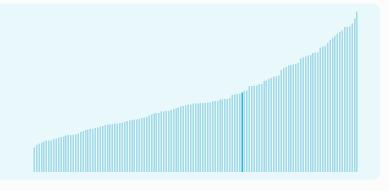


## Romania ranking in the Global Innovation Index 2024

# 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 highincome 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
			1-11
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 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	International patent filings	
		Deal numbers	Deal values	
<b>▼-6.5%</b>	<b>▲ 1%</b>	▼ -14.3%	▼ <b>-28.8%</b>	▲ <b>13.2%</b>
2022 - 2023	2021 - 2022	2022 - 2023	2022 - 2023	2022 - 2023
<b>▲ 2.5%</b>	<b>▲ 3.3%</b>	<b>▲ 24.6%</b>	n/a	<b>▲ 4%</b>
2013 - 2023	2012 - 2022	2013 - 2023		2013 - 2023

#### Technology adoption

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

#### Socioeconomic impact

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

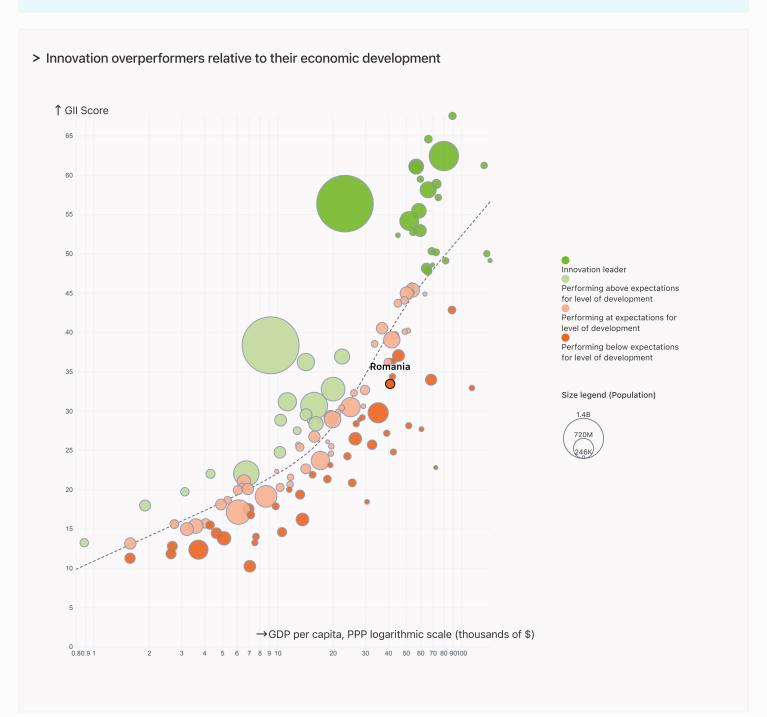


### Expected vs. observed innovation performance

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



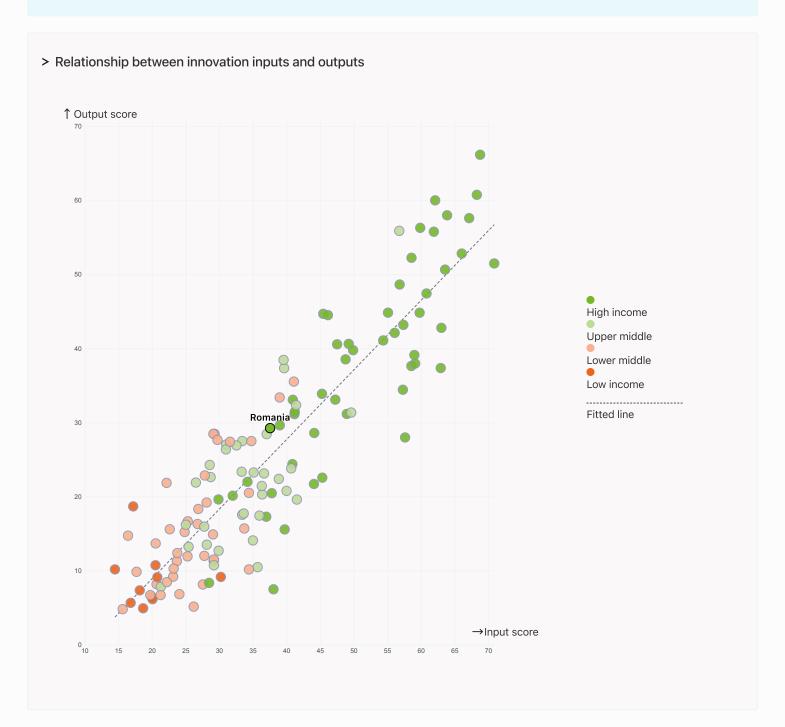


# Effectively translating innovation investments into innovation outputs

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.



