

# GLOBAL INNOVATION INDEX 2018

## Belarus

**86<sup>th</sup>** Belarus is ranked 86th in the GII 2018, moving up 2 positions from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects Belarus's ranking over time<sup>1</sup>.

Belarus's ranking over time

	GII	Input	Output	Efficiency
2018	86	60	110	119
2017	88	63	109	120
2016	79	64	103	116

- Belarus performs better in innovation inputs than outputs.
- Over the last three years, Belarus has improved in innovation inputs, reaching the 60th position this year, up from the 63rd in 2017 and the 64th in 2016.
- This year its rank in innovation outputs slightly deteriorates, ranking 110th, down 1 spot from last year, and 7 spots from 2016.
- Belarus positions 119th globally in the Innovation Efficiency Ratio. This ranking is rather low when compared to its overall GII position (86th), showing that the economy could improve its efficiency in translating its good-quality inputs into more outputs. Indeed, this ranking is partly due to a much higher ranking in innovation inputs (60th) compared to outputs (110th).

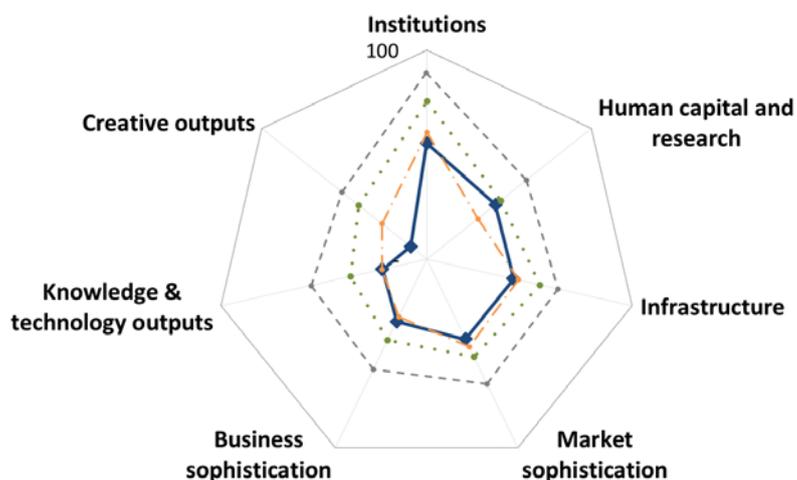
**27<sup>th</sup>** Belarus is ranked 27th among the 34 upper-middle-income countries in the GII 2018.

**39<sup>th</sup>** Belarus is ranked 39th among the 39 countries in Europe.

<sup>1</sup> Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

## Benchmarking Belarus to other upper-middle-income countries and the Europe region

Belarus's scores by area



—●— Belarus —■— Income group average —▲— Regional average —◆— Top 10

### Upper-middle-income countries

Belarus has high scores in 2 of the 7 GII areas – **Human Capital & Research** and **Business Sophistication**, in which it scores above the average of the upper-middle-income group.

Top scores in areas such as *Education* and *Knowledge workers* are behind these high rankings.

### Europe region

Compared to other countries in the Europe region, Belarus performs below-average in all GII areas.

## Belarus's innovation profile

### Strengths

- Belarus shows most of its GII strengths on the **innovation input** side, among four of the five GII input areas and especially in two areas – **Human Capital & Research** (34th) and **Business Sophistication** (53rd).
- In **Human Capital & Research** (34th), the top-ranked GII area for Belarus, it shows a strong performance in two of its three components – *Education* (20th) and *Tertiary education* (13th). Three of their indicators also performs strongly: *Pupil-teacher ratio* (12th), and *Tertiary enrolment* and *Graduates in science & engineering*, where it ranks 7th and 5th respectively.
- The area *Knowledge workers* (24th) is highlighted as a strength in **Business Sophistication** (53rd). Here the country also exhibits strengths in three of its five indicators, namely *Knowledge-intensive employment* (27th), *Firms offering formal training* (18th), and *Females employed with advanced degrees*, which positions 2nd in the world.
- Belarus also shows strength in the indicators *Ease of starting a business* (27th) in **Institutions** (81st) and *ICT access* (31st) in **Infrastructure** (73rd).
- On the **innovation output** side, Belarus achieves comparatively strong results in two indicators within **Knowledge & Technology Outputs** (65th): *Utility models by origin* (12th) and *ICT services exports* (23rd).

