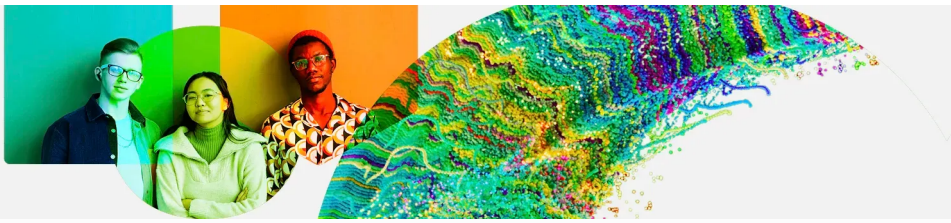
Global Innovation Index 2024



Montenegro ranking in the Global Innovation Index 2024

Montenegro ranks 65th among the 133 economies featured in the GII 2024.

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.

Montenegro ranks 16th among the 34 upper-middle-income group economies.

Montenegro ranks 35th among the 39 economies in Europe.

Montenegro GII Ranking (2020-2024)

The table shows the rankings of Montenegro 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 Montenegro in the GII 2024 is between ranks 56 and 68.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	49th	53rd	49th
2021	50th	53rd	53rd
2022	60th	51st	72nd
2023	75th	62nd	83rd
2024	65th	62nd	72nd

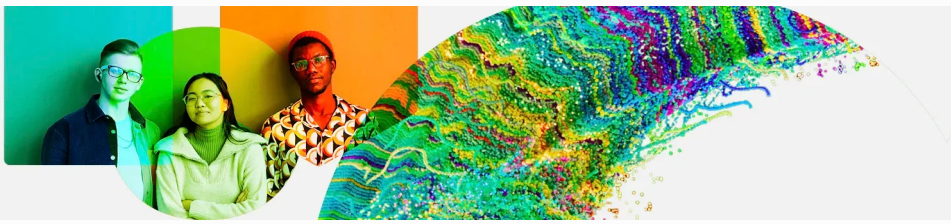
Montenegro performs worse in innovation outputs than innovation inputs in 2024.

This year **Montenegro ranks 62nd in innovation inputs.** This position is the same as last year.

Montenegro ranks 72nd in innovation outputs. This position is higher than last year.

Montenegro has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Montenegro, how rapidly is technology being embraced and what are the resulting societal impacts.

For Montenegro, 5 indicators have improved in the short-term and 2 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▲ 0.5% 2022 - 2023	▼ -25% 2018 - 2019	n/a	n/a	▲ 175% 2022 - 2023
▲ 8% 2013 - 2023	▼ -6.9% 2007 - 2019	n/a	n/a	▲ 18.6% 2013 - 2023

Technology adoption

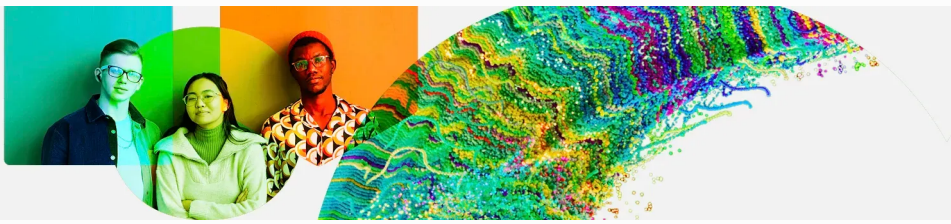
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 3.6% 2021 - 2022	▲ 4.2% 2021 - 2022	n/a	n/a	n/a
▲ 4.4% 2012 - 2022	▲ 8.5% 2012 - 2022		n/a	n/a
57.4 per 100 inhabitants in 2022	31.3 per 100 inhabitants in 2022	75.8 per 100 inhabitants in 2022		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
n/a	▲ 3.2% 2021 - 2022	▲ 2.4°C 2023
n/a	0% 2012 - 2022	n/a
	76.2 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024



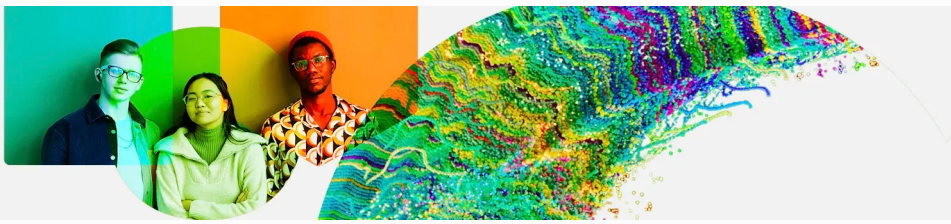
Expected vs. observed innovation performance

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, Montenegro's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development