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





# 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 shows 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 Top 10 | Score: 80.81 High income | Score: 67.41 Europe | Score: 59.14 Romania | Score: 42.21 Market sophistication Top 10 | Score: 62.12 High income | Score: 44.90 Europe | Score: 42.79 Romania | Score: 32.40 Romania | Score: 31.12 Creative outputs Top 10 | Score: 56.54 High income | Score: 39.44 Europe | Score: 39.15

Romania | Score: 28.46

Top 10 | Score: 61.30

High income | Score: 46.99

Europe | Score: 44.92

Romania | Score: 30.79

Business sophistication

Knowledge | Score: 63.64

High income | Score: 44.71

Europe | Score: 42.68

Top 2

Infrastructure

Top 10 | Score: 58.57

High income | Score: 51.96

Europe | Score: 51.74

Romania | Score: 51.45

Knowledge and technology outputs

Top 10 | Score: 57.29

Europe | Score: 36.30

High income | Score: 35.79

Romania | Score: 29.94



## 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

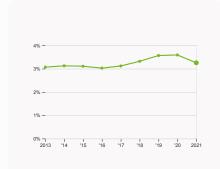
Rank	Code	Indicator name		Code	Indicator name
9	6.3.4	ICT services exports, % total trade	108	4.1.2	Domestic credit to private sector, % GDP
11	3.3.3	ISO 14001 environment/bn PPP\$ GDP	107	1.3.1	Policy stability for doing business <sup>†</sup>
12	4.1.3	Loans from microfinance institutions, % GDP	100	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 <sup>+</sup>
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

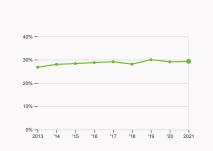
As far as practicable, the plots below present unscaled indicator data.

#### > Innovation inputs in Romania



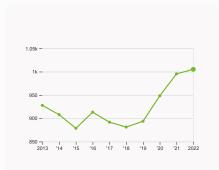
#### 2.1.1 Expenditure on education

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.



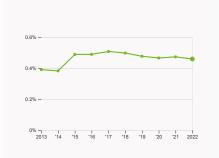
## 2.2.2 Graduates in science and engineering

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.



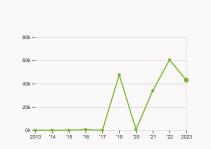
#### 2.3.2 Gross expenditure on R&D

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

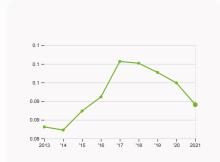
was equal to an average score of 9.07 for the top three universities in 2023, up by 907% from the year prior – and equivalent to an indicator rank of 67.



#### 4.2.4 VC received, value

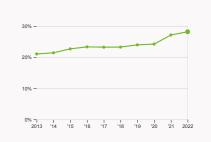
was equal to 43.02 thousand USD in 2023, down by 28.85% from the year prior – and equivalent to an indicator rank of 79.





#### 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.

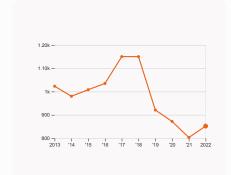


#### 5.1.1 Knowledge-intensive employment

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.

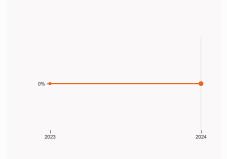


#### > Innovation outputs in Romania



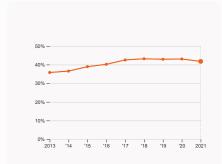
#### 6.1.1 Patents by origin

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.



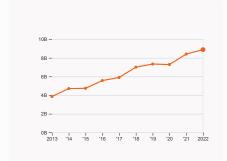
#### 6.2.4 High-tech manufacturing

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.



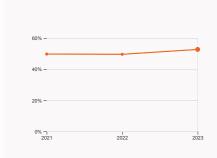
#### 6.3.2 Production and export complexity

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.