## Weaknesses

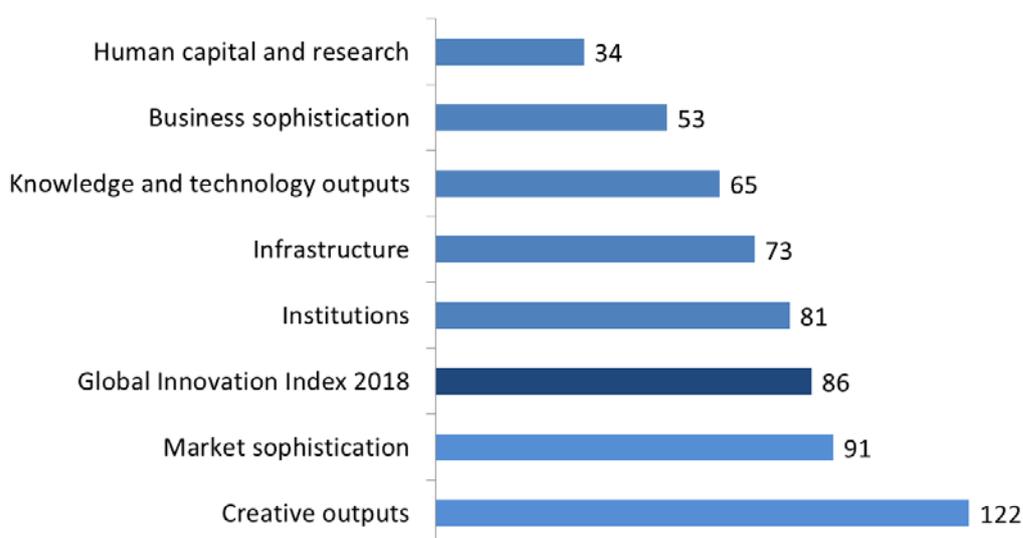
- Belarus has relatively weak performance in the **Innovation Output Sub-Index**, where it ranks 110th globally. In addition, the **Innovation Efficiency Ratio**, where it ranks 119th in the world, is signaled as another major GII weakness for Belarus.
- Another important weakness is found in **Creative Outputs** (122nd) which is the lowest-ranked GII area for Belarus and is signaled as a weakness. Two of its three components present weak performance: *Intangible assets* (122nd) and *Creative goods & services* (108th). Furthermore, one indicator – *National feature films* (99th) – is relatively weak.
- Several other relative weaknesses are found in **Knowledge & Technology Outputs** (65th), where the country performs relatively weakly in three indicators: *Productivity growth* (95th), *Computer software spending* (106th), and *ISO 9001 quality certificates* (110th).
- Among **innovation inputs**, most GII weaknesses are found in **Market Sophistication** (91st), where the country shows weak rankings in one of its component *Credit* (114th) and in two indicators – *Domestic credit to private sector* (105th) and *Venture capital deals* (67th).
- In **Institutions** (81st), relative weaknesses lie in two indicators: *Regulatory quality* (120th) and *Rule of law* (109th).
- Other two weak indicators are identified on the innovation input side: *Global R&D companies expenditures* (40th) in **Human Capital & Research** (34th) and *Logistics performance* (112th) in **Infrastructure** (73rd).
- The area *Innovation linkages* (114th) is weak in **Business Sophistication** (53rd).

The following figure presents a summary of Belarus's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

