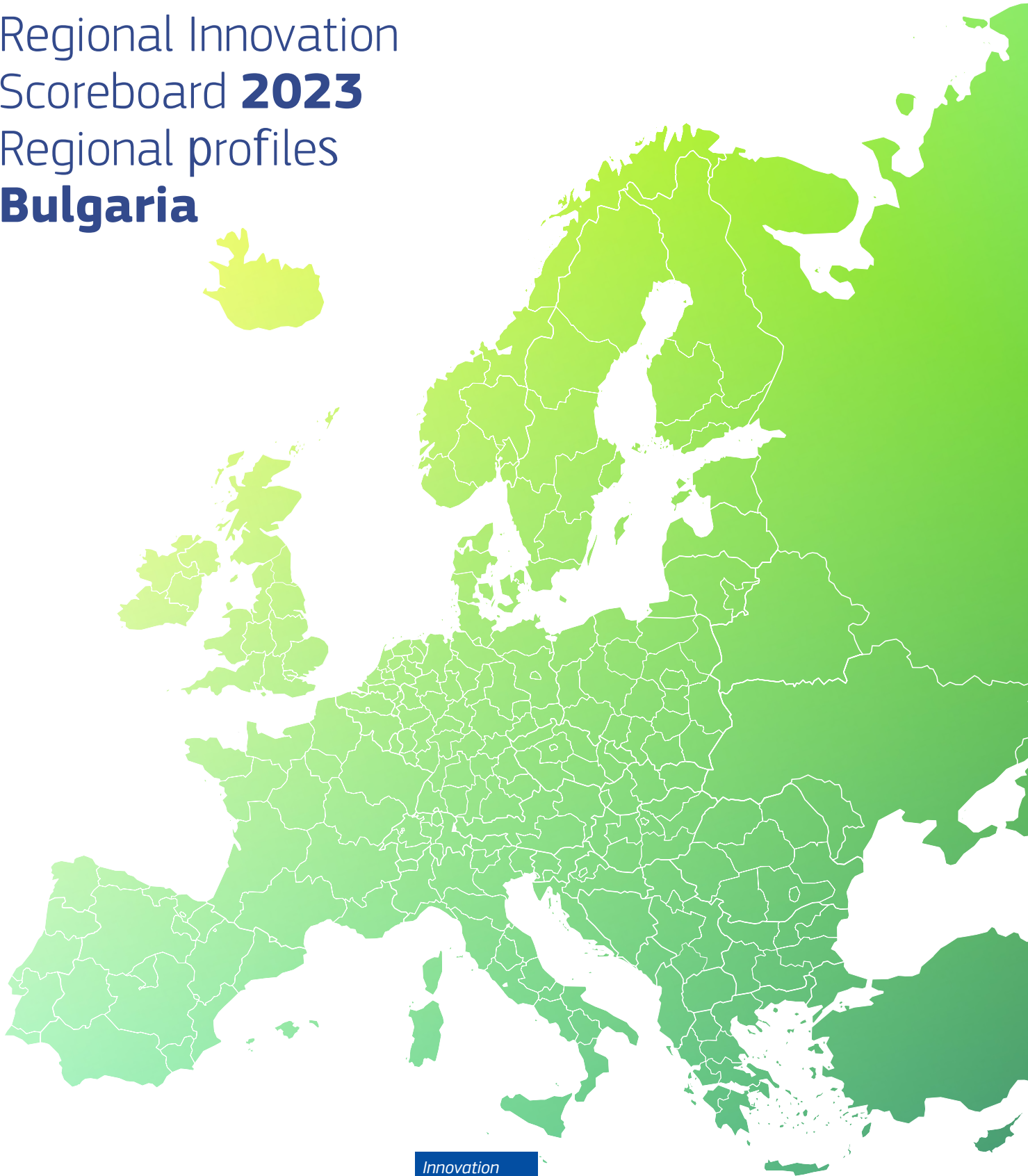




European
Commission

Regional Innovation Scoreboard **2023** Regional profiles **Bulgaria**



Innovation

Regional Innovation Scoreboard 2023 – Regional profiles Bulgaria

European Commission

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Regional Innovation Scoreboard 2023

Regional profiles Bulgaria

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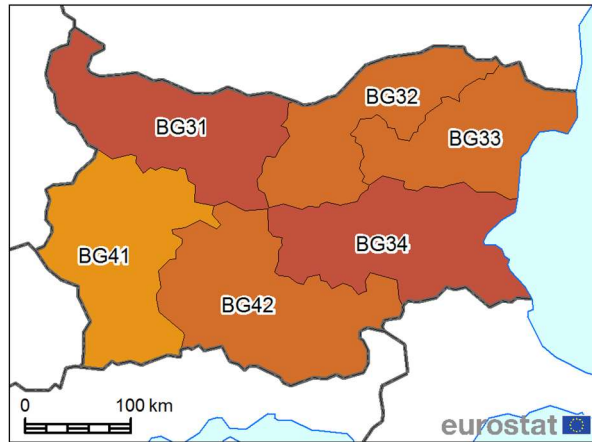
as part of the European Innovation Scoreboard project

for the European Commission, Directorate-General for Research and Innovation under

