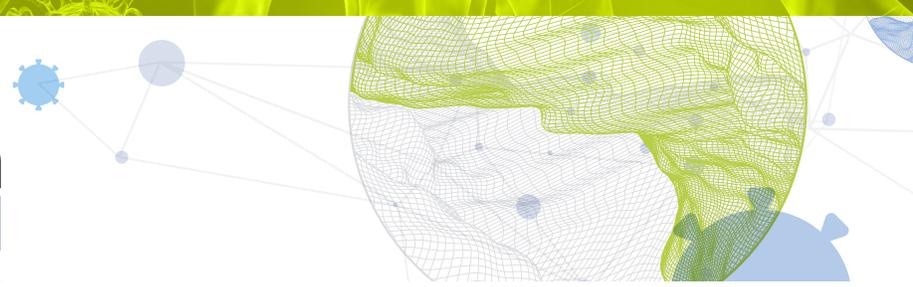




Global Innovation Index 2021



MONTENEGRO

50th

Montenegro ranks 50th among the 132 economies featured in the GII 2021.

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 Montenegro 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 Montenegro in the GII 2021 is between ranks 49 and 58.

Rankings for Montenegro (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	50	53	53
2020	49	53	49
2019	45	55	46

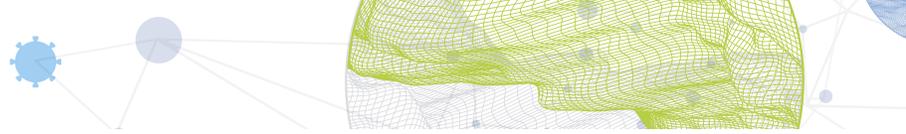
- Montenegro performs equally in innovation inputs and outputs in 2021.
- This year Montenegro ranks 53rd in innovation inputs, the same as last year but higher than 2019.
- As for innovation outputs, Montenegro ranks 53rd. This position is lower than both 2020 and 2019.

7th

Montenegro ranks 7th among the 34 upper middle-income group economies.

33rd

Montenegro ranks 33rd among the 39 economies in Europe.

