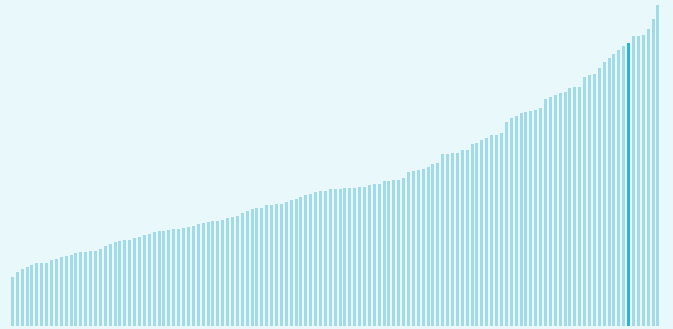


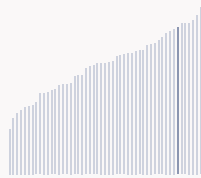
## Finland ranking in the Global Innovation Index 2024

Finland ranks **7th** among the 133 economies featured in the GII 2024.

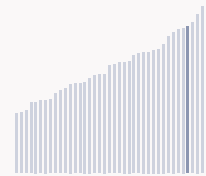
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



Finland ranks **7th** among the 51 high-income group economies.



Finland ranks **4th** among the 39 economies in Europe.



### > Finland GII Ranking (2020-2024)

The table shows the rankings of Finland over the past four years. Data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Finland in the GII 2024 is between ranks 5 and 9.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	7th	8th	8th
2021	7th	6th	9th
2022	9th	6th	9th
2023	6th	5th	9th
2024	7th	5th	9th

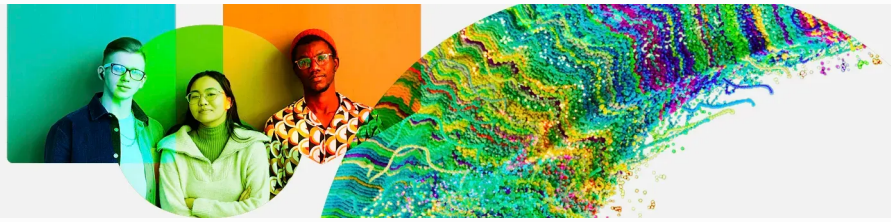
Finland performs worse in innovation outputs than innovation inputs in 2024.

This year Finland ranks **5th** in innovation inputs. This position is the same as last year.

Finland ranks **9th** in innovation outputs. This position is the same as last year.

Finland has 1 cluster in the top 100 S&T clusters of the Global Innovation Index.

# Global Innovation Index 2024



## > Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Finland, how rapidly is technology being embraced and what are the resulting societal impacts.



For Finland, 7 indicators have improved in the short-term and 6 indicators have worsened.

### Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -8.3% 2022 - 2023	▲ 0.6% 2021 - 2022	▲ 12.4% 2022 - 2023	▼ -67.9% 2022 - 2023	▼ -12.8% 2022 - 2023
▲ 2.4% 2013 - 2023	▼ -0.4% 2012 - 2022	▲ 2% 2013 - 2023	▲ 7.6% 2013 - 2023	▼ -3% 2013 - 2023

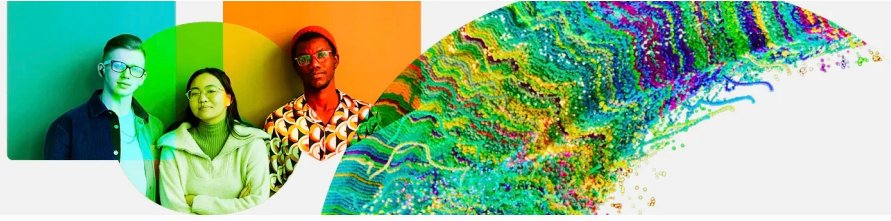
### Technology adoption

Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.2% 2021 - 2022	▲ 2.4% 2021 - 2022	▲ 3.2% 2021 - 2022	▲ 7% 2021 - 2022	▲ 54.5% 2022 - 2023
▲ 0.2% 2012 - 2022	▲ 1.3% 2012 - 2022		▲ 2.4% 2012 - 2022	▲ 85.3% 2013 - 2023
90 per 100 inhabitants in 2022	34.5 per 100 inhabitants in 2022	98 per 100 inhabitants in 2022		8.1 per 100 inhabitants in 2023

### Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -0.6% 2022 - 2023	▼ -0.9% 2021 - 2022	▲ 1.9°C 2023
▲ 0.4% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
119,003 USD in 2023	81.2 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.



