



European  
Commission

# European Innovation Scoreboard **2023** Country profile **Czechia**



Innovation

## European Innovation Scoreboard 2023 – Country profile Czechia

European Commission

Directorate-General for Research and Innovation

Directorate G – Common Policy Centre

Unit G.1 – Common R&I Strategy & Foresight Service

Contact Alexandr Hobza, Chief Economist and Head of Unit G.1

Athina Karvounaraki

Alexis Stevenson

Email RTD-STATISTICS@ec.europa.eu

RTD-PUBLICATIONS@ec.europa.eu

Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

Directorate A – Strategy and Economic Analysis

Unit A.1 – Chief Economist

Contact Román Arjona, Chief Economist and Head of Unit A.1

Xosé-Luís Varela-Irímia

Email GROW-A1@ec.europa.eu

European Commission

B-1049 Brussels

Manuscript completed in June 2023.

This document has been prepared for the European Commission; however it reflects the views only of the authors, and the European Commission shall not be liable for any consequence stemming from the reuse.

© European Union, 2023



The reuse policy of European Commission documents is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Unless otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightsholders.

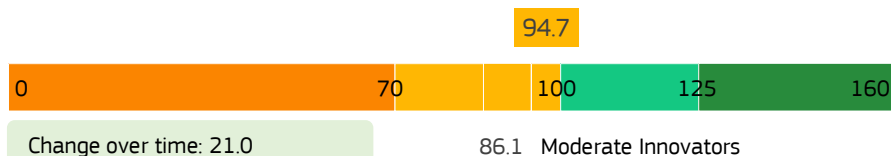
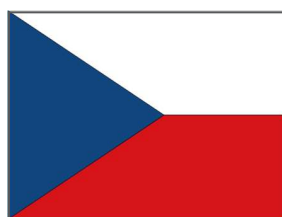
# European Innovation Scoreboard 2023 Country profile Czechia

**The report was prepared by**

*Hugo Hollanders, Nordine Es-Sadki and Aishe Khalilova*  
(Maastricht University / UNU-MERIT)

as part of the European Innovation Scoreboard project  
for the European Commission, Directorate-General for Research and Innovation under  
Framework Contract N° 2018/RTD/A2/OP/PP-07001-2018 Lot 2 (EDAR)

The European Innovation Scoreboard report and annexes, and the indicators database are available at:  
[https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard\\_en](https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en)



## Czechia

	Performance relative to EU in 2023	Performance change 2016-2023	Performance change 2022-2023
<b>SUMMARY INNOVATION INDEX</b>	<b>94.7</b>	<b>21.0</b>	<b>10.5</b>
<b>Human resources</b>	<b>82.7</b>	<b>9.2</b>	<b>9.2</b>
Doctorate graduates	114.8	0.0	0.0
Population with tertiary education	56.6	-2.4	-2.4
Lifelong learning	75.5	39.6	39.6
<b>Attractive research systems</b>	<b>82.6</b>	<b>28.6</b>	<b>3.8</b>
International scientific co-publications	103.1	52.2	-2.2
Most cited publications	47.7	4.0	1.9
Foreign doctorate students	126.9	63.0	13.8
<b>Digitalisation</b>	<b>76.7</b>	<b>12.7</b>	<b>6.9</b>
Broadband penetration	67.6	25.1	13.6
People with above basic overall digital skills	89.3	0.0	0.0
<b>Finance and support</b>	<b>82.1</b>	<b>10.2</b>	<b>-2.1</b>
R&D expenditures in the public sector	96.9	-21.0	-4.8
Venture capital expenditures	81.4	87.9	5.1
Government support for business R&D	65.7	-28.8	-5.9
<b>Firm investments</b>	<b>113.2</b>	<b>38.3</b>	<b>34.0</b>
R&D expenditure in the business sector	83.3	13.1	3.1
Non-R&D Innovation expenditures	158.8	49.8	45.0
Innovation expenditures per employee	104.8	52.7	54.5
<b>Use of information technologies</b>	<b>100.4</b>	<b>2.3</b>	<b>-6.8</b>
Enterprises providing ICT training	104.0	8.3	-10.2
Employed ICT specialists	96.7	-3.4	-3.4
<b>Innovators</b>	<b>138.2</b>	<b>104.6</b>	<b>65.9</b>
Product innovators (SMEs)	136.3	66.1	55.8
Business process innovators (SMEs)	139.8	145.7	76.8
<b>Linkages</b>	<b>94.1</b>	<b>43.7</b>	<b>8.7</b>
Innovative SMEs collaborating with others	127.8	55.6	34.5
Public-private co-publications	137.8	57.2	2.1
Job-to-job mobility of HRST	47.9	26.5	-11.8
<b>Intellectual assets</b>	<b>63.1</b>	<b>-0.6</b>	<b>0.1</b>
PCT patent applications	41.6	-7.2	0.3
Trademark applications	87.9	22.2	3.7
Design applications	67.3	-10.1	-2.8
<b>Employment impacts</b>	<b>106.1</b>	<b>20.8</b>	<b>19.4</b>
Employment in knowledge-intensive activities	96.4	0.0	0.0
Employment in innovative enterprises	114.1	40.5	37.8
<b>Sales impacts</b>	<b>103.1</b>	<b>10.0</b>	<b>7.2</b>
Medium and high-tech goods exports	114.2	8.1	4.7
Knowledge-intensive services exports	81.1	21.3	4.6
Sales of innovative products	110.4	-1.2	14.3
<b>Environmental sustainability</b>	<b>99.0</b>	<b>16.6</b>	<b>-1.0</b>
Resource productivity	77.1	28.9	0.8
Air emissions by fine particulate matter	117.8	18.5	-0.4
Environment-related technologies	93.7	6.0	-2.7