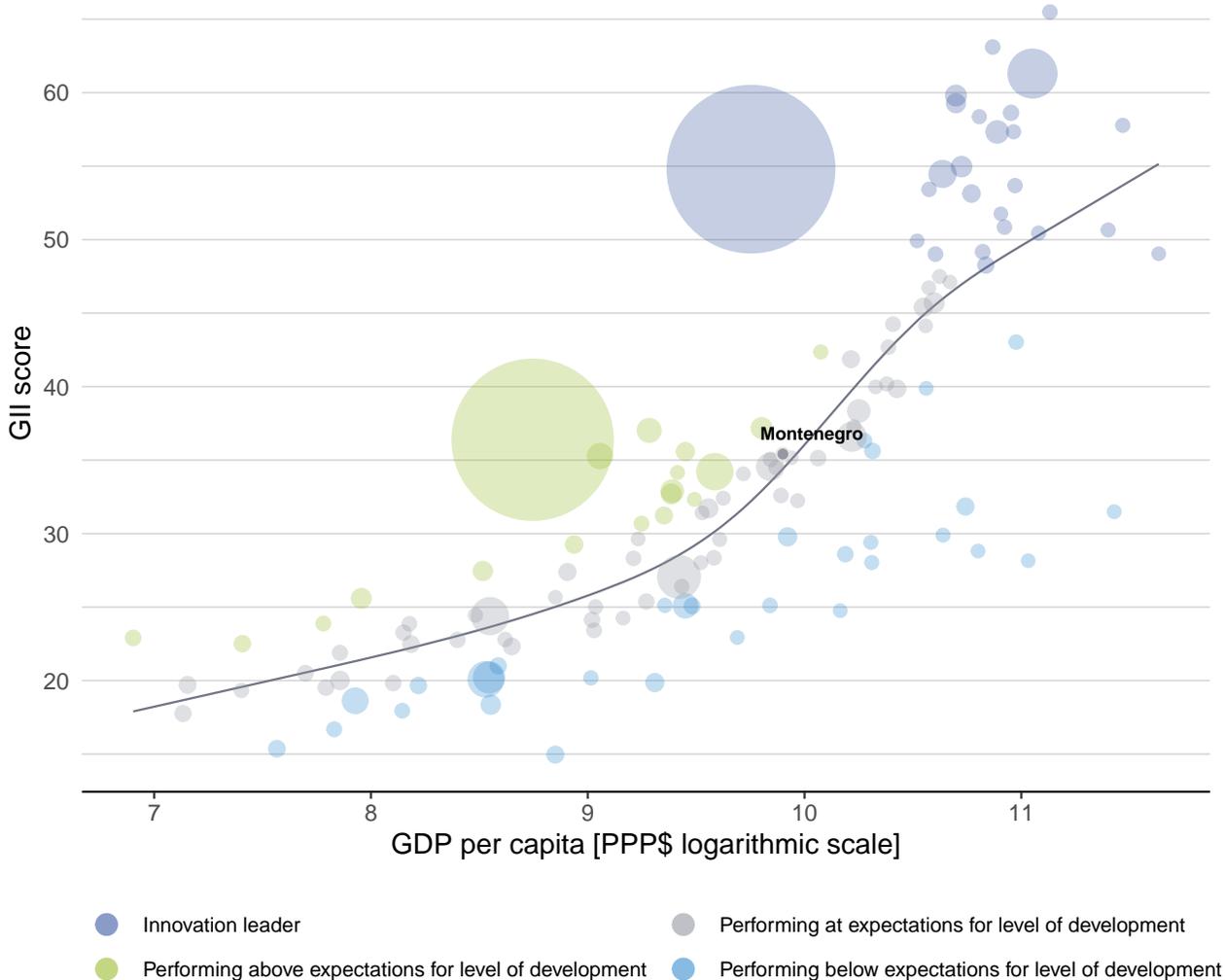


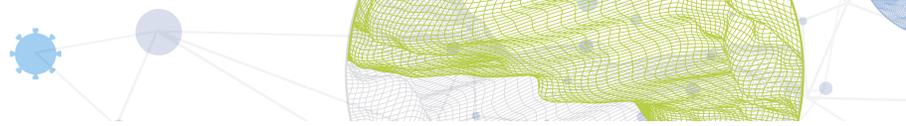
EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