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BULGARIA



Map administrative boundaries: ©EuroGeographics ©UN-FAO ©Turkstat

NUTS	Region	RII	Rank	Group	Change
BG	Bulgaria	46.7	--	Emerging Innovator	4.4
BG31	Severozapaden	27.2	235	Emerging Innovator -	-3.7
BG32	Severen tsentralen	38.8	227	Emerging Innovator	4.9
BG33	Severoiztochen	36.2	229	Emerging Innovator	0.9
BG34	Yugoiztochen	33.6	233	Emerging Innovator -	6.9
BG41	Yugozapaden	61.6	195	Emerging Innovator +	8.3
BG42	Yuzhen tsentralen	40.1	226	Emerging Innovator	4.8

Bulgaria is an Emerging Innovator and includes six regions.

Yugozapaden (BG41), the capital region, is the only Emerging Innovator +. Three regions are an Emerging Innovator, and two regions are an Emerging Innovator -.

Innovation performance has increased for all regions, except for *Severozapaden* (BG31), but a lower rate than that of the EU (8.5). Performance has increased most for *Yugozapaden* (BG41).

Severozapaden (BG31)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	20.8	0.073	20	14
Lifelong learning	1.0	0.000	0	0
International scientific co-publications	70	0.015	15	5
Most-cited scientific publications	76.3	0.000	0	0
Above average digital skills	6.9	0.022	51	5
R&D expenditures public sector	0.12	0.157	54	28
R&D expenditures business sector	0.27	0.285	69	42
Non-R&D innovation expenditures	±	0.323	96	80
Innovation expenditures per person employed	±	0.190	82	32
Employed ICT specialists	n/a	n/a	n/a	n/a
Product innovators	±	0.357	82	64
Business process innovators	±	0.290	97	45
Innovative SMEs collaborating	±	0.206	72	42
Public-private co-publications	8.5	0.097	39	25
PCT patent applications	0.06	0.086	37	14
Trademark applications	2.78	0.187	31	37
Design applications	0.13	0.104	20	18
Employment knowledge-intensive activities	8.3	0.194	43	34
Employment innovative enterprises	±	0.343	99	60
Sales of innovative products	±	0.361	92	75
Air emissions by fine particulates	18.3	0.252	80	42
Average normalised score	--	0.177	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.149	--	--
Performance 2023 relative to EU in 2023	--	--	58.2	27.2
Performance 2023 relative to EU in 2016	--	--	--	29.5
Regional Innovation Index (RII) 2016	--	0.168	--	--
Performance 2016 relative to EU in 2016	--	--	71.7	33.2
Performance change over time	--	--	-13.5	-3.7

± Scores are not shown as these would allow recalculating confidential regional CIS data.

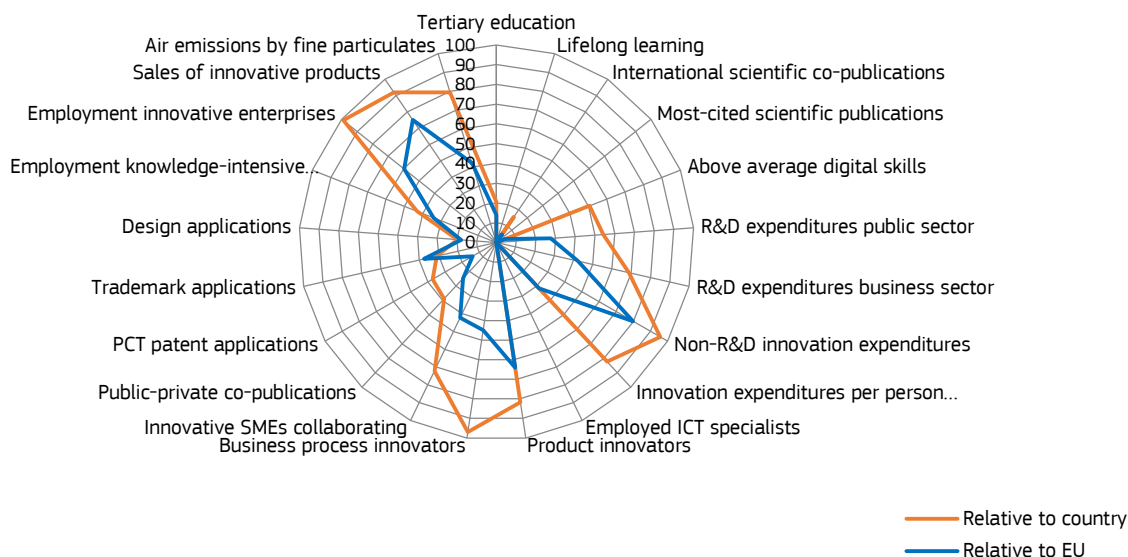
Severozapaden (BG31) is an Emerging Innovator -. Innovation performance has decreased over time (-3.7%).

