



BOSNIA AND HERZEGOVINA

70th Bosnia and Herzegovina ranks 70th 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 Bosnia and Herzegovina 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 Bosnia and Herzegovina in the GII 2022 is between ranks 67 and 76.

Rankings for Bosnia and Herzegovina (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	74	72	75
2021	75	70	80
2022	70	64	75

- Bosnia and Herzegovina performs better in innovation inputs than innovation outputs in 2022.
- This year Bosnia and Herzegovina ranks 64th in innovation inputs, higher than both 2021 and 2020.
- As for innovation outputs, Bosnia and Herzegovina ranks 75th. This position is higher than last year but the same as 2020.

20th Bosnia and Herzegovina ranks 20th among the 36 upper-middle-income group economies.

37th Bosnia and Herzegovina ranks 37th among the 39 economies in Europe.

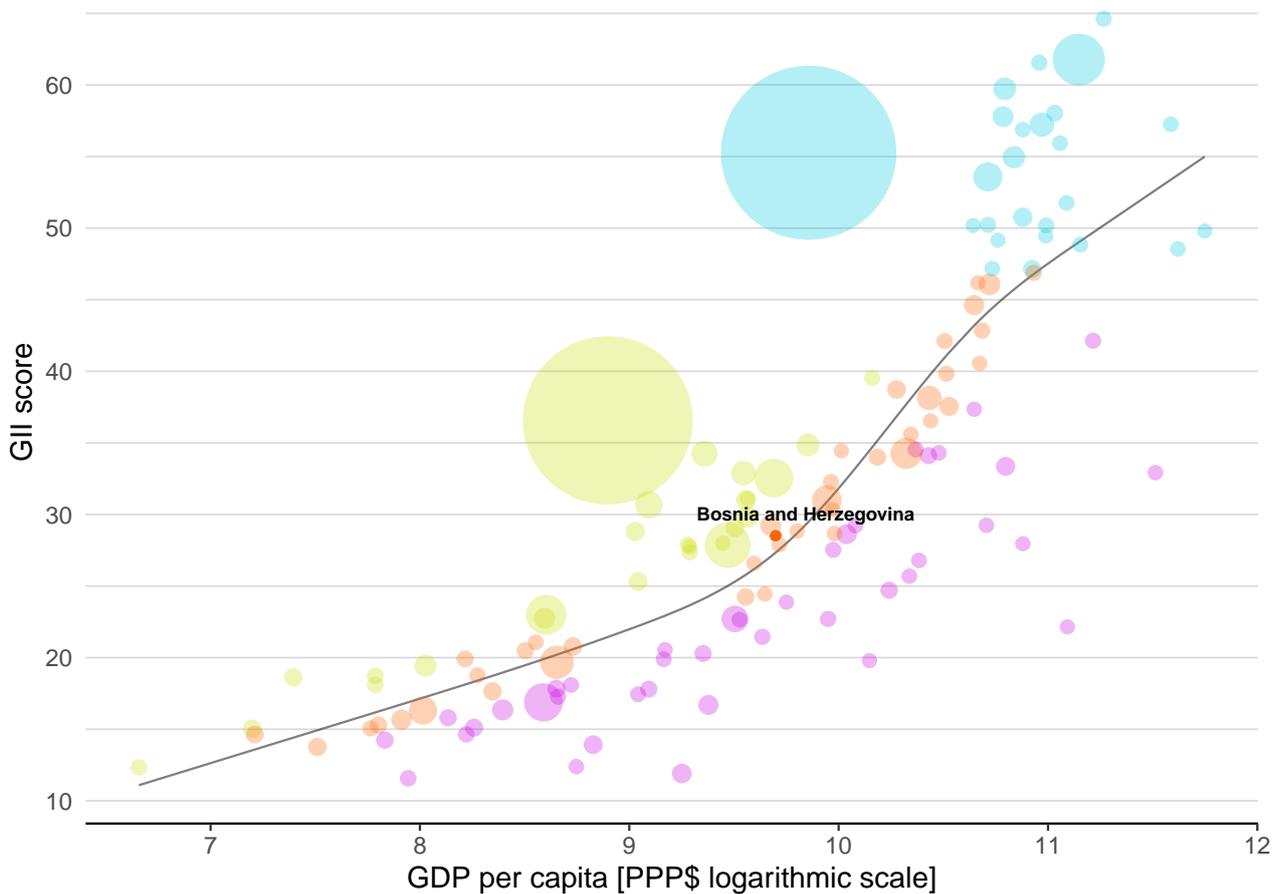


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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 performing below expectations.

