



European
Commission

European Innovation Scoreboard **2023** Country profile **Estonia**



Innovation

European Innovation Scoreboard 2023 – Country profile Estonia

European Commission

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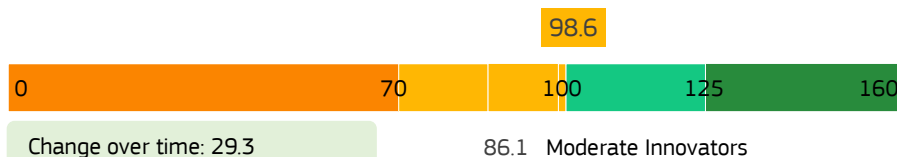
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The European Innovation Scoreboard report and annexes, and the indicators database are available at:

https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en



86.1 Moderate Innovators

Estonia

	Performance relative to EU in 2023	Performance change 2016- 2023	Performance change 2022- 2023
SUMMARY INNOVATION INDEX	98.6	29.3	-11.4
Human resources	125.6	3.9	3.9
Doctorate graduates	85.2	-11.4	-11.4
Population with tertiary education	111.0	4.2	4.2
Lifelong learning	190.2	29.7	29.7
Attractive research systems	126.3	65.8	5.1
International scientific co-publications	171.2	112.9	-7.5
Most cited publications	88.5	21.5	0.6
Foreign doctorate students	147.2	123.4	27.2
Digitalisation	83.4	9.7	4.8
Broadband penetration	67.3	19.2	9.4
People with above basic overall digital skills	105.4	0.0	0.0
Finance and support	92.5	23.3	1.0
R&D expenditures in the public sector	98.4	-6.5	-1.6
Venture capital expenditures	134.9	102.1	0.0
Government support for business R&D	30.3	-19.0	5.6
Firm investments	90.1	35.5	-16.3
R&D expenditure in the business sector	64.6	27.7	1.5
Non-R&D Innovation expenditures	140.3	37.0	-42.0
Innovation expenditures per employee	73.8	41.9	-10.7
Use of information technologies	122.4	23.3	12.7
Enterprises providing ICT training	79.3	33.1	11.5
Employed ICT specialists	166.7	13.8	13.8
Innovators	95.3	107.8	-88.4
Product innovators (SMEs)	92.0	83.8	-110.2
Business process innovators (SMEs)	98.3	133.3	-65.2
Linkages	161.6	87.1	-61.5
Innovative SMEs collaborating with others	154.8	80.9	-112.7
Public-private co-publications	187.1	121.9	-23.3
Job-to-job mobility of HRST	156.3	76.5	-32.4
Intellectual assets	117.6	32.2	-1.6
PCT patent applications	59.9	17.5	-0.8
Trademark applications	194.0	63.9	6.1
Design applications	118.0	26.0	-8.6
Employment impacts	144.0	91.4	0.0
Employment in knowledge-intensive activities	112.0	0.0	0.0
Employment in innovative enterprises	170.2	177.9	0.0
Sales impacts	69.9	4.8	-8.3
Medium and high-tech goods exports	47.2	-9.5	-1.7
Knowledge-intensive services exports	103.7	37.0	6.5
Sales of innovative products	66.5	-13.3	-36.6
Environmental sustainability	23.3	-35.8	-22.2
Resource productivity	21.5	16.0	5.3
Air emissions by fine particulate matter	7.6	8.0	-14.1
Environment-related technologies	47.5	-121.8	-50.1

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).

ESTONIA is a **Moderate Innovator** with performance at 98.6% of the EU average. Performance is above the average of the Moderate Innovators. Performance is increasing at a rate much higher than that of the EU (8.5%-points). The country's performance gap to the EU is becoming smaller.

Relative strengths

Trademark applications
Lifelong learning
Public-private co-publications
International scientific co-publications
Employment in innovative enterprises

Relative weaknesses

Air emissions by fine particulate matter
Resource productivity
Government support for business R&D
Medium and high-tech goods exports
Environment-related technologies

Strong increases since 2016

Employment in innovative enterprises
Business process innovators
Foreign doctorate students

Strong decreases since 2016

Environment-related technologies
Government support for business R&D
Sales of innovative products