The first 21 rows and two data columns in the table on the left show the values and the normalised scores per indicator. The last two data columns show relative performance of the normalised scores compared to Bulgaria and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Bulgaria (58.2) and the EU (27.2) in 2023, the RII in 2023 relative to the EU in 2016 (29.5), and the RII in 2016 relative to both Bulgaria (71.7) and the EU in 2016 (33.2). The last row shows performance change between 2016 and 2023 compared to Bulgaria (-13.5%) and to the EU (-3.7%).

The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Non-R&D innovation expenditures) and weaknesses (e.g. Lifelong learning).

The table below shows data highlighting possible structural differences, e.g. GDP per capita growth (above EU average) and Population density (below EU average).

	BG31	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	8.9	7.5	4.4
Manufacturing (C)	22.4	18.7	16.4
Utilities & Construction (D-F)	11.3	10.7	8.3
Services (G-N)	48.7	55.8	63.7
Public administration (O-U)	8.7	7.2	7.2
Average number of employed persons per enterprise	5.2	5.6	5.1
GDP per capita (PPS)	12,800	18,600	32,400
GDP per capita growth (PPS)	8.6	6.1	2.5
Population density	38	62	106
Urbanisation	53.9	70.9	75.8
Population size (000s)	720	6,920	447,210



Severen tsentralen (BG32)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	34.0	0.366	102	70
Lifelong learning	2.7	0.064	213	17
International scientific co-publications	127	0.029	30	9
Most-cited scientific publications	307.1	0.099	168	18
Above average digital skills	7.7	0.042	96	9
R&D expenditures public sector	0.03	0.024	8	4
R&D expenditures business sector	0.33	0.315	76	47
Non-R&D innovation expenditures	±	0.315	94	78
Innovation expenditures per person employed	±	0.187	81	31
Employed ICT specialists	1.6	0.145	37	28
Product innovators	±	0.394	90	71
Business process innovators	±	0.282	94	44
Innovative SMEs collaborating	±	0.242	85	50
Public-private co-publications	18.6	0.144	57	37
PCT patent applications	0.35	0.202	88	33
Trademark applications	5.95	0.403	66	81
Design applications	5.35	0.673	128	116
Employment knowledge-intensive activities	12.3	0.384	85	68
Employment innovative enterprises	±	0.379	110	66
Sales of innovative products	±	0.249	63	52
Air emissions by fine particulates	15.7	0.379	120	63
Average normalised score	--	0.253	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.213	--	--
Performance 2023 relative to EU in 2023	--	--	83.2	38.8
Performance 2023 relative to EU in 2016	--	--	--	42.1
Regional Innovation Index (RII) 2016	--	0.188	--	--
Performance 2016 relative to EU in 2016	--	--	80.4	37.2
Performance change over time	--	--	2.7	4.9

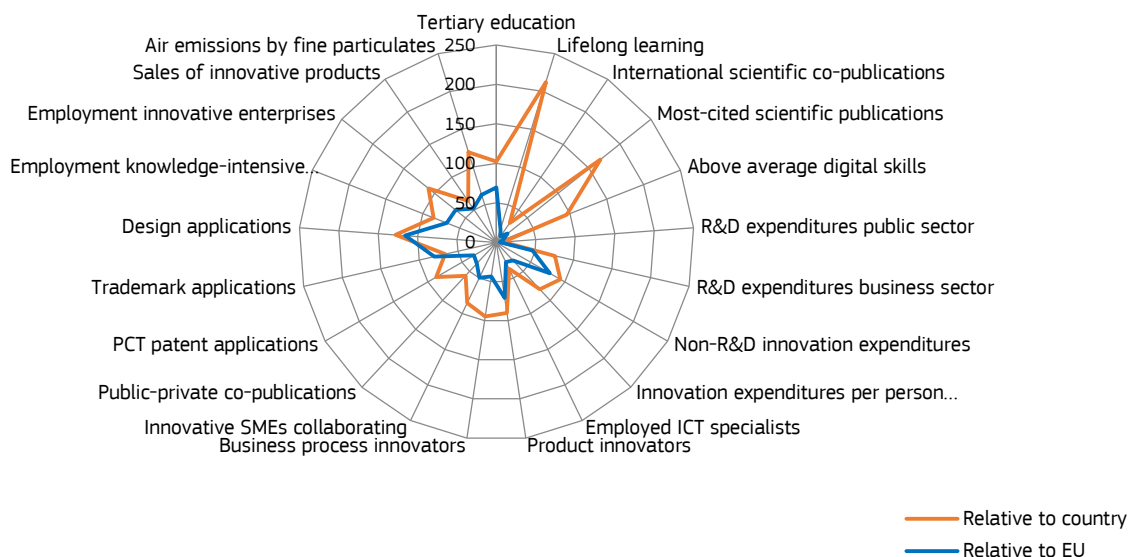
± Scores are not shown as these would allow recalculating confidential regional CIS data.

