



BULGARIA

35th

Bulgaria ranks 35th 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 Bulgaria 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 Bulgaria in the GII 2022 is between ranks 32 and 37.

Rankings for Bulgaria (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	37	45	30
2021	35	46	27
2022	35	47	30

- Bulgaria performs better in innovation outputs than innovation inputs in 2022.
- This year Bulgaria ranks 47th in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Bulgaria ranks 30th. This position is lower than last year but the same as 2020.

2nd

Bulgaria ranks 2nd among the 36 upper-middle-income group economies.

23rd

Bulgaria ranks 23rd among the 39 economies in Europe.

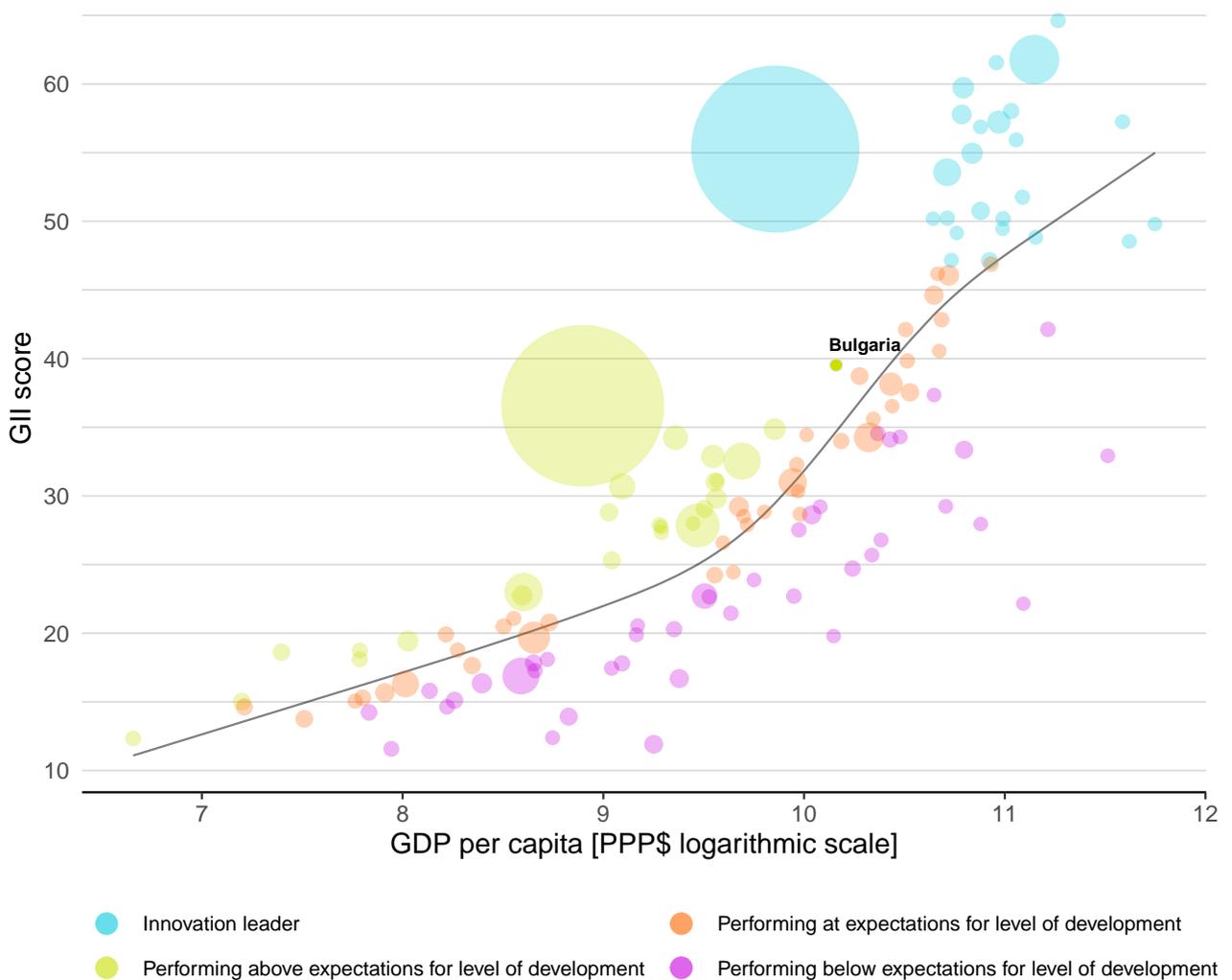


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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 performing below expectations.

