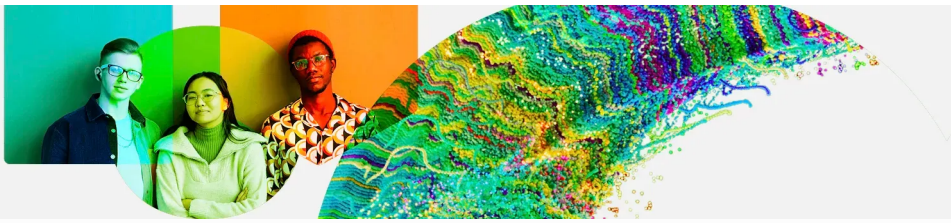
Global Innovation Index 2024



Kazakhstan ranking in the Global Innovation Index 2024

Kazakhstan ranks 78th among the 133 economies featured in the GII 2024.

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.

Kazakhstan ranks 22nd among the 34 upper-middle-income group economies.

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

Kazakhstan GII Ranking (2020-2024)

The table shows the rankings of Kazakhstan 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 Kazakhstan in the GII 2024 is between ranks 77 and 82.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	77th	60th	94th
2021	79th	61st	101st
2022	83rd	65th	97th
2023	81st	68th	87th
2024	78th	72nd	83rd

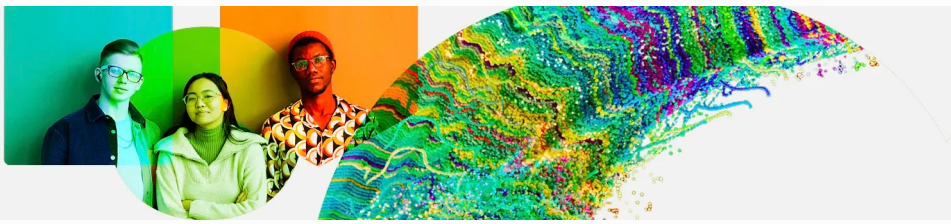
Kazakhstan performs worse in innovation outputs than innovation inputs in 2024.

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

Kazakhstan ranks 83rd in innovation outputs. This position is higher than last year.

Kazakhstan has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Kazakhstan, how rapidly is technology being embraced and what are the resulting societal impacts.

For Kazakhstan, 5 indicators have improved in the short-term and 3 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▲ 0.2% 2022 - 2023	▼ -5.1% 2021 - 2022	▲ 75% 2022 - 2023	n/a	▼ -8% 2022 - 2023
▲ 15% 2013 - 2023	▼ -0.3% 2012 - 2022	n/a	n/a	▲ 2.5% 2013 - 2023

Technology adoption

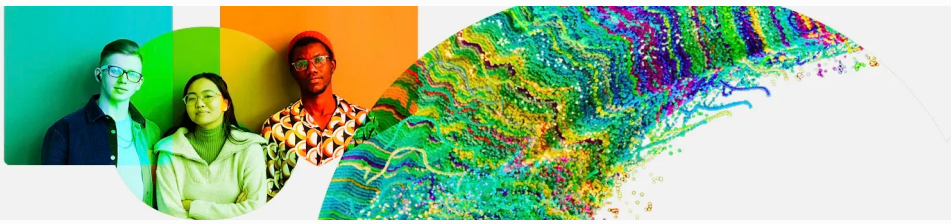
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
n/a	▲ 4.2% 2021 - 2022	n/a	n/a	n/a
n/a	▲ 4.6% 2012 - 2022		n/a	n/a
n/a	14.9 per 100 inhabitants in 2022	5 per 100 inhabitants in 2022		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 3.5% 2022 - 2023	▲ 6% 2021 - 2022	▲ 2.6°C 2023
▲ 2.5% 2013 - 2023	▲ 0.7% 2012 - 2022	n/a
71,996 USD in 2023	74.4 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024

