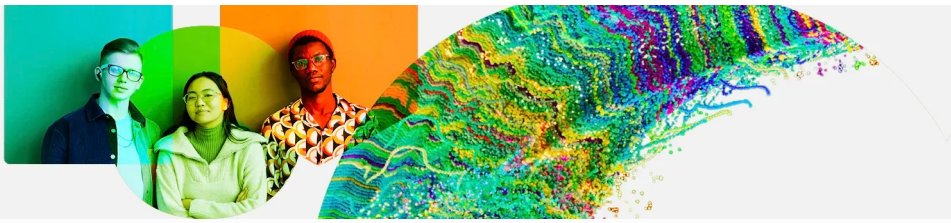
Global Innovation Index 2024



Belarus ranking in the Global Innovation Index 2024

Belarus ranks 85th 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.

Belarus ranks 26th among the 34 upper-middle-income group economies.

Belarus ranks 39th among the 39 economies in Europe.

Belarus GII Ranking (2020-2024)

The table shows the rankings of Belarus 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 Belarus in the GII 2024 is between ranks 71 and 89.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	64th	67th	61st
2021	62nd	68th	62nd
2022	77th	86th	63rd
2023	80th	88th	66th
2024	85th	102nd	69th

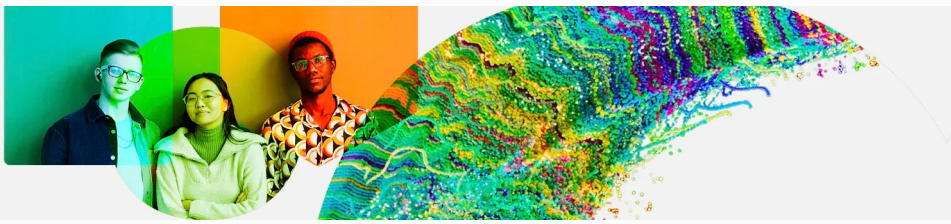
Belarus performs better in innovation outputs than innovation inputs in 2024.

This year **Belarus ranks 102nd in innovation inputs.** This position is lower than last year.

Belarus ranks 69th in innovation outputs. This position is lower than last year.

Belarus 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 Belarus, how rapidly is technology being embraced and what are the resulting societal impacts.

For Belarus, 4 indicators have improved in the short-term and 5 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -22% 2022 - 2023	▼ -0.4% 2021 - 2022	n/a	n/a	▲ 14.3% 2022 - 2023
▼ -0.7% 2013 - 2023	▼ -2.9% 2012 - 2022	n/a	n/a	▼ -1.2% 2013 - 2023

Technology adoption

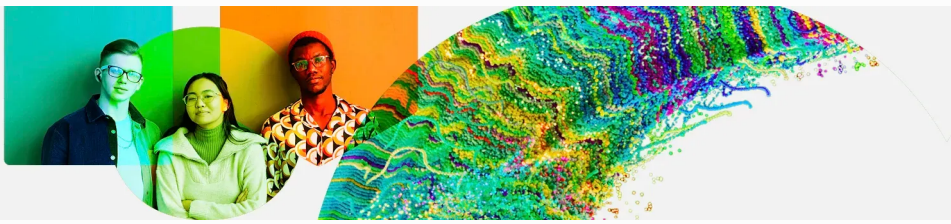
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.2% 2021 - 2022	▼ -3.1% 2021 - 2022	n/a	▼ -6.2% 2021 - 2022	n/a
▼ -0.4% 2012 - 2022	▲ 2.3% 2012 - 2022		▲ 7.1% 2012 - 2022	n/a
75 per 100 inhabitants in 2022	32.8 per 100 inhabitants in 2022	n/a		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 3.1% 2022 - 2023	▲ 1% 2021 - 2022	▲ 2.7°C 2023
▲ 1.1% 2013 - 2023	▲ 0.2% 2012 - 2022	n/a
53,191 USD in 2023	73.1 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



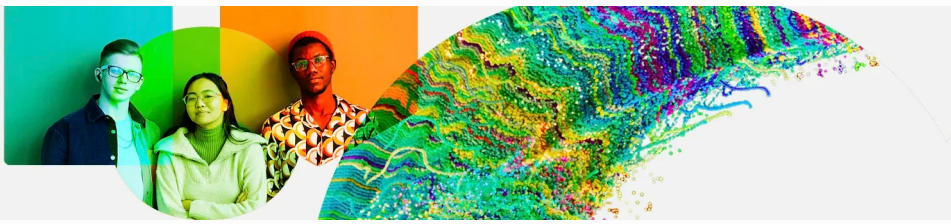
Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development