### Belarus's rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

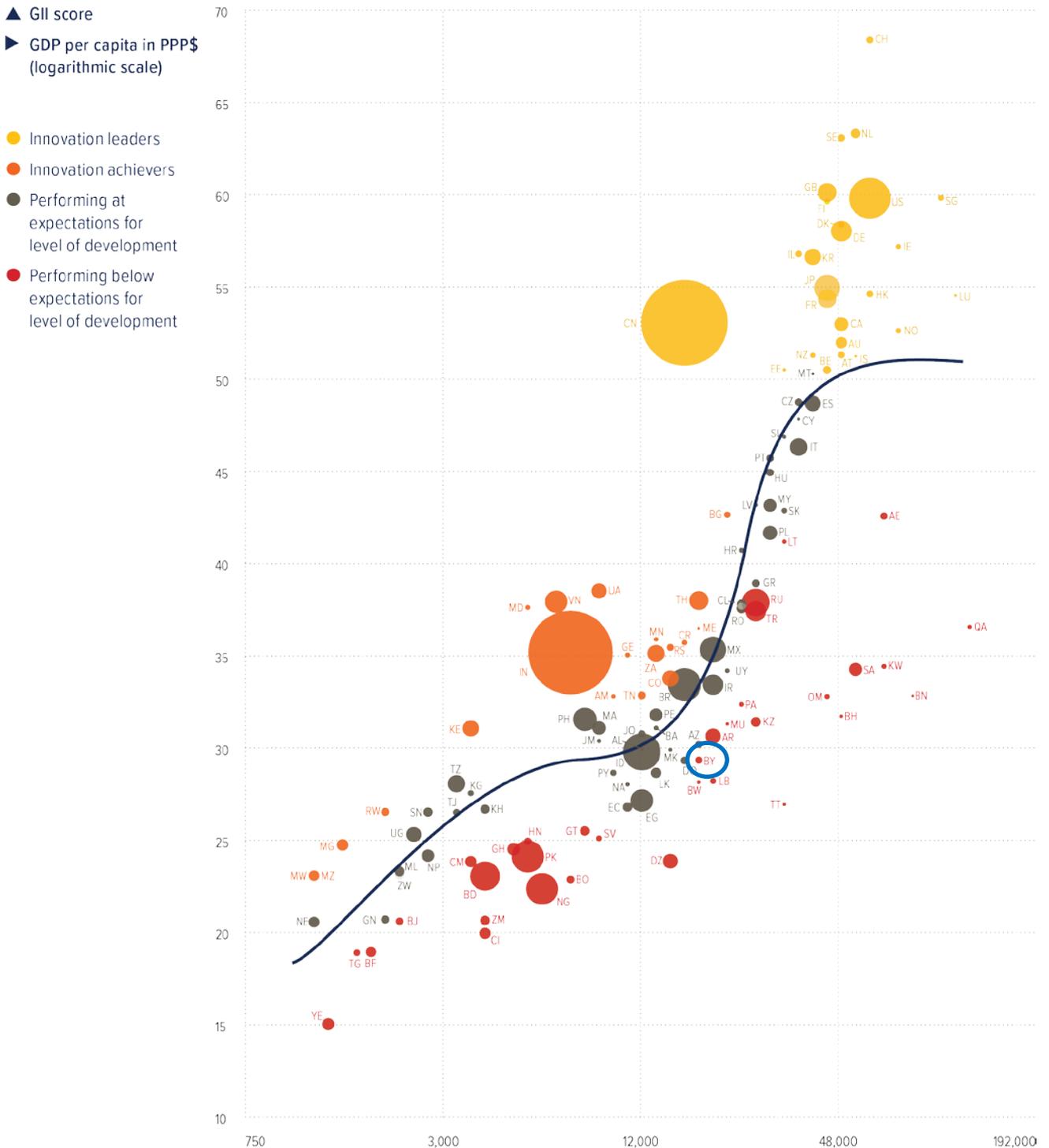
Total number of countries: 126



## Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better than what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

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



## Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for Belarus that is not available or that is outdated.

### Missing Data

Code	Indicator	Country Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2014	UNESCO Institute for Statistics (UIS)
2.1.4	PISA scales in reading, maths & science	n/a	2015	OECD PISA
2.3.1	Researchers, FTE/mn pop.	n/a	2016	UNESCO Institute for Statistics (UIS)
4.2.2	Market capitalization, % GDP	n/a	2016	World Bank, World Development Indicators
4.3.2	Intensity of local competition†	n/a	2017	World Economic Forum, Executive Opinion Survey
5.2.1	University/industry research collaboration†	n/a	2017	World Economic Forum, Executive Opinion Survey
5.2.2	State of cluster development†	n/a	2017	World Economic Forum, Executive Opinion Survey
5.3.5	Research talent, % in business enterprise	n/a	2016	UNESCO Institute for Statistics (UIS)
7.1.3	ICTs & business model creation†	n/a	2017	World Economic Forum, Executive Opinion Survey
7.1.4	ICTs & organizational model creation†	n/a	2017	World Economic Forum, Executive Opinion Survey
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2016	PwC's Global Entertainment and Media Outlook, 2017–2021
7.2.4	Printing & other media, % manufacturing	n/a	2015	UNIDO, Industrial Statistics