Relative to GDP, Bosnia and Herzegovina's performance is at expectations for its level of development.

The positive relationship between innovation and development



- Innovation leader
- Performing at expectations for level of development
- Performing above expectations for level of development
- Performing below expectations for level of development

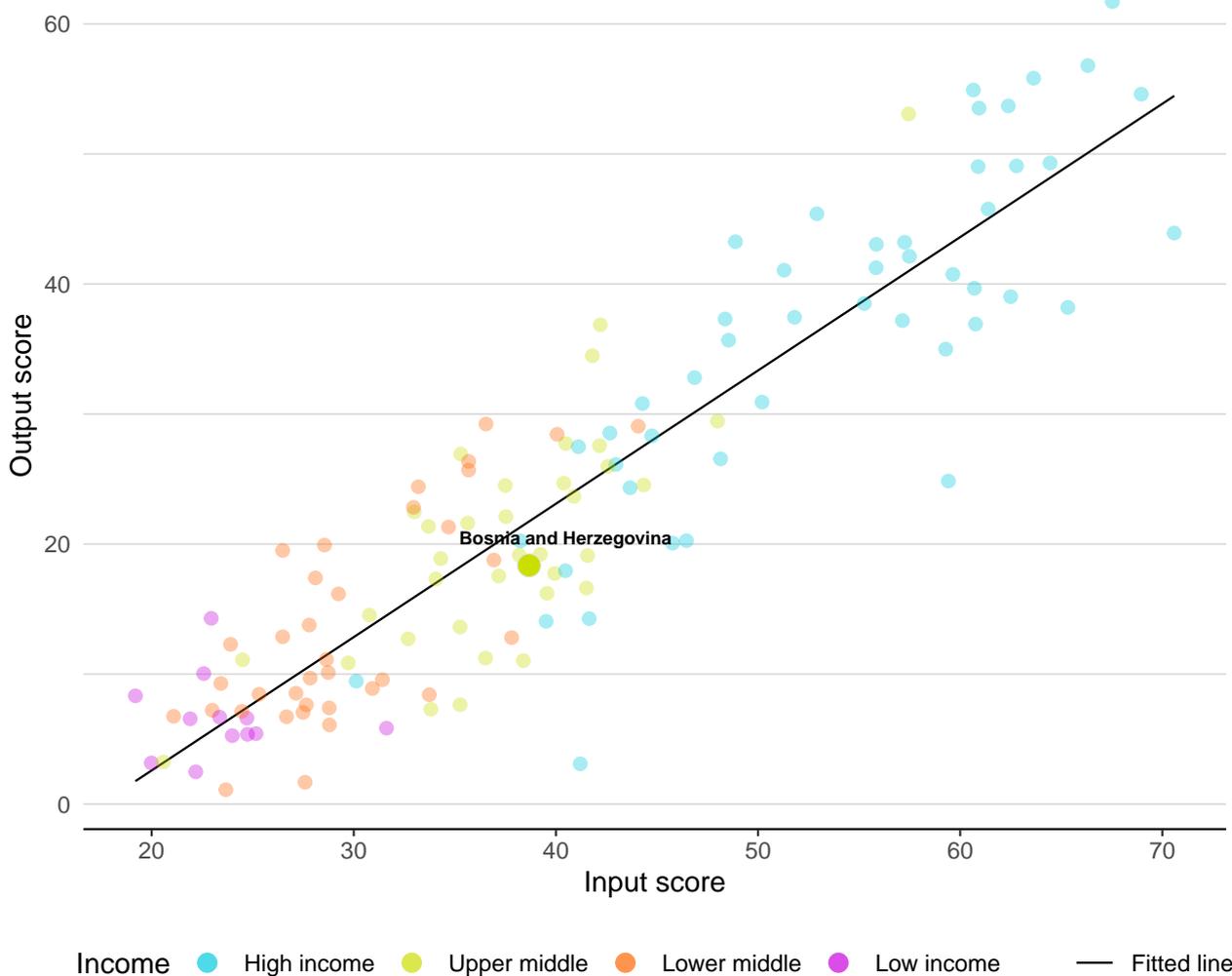


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Bosnia and Herzegovina produces less innovation outputs relative to its level of innovation investments.