The positive relationship between innovation and development



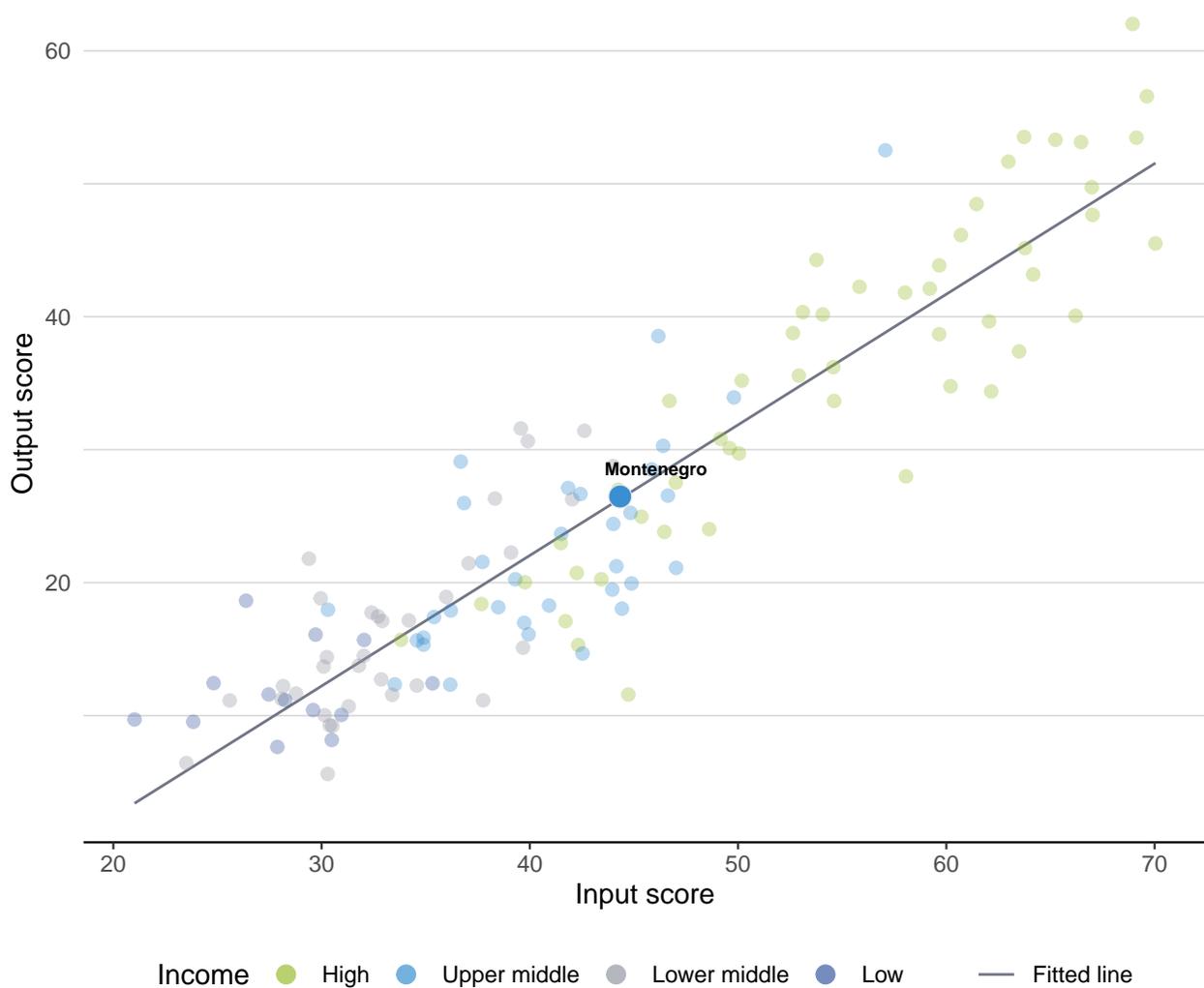


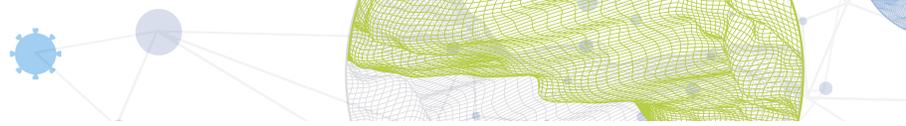
EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

