



European Innovation Scoreboard **2024** Country Profile **Bulgaria**

European Innovation Scoreboard 2024 – Country profile Bulgaria

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**BULGARIA****Emerging Innovator**

Summary innovation index (relative to EU in 2017):

50.6 Rank: 33

Change vs 2023: ▲ 1.9 Change vs 2017: ▲ 2.7

Bulgaria is an Emerging Innovator with performance at 46% of the EU average in 2024. Performance is below the average of the Emerging Innovators (48%). Performance is increasing less than the EU (+10%).

Indicator	Performance relative to the EU in 2024	Performance change 2017-2024	Performance change 2023-2024
SUMMARY INNOVATION INDEX	46.0	2.7	1.9
Human resources	38.7	-1.9	7.7
New doctorate graduates	47.6	-11.6	11.6
Population with tertiary education	60.3	10.8	10.8
Population involved in lifelong learning	3.5	-2.0	-2.0
Attractive research systems	30.4	14.2	7.5
International scientific co-publications	27.6	13.6	-0.3
Scientific publications among the top 10% most cited	24.2	5.7	10.8
Foreign doctorate students as a % of all doctorate students	42.9	33.4	7.1
Digitalisation	47.0	14.7	1.3
Broadband penetration	69.4	29.7	3.0
Individuals with above basic overall digital skills	16.0	-0.4	-0.4
Finance and support	26.9	0.9	2.1
R&D expenditure in the public sector	19.7	-1.6	-3.3
Venture capital expenditures	53.7	8.3	11.7
Direct and indirect government support of business R&D	2.2	-3.9	-1.3
Firm investments	36.7	-10.3	1.5
R&D expenditure in the business sector	33.3	-13.5	0.8
Non-R&D innovation expenditures	63.2	-10.7	1.1
Innovation expenditures per person employed	15.7	-6.7	2.3
Use of information technologies	55.0	11.4	15.7
Enterprises providing ICT training	23.6	6.4	15.3
Employed ICT specialists	85.2	16.1	16.1
Innovators	29.4	4.0	-37.9
SMEs introducing product innovations	44.4	13.6	-41.7
SMEs introducing business process innovations	17.0	-5.2	-34.3
Linkages	30.2	13.7	-6.2
Innovative SMEs collaborating with others	41.0	25.7	-18.8
Public-private co-publications	41.8	22.6	3.6
Job-to-job mobility of HRST	16.6	0.0	0.0
Intellectual assets	91.9	-15.8	14.0
PCT patent applications	38.3	-1.0	-0.6
Trademark applications	118.9	17.9	2.2
Design applications	147.6	-61.5	42.3
Employment impacts	59.7	21.9	11.1
Employment in knowledge-intensive activities	67.4	4.8	4.8
Employment in innovative enterprises	53.1	37.4	16.9
Sales impacts	53.3	14.2	2.7
Exports of medium and high technology products	46.2	6.0	4.7
Knowledge-intensive services exports	60.1	18.7	-3.9
Sales of new-to-market and new-to-firm innovations	54.5	21.4	8.9
Environmental sustainability	46.6	-10.1	-8.2
Resource productivity	14.0	10.9	0.4
Air emissions by fine particulates	37.7	9.8	-17.1
Environment-related technologies	88.5	-55.7	-2.2

Relative strengths

- Design applications
- Trademark applications
- Environment-related technologies

Relative weaknesses

- Direct and indirect government support of business R&D
- Population involved in lifelong learning
- Resource productivity

Strong increases since 2017

- Employment in innovative enterprises
- Foreign doctorate students as a % of all doctorate students
- Broadband penetration

Strong decreases since 2017

- Design applications
- Environment-related technologies
- R&D expenditure in the business sector