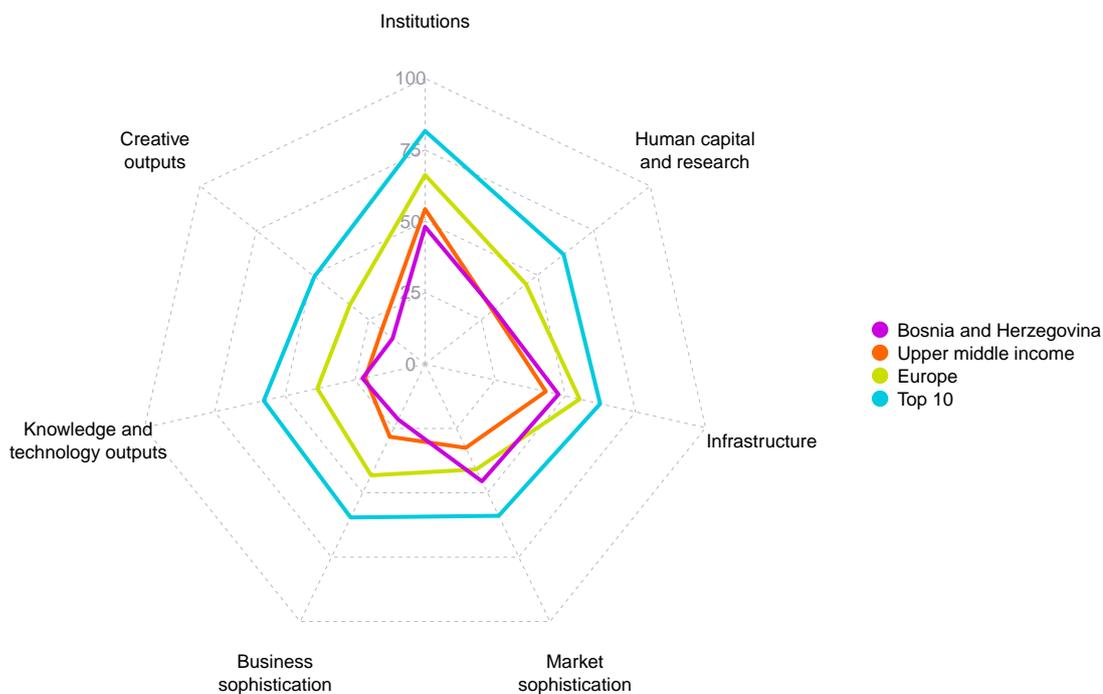
Innovation input to output performance





BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Bosnia and Herzegovina



Upper-middle-income group economies

Bosnia and Herzegovina performs above the upper-middle-income group average in four pillars, namely: Human capital and research; Infrastructure; Market sophistication; and, Knowledge and technology outputs.