Global Innovation Index 2024

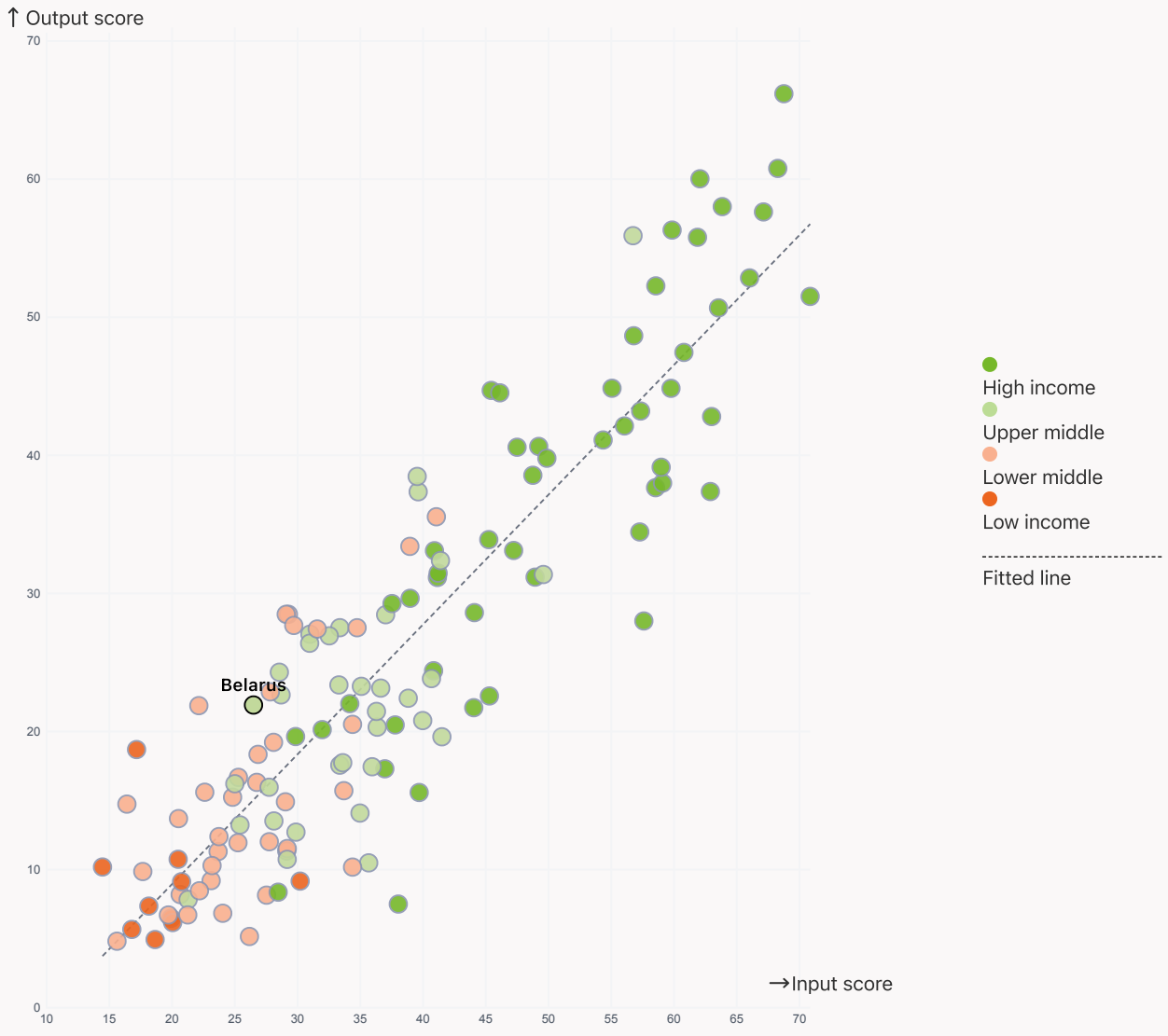


Effectively translating innovation investments into innovation outputs

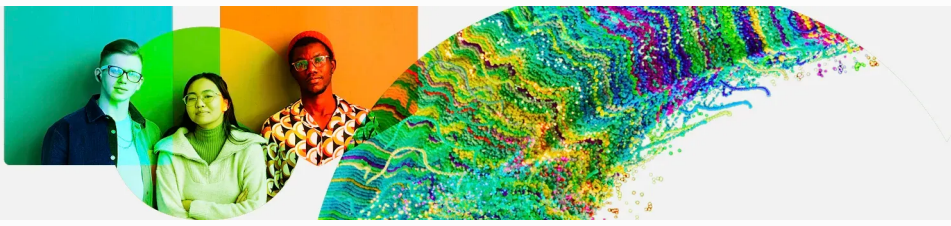
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

