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# Regional Innovation Scoreboard **2023** Regional profiles **Croatia**



*Innovation*

## Regional Innovation Scoreboard 2023 – Regional profiles Croatia

European Commission

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# **Regional Innovation Scoreboard 2023**

## **Regional profiles Croatia**

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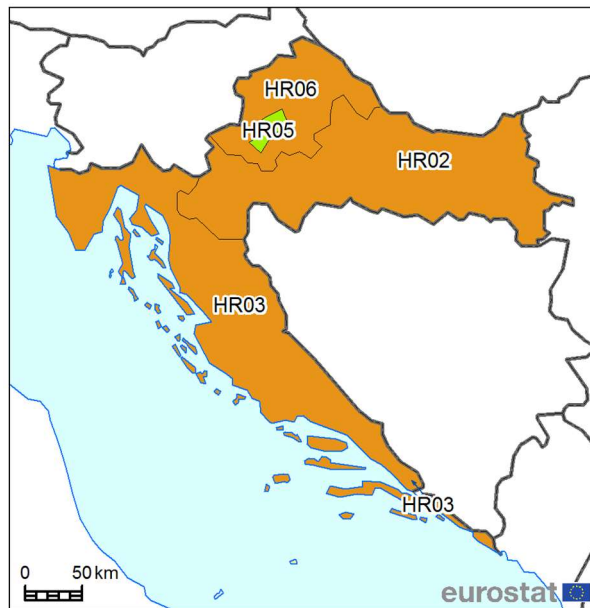
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## CROATIA



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

NUTS	Region	RII	Rank	Group	Change
HR	Croatia	69.6	--	Emerging Innovator	14.8
HR02	Panonska Hrvatska	60.6	196	Emerging Innovator +	5.5
HR03	Jadranska Hrvatska	66.9	186	Emerging Innovator +	12.3
HR05	Grad Zagreb	102.8	96	Strong Innovator -	22.2
HR06	Sjeverna Hrvatska	68.1	181	Emerging Innovator +	8.9

Croatia is an Emerging Innovator and includes four regions.

*Grad Zagreb* (HR05), the capital region, is a Strong Innovator -performing above the EU average. The other regions are Emerging Innovators +.

Performance has increased for all regions, most strongly for *Grad Zagreb* (HR05). For three regions performance has increased at a higher rate than that of the EU (8.5), only for *Panonska Hrvatska* (HR02) the performance increase has been lower than that of the EU.

Panonska Hrvatska (HR02)

	Data	Normalised score	Relative to	
			HR	EU
Tertiary education	29.4	0.264	65	50
Lifelong learning	3.7	0.102	66	28
International scientific co-publications	496	0.118	45	39
Most-cited scientific publications	463.1	0.202	93	37
Above average digital skills	30.2	0.556	96	118
R&D expenditures public sector	1.84	0.932	183	164
R&D expenditures business sector	0.56	0.411	97	61
Non-R&D innovation expenditures	±	0.302	82	75
Innovation expenditures per person employed	±	0.215	71	36
Employed ICT specialists	3.9	0.442	108	84
Product innovators	±	0.612	83	110
Business process innovators	±	0.628	85	97
Innovative SMEs collaborating	±	0.328	66	67
Public-private co-publications	106.6	0.344	73	88
PCT patent applications	0.49	0.239	97	39
Trademark applications	1.78	0.119	49	24
Design applications	0.99	0.290	102	50
Employment knowledge-intensive activities	9.0	0.227	61	40
Employment innovative enterprises	±	0.535	91	93
Sales of innovative products	±	0.692	87	144
Air emissions by fine particulates	17.8	0.277	70	46
Average normalised score	--	0.373	--	--
Country EIS-RIS correction factor	--	0.890	--	--
Regional Innovation Index (RII) 2023	--	0.332	--	--
Performance 2023 relative to EU in 2023	--	--	87.1	60.6
Performance 2023 relative to EU in 2016	--	--	--	65.7
Regional Innovation Index (RII) 2016	--	0.304	--	--
Performance 2016 relative to EU in 2016	--	--	99.3	60.2
Performance change over time	--	--	-12.2	5.5