Global Innovation Index 2024

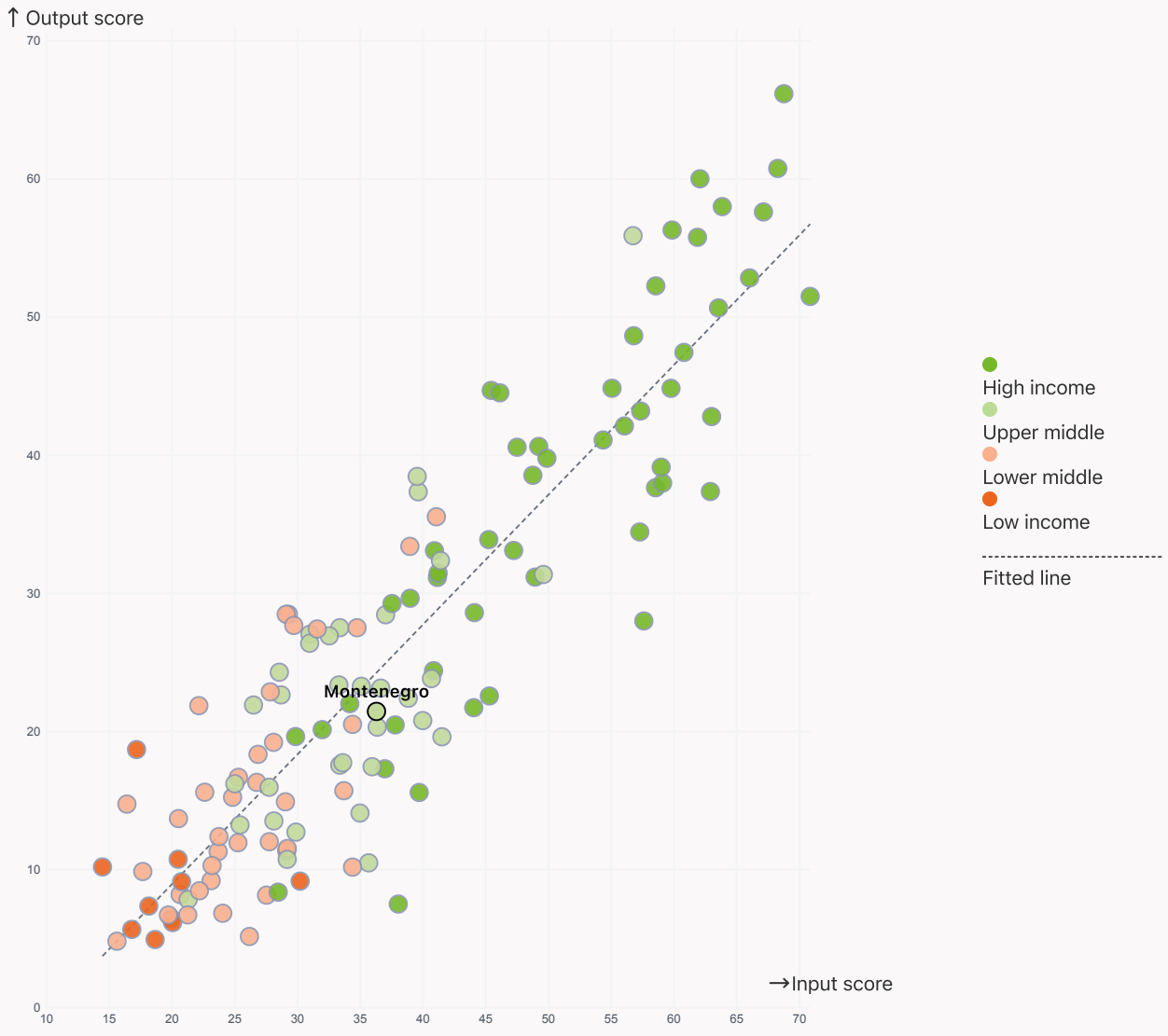


Effectively translating innovation investments into innovation outputs

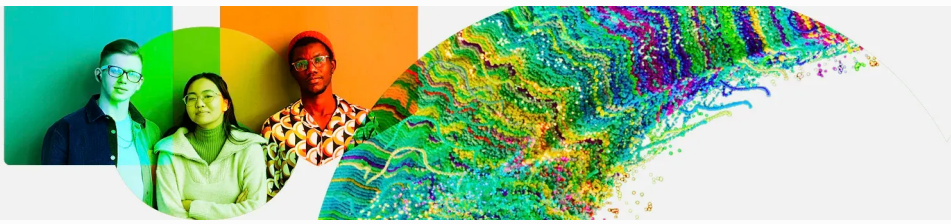
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

