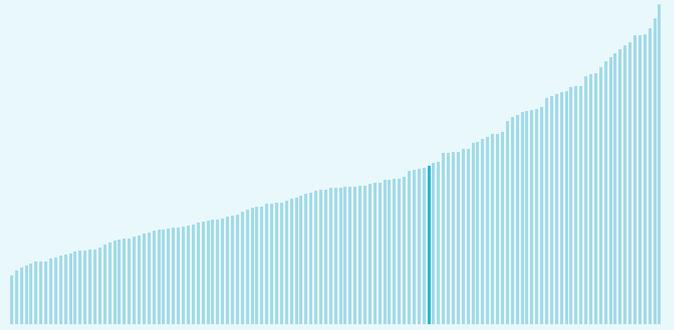


Romania ranking in the Global Innovation Index 2024

Romania ranks **48th** among the 133 economies featured in the GII 2024.

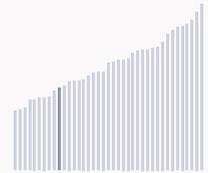
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



Romania ranks **41st** among the 51 high-income group economies.



Romania ranks **30th** among the 39 economies in Europe.



> Romania GII Ranking (2020-2024)

The table shows the rankings of Romania 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 Romania in the GII 2024 is between ranks 47 and 49.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	46th	51st	46th
2021	48th	54th	50th
2022	49th	56th	43rd
2023	47th	55th	47th
2024	48th	57th	45th

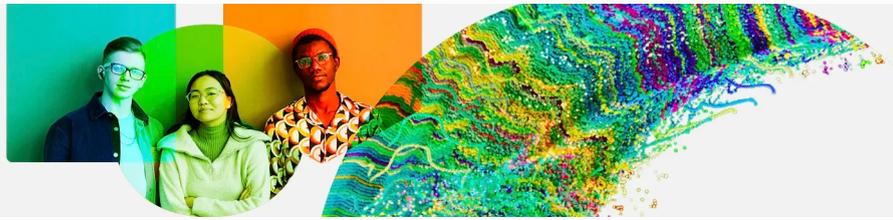
Romania performs better in innovation outputs than innovation inputs in 2024.

This year Romania ranks **57th** in innovation inputs. This position is lower than last year.

Romania ranks **45th** in innovation outputs. This position is higher than last year.

Romania 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 Romania, how rapidly is technology being embraced and what are the resulting societal impacts.



For Romania, 7 indicators have improved in the short-term and 4 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -6.5% 2022 - 2023	▲ 1% 2021 - 2022	▼ -14.3% 2022 - 2023	▼ -28.8% 2022 - 2023	▲ 13.2% 2022 - 2023
▲ 2.5% 2013 - 2023	▲ 3.3% 2012 - 2022	▲ 24.6% 2013 - 2023	n/a	▲ 4% 2013 - 2023

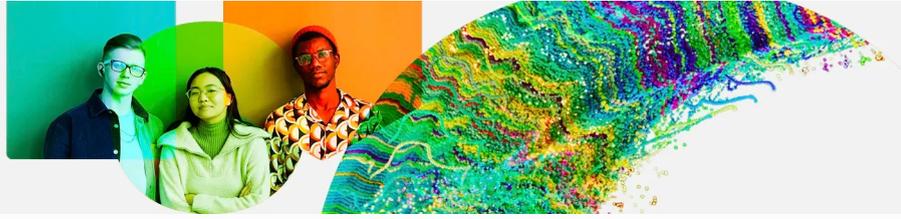
Technology adoption

Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.7% 2021 - 2022	▲ 2.6% 2021 - 2022	0% 2021 - 2022	▲ 15.9% 2021 - 2022	n/a
▲ 3.2% 2012 - 2022	▲ 6.3% 2012 - 2022		▲ 20.1% 2012 - 2022	n/a
87.6 per 100 inhabitants in 2022	32.4 per 100 inhabitants in 2022	32.3 per 100 inhabitants in 2022		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 3.1% 2022 - 2023	▲ 3.4% 2021 - 2022	▲ 2.6°C 2023
▲ 3.6% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
91,348 USD in 2023	75.3 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.



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.



