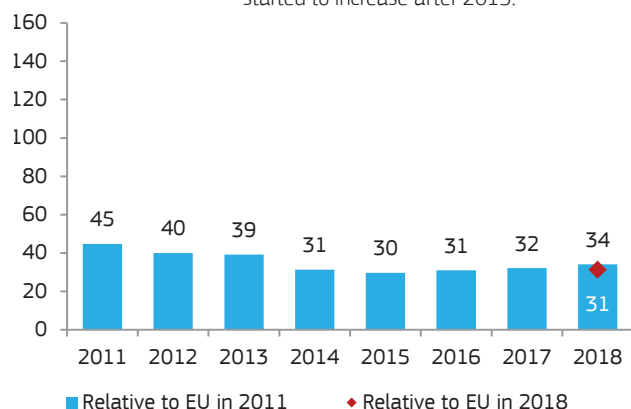




Romania is a Modest Innovator. Over time, performance has declined relative to that of the EU in 2011, but after a strong decline between 2011 and 2015, performance has started to increase after 2015.



Romania	Relative to EU 2018 in	Performance relative to EU 2011 in	
	2018	2011	2018
SUMMARY INNOVATION INDEX	31.4	44.8	34.1
Human resources	13.7	40.3	16.7
New doctorate graduates	28.1	107.7	40.8
Population with tertiary education	8.1	11.9	9.7
Lifelong learning	0.0	3.1	0.0
Attractive research systems	24.2	14.3	27.2
International scientific co-publications	18.8	15.7	27.3
Most cited publications	29.1	14.7	31.9
Foreign doctorate students	20.7	12.8	19.8
Innovation-friendly environment	76.9	75.4	121.6
Broadband penetration	116.7	111.1	233.3
Opportunity-driven entrepreneurship	35.2	51.0	45.5
Finance and support	26.9	31.7	29.4
R&D expenditure in the public sector	5.1	25.4	4.8
Venture capital expenditures	45.4	41.6	58.7
Firm investments	9.1	61.9	10.9
R&D expenditure in the business sector	19.9	13.3	22.8
Non-R&D innovation expenditures	3.1	163.3	3.6
Enterprises providing ICT training	5.3	0.0	6.7
Innovators	0.0	42.5	0.0
SMEs product/process innovations	0.0	37.4	0.0
SMEs marketing/organizational innovations	0.0	52.0	0.0
SMEs innovating in-house	0.0	38.0	0.0
Linkages	39.3	53.7	40.8
Innovative SMEs collaborating with others	4.8	10.7	5.1
Public-private co-publications	20.8	19.9	24.5
Private co-funding of public R&D exp.	77.0	99.7	73.9
Intellectual assets	23.0	13.2	22.3
PCT patent applications	6.5	4.2	5.9
Trademark applications	31.2	27.1	34.8
Design applications	31.6	11.2	29.1
Employment impacts	46.3	18.7	48.4
Employment in knowledge-intensive activities	23.5	3.8	25.6
Employment fast-growing enterprises	64.1	29.4	64.8
Sales impacts	61.6	84.0	63.5
Medium and high-tech product exports	102.2	91.1	110.3
Knowledge-intensive services exports	54.9	48.9	56.6
Sales of new-to-market/firm innovations	16.3	115.9	15.8

The colours show normalised performance in 2018 relative to that of the EU in 2018: dark green: above 120%; light green: between 90% and 120%; yellow: between 50% and 90%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

Innovation-friendly environment and *Sales impacts* are the strongest innovation dimensions. Broadband penetration scores high above the EU average, Medium and high-tech product exports is the only other indicator showing above EU average performance. *Innovators*, *Firm investments* and *Human resources*, are the weakest innovation dimensions. Romania's lowest indicator scores are on Lifelong learning, SMEs with product or process innovations, SMEs with marketing or organizational innovations, and SMEs innovating in-house. For all four indicators performance is lowest in 2018 across all countries resulting in a relative score to the EU of 0.

Structural differences with the EU are shown in the table below. Many of the economic indicators in Romania tend to be closely above or beneath the EU value. However, GDP per capita, the employment share in services and top R&D spending enterprises per 10 million population are well below the EU average. Average annual GDP growth, enterprise births, and total entrepreneurial activity are well above the EU average.

	RO	EU
Performance and structure of the economy		
GDP per capita (PPS)	17,500	29,500
Average annual GDP growth (%)	5.5	2.2
Employment share manufacturing (NACE C) (%)	18.8	15.5
of which High and medium high-tech (%)	30.7	37.5
Employment share services (NACE G-N) (%)	30.6	41.8
of which Knowledge-intensive services (%)	27.6	35.0
Turnover share SMEs (%)	42.6	37.9
Turnover share large enterprises (%)	41.5	44.4
Foreign-controlled enterprises – share of value added (%)	15.6	12.6
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	2.8	1.5
Total Entrepreneurial Activity (TEA) (%)	10.8	6.7
FDI net inflows (% GDP)	2.9	4.3
Top R&D spending enterprises per 10 million population	0.2	19.6
Buyer sophistication (1 to 7 best)	2.8	3.7
Governance and policy framework		
Ease of starting a business (0 to 100 best)	72.7	76.8
Basic-school enterpren. education and training (1 to 5 best)	2.4	1.9
Govt. procurement of advanced tech products (1 to 7 best)	2.5	3.5
Rule of law (-2.5 to 2.5 best)	0.3	1.2
Demography		
Population size (millions)	19.6	511.3
Average annual population growth (%)	-0.6	0.2
Population density (inhabitants/km2)	85.1	117.5

EU targets for 2020

Indicator	2014	Latest	Target ¹
Gross domestic expenditure on R&D (% of GDP)	0.38	0.50	2.00
Tertiary educational attainment (% of population aged 30-34)	25.0	24.6	26.7

¹ Sources are provided in the introduction to the country profiles.

European Semester country report and country specific recommendations:

<https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-analysis-european-semester-2019-country-reports>
<https://rio.jrc.ec.europa.eu/en/library/country-specific-recommendations-2019-research-and-innovation-analysis>