## Expected vs. observed innovation performance

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



Finland is an innovation leader, ranking in the top 25 of the GII.

### > Innovation overperformers relative to their economic development





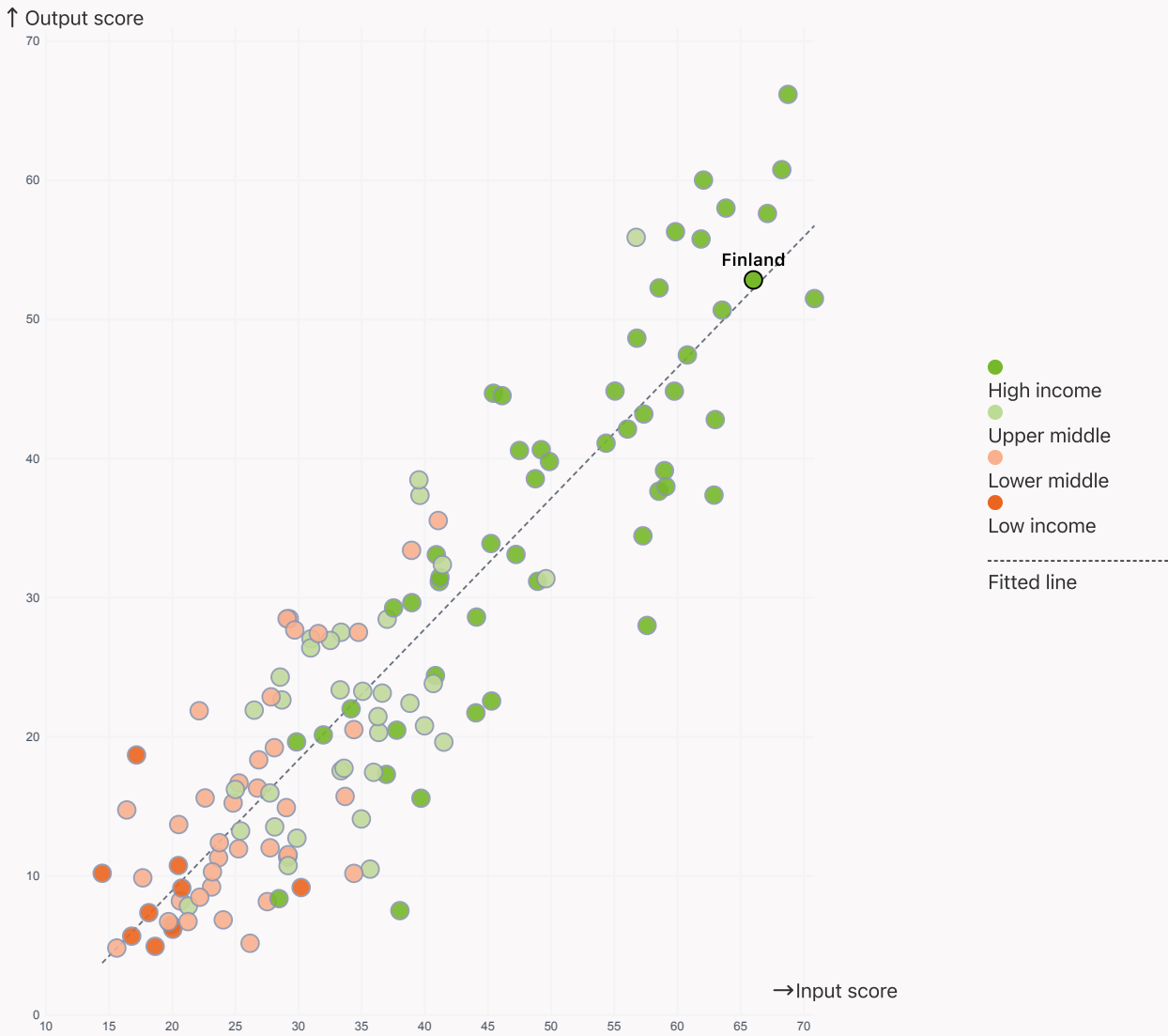
## Effectively translating innovation investments into innovation outputs

