



GLOBAL INNOVATION INDEX 2019

BELARUS

72nd

Belarus ranks 72nd among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Belarus over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Belarus's ranking in the GII 2019 is between 53 and 80.

Belarus's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	72	50	95
2018	86	60	110
2017	88	63	109

- Belarus performs better in Innovation Inputs than Outputs.
- This year Belarus ranks 50th in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Belarus ranks 95th. This position is better than last year and compared to 2017.

19th

Belarus ranks 19th among the 34 upper middle-income economies.

37th

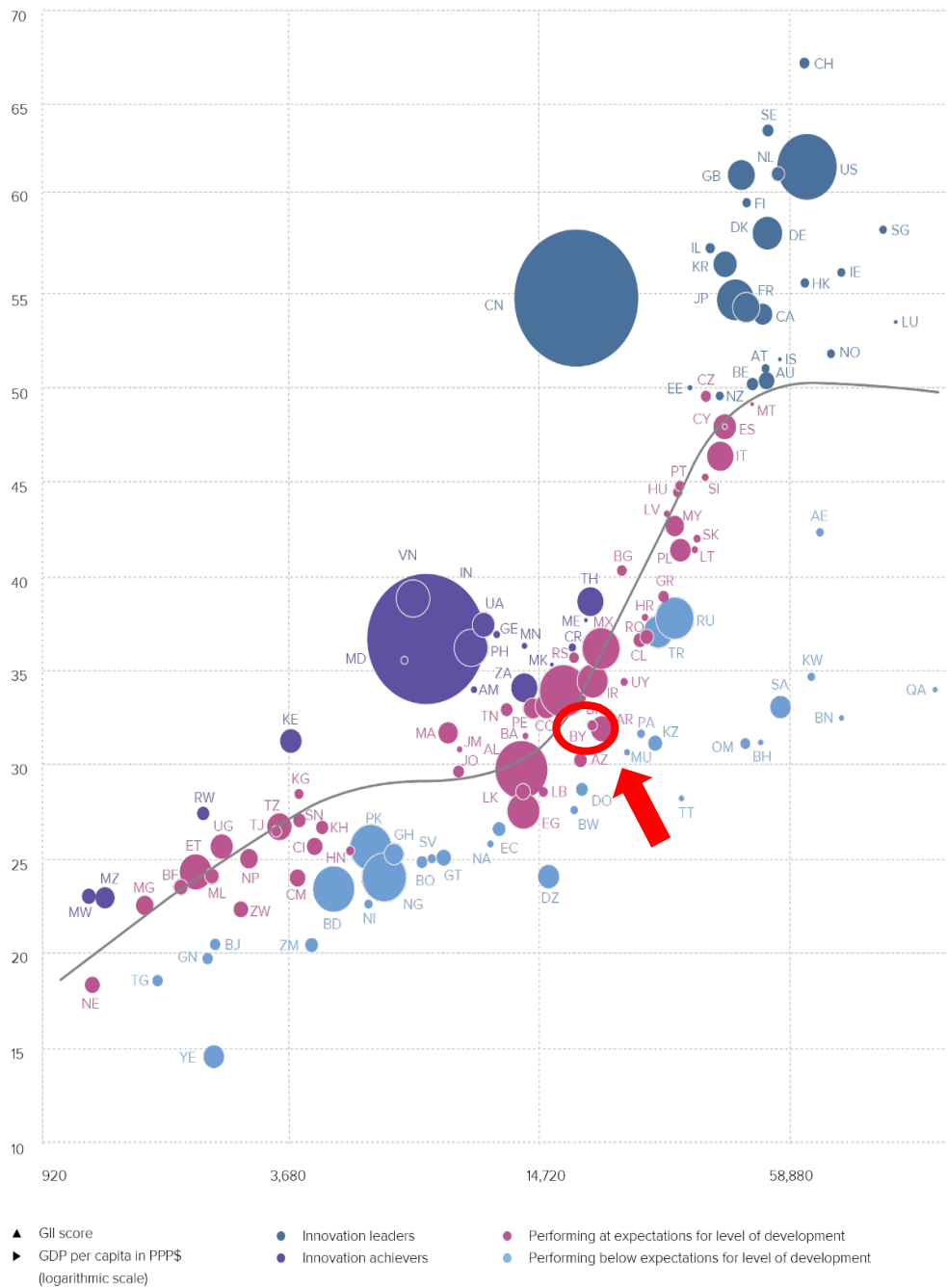
Belarus ranks 37th among the 39 economies in Europe.

