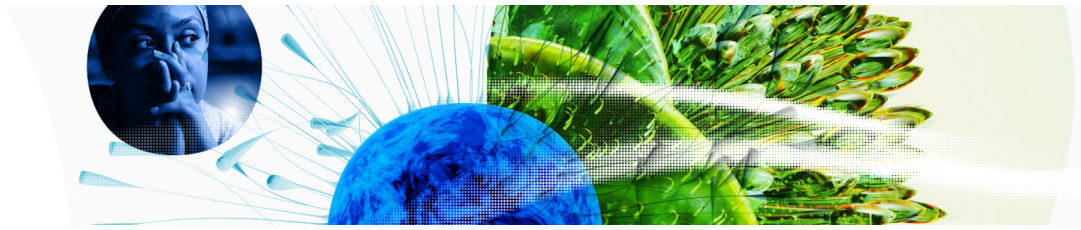


Global Innovation Index 2023

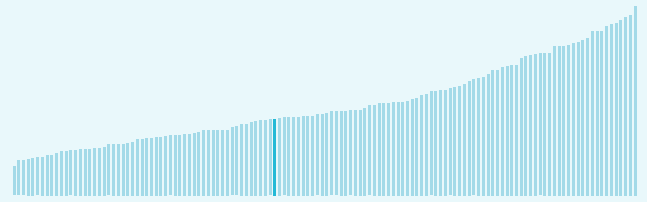


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Bosnia and Herzegovina ranking in the Global Innovation Index 2023

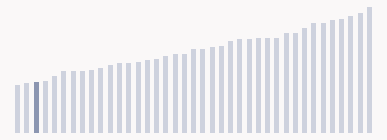
> Bosnia and Herzegovina ranks **77th** among the 132 economies featured in the GII 2023.



> Bosnia and Herzegovina ranks **22nd** among the 33 upper-middle-income group economies.



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



> Bosnia and Herzegovina GII Ranking (2020-2023)

The table shows the rankings of Bosnia and Herzegovina 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 Bosnia and Herzegovina in the GII 2023 is between ranks 73 and 86.

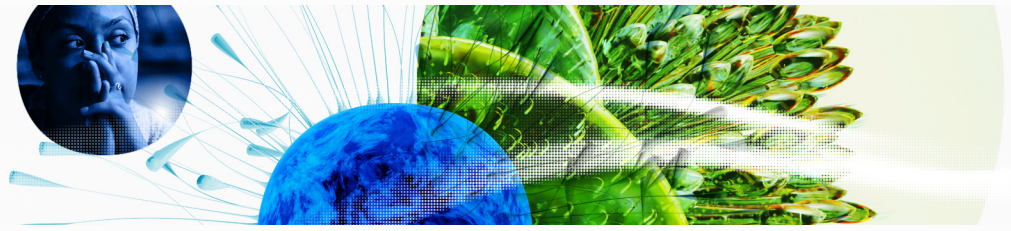
	GII Position	Innovation Inputs	Innovation Outputs
2020	74th	72nd	75th
2021	75th	70th	80th
2022	70th	64th	75th
2023	77th	75th	80th

Bosnia and Herzegovina performs worse in innovation outputs than innovation inputs in 2023.

This year Bosnia and Herzegovina ranks 75th in innovation inputs. This position is lower than last year.

Bosnia and Herzegovina ranks 80th in innovation outputs. This position is lower than last year.

Global Innovation Index 2023



→ Expected vs. observed innovation performance

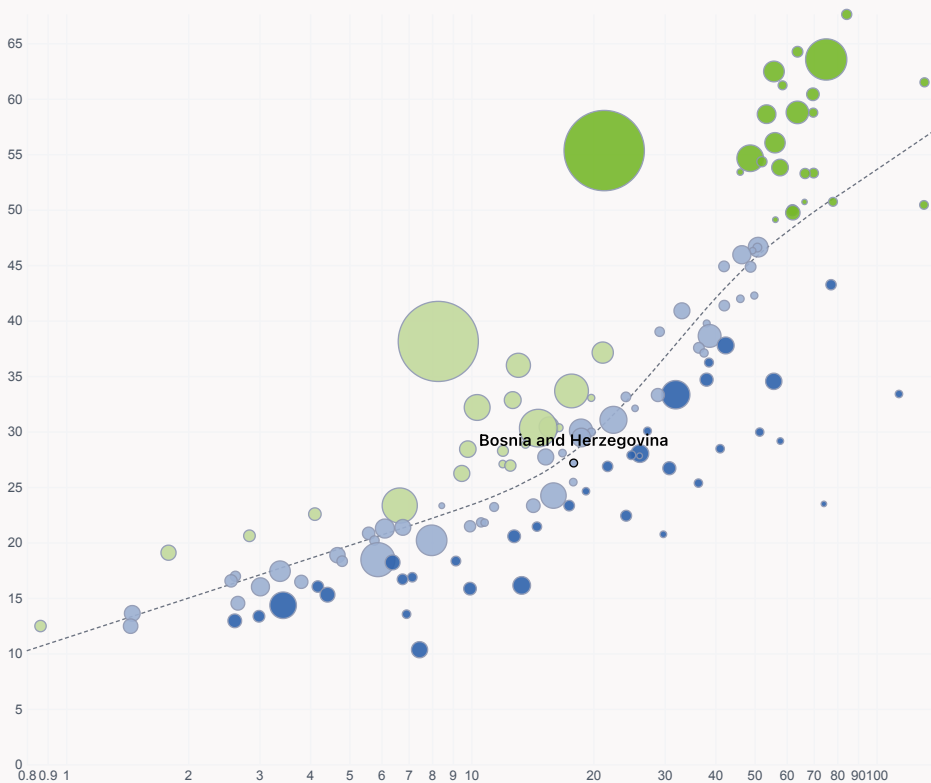
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



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

> Innovation overperformers relative to their economic development

↑ **GII Score**



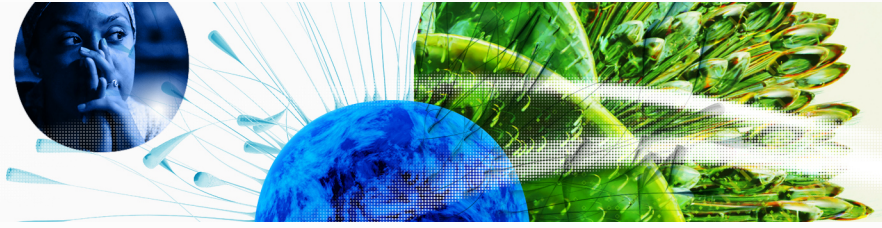
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ **GDP per capita, PPP logarithmic scale (thousands of \$)**

Global Innovation Index 2023



→ 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.