Severen tsentralen (BG32) is an Emerging Innovator. Innovation performance has increased over time (4.9%). The first 21 rows and two data columns in the table on the left show the values and the normalised scores per indicator. The last two data columns show relative performance of the normalised scores compared to Bulgaria and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Bulgaria (83.2) and the EU (38.8) in 2023, the RII in 2023 relative to the EU in 2016 (42.1), and the RII in 2016 relative to both Bulgaria (80.4) and the EU in 2016 (37.2). The last row shows performance change between 2016 and 2023 compared to Bulgaria (2.7%) and to the EU (4.9%).

The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Design applications) and weaknesses (e.g. R&D expenditures public sector).

The table below shows data highlighting possible structural differences, e.g. Employment in Agriculture & Mining (above EU average) and GDP per capita (below EU average).

	BG32	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	8.5	7.5	4.4
Manufacturing (C)	27.1	18.7	16.4
Utilities & Construction (D-F)	8.5	10.7	8.3
Services (G-N)	49.9	55.8	63.7
Public administration (O-U)	6.1	7.2	7.2
Average number of employed persons per enterprise	5.4	5.6	5.1
GDP per capita (PPS)	12,800	18,600	32,400
GDP per capita growth (PPS)	6.1	6.1	2.5
Population density	52	62	106
Urbanisation	61.6	70.9	75.8
Population size (000s)	760	6,920	447,210



Severoiztochen (BG33)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	28.0	0.233	65	44
Lifelong learning	1.0	0.000	0	0
International scientific co-publications	231	0.054	56	18
Most-cited scientific publications	185.0	0.017	30	3
Above average digital skills	8.0	0.047	108	10
R&D expenditures public sector	0.17	0.208	72	37
R&D expenditures business sector	0.18	0.233	56	35
Non-R&D innovation expenditures	±	0.447	133	111
Innovation expenditures per person employed	±	0.236	102	39
Employed ICT specialists	1.6	0.144	36	27
Product innovators	±	0.385	88	69
Business process innovators	±	0.247	83	38
Innovative SMEs collaborating	±	0.232	82	48
Public-private co-publications	27.4	0.174	70	44
PCT patent applications	0.28	0.181	79	29
Trademark applications	7.02	0.476	79	95
Design applications	1.11	0.307	58	53
Employment knowledge-intensive activities	11.4	0.341	76	60
Employment innovative enterprises	±	0.261	76	46
Sales of innovative products	±	0.319	81	66
Air emissions by fine particulates	14.9	0.417	132	70
Average normalised score	--	0.236	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.198	--	--
Performance 2023 relative to EU in 2023	--	--	77.6	36.2
Performance 2023 relative to EU in 2016	--	--	--	39.3
Regional Innovation Index (RII) 2016	--	0.194	--	--
Performance 2016 relative to EU in 2016	--	--	83.1	38.4
Performance change over time	--	--	-5.5	0.9

± Scores are not shown as these would allow recalculating confidential regional CIS data.

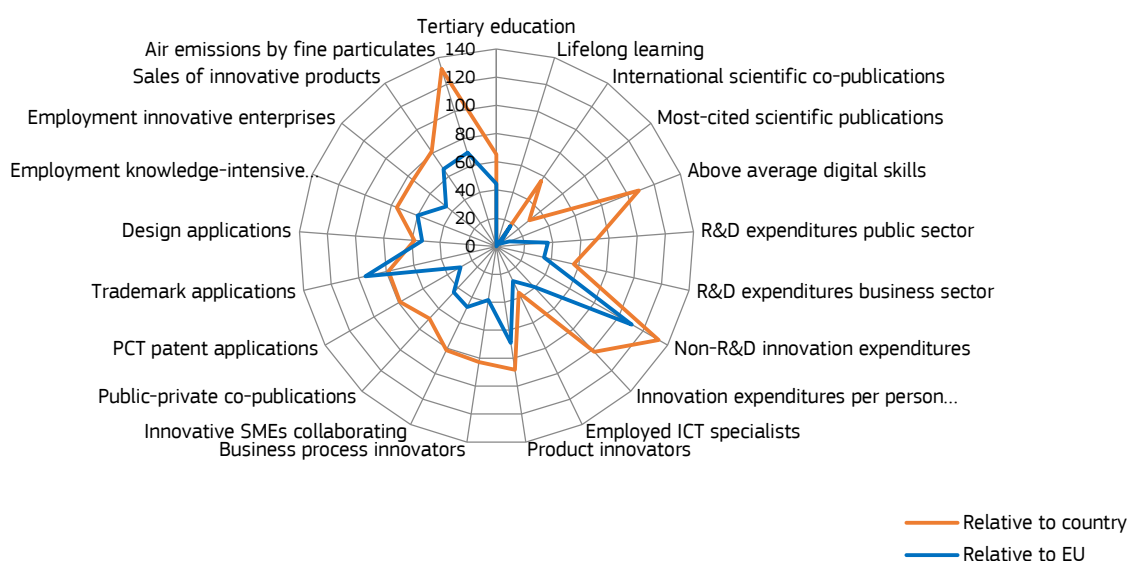
Severoiztochen (BG33) is an Emerging Innovator. Innovation performance has increased over time (0.9%).