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 considered Innovation under-performers relative to GDP.

Relative to GDP, Belarus performs at its expected level of development.

GII scores and GDP per capita in PPP US\$ (bubbles sized by population)

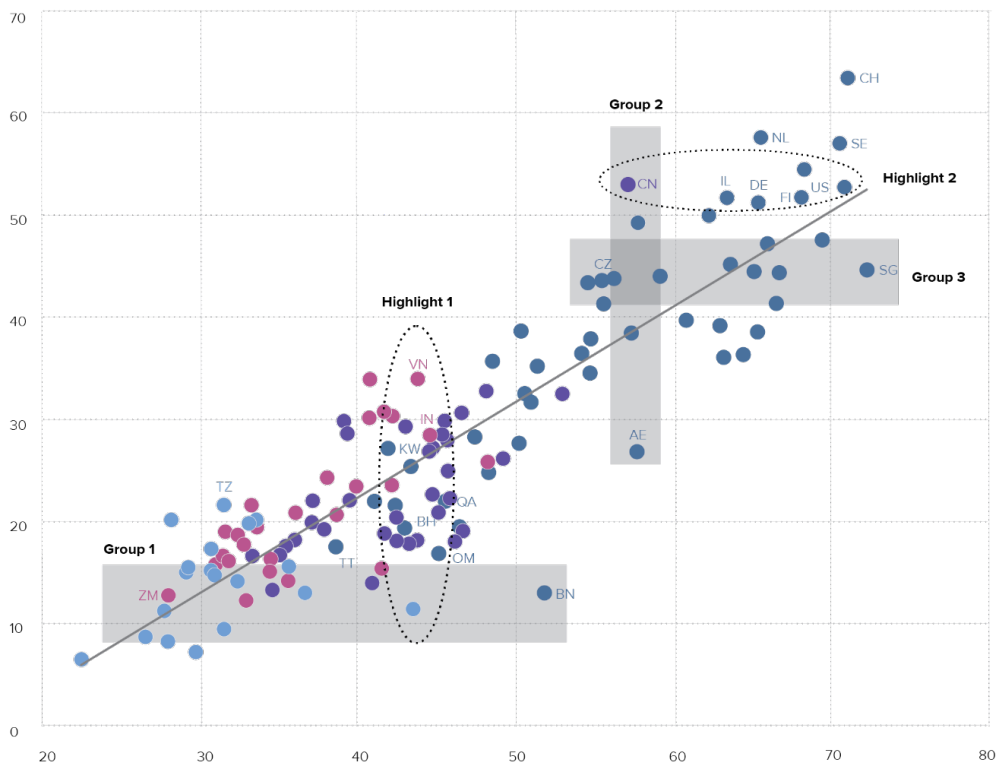


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

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

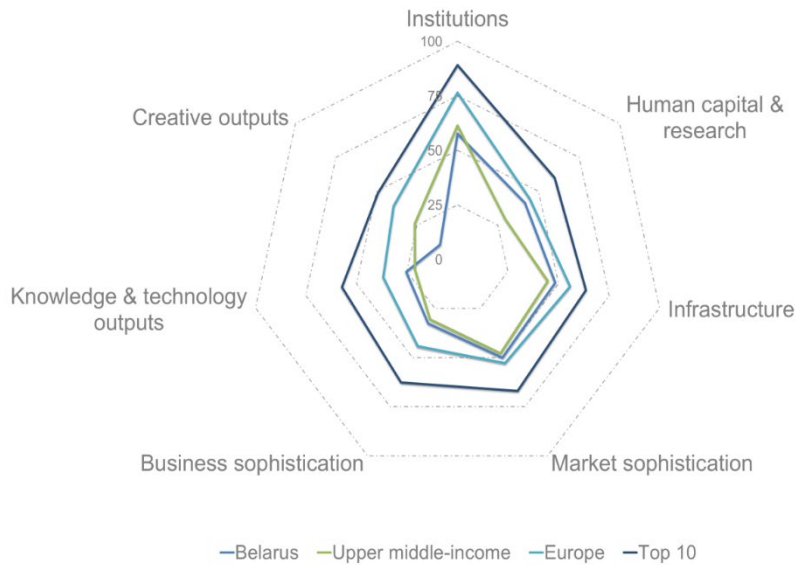
Innovation input/output performance by income group, 2019