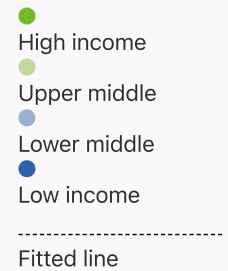
> Bosnia and Herzegovina produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

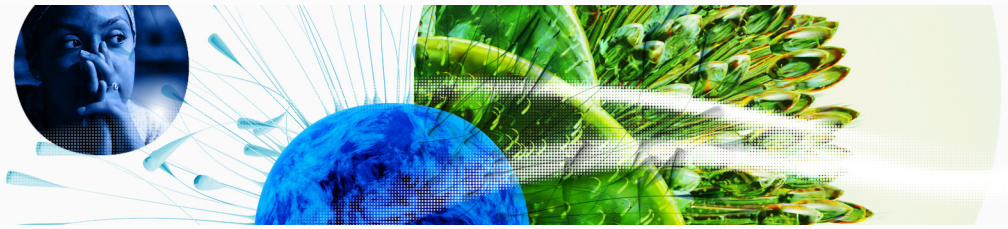
↑ Output score



→ Input score

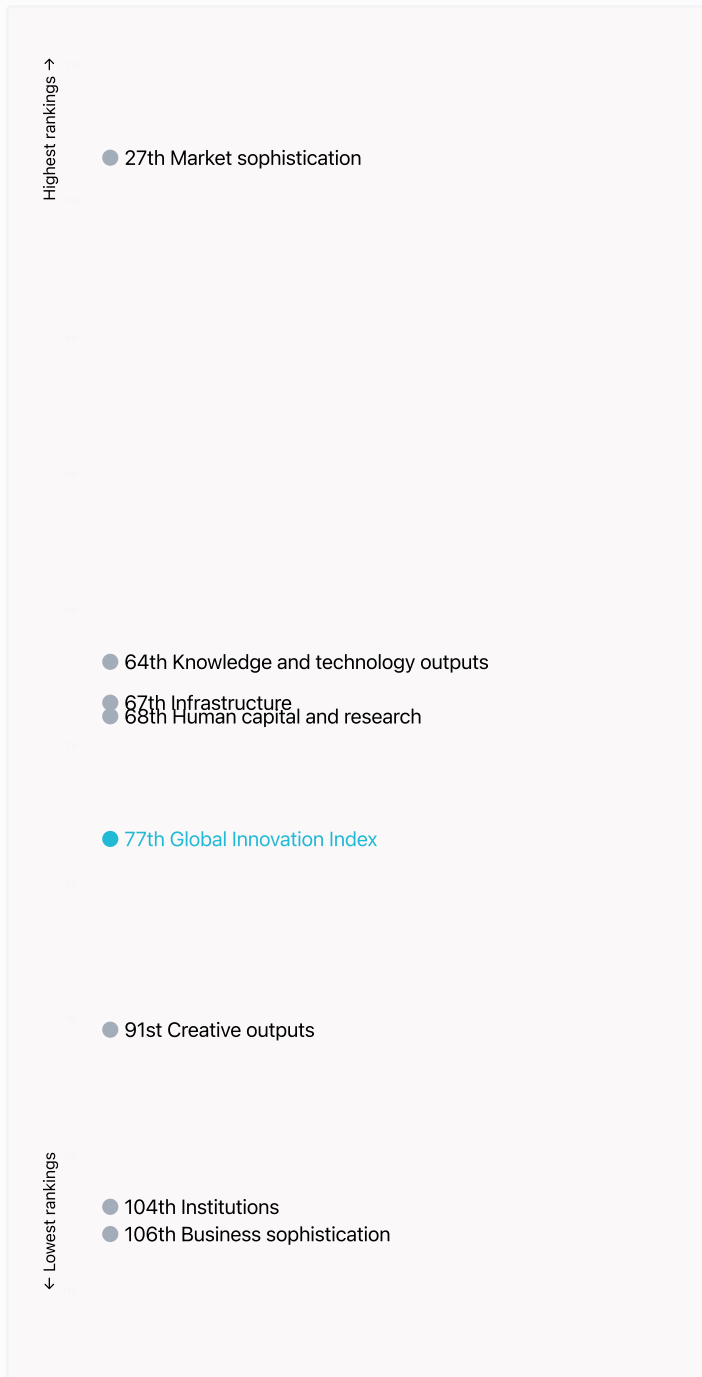


Global Innovation Index 2023



→ Overview of Bosnia and Herzegovina's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Bosnia and Herzegovina are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

Bosnia and Herzegovina ranks highest in Market sophistication (27th), Knowledge and technology outputs (64th), Infrastructure (67th) and Human capital and research (68th).

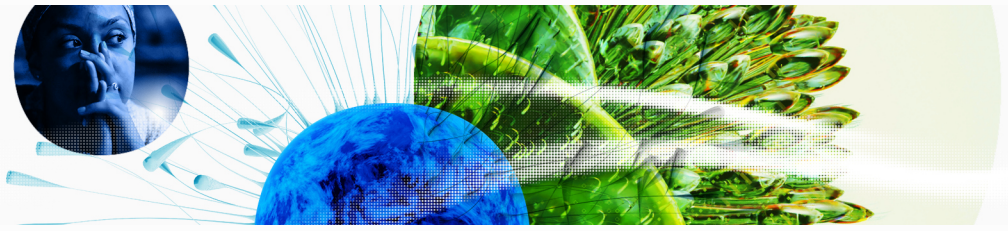
> Lowest rankings

Bosnia and Herzegovina ranks lowest in Business sophistication (106th), Institutions (104th) and Creative outputs (91st).



The full WIPO Intellectual Property Statistics profile for Bosnia and Herzegovina can be found on [this link](#).

Global Innovation Index 2023



→ Benchmark of Bosnia and Herzegovina against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Bosnia and Herzegovina (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Upper-Middle-Income economies

Bosnia and Herzegovina performs below the upper-middle-income group average in Creative outputs, Business sophistication, Infrastructure, Institutions.