Strong increases since 2023

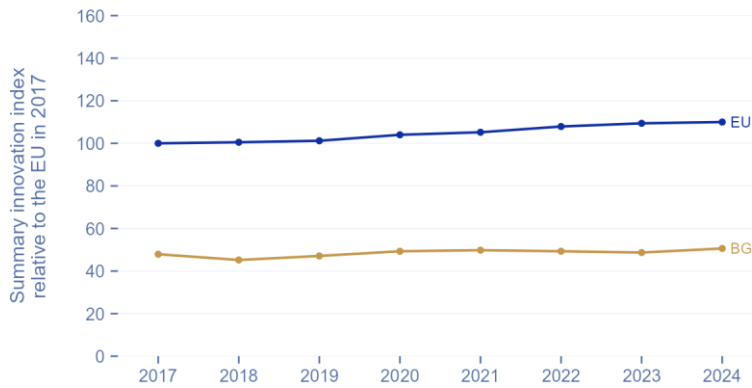
- Design applications
- Employment in innovative enterprises
- Employed ICT specialists

Strong decreases since 2023

- SMEs introducing product innovations
- SMEs introducing business process innovations
- Innovative SMEs collaborating with others

Footnote: The first data column shows scores relative to the EU in 2024, with colour codes indicating performance levels. The subsequent columns show performance changes over time, with scores relative to the EU in 2017, coloured in purple for positive change and red for negative change. As reference years differ between the first column (2024) and the last two columns (2017), scores cannot be directly compared or subtracted across these columns.

Emerging Innovators Moderate Innovators Strong Innovators Innovation Leaders



Summary innovation index

The line chart shows the evolution of the innovation performance of Bulgaria over time, relative to the performance of the EU in 2017.

Footnote: All performance scores (SII and dimensions below) are relative to that of the EU in 2017.

Framework conditions

Bulgaria has been making efforts to strengthen its research system since 2017, resulting in steady improvements in the quality of scientific publications due to alignment with EU standards. However, Bulgaria's performance in framework conditions remains below the EU average for all dimensions. The main weakness is the population involved in lifelong learning, well below the EU average and ranking last among EU Member States (at 3.5% of the EU average in 2024). However, there is an encouraging increase of 10.8%-points of the population with tertiary education since 2017.

Bulgaria's research system maintains a positive trend in attractiveness, with an increase in scientific publications among the top 10% most cited (+5.7%-points) and a significant increase in foreign doctorate students (+33.4%-points) since 2017. On the other hand, international scientific co-publications between 2023 and 2024 basically plateaued, possibly due to limited funding and insufficient collaboration incentives. However, there is still a notable 13.6%-point increase compared to 2017, indicating an overall positive trend, despite still ranking second last among EU Member States (at 27.6% of the EU average in 2024). Bulgaria's digitalisation level is low (ranking last among EU Member States for that dimension, at 47.0% of the EU level in 2024), with a significant weakness in individuals with above-basic overall digital skills (ranking last among EU Member States for that indicator, 16.0% of EU level), potentially due to gaps in digital education and a lack of access to advanced technology trainings.

Human resources



Attractive research systems



Digitalisation

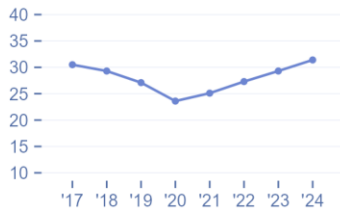


Investments

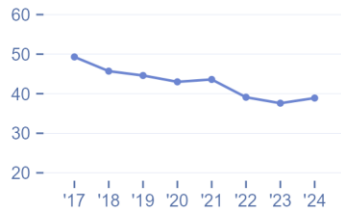
R&D financing by Bulgaria's private sector exceeds that of the public sector, mainly due to venture capital expenditures, which significantly grew in the last year (+11.7%-points). Venture capital expenditures is one of Bulgaria's strengths, ranking second among Emerging Innovators and above several Moderate Innovators, at 53.7% of the EU average in 2024. On the other hand, direct and indirect government support for business R&D has experienced a negative trend, declining over the past two years and since 2017; Bulgaria ranks second last among EU Member States for that indicator, at 2.2% of the EU average in 2024. Meanwhile, both R&D and non-R&D expenditures have decreased for all three firm investment indicators since 2017.

Finally, in terms of information technology, enterprises providing ICT training falls well below the EU average (23.6%), despite a significantly positive trend, while the proportion of employed ICT specialists in total employment is close to the EU average (85.2%) and has also experienced a noticeable increase (+16.1%-points) in the last year according to the most recent data.