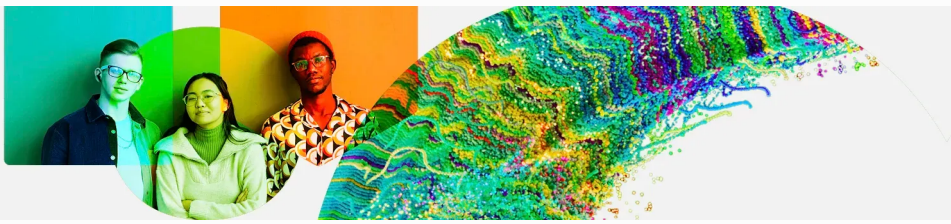


Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development



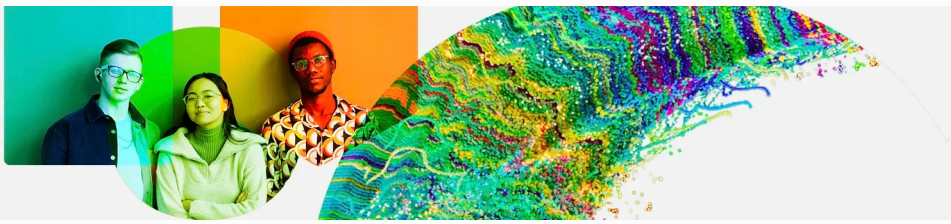
Effectively translating innovation investments into innovation outputs

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.

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

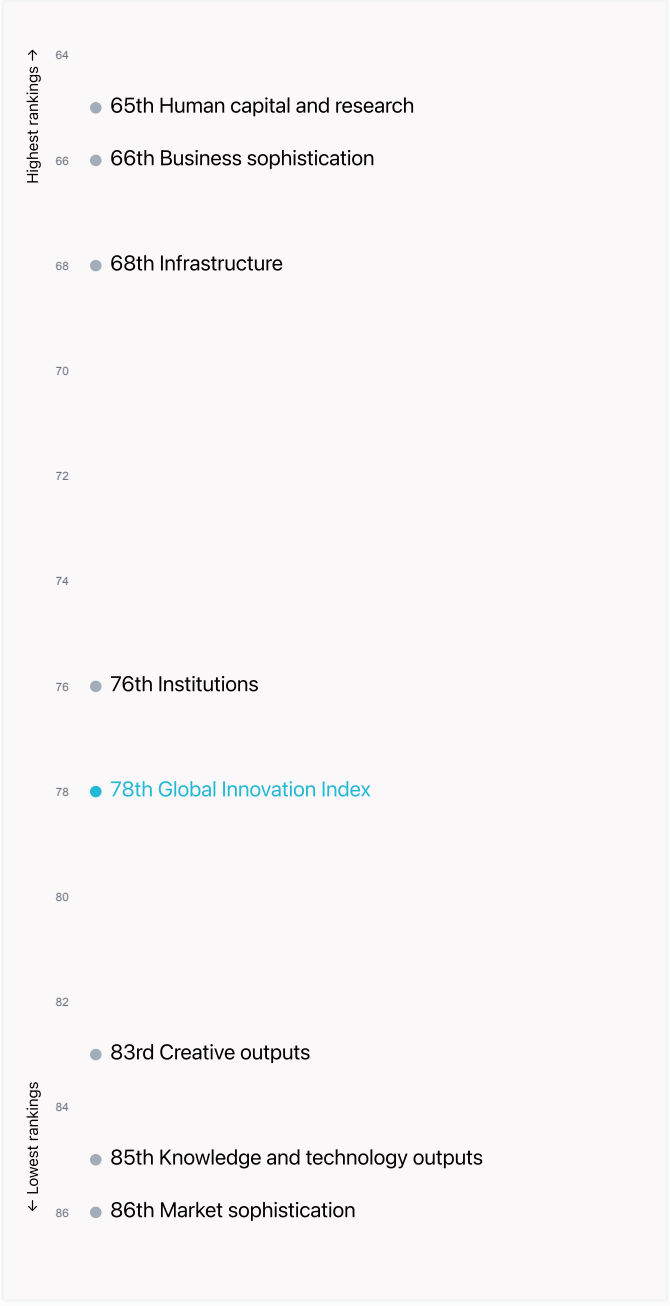
> Relationship between innovation inputs and outputs