The second column shows performance relative to that of the EU in 2023. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2023; light green: between 100% and 125%; light orange: between 70% and 100%; dark orange: below 70%. The next columns show performance change over time between 2016 and 2023 and between 2022 and 2023, with scores relative to those of the EU in 2016. Positive (negative) performance changes are shown in green (red).

**CZECHIA** is a **Moderate Innovator** with performance at 94.7% of the EU average. Performance is above the average of the Moderate Innovators. Performance is increasing at a rate higher than that of the EU (8.5%-points). The country's performance gap to the EU is becoming smaller.

### Relative strengths

Non-R&D Innovation expenditures  
Business process innovators  
Public-private co-publications  
Product innovators  
Innovative SMEs collaborating with others

### Relative weaknesses

PCT patent applications  
Most cited publications  
Job-to-job mobility of HRST  
Population with tertiary education  
Government support for business R&D

### Strong increases since 2016

Business process innovators  
Venture capital expenditures  
Product innovators

### Strong decreases since 2016

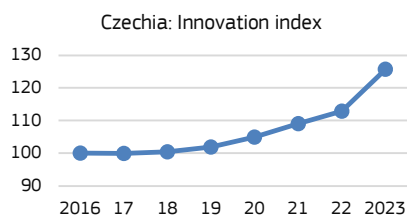
Government support for business R&D  
R&D expenditures in the public sector  
Design applications

### Strong increases since 2022

Business process innovators  
Product innovators  
Innovation expenditures per employee