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

> Relationship between innovation inputs and outputs

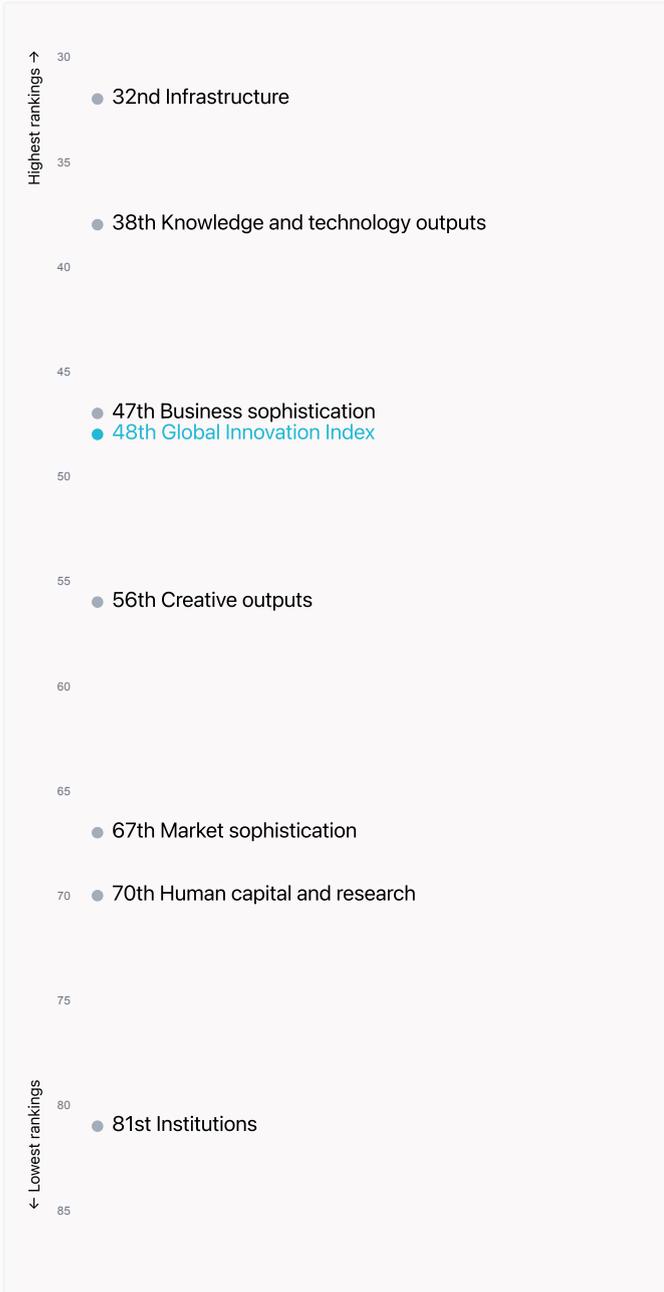


Global Innovation Index 2024



Overview of Romania'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 Romania are those that rank above the GII (shown in blue) and the weakest are those that rank below.



Highest rankings



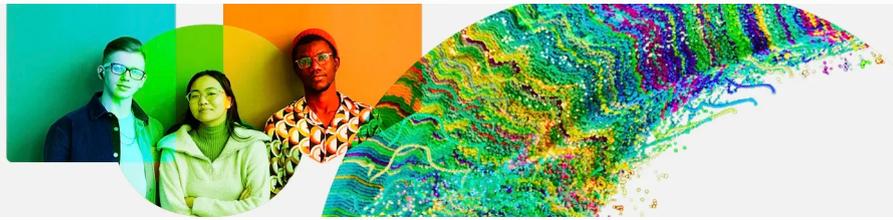
Romania ranks highest in Infrastructure (32nd), Knowledge and technology outputs (38th) and Business sophistication (47th).

Lowest rankings



Romania ranks lowest in Institutions (81st), Human capital and research (70th) and Market sophistication (67th).

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



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

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



High-Income economies

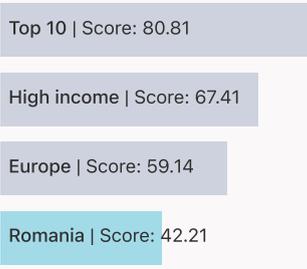
Romania performs below the high-income group average in all pillars.