Global Innovation Index 2024



Overview of Kazakhstan's rankings in the seven areas of the GII in 2024

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



Highest rankings

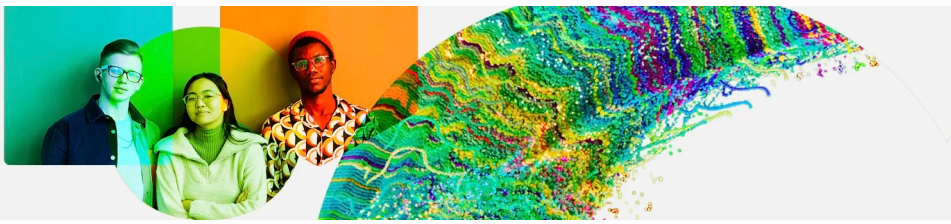
Kazakhstan ranks highest in Human capital and research (65th), Business sophistication (66th), Infrastructure (68th) and Institutions (76th).

Lowest rankings

Kazakhstan ranks lowest in Market sophistication (86th), Knowledge and technology outputs (85th) and Creative outputs (83rd).

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

Global Innovation Index 2024



Benchmark of Kazakhstan against other economy groupings for each of the seven areas of the GII Index

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

Upper-Middle-Income economies

Kazakhstan performs above the upper-middle-income group average in Institutions, Human capital and research, Infrastructure.

Central And Southern Asia

Kazakhstan performs above the regional average in Institutions, Human capital and research, Infrastructure, Business sophistication, Creative outputs.

Institutions

- Top 10 | Score: 80.81
- Kazakhstan | Score: 44.25
- Upper middle income | Score: 43.0
- Central and Southern Asia | Score:

Human capital and research

- Top 10 | Score: 61.30
- Kazakhstan | Score: 32.01
- Upper middle income | Score: 29.5
- Central and Southern Asia | Score:

Infrastructure

- Top 10 | Score: 58.57
- Kazakhstan | Score: 40.86
- Upper middle income | Score: 39.8
- Central and Southern Asia | Score:

Market sophistication

- Top 10 | Score: 62.12
- Upper middle income | Score: 32.9
- Central and Southern Asia | Score:
- Kazakhstan | Score: 25.24

Business sophistication

- Top 10 | Score: 63.64
- Upper middle income | Score: 27.6
- Kazakhstan | Score: 25.99
- Central and Southern Asia | Score:

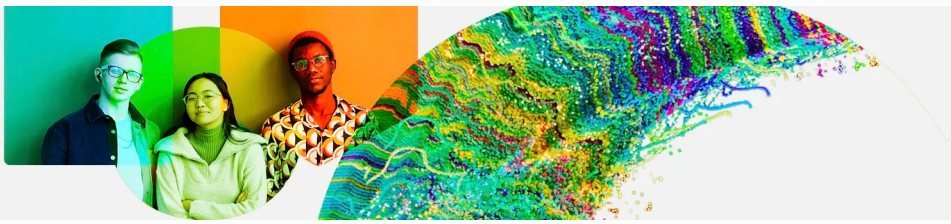
Knowledge and technology outputs

- Top 10 | Score: 57.29
- Upper middle income | Score: 20.6
- Central and Southern Asia | Score:
- Kazakhstan | Score: 15.89

Creative outputs

- Top 10 | Score: 56.54
- Upper middle income | Score: 24.3
- Kazakhstan | Score: 19.46
- Central and Southern Asia | Score:

Global Innovation Index 2024



Innovation strengths and weaknesses in Kazakhstan

The table below gives an overview of the indicator strengths and weaknesses of Kazakhstan in the GII 2024.

Kazakhstan's main innovation strengths are **Government's online service*** (rank 8), **Utility models by origin/bn PPP$ GDP** (rank 10) and **E-participation*** (rank 15).

