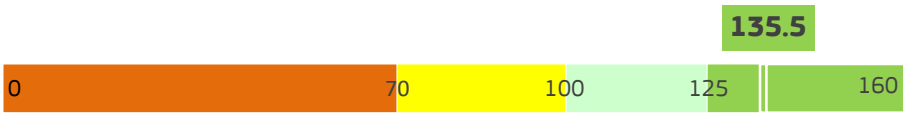


Change over time: 19.5

Innovation Leaders 134.4

Finland	Performance relative to EU in 2022		Performance change 2015-2022	Performance change 2021-2022
SUMMARY INNOVATION INDEX	**135.5**		**19.5**	**7.5**
Human resources	**169.5**		**-4.8**	**4.8**
Doctorate graduates	159.3		-11.4	11.4
Population with tertiary education	93.3		0.0	0.0
Lifelong learning	275.6		0.0	0.0
Attractive research systems	**158.7**		**42.9**	**8.5**
International scientific co-publications	218.3		111.6	19.4
Most cited publications	127.1		8.2	3.7
Foreign doctorate students	143.6		55.0	8.8
Digitalisation	**156.5**		**22.2**	**22.2**
Broadband penetration	123.1		42.4	42.4
People with above basic overall digital skills	200.0		0.0	0.0
Finance and support	**101.3**		**17.3**	**6.5**
R&D expenditures in the public sector	124.2		-8.1	0.0
Venture capital expenditures	134.5		87.4	27.0
Government support for business R&D	26.7		-20.6	-5.9
Firm investments	**104.4**		**1.1**	**0.1**
R&D expenditure in the business sector	129.7		-21.7	10.1
Non-R&D Innovation expenditures	72.8		14.4	-9.1
Innovation expenditures per employee	107.7		9.6	-0.3
Use of information technologies	**221.7**		**0.0**	**3.3**
Enterprises providing ICT training	212.5		0.0	6.3
Employed ICT specialists	231.8		0.0	0.0
Innovators	**147.5**		**58.1**	**28.8**
Product innovators (SMEs)	147.9		25.7	14.2
Business process innovators (SMEs)	147.0		92.7	44.2
Linkages	**224.4**		**88.9**	**5.0**
Innovative SMEs collaborating with others	255.4		133.9	0.0
Public-private co-publications	382.0		122.1	39.8
Job-to-job mobility of HRST	133.3		35.3	-5.9
Intellectual assets	**130.8**		**1.2**	**0.2**
PCT patent applications	147.0		-3.4	-3.2
Trademark applications	114.0		26.0	0.9
Design applications	126.3		-12.0	3.8
Employment impacts	**139.1**		**23.0**	**7.1**
Employment in knowledge-intensive activities	129.9		0.0	0.0
Employment in innovative enterprises	146.4		44.1	13.6
Sales impacts	**109.6**		**35.2**	**15.4**
Medium and high-tech goods exports	73.7		10.9	-4.5
Knowledge-intensive services exports	113.1		16.8	12.9
Sales of innovative products	149.8		88.2	44.2
Environmental sustainability	**79.0**		**-0.6**	**0.2**
Resource productivity	25.4		17.4	-4.2
Air emissions by fine particulate matter	99.7		10.8	5.2
Environment-related technologies	101.1		-26.5	-2.7

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.

FINLAND is an **Innovation Leader** with performance at 135.5% of the EU average. Performance is above the average of the Innovation Leaders (134.4%). Performance is increasing (19.5%-points) at a rate higher than that of the EU (9.9%-points). The country's performance lead over the EU is becoming larger.

Relative strengths

- Public-private co-publications
- Lifelong learning
- Innovative SMEs collaborating with others
- Employed ICT specialists
- Enterprises providing ICT training

Relative weaknesses

- Resource productivity
- Government support for business R&D
- Non-R&D Innovation expenditures
- Medium and high-tech goods exports
- Population with tertiary education

Strong increases since 2015

- Innovative SMEs collaborating with others
- Public-private co-publications
- International scientific co-publications

Strong decreases since 2015

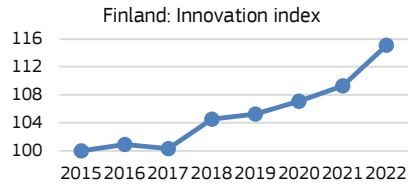
- Environment-related technologies
- R&D expenditure in the business sector
- Government support for business R&D

Strong increases since 2021

- Business process innovators
- Sales of innovative products
- Broadband penetration