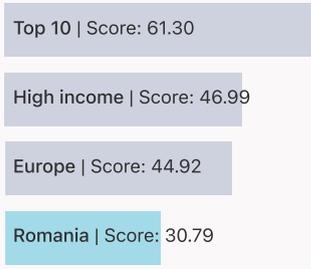
Europe

Romania performs below the regional average in all pillars.

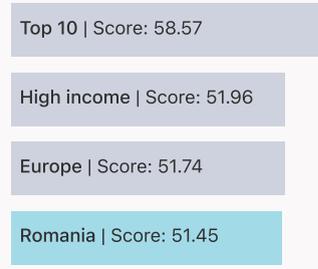
Institutions



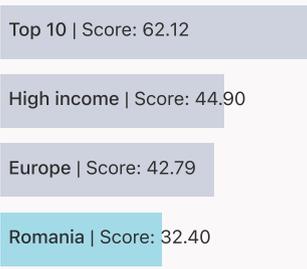
Human capital and research



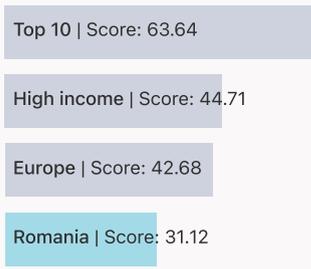
Infrastructure



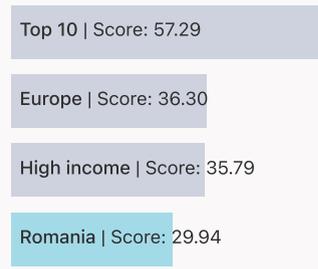
Market sophistication



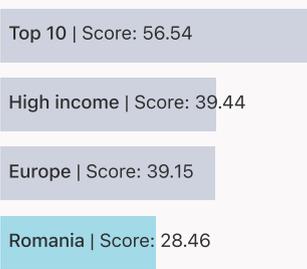
Business sophistication



Knowledge and technology outputs



Creative outputs





Innovation strengths and weaknesses in Romania

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



Romania's main innovation strengths are **ICT services exports, % total trade (rank 9)**, **ISO 14001 environment/bn PPP\$ GDP (rank 11)** and **Loans from microfinance institutions, % GDP (rank 12)**.

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
9	6.3.4	ICT services exports, % total trade	108	4.1.2	Domestic credit to private sector, % GDP
11	3.3.3	ISO 14001 environment/bn PPP\$ GDP	107	1.3.1	Policy stability for doing business [†]
12	4.1.3	Loans from microfinance institutions, % GDP	100	5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP
13	6.2.1	Labor productivity growth, %	97	2.1.1	Expenditure on education, % GDP
15	7.2.1	Cultural and creative services exports, % total trade	86	4.2.3	VC recipients, deals/bn PPP\$ GDP
17	3.3.1	GDP/unit of energy use	85	5.1.2	Firms offering formal training, %
17	5.3.3	ICT services imports, % total trade	74	4.2.1	Market capitalization, % GDP
17	6.3.5	ISO 9001 quality/bn PPP\$ GDP	71	1.3.2	Entrepreneurship policies and culture [†]
19	6.3.2	Production and export complexity	49	6.2.2	Unicorn valuation, % GDP
20	4.3.2	Domestic industry diversification	41	2.3.3	Global corporate R&D investors, top 3, mn USD



Romania's innovation system

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

> Innovation inputs in Romania



2.1.1 Expenditure on education

was equal to 3.25 % GDP in 2021, down by 0.34 percentage points from the year prior – and equivalent to an indicator rank of 97.



2.2.2 Graduates in science and engineering

was equal to 29.27 % of total graduates in 2021, up by 0.18 percentage points from the year prior – and equivalent to an indicator rank of 26.



2.3.1 Researchers

was equal to 1005.12 FTE per million population in 2022, up by 0.98% from the year prior – and equivalent to an indicator rank of 52.



2.3.2 Gross expenditure on R&D

was equal to 0.46 % GDP in 2022, down by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 61.