Belarus produces more innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

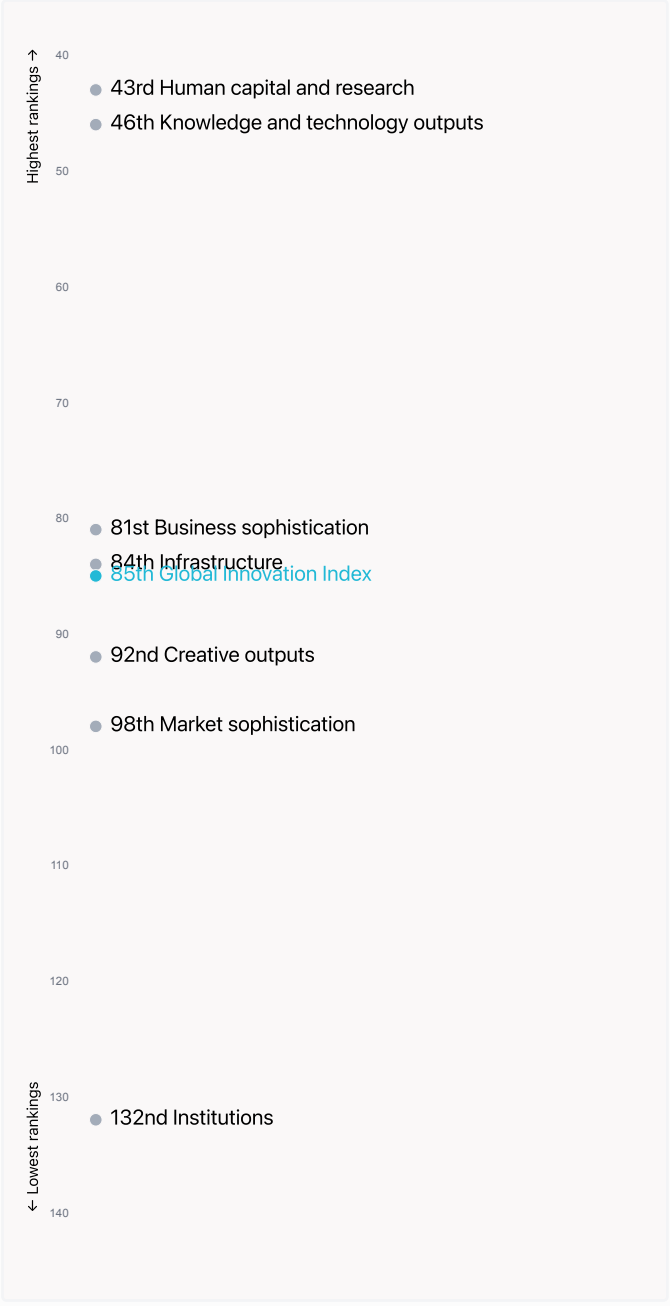


Global Innovation Index 2024



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



Highest rankings

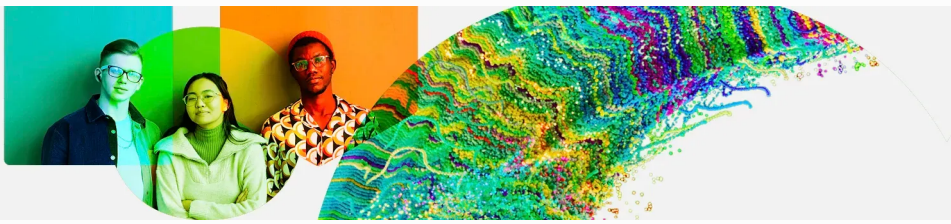
Belarus ranks highest in Human capital and research (43rd), Knowledge and technology outputs (46th), Business sophistication (81st) and Infrastructure (84th).

Lowest rankings

Belarus ranks lowest in Institutions (132nd), Market sophistication (98th) and Creative outputs (92nd).

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

Global Innovation Index 2024



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

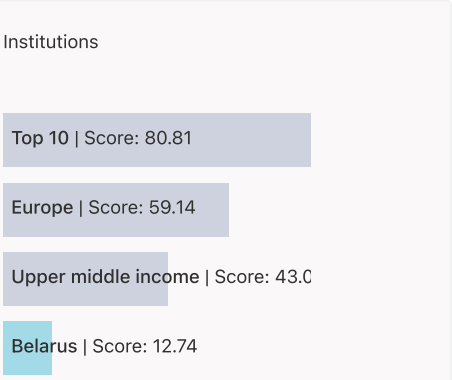
The charts shows the relative position of Belarus (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

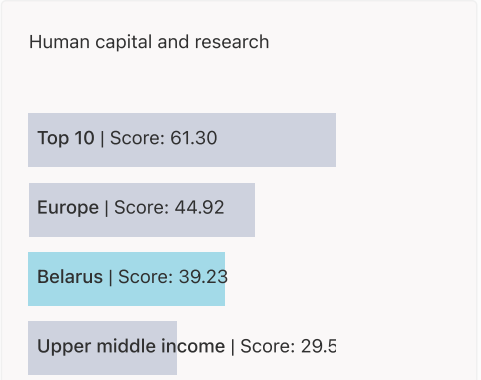
Upper-Middle-Income economies

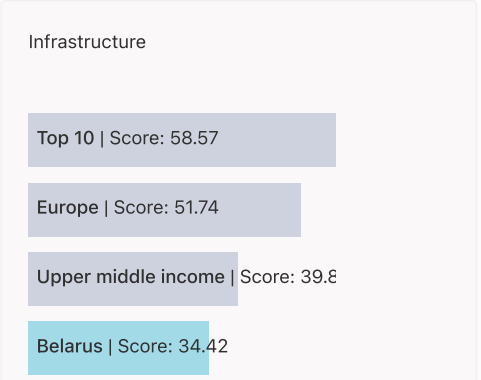
Belarus performs above the upper-middle-income group average in Human capital and research, Knowledge and technology outputs.