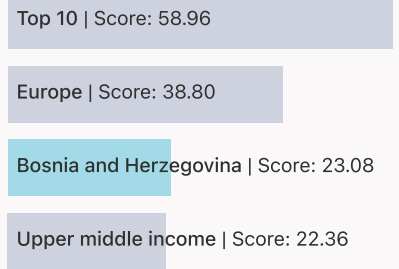


> Europe

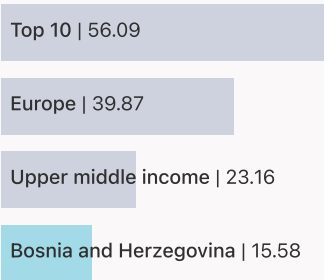
Bosnia and Herzegovina performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Human capital and research, Infrastructure, Institutions.



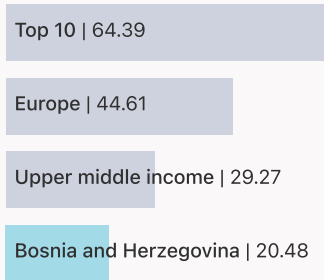
Knowledge and technology outputs



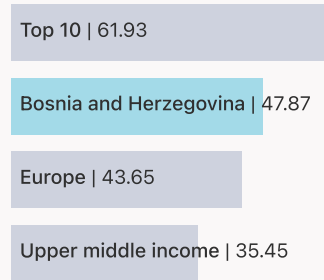
Creative outputs



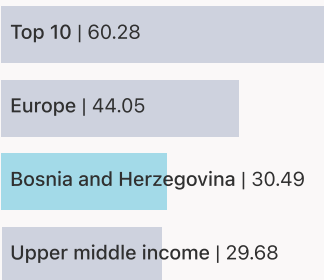
Business sophistication



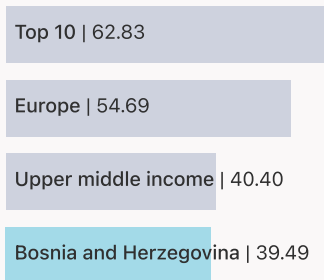
Market sophistication



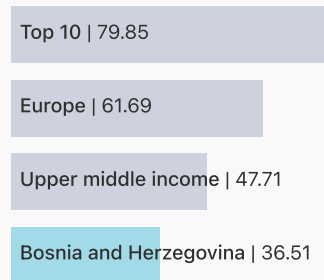
Human capital and research

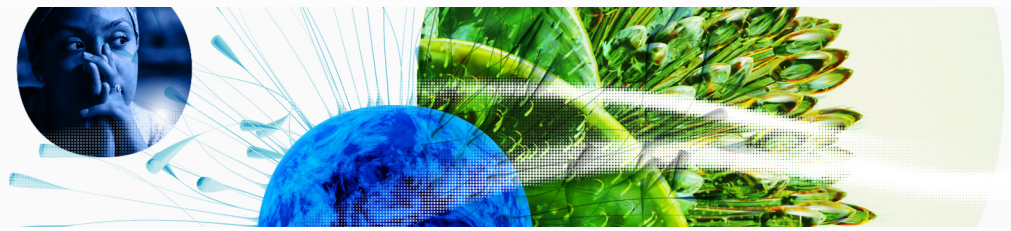


Infrastructure



Institutions





→ Innovation strengths and weaknesses in Bosnia and Herzegovina

The table below gives an overview of the indicator strengths and weaknesses of Bosnia and Herzegovina in the GII 2023.



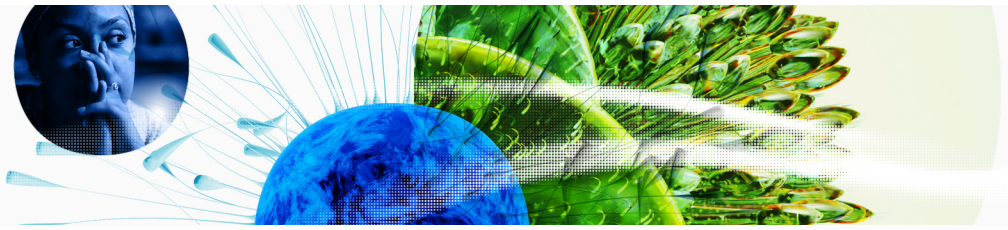
> Bosnia and Herzegovina's main innovation strengths are **Government funding/pupil, secondary, % GDP/cap** (rank 5), **ISO 9001 quality/bn PPP\$ GDP** (rank 6) and **Pupil-teacher ratio, secondary** (rank 13).

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
5	2.1.2	Government funding/pupil, secondary, % GDP/cap	127	1.1.2	Government effectiveness
6	6.3.5	ISO 9001 quality/bn PPP\$ GDP	126	1.3.1	Policies for doing business
13	2.1.5	Pupil-teacher ratio, secondary	126	5.2.1	University-industry R&D collaboration
17	3.3.3	ISO 14001 environment/bn PPP\$ GDP	105	7.3.4	Mobile app creation/bn PPP\$ GDP
18	4.3.2	Domestic industry diversification	104	3.3.1	GDP/unit of energy use
24	1.2.3	Cost of redundancy dismissal	76	7.1.1	Intangible asset intensity, top 15, %
36	6.3.2	Production and export complexity	74	7.1.3	Global brand value, top 5,000
37	2.2.3	Tertiary inbound mobility, %	71	2.3.4	QS university ranking, top 3
38	3.2.1	Electricity output, GWh/mn pop.	48	6.2.2	Unicorn valuation, % GDP
45	6.2.1	Labor productivity growth, %	40	2.3.3	Global corporate R&D investors, top 3, mn US\$

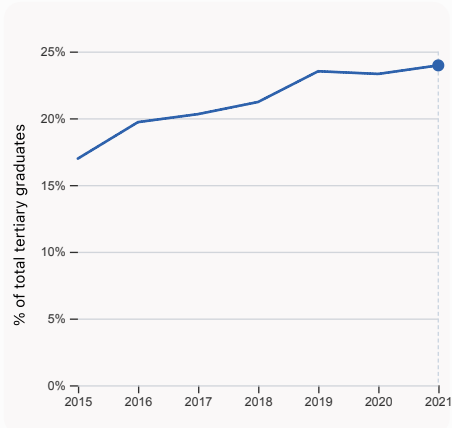
Global Innovation Index 2023



→ Bosnia and Herzegovina's innovation system

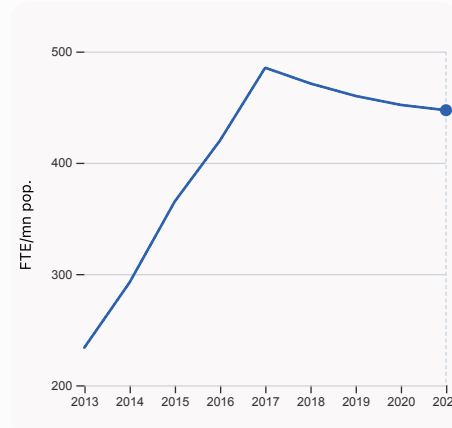
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Bosnia and Herzegovina