Finance and support



Firm investments



Use of information technologies



Innovation activities

Bulgaria's performance in innovation activities has fluctuated over time. While there has been a decline in the number of SMEs introducing business process innovations, the number of SMEs introducing product innovations increased by 13.6%-points since 2017. In terms of linkages, the country has experienced an increase (+13.7%-points) in relation to 2017 – due to the growth of innovative SMEs collaborating with others and public-private co-publications. However, Bulgaria's performance in terms of intellectual assets is marked by a sharp decline in design applications (-61.5%-points) and an almost negligible decline in PCT patent application, while trademark applications – in countertendency with the overall trend for the indicator – grew by 17.9%-points. Trademark and Design applications are two of Bulgaria's strengths, ranking eighth and fifth among EU Member States, at 118.9% and 147.6% of the EU average in 2024, respectively.

Innovators



Linkages



Intellectual assets



Impacts

The trends for the impact of innovation activities in Bulgaria are mostly positive, showing significant progress in several areas. All employment impacts and sales impacts have a positive trend since 2017 – with a notable increase (+37.4%-points) in employment in innovative enterprises and sales of new to market and new to firm innovations (+21.4%-points). In terms of environmental sustainability, Bulgaria has improved in resource productivity (+10.9%-points) and air emissions by fine particulates (+9.8%-points), although ranking second last for both among EU Member States. However, there is a room for improvement in promoting the use of environment-friendly technologies, which have more than halved since 2017 (-55.7%-points), although Bulgaria still ranks seventh among EU Member States for this indicator (at 88.5% of the EU average in 2024), which is significant for an Emerging Innovator.

Employment impacts



Sales impacts



Environmental sustainability



Structural differences

Performance and structure of the economy

The Bulgarian economy proved relatively resilient in 2022; however, it experienced a decline in 2023. Currently, Bulgaria's GDP per capita stands at 61% of the EU average. Bulgaria aims to achieve economic stability and meet the Eurozone entry criteria, but this requires sustained efforts on fiscal policy and keeping inflation in check (Convergence Report 2024).

Moreover, Bulgaria has a significantly below EU average level of employment in high tech and a moderately lower level of employment in knowledge intensive sector, respectively 24.4% vis-à-vis the 37.9% of the EU and 22.5% versus 28.6%. Bulgaria has a lower turnover of large enterprises in relation to the EU, 31.4 vs 49.6% while it registers a higher share of foreign-controlled enterprises, 23.8% vs 13.3%, which is positive in the terms of embodied technology transfer and may have a positive impact on R&D activity developments in the country. Bulgaria also has a higher turnover share of SMEs compared to the EU, with 17.2% vs 12.6%.

Business and entrepreneurship

The entrepreneurial dynamics of the Bulgarian economy are overall higher to those of the EU, with a higher-than-average rate of enterprise births and FDI net inflows. However, buyer sophistication in Bulgaria is slightly below the EU average. In order to increase FDI net inflows, ongoing efforts have been dedicated to improving the regulatory system, aligning with European laws and global standards, and the data suggests some improvements.

Innovation profiles

Bulgaria's innovation profile presents a mixed picture with areas of strength and significant challenges. In-house product innovators with market novelties constitute 10.4%, indicating a solid base for creating new market-oriented products. However, the percentage of in-house product innovators without market novelties is lower at 9.1%, suggesting a limited focus on incremental product improvements.

Business process innovation is also relatively low, with 10.1% of firms engaging in this activity, pointing to potential inefficiencies in internal operations. A major weakness is the high percentage of non-innovators without a disposition to innovate, which stands at 49.6%. This indicates that nearly half of the firms in Bulgaria are not inclined towards innovation, presenting a significant barrier to overall economic competitiveness.

On a more positive note, 14.2% of firms are identified as non-innovators with the potential to innovate, highlighting a substantial opportunity for growth if appropriate support and incentives are provided. Additionally, innovation-active non-innovators are only 1.8%, showing minimal engagement in innovation activities among non-innovators.