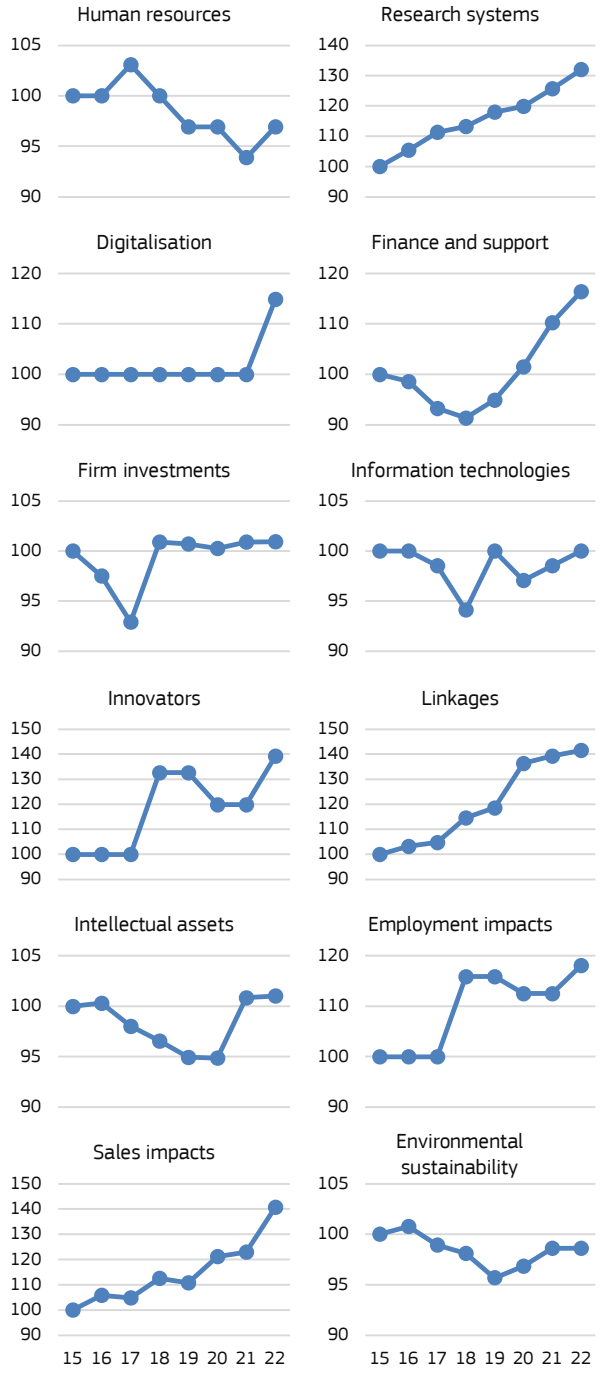
Strong decreases since 2021

- Non-R&D Innovation expenditures
- Job-to-job mobility of HRST
- 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 2015. Innovation performance remained stable between 2015 and 2017 and started to increase more strongly in 2018 with the strongest increase 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 most for Innovators, Linkages and Sales impacts. Performance remained stable for Firm investments, Information technologies, and Intellectual assets, and declined for Human resources and Environmental sustainability.



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

Structural differences with the EU are shown below:

- Finland has higher per capita income and a faster growing economy. Manufacturing and business services take up a smaller share of the economy, with SMEs accounting for a larger share of turnover.
- Entrepreneurial activity and top R&D spenders add positively to the innovation climate, enterprise births and FDI net inflows add negatively.
- Finland has a higher share of In-house product innovators with market novelties and a higher share of In-house business process innovators.
- Governance and policy framework indicators are above the EU average as drivers of research and innovation.
- Finland shows a mixed performance on Climate change related indicators with a below average share of material resources coming from recycled waste materials but an above average score on environmental innovation.

	FI	EU
Performance and structure of the economy		
GDP per capita (PPS)	34,900	31,200
Average annual GDP growth (%)	0.2	-0.4
Employment share Manufacturing (NACE C) (%)	12.9	16.4
of which High and Medium high-tech (%)	37.4	38.0
Employment share Services (NACE G-N) (%)	40.5	41.1
of which Knowledge-intensive services (%)	41.4	35.8
Turnover share SMEs (%)	38.8	34.8
Turnover share large enterprises (%)	45.9	48.2
Foreign-controlled enterprises – share of value added (%)	10.3	11.7
Business and entrepreneurship		
Enterprise births (10+ employees) (%)	0.6	1.0
Total Entrepreneurial Activity (TEA) (%)	7.9	7.3
FDI net inflows (% GDP)	0.4	1.0
Top R&D spending enterprises per 10 mln. population	70.7	18.3
Buyer sophistication (1 to 7 best)	4.6	3.7
Innovation profiles		
In-house product innovators with market novelties	22.9	10.7
In-house product innovators without market novelties	10.0	12.3
In-house business process innovators	12.8	11.0
Innovators that do not develop innovations themselves	9.9	11.6
Innovation active non-innovators	6.2	3.3
Non-innovators with potential to innovate	4.3	19.9
Non-innovators without disposition to innovate	33.8	31.3
Governance and policy framework		
Ease of starting a business (0 to 100 best)	80.1	76.5
Basic school entrepreneurial education and training	6.1	3.5
Govt. procurement of advanced tech. products	3.9	3.5
Rule of law (-2.5 to 2.5 best)	2.1	1.1
Climate change indicators		
Circular material use rate	5.9	12.2
Greenhouse gas emissions intensity of energy consumption	69.3	82.8
Eco-Innovation Index	146.6	100.0
Demography		
Population size	5.5	447.0
Average annual population growth (%)	0.1	0.1
Population density	18.1	108.8