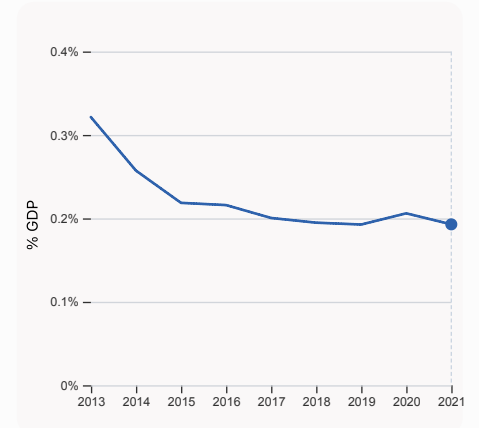
2.2.2 Graduates in science and engineering, %

was equal to 23.96% of total tertiary graduates in 2021, up by 0.64 percentage points from the year prior – and equivalent to an indicator rank of 50.



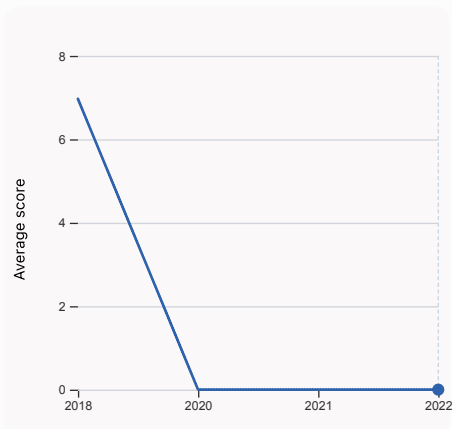
2.3.1 Researchers, FTE/mn pop.

was equal to 447.22 FTE/mn pop. in 2021, down by 1.055% from the year prior – and equivalent to an indicator rank of 72.



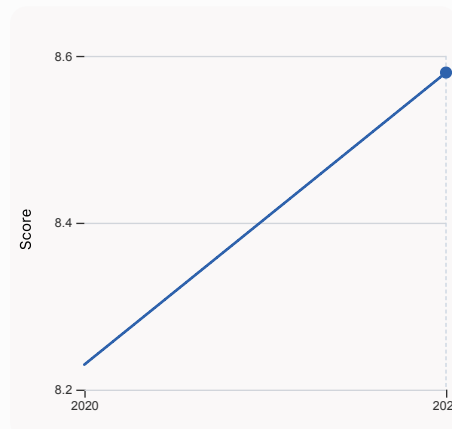
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.193% GDP in 2021, down by 0.013 percentage points from the year prior – and equivalent to an indicator rank of 89.



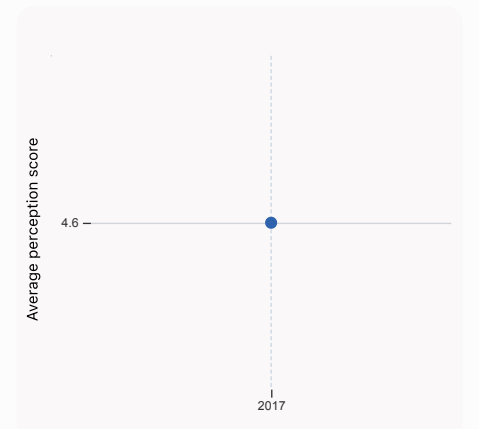
2.3.4 QS university ranking, top 3

was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.



3.1.1 ICT access

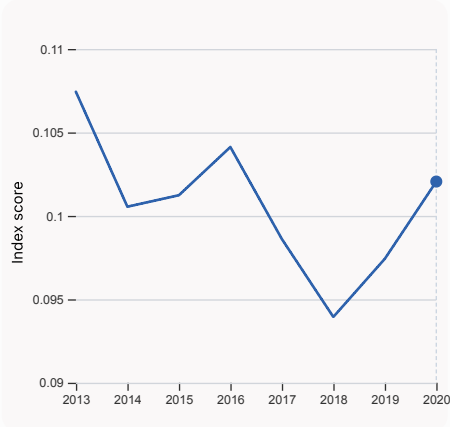
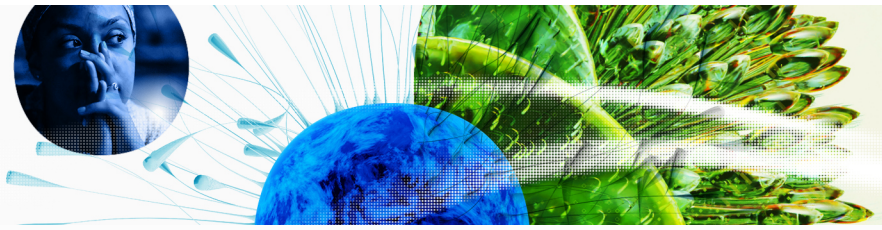
was equal to a score of 8.58 in 2021, up by 4.25% from the year prior – and equivalent to an indicator rank of 77.



4.1.1 Finance for startups and scaleups

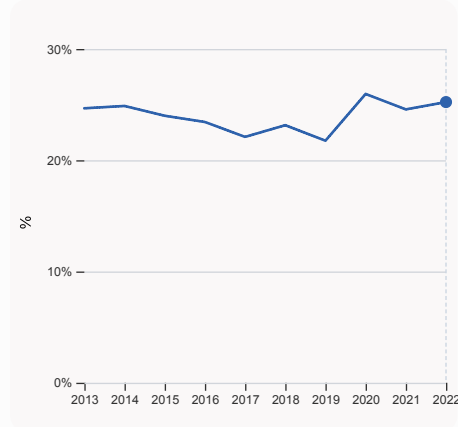
was equal to an average perception score of 4.6 in 2017, equivalent to an indicator rank of 44.

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4.3.2 Domestic industry diversification

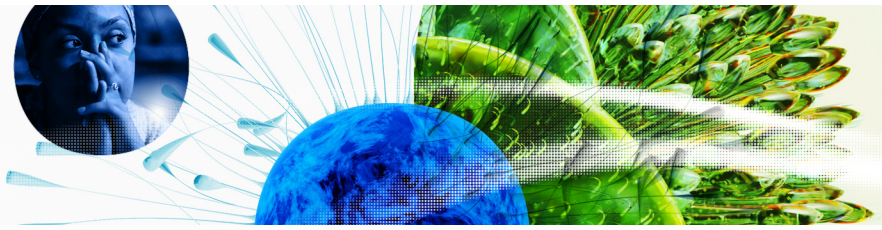
was equal to an index score of 0.102 in 2020, up by 4.75% from the year prior – and equivalent to an indicator rank of 18.