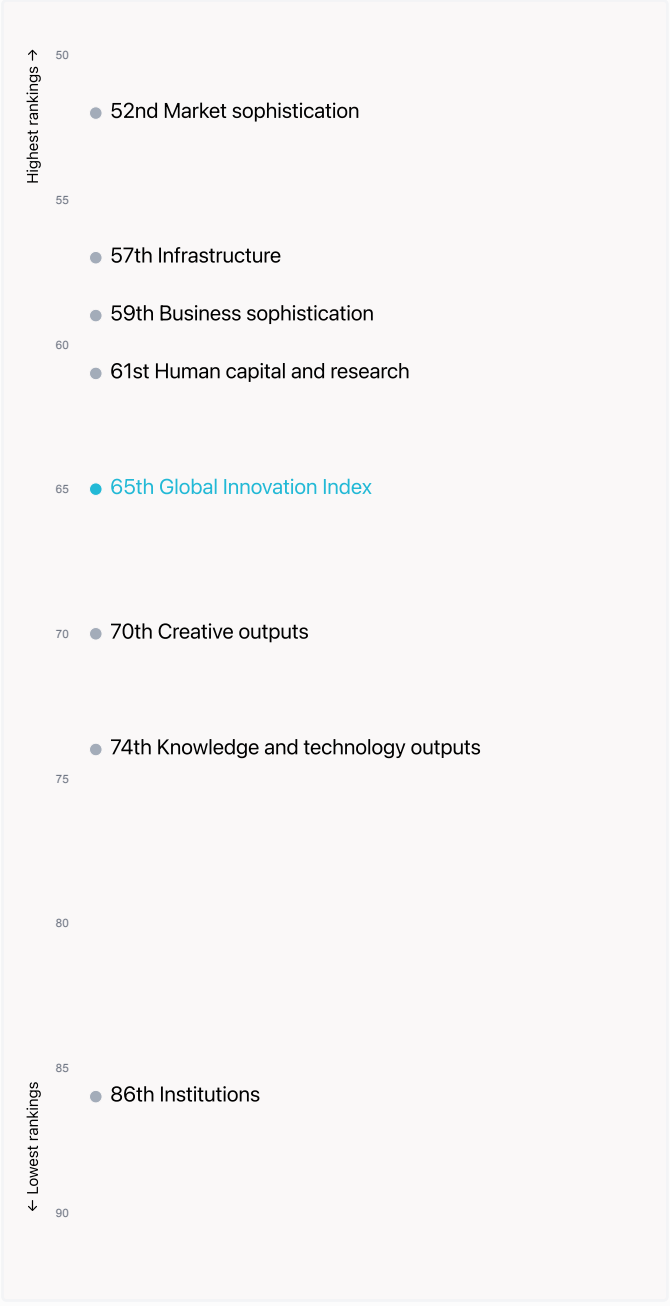


Global Innovation Index 2024



Overview of Montenegro's rankings in the seven areas of the GII in 2024

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



Highest rankings

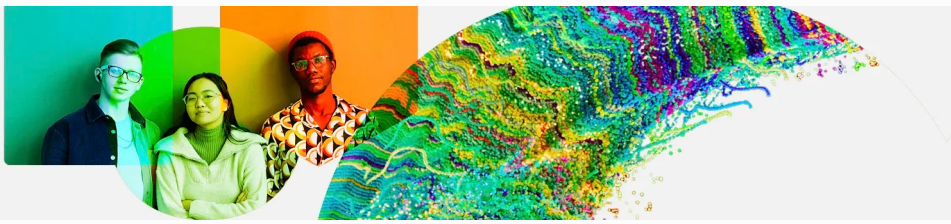
Montenegro ranks highest in Market sophistication (52nd), Infrastructure (57th), Business sophistication (59th) and Human capital and research (61st).

Lowest rankings

Montenegro ranks lowest in Institutions (86th), Knowledge and technology outputs (74th) and Creative outputs (70th).

The full WIPO Intellectual Property Statistics profile for Montenegro can be found on this link.

Global Innovation Index 2024



Benchmark of Montenegro against other economy groupings for each of the seven areas of the GII Index

The charts shows the relative position of Montenegro (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

Upper-Middle-Income economies

Montenegro performs above the upper-middle-income group average in Human capital and research, Infrastructure, Market sophistication, Business sophistication.

Europe

Montenegro performs below the regional average in all pillars.