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

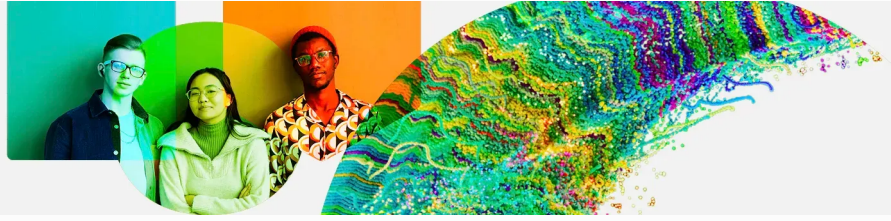


Finland produces more innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs

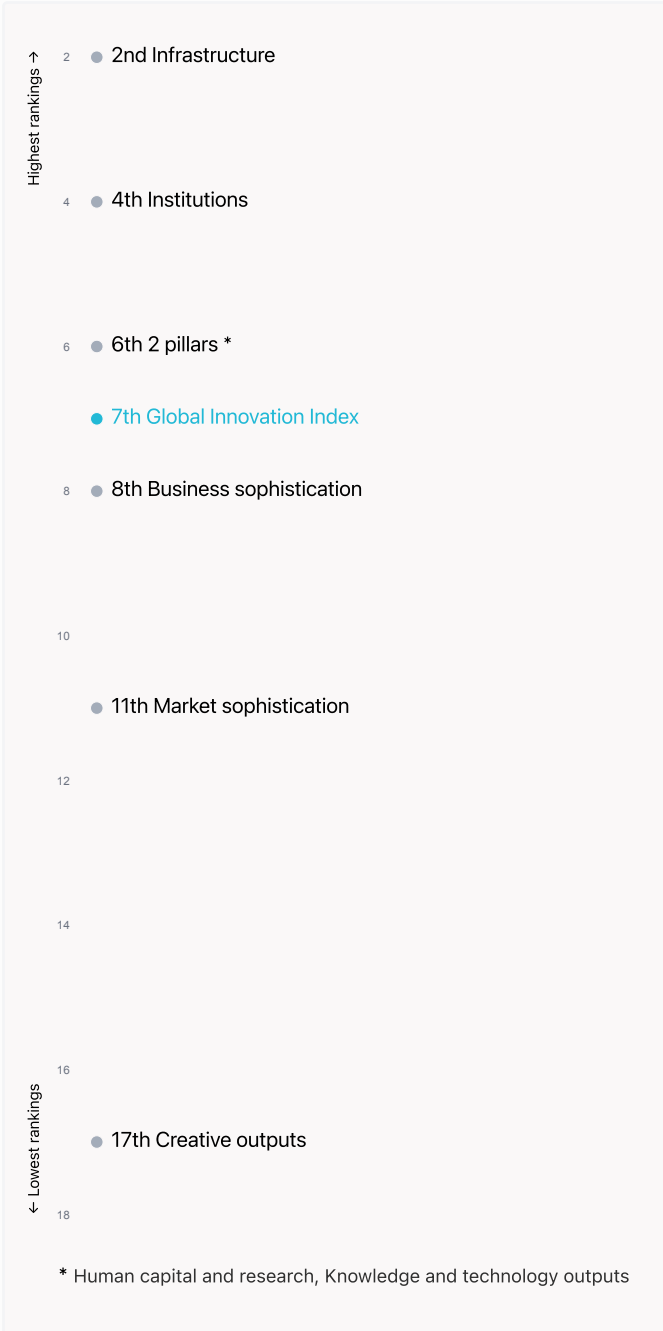


# Global Innovation Index 2024



## Overview of Finland's rankings in the seven areas of the GII in 2024

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Finland are those that rank above the GII (shown in blue) and the weakest are those that rank below.