The first 21 rows and two data columns in the table on the left show the values and the normalised scores per indicator. The last two data columns show relative performance of the normalised scores compared to Bulgaria and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Bulgaria (77.6) and the EU (36.2) in 2023, the RII in 2023 relative to the EU in 2016 (39.3), and the RII in 2016 relative to both Bulgaria (83.1) and the EU in 2016 (38.4). The last row shows performance change between 2016 and 2023 compared to Bulgaria (-5.5%) and to the EU (0.9%).

The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Non-R&D innovation expenditures) and weaknesses (e.g. Lifelong learning).

The table below shows data highlighting possible structural differences, e.g. Employment in Agriculture & Mining (above EU average) and GDP per capita (below EU average).

	BG33	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	9.1	7.5	4.4
Manufacturing (C)	13.2	18.7	16.4
Utilities & Construction (D-F)	14.9	10.7	8.3
Services (G-N)	57.4	55.8	63.7
Public administration (O-U)	5.5	7.2	7.2
Average number of employed persons per enterprise	4.8	5.6	5.1
GDP per capita (PPS)	14,000	18,600	32,400
GDP per capita growth (PPS)	4.4	6.1	2.5
Population density	63	62	106
Urbanisation	71.6	70.9	75.8
Population size (000s)	920	6,920	447,210



Yugoiztochen (BG34)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	24.8	0.162	45	31
Lifelong learning	1.1	0.004	13	1
International scientific co-publications	99	0.022	23	7
Most-cited scientific publications	180.0	0.014	24	3
Above average digital skills	7.7	0.040	91	8
R&D expenditures public sector	0.09	0.122	42	21
R&D expenditures business sector	0.27	0.285	69	42
Non-R&D innovation expenditures	±	0.307	91	76
Innovation expenditures per person employed	±	0.190	82	31
Employed ICT specialists	1.0	0.065	16	12
Product innovators	±	0.414	95	74
Business process innovators	±	0.242	81	37
Innovative SMEs collaborating	±	0.206	72	42
Public-private co-publications	25.7	0.169	68	43
PCT patent applications	0.30	0.188	82	31
Trademark applications	3.93	0.265	44	53
Design applications	1.47	0.353	67	61
Employment knowledge-intensive activities	10.8	0.313	69	55
Employment innovative enterprises	±	0.298	86	52
Sales of innovative products	±	0.478	122	99
Air emissions by fine particulates	14.0	0.462	146	77
Average normalised score	--	0.219	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.184	--	--
Performance 2023 relative to EU in 2023	--	--	72.0	33.6
Performance 2023 relative to EU in 2016	--	--	--	36.4
Regional Innovation Index (RII) 2016	--	0.149	--	--
Performance 2016 relative to EU in 2016	--	--	63.9	29.6
Performance change over time	--	--	8.1	6.9

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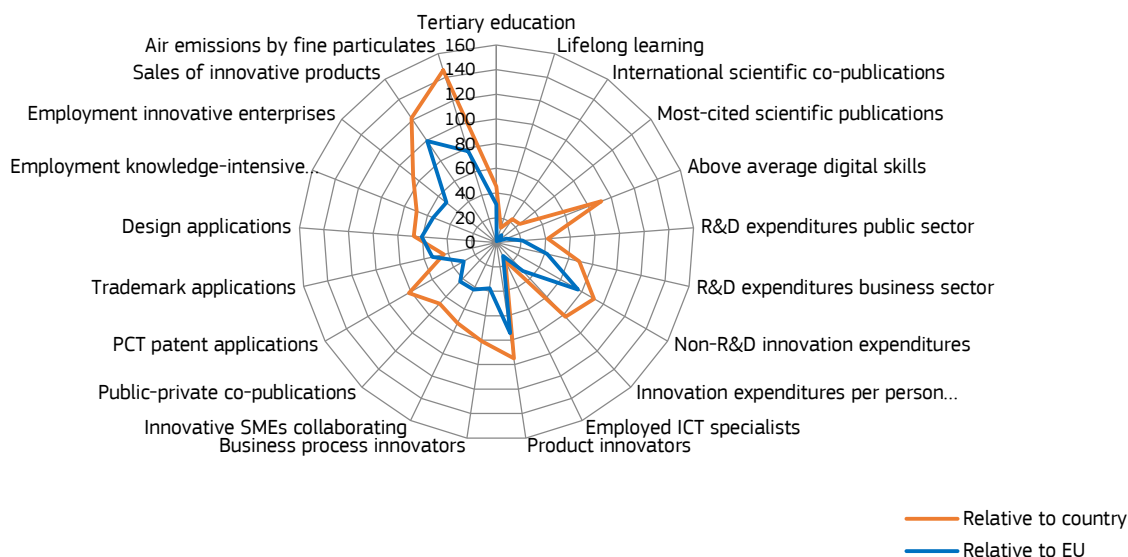
Yugoiztochen (BG34) is an Emerging Innovator -. Innovation performance has increased over time (6.9%).