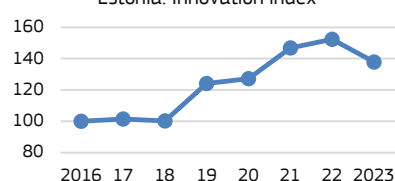
Strong increases since 2022

Lifelong learning
Foreign doctorate students
Employed ICT specialists

Strong decreases since 2022

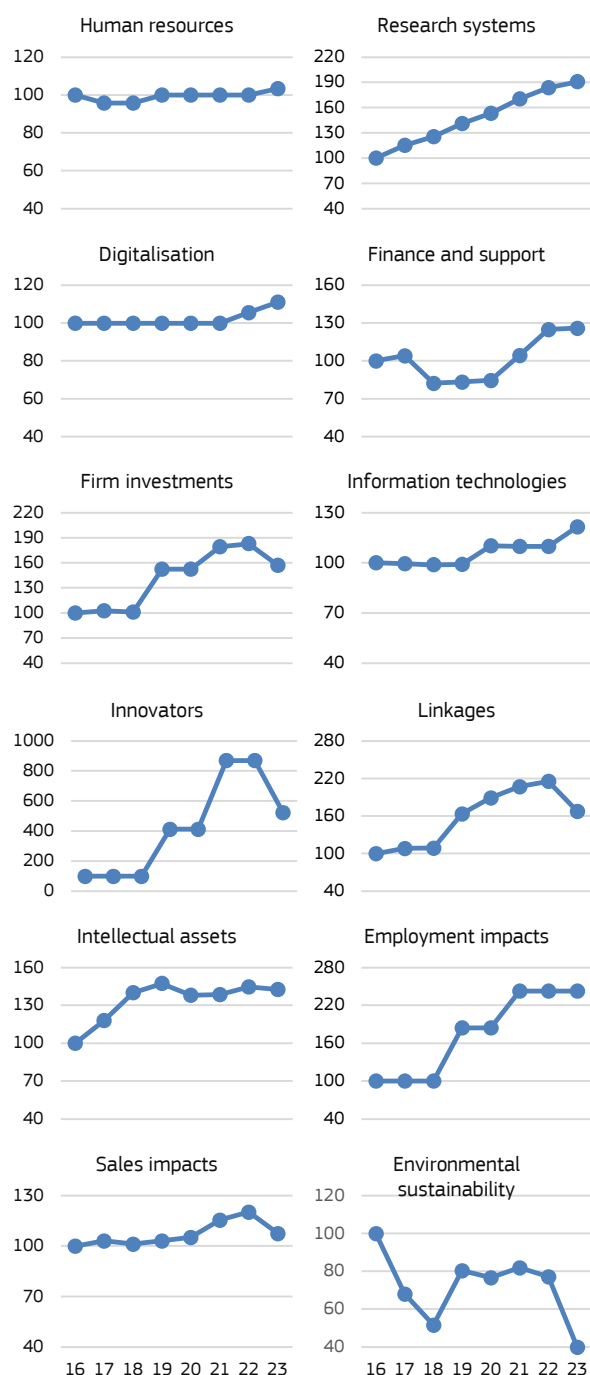
Innovative SMEs collaborating with others
Product innovators
Business process innovators

Estonia: Innovation index



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 in 2019 (+24%-points) and continued to increase until 2022, after which it declined strongly in 2023 (-15%-points).

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2016. Performance increased most strongly for Research systems, Innovators and Employment impacts. Performance declined for Environmental sustainability.





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

Structural differences with the EU are shown below:

- Estonia 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.
- Entrepreneurial activity and FDI net inflows add positively to the innovation climate, whereas top R&D spenders add negatively.
- Estonia has an above average share of In-house business process innovators.
- Entrepreneurial training and rule of law are above the EU average as drivers of research and innovation.
- Estonia shows a close to average performance on Climate change related indicators, with the circular material use rate performing above the EU average and environmental innovation below the EU average.

	EE	EU
Performance and structure of the economy		
GDP per capita (PPS)	28,400	32,600
Average annual GDP growth (%)	3.1	4.4
Employment share Manufacturing (NACE C) (%)	18.4	16.4
of which High and Medium high-tech (%)	23.3	38.0
Employment share Services (NACE G-N) (%)	40.3	41.1
of which Knowledge-intensive services (%)	33.4	35.8
Turnover share SMEs (%)	50.1	34.1
Turnover share large enterprises (%)	19.1	49.6
Foreign-controlled enterprises – share of value added (%)	13.6	11.8
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	1.0	1.0
Total Entrepreneurial Activity (TEA) (%)	19.4	6.8
FDI net inflows (% GDP)	13.7	2.1
Top R&D spending enterprises per 10 mln. population	0.0	20.3
Buyer sophistication (1 to 7 best)	3.7	3.7
Innovation profiles		
In-house product innovators with market novelties	9.2	12.2
In-house product innovators without market novelties	16.8	12.8
In-house business process innovators	33.4	16.5
Innovators that do not develop innovations themselves	0.4	6.5
Innovation active non-innovators	1.8	4.1
Non-innovators with potential to innovate	11.7	17.2
Non-innovators without disposition to innovate	26.7	30.7
Governance and policy framework		
Corruption Perceptions Index (0 to 100 best)	74.3	64.0
Basic school entrepreneurial education and training	4.9	3.3
Govt. procurement of advanced tech. products	3.7	3.5
Rule of law (-2.5 to 2.5 best)	1.4	1.0
Climate change indicators		
Circular material use rate	15.4	11.8
Greenhouse gas emissions intensity of energy consumption	79.4	82.8
Eco-Innovation Index	95.1	100.0
Demography		
Population size	1.3	447.1
Average annual population growth (%)	0.1	-0.1
Population density	30.4	108.8



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

Studies and reports