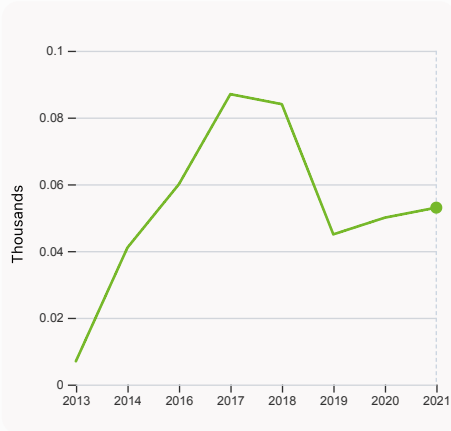
5.1.1 Knowledge-intensive employment, %

was equal to 25.23% in 2022, up by 0.66 percentage points from the year prior – and equivalent to an indicator rank of 55.

Global Innovation Index 2023

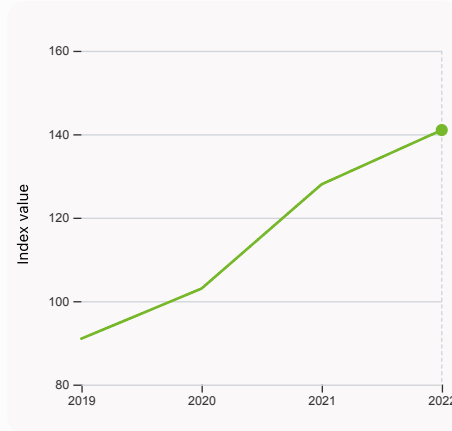


> Innovation outputs in Bosnia and Herzegovina



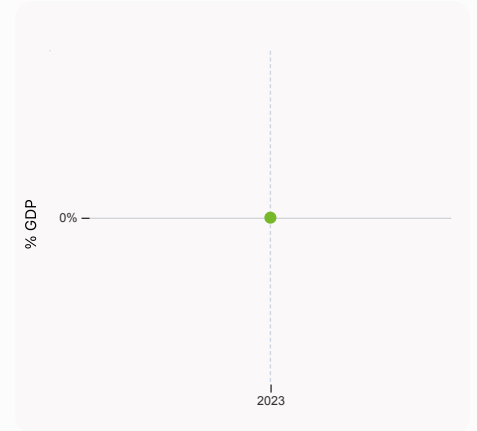
6.1.1 Patents by origin

was equal to 0.053 Thousands in 2021, up by 6% from the year prior – and equivalent to an indicator rank of 61.



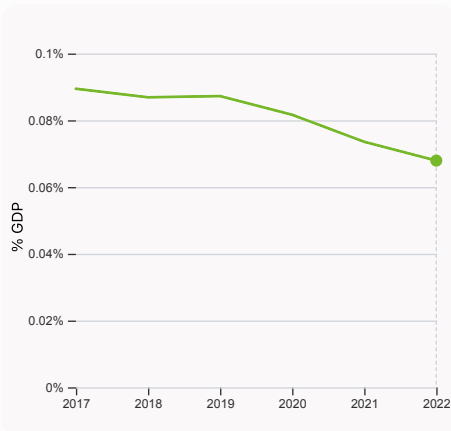
6.1.5 Citable documents H-index

was equal to an index value of 141 in 2022, up by 10.16% from the year prior – and equivalent to an indicator rank of 98.



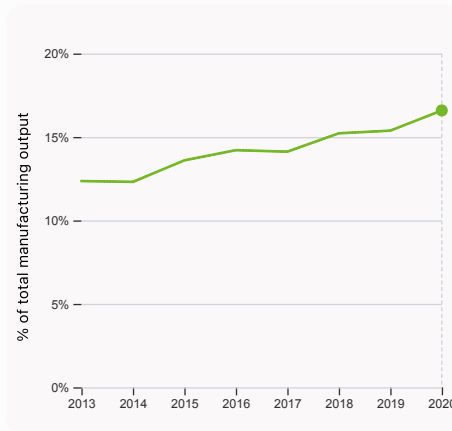
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



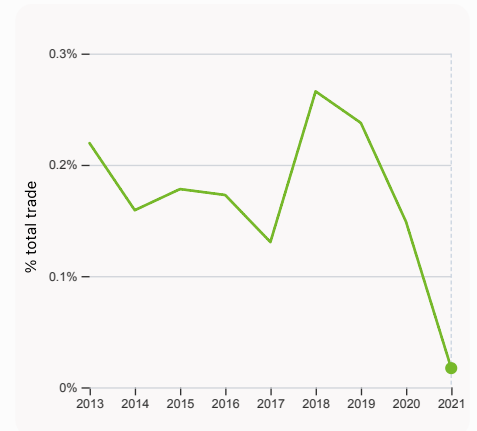
6.2.3 Software spending, % GDP

was equal to 0.068% GDP in 2022, down by 0.0056 percentage points from the year prior – and equivalent to an indicator rank of 98.



6.2.4 High-tech manufacturing, %

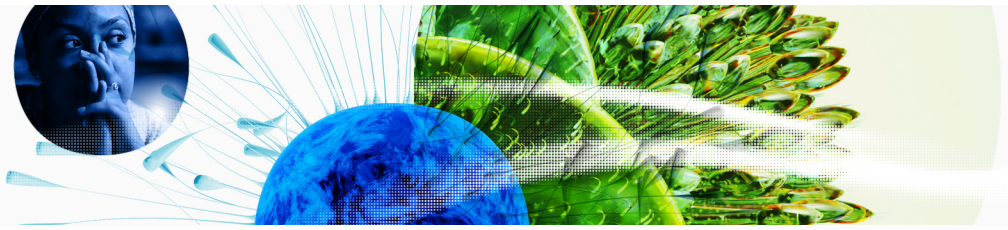
was equal to 16.59% of total manufacturing output in 2020, up by 1.21 percentage points from the year prior – and equivalent to an indicator rank of 73.