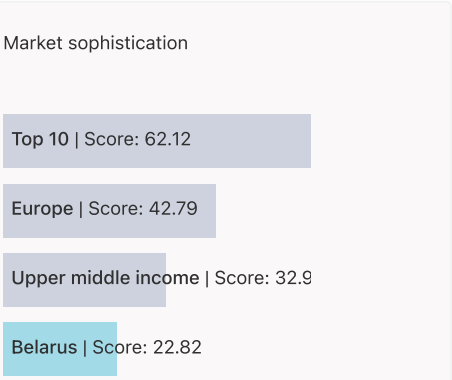
Europe

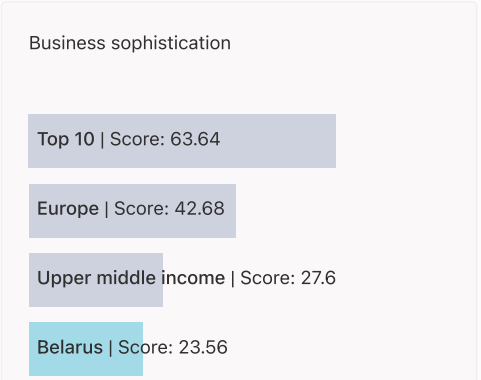
Belarus performs below the regional average in all pillars.

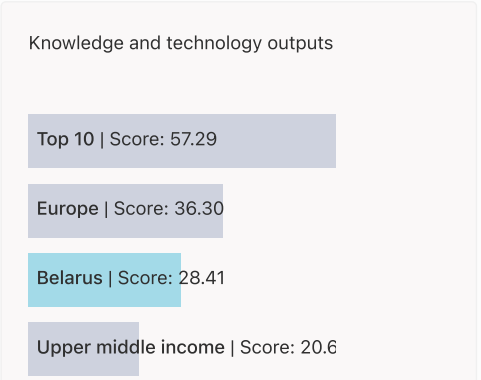


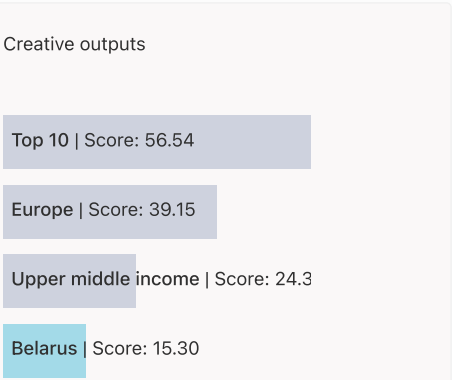




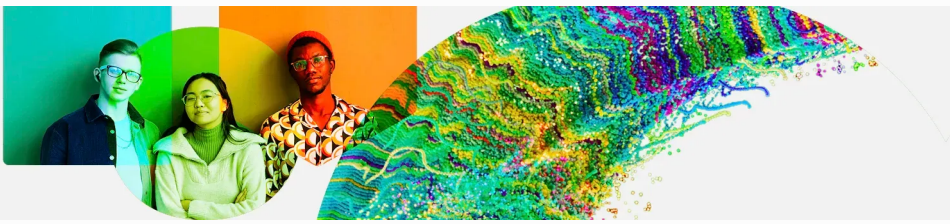








Global Innovation Index 2024



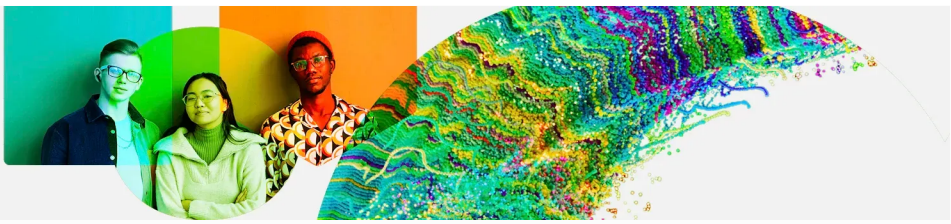
Innovation strengths and weaknesses in Belarus

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

Belarus's main innovation strengths are **ISO 9001 quality/bn PPP$ GDP** (rank 1), **Mobile app creation/bn PPP$ GDP** (rank 4) and **Utility models by origin/bn PPP$ GDP** (rank 12).

