

Bulgaria is a **Modest Innovator**. Over time, performance has not changed relative to that of the EU in 2010.

Innovation system

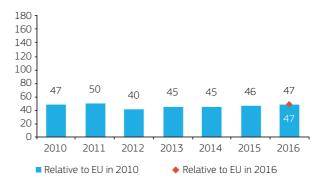
Relative strengths of the innovation system are in Intellectual assets, Employment impacts, and Human resources. Relative weaknesses are in Innovators, Finance and support, and Attractive research systems.

Structural differences

Notable differences are a larger share of employment in Agriculture & Mining and in Manufacturing, a smaller share of employment in High and Medium high-tech manufacturing and in Knowledge-intensive services, a larger share of Micro enterprises and SMEs in turnover, a smaller share of Large enterprises in turnover, a larger share of foreign controlled enterprises, a larger share of enterprise births, lower GDP per capita, a higher growth rate of GDP, a lower and negative growth rate of population, and lower population density.

	BG	EU
Structure of the economy		
Composition of employment, average 2011-15		
- Agriculture & Mining (NACE A-B) (%)	7.6	5.1
- Manufacturing (NACE C) (%)	19.9	15.6
of which High and Medium high-tech (%)	18.6	36.4
- Utilities and Construction (NACE D-F) (%)	9.8	8.6
- Services (NACE G-N) (%)	55.0	63.6
of which Knowledge-intensive services (%)	45.1	58.0
- Public administration, etc. (NACE O-U) (%)	7.7	7.1
Business indicators		
Composition of turnover, average 2011-2014		
- Micro enterprises (0-9 employees) (%)	21.4	17.3
- SMEs (10-249 employees) (%)	47.1	38.0
- Large enterprises (250+ employees) (%)	31.6	44.1
Share of foreign controlled enterprises, 2014 (%)	3.85	1.18
Top R&D spending enterprises		
- average number per 10 mln population, 2011-15	none	29.9
- average R&D spending, mln Euros, 2011-15	none	165.8
Enterprise births (10+ empl.) (%), avg 2012-14	2.2	1.5
Buyer sophistication 1-7 (best), 2013-14	2.9	3.6
Ease of starting a business, Doing Business 2017	73.5	76.5
Socio-demographic indicators		
GDP per capita, PPS, avg 2011-13	11,900	25,400
Change in GDP between 2010 and 2015, (%)	8.0	5.4
Population size, avg 2011-15 (millions)	7.3	505.5
Change in population between 2010 and 2015 (%)	-3.0	1.1
Population aged 15-64, avg 2011-2015 (%)	67.2	66.1
Population density, average 2011-15	66.7	116.4
Degree of urbanisation, average 2011-15 (%)	64.3	74.4

Values in green show performance above 120% of EU, values in red show performance below 80% of EU.