Europe

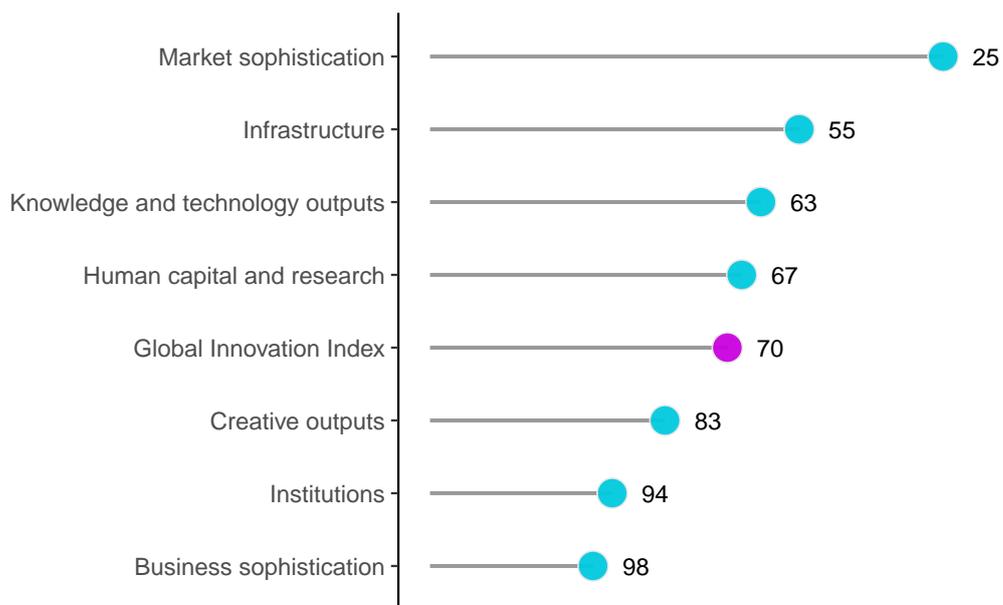
Bosnia and Herzegovina performs above the regional average in Market sophistication.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Bosnia and Herzegovina performs best in Market sophistication and its weakest performance is in Business sophistication.

The seven GII pillar ranks for Bosnia and Herzegovina



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

The full WIPO Intellectual Property Statistics profile for Bosnia and Herzegovina can be found at:

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



INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Bosnia and Herzegovina

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal	23	1.1.2	Government effectiveness	122
2.1.2	Government funding/pupil, secondary, % GDP/cap	7	1.3.1	Policies for doing business	125
2.1.5	Pupil-teacher ratio, secondary	14	2.3.3	Global corporate R&D investors, top 3, mn USD	38
3.2.1	Electricity output, GWh/mn pop.	43	2.3.4	QS university ranking, top 3	72
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	1	3.3.1	GDP/unit of energy use	108
4.3.2	Domestic industry diversification	17	5.2.1	University-industry R&D collaboration	119
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	6	5.2.5	Patent families/bn PPP\$ GDP	101
6.3.1	Intellectual property receipts, % total trade	42	7.1.1	Intangible asset intensity, top 15, %	67
6.3.2	Production and export complexity	35	7.1.3	Global brand value, top 5,000, % GDP	77
7.1.4	Industrial designs by origin/bn PPP\$ GDP	37	7.3.4	Mobile app creation/bn PPP\$ GDP	99

Bosnia and Herzegovina

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
75	64	Upper middle	EUR	3.3	53.2	16,302