### Outdated Data

Code	Indicator	Country Year	Model Year	Source
7.2.2	National feature films/mn pop. 15–69	2011	2015	UNESCO Institute for Statistics (UIS)



Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
110 ○	60	Upper-middle	EUR	119 ○	9.5	175.9	18,930.8	88

	Score/Value	Rank
<b>Institutions</b> .....	<b>55.5</b>	<b>81</b>
1.1 Political environment.....	44.1	84
1.1.1 Political stability & safety*.....	67.4	59
1.1.2 Government effectiveness*.....	32.4	94 ◇
1.2 Regulatory environment.....	50.2	105 ◇
1.2.1 Regulatory quality*.....	20.0	120 ○◇
1.2.2 Rule of law*.....	22.5	109 ○◇
1.2.3 Cost of redundancy dismissal, salary weeks.....	21.7	86
1.3 Business environment.....	72.1	54
1.3.1 Ease of starting a business*.....	92.9	27 ●◆
1.3.2 Ease of resolving insolvency*.....	51.3	62
<b>Human capital &amp; research</b> .....	<b>41.9</b>	<b>34</b> ◆
2.1 Education.....	60.2	20 ●
2.1.1 Expenditure on education, % GDP.....	5.0	54
2.1.2 Government funding/pupil, secondary, % GDP/cap.....	n/a	n/a
2.1.3 School life expectancy, years.....	15.5	41
2.1.4 PISA scales in reading, maths & science.....	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary.....	8.3	12 ●◆
2.2 Tertiary education.....	55.8	13 ●◆
2.2.1 Tertiary enrolment, % gross.....	87.0	7 ●◆
2.2.2 Graduates in science & engineering, %.....	33.1	5 ●◆
2.2.3 Tertiary inbound mobility, %.....	3.7	55
2.3 Research & development (R&D).....	9.5	59
2.3.1 Researchers, FTE/mn pop.....	n/a	n/a
2.3.2 Gross expenditure on R&D, % GDP.....	0.5	60
2.3.3 Global R&D companies, top 3, mn US\$.....	0.0	40 ○◇
2.3.4 QS university ranking, average score top 3*.....	16.9	54
<b>Infrastructure</b> .....	<b>42.2</b>	<b>73</b>
3.1 Information & communication technologies (ICTs).....	62.1	59
3.1.1 ICT access*.....	78.7	31 ●◆
3.1.2 ICT use*.....	65.4	36 ◆
3.1.3 Government's online service*.....	48.6	86
3.1.4 E-participation*.....	55.9	74
3.2 General infrastructure.....	31.5	88
3.2.1 Electricity output, kWh/cap.....	3,591.4	53
3.2.2 Logistics performance*.....	15.6	112 ○◇
3.2.3 Gross capital formation, % GDP.....	24.7	44
3.3 Ecological sustainability.....	32.9	84
3.3.1 GDP/unit of energy use.....	6.1	93 ◇
3.3.2 Environmental performance*.....	65.0	40
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.4	89
<b>Market sophistication</b> .....	<b>42.5</b>	<b>91</b>
4.1 Credit.....	20.0	114 ○◇
4.1.1 Ease of getting credit*.....	50.0	79
4.1.2 Domestic credit to private sector, % GDP.....	25.9	105 ○
4.1.3 Microfinance gross loans, % GDP.....	0.1	60
4.2 Investment.....	43.8	51
4.2.1 Ease of protecting minority investors*.....	65.0	39
4.2.2 Market capitalization, % GDP.....	n/a	n/a
4.2.3 Venture capital deals/bn PPP\$ GDP.....	0.0	67 ○
4.3 Trade, competition, & market scale.....	63.6	55
4.3.1 Applied tariff rate, weighted mean, %.....	1.7	48
4.3.2 Intensity of local competition <sup>†</sup> .....	n/a	n/a
4.3.3 Domestic market scale, bn PPP\$.....	175.9	63

