



47.5



Emerging Innovators 50.0

Change over time: 6.5

Montenegro	Performance relative to EU in 2022	Performance change 2015-2022	Performance change 2021-2022
SUMMARY INNOVATION INDEX	47.5	6.5	1.4
Human resources	38.2	1.0	0.0
Doctorate graduates	5.3	3.7	0.0
Population with tertiary education	95.1	0.0	0.0
Lifelong learning	10.0	-2.2	0.0
Attractive research systems	44.9	-20.8	-14.7
International scientific co-publications	64.1	60.9	23.7
Most cited publications	23.8	-41.8	-37.8
Foreign doctorate students	60.9	-51.2	0.0
Digitalisation	38.9	14.3	14.3
Broadband penetration	51.3	27.3	27.3
People with above basic overall digital skills	22.7	0.0	0.0
Finance and support	14.5	11.5	0.0
R&D expenditures in the public sector	27.3	19.4	0.0
Venture capital expenditures	N/A	N/A	N/A
Government support for business R&D	0.4	-0.2	0.0
Firm investments	23.7	0.2	0.0
R&D expenditure in the business sector	9.5	0.8	0.0
Non-R&D Innovation expenditures	34.7	0.0	0.0
Innovation expenditures per employee	27.1	0.0	0.0
Use of information technologies	76.1	16.3	6.5
Enterprises providing ICT training	137.5	31.3	12.5
Employed ICT specialists	9.1	0.0	0.0
Innovators	132.5	0.0	0.0
Product innovators (SMEs)	170.6	0.0	0.0
Business process innovators (SMEs)	99.0	0.0	0.0
Linkages	49.0	-11.4	3.3
Innovative SMEs collaborating with others	76.4	0.0	0.0
Public-private co-publications	45.3	40.9	30.8
Job-to-job mobility of HRST	29.2	-44.1	-5.9
Intellectual assets	20.3	11.4	-5.2
PCT patent applications	41.5	38.7	-6.0
Trademark applications	12.2	-16.3	-10.7
Design applications	0.0	0.0	0.0
Employment impacts	105.3	0.0	0.0
Employment in knowledge-intensive activities	67.5	0.0	0.0
Employment in innovative enterprises	135.3	0.0	0.0
Sales impacts	35.4	18.4	12.2
Medium and high-tech goods exports	16.6	15.0	-2.9
Knowledge-intensive services exports	40.8	38.2	39.8
Sales of innovative products	51.9	0.0	0.0
Environmental sustainability	55.4	47.0	0.0
Resource productivity	N/A	N/A	N/A
Air emissions by fine particulate matter	N/A	N/A	N/A
Environment-related technologies	64.0	45.1	0.0

The second column shows performance relative to that of the EU in 2022. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2022; light green: between 100% and 125%; yellow: between 70% and 100%; orange: below 70%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data. The next columns show performance change over time between 2015 and 2022 and between 2021 and 2022, with scores relative to those of the EU in 2015. Positive performance changes are shown in green, negative performance changes in red.

MONTENEGRO is an **Emerging Innovator** with performance at 47.5% of the EU average. Performance is below the average of the Emerging Innovators (50.0%). Performance is increasing (6.5%-points) at a rate lower than that of the EU (9.9%-points). The country's performance gap to the EU is becoming larger.

Relative strengths

- Product innovators
- Enterprises providing ICT training
- Employment in innovative enterprises
- Business process innovators
- Population with tertiary education

Relative weaknesses

- Design applications
- Government support for business R&D
- Doctorate graduates
- Employed ICT specialists
- R&D expenditure in the business sector

Strong increases since 2015

- International scientific co-publications
- Environment-related technologies
- Public-private co-publications

Strong decreases since 2015

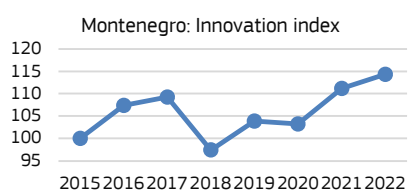
- Foreign doctorate students
- Job-to-job mobility of HRST
- Most cited publications

Strong increases since 2021

- Knowledge-intensive services exports
- Public-private co-publications
- Broadband penetration