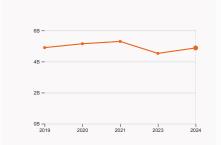
#### 6.3.3 High-tech exports

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.



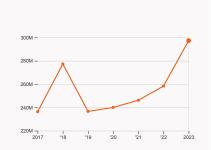
#### 7.1.3 Global brand value

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.



## Romania

48

Output rank	Input rank	Income	Regio	_		Population (mn)	GDP, PPP\$ (bn)	GDP per cap	_	PPP
45	57	High	EUR	2		19.1	780.8	41,029	9.2	
			Score / Value	Rank				Score / Value	Rank	(
			42.2	81	<b>♦</b>	🖶 Business sophisticati		31.1	47	
1.1 Institutional enviro	onment		52	72	$\Diamond$	5.1 Knowledge workers		35.6	58	j
1.1.1 Operational stabili	ity for businesses*		60	70	$\Diamond$	5.1.1 Knowledge-intensive er	mployment, %	28.2	51	<
1.1.2 Government effect	ctiveness*		44	68	$\Diamond$	5.1.2 Firms offering formal tr	raining, %	17.6	85	0 <
1.2 Regulatory enviro	nment		53.4	52	$\Diamond$	5.1.3 GERD performed by bu	isiness, % GDP	0.3	48	
1.2.1 Regulatory quality	y*		51.4	55	$\Diamond$	5.1.4 GERD financed by busi	ness, %	55.2	21	
1.2.2 Rule of law*			55.4	48	$\Diamond$	5.1.5 Females employed w/a	dvanced degrees, %	12.8	62	
1.3 Business environr	ment		21.2	115	$\circ \diamond$	5.2 Innovation linkages		20.6	83	3
1.3.1 Policy stability for	r doing business†		28.2	107	$\circ \diamond$	5.2.1 Public Research-Indust	try co-publications, %	2.3	35	
1.3.2 Entrepreneurship	policies and culture <sup>†</sup>		14.2	71	0 0	5.2.2 University-industry R&	D collaboration <sup>†</sup>	37	85	,
🙎 Human capital a	and research		30.8	70	$\Diamond$	5.2.3 State of cluster develo	pment <sup>†</sup>	37.5	89	
O.4 Education			47.0	75	^	5.2.4 Joint venture/strategic	alliance deals/bn PPP\$ GDP	0.007	100	0 0
2.1 Education	dunation 0/ CDD		47.2 3.3	97	0 0	5.2.5 Patent families/bn PPP	\$ GDP	0.05	72	
2.1.1 Expenditure on ed		on.	19.9	51	0 0	5.3 Knowledge absorption		37.2	34	,
2.1.3 School life expec	ling/pupil, secondary, % GDP/c	ар	<b>1</b> 9.9	58	$\Diamond$	5.3.1 Intellectual property pa		0.8	49	
	ading, maths and science		427.9	47		5.3.2 High-tech imports, % t		11.3		
2.1.5 Pupil–teacher rat			<b>11.6</b>	48	~	5.3.3 ICT services imports, 9		2.8		
2.2 Tertiary education			38.5	44		5.3.4 FDI net inflows, % GDF		3.2		
2.2.1 Tertiary enrolmen			<b>©</b> 55.3	65		5.3.5 Research talent, % in b	Dusinesses	31.4	42	
·	ence and engineering, %		29.3	26		Knowledge and techr	nology outputs	29.9	38	
2.2.3 Tertiary inbound			<b>©</b> 6	45		6.1 Knowledge creation		13.2	72	: <
2.3 Research and dev			6.7	70	$\Diamond$	6.1.1 Patents by origin/bn PP	P\$ GDP	1.2	51	
2.3.1 Researchers, FTE	:/mn pop.		1,005.1	52	$\Diamond$	6.1.2 PCT patents by origin/b		0.06	73	
2.3.2 Gross expenditur	re on R&D, % GDP		0.5	61		6.1.3 Utility models by origin	ı/bn PPP\$ GDP	0.05	60	)