- ▲ Output score
 - ▶ Input score
 - High income
 - Upper-middle income
 - Lower-middle income
 - Low income
 - Fitted values
- | | | | |
|-------------------------|-------------------|------------------------|--------------------------------|
| AE United Arab Emirates | CZ Czech Republic | NL Netherlands | TZ United Republic of Tanzania |
| BH Bahrain | DE Germany | OM Oman | US United States of America |
| BN Brunei Darussalam | FI Finland | QA Qatar | VN Viet Nam |
| CH Switzerland | IL Israel | SE Sweden | ZM Zambia |
| CN China | IN India | SG Singapore | |
| | KW Kuwait | TT Trinidad and Tobago | |

BENCHMARKING BELARUS TO OTHER UPPER MIDDLE-INCOME ECONOMIES AND THE EUROPE REGION

Belarus's scores in the seven GII pillars



Upper middle-income economies

Belarus has high scores in 5 out of the 7 GII pillars: Human capital & research, Infrastructure, Market sophistication, Business sophistication, and Knowledge & technology outputs, which are above the average of the upper middle-income group.

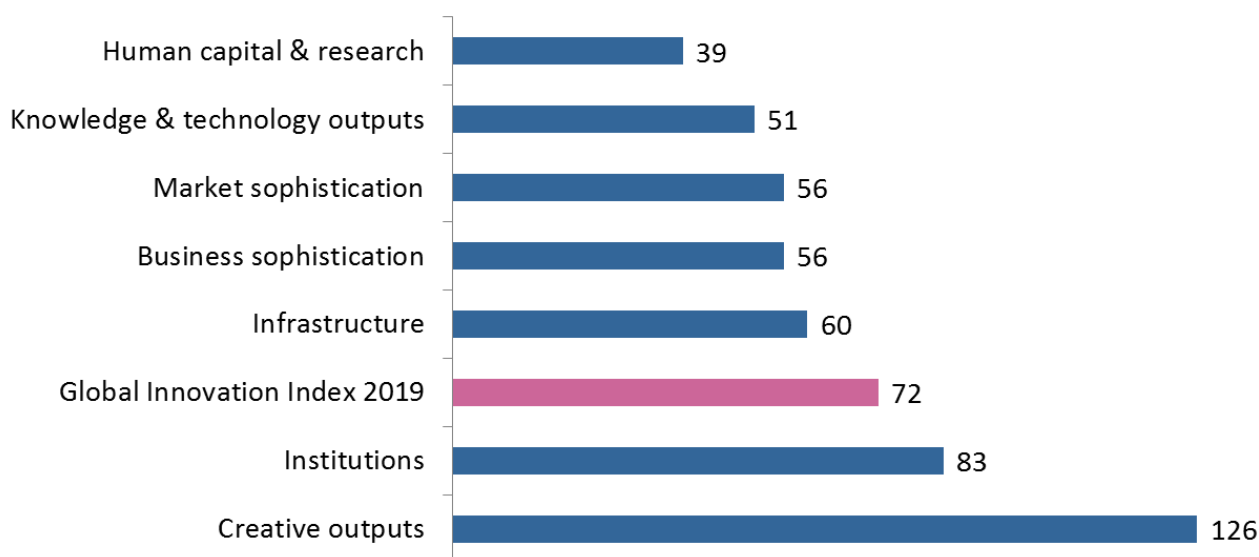
Europe Region

Compared to other economies in the Europe region, Belarus performs below average in all the 7 GII pillars.

Top ranks are found in sub-pillars Education, Tertiary education, Information & communication technologies (ICTs), Investment, Knowledge workers, Knowledge impact, and Online creativity where the country ranks in the top 50 worldwide.

OVERVIEW OF BELARUS'S RANKINGS IN THE 7 GII AREAS

Belarus performs the best in Human capital & research and its weakest performance is in Creative outputs.



*The highest possible ranking in each pillar is 1.

BELARUS'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Belarus's strengths and weaknesses in the GII 2019.

Strengths		
Code	Indicator name	Rank
2.1.2	Government funding/pupil, secondary, % GDP/cap	8
2.1.5	Pupil-teacher ratio, secondary	11
2.2	Tertiary education	9
2.2.1	Tertiary enrolment, % gross	11
2.2.2	Graduates in science & engineering, %	6
4.3.1	Applied tariff rate, weighted mean, %	15
5.1.5	Females employed w/advanced degrees, %	1
6.1.3	Utility models by origin/bn PPP\$ GDP	10
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	14
6.3.3	ICT services exports, % total trade	19
7.3.4	Mobile app creation/bn PPP\$ GDP	6