Institutions

- Top 10 | Score: 80.81
- Europe | Score: 59.14
- Upper middle income | Score: 43.0
- Montenegro | Score: 39.85

Human capital and research

- Top 10 | Score: 61.30
- Europe | Score: 44.92
- Montenegro | Score: 32.58
- Upper middle income | Score: 29.5

Infrastructure

- Top 10 | Score: 58.57
- Europe | Score: 51.74
- Montenegro | Score: 44.52
- Upper middle income | Score: 39.8

Market sophistication

- Top 10 | Score: 62.12
- Europe | Score: 42.79
- Montenegro | Score: 36.89
- Upper middle income | Score: 32.9

Business sophistication

- Top 10 | Score: 63.64
- Europe | Score: 42.68
- Montenegro | Score: 27.94
- Upper middle income | Score: 27.6

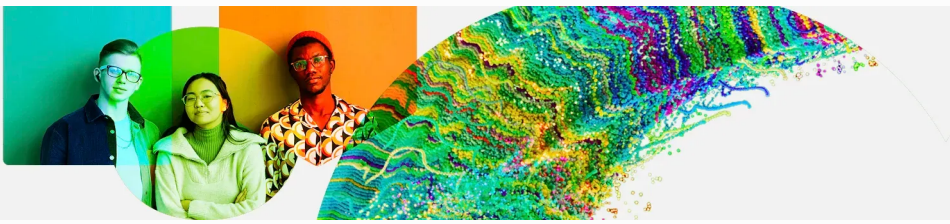
Knowledge and technology outputs

- Top 10 | Score: 57.29
- Europe | Score: 36.30
- Upper middle income | Score: 20.6
- Montenegro | Score: 19.82

Creative outputs

- Top 10 | Score: 56.54
- Europe | Score: 39.15
- Upper middle income | Score: 24.3
- Montenegro | Score: 22.96

Global Innovation Index 2024



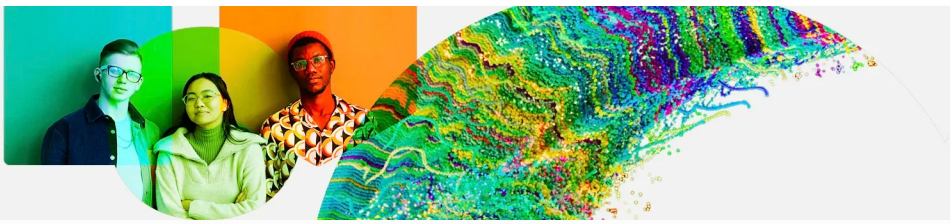
Innovation strengths and weaknesses in Montenegro

The table below gives an overview of the indicator strengths and weaknesses of Montenegro in the GII 2024.

Montenegro's main innovation strengths are **Top-level domains (TLDs)/th pop. 15–69** (rank 1), **FDI net inflows, % GDP** (rank 8) and **Applied tariff rate, weighted avg., %** (rank 18).

Strengths			Weaknesses		
Rank	Code	Indicator name	Rank	Code	Indicator name
1	7.3.1	Top-level domains (TLDs)/th pop. 15–69	130	4.3.3	Domestic market scale, bn PPP$
8	5.3.4	FDI net inflows, % GDP	124	6.1.5	Citable documents H-index
18	4.3.1	Applied tariff rate, weighted avg., %	122	1.3.1	Policy stability for doing business†
20	3.3.3	ISO 14001 environment/bn PPP$ GDP	116	5.2.3	State of cluster development†
21	6.3.4	ICT services exports, % total trade	102	5.2.5	Patent families/bn PPP$ GDP
22	5.3.3	ICT services imports, % total trade	78	7.1.1	Intangible asset intensity, top 15, %
23	6.2.1	Labor productivity growth, %	75	7.1.3	Global brand value, top 5,000, % GDP
26	3.3.2	Low-carbon energy use, %	75	2.3.4	QS university ranking, top 3*
27	7.3.3	Mobile app creation/bn PPP$ GDP	49	6.2.2	Unicorn valuation, % GDP
27	6.3.5	ISO 9001 quality/bn PPP$ GDP	41	2.3.3	Global corporate R&D investors, top 3, mn USD

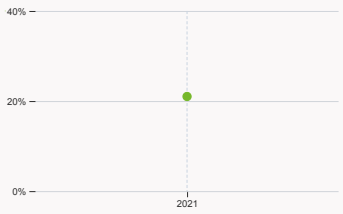
Global Innovation Index 2024



Montenegro's innovation system

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

Innovation inputs in Montenegro



2.2.2 **Graduates in science and engineering**

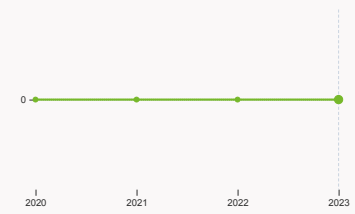
was equal to 21.009 % of total graduates in 2021 – and equivalent to an indicator rank of 71.