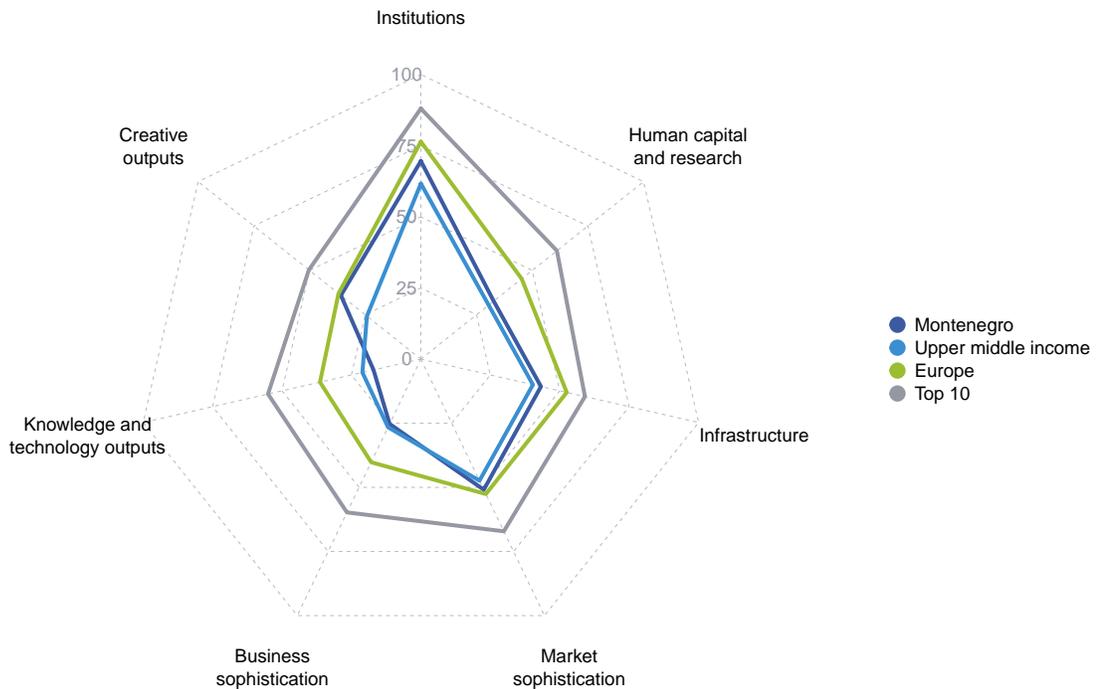
Innovation input to output performance





BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Montenegro

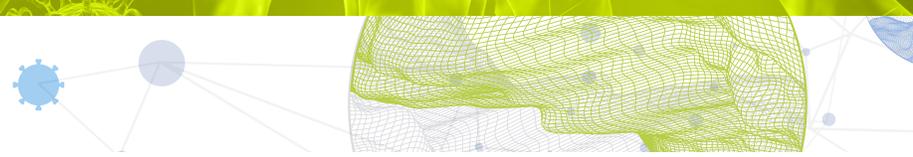


Upper middle-income group economies

Montenegro performs above the upper middle-income group average in five pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; and, Creative outputs.

Europe

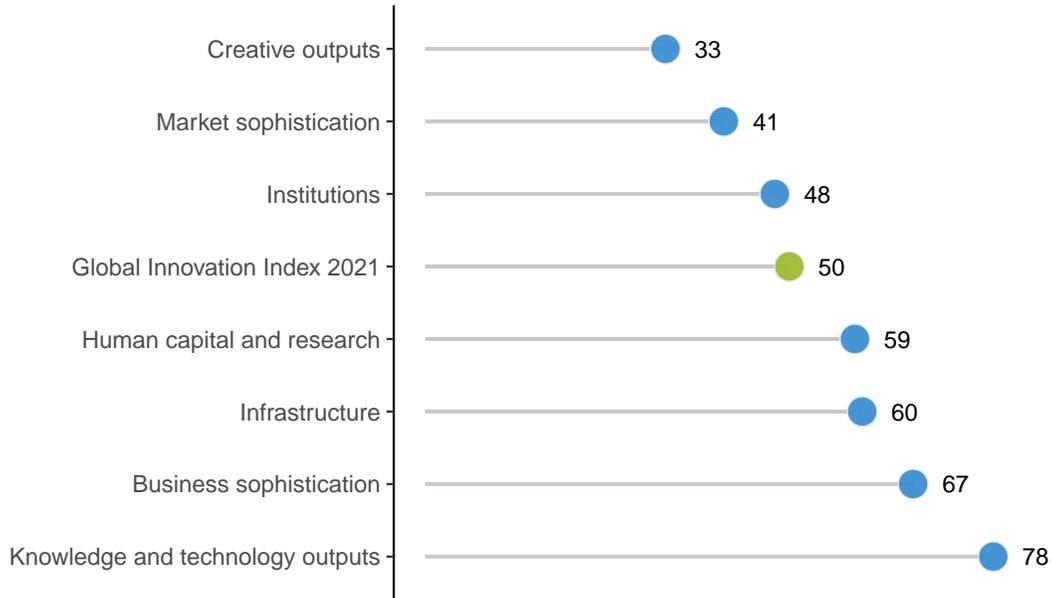
Montenegro performs below the regional average in all GII pillars.



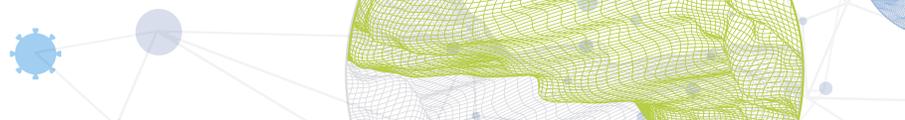
OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Montenegro performs best in Creative outputs and its weakest performance is in Knowledge and technology outputs.

The seven GII pillar ranks for Montenegro



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



INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Montenegro in the GII 2021.