	Score/Value	Rank
<b>Business sophistication</b> .....	<b>33.0</b>	<b>53</b>
5.1 Knowledge workers.....	59.6	24 ●◆
5.1.1 Knowledge-intensive employment, %.....	39.4	27 ●◆
5.1.2 Firms offering formal training, % firms.....	51.1	18 ●
5.1.3 GERD performed by business, % GDP.....	0.3	44
5.1.4 GERD financed by business, %.....	38.7	44
5.1.5 Females employed w/advanced degrees, %.....	32.7	2 ●◆
5.2 Innovation linkages.....	18.0	114 ○◇
5.2.1 University/industry research collaboration <sup>†</sup> .....	n/a	n/a
5.2.2 State of cluster development <sup>†</sup> .....	n/a	n/a
5.2.3 GERD financed by abroad, %.....	16.6	25
5.2.4 JV—strategic alliance deals/bn PPP\$ GDP.....	0.0	72
5.2.5 Patent families 2+ offices/bn PPP\$ GDP.....	0.1	54
5.3 Knowledge absorption.....	21.4	99
5.3.1 Intellectual property payments, % total trade.....	0.4	68
5.3.2 High-tech net imports, % total trade.....	5.7	100
5.3.3 ICT services imports, % total trade.....	0.8	81
5.3.4 FDI net inflows, % GDP.....	2.6	65
5.3.5 Research talent, % in business enterprise.....	n/a	n/a
<b>Knowledge &amp; technology outputs</b> .....	<b>21.7</b>	<b>65</b>
6.1 Knowledge creation.....	19.6	48
6.1.1 Patents by origin/bn PPP\$ GDP.....	3.3	31
6.1.2 PCT patents by origin/bn PPP\$ GDP.....	0.2	56
6.1.3 Utility models by origin/bn PPP\$ GDP.....	2.1	12 ●
6.1.4 Scientific & technical articles/bn PPP\$ GDP.....	5.3	76
6.1.5 Citable documents H index.....	9.5	70
6.2 Knowledge impact.....	27.1	97
6.2.1 Growth rate of PPP\$ GDP/worker, %.....	(0.7)	95 ○
6.2.2 New businesses/th pop. 15–64.....	1.1	69
6.2.3 Computer software spending, % GDP.....	0.0	106 ○◇
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....	1.0	110 ○
6.2.5 High- & medium-high-tech manufactures, %.....	0.3	42
6.3 Knowledge diffusion.....	18.5	73
6.3.1 Intellectual property receipts, % total trade.....	0.1	59
6.3.2 High-tech net exports, % total trade.....	2.1	52
6.3.3 ICT services exports, % total trade.....	3.9	23 ●◆
6.3.4 FDI net outflows, % GDP.....	0.2	95
<b>Creative outputs</b> .....	<b>9.7</b>	<b>122</b> ○◇
7.1 Intangible assets.....	9.9	122 ○◇
7.1.1 Trademarks by origin/bn PPP\$ GDP.....	27.1	78
7.1.2 Industrial designs by origin/bn PPP\$ GDP.....	1.2	66
7.1.3 ICTs & business model creation <sup>†</sup> .....	n/a	n/a
7.1.4 ICTs & organizational model creation <sup>†</sup> .....	n/a	n/a
7.2 Creative goods & services.....	6.0	108 ○◇
7.2.1 Cultural & creative services exports, % total trade.....	0.1	62
7.2.2 National feature films/mn pop. 15–69 <sup>Ⓞ</sup> .....	0.1	99 ○◇
7.2.3 Entertainment & Media market/th pop. 15–69.....	n/a	n/a
7.2.4 Printing & other media, % manufacturing.....	n/a	n/a
7.2.5 Creative goods exports, % total trade.....	0.3	64
7.3 Online creativity.....	12.8	53
7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....	1.7	82
7.3.2 Country-code TLDs/th pop. 15–69.....	5.1	48
7.3.3 Wikipedia edits/mn pop. 15–69.....	22.2	47
7.3.4 Mobile app creation/bn PPP\$ GDP.....	29.5	32 ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; \* an index; † a survey question.

Ⓞ indicates that the country'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; see page 75 of this appendix for details.