	Score/Value	Rank		Score/Value	Rank
Institutions	48.1	94	Business sophistication	21.5	98
1.1 Political environment	46.2	108	5.1 Knowledge workers	30.1	67
1.1.1 Political and operational stability*	63.6	81	5.1.1 Knowledge-intensive employment, %	18.0	83
1.1.2 Government effectiveness*	28.7	122	5.1.2 Firms offering formal training, %	37.9	38
1.2 Regulatory environment	68.1	57	5.1.3 GERD performed by business, % GDP	0.1	64
1.2.1 Regulatory quality*	39.1	89	5.1.4 GERD financed by business, %	36.1	53
1.2.2 Rule of law*	38.1	78	5.1.5 Females employed w/advanced degrees, %	10.7	70
1.2.3 Cost of redundancy dismissal	9.2	23	5.2 Innovation linkages	15.3	120
1.3 Business environment	29.9	110	5.2.1 University-industry R&D collaboration [†]	29.1	119
1.3.1 Policies for doing business [†]	21.8	125	5.2.2 State of cluster development and depth [†]	39.8	105
1.3.2 Entrepreneurship policies and culture*	38.1	41	5.2.3 GERD financed by abroad, % GDP	0.0	67
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	85
			5.2.5 Patent families/bn PPP\$ GDP	0.0	101
			5.3 Knowledge absorption	19.2	114
			5.3.1 Intellectual property payments, % total trade	0.1	99
			5.3.2 High-tech imports, % total trade	6.3	102
			5.3.3 ICT services imports, % total trade	0.7	96
			5.3.4 FDI net inflows, % GDP	2.4	63
			5.3.5 Research talent, % in businesses	12.0	60
Human capital and research	30.7	67	Knowledge and technology outputs	22.3	63
2.1 Education	61.4	[30]	6.1 Knowledge creation	9.9	75
2.1.1 Expenditure on education, % GDP	n/a	n/a	6.1.1 Patents by origin/bn PPP\$ GDP	1.0	64
2.1.2 Government funding/pupil, secondary, % GDP/cap	32.7	7	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.2	47
2.1.3 School life expectancy, years	n/a	n/a	6.1.3 Utility models by origin/bn PPP\$ GDP	n/a	n/a
2.1.4 PISA scales in reading, maths and science	402.6	63	6.1.4 Scientific and technical articles/bn PPP\$ GDP	16.0	62
2.1.5 Pupil-teacher ratio, secondary	8.5	14	6.1.5 Citable documents H-index	4.7	98
2.2 Tertiary education	29.2	71	6.2 Knowledge impact	28.1	63
2.2.1 Tertiary enrolment, % gross	37.9	77	6.2.1 Labor productivity growth, %	0.5	74
2.2.2 Graduates in science and engineering, %	23.3	46	6.2.2 New businesses/th pop. 15-64	1.0	80
2.2.3 Tertiary inbound mobility, %	6.6	40	6.2.3 Software spending, % GDP	0.1	90
2.3 Research and development (R&D)	1.4	91	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	22.9	6
2.3.1 Researchers, FTE/mn pop.	452.0	72	6.2.5 High-tech manufacturing, %	15.4	74
2.3.2 Gross expenditure on R&D, % GDP	0.2	89	6.3 Knowledge diffusion	28.9	51
2.3.3 Global corporate R&D investors, top 3, mn USD	0.0	38	6.3.1 Intellectual property receipts, % total trade	0.2	42
2.3.4 QS university ranking, top 3*	0.0	72	6.3.2 Production and export complexity	58.7	35
			6.3.3 High-tech exports, % total trade	2.6	52
			6.3.4 ICT services exports, % total trade	2.2	60
Infrastructure	47.5	55	Creative outputs	14.4	83
3.1 Information and communication technologies (ICTs)	63.1	90	7.1 Intangible assets	20.5	78
3.1.1 ICT access*	82.3	79	7.1.1 Intangible asset intensity, top 15, %	28.9	67
3.1.2 ICT use*	56.0	84	7.1.2 Trademarks by origin/bn PPP\$ GDP	17.3	96
3.1.3 Government's online service*	53.5	97	7.1.3 Global brand value, top 5,000, % GDP	0.0	77
3.1.4 E-participation*	60.7	85	7.1.4 Industrial designs by origin/bn PPP\$ GDP	3.0	37
3.2 General infrastructure	28.3	71	7.2 Creative goods and services	13.7	69
3.2.1 Electricity output, GWh/mn pop.	4,951.2	43	7.2.1 Cultural and creative services exports, % total trade	0.2	71
3.2.2 Logistics performance*	35.3	67	7.2.2 National feature films/mn pop. 15-69	4.1	30
3.2.3 Gross capital formation, % GDP	20.1	91	7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
3.3 Ecological sustainability	51.2	7	7.2.4 Printing and other media, % manufacturing	1.1	43
3.3.1 GDP/unit of energy use	6.4	108	7.2.5 Creative goods exports, % total trade	0.4	65
3.3.2 Environmental performance*	39.4	73	7.3 Online creativity	3.0	72
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	16.2	1	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	3.0	64
			7.3.2 Country-code TLDs/th pop. 15-69	3.1	63
			7.3.3 GitHub commit pushes received/mn pop. 15-69	5.9	52
			7.3.4 Mobile app creation/bn PPP\$ GDP	0.1	99
Market sophistication	45.5	25			
4.1 Credit	31.2	51			
4.1.1 Finance for startups and scaleups*	41.4	37			
4.1.2 Domestic credit to private sector, % GDP	58.5	60			
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a			
4.2 Investment	n/a	[n/a]			
4.2.1 Market capitalization, % GDP	n/a	n/a			
4.2.2 Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a			
4.2.3 Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a			
4.2.4 Venture capital received, value, % GDP	n/a	n/a			
4.3 Trade, diversification, and market scale	59.9	53			
4.3.1 Applied tariff rate, weighted avg., %	2.9	72			
4.3.2 Domestic industry diversification	97.2	17			
4.3.3 Domestic market scale, bn PPP\$	53.2	102			