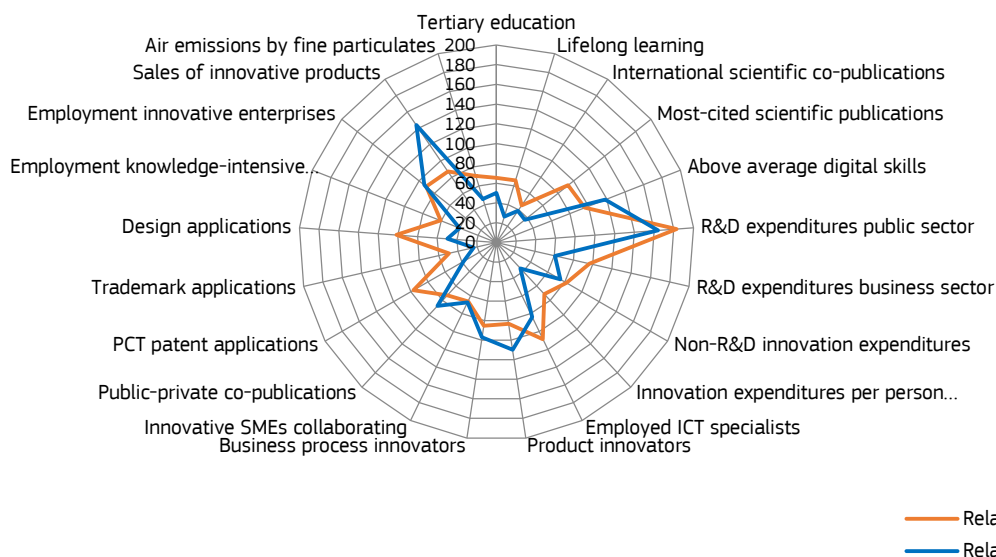
± Scores are not shown as these would allow recalculating confidential regional CIS data.

Panonska Hrvatska (HR02) is an Emerging Innovator +. Innovation performance has increased over time (5.5%). 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 Croatia and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Croatia (87.1) and the EU (60.6) in 2023, the RII in 2023 relative to the EU in 2016 (65.7), and the RII in 2016 relative to both Croatia (99.3) and the EU in 2016 (60.2). The last row shows performance change between 2016 and 2023 compared to Croatia (-12.2%) and to the EU (5.5%).

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

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).

	HR02	HR	EU
Share of employment in:			
Agriculture & Mining (A-B)	13.8	6.6	4.4
Manufacturing (C)	20.1	17.8	16.4
Utilities & Construction (D-F)	10.4	10.2	8.3
Services (G-N)	47.1	58.1	63.7
Public administration (O-U)	8.6	7.3	7.2
Average number of employed persons per enterprise	5.6	6.1	5.1
GDP per capita (PPS)	14,400	22,600	32,400
GDP per capita growth (PPS)	5.1	4.8	2.5
Population density	n/a	71	106
Urbanisation	54.1	63.7	75.8
Population size (000s)	1,050	4,040	447,210



Jadranska Hrvatska (HR03)

	Data	Normalised score	Relative to	
			HR	EU
Tertiary education	34.9	0.386	96	73
Lifelong learning	4.2	0.121	78	33
International scientific co-publications	968	0.233	89	76
Most-cited scientific publications	547.3	0.258	118	47
Above average digital skills	31.7	0.589	102	125
R&D expenditures public sector	3.42	1.000	196	176
R&D expenditures business sector	1.16	0.591	139	88
Non-R&D innovation expenditures	±	0.481	130	119
Innovation expenditures per person employed	±	0.269	89	45
Employed ICT specialists	1.2	0.085	21	16
Product innovators	±	0.565	77	101
Business process innovators	±	0.666	90	103
Innovative SMEs collaborating	±	0.438	88	90
Public-private co-publications	160.5	0.422	90	108
PCT patent applications	0.59	0.264	107	43
Trademark applications	2.85	0.192	80	38
Design applications	0.56	0.218	76	38
Employment knowledge-intensive activities	10.1	0.280	75	49
Employment innovative enterprises	±	0.483	82	84
Sales of innovative products	±	0.583	73	121
Air emissions by fine particulates	12.7	0.528	134	88
Average normalised score	--	0.412	--	--
Country EIS-RIS correction factor	--	0.890	--	--
Regional Innovation Index (RII) 2023	--	0.367	--	--
Performance 2023 relative to EU in 2023	--	--	96.2	66.9
Performance 2023 relative to EU in 2016	--	--	--	72.6
Regional Innovation Index (RII) 2016	--	0.304	--	--
Performance 2016 relative to EU in 2016	--	--	99.4	60.3
Performance change over time	--	--	-3.1	12.3