2.3.1 **Researchers**

was equal to 753.64 FTE per million population in 2019, down by 2.06% from the year prior – and equivalent to an indicator rank of 61.

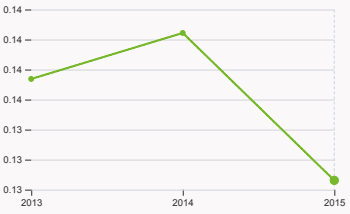
2.3.2 **Gross expenditure on R&D**

was equal to 0.36 % GDP in 2019, down by 0.14 percentage points from the year prior – and equivalent to an indicator rank of 67.



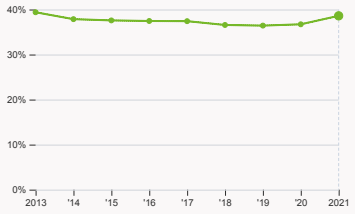
2.3.4 **QS university ranking**

was equal to an average score of 0 for the top three universities in 2023 with no change from the year prior – and equivalent to an indicator rank of 75.



4.3.2 **Domestic industry diversification**

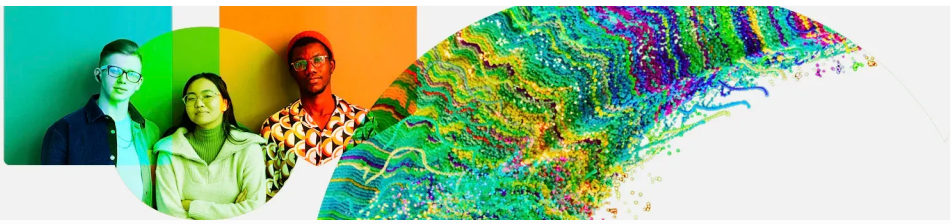
was equal to an index score of 0.13 in 2015, down by 6.99% from the year prior – and equivalent to an indicator rank of 48.



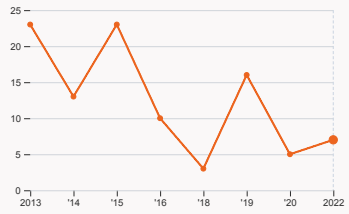
5.1.1 **Knowledge-intensive employment**

was equal to 38.6 % in 2021, up by 1.88 percentage points from the year prior – and equivalent to an indicator rank of 34.

Global Innovation Index 2024

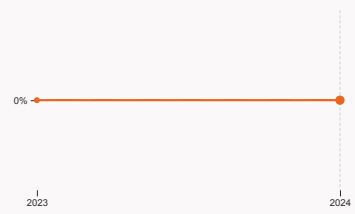


Innovation outputs in Montenegro



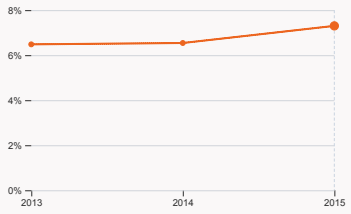
6.1.1 Patents by origin

was equal to 7 patents in 2022, up by 40% from the year prior – and equivalent to an indicator rank of 79.



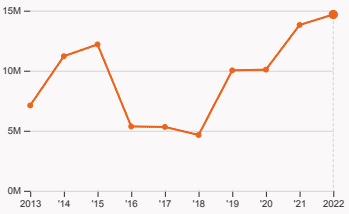
6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.



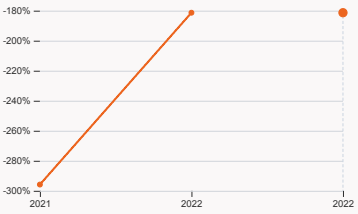
6.2.4 High-tech manufacturing

was equal to 7.3 % of total manufacturing output in 2015, up by 0.76 percentage points from the year prior – and equivalent to an indicator rank of 94.



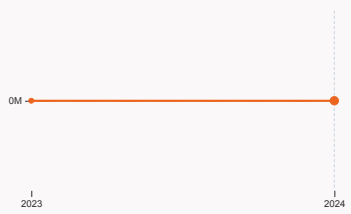
6.3.3 High-tech exports

was equal to 14.68 million USD in 2022, up by 6.3% from the year prior – and equivalent to an indicator rank of 96.



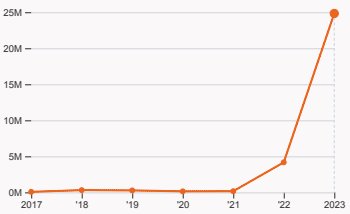
7.1.1 Intangible asset intensity

was equal to -181.36 % for the top 15 companies in 2022 with no change from the year prior – and equivalent to an indicator rank of 78.