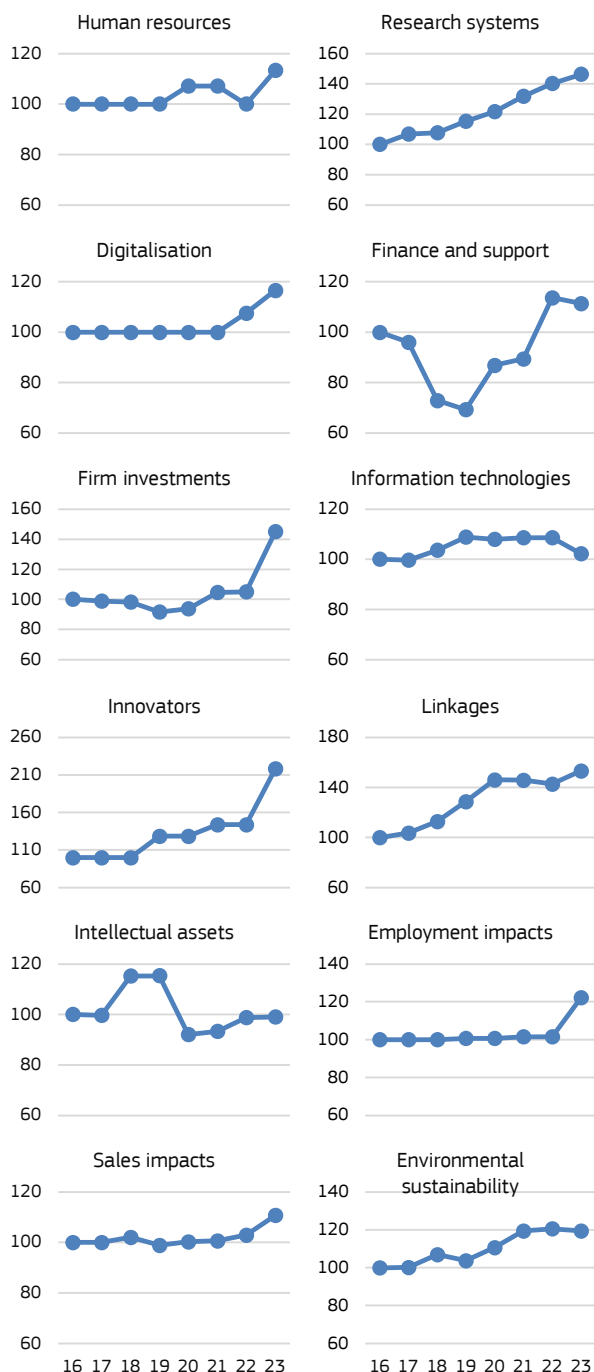
### Strong decreases since 2022

Job-to-job mobility of HRST  
Enterprises providing ICT training  
Government support for business R&D



The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2016. Innovation performance increased strongly over time being 26% higher in 2023, with half of the increase taking place in 2023.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2016. There are strong increases for Research systems, Firm investments, Innovators and Linkages, For Information technologies and Intellectual assets performance did almost not change.