Performance

Bulgaria relative to EU 2010 in 2010 Change 2010 2016 SUMMARY INNOVATION INDEX 47.4 47.5 0.1 47.4 47.5 0.1 Human resources 33.7 71.8 38.1 New doctorate graduates 30.8 98.4 67.6 Population with tertiary education 61.8 96.7 34.9 Lifelong learning 42 10.5 6.3 Attractive research systems 28.5 28.6 0.2 0.2 International scientific co-publications 39.1 54.4 15.3 Most cited publications 29.2 27.5 -1.7 Foreign doctorate students 23.6 21.1 -2.5 Innovation-friendly environment 54.6 66.4 11.8 Broadband penetration 88.9 111.1 22.2 Opportunity-driven entrepreneurship 30.4 34.9 4.5 Finance and support 59.4 16.1 -43.3 R&D expenditure in the public sector 32.9 16.5 -16.0 Venture capital expenditures 93.4 15.6 -77.8 Firm investments 66.5 59.0 -7.4 R&D expenditure in the business sector 10.7 57.9 47.2 Non-R&D innovation expenditures 106.7 -34.5 Enterprises providing ICT training 64.3 21.4 -42.9 Innovators 33.0 11.6 -21.5		Citotillance			
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Lifelong learning 4.2 10.5 6.3 Attractive research systems 28.5 28.6 0.2 International scientific co-publications 39.1 54.4 15.3 Most cited publications 29.2 27.5 -1.7 Foreign doctorate students 23.6 21.1 -2.5 Innovation-friendly environment 54.6 66.4 11.8 Broadband penetration 88.9 111.1 22.2 Opportunity-driven entrepreneurship 30.4 34.9 4.5 Finance and support 59.4 16.1 -43.3 R&D expenditure in the public sector 32.5 16.5 -16.0 Venture capital expenditures 93.4 15.6 -77.8 Firm investments 66.5 59.0 -7.4 R&D expenditure in the business sector 10.7 57.9 47.2 Non-R&D innovation expenditures 106.7 -34.5 Enterprises providing ICT training 64.3 21.4 -42.9 Innovators 33.0 11.6 -21.5 SMEs product/process innovations 38.0 93	New doctorate graduates	30.8	98.4	67.6	
Attractive research systems 28.5 28,6 0.2 International scientific co-publications 39.1 54.4 15.3 Most cited publications 29.2 27.5 -1.7 Foreign doctorate students 23.6 21.1 -2.5 Innovation-friendly environment 54.6 66.4 11.8 Broadband penetration 88.9 111.1 22.2 Opportunity-driven entrepreneurship 30.4 34.9 4.5 Finance and support 59.4 16.1 -43.3 R&D expenditure in the public sector 32.5 16.5 -16.0 Venture capital expenditures 93.4 15.6 -77.8 Firm investments 66.5 59.0 -7.4 R&D expenditure in the business sector 10.7 57.9 47.2 RW Dexpenditure in the public sector 10.7 57.9 47.2 R&D expenditure in the business sector 10.7 57.9 47.2 R&D expenditure in the public sector 10.7 57.9 47.2 Innovators <t< td=""><td>Population with tertiary education</td><td>61.8</td><td>96.7</td><td>34.9</td></t<>	Population with tertiary education	61.8	96.7	34.9	
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Foreign doctorate students 23.6 21.1 -2.5 Innovation-friendly environment 54.6 66.4 11.8 Broadband penetration 88.9 111.1 22.2 Opportunity-driven entrepreneurship 30.4 34.9 4.5 Finance and support 59.4 16.1 -43.3 R&D expenditure in the public sector 32.5 16.5 -16.0 Venture capital expenditures 93.4 15.6 -77.8 Firm investments 66.5 59.0 -7.4 R&D expenditure in the business sector 10.7 57.9 47.2 Non-R&D innovation expenditures 106.7 -34.5 5.6 59.0 -7.4 R&D expenditure in the business sector 10.7 57.9 47.2 47.2 Non-R&D innovations 38.0 21.4 -2.9 47.2 42.9 Innovations 33.0 11.6 -21.5 5.8 59.0 -28.7 SMEs product/process innovations 38.0 9.3 -28.7 5.2 5.2	International scientific co-publications		54.4	15.3	
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Non-R&D innovation expenditures 106.7 -34.5 Enterprises providing ICT training 64.3 21.4 -42.9 Innovators 33.0 11.6 -21.5 SMEs product/process innovations 38.0 9.3 -28.7 SMEs marketing/organizational innovations 21.4 12.4 -9.0 SMEs innovating in-house 40.0 13.0 -27.0 Linkages 30.0 17.7 -12.3 Innovative SMEs collaborating with others 23.1 19.1 -4.0 Public-private co-publications 24.3 6.6 -17.6 Private co-funding of public R&D exp. 40.7 26.1 -14.6 Intellectual assets 50.7 99.2 48.5 PCT patent applications 29.3 41.8 12.6 Trademark applications 106.0 24.4 Design applications 37.1 115.5 Employment impacts 87.8 97.9 10.2 Employment fast-growing enterprises -0.2 50.3 24.4 Employme	Firm investments	66.5	59.0	-7.4	