Strengths			Weaknesses		
Rank	Code	Indicator name	Rank	Code	Indicator name
1	6.3.5	ISO 9001 quality/bn PPP$ GDP	131	1.2.1	Regulatory quality*
4	7.3.3	Mobile app creation/bn PPP$ GDP	127	1.2.2	Rule of law*
12	6.1.3	Utility models by origin/bn PPP$ GDP	103	4.2.3	VC recipients, deals/bn PPP$ GDP
13	2.2.2	Graduates in science and engineering, %	101	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
16	6.3.4	ICT services exports, % total trade	82	1.3.2	Entrepreneurship policies and culture†
26	5.1.1	Knowledge-intensive employment, %	81	4.2.1	Market capitalization, % GDP
29	6.3.2	Production and export complexity	75	7.1.3	Global brand value, top 5,000, % GDP
29	5.1.5	Females employed w/advanced degrees, %	59	4.1.3	Loans from microfinance institutions, % GDP
30	2.1.5	Pupil–teacher ratio, secondary	49	6.2.2	Unicorn valuation, % GDP
37	6.1.1	Patents by origin/bn PPP$ GDP	41	2.3.3	Global corporate R&D investors, top 3, mn USD

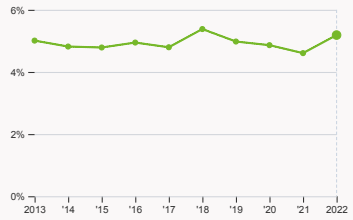
Global Innovation Index 2024



Belarus's innovation system

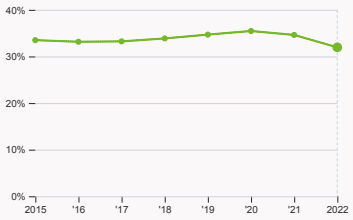
As far as practicable, the plots below present unscaled indicator data.

Innovation inputs in Belarus



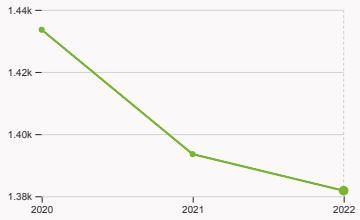
2.1.1 **Expenditure on education**

was equal to 5.19 % GDP in 2022, up by 0.58 percentage points from the year prior – and equivalent to an indicator rank of 39.



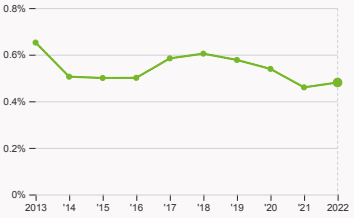
2.2.2 **Graduates in science and engineering**

was equal to 31.95 % of total graduates in 2022, down by 2.66 percentage points from the year prior – and equivalent to an indicator rank of 13.



2.3.1 **Researchers**

was equal to 1381.79 FTE per million population in 2022, down by 0.84% from the year prior – and equivalent to an indicator rank of 48.



2.3.2 **Gross expenditure on R&D**

was equal to 0.48 % GDP in 2022, up by 0.02 percentage points from the year prior – and equivalent to an indicator rank of 59.

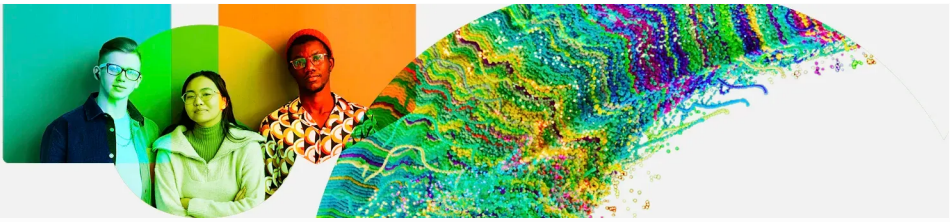
2.3.4 **QS university ranking**

was equal to an average score of 14.13 for the top three universities in 2023, down by 18.79% from the year prior – and equivalent to an indicator rank of 61.

4.2.4 **VC received, value**

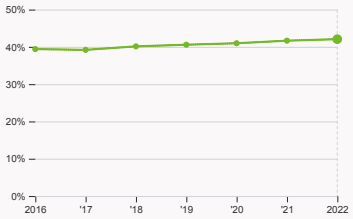
was equal to 0 USD in 2022, down by 100% from the year prior – and equivalent to an indicator rank of 100.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

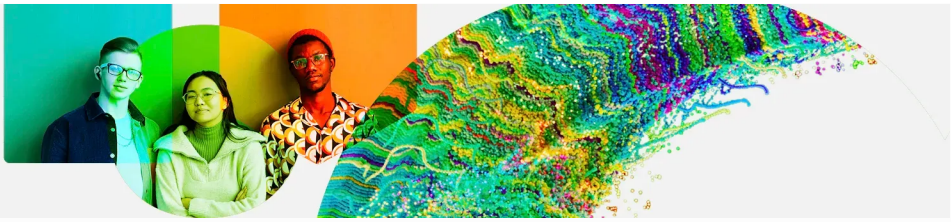
was equal to an index score of 0.11 in 2020, down by 0.06% from the year prior – and equivalent to an indicator rank of 35.