7.1.3 Global brand value

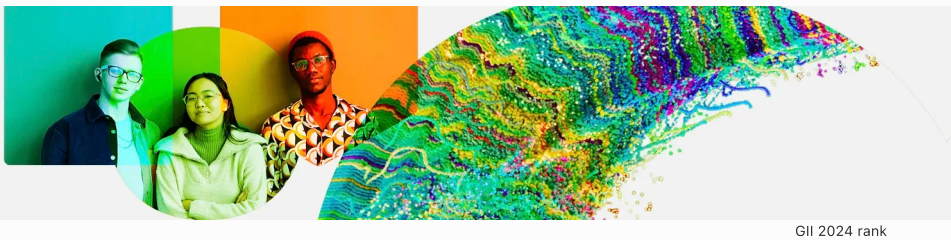
was equal to 0 million USD for the brands in the top 5,000 in 2024 with no change from the year prior – and equivalent to an indicator rank of 75.



7.3.3 Mobile app creation

was equal to 24.83 million global downloads of mobile apps in 2023, up by 495.44% from the year prior – and equivalent to an indicator rank of 27.

Global Innovation Index 2024



Montenegro

GII 2024 rank **65**

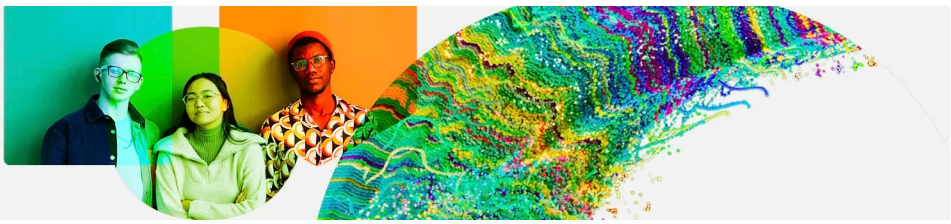
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
72	62	Upper middle	EUR	0.6	17.4	28,002

	Score / Value	Rank	
Institutions	**39.8**	**86**	
1.1 Institutional environment	**51.3**	**75**	
1.1.1 Operational stability for businesses*	59.3	73	
1.1.2 Government effectiveness*	43.3	72	
1.2 Regulatory environment	**48.2**	**57**	
1.2.1 Regulatory quality*	56.1	46	◆
1.2.2 Rule of law*	40.2	71	
1.3 Business environment	**20.1**	**[119]**	
1.3.1 Policy stability for doing business†	20.1	122	○ ◇
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**32.6**	**61**	
2.1 Education	**57.4**	**[49]**	
2.1.1 Expenditure on education, % GDP	n/a	n/a	
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3 School life expectancy, years	15.1	47	
2.1.4 PISA scales in reading, maths and science	404.6	57	
2.1.5 Pupil–teacher ratio, secondary	12.1	53	
2.2 Tertiary education	**37**	**50**	
2.2.1 Tertiary enrolment, % gross	56.1	63	
2.2.2 Graduates in science and engineering, %	21	71	
2.2.3 Tertiary inbound mobility, %	n/a	n/a	
2.3 Research and development (R&D)	**3.3**	**85**	
2.3.1 Researchers, FTE/mn pop.	753.6	61	
2.3.2 Gross expenditure on R&D, % GDP	0.4	67	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	0	75	○ ◇
Infrastructure	**44.5**	**57**	
3.1 Information and communication technologies (ICTs)	**66.8**	**77**	
3.1.1 ICT access*	88.2	72	
3.1.2 ICT use*	83.2	39	
3.1.3 Government's online service*	50.6	90	
3.1.4 E-participation*	45.3	81	
3.2 General infrastructure	**31.9**	**63**	
3.2.1 Electricity output, GWh/mn pop.	5,405.8	39	◆
3.2.2 Logistics performance*	31.8	71	
3.2.3 Gross capital formation, % GDP	28	32	
3.3 Ecological sustainability	**34.9**	**28**	● ◆
3.3.1 GDP/unit of energy use	10.9	62	
3.3.2 Low-carbon energy use, %	33.7	26	● ◆
3.3.3 ISO 14001 environment/bn PPP$ GDP	5.2	20	● ◆
Market sophistication	**36.9**	**52**	
4.1 Credit	**14.4**	**99**	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	47.3	73	
4.1.3 Loans from microfinance institutions, % GDP	1.2	25	
4.2 Investment	**n/a**	**[n/a]**	
4.2.1 Market capitalization, % GDP	n/a	n/a	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3 VC recipients, deals/bn PPP$ GDP	n/a	n/a	
4.2.4 VC received, value, % GDP	n/a	n/a	
4.3 Trade, diversification and market scale	**59.3**	**55**	
4.3.1 Applied tariff rate, weighted avg., %	1.1	18	● ◆
4.3.2 Domestic industry diversification	86.2	48	
4.3.3 Domestic market scale, bn PPP$	17.4	130	○