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SMEs product/process innovations 38.0 9.3 -28.7 SMEs marketing/organizational innovations 21.4 12.4 -9.0 SMEs innovating in-house 40.0 13.0 -27.0 Linkages 30.0 17.7 -12.3 Innovative SMEs collaborating with others 23.1 19.1 -4.0 Public-private co-publications 24.3 6.6 -17.6 Private co-funding of public R&D exp. 40.7 26.1 -14.6 Intellectual assets 50.7 99.2 48.5 PCT patent applications 29.3 41.8 12.6 Trademark applications 106.0 24.4 24.4 Design applications 37.1 115.5 115.5 Employment impacts 87.8 97.9 10.2 Employment in knowledge-intensive activities 35.9 60.3 24.4 Employment fast-growing enterprises -0.2 53.6 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports	Enterprises providing ICT training	64.3	21.4	-42.9	
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SMEs innovating in-house 40.0 13.0 -27.0 Linkages 30.0 17.7 -12.3 Innovative SMEs collaborating with others 23.1 19.1 -4.0 Public-private co-publications 24.3 6.6 -17.6 Private co-funding of public R&D exp. 40.7 26.1 -14.6 Intellectual assets 50.7 99.2 48.5 PCT patent applications 29.3 41.8 12.6 Trademark applications 106.0 24.4 24.4 Design applications 37.1 115.5 115.5 Employment impacts 87.8 97.9 10.2 Employment in knowledge-intensive activities 35.9 60.3 24.4 Employment fast-growing enterprises -0.2 -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	SMEs product/process innovations			-28.7	
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Innovative SMEs collaborating with others	SMEs innovating in-house			-27.0	
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Trademark applications 106.0 100.0 24.4 Design applications 37.1 10.0 115.5 Employment impacts 87.8 97.9 10.2 Employment in knowledge-intensive activities 35.9 60.3 24.4 Employment fast-growing enterprises -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 35.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	Intellectual assets	50.7	99.2	48.5	
Design applications 37.1 1.5.5 Employment impacts 87.8 97.9 10.2 Employment in knowledge-intensive activities 35.9 60.3 24.4 Employment fast-growing enterprises -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	PCT patent applications			12.6	
Employment impacts87.897.910.2Employment in knowledge-intensive activities35.960.324.4Employment fast-growing enterprises-0.2Sales impacts45.933.5-12.4Medium and high tech product exports19.933.613.7Knowledge-intensive services exports18.648.029.4	Trademark applications	106.0		24.4	
Employment in knowledge-intensive activities 35.9 60.3 24.4 Employment fast-growing enterprises -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	Design applications			115.5	
Employment fast-growing enterprises -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	Employment impacts	87.8	97.9	10.2	
Employment fast-growing enterprises -0.2 Sales impacts 45.9 33.5 -12.4 Medium and high tech product exports 19.9 33.6 13.7 Knowledge-intensive services exports 18.6 48.0 29.4	Employment in knowledge-intensive activities		60.3	24.4	
Medium and high tech product exports19.933.613.7Knowledge-intensive services exports18.648.029.4	Employment fast-growing enterprises			-0.2	
Knowledge-intensive services exports 18.6 48.0 29.4	Sales impacts	45.9	33.5	-12.4	
	Medium and high tech product exports			13.7	
Sales of new-to-market/firm innovations 109.3 16.3 -92.9	Knowledge-intensive services exports			29.4	
	Sales of new-to-market/firm innovations	109.3	16.3	-92.9	

Dark green: normalised performance above 120% of EU; light green: normalised performance between 90% and 120% of EU; yellow: normalised performance between 50% and 90% of EU; orange: normalised performance below 50% of EU. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

Change highlighted in green is positive; change highlighted in light red is negative.