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

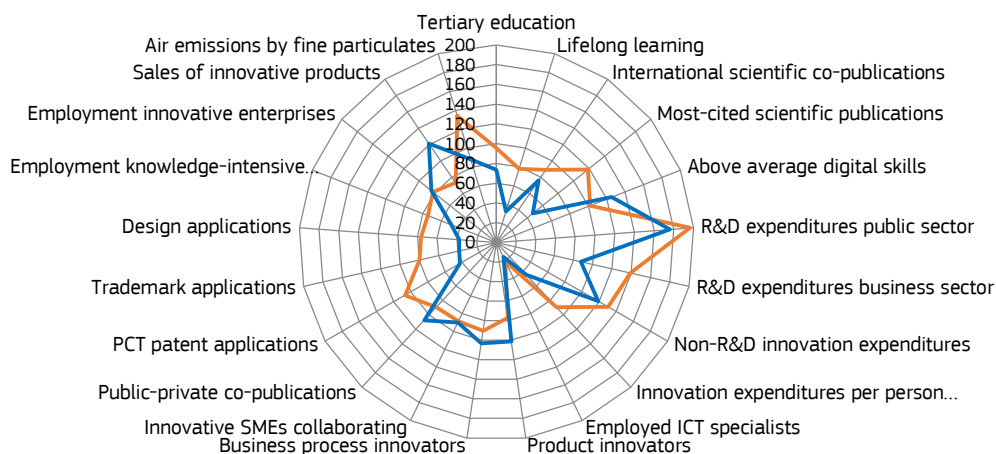
Jadranska Hrvatska (HR03) is an Emerging Innovator +. Innovation performance has increased over time (12.3%).

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 Croatia and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Croatia (96.2) and the EU (66.9) in 2023, the RII in 2023 relative to the EU in 2016 (72.6), and the RII in 2016 relative to both Croatia (99.4) and the EU in 2016 (60.3). The last row shows performance change between 2016 and 2023 compared to Croatia (-3.1%) and to the EU (12.3%).

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

The table below shows data highlighting possible structural differences, e.g. Employment in Utilities & Construction (above EU average) and Employment in Manufacturing (below EU average).

	HR03	HR	EU
Share of employment in:			
Agriculture & Mining (A-B)	4.2	6.6	4.4
Manufacturing (C)	11.4	17.8	16.4
Utilities & Construction (D-F)	10.8	10.2	8.3
Services (G-N)	66.0	58.1	63.7
Public administration (O-U)	7.6	7.3	7.2
Average number of employed persons per enterprise	4.6	6.1	5.1
GDP per capita (PPS)	21,000	22,600	32,400
GDP per capita growth (PPS)	3.4	4.8	2.5
Population density	55	71	106
Urbanisation	60.0	63.7	75.8
Population size (000s)	1,370	4,040	447,210



— Relative to country  
— Relative to EU

Grad Zagreb (HR05)

	Data	Normalised score	Relative to	
			HR	EU
Tertiary education	50.6	0.734	182	140
Lifelong learning	10.9	0.375	241	101
International scientific co-publications	3784	0.916	350	299
Most-cited scientific publications	491.6	0.221	101	40
Above average digital skills	30.2	0.556	96	118
R&D expenditures public sector	9.69	1.000	196	176
R&D expenditures business sector	8.39	1.000	235	148
Non-R&D innovation expenditures	±	0.346	94	86
Innovation expenditures per person employed	±	0.407	135	68
Employed ICT specialists	4.8	0.561	138	106
Product innovators	±	0.993	135	178
Business process innovators	±	0.883	120	137
Innovative SMEs collaborating	±	0.751	152	154
Public-private co-publications	781.1	0.931	198	237
PCT patent applications	0.49	0.239	97	39
Trademark applications	5.70	0.386	161	77
Design applications	1.35	0.338	119	58
Employment knowledge-intensive activities	20.1	0.754	201	133
Employment innovative enterprises	±	0.714	121	124
Sales of innovative products	±	0.898	113	187
Air emissions by fine particulates	17.6	0.285	72	47
Average normalised score	--	0.633	--	--
Country EIS-RIS correction factor	--	0.890	--	--
Regional Innovation Index (RII) 2023	--	0.563	--	--
Performance 2023 relative to EU in 2023	--	--	147.8	102.8
Performance 2023 relative to EU in 2016	--	--	--	111.5
Regional Innovation Index (RII) 2016	--	0.451	--	--
Performance 2016 relative to EU in 2016	--	--	147.3	89.4
Performance change over time	--	--	0.5	22.2

