

Hungary	Performance relative to EU in 2022	Performance change 2015-2022	Performance change 2021-2022
SUMMARY INNOVATION INDEX	69.8	7.1	3.0
Human resources	45.1	0.0	0.0
Doctorate graduates	40.7	0.0	0.0
Population with tertiary education	49.2	0.0	0.0
Lifelong learning	45.6	0.0	0.0
Attractive research systems	78.8	38.3	11.5
International scientific co-publications	53.3	26.5	5.5
Most cited publications	60.1	5.8	12.3
Foreign doctorate students	146.3	120.4	15.2
Digitalisation	71.8	3.2	3.2
Broadband penetration	64.1	6.1	6.1
People with above basic overall digital skills	81.8	0.0	0.0
Finance and support	79.7	9.5	1.3
R&D expenditures in the public sector	37.9	3.2	1.6
Venture capital expenditures	77.6	33.9	7.3
Government support for business R&D	135.7	-7.2	-5.2
Firm investments	68.3	-6.3	5.0
R&D expenditure in the business sector	79.7	7.0	9.3
Non-R&D Innovation expenditures	88.4	-8.0	14.1
Innovation expenditures per employee	43.3	-17.2	-8.3
Use of information technologies	73.9	0.0	0.0
Enterprises providing ICT training	75.0	0.0	0.0
Employed ICT specialists	72.7	0.0	0.0
Innovators	49.3	46.7	13.7
Product innovators (SMEs)	68.8	49.6	2.2
Business process innovators (SMEs)	32.2	43.5	25.9
Linkages	96.1	61.5	8.7
Innovative SMEs collaborating with others	82.9	46.5	-1.6
Public-private co-publications	116.0	70.7	22.0
Job-to-job mobility of HRST	97.9	70.6	11.8
Intellectual assets	52.3	2.5	1.6
PCT patent applications	65.0	-1.6	5.5
Trademark applications	67.2	15.2	2.8
Design applications	19.5	-2.3	-4.0
Employment impacts	59.4	14.0	9.3
Employment in knowledge-intensive activities	92.2	0.0	0.0
Employment in innovative enterprises	33.3	26.8	17.8
Sales impacts	84.9	-7.6	-2.6
Medium and high-tech goods exports	125.7	-1.6	-7.6
Knowledge-intensive services exports	67.7	14.9	8.9
Sales of innovative products	56.6	-41.3	-9.5
Environmental sustainability	70.4	-19.0	-3.1
Resource productivity	57.6	-18.1	11.0
Air emissions by fine particulate matter	94.7	-4.0	0.5
Environment-related technologies	46.9	-37.6	-17.2

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.

HUNGARY is an **Emerging Innovator** with performance at 69.8% of the EU average. Performance is above the average of the Emerging Innovators (50.0%). Performance is increasing (7.1%-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

- Foreign doctorate students
- Government support for business R&D
- Medium and high-tech goods exports
- Public-private co-publications
- Job-to-job mobility of HRST

Relative weaknesses

- Design applications
- Business process innovators
- Employment in innovative enterprises
- R&D expenditures in the public sector
- Doctorate graduates

Strong increases since 2015

- Foreign doctorate students
- Public-private co-publications
- Job-to-job mobility of HRST

Strong decreases since 2015

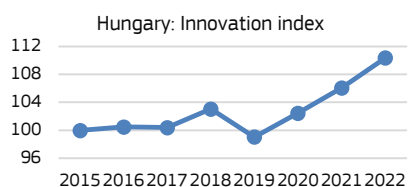
- Sales of innovative products
- Environment-related technologies
- Resource productivity

Strong increases since 2021

- Business process innovators
- Public-private co-publications
- Employment in innovative enterprises