6.3.1 Intellectual property receipts, % total trade

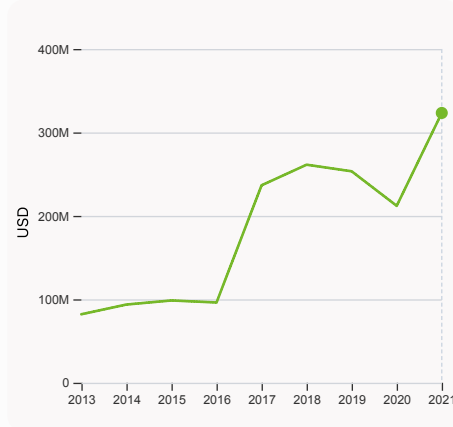
was equal to 0.017% total trade in 2021, down by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 50.

Global Innovation Index 2023



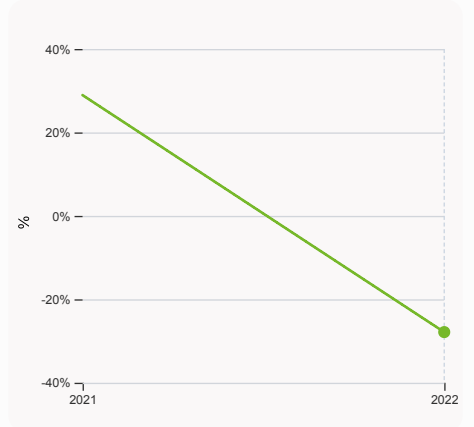
6.3.2 Production and export complexity

was equal to a score of 0.703 in 2020, down by 5.67% from the year prior – and equivalent to an indicator rank of 36.



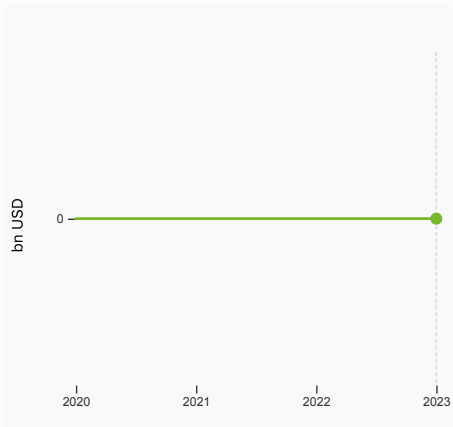
6.3.3 High-tech exports

was equal to 323,354,350 USD in 2021, up by 52.49% from the year prior – and equivalent to an indicator rank of 48.



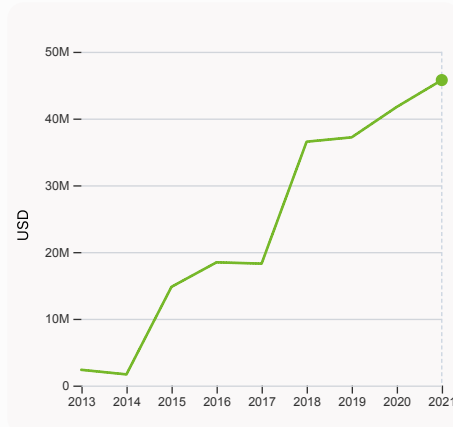
7.1.1 Intangible asset intensity, top 15, %

was equal to -27.856% in 2022, down by 56.8 percentage points from the year prior – and equivalent to an indicator rank of 76.



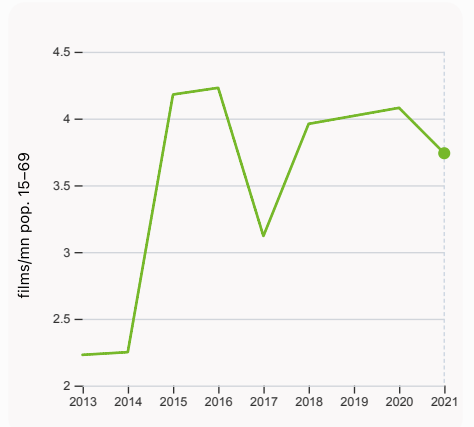
7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



7.2.1 Cultural and creative services exports

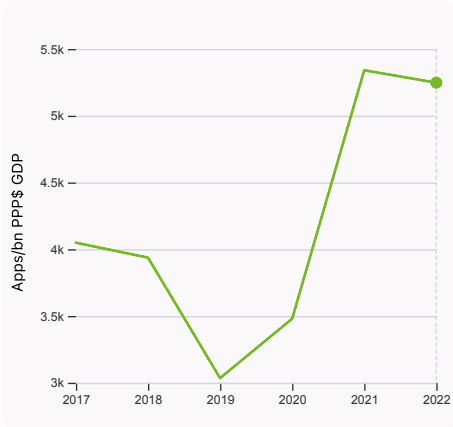
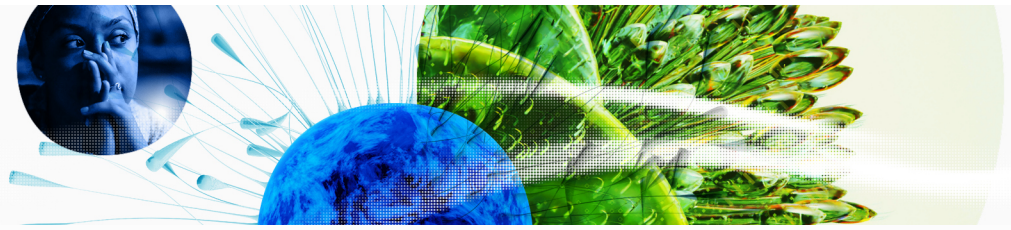
was equal to 45,760,000 USD in 2021, up by 9.65% from the year prior – and equivalent to an indicator rank of 60.



7.2.2 National feature films/mn pop. 15-69

was equal to 3.74 films/mn pop. 15-69 in 2021, down by 8.33% from the year prior – and equivalent to an indicator rank of 35.

Global Innovation Index 2023



7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 5,247.62 Apps/bn PPP\$ GDP in 2022, down by 1.74% from the year prior – and equivalent to an indicator rank of 105.



→ Bosnia and Herzegovina's innovation top performers

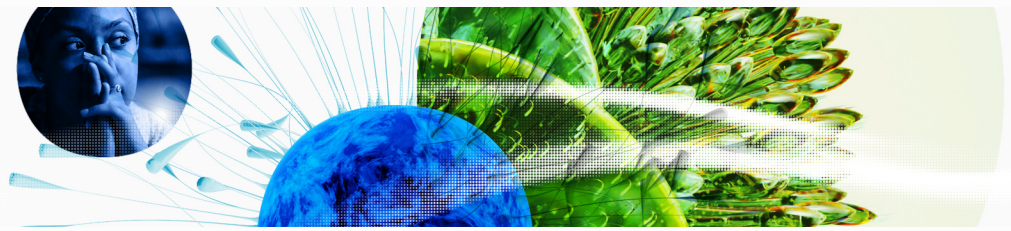
> 7.1.1 Top 15 intangible-asset intensive companies in Bosnia and Herzegovina

Rank	Firm	Intensity, %
1	TELEKOM SRPSKE AD BANJA LUKA	30.76
2	ATOS BANK AD BANJA LUKA	40.28
3	BOSNALIJEK DD	28.11

Source: Brand Finance (<https://brandirectory.com/reports/gif-2022>).