Weaknesses		
Code	Indicator name	Rank
1.2	Regulatory environment	107
1.2.1	Regulatory quality*	113
1.2.2	Rule of law*	112
2.3.3	Global R&D companies, top 3, in mn US\$	43
3.3.1	GDP/unit of energy use	99
4.1	Credit	115
4.1.2	Domestic credit to private sector, % GDP	104
4.1.3	Microfinance gross loans, % GDP	81
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP	100
6.2.3	Computer software spending, % GDP	107
7	Creative outputs	126
7.2.2	National feature films/mn pop. 15-69	105
7.2.4	Printing & other media, % manufacturing	90

STRENGTHS

- GII strengths for Belarus are found in five of the seven GII pillars.
- Several of these are in Human capital & research (39), the best ranked pillar for this country. Here Belarus's strengths are sub-pillar Tertiary education (9) and indicators Government funding per pupil (8), Pupil-teacher ratio (11), Tertiary enrolment (11), and Graduates in science & engineering (6).
- In Market sophistication (56), the only GII strengths for Belarus is indicator Applied tariff rate (15).
- In Business sophistication (56), Belarus's strength is indicator Females employed with advanced degrees, where the country positions 1st in the world.
- In Knowledge & technology outputs (51), relative strengths are three indicators: Utility models by origin (10), ISO 9001 quality certificates (14), and ICT services exports (19).
- In Creative outputs (126), indicator Mobile app creation (6) is a GII strength for the country.