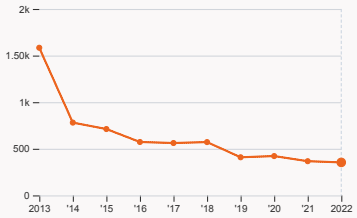
5.1.1 Knowledge-intensive employment

was equal to 42.06 % in 2022, up by 0.41 percentage points from the year prior – and equivalent to an indicator rank of 26.

Global Innovation Index 2024



Innovation outputs in Belarus

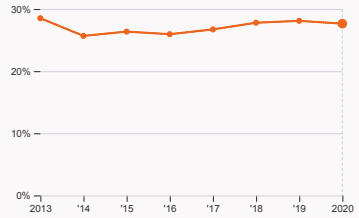


6.1.1 Patents by origin

was equal to 354 patents in 2022, down by 3.54% from the year prior – and equivalent to an indicator rank of 37.

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.

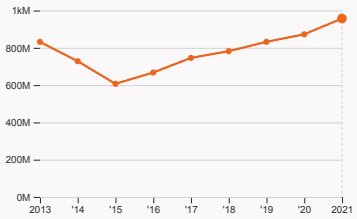


6.2.4 High-tech manufacturing

was equal to 27.64 % of total manufacturing output in 2020, down by 0.45 percentage points from the year prior – and equivalent to an indicator rank of 44.

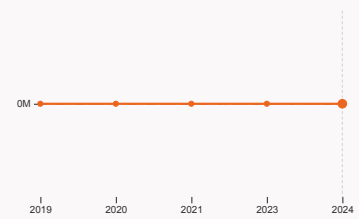
6.3.2 Production and export complexity

was equal to a score of 0.91 in 2021, up by 10.98% from the year prior – and equivalent to an indicator rank of 29.



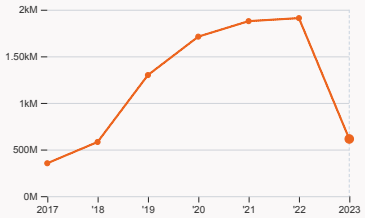
6.3.3 High-tech exports

was equal to 957.16 million USD in 2021, up by 9.71% from the year prior – and equivalent to an indicator rank of 60.



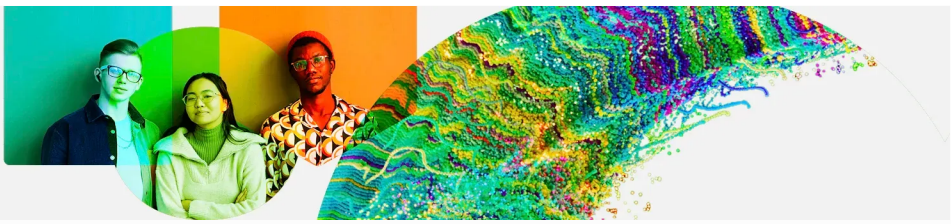
7.1.3 Global brand value

was equal to 0 million USD for the brands in the top 5,000 in 2024 with no change from the year prior – and equivalent to an indicator rank of 75.



7.3.3 Mobile app creation

was equal to 613.51 million global downloads of mobile apps in 2023, down by 67.88% from the year prior – and equivalent to an indicator rank of 4.



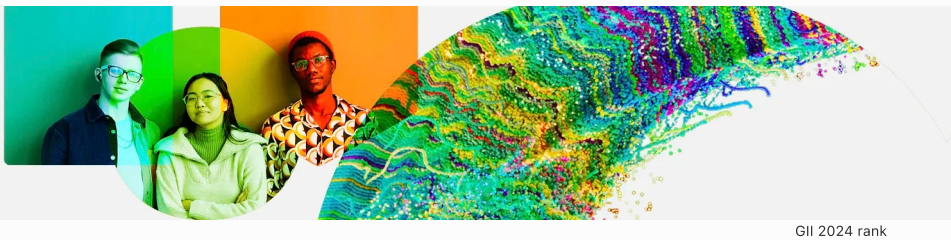
Belarus's innovation top performers

2.3.4 QS university ranking of Belarus's top universities

Rank	University	Score
387	BELARUSIAN STATE UNIVERSITY	28.30
801-850	BELARUSIAN NATIONAL TECHNICAL UNIVERSITY (BNTU)	14.10
1201-1400	BELARUSIAN STATE UNIVERSITY OF INFORMATICS AND RADIOELECTRONICS	7.00

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".