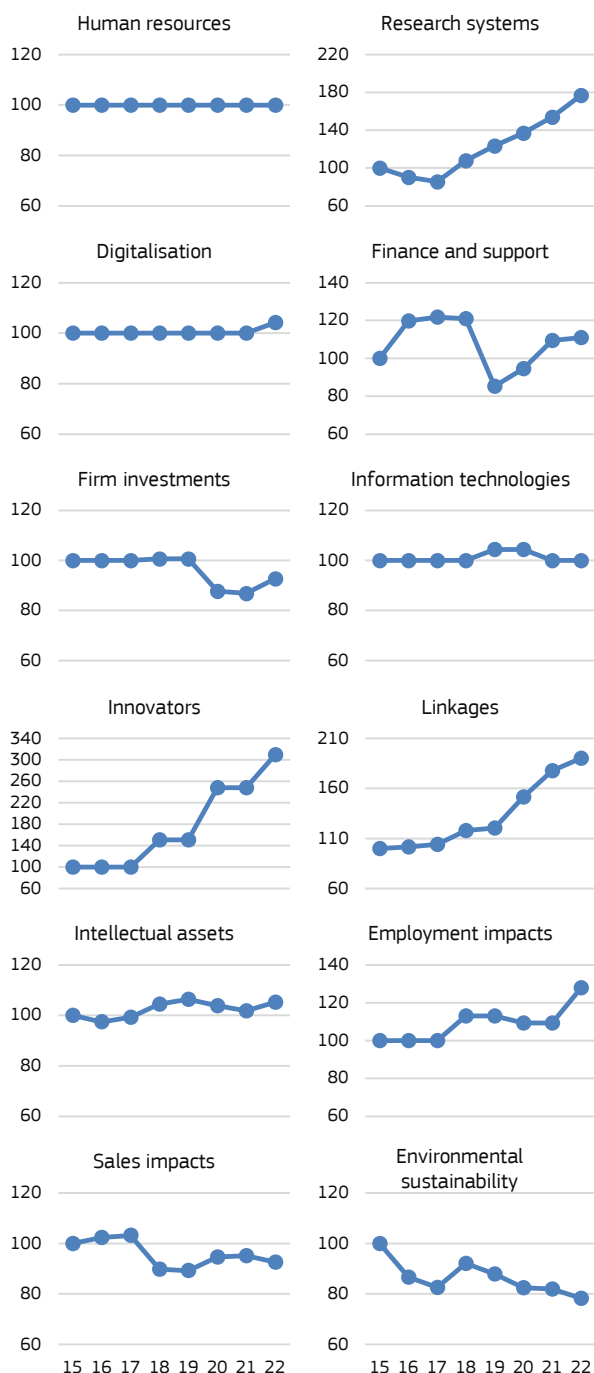
Strong decreases since 2021

- Environment-related technologies
- Sales of innovative products
- Innovation expenditures per employee



The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innovation performance did not change between 2015 and 2019 and has increased annually since 2020 at slightly higher rates every year.

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, Innovators and Linkages. Performance did not change for Human resources and declines for Firm investments, Sales impacts and Environmental sustainability.



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

Structural differences with the EU are shown below:

- Hungary has lower per capita income but a faster growing economy. Manufacturing takes up a larger share of the economy, with SMEs accounting for a larger share of turnover.
- Entrepreneurial activity and FDI net inflows add positively to the innovation climate, top R&D spenders add negatively.
- Hungary has a much higher share of non-innovators with potential to innovate.
- Ease of starting a business, entrepreneurial training and government procurement are below the EU average as drivers of research and innovation.
- Hungary shows a below average performance on the Climate change related indicators circular material use rate and environmental innovation.

	HU	EU
Performance and structure of the economy		
GDP per capita (PPS)	23,200	31,200
Average annual GDP growth (%)	1.5	-0.4
Employment share Manufacturing (NACE C) (%)	21.6	16.4
of which High and Medium high-tech (%)	44.0	38.0
Employment share Services (NACE G-N) (%)	36.1	41.1
of which Knowledge-intensive services (%)	31.6	35.8
Turnover share SMEs (%)	37.9	34.8
Turnover share large enterprises (%)	43.1	48.2
Foreign-controlled enterprises – share of value added (%)	23.9	11.7
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	1.2	1.0
Total Entrepreneurial Activity (TEA) (%)	9.8	7.3
FDI net inflows (% GDP)	43.2	1.0
Top R&D spending enterprises per 10 mln. population	1.0	18.3
Buyer sophistication (1 to 7 best)	3.2	3.7
Innovation profiles		
In-house product innovators with market novelties	9.5	10.7
In-house product innovators without market novelties	6.5	12.3
In-house business process innovators	3.2	11.0
Innovators that do not develop innovations themselves	6.3	11.6
Innovation active non-innovators	3.0	3.3
Non-innovators with potential to innovate	44.9	19.9
Non-innovators without disposition to innovate	26.6	31.3
Governance and policy framework		
Ease of starting a business (0 to 100 best)	73.1	76.5
Basic school entrepreneurial education and training	2.5	3.5
Govt. procurement of advanced tech. products	2.8	3.5
Rule of law (-2.5 to 2.5 best)	0.5	1.1
Climate change indicators		
Circular material use rate	11.6	12.2
Greenhouse gas emissions intensity of energy consumption	77.1	82.8
Eco-Innovation Index	66.8	100.0
Demography		
Population size	9.8	447.0
Average annual population growth (%)	-0.2	0.1
Population density	107.2	108.8