	Score / Value	Rank	
Business sophistication	**27.9**	**59**	
5.1 Knowledge workers	**39.2**	**50**	
5.1.1 Knowledge-intensive employment, %	38.6	34	◆
5.1.2 Firms offering formal training, %	25.6	65	
5.1.3 GERD performed by business, % GDP	0.2	54	
5.1.4 GERD financed by business, %	37.8	51	
5.1.5 Females employed w/advanced degrees, %	16.9	42	
5.2 Innovation linkages	**16.8**	**98**	
5.2.1 Public Research-Industry co-publications, %	1	88	
5.2.2 University-industry R&D collaboration†	35.2	90	
5.2.3 State of cluster development†	22.5	116	○ ◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	n/a	n/a	
5.2.5 Patent families/bn PPP$ GDP	0	102	○ ◇
5.3 Knowledge absorption	**27.9**	**61**	
5.3.1 Intellectual property payments, % total trade	0.2	95	◇
5.3.2 High-tech imports, % total trade	6.1	94	
5.3.3 ICT services imports, % total trade	2.4	22	● ◆
5.3.4 FDI net inflows, % GDP	12.3	8	● ◆
5.3.5 Research talent, % in businesses	12.5	59	
Knowledge and technology outputs	**19.8**	**74**	
6.1 Knowledge creation	**18**	**60**	
6.1.1 Patents by origin/bn PPP$ GDP	0.4	79	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.6	30	◆
6.1.3 Utility models by origin/bn PPP$ GDP	-	-	
6.1.4 Scientific and technical articles/bn PPP$ GDP	22.4	30	◆
6.1.5 Citable documents H-index	2.5	124	○
6.2 Knowledge impact	**23.5**	**73**	
6.2.1 Labor productivity growth, %	2.2	23	● ◆
6.2.2 Unicorn valuation, % GDP	0	49	○ ◇
6.2.3 Software spending, % GDP	0.2	52	
6.2.4 High-tech manufacturing, %	7.3	94	
6.3 Knowledge diffusion	**18**	**64**	
6.3.1 Intellectual property receipts, % total trade	0.02	87	
6.3.2 Production and export complexity	n/a	n/a	
6.3.3 High-tech exports, % total trade	0.4	96	
6.3.4 ICT services exports, % total trade	4.9	21	● ◆
6.3.5 ISO 9001 quality/bn PPP$ GDP	10.3	27	● ◆
Creative outputs	**23**	**70**	
7.1 Intangible assets	**5.7**	**110**	◇
7.1.1 Intangible asset intensity, top 15, %	-181.4	78	○ ◇
7.1.2 Trademarks by origin/bn PPP$ GDP	29.5	66	
7.1.3 Global brand value, top 5,000, % GDP	0	75	○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.1	107	
7.2 Creative goods and services	**10.5**	**[69]**	
7.2.1 Cultural and creative services exports, % total trade	0.7	44	
7.2.2 National feature films/mn pop. 15–69	n/a	n/a	
7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.2	83	
7.3 Online creativity	**70.1**	**7**	● ◆
7.3.1 Top-level domains (TLDs)/th pop. 15–69	100	1	● ◆
7.3.2 GitHub commits/mn pop. 15–69	35.7	31	◆
7.3.3 Mobile app creation/bn PPP$ GDP	74.5	27	● ◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕒 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.

Global Innovation Index 2024



Data availability

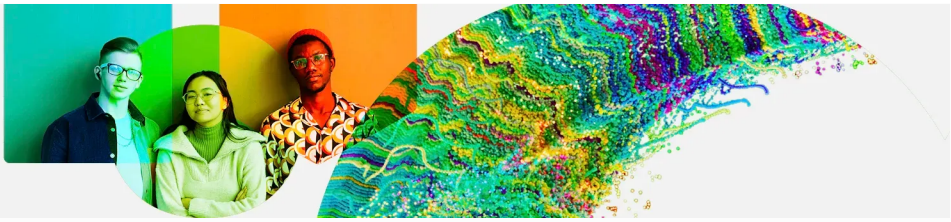
The following tables list indicators that are either missing or outdated for Montenegro.

Montenegro has missing data for fourteen indicators and outdated data for fourteen indicators.