Relative to GDP, Bulgaria's performance is above expectations for its level of development.

The positive relationship between innovation and development



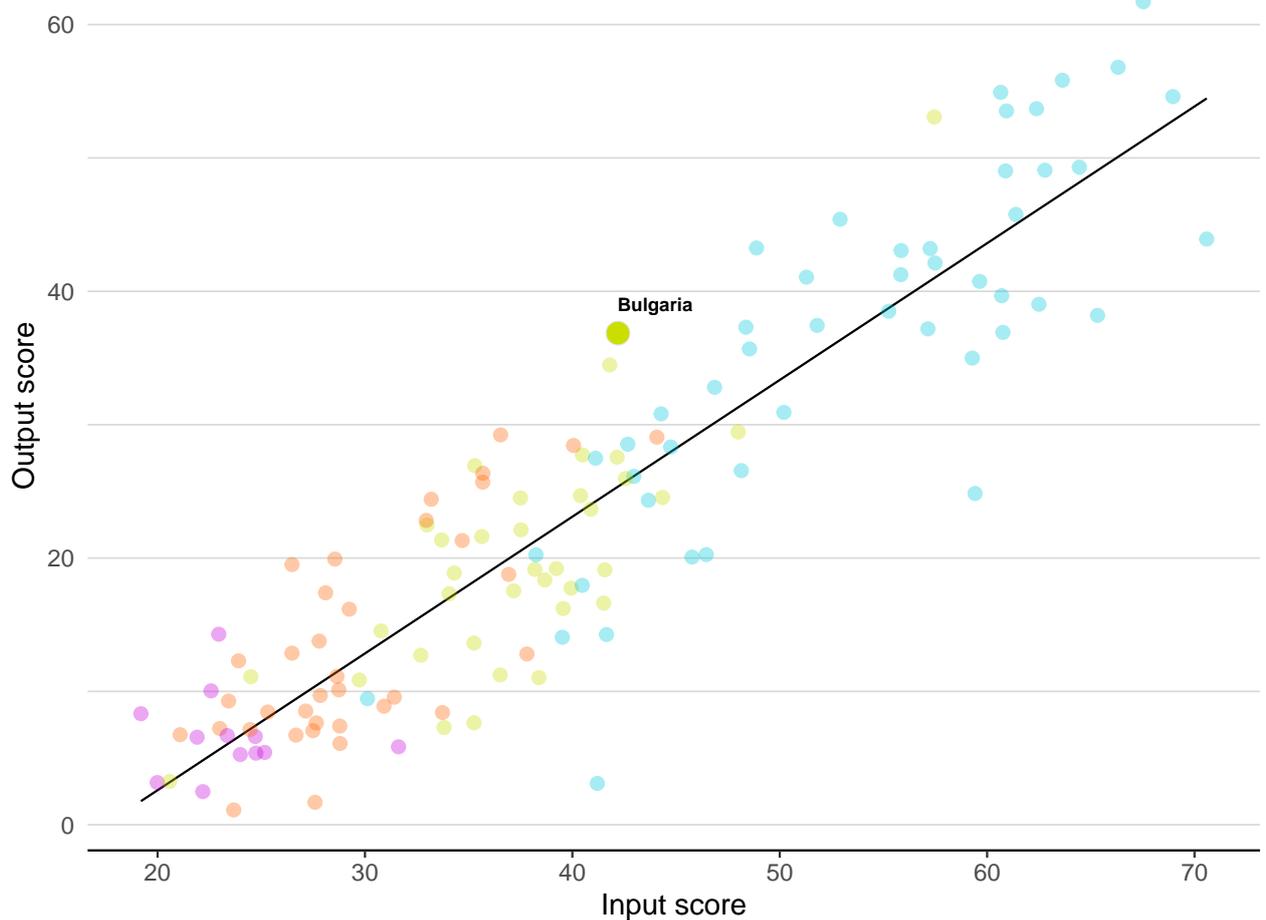


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Bulgaria produces more 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 EUROPE

The seven GII pillar scores for Bulgaria



Upper-middle-income group economies

Bulgaria performs above the upper-middle-income group average in all GII pillars.