The first 21 rows and two data columns in the table on the left show the values and the normalised scores per indicator. The last two data columns show relative performance of the normalised scores compared to Bulgaria and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Bulgaria (72) and the EU (33.6) in 2023, the RII in 2023 relative to the EU in 2016 (36.4), and the RII in 2016 relative to both Bulgaria (63.9) and the EU in 2016 (29.6). The last row shows performance change between 2016 and 2023 compared to Bulgaria (8.1%) and to the EU (6.9%).

The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Non-R&D innovation expenditures) and weaknesses (e.g. Lifelong learning).

The table below shows data highlighting possible structural differences, e.g. Employment in Agriculture & Mining (above EU average) and GDP per capita (below EU average).

	BG34	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	11.2	7.5	4.4
Manufacturing (C)	20.0	18.7	16.4
Utilities & Construction (D-F)	11.6	10.7	8.3
Services (G-N)	49.5	55.8	63.7
Public administration (O-U)	7.7	7.2	7.2
Average number of employed persons per enterprise	5.0	5.6	5.1
GDP per capita (PPS)	14,600	18,600	32,400
GDP per capita growth (PPS)	3.1	6.1	2.5
Population density	52	62	106
Urbanisation	68.0	70.9	75.8
Population size (000s)	1,020	6,920	447,210



Yugozapaden (BG41)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	46.5	0.643	180	122
Lifelong learning	2.4	0.053	175	14
International scientific co-publications	1025	0.247	257	80
Most-cited scientific publications	239.0	0.053	91	10
Above average digital skills	8.1	0.049	113	11
R&D expenditures public sector	0.41	0.383	132	67
R&D expenditures business sector	0.87	0.512	124	76
Non-R&D innovation expenditures	±	0.328	97	81
Innovation expenditures per person employed	±	0.275	119	46
Employed ICT specialists	7.4	0.915	232	174
Product innovators	±	0.496	114	89
Business process innovators	±	0.347	116	54
Innovative SMEs collaborating	±	0.355	125	73
Public-private co-publications	149.7	0.408	163	104
PCT patent applications	0.58	0.260	113	42
Trademark applications	12.14	0.824	136	165
Design applications	4.36	0.608	116	105
Employment knowledge-intensive activities	18.7	0.687	153	121
Employment innovative enterprises	±	0.383	111	67
Sales of innovative products	±	0.412	105	86
Air emissions by fine particulates	19.5	0.190	60	32
Average normalised score	--	0.401	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.337	--	--
Performance 2023 relative to EU in 2023	--	--	131.9	61.6
Performance 2023 relative to EU in 2016	--	--	--	66.8
Regional Innovation Index (RII) 2016	--	0.295	--	--
Performance 2016 relative to EU in 2016	--	--	126.3	58.4
Performance change over time	--	--	5.6	8.3

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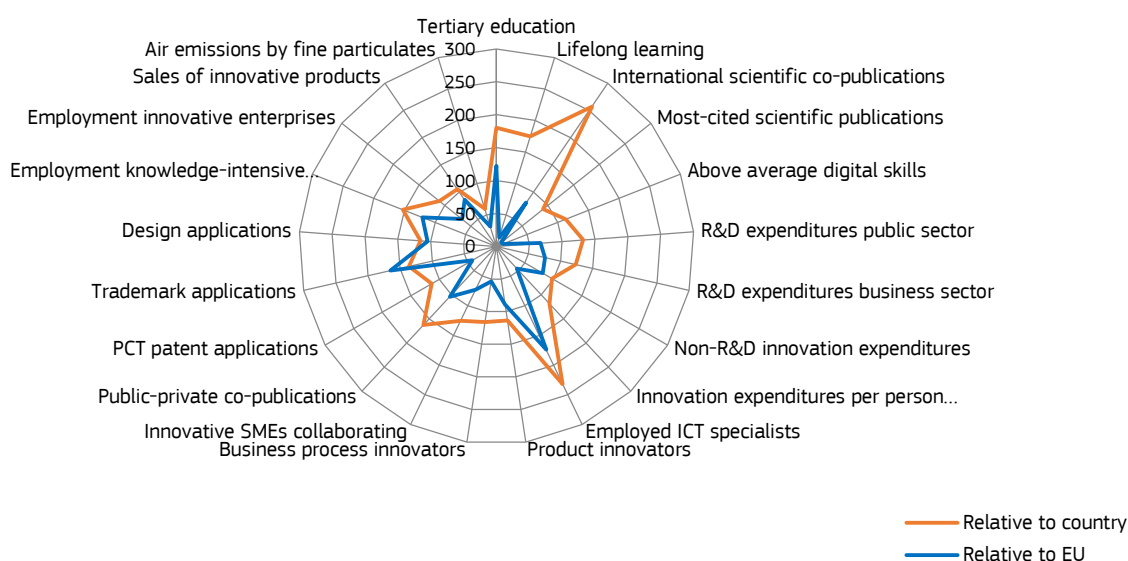
Yugozapaden (BG41) is an Emerging Innovator +. Innovation performance has increased over time (8.3%).