Missing data for Montenegro

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture†	n/a	2023	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	n/a	2022	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2022	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups†	n/a	2023	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund
6.3.2	Production and export complexity	n/a	2021	Harvard University, Growth Lab
7.2.2	National feature films/mn pop. 15–69	n/a	2022	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

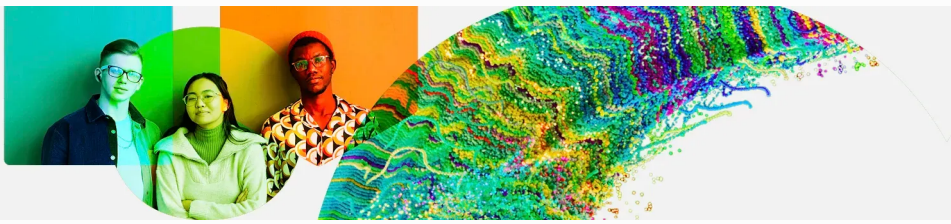
Global Innovation Index 2024



Outdated data for Montenegro

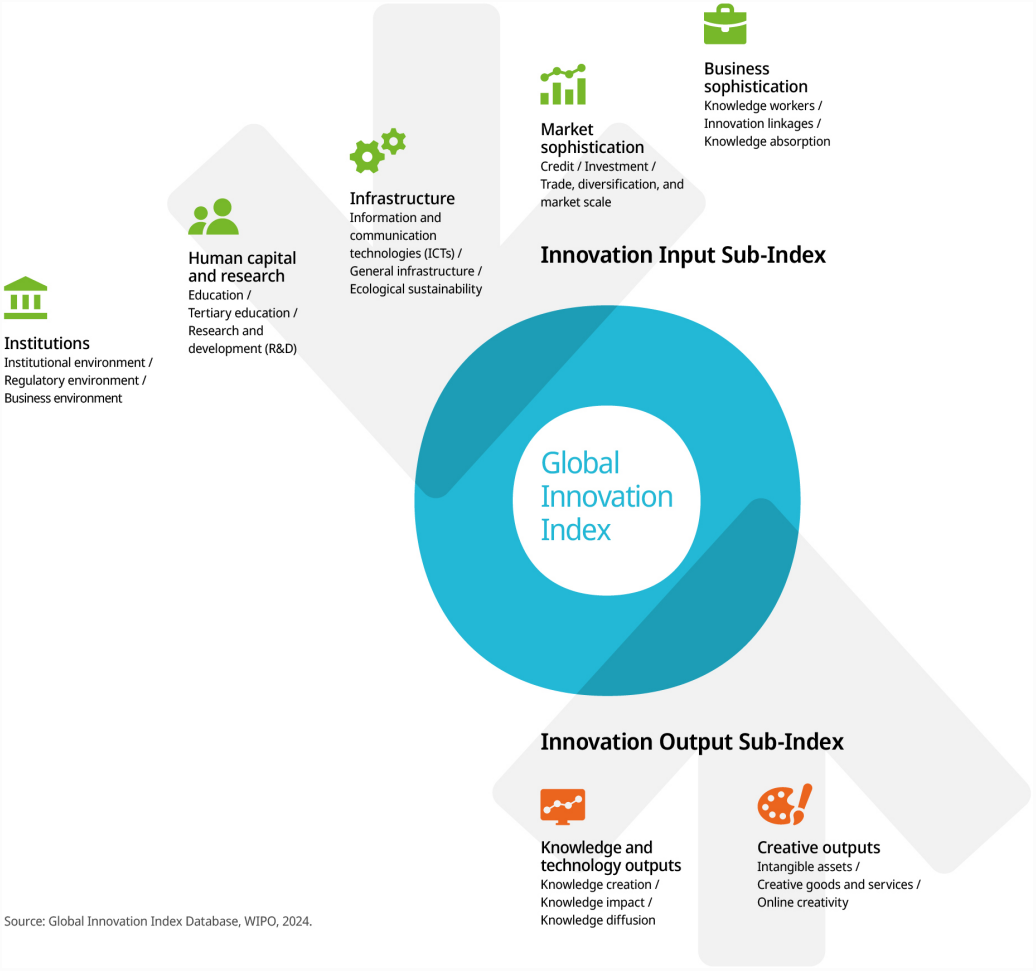
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policy stability for doing business[†]	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
2.3.1	Researchers, FTE/mn pop.	2019	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2019	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.3.2	Domestic industry diversification	2015	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	2018	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2023	International Labour Organization
5.2.2	University-industry R&D collaboration[†]	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	State of cluster development[†]	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.3.5	Research talent, % in businesses	2019	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2015	2021	United Nations Industrial Development Organization
7.1.1	Intangible asset intensity, top 15, %	2022	2023	Brand Finance
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2022	World Intellectual Property Organization; International Monetary Fund

Global Innovation Index 2024



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.



Source: Global Innovation Index Database, WIPO, 2024.

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.