Europe

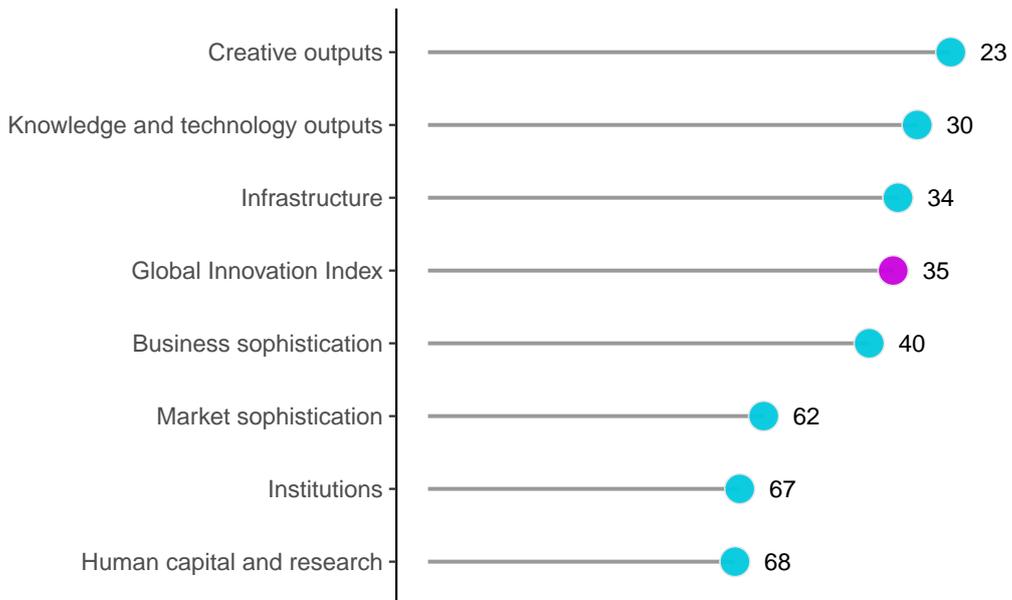
Bulgaria performs above the regional average in Creative outputs.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Bulgaria performs best in Creative outputs and its weakest performance is in Human capital and research.

The seven GII pillar ranks for Bulgaria



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Bulgaria

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal	16	1.3.1	Policies for doing business	91
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	3	1.3.2	Entrepreneurship policies and culture	52
4.3.2	Domestic industry diversification	10	2.2.2	Graduates in science and engineering, %	71
5.2.3	GERD financed by abroad, % GDP	7	2.3.3	Global corporate R&D investors, top 3, mn USD	38
6.1.3	Utility models by origin/bn PPP\$ GDP	6	3.2.3	Gross capital formation, % GDP	105
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	2	3.3.1	GDP/unit of energy use	89
6.3.4	ICT services exports, % total trade	19	4.2.1	Market capitalization, % GDP	55
7.1.2	Trademarks by origin/bn PPP\$ GDP	21	4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	72
7.1.4	Industrial designs by origin/bn PPP\$ GDP	21	4.2.4	Venture capital received, value, % GDP	85
7.2.1	Cultural and creative services exports, % total trade	16	5.1.2	Firms offering formal training, %	79

Bulgaria

35

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
30	47	Upper middle	EUR	6.9	177.7	25,847