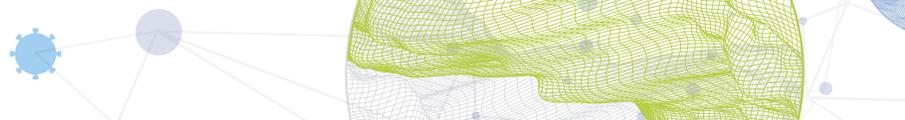
Strengths and weaknesses for Montenegro

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	13	2.3.3	Global corporate R&D investors, top 3, mn US\$	41
4.1.1	Ease of getting credit	14	2.3.4	QS university ranking, top 3	74
4.3.1	Applied tariff rate, weighted avg., %	11	4.3.3	Domestic market scale, bn PPP\$	131
5.3.3	ICT services imports, % total trade	25	5.1.2	Firms offering formal training, %	90
5.3.4	FDI net inflows, % GDP	8	5.2.5	Patent families/bn PPP\$ GDP	100
6.2.2	New businesses/th pop. 15–64	10	6.1.2	PCT patents by origin/bn PPP\$ GDP	98
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	25	6.1.5	Citable documents H-index	127
7.2.2	National feature films/mn pop. 15–69	11	6.2.5	High-tech manufacturing, %	87
7.2.4	Printing and other media, % manufacturing	4	6.3.3	High-tech exports, % total trade	113
7.3	Online creativity	12	7.1.3	Industrial designs by origin/bn PPP\$ GDP	113
7.3.2	Country-code TLDs/th pop. 15–69	1			

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$	GII 2020 rank
53	53	Upper middle	EUR	0.6	12.4	19,931	49