WEAKNESSES

- Belarus's weaknesses in the GII are found in all the seven GII pillars.
- Pillar Creative outputs (126) is a relative weakness for the country. Here additional weaknesses are indicators National feature films (105) and Printing & other media (90).
- In Institutions (83), Belarus's weaknesses are sub-pillar Regulatory environment (107) and indicators Regulatory quality (113) and Rule of law (112).
- In Human capital & research (39), the only one weakness for this country is indicator Global R&D companies (43).
- In Infrastructure (60), indicator GDP per unit of energy use (99) is a relative weakness.
- In Market sophistication (56), relative weaknesses are sub-pillar Credit (115) as well as two of its three indicators - Domestic credit to private sector (104) and Microfinance gross loans (81).
- In Business sophistication (56), indicator Joint Ventures - strategic alliance deals (100) is a relative weakness for Belarus.
- In Knowledge & technology outputs (51), Belarus's only weakness is indicator Computer software spending (107).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
95	50	Upper middle	EUR	9.5	190.8	20,003.0	86
				Score/Value	Rank		
INSTITUTIONS				57.7	83		
1.1	Political environment		48.8	87			
1.1.1	Political and operational stability*		70.2	61			
1.1.2	Government effectiveness*		38.1	91			
1.2	Regulatory environment		51.3	107	○ ◇		
1.2.1	Regulatory quality*		22.2	113	○ ◇		
1.2.2	Rule of law*		24.7	112	○ ◇		
1.2.3	Cost of redundancy dismissal, salary weeks.....		21.7	92			
1.3	Business environment		73.0	54			
1.3.1	Ease of starting a business*		93.4	26			
1.3.2	Ease of resolving insolvency*		52.6	66			
HUMAN CAPITAL & RESEARCH				41.6	39	◆	
2.1	Education		60.8	20	◆		
2.1.1	Expenditure on education, % GDP.....		4.8	53			
2.1.2	Government funding/pupil, secondary, % GDP/cap... 35.9		8	8	● ◆		
2.1.3	School life expectancy, years.....		15.4	43			
2.1.4	PISA scales in reading, maths, & science.....		n/a	n/a			
2.1.5	Pupil-teacher ratio, secondary.....		8.2	11	● ◆		
2.2	Tertiary education		54.8	9	● ◆		
2.2.1	Tertiary enrolment, % gross.....		86.7	11	● ◆		
2.2.2	Graduates in science & engineering, %.....		33.2	6	● ◆		
2.2.3	Tertiary inbound mobility, %.....		4.2	51			
2.3	Research & development (R&D)		9.1	61			
2.3.1	Researchers, FTE/mn pop.....		n/a	n/a			
2.3.2	Gross expenditure on R&D, % GDP.....		0.6	54			
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$.....		0.0	43	○ ◇		
2.3.4	QS university ranking, average score top 3*.....		14.8	57			
INFRASTRUCTURE				48.2	60		
3.1	Information & communication technologies (ICTs)		77.9	37	◆		
3.1.1	ICT access*.....		80.8	23	◆		
3.1.2	ICT use*.....		68.8	37	◆		
3.1.3	Government's online service*.....		73.6	57			
3.1.4	E-participation*.....		88.2	33			
3.2	General infrastructure		31.7	79			
3.2.1	Electricity output, kWh/mn pop.....		3,529.5	57			
3.2.2	Logistics performance*.....		23.9	97	◇		
3.2.3	Gross capital formation, % GDP.....		26.6	36			
3.3	Ecological sustainability		35.2	78			
3.3.1	GDP/unit of energy use.....		6.2	99	○ ◇		
3.3.2	Environmental performance*.....		65.0	40	◆		
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP..		1.9	51			
MARKET SOPHISTICATION				50.0	56		
4.1	Credit		21.8	115	○ ◇		
4.1.1	Ease of getting credit*.....		55.0	77			
4.1.2	Domestic credit to private sector, % GDP.....		26.4	104	○		
4.1.3	Microfinance gross loans, % GDP.....		0.0	81	○ ◇		
4.2	Investment		63.3	[17]			
4.2.1	Ease of protecting minority investors*.....		63.3	48			
4.2.2	Market capitalization, % GDP.....		n/a	n/a			
4.2.3	Venture capital deals/bn PPP\$ GDP.....		n/a	n/a			
4.3	Trade, competition, & market scale		64.8	54			
4.3.1	Applied tariff rate, weighted avg., %.....		1.5	15	●		
4.3.2	Intensity of local competition*.....		n/a	n/a			
4.3.3	Domestic market scale, bn PPP\$.....		190.8	64			
BUSINESS SOPHISTICATION				32.6	56		
5.1	Knowledge workers		61.3	23	◆		
5.1.1	Knowledge-intensive employment, %.....		39.2	27	◆		
5.1.2	Firms offering formal training, % firms.....		51.1	19			
5.1.3	GERD performed by business, % GDP.....		0.4	41			
5.1.4	GERD financed by business, %.....		43.0	41			
5.1.5	Females employed w/advanced degrees, %.....		32.6	1	● ◆		
5.2	Innovation linkages		11.4	[126]			
5.2.1	University/industry research collaboration*.....		n/a	n/a			
5.2.2	State of cluster development*.....		n/a	n/a			
5.2.3	GERD financed by abroad, %.....		14.1	29			
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....		0.0	100	○		
5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....		0.1	60			
5.3	Knowledge absorption		25.1	101			
5.3.1	Intellectual property payments, % total trade.....		0.4	70			
5.3.2	High-tech imports, % total trade.....		5.1	104			
5.3.3	ICT services imports, % total trade.....		0.7	93			
5.3.4	FDI net inflows, % GDP.....		2.6	63			
5.3.5	Research talent, % in business enterprise.....		n/a	n/a			
KNOWLEDGE & TECHNOLOGY OUTPUTS				25.5	51		
6.1	Knowledge creation		17.5	52			
6.1.1	Patents by origin/bn PPP\$ GDP.....		3.1	30			
6.1.2	PCT patents by origin/bn PPP\$ GDP.....		0.1	61			
6.1.3	Utility models by origin/bn PPP\$ GDP.....		2.2	10	●		
6.1.4	Scientific & technical articles/bn PPP\$ GDP.....		5.3	78			
6.1.5	Citable documents H-index.....		9.7	70			
6.2	Knowledge impact		40.1	48			
6.2.1	Growth rate of PPP\$ GDP/worker, %.....		2.5	35			
6.2.2	New businesses/th pop. 15-64.....		1.1	69			
6.2.3	Computer software spending, % GDP.....		0.0	107	○ ◇		
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....		22.2	14	● ◆		
6.2.5	High- & medium-high-tech manufactures, %.....		0.3	45			
6.3	Knowledge diffusion		18.7	55			
6.3.1	Intellectual property receipts, % total trade.....		0.1	59			
6.3.2	High-tech net exports, % total trade.....		1.8	57			
6.3.3	ICT services exports, % total trade.....		4.0	19	● ◆		
6.3.4	FDI net outflows, % GDP.....		0.2	89			
CREATIVE OUTPUTS				10.8	126	○ ◇	
7.1	Intangible assets		8.0	[127]			
7.1.1	Trademarks by origin/bn PPP\$ GDP.....		24.8	81			
7.1.2	Industrial designs by origin/bn PPP\$ GDP.....		1.0	68			
7.1.3	ICTs & business model creation*.....		n/a	n/a			
7.1.4	ICTs & organizational model creation*.....		n/a	n/a			
7.2	Creative goods & services		5.0	101	◇		
7.2.1	Cultural & creative services exports, % total trade.....		0.2	69			
7.2.2	National feature films/mn pop. 15-69.....		0.1	105	○ ◇		
7.2.3	Entertainment & Media market/th pop. 15-69.....		n/a	n/a			
7.2.4	Printing & other media, % manufacturing.....		0.5	90	○		
7.2.5	Creative goods exports, % total trade.....		0.4	63			
7.3	Online creativity		22.1	31	◆		
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....		1.7	83			
7.3.2	Country-code TLDs/th pop. 15-69.....		5.2	47			
7.3.3	Wikipedia edits/mn pop. 15-69.....		22.2	47			
7.3.4	Mobile app creation/bn PPP\$ GDP.....		66.5	6	● ◆		