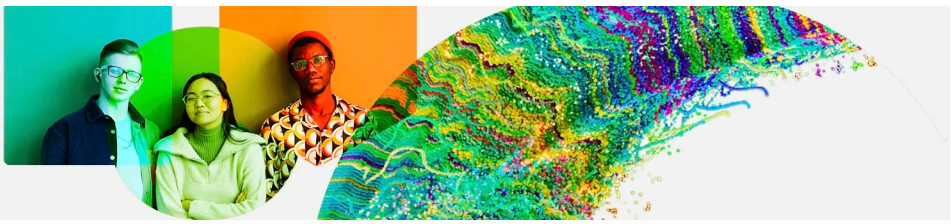
Strengths

Rank	Code	Indicator name
8	3.1.3	Government's online service*
10	6.1.3	Utility models by origin/bn PPP$ GDP
15	3.1.4	E-participation*
16	2.1.5	Pupil–teacher ratio, secondary
30	6.2.1	Labor productivity growth, %
32	5.1.1	Knowledge-intensive employment, %
34	3.2.1	Electricity output, GWh/mn pop.
36	6.3.3	High-tech exports, % total trade
38	2.3.4	QS university ranking, top 3*

Weaknesses

Rank	Code	Indicator name
128	6.2.3	Software spending, % GDP
115	6.1.4	Scientific and technical articles/bn PPP$ GDP
114	6.3.5	ISO 9001 quality/bn PPP$ GDP
114	5.2.3	State of cluster development†
98	2.3.2	Gross expenditure on R&D, % GDP
97	4.3.2	Domestic industry diversification
94	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
68	7.1.1	Intangible asset intensity, top 15, %
49	6.2.2	Unicorn valuation, % GDP
41	2.3.3	Global corporate R&D investors, top 3, mn USD

Global Innovation Index 2024



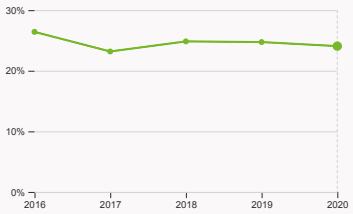
Kazakhstan's innovation system

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

Innovation inputs in Kazakhstan

2.1.1 **Expenditure on education**

was equal to 4.21 % GDP in 2022, down by 0.18 percentage points from the year prior – and equivalent to an indicator rank of 63.



2.2.2 **Graduates in science and engineering**

was equal to 24.06 % of total graduates in 2020, down by 0.67 percentage points from the year prior – and equivalent to an indicator rank of 51.

2.3.1 **Researchers**

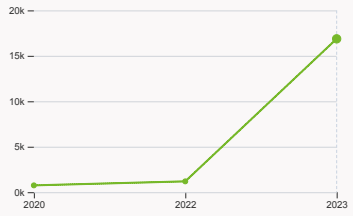
was equal to 681.51 FTE per million population in 2022, up by 8.78% from the year prior – and equivalent to an indicator rank of 64.

2.3.2 **Gross expenditure on R&D**

was equal to 0.12 % GDP in 2022, down by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 98.

2.3.4 **QS university ranking**

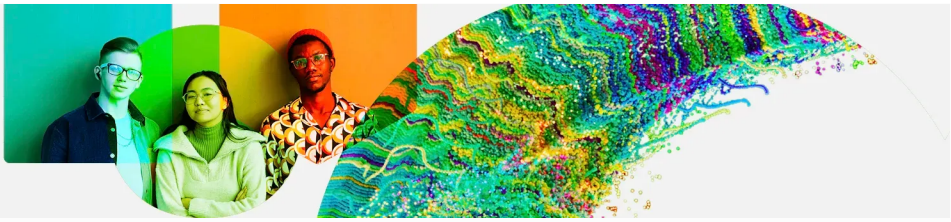
was equal to an average score of 32.13 for the top three universities in 2023, down by 16.7% from the year prior – and equivalent to an indicator rank of 38.