2.3.4 QS university ranking

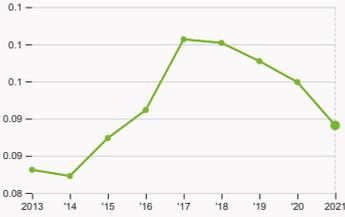
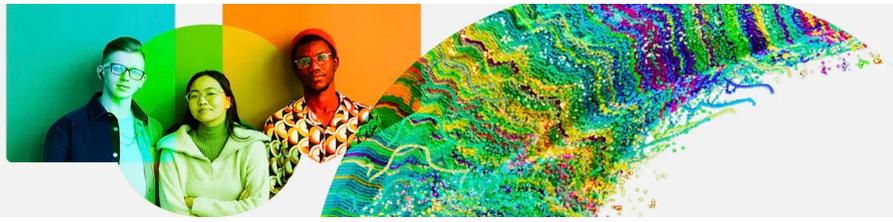
was equal to an average score of 9.07 for the top three universities in 2023, up by 907% from the year prior – and equivalent to an indicator rank of 67.



4.2.4 VC received, value

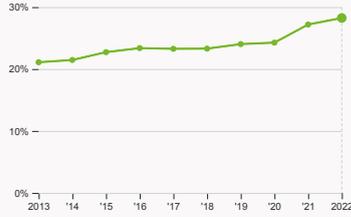
was equal to 43.02 thousand USD in 2023, down by 28.85% from the year prior – and equivalent to an indicator rank of 79.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

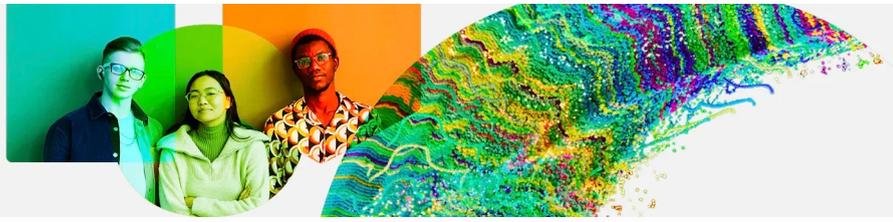
was equal to an index score of 0.09 in 2021, down by 6.15% from the year prior – and equivalent to an indicator rank of 20.



5.1.1 Knowledge-intensive employment

was equal to 28.24 % in 2022, up by 1.06 percentage points from the year prior – and equivalent to an indicator rank of 51.

Global Innovation Index 2024

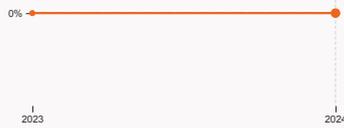


➤ Innovation outputs in Romania



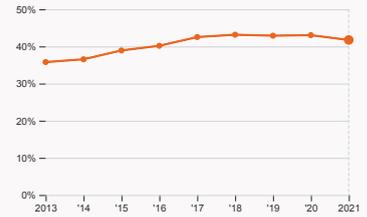
6.1.1 Patents by origin

was equal to 852 patents in 2022, up by 6.1% from the year prior – and equivalent to an indicator rank of 51.



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.



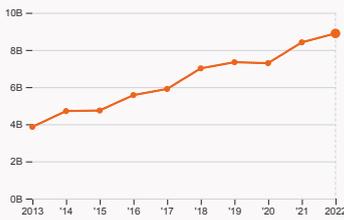
6.2.4 High-tech manufacturing

was equal to 41.73 % of total manufacturing output in 2021, down by 1.29 percentage points from the year prior – and equivalent to an indicator rank of 24.



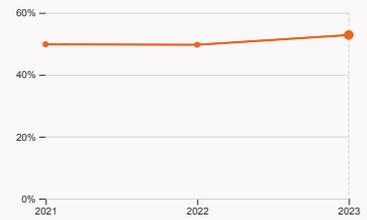
6.3.2 Production and export complexity

was equal to a score of 1.23 in 2021, up by 0.82% from the year prior – and equivalent to an indicator rank of 19.



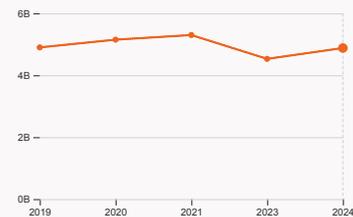
6.3.3 High-tech exports

was equal to 8.89 billion USD in 2022, up by 5.71% from the year prior – and equivalent to an indicator rank of 34.



7.1.1 Intangible asset intensity

was equal to 52.82 % for the top 15 companies in 2023, up by 3.14 percentage points from the year prior – and equivalent to an indicator rank of 42.