	Score/Value	Rank		Score/Value	Rank
 Institutions	55.9	67	 Business sophistication	36.4	40
1.1 Political environment	58.6	68	5.1 Knowledge workers	38.9	50
1.1.1 Political and operational stability*	69.1	63	5.1.1 Knowledge-intensive employment, %	33.4	45
1.1.2 Government effectiveness*	48.1	75	5.1.2 Firms offering formal training, %	20.0	79
1.2 Regulatory environment	74.8	37	5.1.3 GERD performed by business, % GDP	0.6	38
1.2.1 Regulatory quality*	57.9	46	5.1.4 GERD financed by business, %	37.6	49
1.2.2 Rule of law*	43.8	66	5.1.5 Females employed w/advanced degrees, %	20.1	33
1.2.3 Cost of redundancy dismissal	8.6	16	5.2 Innovation linkages	35.3	32
1.3 Business environment	34.3	98	5.2.1 University-industry R&D collaboration†	50.3	45
1.3.1 Policies for doing business†	41.5	91	5.2.2 State of cluster development and depth†	54.0	40
1.3.2 Entrepreneurship policies and culture*	27.1	52	5.2.3 GERD financed by abroad, % GDP	0.3	7
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	51
			5.2.5 Patent families/bn PPP\$ GDP	0.2	43
 Human capital and research	30.5	68	5.3 Knowledge absorption	34.9	51
2.1 Education	48.6	71	5.3.1 Intellectual property payments, % total trade	0.6	65
2.1.1 Expenditure on education, % GDP	4.1	74	5.3.2 High-tech imports, % total trade	7.9	75
2.1.2 Government funding/pupil, secondary, % GDP/cap	21.6	42	5.3.3 ICT services imports, % total trade	1.5	63
2.1.3 School life expectancy, years	13.9	73	5.3.4 FDI net inflows, % GDP	3.3	39
2.1.4 PISA scales in reading, maths and science	426.7	50	5.3.5 Research talent, % in businesses	49.3	26
2.1.5 Pupil-teacher ratio, secondary	12.3	52			
2.2 Tertiary education	33.7	57	 Knowledge and technology outputs	35.4	30
2.2.1 Tertiary enrolment, % gross	73.4	30	6.1 Knowledge creation	26.0	36
2.2.2 Graduates in science and engineering, %	19.5	71	6.1.1 Patents by origin/bn PPP\$ GDP	1.8	38
2.2.3 Tertiary inbound mobility, %	7.2	34	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.2	45
2.3 Research and development (R&D)	9.4	60	6.1.3 Utility models by origin/bn PPP\$ GDP	3.2	6
2.3.1 Researchers, FTE/mn pop.	2,402.3	35	6.1.4 Scientific and technical articles/bn PPP\$ GDP	16.5	61
2.3.2 Gross expenditure on R&D, % GDP	0.9	46	6.1.5 Citable documents H-index	15.4	54
2.3.3 Global corporate R&D investors, top 3, mn USD	0.0	38	6.2 Knowledge impact	43.1	16
2.3.4 QS university ranking, top 3*	6.8	67	6.2.1 Labor productivity growth, %	1.9	36
			6.2.2 New businesses/th pop. 15-64	1.4	72
			6.2.3 Software spending, % GDP	0.2	62
			6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	37.6	2
			6.2.5 High-tech manufacturing, %	23.6	55
 Infrastructure	54.7	34	6.3 Knowledge diffusion	37.2	37
3.1 Information and communication technologies (ICTs)	82.3	37	6.3.1 Intellectual property receipts, % total trade	0.3	34
3.1.1 ICT access*	91.7	31	6.3.2 Production and export complexity	54.0	42
3.1.2 ICT use*	71.0	56	6.3.3 High-tech exports, % total trade	5.6	35
3.1.3 Government's online service*	77.1	47	6.3.4 ICT services exports, % total trade	4.9	19
3.1.4 E-participation*	89.3	23			
3.2 General infrastructure	32.1	58	 Creative outputs	38.3	23
3.2.1 Electricity output, GWh/mn pop.	5,808.1	32	7.1 Intangible assets	59.0	12
3.2.2 Logistics performance*	45.6	51	7.1.1 Intangible asset intensity, top 15, %	71.0	20
3.2.3 Gross capital formation, % GDP	18.4	105	7.1.2 Trademarks by origin/bn PPP\$ GDP	81.0	21
3.3 Ecological sustainability	49.8	13	7.1.3 Global brand value, top 5,000, % GDP	n/a	n/a
3.3.1 GDP/unit of energy use	8.2	89	7.1.4 Industrial designs by origin/bn PPP\$ GDP	5.5	21
3.3.2 Environmental performance*	51.9	35	7.2 Creative goods and services	22.0	54
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	12.5	3	7.2.1 Cultural and creative services exports, % total trade	1.7	16
			7.2.2 National feature films/mn pop. 15-69	2.0	47
			7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
			7.2.4 Printing and other media, % manufacturing	1.2	37
			7.2.5 Creative goods exports, % total trade	1.2	40
 Market sophistication	33.4	62	7.3 Online creativity	13.2	39
4.1 Credit	31.2	50	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	24.4	24
4.1.1 Finance for startups and scaleups*	44.1	29	7.3.2 Country-code TLDs/th pop. 15-69	4.1	57
4.1.2 Domestic credit to private sector, % GDP	51.7	69	7.3.3 GitHub commit pushes received/mn pop. 15-69	16.4	35
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	7.3.4 Mobile app creation/bn PPP\$ GDP	7.9	48
4.2 Investment	4.9	80			
4.2.1 Market capitalization, % GDP	24.3	55			
4.2.2 Venture capital investors, deals/bn PPP\$ GDP	0.0	51			
4.2.3 Venture capital recipients, deals/bn PPP\$ GDP	0.0	72			
4.2.4 Venture capital received, value, % GDP	0.0	85			
4.3 Trade, diversification, and market scale	64.2	32			
4.3.1 Applied tariff rate, weighted avg., %	1.5	20			
4.3.2 Domestic industry diversification	98.5	10			
4.3.3 Domestic market scale, bn PPP\$	177.7	72			

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 Bulgaria.