4.2.4 **VC received, value**

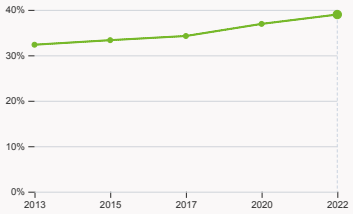
was equal to 16.87 thousand USD in 2023, up by 1317.65% from the year prior – and equivalent to an indicator rank of 92.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

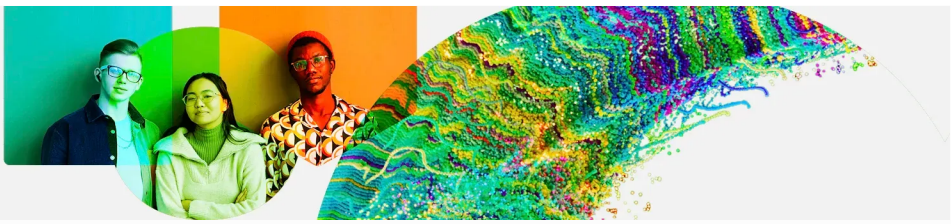
was equal to an index score of 0.25 in 2021, up by 7.41% from the year prior – and equivalent to an indicator rank of 97.



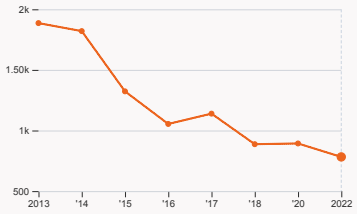
5.1.1 Knowledge-intensive employment

was equal to 38.97 % in 2022, up by 2.06 percentage points from the year prior – and equivalent to an indicator rank of 32.

Global Innovation Index 2024



Innovation outputs in Kazakhstan

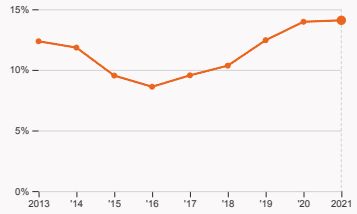


6.1.1 Patents by origin

was equal to 782 patents in 2022, down by 12.43% from the year prior – and equivalent to an indicator rank of 43.

6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.

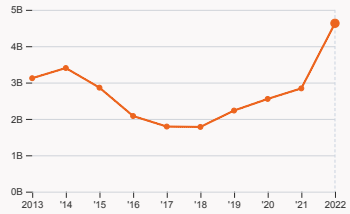


6.2.4 High-tech manufacturing

was equal to 14.09 % of total manufacturing output in 2021, up by 0.12 percentage points from the year prior – and equivalent to an indicator rank of 78.

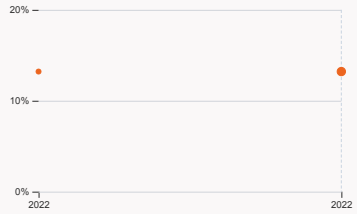
6.3.2 Production and export complexity

was equal to a score of -0.47 in 2021, down by 20.51% from the year prior – and equivalent to an indicator rank of 87.



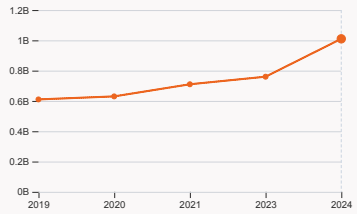
6.3.3 High-tech exports

was equal to 4.63 billion USD in 2022, up by 63.03% from the year prior – and equivalent to an indicator rank of 36.



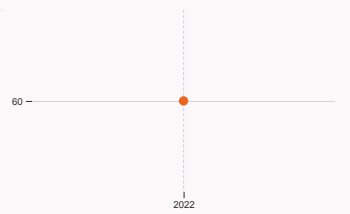
7.1.1 Intangible asset intensity

was equal to 13.21 % for the top 15 companies in 2022 with no change from the year prior – and equivalent to an indicator rank of 68.