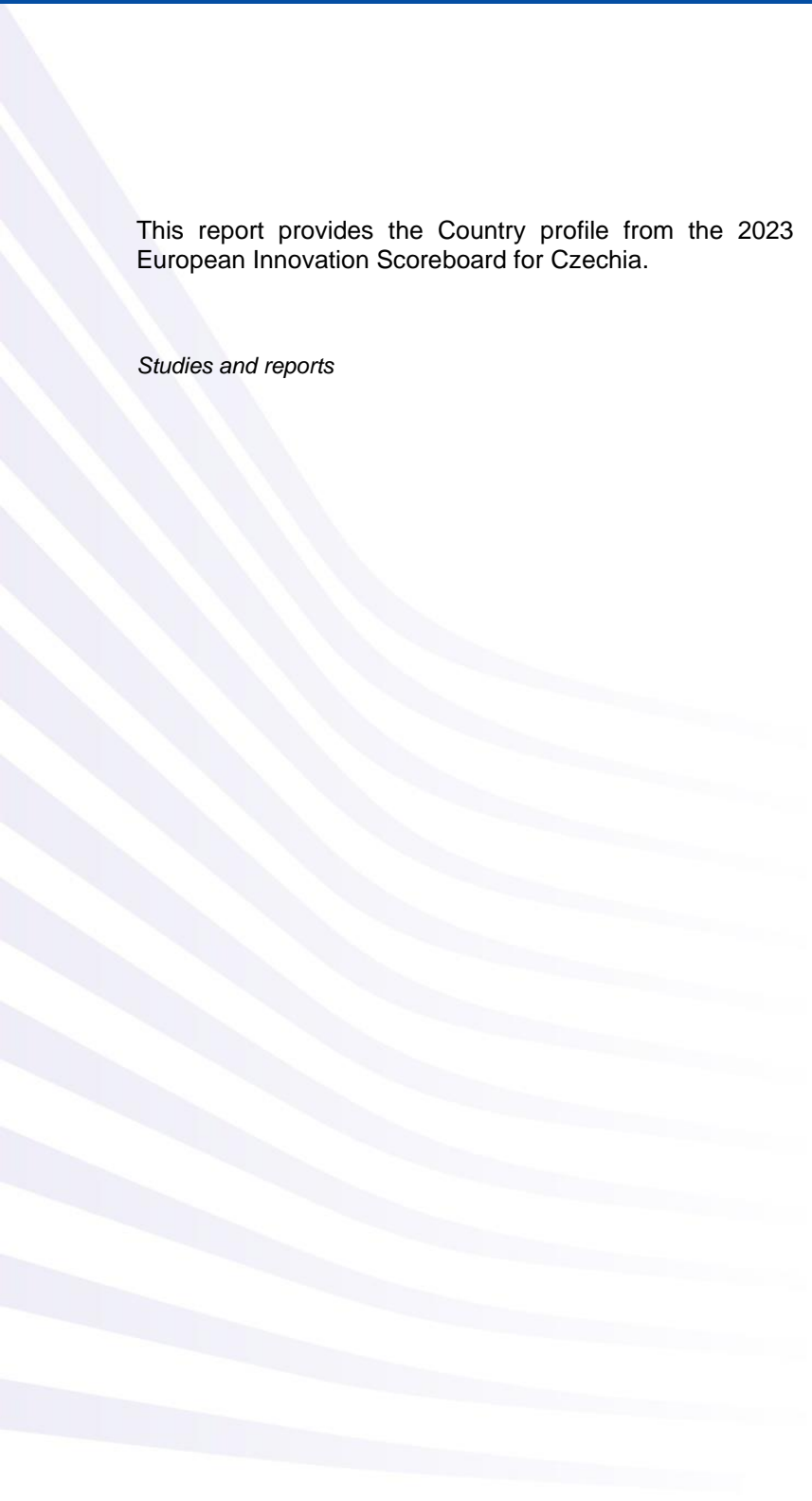



Performance is measured relative to that of the country in 2016 (=100).

**Structural differences** with the EU are shown below:

- Czechia has lower per capita income and a slower growing economy. Manufacturing takes up a larger share of the economy, with SMEs accounting for a larger share of turnover.
- FDI net inflows adds positively to the innovation climate, enterprise births, top R&D spenders and buyer sophistication add negatively.
- Czechia has above average shares of In-house product innovators with and without market novelties.
- Entrepreneurial training and government procurement are below the EU average as drivers of research and innovation.
- Czechia's performance on climate change indicators is mixed, with a stronger reduction in greenhouse gas emissions but a below average score in environmental innovation.

	CZ	EU
<b>Performance and structure of the economy</b>		
GDP per capita (PPS)	29,900	32,600
Average annual GDP growth (%)	3.1	4.4
Employment share Manufacturing (NACE C) (%)	26.8	16.4
of which High and Medium high-tech (%)	42.7	38.0
Employment share Services (NACE G-N) (%)	35.6	41.1
of which Knowledge-intensive services (%)	36.9	35.8
Turnover share SMEs (%)	37.1	34.1
Turnover share large enterprises (%)	45.6	49.6
Foreign-controlled enterprises – share of value added (%)	22.4	11.8
<b>Business and entrepreneurship</b>		
Enterprise births (10+ employees) (%)	0.6	1.0
Total Entrepreneurial Activity (TEA) (%)	7.3	6.8
FDI net inflows (% GDP)	3.5	2.1
Top R&D spending enterprises per 10 mln. population	0.9	20.3
Buyer sophistication (1 to 7 best)	3.0	3.7
<b>Innovation profiles</b>		
In-house product innovators with market novelties	17.2	12.2
In-house product innovators without market novelties	17.7	12.8
In-house business process innovators	16.9	16.5
Innovators that do not develop innovations themselves	4.5	6.5
Innovation active non-innovators	0.7	4.1
Non-innovators with potential to innovate	17.0	17.2
Non-innovators without disposition to innovate	26.1	30.7
<b>Governance and policy framework</b>		
Corruption Perceptions Index (0 to 100 best)	54.7	64.0
Basic school entrepreneurial education and training	2.6	3.3
Govt. procurement of advanced tech. products	3.1	3.5
Rule of law (-2.5 to 2.5 best)	1.1	1.0
<b>Climate change indicators</b>		
Circular material use rate	11.4	11.8
Greenhouse gas emissions intensity of energy consumption	73.8	82.8
Eco-Innovation Index	91.4	100.0
<b>Demography</b>		
Population size	10.6	447.1
Average annual population growth (%)	-0.8	-0.1
Population density	137.7	108.8



This report provides the Country profile from the 2023 European Innovation Scoreboard for Czechia.

*Studies and reports*