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 Bosnia and Herzegovina.

Missing data for Bosnia and Herzegovina

Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	n/a	2020	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2019	UNESCO Institute for Statistics
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP\$ GDP	n/a	2021	Refinitiv
4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	n/a	2021	Refinitiv
4.2.4	Venture capital received, value, % GDP	n/a	2021	Refinitiv
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2020	World Intellectual Property Organization
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

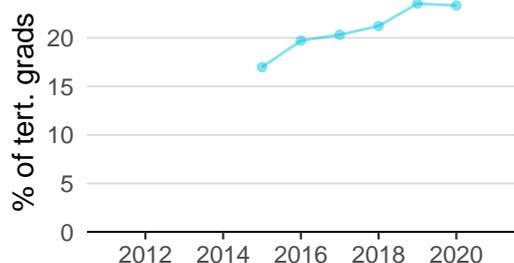
Outdated data for Bosnia and Herzegovina

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2017	2021	Global Entrepreneurship Monitor
4.1.1	Finance for startups and scaleups	2017	2021	Global Entrepreneurship Monitor
5.1.3	GERD performed by business, % GDP	2019	2020	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	2019	2020	UNESCO Institute for Statistics

BOSNIA AND HERZEGOVINA'S INNOVATION SYSTEM

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

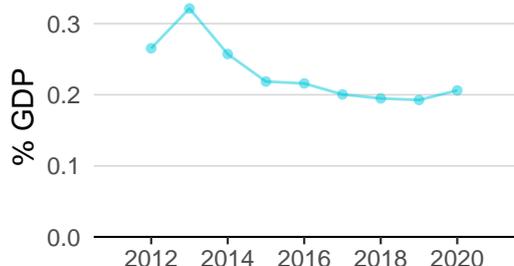
Innovation inputs



2.2.2 Graduates in science and engineering was equal to 23.3% of tert. grads in 2020—down by 1 percentage point from the year prior—and equivalent to an indicator rank of 46.



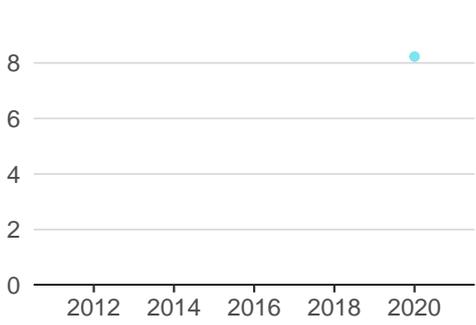
2.3.1 Researchers was equal to 452.0 FTE/mn pop. in 2020—down by 2 percentage points from the year prior—and equivalent to an indicator rank of 72.



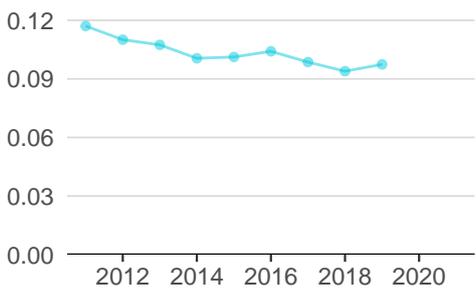
2.3.2 Gross expenditure on R&D was equal to 0.2% GDP in 2020—up by 7 percentage points from the year prior—and equivalent to an indicator rank of 89.



