

	Performance	Performance	Performance	
Pulearia	relative to EU in	change	change	
Bulgaria	2022	2015-2022	2021-2022	
SUMMARY INNOVATION INDEX	45.2	1.5	3.0	
Human resources	33.5	-4.8	-4.8	
Doctorate graduates	40.7	-11.4	-11.4	
Population with tertiary education	53.5	0.0	0.0	
Lifelong learning	0.0	0.0	0.0	
Attractive research systems	27.6	16.7	4.2	
International scientific co-publications	28.2	18.0	5.7	
Most cited publications	18.6	9.9	2.0	
Foreign doctorate students	44.0	30.6	7.4	
Digitalisation	47.0	4.8	4.8	
Broadband penetration	69.2	9.1	9.1	
People with above basic overall digital skills	18.2	0.0	0.0	
Finance and support	22.6	-7.0	2.0	
R&D expenditures in the public sector	22.7	4.8	0.0	
Venture capital expenditures	36.1	-31.3	7.9	
Government support for business R&D	4.2	1.9	-1.4	
Firm investments	35.1	-6.5	-0.1	
R&D expenditure in the business sector	35.8	14.7	1.6	
Non-R&D Innovation expenditures	62.5	-34.2	1.1	
Innovation expenditures per employee	13.2	1.1	-2.8	
Use of information technologies	35.9	-26.1	-9.8	
Enterprises providing ICT training	18.8	-50.0	-18.8	
Employed ICT specialists	54.5	0.0	0.0	
Innovators	56.0	56.7	27.8	
Product innovators (SMEs)	78.8	67.4	25.4	
Business process innovators (SMEs)	36.0	45.4	30.4	
Linkages	34.4	24.2	15.8	
Innovative SMEs collaborating with others	56.9	51.8	37.7	
Public-private co-publications	34.8	24.4	8.5	
Job-to-job mobility of HRST	16.7	0.0	0.0	
Intellectual assets	74.1	-27.8	-6.2	
PCT patent applications	36.8	-2.0	-1.5	
Trademark applications	113.2	25.2	10.0	
Design applications	83.9	-98.4	-24.0	
Employment impacts	55.3	21.4	9.6	
Employment in knowledge-intensive activities	62.3	0.0	0.0	
Employment in innovative enterprises	49.8	40.9	18.5	
Sales impacts	60.6	31.1	11.2	
Medium and high-tech goods exports	54.8	19.3	0.3	
Knowledge-intensive services exports	71.3	51.1	24.8	
Sales of innovative products	54.1	23.1	9.6	
Environmental sustainability	53.5	-26.6	-3.5	
Resource productivity	11.4	7.7	-0.3	
Air emissions by fine particulate matter	50.7	-27.9	-6.7	
Environment-related technologies	99.2	-48.3	-1.9	

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.

BULGARIA is an **Emerging Innovator** with performance at 45.2% of the EU average. Performance is below the average of the Emerging Innovators (50.0%). Performance is increasing (1.6%-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

Trademark applications

Environment-related technologies

Design applications

Product innovators

Knowledge-intensive services exports

Relative weaknesses

Lifelong learning

Government support for business R&D

Resource productivity

Innovation expenditures per employee

Enterprises providing ICT training

Strong increases since 2015

Product innovators

Innovative SMEs collaborating with others

Knowledge-intensive services exports

Strong decreases since 2015

Design applications

Enterprises providing ICT training Environment-related technologies

Strong increases since 2021

Innovative SMEs collaborating with others

Business process innovators

Product innovators

Strong decreases since 2021

Design applications
Enterprises providing ICT training

Doctorate graduates



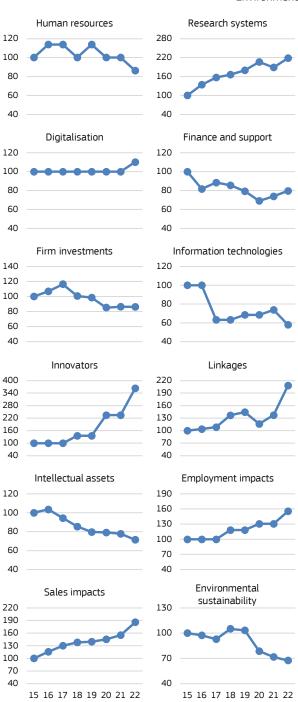
The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innvovation performance did not change much over time. After a increase in 2016, it dropped on average in the following 5 years and then increased strongly in 2022.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2015. There are strong and almost continuous increases in Research systems, Innovators, Linkages, Employment impacts, and Sales impacts. Performance has been declining for Human resources, Finance and support, Information technologies and Environmental sustainability.

Structural differences with the EU are shown below:

- Bulgaria has lower per capita income but a faster growing economy. Manufacturing takes up a larger share of the economy, with SMEs accounting for a larger share of turnover.
- Enterprise births and FDI net inflows add positively to the innovation climate, entrepreneurial activities and the absence of top R&D spenders add negatively.
- Bulgaria has a much higher share of non-innovators that have no interest to innovate.
- It is more difficult to start a new business. Entrepreneurial training and government procurement are at par with the EU as drivers of research and innovation.
- Bulgaria shows a mixed performance on Climate change related indicators with an almost double share of material resources coming from recycled waste materials but a far below average score on environmental innovation.

	BG	EU
Performance and structure of the economy		
GDP per capita (PPS)	17,000	31,200
Average annual GDP growth (%)	0.4	-0.4
Employment share Manufacturing (NACE C) (%)	18.7	16.4
of which High and Medium high-tech (%)	23.1	38.0
Employment share Services (NACE G-N) (%)	41.3	
of which Knowledge-intensive services (%)	28.8	
Turnover share SMEs (%)	46.2	34.8
Turnover share large enterprises (%)	31.6	48.2
Foreign-controlled enterprises – share of value added (%)	16.4	11.7
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	1.6	1.0
Total Entrepreneurial Activity (TEA) (%)	6.0	7.3
FDI net inflows (% GDP)	3.7	1.0
Top R&D spending enterprises per 10 mln. population	0.0	18.3
Buyer sophistication (1 to 7 best)	3.4	3.7
Innovation profiles		
In-house product innovators with market novelties	7.8	10.7
In-house product innovators without market novelties	6.4	12.3
In-house business process innovators	5.0	11.0
Innovators that do not develop innovations themselves	7.6	11.6
Innovation active non-innovators	3.3	3.3
Non-innovators with potential to innovate	15.8	19.9
Non-innovators without disposition to innovate	54.1	31.3
Governance and policy framework		
Ease of starting a business (0 to 100 best)	71.8	
Basic school entrepreneurial education and training	3.3	3.5
Govt. procurement of advanced tech. products	3.3	3.5
Rule of law (-2.5 to 2.5 best)	-0.1	1.1
Climate change indicators		
Circular material use rate	22.1	12.2
Greenhouse gas emissions intensity of energy consumption	95.2	82.8
Eco-Innovation Index	47.5	100.0
Demography		
Population size	7.0	447.0
Average annual population growth (%)	-0.6	0.1
Population density	63.9	108.8



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