The first 21 rows and two data columns in the table on the left show the values and the normalised scores per indicator. The last two data columns show relative performance of the normalised scores compared to Bulgaria and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Bulgaria (131.9) and the EU (61.6) in 2023, the RII in 2023 relative to the EU in 2016 (66.8), and the RII in 2016 relative to both Bulgaria (126.3) and the EU in 2016 (58.4). The last row shows performance change between 2016 and 2023 compared to Bulgaria (5.6%) and to the EU (8.3%).

The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Employed ICT specialists) and weaknesses (e.g. Most-cited scientific publications).

The table below shows data highlighting possible structural differences, e.g. GDP per capita growth (above EU average) and Employment in Agriculture & Mining (below EU average).

	BG41	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	3.3	7.5	4.4
Manufacturing (C)	12.7	18.7	16.4
Utilities & Construction (D-F)	9.1	10.7	8.3
Services (G-N)	67.3	55.8	63.7
Public administration (O-U)	7.6	7.2	7.2
Average number of employed persons per enterprise	6.2	5.6	5.1
GDP per capita (PPS)	31,100	18,600	32,400
GDP per capita growth (PPS)	6.9	6.1	2.5
Population density	103	62	106
Urbanisation	84.3	70.9	75.8
Population size (000s)	2,090	6,920	447,210



Yuzhen tsentralen (BG42)

	Data	Normalised score	Relative to	
			BG	EU
Tertiary education	26.5	0.200	56	38
Lifelong learning	1.8	0.030	100	8
International scientific co-publications	274	0.064	67	21
Most-cited scientific publications	384.6	0.150	255	27
Above average digital skills	8.0	0.048	110	10
R&D expenditures public sector	0.18	0.217	75	38
R&D expenditures business sector	0.33	0.315	76	47
Non-R&D innovation expenditures	±	0.328	97	81
Innovation expenditures per person employed	±	0.185	80	31
Employed ICT specialists	1.8	0.176	44	33
Product innovators	±	0.406	93	73
Business process innovators	±	0.271	91	42
Innovative SMEs collaborating	±	0.258	91	53
Public-private co-publications	41.7	0.215	86	55
PCT patent applications	0.48	0.236	103	38
Trademark applications	7.36	0.499	82	100
Design applications	2.74	0.481	92	83
Employment knowledge-intensive activities	11.3	0.336	75	59
Employment innovative enterprises	±	0.320	93	56
Sales of innovative products	±	0.423	108	88
Air emissions by fine particulates	16.6	0.332	105	55
Average normalised score	--	0.261	--	--
Country EIS-RIS correction factor	--	0.840	--	--
Regional Innovation Index (RII) 2023	--	0.220	--	--
Performance 2023 relative to EU in 2023	--	--	85.9	40.1
Performance 2023 relative to EU in 2016	--	--	--	43.5
Regional Innovation Index (RII) 2016	--	0.195	--	--
Performance 2016 relative to EU in 2016	--	--	83.6	38.7
Performance change over time	--	--	2.3	4.8

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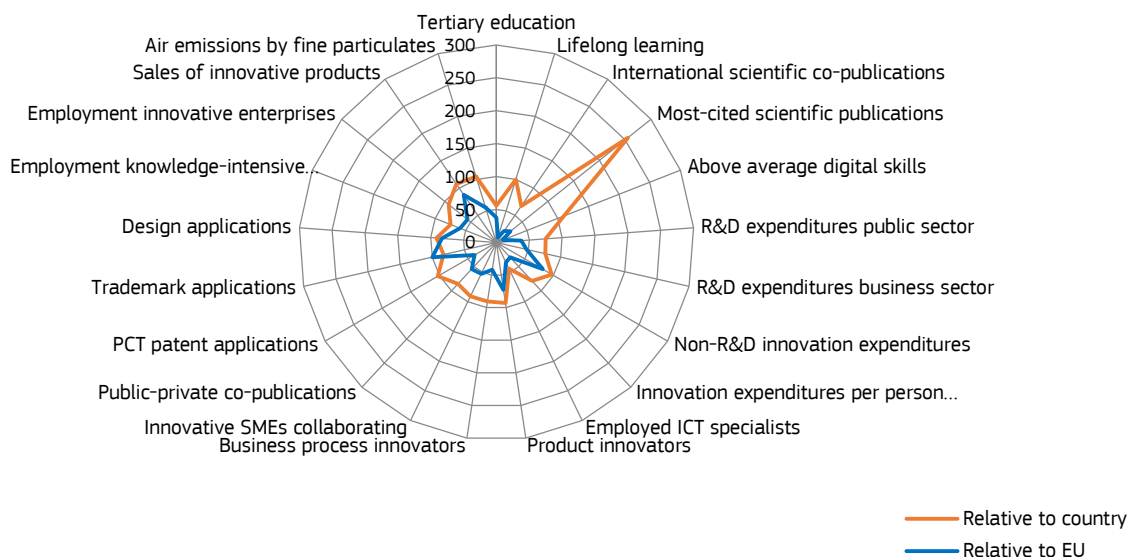
Yuzhen tsentralen (BG42) is an Emerging Innovator. Innovation performance has increased over time (4.8%).