7.1.3 Global brand value

was equal to 4.88 billion USD for the brands in the top 5,000 in 2024, up by 7.73% from the year prior – and equivalent to an indicator rank of 53.



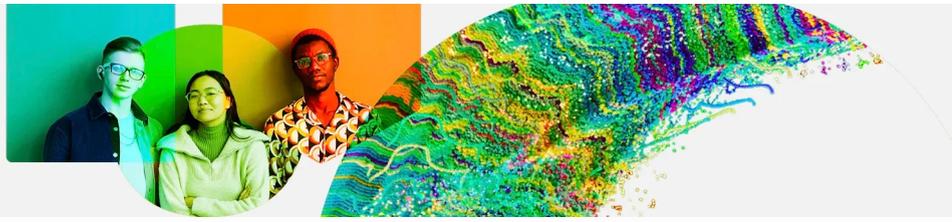
7.2.2 National feature films

was equal to 28 films in 2022, up by 55.56% from the year prior – and equivalent to an indicator rank of 55.



7.3.3 Mobile app creation

was equal to 297.36 million global downloads of mobile apps in 2023, up by 15.1% from the year prior – and equivalent to an indicator rank of 54.



Romania's innovation top performers

2.3.4 QS university ranking of Romania's top universities

Rank	University	Score
801-850	BABES-BOLYAI UNIVERSITY	14.40
851-900	UNIVERSITY OF BUCHAREST	12.80
1201-1400	LUCIAN BLAGA UNIVERSITY OF SIBIU	6.10

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).
 Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].
 Ranks can represent a single value "x", a tie "x=" or a range "x-y".

7.1.1 Top 15 intangible-asset intensive companies in Romania

Rank	Firm	Intensity, %
1	S.P.E.E.H. HIDROELECTRICA S.A.	54.36
2	SNGN ROMGAZ SA	58.82
3	BANCA TRANSILVANIA S.A.	42.92

Source: Brand Finance (<https://brandirectory.com/reports/gift-2022>).
 Note: Brand Finance only provides within economy ranks.

7.1.3 Top 5,000 companies in Romania with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	DACIA	Automobiles	1,258.5
2	EMAG	Retail	687.8
3	BANCA TRANSILVANIA	Banking	686.5

Source: Brand Finance (<https://brandirectory.com>).
 Note: Rank corresponds to within economy ranks.