Global Innovation Index 2024



Belarus

GII 2024 rank **85**

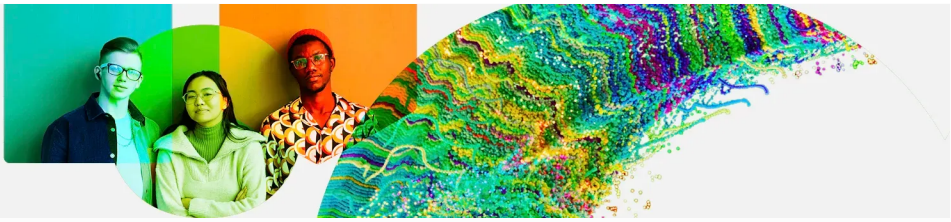
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
69	102	Upper middle	EUR	9.1	221.2	24,016.6

	Score / Value	Rank	
Institutions	**12.7**	**132**	○ ◇
1.1 Institutional environment	**25.5**	**123**	◇
1.1.1 Operational stability for businesses*	29.3	119	◇
1.1.2 Government effectiveness*	21.8	117	◇
1.2 Regulatory environment	**7.8**	**130**	○ ◇
1.2.1 Regulatory quality*	6.9	131	○ ◇
1.2.2 Rule of law*	8.8	127	○ ◇
1.3 Business environment	**4.9**	**[129]**	
1.3.1 Policy stability for doing business†	n/a	n/a	
1.3.2 Entrepreneurship policies and culture†	4.9	82	○ ◇
Human capital and research	**39.2**	**43**	◆
2.1 Education	**62.3**	**27**	● ◆
2.1.1 Expenditure on education, % GDP	5.2	39	
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3 School life expectancy, years	14	68	
2.1.4 PISA scales in reading, maths and science	472.3	35	◆
2.1.5 Pupil–teacher ratio, secondary	9.7	30	● ◆
2.2 Tertiary education	**46.4**	**20**	● ◆
2.2.1 Tertiary enrolment, % gross	70.9	42	
2.2.2 Graduates in science and engineering, %	32	13	● ◆
2.2.3 Tertiary inbound mobility, %	7.7	37	◆
2.3 Research and development (R&D)	**9**	**61**	
2.3.1 Researchers, FTE/mn pop.	1,381.8	48	
2.3.2 Gross expenditure on R&D, % GDP	0.5	59	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	14.3	61	
Infrastructure	**34.4**	**84**	
3.1 Information and communication technologies (ICTs)	**66.6**	**78**	
3.1.1 ICT access*	96.7	38	
3.1.2 ICT use*	79.9	55	
3.1.3 Government's online service*	48.1	95	◇
3.1.4 E-participation*	41.9	87	
3.2 General infrastructure	**24.4**	**88**	
3.2.1 Electricity output, GWh/mn pop.	4,433	52	
3.2.2 Logistics performance*	27.3	76	
3.2.3 Gross capital formation, % GDP	23.4	70	
3.3 Ecological sustainability	**12.2**	**104**	
3.3.1 GDP/unit of energy use	6.7	102	◇
3.3.2 Low-carbon energy use, %	4.9	105	
3.3.3 ISO 14001 environment/bn PPP$ GDP	2.4	43	
Market sophistication	**22.8**	**98**	
4.1 Credit	**8**	**120**	◇
4.1.1 Finance for startups and scaleups†	15.9	80	◇
4.1.2 Domestic credit to private sector, % GDP	29.2	98	
4.1.3 Loans from microfinance institutions, % GDP	0.02	59	○
4.2 Investment	**0.7**	**113**	○
4.2.1 Market capitalization, % GDP	3.7	81	○
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.007	101	○
4.2.3 VC recipients, deals/bn PPP$ GDP	0.007	103	○
4.2.4 VC received, value, % GDP	0.00001	100	
4.3 Trade, diversification and market scale	**59.7**	**53**	
4.3.1 Applied tariff rate, weighted avg., %	2	67	
4.3.2 Domestic industry diversification	90.8	35	
4.3.3 Domestic market scale, bn PPP$	221.2	70	