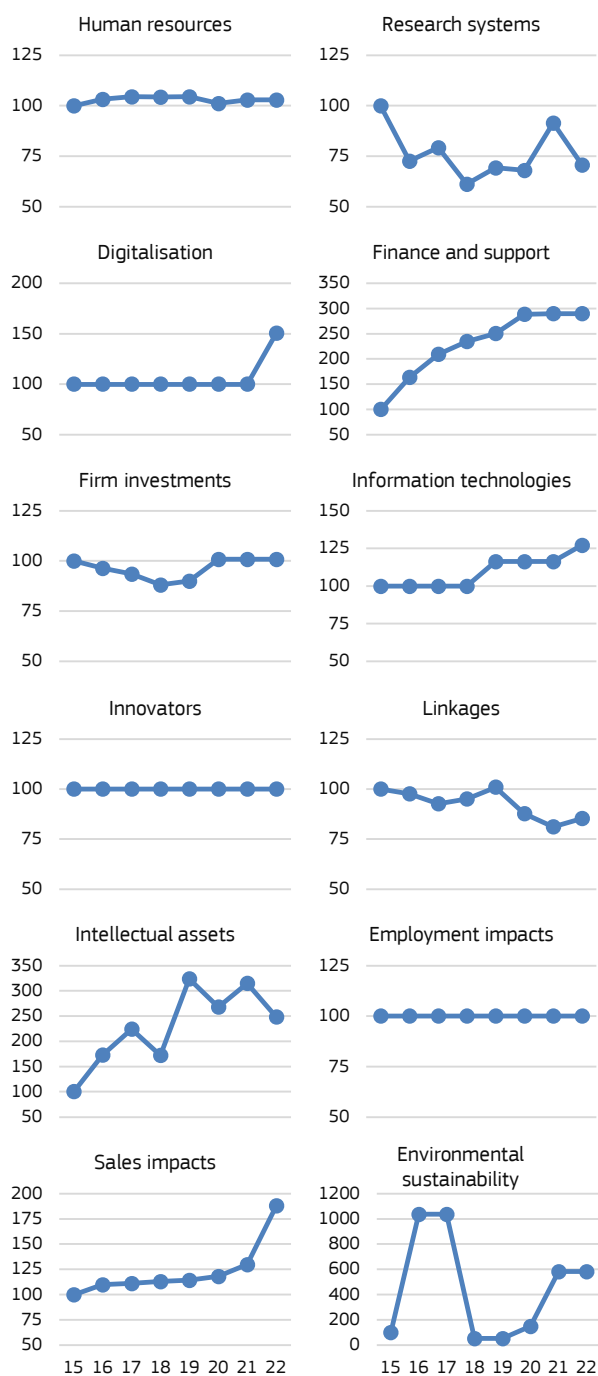
Strong decreases since 2021

- Most cited publications
- Trademark applications
- PCT patent applications



The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innovation performance increased between 2015 and 2017, decreased more strongly in 2018, and returned to growth with increases in 2019, 2021 and 2022.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2015. Performance increased strongest in Finance and support, Intellectual assets, Sales impacts and Environmental sustainability. Performance remained stable for Firm investments, Innovators and Employment impacts and declined for Research systems and Linkages.



Performance is measured relative to that of the country in 2015 (=100).

Structural differences with the EU are shown below:

- Montenegro has lower per capita income and a slower growing economy. Business services takes up a larger share of the economy.
- The absence of top R&D spenders adds negatively to the innovation climate.
- Montenegro has a lower share of In-house product innovators with market novelties and a higher share of non-innovators with a potential to innovate.
- Ease of starting a business is below the EU average as drivers of research and innovation.
- Information on Climate change related indicators is not available.

	ME	EU
Performance and structure of the economy		
GDP per capita (PPS)	14,300	31,200
Average annual GDP growth (%)	-6.1	-0.4
Employment share Manufacturing (NACE C) (%)	6.1	16.4
of which High and Medium high-tech (%)	n/a	38.0
Employment share Services (NACE G-N) (%)	48.4	41.1
of which Knowledge-intensive services (%)	30.3	35.8
Turnover share SMEs (%)	n/a	34.8
Turnover share large enterprises (%)	n/a	48.2
Foreign-controlled enterprises – share of value added (%)	n/a	11.7
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	n/a	1.0
Total Entrepreneurial Activity (TEA) (%)	n/a	7.3
FDI net inflows (% GDP)	n/a	1.0
Top R&D spending enterprises per 10 mln. population	0.0	18.3
Buyer sophistication (1 to 7 best)	3.2	3.7
Innovation profiles		
In-house product innovators with market novelties	10.1	10.7
In-house product innovators without market novelties	4.0	12.3
In-house business process innovators	3.8	11.0
Innovators that do not develop innovations themselves	2.3	11.6
Innovation active non-innovators	0.4	3.3
Non-innovators with potential to innovate	24.5	19.9
Non-innovators without disposition to innovate	54.9	31.3
Governance and policy framework		
Ease of starting a business (0 to 100 best)	73.8	76.5
Basic school entrepreneurial education and training	n/a	3.5
Govt. procurement of advanced tech. products	n/a	3.5
Rule of law (-2.5 to 2.5 best)	n/a	1.1
Climate change indicators		
Circular material use rate	n/a	12.2
Greenhouse gas emissions intensity of energy consumption	n/a	82.8
Eco-Innovation Index	n/a	100.0
Demography		
Population size	0.6	447.0
Average annual population growth (%)	-0.1	0.1
Population density	45.7	108.8