	Score/ Value	Rank		Score/ Value	Rank
 Institutions	69.6	48	 Business sophistication	25.3	67
1.1 Political environment	59.9	59	5.1 Knowledge workers	33.1	61
1.1.1 Political and operational stability*	71.4	54	5.1.1 Knowledge-intensive employment, %	36.4	35 ◆
1.1.2 Government effectiveness*	54.1	61	5.1.2 Firms offering formal training, %	15.8	90 ○ ◇
1.2 Regulatory environment	72.4	42	5.1.3 GERD performed by business, % GDP	0.2	54 ○
1.2.1 Regulatory quality*	53.0	55	5.1.4 GERD financed by business, %	37.8	50
1.2.2 Rule of law*	49.2	58	5.1.5 Females employed w/advanced degrees, %	17.4	39
1.2.3 Cost of redundancy dismissal	11.2	35	5.2 Innovation linkages	18.2	82
1.3 Business environment	76.4	44	5.2.1 University-industry R&D collaboration†	45.5	52
1.3.1 Ease of starting a business*	86.7	79	5.2.2 State of cluster development and depth†	43.0	85
1.3.2 Ease of resolving insolvency*	66.1	40	5.2.3 GERD financed by abroad, % GDP	0.0	57
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	48
			5.2.5 Patent families/bn PPP\$ GDP	0.0	100 ○ ◇
 Human capital and research	32.7	59	5.3 Knowledge absorption	24.6	70
2.1 Education	58.8	[34]	5.3.1 Intellectual property payments, % total trade	0.2	92
2.1.1 Expenditure on education, % GDP	n/a	n/a	5.3.2 High-tech imports, % total trade	0.2	92
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	5.3.3 ICT services imports, % total trade	2.3	25 ◆ ◆
2.1.3 School life expectancy, years	14.9	53	5.3.4 FDI net inflows, % GDP	9.6	8 ◆ ◆
2.1.4 PISA scales in reading, maths and science	421.9	55	5.3.5 Research talent, % in businesses	0.2	58 ○
2.1.5 Pupil-teacher ratio, secondary	14.4	69			
2.2 Tertiary education	34.5	63	 Knowledge and technology outputs	17.1	78
2.2.1 Tertiary enrolment, % gross	54.2	56	6.1 Knowledge creation	16.8	62
2.2.2 Graduates in science and engineering, %	20.5	70	6.1.1 Patents by origin/bn PPP\$ GDP	1.2	60
2.2.3 Tertiary inbound mobility, %	n/a	n/a	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.0	98 ○ ◇
2.3 Research and development (R&D)	4.7	77	6.1.3 Utility models by origin/bn PPP\$ GDP	n/a	n/a
2.3.1 Researchers, FTE/mn pop.	0.763	56 ○	6.1.4 Scientific and technical articles/bn PPP\$ GDP	31.2	28 ◆
2.3.2 Gross expenditure on R&D, % GDP	0.5	67 ○	6.1.5 Citable documents H-index	2.3	127 ○ ◇
2.3.3 Global corporate R&D investors, top 3, mn US\$	0.0	41 ○ ◇	6.2 Knowledge impact	26.9	77
2.3.4 QS university ranking, top 3*	0.0	74 ○ ◇	6.2.1 Labor productivity growth, %	n/a	n/a
			6.2.2 New businesses/th pop. 15–64	11.3	10 ◆ ◆
 Infrastructure	43.2	60	6.2.3 Software spending, % GDP	0.4	28 ◆ ◆
3.1 Information and communication technologies (ICTs)	63.6	75	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	11.7	25 ◆
3.1.1 ICT access*	78.2	40 ◆	6.2.5 High-tech manufacturing, %	10.3	87 ○
3.1.2 ICT use*	67.1	54 ◆	6.3 Knowledge diffusion	7.5	104
3.1.3 Government's online service*	54.1	96	6.3.1 Intellectual property receipts, % total trade	0.0	86
3.1.4 E-participation*	54.8	94	6.3.2 Production and export complexity	n/a	n/a
3.2 General infrastructure	27.6	68	6.3.3 High-tech exports, % total trade	0.1	113 ○
3.2.1 Electricity output, GWh/mn pop.	6,127.0	34 ◆	6.3.4 ICT services exports, % total trade	2.1	51
3.2.2 Logistics performance*	32.5	76			
3.2.3 Gross capital formation, % GDP	23.0	57	 Creative outputs	35.9	33 ◆
3.3 Ecological sustainability	38.6	39	7.1 Intangible assets	30.5	66
3.3.1 GDP/unit of energy use	10.9	61	7.1.1 Trademarks by origin/bn PPP\$ GDP	29.8	75
3.3.2 Environmental performance*	46.3	68	7.1.2 Global brand value, top 5,000, % GDP	n/a	n/a
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	6.7	13 ◆ ◆	7.1.3 Industrial designs by origin/bn PPP\$ GDP	0.1	113 ○
			7.1.4 ICTs and organizational model creation†	52.6	70
 Market sophistication	50.9	41	7.2 Creative goods and services	24.3	39
4.1 Credit	45.0	49	7.2.1 Cultural and creative services exports, % total trade	0.5	49
4.1.1 Ease of getting credit*	85.0	14 ◆	7.2.2 National feature films/mn pop. 15–69	13.3	11 ◆ ◆
4.1.2 Domestic credit to private sector, % GDP	49.0	73	7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a
4.1.3 Microfinance gross loans, % GDP	1.0	24	7.2.4 Printing and other media, % manufacturing	3.0	4 ◆ ◆
4.2 Investment	44.9	[23]	7.2.5 Creative goods exports, % total trade	0.1	95
4.2.1 Ease of protecting minority investors*	62.0	60	7.3 Online creativity	58.4	12 ◆ ◆
4.2.2 Market capitalization, % GDP	82.6	18 ○	7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	1.4	90
4.2.3 Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a	7.3.2 Country-code TLDs/th pop. 15–69	100.0	1 ◆ ◆
4.2.4 Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a	7.3.3 Wikipedia edits/mn pop. 15–69	70.9	33 ◆ ◆
4.3 Trade, diversification, and market scale	62.8	84	7.3.4 Mobile app creation/bn PPP\$ GDP	n/a	n/a
4.3.1 Applied tariff rate, weighted avg., %	1.0	11 ◆			
4.3.2 Domestic industry diversification	87.5	62			
4.3.3 Domestic market scale, bn PPP\$	12.4	131 ○ ◇			

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 Appendix IV for details, including the year of the data, at <http://globalinnovationindex.org>. Square brackets [] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.



DATA AVAILABILITY

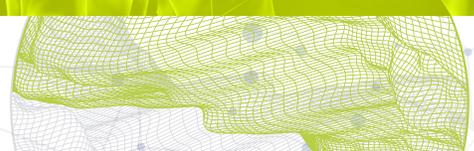
The following tables list data that are either missing or outdated for Montenegro.