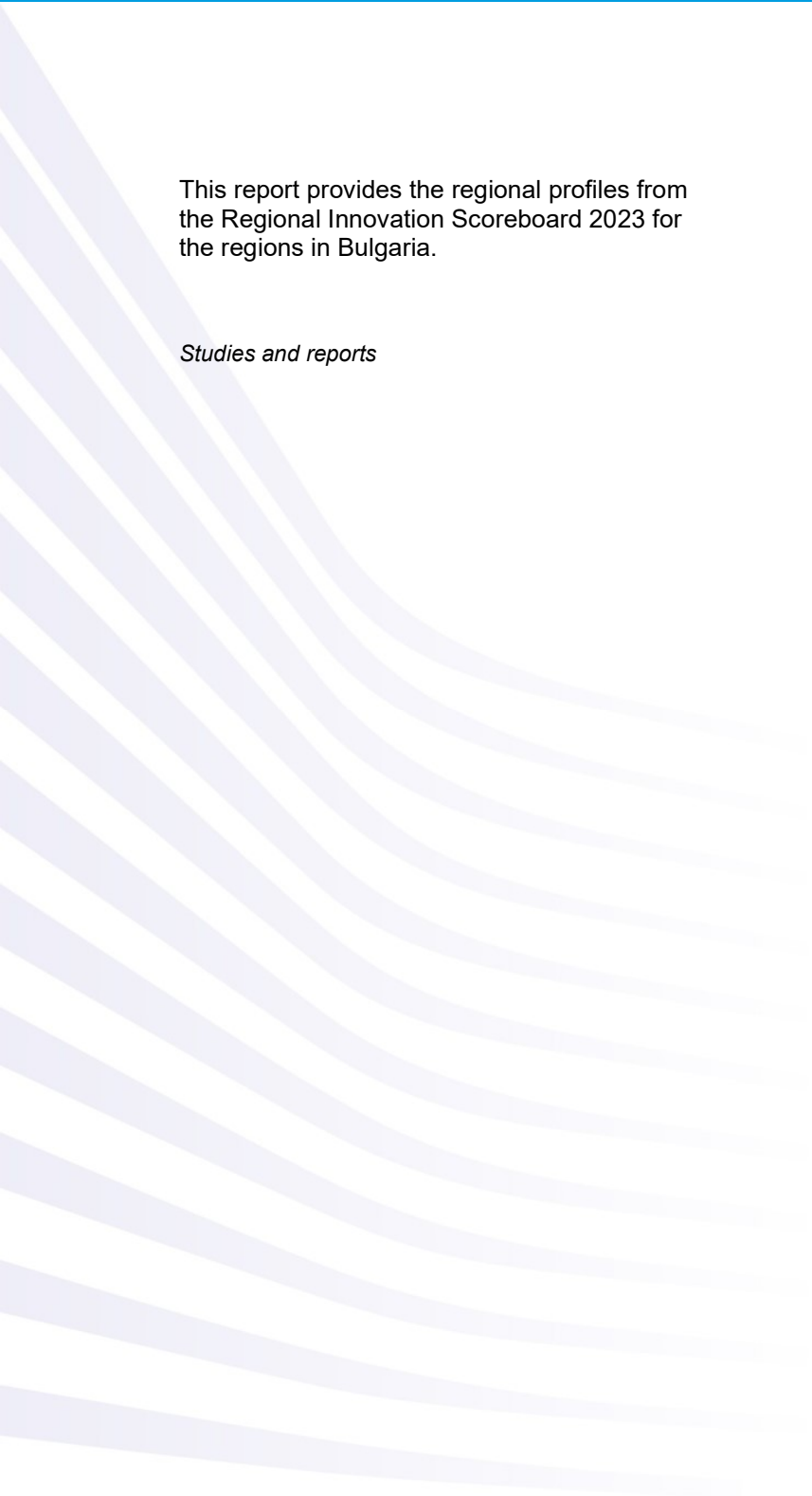
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The radar graph shows relative strengths compared to Bulgaria (orange line) and the EU (blue line), showing relative strengths (e.g. Trademark applications) and weaknesses (e.g. Lifelong learning).

The table below shows data highlighting possible structural differences, e.g. Employment in Agriculture & Mining (above EU average) and GDP per capita (below EU average).

	BG42	BG	EU
Share of employment in:			
Agriculture & Mining (A-B)	10.0	7.5	4.4
Manufacturing (C)	25.0	18.7	16.4
Utilities & Construction (D-F)	11.1	10.7	8.3
Services (G-N)	46.5	55.8	63.7
Public administration (O-U)	7.4	7.2	7.2
Average number of employed persons per enterprise	5.3	5.6	5.1
GDP per capita (PPS)	12,300	18,600	32,400
GDP per capita growth (PPS)	4.5	6.1	2.5
Population density	63	62	106
Urbanisation	66.2	70.9	75.8
Population size (000s)	1,400	6,920	447,210





This report provides the regional profiles from the Regional Innovation Scoreboard 2023 for the regions in Bulgaria.

Studies and reports