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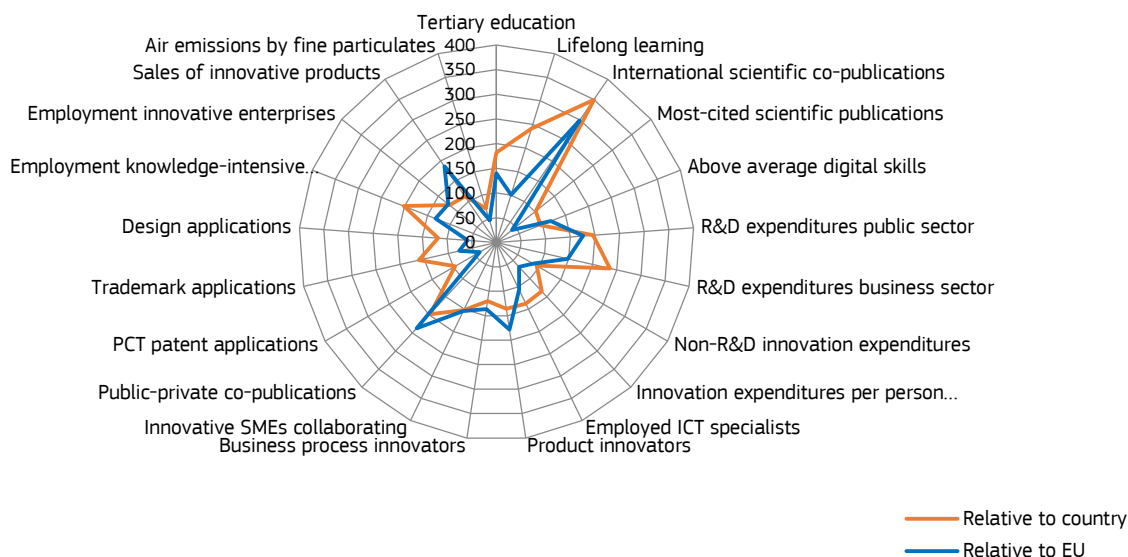
Grad Zagreb (HR05) is a Strong Innovator -. Innovation performance has increased over time (22.2%).

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 Croatia and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Croatia (147.8) and the EU (102.8) in 2023, the RII in 2023 relative to the EU in 2016 (111.5), and the RII in 2016 relative to both Croatia (147.3) and the EU in 2016 (89.4). The last row shows performance change between 2016 and 2023 compared to Croatia (0.5%) and to the EU (22.2%).

The radar graph shows relative strengths compared to Croatia (orange line) and the EU (blue line), showing relative strengths (e.g. International scientific co-publications) and weaknesses (e.g. PCT patent applications).

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

	HR05	HR	EU
Share of employment in:			
Agriculture & Mining (A-B)	0.8	6.6	4.4
Manufacturing (C)	14.1	17.8	16.4
Utilities & Construction (D-F)	6.8	10.2	8.3
Services (G-N)	70.0	58.1	63.7
Public administration (O-U)	8.2	7.3	7.2
Average number of employed persons per enterprise	7.5	6.1	5.1
GDP per capita (PPS)	42,400	22,600	32,400
GDP per capita growth (PPS)	5.4	4.8	2.5
Population density	n/a	71	106
Urbanisation	100.0	63.7	75.8
Population size (000s)	810	4,040	447,210



Sjeverna Hrvatska (HR06)