Missing data for Bulgaria

Code	Indicator name	Economy year	Model year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)
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 Bulgaria

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2019	2021	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2017	2020	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2017	2018	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2019	2021	Global Entrepreneurship Monitor

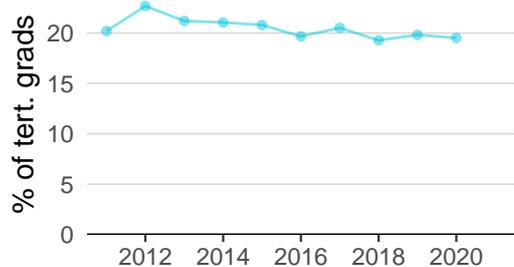
BULGARIA'S INNOVATION SYSTEM

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

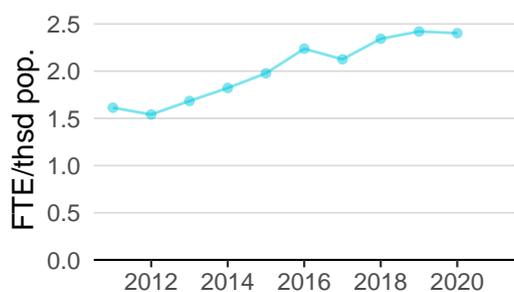
Innovation inputs



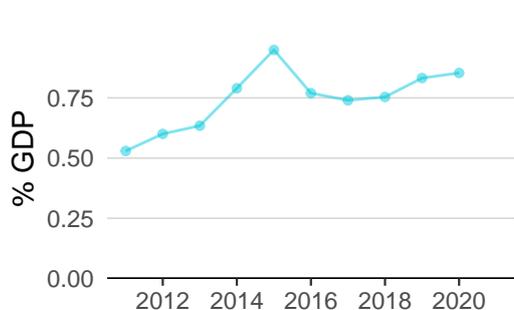
2.1.1 Expenditure on education was equal to 4.1% GDP in 2017 and equivalent to an indicator rank of 74.



2.2.2 Graduates in science and engineering was equal to 19.5% of tert. grads in 2020—down by 2 percentage points from the year prior—and equivalent to an indicator rank of 71.



2.3.1 Researchers was equal to 2.4 FTE/thsd pop. in 2020—down by 1 percentage point from the year prior—and equivalent to an indicator rank of 35.



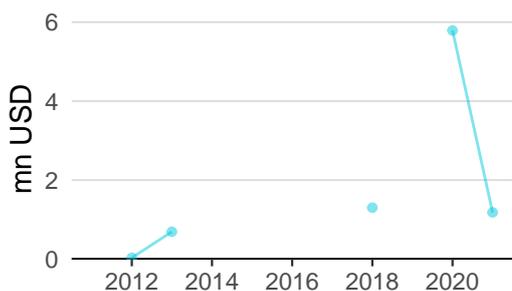
2.3.2 Gross expenditure on R&D was equal to 0.9% GDP in 2020—up by 3 percentage points from the year prior—and equivalent to an indicator rank of 46.



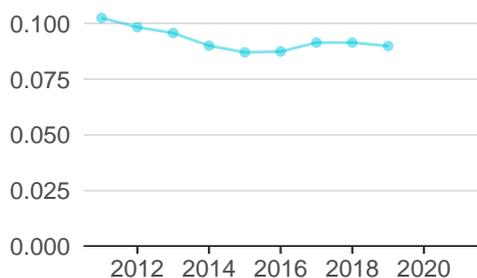
2.3.4 QS university ranking was equal to 6.8 in 2021—up by 10 percentage points from the year prior—and equivalent to an indicator rank of 67.