	Score / Value	Rank	
Business sophistication	**23.6**	**81**	
5.1 Knowledge workers	**47.7**	**38**	◆
5.1.1 Knowledge-intensive employment, %	42.1	26	● ◆
5.1.2 Firms offering formal training, %	31.5	54	
5.1.3 GERD performed by business, % GDP	0.4	44	
5.1.4 GERD financed by business, %	45	38	
5.1.5 Females employed w/advanced degrees, %	21.1	29	● ◆
5.2 Innovation linkages	**4.2**	**[130]**	
5.2.1 Public Research-Industry co-publications, %	0.8	100	
5.2.2 University-industry R&D collaboration†	n/a	n/a	
5.2.3 State of cluster development†	n/a	n/a	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.01	85	
5.2.5 Patent families/bn PPP$ GDP	0.05	74	
5.3 Knowledge absorption	**18.8**	**100**	◇
5.3.1 Intellectual property payments, % total trade	0.5	72	
5.3.2 High-tech imports, % total trade	5.4	106	
5.3.3 ICT services imports, % total trade	0.7	100	
5.3.4 FDI net inflows, % GDP	2.1	74	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**28.4**	**46**	
6.1 Knowledge creation	**16.9**	**62**	
6.1.1 Patents by origin/bn PPP$ GDP	1.7	37	● ◆
6.1.2 PCT patents by origin/bn PPP$ GDP	0.07	67	
6.1.3 Utility models by origin/bn PPP$ GDP	1.4	12	● ◆
6.1.4 Scientific and technical articles/bn PPP$ GDP	4.4	108	
6.1.5 Citable documents H-index	9.8	78	
6.2 Knowledge impact	**22.3**	**81**	
6.2.1 Labor productivity growth, %	1.1	52	
6.2.2 Unicorn valuation, % GDP	0	49	○ ◇
6.2.3 Software spending, % GDP	0.04	113	◇
6.2.4 High-tech manufacturing, %	27.6	44	
6.3 Knowledge diffusion	**46**	**17**	● ◆
6.3.1 Intellectual property receipts, % total trade	0.3	43	◆
6.3.2 Production and export complexity	65.9	29	● ◆
6.3.3 High-tech exports, % total trade	2	60	
6.3.4 ICT services exports, % total trade	5.9	16	● ◆
6.3.5 ISO 9001 quality/bn PPP$ GDP	35.2	1	● ◆
Creative outputs	**15.3**	**92**	
7.1 Intangible assets	**7.4**	**106**	◇
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	17.1	95	◇
7.1.3 Global brand value, top 5,000, % GDP	0	75	○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	1.1	56	
7.2 Creative goods and services	**9.1**	**[78]**	
7.2.1 Cultural and creative services exports, % total trade	0.3	72	
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 Creative goods exports, % total trade	0.9	48	
7.3 Online creativity	**37.3**	**37**	● ◆
7.3.1 Top-level domains (TLDs)/th pop. 15–69	3.5	65	
7.3.2 GitHub commits/mn pop. 15–69	23.3	41	◆
7.3.3 Mobile app creation/bn PPP$ GDP	85.1	4	● ◆

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 Belarus.

Belarus has missing data for eight indicators and outdated data for eighteen indicators.

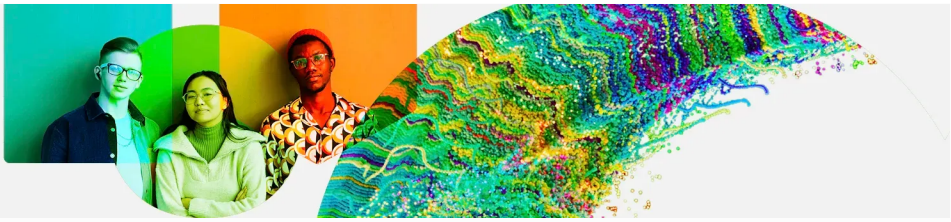
Missing data for Belarus

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policy stability for doing business†	n/a	2023	World Economic Forum, Executive Opinion Survey (EOS)
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
5.2.2	University-industry R&D collaboration†	n/a	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	State of cluster development†	n/a	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.3.5	Research talent, % in businesses	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.1.1	Intangible asset intensity, top 15, %	n/a	2023	Brand Finance
7.2.2	National feature films/mn pop. 15–69	n/a	2022	OMDIA; United Nations, World Population Prospects
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 Belarus

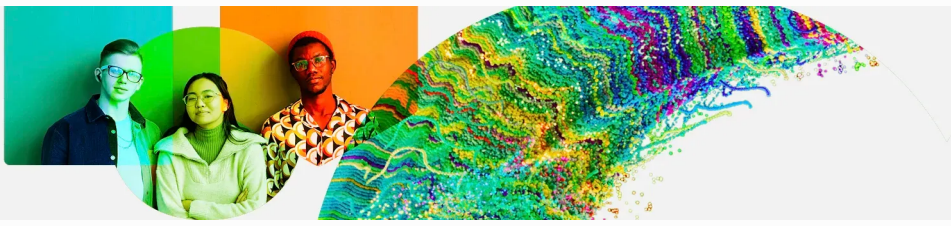
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture†	2021	2023	Global Entrepreneurship Monitor
2.1.4	PISA scales in reading, maths and science	2018	2022	OECD, PISA
3.2.1	Electricity output, GWh/mn pop.	2021	2022	International Energy Agency
4.1.1	Finance for startups and scaleups†	2021	2023	Global Entrepreneurship Monitor
4.1.2	Domestic credit to private sector, % GDP	2021	2022	International Monetary Fund; World Bank and OECD GDP estimates.
4.2.3	VC recipients, deals/bn PPP$ GDP	2022	2023	LSEG Data & Analytics; International Monetary Fund
4.2.4	VC received, value, % GDP	2022	2023	LSEG Data & Analytics; International Monetary Fund

Global Innovation Index 2024



Code	Indicator name	Economy Year	Model Year	Source
4.3.2	Domestic industry diversification	2020	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.2	Firms offering formal training, %	2018	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, %	2022	2023	International Labour Organization
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2021	2023	LSEG Data & Analytics; International Monetary Fund
5.3.2	High-tech imports, % total trade	2021	2022	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
6.2.4	High-tech manufacturing, %	2020	2021	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2021	2022	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development; Trade Data Monitor.
7.2.4	Creative goods exports, % total trade	2021	2022	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2022	2023	ZookNIC Inc.; United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects 2024

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.