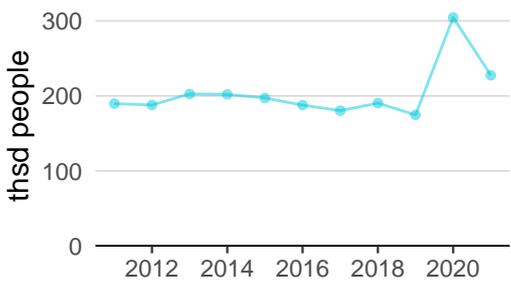
2.3.4 QS university ranking was equal to 0.0 in 2021—effectively unchanged from the year prior—and equivalent to an indicator rank of 72.



3.1.1 ICT access was equal to 8.2 in 2020 and equivalent to an indicator rank of 79.

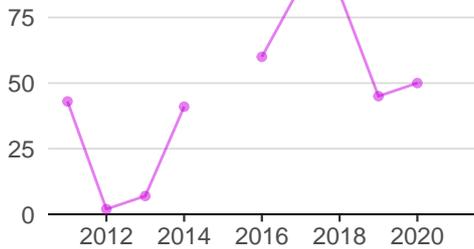


4.3.2 Domestic industry diversification was equal to 0.1 in 2019—up by 4 percentage points from the year prior—and equivalent to an indicator rank of 17.

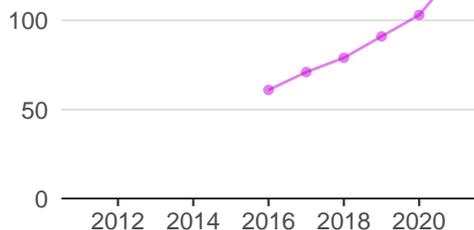


5.1.1 Knowledge-intensive employment was equal to 227.5 thsd people in 2021—down by 25 percentage points from the year prior—and equivalent to an indicator rank of 83.

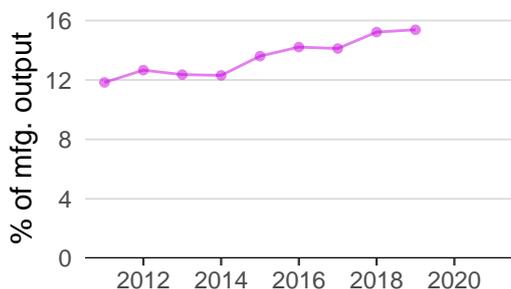
Innovation outputs



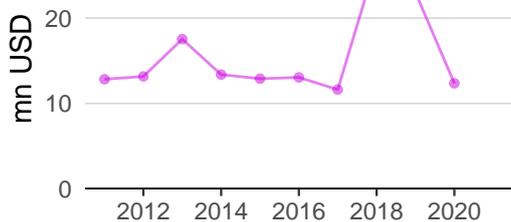
6.1.1 Patents by origin was equal to 50.0 in 2020—up by 11 percentage points from the year prior—and equivalent to an indicator rank of 64.



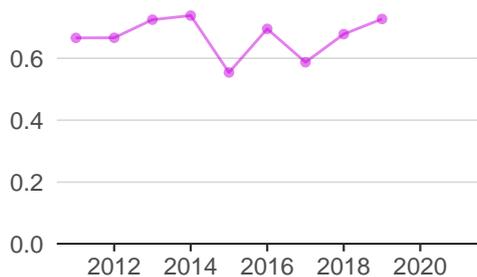
6.1.5 Citable documents H-index was equal to 128.0 in 2021—up by 24 percentage points from the year prior—and equivalent to an indicator rank of 98.



6.2.5 High-tech manufacturing was equal to 15.4% of mfg. output in 2019—up by 1 percentage point from the year prior—and equivalent to an indicator rank of 74.



6.3.1 Intellectual property receipts was equal to 12.4 mn USD in 2020—down by 46 percentage points from the year prior—and equivalent to an indicator rank of 42.



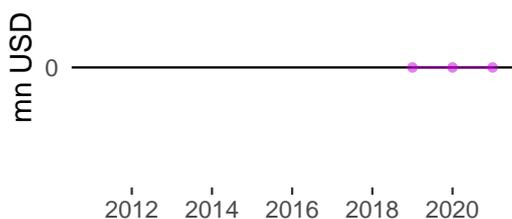
6.3.2 Production and export complexity was equal to 0.7 in 2019—up by 7 percentage points from the year prior—and equivalent to an indicator rank of 35.