7.1.3 Global brand value

was equal to 1.01 billion USD for the brands in the top 5,000 in 2024, up by 32.89% from the year prior – and equivalent to an indicator rank of 67.

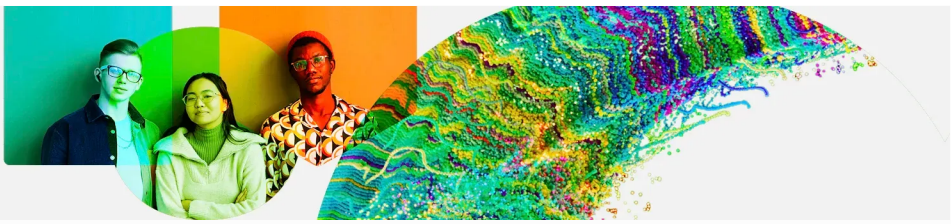


7.2.2 National feature films

was equal to 60 films in 2022 – and equivalent to an indicator rank of 31.

7.3.3 Mobile app creation

was equal to 107.37 million global downloads of mobile apps in 2023, up by 18.05% from the year prior – and equivalent to an indicator rank of 68.



Kazakhstan's innovation top performers

2.3.4 QS university ranking of Kazakhstan's top universities

Rank	University	Score
230	AL-FARABI KAZAKH NATIONAL UNIVERSITY	41.60
355	L.N. GUMILYOV EURASIAN NATIONAL UNIVERSITY (ENU)	30.90
481	SATBAYEV UNIVERSITY	23.90

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 Kazakhstan

Rank	Firm	Intensity, %
1	KASPI.KZ JOINT STOCK COMPANY	86.39
2	JSC NATIONAL ATOMIC COMPANY KAZATOMPROM	72.62
3	FREEDOM HOLDING CORP.	85.47

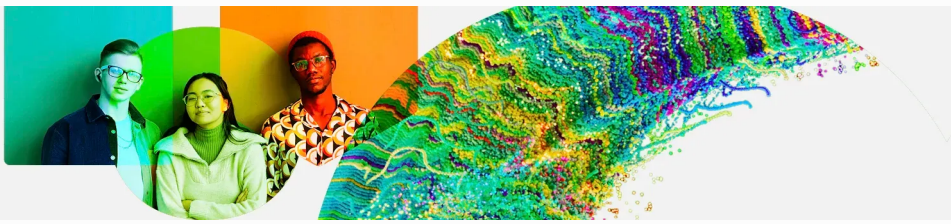
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

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

Rank	Brand	Industry	Brand Value, mn USD
1	HALYK BANK	Banking	654
2	KAZAKHTELECOM	Telecoms	357.1

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

Global Innovation Index 2024



Kazakhstan

GII 2024 rank **78**

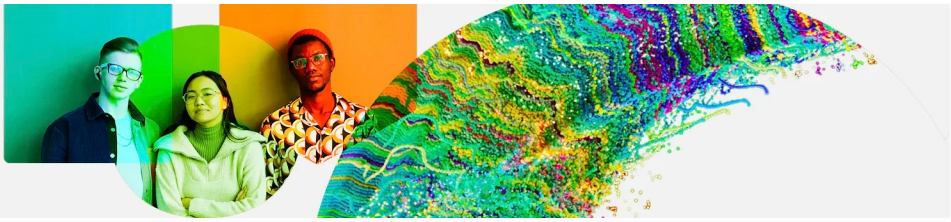
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
83	72	Upper middle	CSA	20.4	654	32,712.1