Global Innovation Index 2024

Romania

GII 2024 rank

48

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
45	57	High	EUR	19.1	780.8	41,029.2
			Score / Value Rank			
Institutions			42.2 81	Business sophistication 31.1 47		
1.1 Institutional environment			52 72	5.1 Knowledge workers 35.6 58		
1.1.1 Operational stability for businesses*			60 70	5.1.1 Knowledge-intensive employment, % 28.2 51		
1.1.2 Government effectiveness*			44 68	5.1.2 Firms offering formal training, % 17.6 85		
1.2 Regulatory environment			53.4 52	5.1.3 GERD performed by business, % GDP 0.3 48		
1.2.1 Regulatory quality*			51.4 55	5.1.4 GERD financed by business, % 55.2 21		
1.2.2 Rule of law*			55.4 48	5.1.5 Females employed w/advanced degrees, % 12.8 62		
1.3 Business environment			21.2 115	5.2 Innovation linkages 20.6 83		
1.3.1 Policy stability for doing business*			28.2 107	5.2.1 Public Research-Industry co-publications, % 2.3 35		
1.3.2 Entrepreneurship policies and culture*			14.2 71	5.2.2 University-industry R&D collaboration+ 37 85		
Human capital and research			30.8 70	5.2.3 State of cluster development+ 37.5 89		
2.1 Education			47.2 75	5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.007 100		
2.1.1 Expenditure on education, % GDP 3.3 97				5.2.5 Patent families/bn PPP\$ GDP 0.05 72		
2.1.2 Government funding/pupil, secondary, % GDP/cap 19.9 51				5.3 Knowledge absorption 37.2 34		
2.1.3 School life expectancy, years 14.5 58				5.3.1 Intellectual property payments, % total trade 0.8 49		
2.1.4 PISA scales in reading, maths and science 427.9 47				5.3.2 High-tech imports, % total trade 11.3 28		
2.1.5 Pupil-teacher ratio, secondary 11.6 48				5.3.3 ICT services imports, % total trade 2.8 17		
2.2 Tertiary education			38.5 44	5.3.4 FDI net inflows, % GDP 3.2 46		
2.2.1 Tertiary enrolment, % gross 55.3 65				5.3.5 Research talent, % in businesses 31.4 42		
2.2.2 Graduates in science and engineering, % 29.3 26				Knowledge and technology outputs 29.9 38		
2.2.3 Tertiary inbound mobility, % 6 45				6.1 Knowledge creation 13.2 72		
2.3 Research and development (R&D)			6.7 70	6.1.1 Patents by origin/bn PPP\$ GDP 1.2 51		
2.3.1 Researchers, FTE/mn pop. 1,005.1 52				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.06 73		
2.3.2 Gross expenditure on R&D, % GDP 0.5 61				6.1.3 Utility models by origin/bn PPP\$ GDP 0.05 60		
2.3.3 Global corporate R&D investors, top 3, mn USD 0 41				6.1.4 Scientific and technical articles/bn PPP\$ GDP 12.4 57		
2.3.4 QS university ranking, top 3* 9.2 67				6.1.5 Citable documents H-index 19.7 43		
Infrastructure			51.4 32	6.2 Knowledge impact 35.8 39		
3.1 Information and communication technologies (ICTs)			75.8 55	6.2.1 Labor productivity growth, % 2.8 13		
3.1.1 ICT access* 96.9 36				6.2.2 Unicorn valuation, % GDP 0 49		
3.1.2 ICT use* 79.8 56				6.2.3 Software spending, % GDP 0.3 49		
3.1.3 Government's online service* 64.8 69				6.2.4 High-tech manufacturing, % 41.7 24		
3.1.4 E-participation* 61.6 54				6.3 Knowledge diffusion 40.8 24		
3.2 General infrastructure			33 59	6.3.1 Intellectual property receipts, % total trade 0.09 59		
3.2.1 Electricity output, GWh/mn pop. 2,909.2 64				6.3.2 Production and export complexity 73.9 19		
3.2.2 Logistics performance* 50 50				6.3.3 High-tech exports, % total trade 6.4 34		
3.2.3 Gross capital formation, % GDP 26.2 43				6.3.4 ICT services exports, % total trade 7 9		
3.3 Ecological sustainability			45.6 5	6.3.5 ISO 9001 quality/bn PPP\$ GDP 15.6 17		
3.3.1 GDP/unit of energy use 17.8 17				Creative outputs 28.5 56		
3.3.2 Low-carbon energy use, % 24.6 51				7.1 Intangible assets 30.6 61		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 8.4 11				7.1.1 Intangible asset intensity, top 15, % 52.8 42		
Market sophistication			32.4 67	7.1.2 Trademarks by origin/bn PPP\$ GDP 36.3 56		
4.1 Credit			26.8 65	7.1.3 Global brand value, top 5,000, % GDP 1.3 53		
4.1.1 Finance for startups and scaleups+ 39.7 56				7.1.4 Industrial designs by origin/bn PPP\$ GDP 1.2 52		
4.1.2 Domestic credit to private sector, % GDP 24.8 108				7.2 Creative goods and services 20.3 54		
4.1.3 Loans from microfinance institutions, % GDP 3.1 12				7.2.1 Cultural and creative services exports, % total trade 1.9 15		
4.2 Investment			3.4 96	7.2.2 National feature films/mn pop. 15-69 2.1 55		
4.2.1 Market capitalization, % GDP 10.4 74				7.2.3 Entertainment and media market/th pop. 15-69 7 42		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.05 69				7.2.4 Creative goods exports, % total trade 0.7 53		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.02 86				7.3 Online creativity 32.4 48		
4.2.4 VC received, value, % GDP 0.0001 79				7.3.1 Top-level domains (TLDs)/th pop. 15-69 8 44		
4.3 Trade, diversification and market scale			67 26	7.3.2 GitHub commits/mn pop. 15-69 19.1 46		
4.3.1 Applied tariff rate, weighted avg., % 1.1 21				7.3.3 Mobile app creation/bn PPP\$ GDP 69.9 54		
4.3.2 Domestic industry diversification 94.7 20						
4.3.3 Domestic market scale, bn PPP\$ 780.8 35						

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 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.



