

	Performance	Performance	Performance
Classalsia	relative to EU in	change	change
Slovakia	2022	2015-2022	2021-2022
SUMMARY INNOVATION INDEX	64.3	4.6	4.6
Human resources	71.8	-19.4	0.0
Doctorate graduates	85.2	-45.8	0.0
Population with tertiary education	89.6	0.0	0.0
Lifelong learning	33.3	0.0	0.0
Attractive research systems	54.2	23.9	7.9
International scientific co-publications	70.2	53.9	12.7
Most cited publications	39.4	13.1	5.5
Foreign doctorate students	62.3	19.6	8.5
Digitalisation	68.4	7.9	7.9
Broadband penetration	61.5	15.2	15.2
People with above basic overall digital skills	77.3	0.0	0.0
Finance and support	38.6	12.5	7.6
R&D expenditures in the public sector	45.5	-3.2	8.1
Venture capital expenditures	42.6	32.4	12.3
Government support for business R&D	24.6	13.3	2.2
Firm investments	55.7	10.1	4.4
R&D expenditure in the business sector	29.7	8.5	3.1
Non-R&D Innovation expenditures	99.6	16.7	-1.8
Innovation expenditures per employee	43.2	4.8	11.9
Use of information technologies	82.6	-3.3	-6.5
Enterprises providing ICT training	75.0	-6.3	-12.5
Employed ICT specialists	90.9	0.0	0.0
Innovators	42.3	15.6	14.2
Product innovators (SMEs)	42.9	16.0	0.5
Business process innovators (SMEs)	41.8	15.1	28.8
Linkages	50.1	13.8	-0.1
Innovative SMEs collaborating with others	59.1	-11.3	-8.8
Public-private co-publications	82.7	55.3	10.2
Job-to-job mobility of HRST	29.2	17.6	2.9
Intellectual assets	52.9	5.8	4.4
PCT patent applications	38.5	-0.3	-2.2
Trademark applications	79.1	27.8	10.0
Design applications	45.1	-3.7	7.9
Employment impacts	54.6	11.9	9.7
Employment in knowledge-intensive activities	66.2	0.0	0.0
Employment in innovative enterprises	45.4	22.8	18.6
Sales impacts	96.9	-1.0	11.7
Medium and high-tech goods exports	129.4	6.9	-7.3
Knowledge-intensive services exports	52.0	20.9	15.1
Sales of innovative products	114.5	-36.6	32.7
Environmental sustainability	93.4	-7.8	-5.6
Resource productivity	71.3	0.0	-0.4
Air emissions by fine particulate matter	105.2	19.1	3.7
Environment-related technologies	97.6	-45.4	-20.3

The second column shows performance relative to that of the EU in 2022. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2022; light green: between 100% and 125%; yellow: between 70% and 100%; orange: below 70%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data. The next columns show performance change over time between 2015 and 2022 and between 2021 and 2022, with scores relative to those of the EU in 2015. Positive performance changes are shown in green, negative performance changes in red.

SLOVAKIA is an **Emerging Innovator** with performance at 64.3% of the EU average. Performance is above the average of the Emerging Innovators (50.0%). Performance is increasing (4.6%-points) at a rate lower than that of the EU (9.9%-points). The country's performance gap to the EU is becoming larger.

Relative strengths

Medium and high-tech goods exports Sales of innovative products Air emissions by fine particulate matter

Non-R&D Innovation expenditures Environment-related technologies

Relative weaknesses

Government support for business R&D Job-to-job mobility of HRST R&D expenditure in the business sector

Lifelong learning
PCT patent applications

Strong increases since 2015

Public-private co-publications International scientific co-publications Venture capital expenditures

Strong decreases since 2015

Doctorate graduates
Environment-related technologies
Sales of innovative products

Strong increases since 2021

Sales of innovative products
Business process innovators
Employment in innovative enterprises

Strong decreases since 2021

Environment-related technologies Enterprises providing ICT training Innovative SMEs collaborating with others



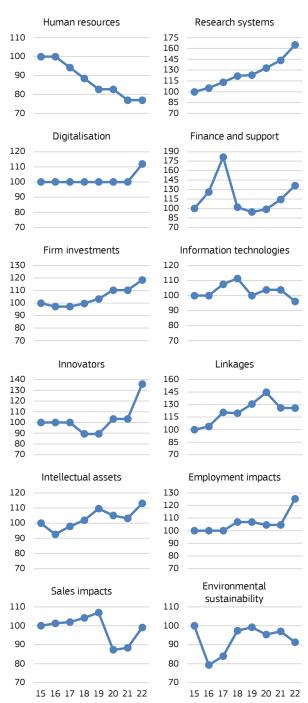
The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innovation performance increased between 2015 and 2017, declined between 2017 and 202 and increased more strongly in 2022.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2015. Performance increased strongest for Research systems, Finance and support and Innovators. Performance remained stable for Sales impacts and declined for Human resources, Information technologies and Environmental sustainability.

Structural differences with the EU are shown below:

- Slovakia has lower per capita income and a slower growing economy. Manufacturing takes up a larger share of the economy, with both large enterprises and SMEs accounting for a smaller share of turnover.
- Enterprise births, entrepreneurial activity and FDI net inflows add positively to the innovation climate, the absence of top R&D spenders add negatively.
- Slovakia has a lower share of In-house product innovators with market novelties and a higher share of non-innovators with potential to innovate.
- Governance and policy framework indicators are below the EU average as drivers of research and innovation.
- Slovakia shows a below average performance on the Climate change related indicators circular material use rate and environmental innovation.

	SK	EU
Performance and structure of the economy		
GDP per capita (PPS)		31,200
Average annual GDP growth (%)	-0.7	-0.4
Employment share Manufacturing (NACE C) (%)	24.9	16.4
of which High and Medium high-tech (%)	45.7	38.0
Employment share Services (NACE G-N) (%)	34.2	41.1
of which Knowledge-intensive services (%)	32.5	35.8
Turnover share SMEs (%)	34.4	34.8
Turnover share large enterprises (%)	42.8	48.2
Foreign-controlled enterprises – share of value added (%)	20.5	11.7
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	1.5	1.0
Total Entrepreneurial Activity (TEA) (%)	11.2	7.3
FDI net inflows (% GDP)	1.3	1.0
Top R&D spending enterprises per 10 mln. population	0.0	18.3
Buyer sophistication (1 to 7 best)	3.0	3.7
Innovation profiles		
In-house product innovators with market novelties	5.3	10.7
In-house product innovators without market novelties	3.6	12.3
In-house business process innovators	5.5	11.0
Innovators that do not develop innovations themselves	4.5	11.6
Innovation active non-innovators	2.7	3.3
Non-innovators with potential to innovate	29.5	19.9
Non-innovators without disposition to innovate	49.0	31.3
Governance and policy framework		
Ease of starting a business (0 to 100 best)	75.4	76.5
Basic school entrepreneurial education and training	3.2	3.5
Govt. procurement of advanced tech. products	3.1	3.5
Rule of law (-2.5 to 2.5 best)	0.6	1.1
Climate change indicators		
Circular material use rate	11.2	
Greenhouse gas emissions intensity of energy consumption	77.7	82.8
Eco-Innovation Index	77.7	100.0
Demography		
Population size	5.5	
Average annual population growth (%)	0.1	0.1
Population density	111.8	108.8



Performance is measured relative to that of the country in 2015 (=100).