	Score / Value	Rank	
Institutions	**44.2**	**76**	
1.1 Institutional environment	**52.5**	**70**	
1.1.1 Operational stability for businesses*	57.3	78	
1.1.2 Government effectiveness*	47.7	58	
1.2 Regulatory environment	**35.9**	**84**	
1.2.1 Regulatory quality*	41.5	72	
1.2.2 Rule of law*	30.2	91	
1.3 Business environment	**44.3**	**68**	
1.3.1 Policy stability for doing business†	38.2	92	
1.3.2 Entrepreneurship policies and culture†	50.4	25	
Human capital and research	**32**	**65**	
2.1 Education	**51.1**	**66**	
2.1.1 Expenditure on education, % GDP	4.2	63	
2.1.2 Government funding/pupil, secondary, % GDP/cap	21.2	42	
2.1.3 School life expectancy, years	14.8	53	
2.1.4 PISA scales in reading, maths and science	411.6	54	
2.1.5 Pupil–teacher ratio, secondary	8.3	16	●◆
2.2 Tertiary education	**34.7**	**60**	
2.2.1 Tertiary enrolment, % gross	64.8	48	
2.2.2 Graduates in science and engineering, %	24.1	51	
2.2.3 Tertiary inbound mobility, %	5.5	48	
2.3 Research and development (R&D)	**10.3**	**60**	
2.3.1 Researchers, FTE/mn pop.	681.5	64	
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	41	○◇
2.3.4 QS university ranking, top 3*	32.5	38	●◆
Infrastructure	**40.9**	**68**	
3.1 Information and communication technologies (ICTs)	**87.7**	**16**	●◆
3.1.1 ICT access*	94.9	49	
3.1.2 ICT use*	82.8	41	
3.1.3 Government's online service*	92.7	8	●◆
3.1.4 E-participation*	80.2	15	●◆
3.2 General infrastructure	**28.1**	**79**	
3.2.1 Electricity output, GWh/mn pop.	6,056.5	34	●◆
3.2.2 Logistics performance*	27.3	76	
3.2.3 Gross capital formation, % GDP	25.1	49	
3.3 Ecological sustainability	**6.8**	**121**	○◇
3.3.1 GDP/unit of energy use	6.9	100	◇
3.3.2 Low-carbon energy use, %	4	108	
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.5	93	
Market sophistication	**25.2**	**86**	
4.1 Credit	**21.3**	**80**	
4.1.1 Finance for startups and scaleups†	45.6	50	
4.1.2 Domestic credit to private sector, % GDP	25	107	
4.1.3 Loans from microfinance institutions, % GDP	1.1	29	
4.2 Investment	**3.4**	**95**	
4.2.1 Market capitalization, % GDP	25.3	56	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.01	94	○
4.2.3 VC recipients, deals/bn PPP$ GDP	0.02	91	
4.2.4 VC received, value, % GDP	0.00004	92	
4.3 Trade, diversification and market scale	**51**	**79**	
4.3.1 Applied tariff rate, weighted avg., %	2.7	76	
4.3.2 Domestic industry diversification	61.2	97	○◇
4.3.3 Domestic market scale, bn PPP$	654	40	