Missing data for Montenegro

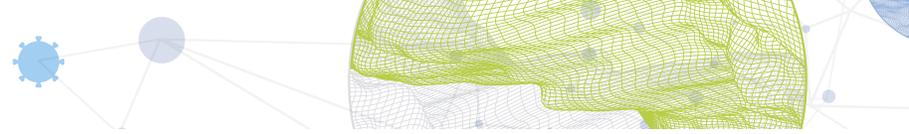
Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	n/a	2017	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
4.2.3	Venture capital investors, deals/bn PPP\$ GDP	n/a	2020	Refinitiv Eikon
4.2.4	Venture capital recipients, deals/bn PPP\$ GDP	n/a	2020	Refinitiv Eikon
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2019	World Intellectual Property Organization
6.2.1	Labor productivity growth, %	n/a	2020	The Conference Board
6.3.2	Production and export complexity	n/a	2018	Growth Lab, Harvard University
7.1.2	Global brand value, top 5,000, % GDP	n/a	2020	Brand Finance
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2020	App Annie

Outdated data for Montenegro

Code	Indicator name	Economy year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.2.2	Market capitalization, % GDP	2012	2019	World Federation of Exchanges



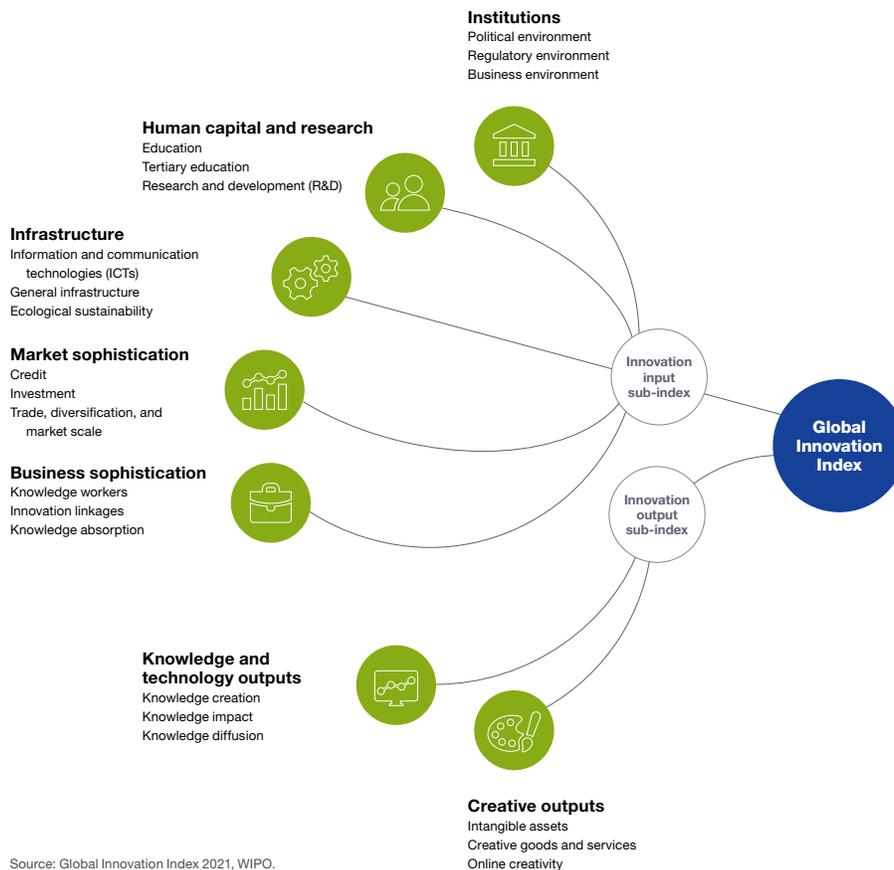
Code	Indicator name	Economy year	Model year	Source
5.1.3	GERD performed by business, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
5.3.5	Research talent, % in businesses	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.2.2	National feature films/mn pop. 15–69	2015	2017	UNESCO Institute for Statistics
7.2.4	Printing and other media, % manufacturing	2015	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	2019	United Nations, COMTRADE



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.