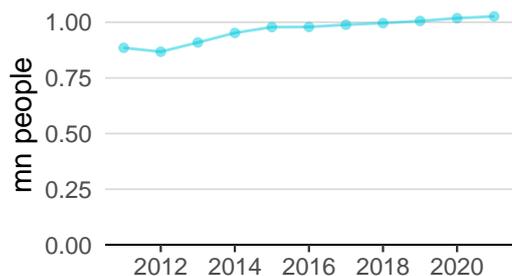
3.1.1 ICT access was equal to 9.2 in 2020 and equivalent to an indicator rank of 31.



4.2.4 Venture capital received was equal to 1.2 mn USD in 2021—down by 80 percentage points from the year prior—and equivalent to an indicator rank of 85.

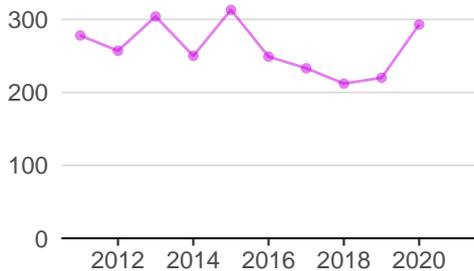


4.3.2 Domestic industry diversification was equal to 0.1 in 2019—down by 2 percentage points from the year prior—and equivalent to an indicator rank of 10.

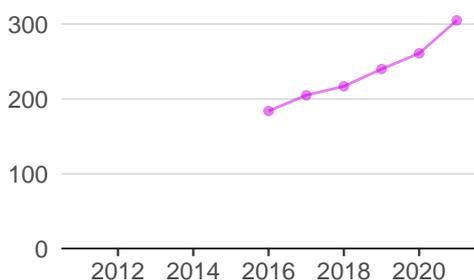


5.1.1 Knowledge-intensive employment was equal to 1.0 mn people in 2021—up by 1 percentage point from the year prior—and equivalent to an indicator rank of 45.

Innovation outputs



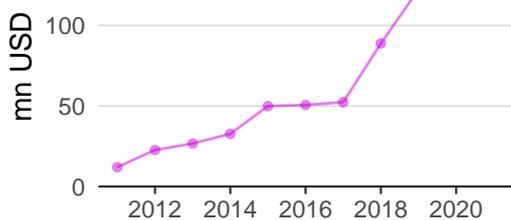
6.1.1 Patents by origin was equal to 293.0 in 2020—up by 33 percentage points from the year prior—and equivalent to an indicator rank of 38.



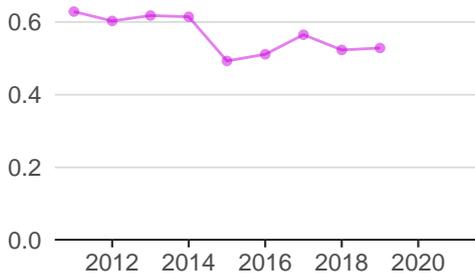
6.1.5 Citable documents H-index was equal to 305.0 in 2021—up by 17 percentage points from the year prior—and equivalent to an indicator rank of 54.



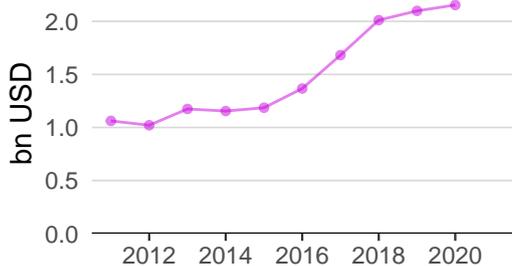
6.2.5 High-tech manufacturing was equal to 23.6% of mfg. output in 2019—up by 2 percentage points from the year prior—and equivalent to an indicator rank of 55.



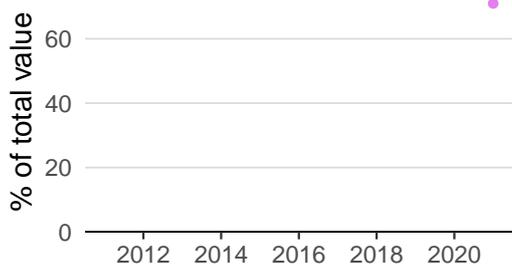
6.3.1 Intellectual property receipts was equal to 141.6 mn USD in 2020—up by 16 percentage points from the year prior—and equivalent to an indicator rank of 34.