	Data	Normalised score	Relative to	
			HR	EU
Tertiary education	31.2	0.304	75	58
Lifelong learning	2.8	0.068	44	18
International scientific co-publications	235	0.055	21	18
Most-cited scientific publications	441.7	0.188	86	34
Above average digital skills	30.2	0.556	96	118
R&D expenditures public sector	0.81	0.582	114	102
R&D expenditures business sector	6.92	1.000	235	148
Non-R&D innovation expenditures	±	0.369	100	91
Innovation expenditures per person employed	±	0.252	83	42
Employed ICT specialists	3.9	0.449	110	85
Product innovators	±	0.706	96	126
Business process innovators	±	0.733	99	114
Innovative SMEs collaborating	±	0.393	79	81
Public-private co-publications	92.9	0.321	68	82
PCT patent applications	0.49	0.239	97	39
Trademark applications	2.32	0.155	65	31
Design applications	0.84	0.267	94	46
Employment knowledge-intensive activities	10.1	0.280	75	49
Employment innovative enterprises	±	0.589	100	103
Sales of innovative products	±	0.839	106	175
Air emissions by fine particulates	14.0	0.460	117	77
Average normalised score	--	0.419	--	--
Country EIS-RIS correction factor	--	0.890	--	--
Regional Innovation Index (RII) 2023	--	0.373	--	--
Performance 2023 relative to EU in 2023	--	--	97.9	68.1
Performance 2023 relative to EU in 2016	--	--	--	73.9
Regional Innovation Index (RII) 2016	--	0.328	--	--
Performance 2016 relative to EU in 2016	--	--	107.1	65.0
Performance change over time	--	--	-9.2	8.9

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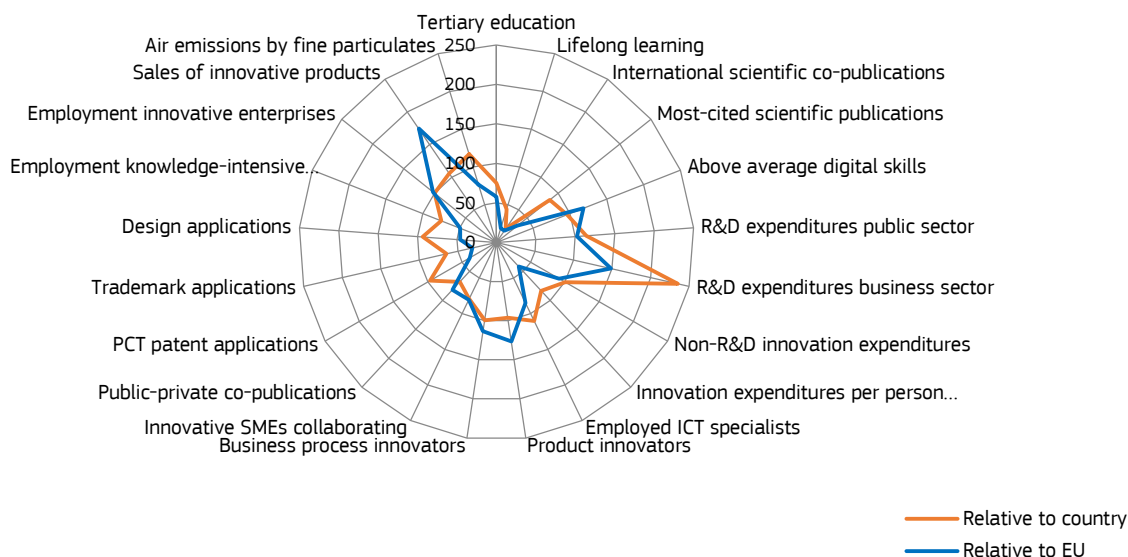
Sjeverna Hrvatska (HR06) is an Emerging Innovator +. Innovation performance has increased over time (8.9%).

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 Croatia and the EU. The next 7 rows show the calculation of the Regional Innovation Index (RII), the RII relative to both Croatia (97.9) and the EU (68.1) in 2023, the RII in 2023 relative to the EU in 2016 (73.9), and the RII in 2016 relative to both Croatia (107.1) and the EU in 2016 (65). The last row shows performance change between 2016 and 2023 compared to Croatia (-9.2%) and to the EU (8.9%).