Note: Brand Finance only provides within economy ranks.

Global Innovation Index 2023



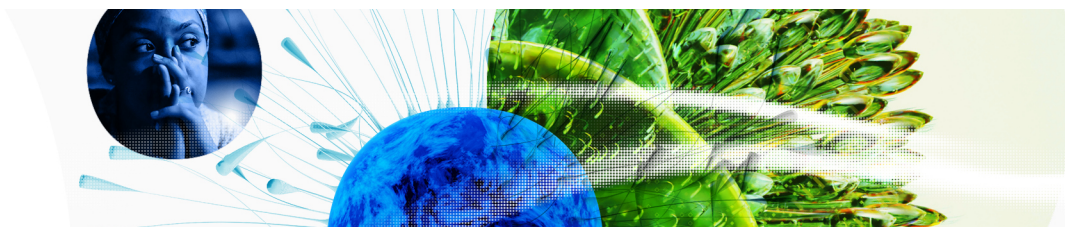
GII 2023 rank

77

Bosnia and Herzegovina

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
80	75	Upper middle	EUR	3.2	62.2	17,899.1
			Score / Value Rank			
Institutions			36.5 104	Business sophistication 20.5 106		
1.1 Institutional environment			24.8 113	5.1 Knowledge workers 30.9 67		
1.1.1 Operational stability for businesses*			41.7 87	5.1.1 Knowledge-intensive employment, %		
1.1.2 Government effectiveness*			8.0 127	5.1.2 Firms offering formal training, %		
1.2 Regulatory environment			66.0 56	5.1.3 GERD performed by business, % GDP		
1.2.1 Regulatory quality*			37.5 81	5.1.4 GERD financed by business, %		
1.2.2 Rule of law*			31.6 80	5.1.5 Females employed w/advanced degrees, %		
1.2.3 Cost of redundancy dismissal			9.2 24	5.2 Innovation linkages 9.8 119		
1.3 Business environment			18.7 120	5.2.1 University-industry R&D collaboration+		
1.3.1 Policies for doing business+			11.2 126	5.2.2 State of cluster development+		
1.3.2 Entrepreneurship policies and culture+			26.1 66	5.2.3 GERD financed by abroad, % GDP		
Human capital and research			30.5 68	5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP		
2.1 Education			61.3 28	5.2.5 Patent families/bn PPP\$ GDP		
2.1.1 Expenditure on education, % GDP			n/a n/a	5.3 Knowledge absorption 20.7 127		
2.1.2 Government funding/pupil, secondary, % GDP/cap			33.5 5	5.3.1 Intellectual property payments, % total trade		
2.1.3 School life expectancy, years			n/a n/a	5.3.2 High-tech imports, % total trade		
2.1.4 PISA scales in reading, maths and science			402.6 63	5.3.3 ICT services imports, % total trade		
2.1.5 Pupil-teacher ratio, secondary			8.3 13	5.3.4 FDI net inflows, % GDP		
2.2 Tertiary education			28.2 73	5.3.5 Research talent, % in businesses		
2.2.1 Tertiary enrolment, % gross			39.2 78	Knowledge and technology outputs 23.1 64		
2.2.2 Graduates in science and engineering, %			24.0 50	6.1 Knowledge creation 11.2 79		
2.2.3 Tertiary inbound mobility, %			6.6 37	6.1.1 Patents by origin/bn PPP\$ GDP		
2.3 Research and development (R&D)			1.9 90	6.1.2 PCT patents by origin/bn PPP\$ GDP		
2.3.1 Researchers, FTE/mn pop.			447.2 72	6.1.3 Utility models by origin/bn PPP\$ GDP		
2.3.2 Gross expenditure on R&D, % GDP			0.2 89	6.1.4 Scientific and technical articles/bn PPP\$ GDP		
2.3.3 Global corporate R&D investors, top 3, mn US\$			0.0 40	6.1.5 Citable documents H-index		
2.3.4 QS university ranking, top 3*			0.0 71	6.2 Knowledge impact 21.0 100		
Infrastructure			39.5 67	6.2.1 Labor productivity growth, %		
3.1 Information and communication technologies (ICTs)			59.5 83	6.2.2 Unicorn valuation, % GDP		
3.1.1 ICT access*			78.7 77	6.2.3 Software spending, % GDP		
3.1.2 ICT use*			63.5 87	6.2.4 High-tech manufacturing, %		
3.1.3 Government's online service*			43.6 102	6.3 Knowledge diffusion 37.1 37		
3.1.4 E-participation*			52.3 71	6.3.1 Intellectual property receipts, % total trade		
3.2 General infrastructure			28.6 58	6.3.2 Production and export complexity		
3.2.1 Electricity output, GWh/mn pop.			5,639.0 38	6.3.3 High-tech exports, % total trade		
3.2.2 Logistics performance*			40.9 60	6.3.4 ICT services exports, % total trade		
3.2.3 Gross capital formation, % GDP			21.8 83	6.3.5 ISO 9001 quality/bn PPP\$ GDP		
3.3 Ecological sustainability			30.3 53	Creative outputs 15.6 91		
3.3.1 GDP/unit of energy use			6.4 104	7.1 Intangible assets 17.5 91		
3.3.2 Environmental performance*			34.7 75	7.1.1 Intangible asset intensity, top 15, %		
3.3.3 ISO 14001 environment/bn PPP\$ GDP			5.6 17	7.1.2 Trademarks by origin/bn PPP\$ GDP		
Market sophistication			47.9 27	7.1.3 Global brand value, top 5,000		
4.1 Credit			35.9 50	7.1.4 Industrial designs by origin/bn PPP\$ GDP		
4.1.1 Finance for startups and scaleups*			50.8 44	7.2 Creative goods and services 12.1 63		
4.1.2 Domestic credit to private sector, % GDP			58.5 63	7.2.1 Cultural and creative services exports, % total trade		
4.1.3 Loans from microfinance institutions, % GDP			n/a n/a	7.2.2 National feature films/mn pop. 15-69		
4.2 Investment			n/a n/a	7.2.3 Entertainment and media market/th pop. 15-69		
4.2.1 Market capitalization, % GDP			n/a n/a	7.2.4 Creative goods exports, % total trade		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP			n/a n/a	7.3 Online creativity 15.2 96		
4.2.3 VC recipients, deals/bn PPP\$ GDP			n/a n/a	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69		
4.2.4 VC received, value, % GDP			n/a n/a	7.3.2 Country-code TLDs/th pop. 15-69		
4.3 Trade, diversification, and market scale			59.9 56	7.3.3 GitHub commits/mn pop. 15-69		
4.3.1 Applied tariff rate, weighted avg., %			2.9 72	7.3.4 Mobile app creation/bn PPP\$ GDP		
4.3.2 Domestic industry diversification			96.9 18			
4.3.3 Domestic market scale, bn PPP\$			62.2 100			

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/gii-ranking>. 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.