6.3.3 High-tech exports was equal to 212.1 mn USD in 2020—down by 16 percentage points from the year prior—and equivalent to an indicator rank of 52.



7.1.1 Intangible asset intensity was equal to 28.9% of total value in 2021 and equivalent to an indicator rank of 67.



7.1.3 Global brand value was equal to 0.0 mn USD in 2021—effectively unchanged from the year prior—and equivalent to an indicator rank of 77.



7.2.1 Cultural and creative services exports was equal to 19.0 mn USD in 2020—up by 9 percentage points from the year prior—and equivalent to an indicator rank of 71.



BOSNIA AND HERZEGOVINA'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
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No observations

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

7.1.1 Intangible asset intensity, top 15

Firm	Rank
SBERBANK	1
TELEKOM SRPSKE	2
BADECO ADRIA	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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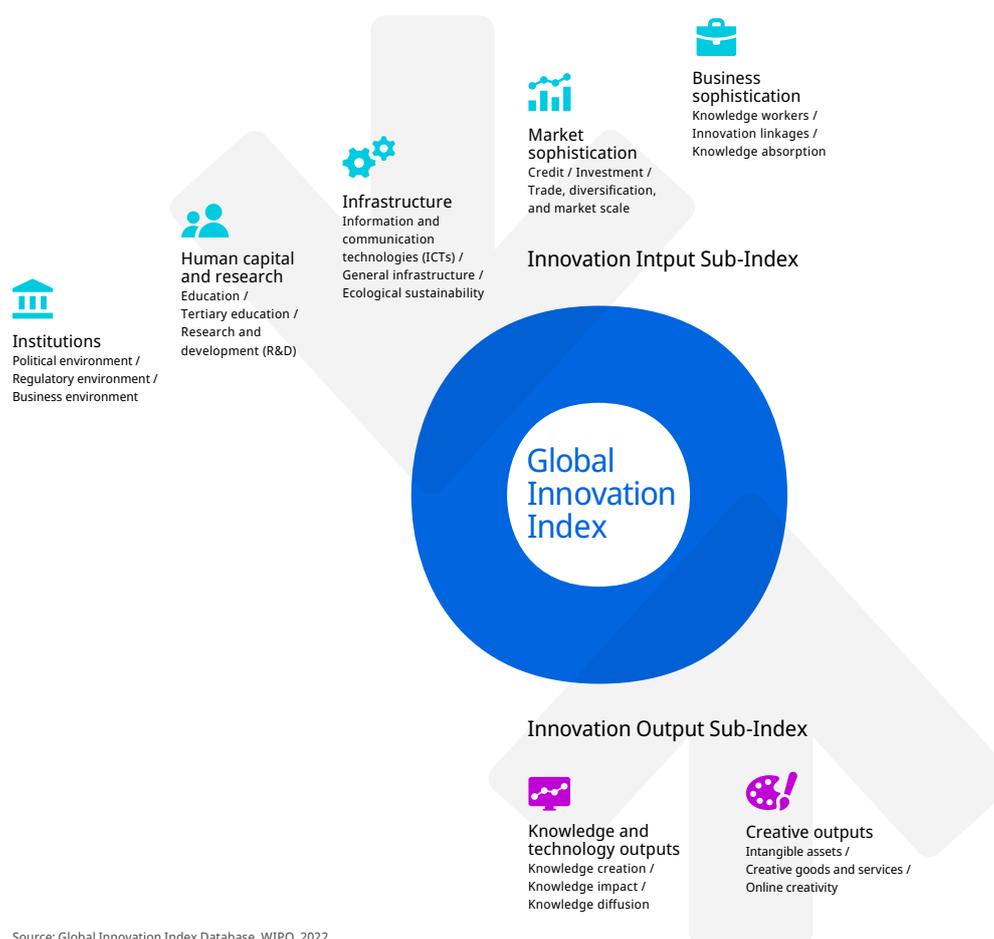
No observations

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.