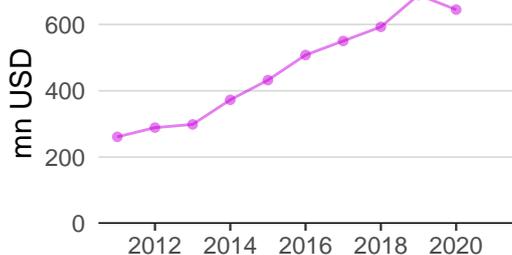
6.3.2 Production and export complexity was equal to 0.5 in 2019—up by 1 percentage point from the year prior—and equivalent to an indicator rank of 42.



6.3.3 High-tech exports was equal to 2.2 bn USD in 2020—up by 3 percentage points from the year prior—and equivalent to an indicator rank of 35.



7.1.1 Intangible asset intensity was equal to 71.0% of total value in 2021 and equivalent to an indicator rank of 20.



7.2.1 Cultural and creative services exports was equal to 644.6 mn USD in 2020—down by 6 percentage points from the year prior—and equivalent to an indicator rank of 16.

BULGARIA'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank
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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
SOFIA UNIVERSITY "ST. KLIMENT OHRIDSKI"	20.3	591-600

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2022>).

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 Intangible asset intensity, top 15

Firm	Rank
CAPITAL CONCEPT	1
TCHAIKAPHARMA HIGH QUALITY	2
EUROHOLD BULGARIA	3

Source: Brand Finance (<https://brandirectory.com/reports/gift-2021>).

Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank
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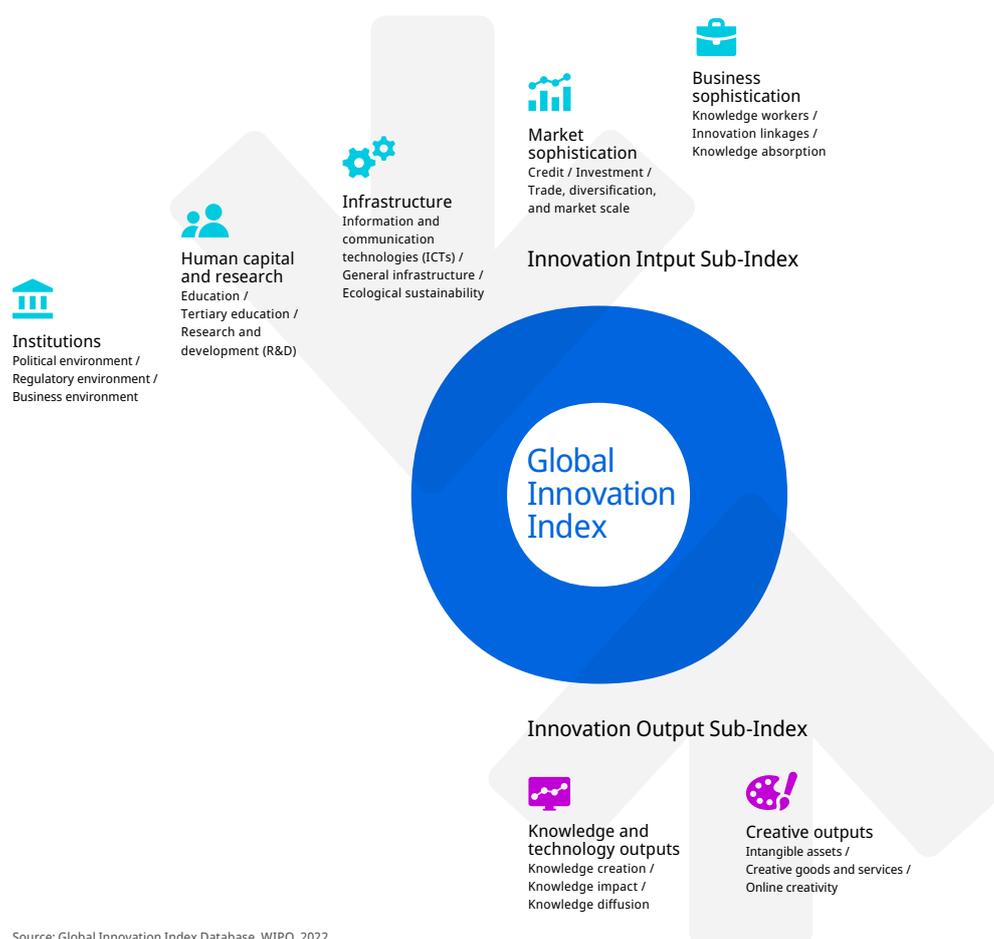
No observations

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.