2.3.3 Global corporate	R&D investors, top 3, mn USD		0	41	0 0	6.1.4 Scientific and technica	l articles/bn PPP\$ GDP	12.4	57	
2.3.4 QS university ran	nking, top 3*		9.2	67	$\Diamond$	6.1.5 Citable documents H-ii	ndex	19.7	43	
<b>‡</b> Infrastructure			51.4	32		6.2 Knowledge impact		35.8	39	,
		4.2- >				6.2.1 Labor productivity grov	wth, %	2.8	13	• 4
	ommunication technologies (	(ICTs)	75.8			6.2.2 Unicorn valuation, % G	DP	0	49	0 <
3.1.1 ICT access*			96.9	36		6.2.3 Software spending, %	GDP	0.3	49	
3.1.2 ICT use*	line comine*				^	6.2.4 High-tech manufacturi	ing, %	41.7	24	
3.1.3 Government's on	line service*		64.8	69	$\Diamond$	6.3 Knowledge diffusion		40.8	24	•
3.1.4 E-participation*  3.2 General infrastrue	oturo		61.6	54 <b>59</b>		6.3.1 Intellectual property re		0.09	59	
3.2.1 Electricity output			2,909.2			6.3.2 Production and export		73.9	19	• •
3.2.2 Logistics perform			2,909.2	50	$\Diamond$	6.3.3 High-tech exports, % t		6.4		
3.2.3 Gross capital form			26.2		~	6.3.4 ICT services exports, 9		7	9	
3.3 Ecological sustain			45.6	5	• •	6.3.5 ISO 9001 quality/bn PP	PP\$ GDP	15.6		
3.3.1 GDP/unit of energ	•				• •	Creative outputs		28.5	56	
3.3.2 Low-carbon ener			24.6			7.1 Intangible assets		30.6	61	
3.3.3 ISO 14001 enviro			8.4		• •	7.1.1 Intangible asset intensit	ty, top 15, %	52.8		
<u>ш</u> Market sophistic	cation		32.4	67		7.1.2 Trademarks by origin/b	n PPP\$ GDP	36.3	56	
warket sopmistic	Cation		32.4	07		7.1.3 Global brand value, top	5,000, % GDP	1.3	53	
4.1 Credit			26.8	65		7.1.4 Industrial designs by or	rigin/bn PPP\$ GDP	1.2	52	
4.1.1 Finance for startu	ips and scaleups <sup>†</sup>		39.7	56	$\Diamond$	7.2 Creative goods and ser	vices	20.3	54	ı
	o private sector, % GDP		24.8	108		7.2.1 Cultural and creative se	ervices exports, % total trade	1.9	15	• •
4.1.3 Loans from micro	finance institutions, % GDP		3.1	12	• •	7.2.2 National feature films/r	nn pop. 15–69	2.1	55	
4.2 Investment			3.4	96	0 0	7.2.3 Entertainment and med	dia market/th pop. 15–69	7	42	. <
4.2.1 Market capitaliza	•		10.4	74	0	7.2.4 Creative goods exports	s, % total trade	0.7	53	
	VC) investors, deals/bn PPP\$ G	BDP	0.05		0 ^	7.3 Online creativity		32.4	48	i
4.2.3 VC recipients, de			0.02	86	0 0	7.3.1 Top-level domains (TLD	Os)/th pop. 15–69	8	44	
4.2.4 VC received, value			0.0001		$\Diamond$	7.3.2 GitHub commits/mn po	p. 15–69	19.1	46	
	ition and market scale			26		7.3.3 Mobile app creation/bn	PPP\$ GDP	69.9	54	
4.3.1 Applied tariff rate				21						
	y diversification		94.7	20	• •					



## 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.

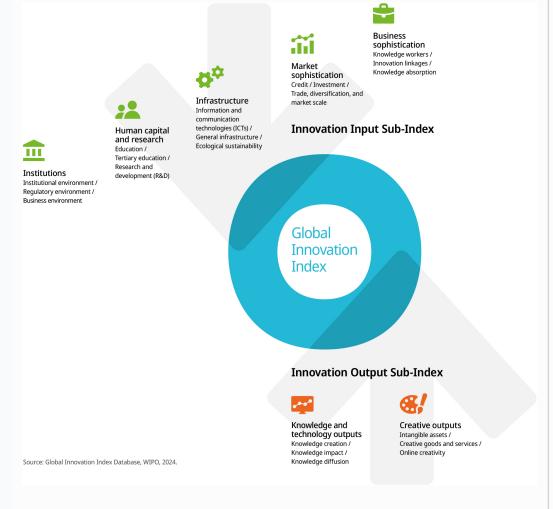
## Outdated data for Romania

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



#### 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.