Data availability

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

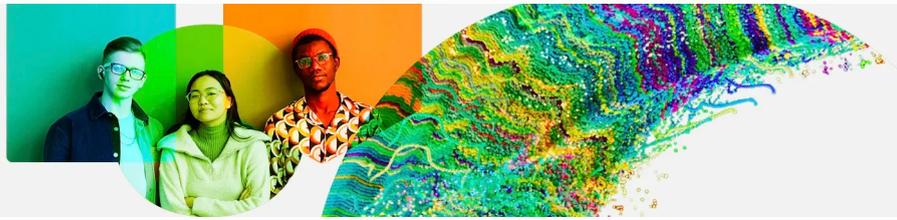


Romania has missing data for zero indicators and outdated data for five indicators.

Outdated data for Romania

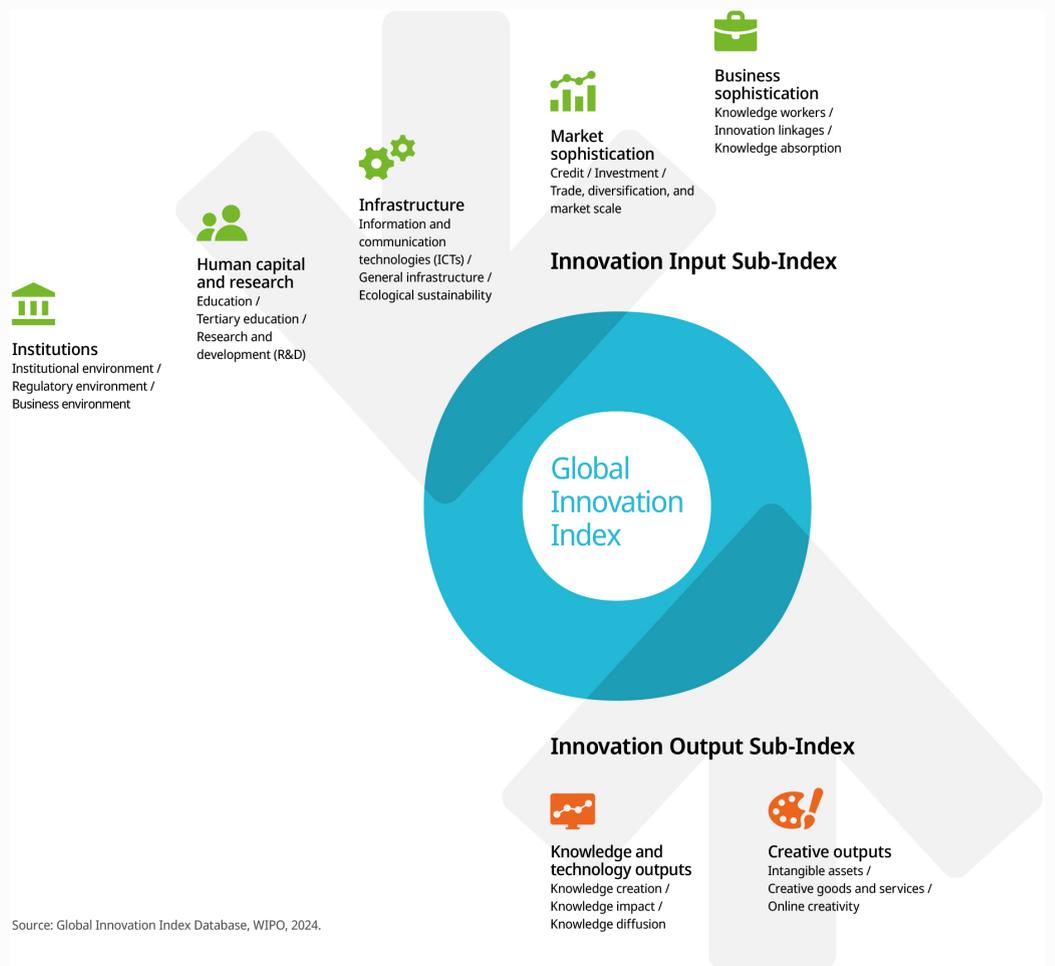
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2021	2022	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2021	2022	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2021	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2021	2022	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2021	2022	UNESCO Institute for Statistics

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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.