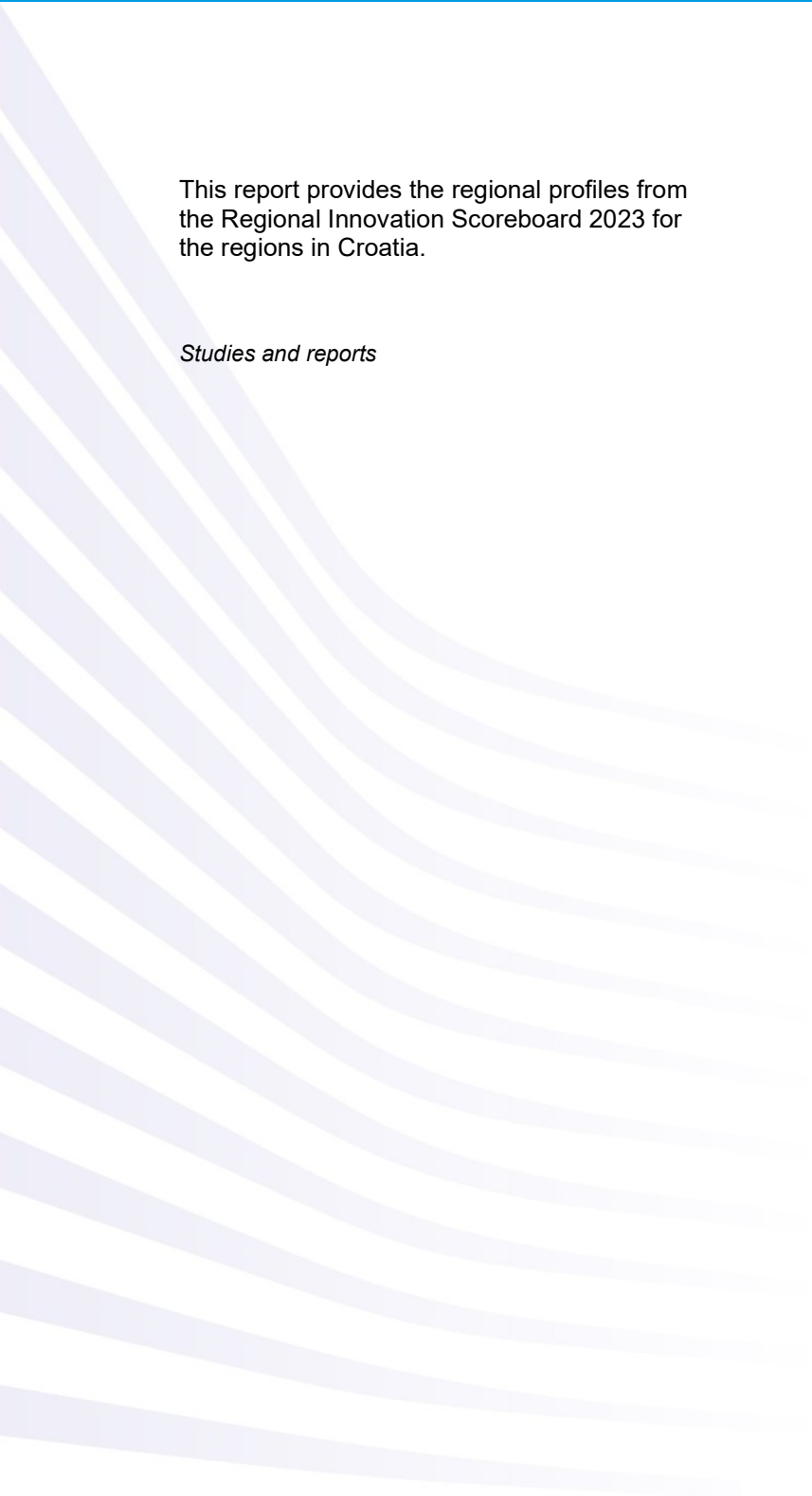
The radar graph shows relative strengths compared to Croatia (orange line) and the EU (blue line), showing relative strengths (e.g. R&D expenditures business sector) and weaknesses (e.g. International scientific co-publications).

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

	HR06	HR	EU
Share of employment in:			
Agriculture & Mining (A-B)	8.1	6.6	4.4
Manufacturing (C)	28.1	17.8	16.4
Utilities & Construction (D-F)	12.4	10.2	8.3
Services (G-N)	46.9	58.1	63.7
Public administration (O-U)	4.5	7.3	7.2
Average number of employed persons per enterprise	6.6	6.1	5.1
GDP per capita (PPS)	18,300	22,600	32,400
GDP per capita growth (PPS)	6.2	4.8	2.5
Population density	n/a	71	106
Urbanisation	44.4	63.7	75.8
Population size (000s)	810	4,040	447,210







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

*Studies and reports*