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 Appendix II for details, including the year of the data, at <http://globalinnovationindex.org>. 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 data that are missing or are outdated for Belarus.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2015	OECD Programme for International Student Assessment (PISA)
2.3.1	Researchers, FTE/mn pop.	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.2.2	Market capitalization, % GDP	n/a	2017	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP\$ GDP	n/a	2018	Thomson Reuters
4.3.2	Intensity of local competition [†]	n/a	2018	World Economic Forum
5.2.1	University/industry research collaboration [†]	n/a	2018	World Economic Forum
5.2.2	State of cluster development [†]	n/a	2018	World Economic Forum
5.3.5	Research talent, % in business enterprise	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
7.1.3	ICTs & business model creation [†]	n/a	2018	World Economic Forum
7.1.4	ICTs & organizational model creation [†]	n/a	2018	World Economic Forum
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2017	PwC

Outdated data

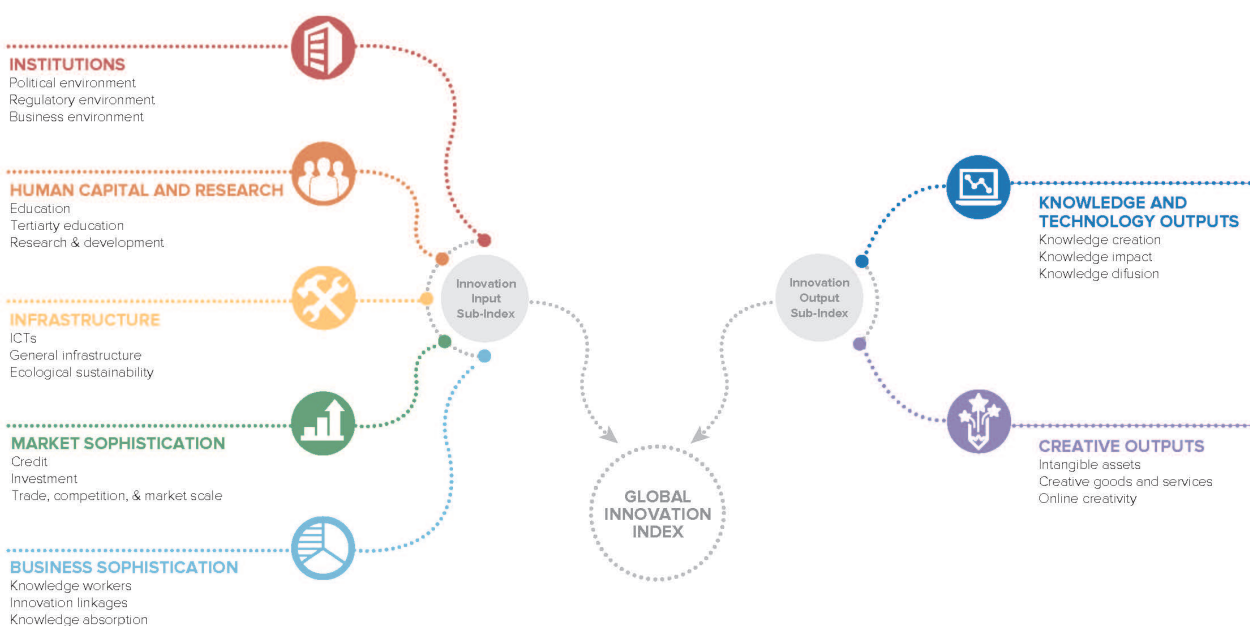
Code	Indicator name	Country year	Model year	Source
7.2.2	National feature films/mn pop. 15–69	2011	2017	UNESCO Institute for Statistics

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2019, the GII presents its 12th edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