Overall, while there is a foundation for product innovation in Bulgaria, the high percentage of firms disinclined to innovate and the relatively low engagement in business process innovation suggests a need for targeted policies and support to foster a more vibrant innovation ecosystem.

Governance and policy framework

The quality of the Bulgarian governance system creates significant challenges for innovators given a high corruption perception index and a weaker rule of law compared to the EU. Regarding the rule of law, Bulgaria has a score of -0.1, which is significantly lower than the EU average of 1, suggesting laws are not enforced in a manner that would support innovators.

Bulgaria's innovation procurement as a share of total public procurement stands at 2.0%, while the EU average is 9.2%. This indicates that the Bulgarian government spends a relatively small proportion of its public procurement budget on purchasing innovative products or services compared to the EU average, even if the government procurement of advanced technology is close to the EU average.

Climate change

Bulgaria's performance on the three structural indicators measuring the transition of the economy and society towards a more environmentally sustainable trajectory lags significantly behind the EU average. The comparison reveals stark disparities across key metrics crucial for addressing climate change and promoting sustainability. The country registers a significantly lower circular material use rate (5.2% vs 11.5%), indicating less efficient recycling and reuse practices compared to EU norms. Additionally, Bulgaria shows higher greenhouse gas emissions intensity per unit of energy consumed, highlighting challenges in transitioning to cleaner energy sources and improving energy efficiency. Moreover, the country's eco-innovation index trails noticeably behind (57.7 vs. 121.5), reflecting slower adoption of eco-friendly technologies and policies essential for sustainable development.

In the 2022 EEA's Eco-Innovation Index, Bulgaria was ranked among the catching up countries, scoring 48% of the EU average. Notable indicators explaining this low ranking also include Government environmental and energy R&D appropriations and resource efficiency outcomes (Eco-Innovation Index Country Report, 2022).

Demography

Bulgaria has a population of more 6.7 million inhabitants and is currently experiencing a demographic decline. The country faces two significant demographic challenges. The first is an aging population, as indicated by the ratio of young to old people. The second is an uneven distribution of residence, with 51.5% of the population living in the South-West and South-Central regions, while the North-West region has the lowest population, accounting for only 10.4% of total population (Eurydice 2024 Bulgaria). Factors such as emigration, low birth rates, and a high death rate are contributing significantly to Bulgaria's population decline.

Structural indicators

The table below presents some structural differences between Bulgaria and the EU.

	BG	EU
Performance and structure of the economy		
GDP per capita	61	100
Average annual GDP growth (2021-2023 average)	2.9	1.9
Employment share Manufacturing	18.4	15.8
Employment share High and Medium high-tech	24.4	37.9
Employment share Services	41.3	39.8
Employment share Knowledge-intensive services	22.5	28.6
Turnover share SMEs	17.2	12.6
Turnover share large enterprises	31.4	49.6
Foreign-controlled enterprises – share of value added	23.8	13.3
Business and entrepreneurship		
Enterprise births	1.4	0.8
FDI net inflows	3.9	1.9
Buyer sophistication	3.2	3.6
Innovation profiles		
In-house product innovators with market novelties	10.4	11.7
In-house product innovators without market novelties	9.1	13.7
In-house business process innovators	10.1	17.6
Innovators that do not develop innovations themselves	4.8	6.1
Innovation active non-innovators	1.8	4.2
Non-innovators with potential to innovate	14.2	17.8
Non-innovators without disposition to innovate	49.6	30.6
Governance and policy frameworks		
Corruption Perceptions Index	43.3	64
Government procurement of advanced technology products	3.3	3.4
Rule of law	-0.1	1
Innovation procurement as a share of total public procurement	2	9.2
Climate change		
Circular material use rate	5.2	11.5
Greenhouse gas emissions intensity of energy consumption	95.2	82.8
Eco-Innovation Index	57.7	121.5
Demography		
Population size (in millions)	6.7	447
Average annual population growth (2021-2023 average)	-3.4	0.3
Population density	62.3	109

References

The country's relative strengths and weaknesses for each indicator, compared to other EU Member States and neighbouring countries, can be found in [Annex B](#).

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This report provides the Country profile from the 2024 European Innovation Scoreboard for Bulgaria

Studies and reports