	Score / Value	Rank	
Business sophistication	**26**	**66**	
5.1 Knowledge workers	**42.4**	**44**	
5.1.1 Knowledge-intensive employment, %	39	32	●◆
5.1.2 Firms offering formal training, %	21.8	75	
5.1.3 GERD performed by business, % GDP	0.05	72	
5.1.4 GERD financed by business, %	47.4	34	
5.1.5 Females employed w/advanced degrees, %	20.7	30	
5.2 Innovation linkages	**13.5**	**112**	
5.2.1 Public Research-Industry co-publications, %	1.6	61	
5.2.2 University-industry R&D collaboration†	23.9	109	
5.2.3 State of cluster development†	24.2	114	○◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.005	107	
5.2.5 Patent families/bn PPP$ GDP	0.05	71	
5.3 Knowledge absorption	**22**	**83**	
5.3.1 Intellectual property payments, % total trade	0.4	83	
5.3.2 High-tech imports, % total trade	9	52	
5.3.3 ICT services imports, % total trade	0.8	94	
5.3.4 FDI net inflows, % GDP	2.9	50	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**15.9**	**85**	
6.1 Knowledge creation	**16.4**	**64**	
6.1.1 Patents by origin/bn PPP$ GDP	1.3	43	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.04	81	
6.1.3 Utility models by origin/bn PPP$ GDP	1.6	10	●◆
6.1.4 Scientific and technical articles/bn PPP$ GDP	3.2	115	○
6.1.5 Citable documents H-index	6.1	92	
6.2 Knowledge impact	**18.9**	**108**	
6.2.1 Labor productivity growth, %	1.8	30	●◆
6.2.2 Unicorn valuation, % GDP	0	49	○◇
6.2.3 Software spending, % GDP	0.01	128	○◇
6.2.4 High-tech manufacturing, %	14.1	78	
6.3 Knowledge diffusion	**12.3**	**84**	
6.3.1 Intellectual property receipts, % total trade	0.005	101	
6.3.2 Production and export complexity	31.2	87	
6.3.3 High-tech exports, % total trade	6.1	36	●◆
6.3.4 ICT services exports, % total trade	0.6	96	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.9	114	○
Creative outputs	**19.5**	**83**	
7.1 Intangible assets	**19.8**	**80**	
7.1.1 Intangible asset intensity, top 15, %	13.2	68	○
7.1.2 Trademarks by origin/bn PPP$ GDP	24.6	75	
7.1.3 Global brand value, top 5,000, % GDP	0.3	67	
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.2	103	
7.2 Creative goods and services	**14**	**65**	
7.2.1 Cultural and creative services exports, % total trade	0.08	95	
7.2.2 National feature films/mn pop. 15–69	4.5	31	◆
7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.9	47	
7.3 Online creativity	**24.4**	**71**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	2	80	
7.3.2 GitHub commits/mn pop. 15–69	5.8	72	
7.3.3 Mobile app creation/bn PPP$ GDP	65.3	68	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕒 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Global Innovation Index 2024



Data availability

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

Kazakhstan has missing data for two indicators and outdated data for sixteen indicators.

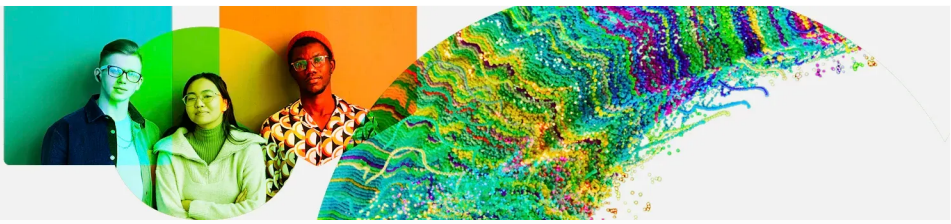
Missing data for Kazakhstan

Code	Indicator name	Economy Year	Model Year	Source
5.3.5	Research talent, % in businesses	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

Outdated data for Kazakhstan

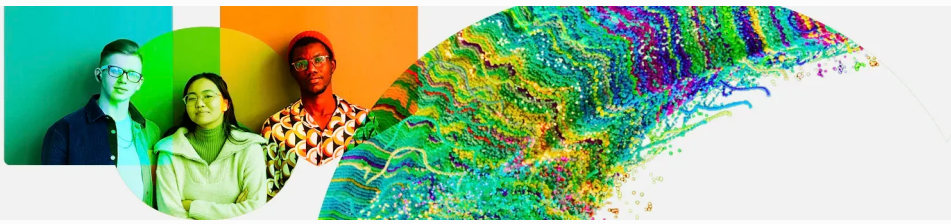
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture†	2021	2023	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	2016	2020	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2020	2022	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2020	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2020	2022	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	2020	2022	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2021	2022	International Energy Agency
4.1.1	Finance for startups and scaleups†	2021	2023	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	2021	2022	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	2019	2023	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2018	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2017	2023	International Labour Organization
6.1.3	Utility models by origin/bn PPP$ GDP	2018	2022	World Intellectual Property Organization; International Monetary Fund

Global Innovation Index 2024



Code	Indicator name	Economy Year	Model Year	Source
7.1.1	Intangible asset intensity, top 15, %	2022	2023	Brand Finance

Global Innovation Index 2024



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, 2024.

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.