> Bosnia and Herzegovina has missing data for nine indicators and outdated data for six indicators.

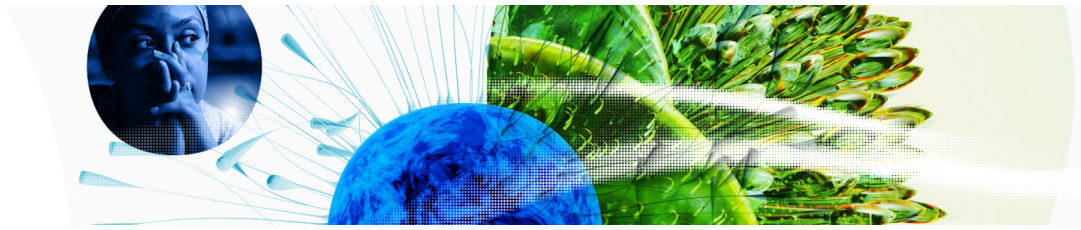
> Missing data for Bosnia and Herzegovina

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	n/a	2021	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2020	UNESCO Institute for Statistics
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP\$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2022	Refinitiv; International Monetary Fund
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

> Outdated data for Bosnia and Herzegovina

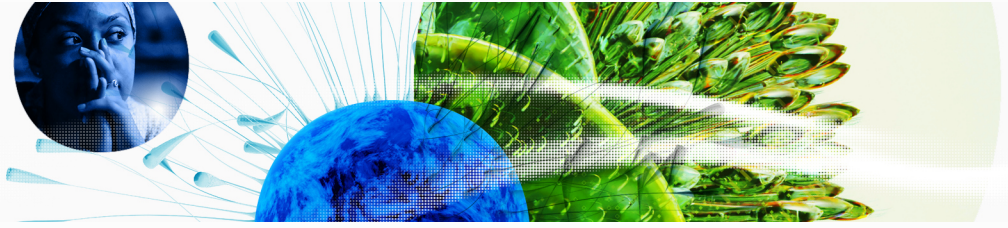
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2017	2022	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	2018	2019	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2017	2022	Global Entrepreneurship Monitor
5.1.3	GERD performed by business, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	2021	2022	Refinitiv; International Monetary Fund
5.3.5	Research talent, % in businesses	2020	2021	UNESCO Institute for Statistics; Eurostat;

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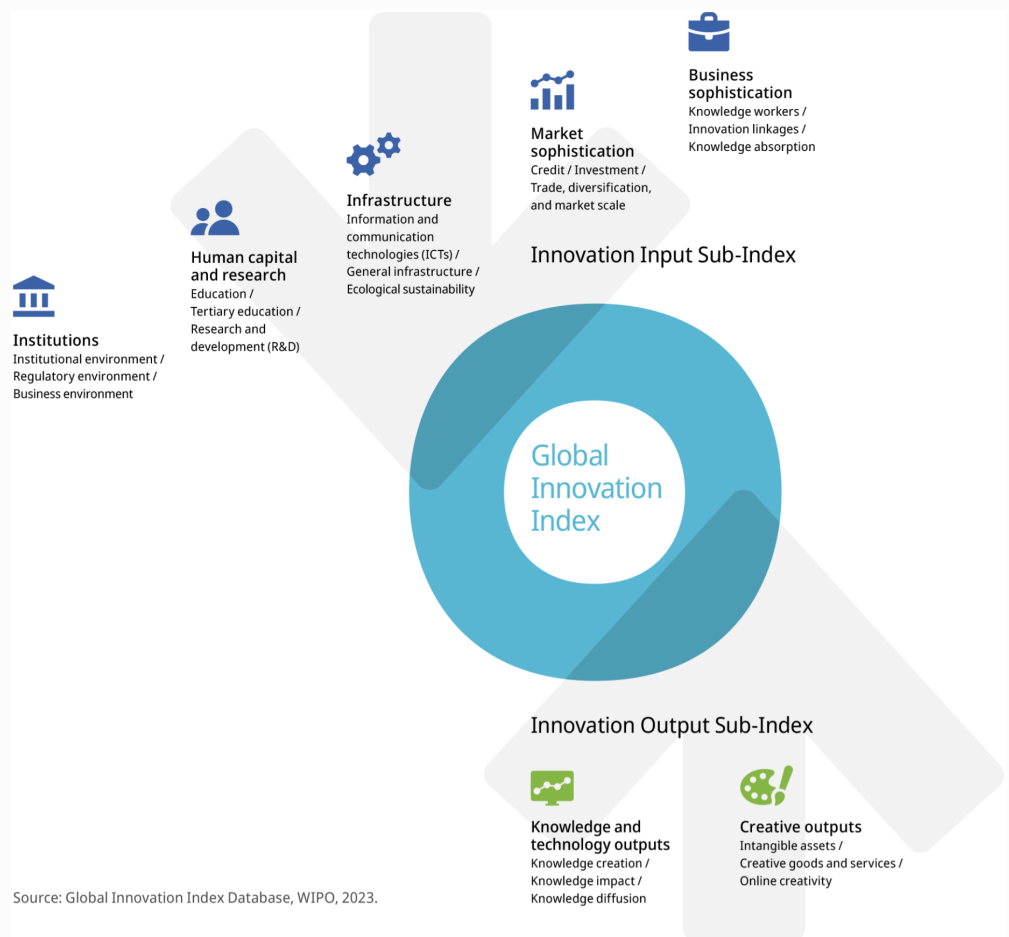
Code	Indicator name	Economy Year	Model Year	Source
				OECD; RICYT

Global Innovation Index 2023



→ 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.