production and export complexity was equal to -1.2 in 2019—up by 19 percentage points from the year prior—and equivalent to an indicator rank of 114.



6.3.3 High-tech exports was equal to 33.9 mn USD in 2020—up by 21 percentage points from the year prior—and equivalent to an indicator rank of 106.



7.2.1 Cultural and creative services exports was equal to 16.4 mn USD in 2020—down by 27 percentage points from the year prior—and equivalent to an indicator rank of 86.



AZERBAIJAN'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
-------	----------	------

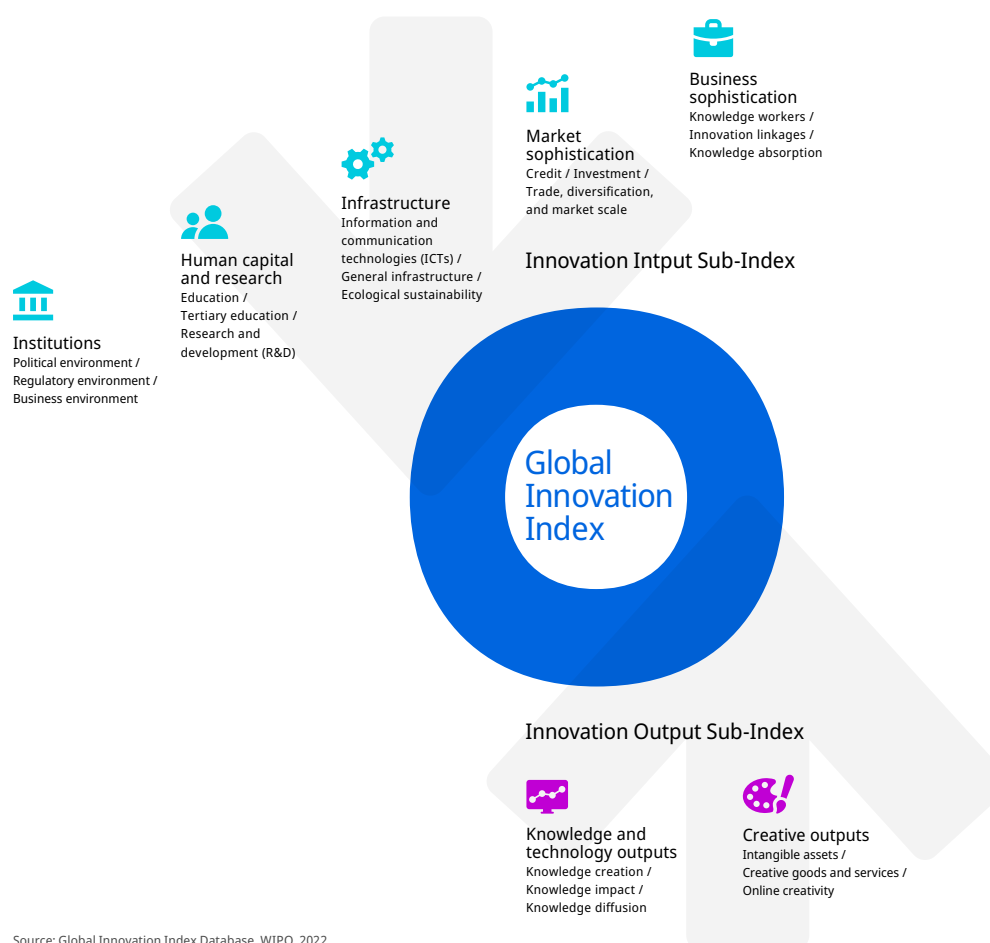
No observations

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.



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.