### Highest rankings




Finland ranks highest in Infrastructure (2nd), Institutions (4th) and Human capital and research, Knowledge and technology outputs (6th).

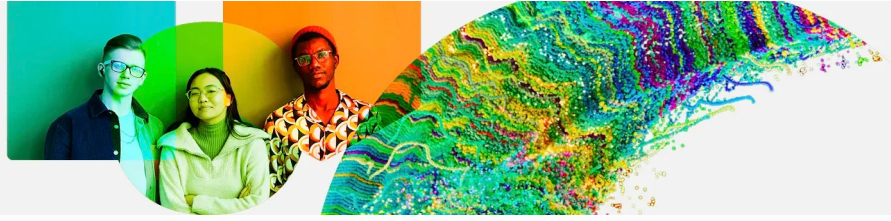
### Lowest rankings



Finland ranks lowest in Creative outputs (17th), Market sophistication (11th) and Business sophistication (8th).

The full WIPO Intellectual Property  Statistics profile for Finland can be found on [this link](#).

# Global Innovation Index 2024



## Benchmark of Finland against other economy groupings for each of the seven areas of the GII Index

The charts show the relative position of Finland (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.



### High-Income economies

Finland performs above the high-income group average in all pillars.



### Europe

Finland performs above the regional average in all pillars.

#### Institutions

Finland | Score: 85.54

Top 10 | Score: 80.81

High income | Score: 67.41

Europe | Score: 59.14

#### Human capital and research

Top 10 | Score: 61.30

Finland | Score: 61.08

High income | Score: 46.99

Europe | Score: 44.92

#### Infrastructure

Finland | Score: 65.86

Top 10 | Score: 58.57

High income | Score: 51.96

Europe | Score: 51.74

#### Market sophistication

Top 10 | Score: 62.12

Finland | Score: 56.89

High income | Score: 44.90

Europe | Score: 42.79

#### Business sophistication

Top 10 | Score: 63.64

Finland | Score: 61.08

High income | Score: 44.71

Europe | Score: 42.68

#### Knowledge and technology outputs

Finland | Score: 57.97

Top 10 | Score: 57.29

Europe | Score: 36.30

High income | Score: 35.79

#### Creative outputs

Top 10 | Score: 56.54

Finland | Score: 47.60

High income | Score: 39.44

Europe | Score: 39.15



## Innovation strengths and weaknesses in Finland

The table below gives an overview of the indicator strengths and weaknesses of Finland in the GII 2024.



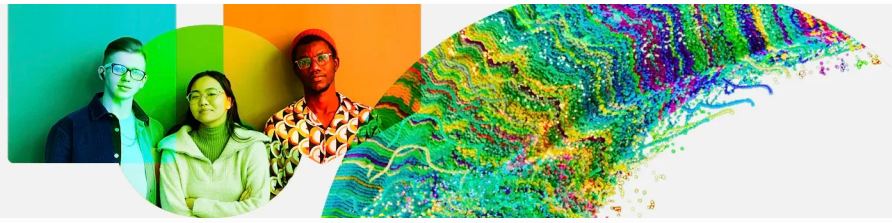
Finland's main innovation strengths are **Finance for startups and scaleups<sup>†</sup>** (rank 1), **PCT patents by origin/bn PPP\$ GDP** (rank 1) and **Rule of law\*** (rank 1).

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	4.1.1	Finance for startups and scaleups <sup>†</sup>	113	6.2.1	Labor productivity growth, %
1	6.1.2	PCT patents by origin/bn PPP\$ GDP	87	3.3.1	GDP/unit of energy use
1	1.2.2	Rule of law*	77	5.3.2	High-tech imports, % total trade
2	3.1.3	Government's online service*	66	7.2.4	Creative goods exports, % total trade
2	3.2.2	Logistics performance*	65	7.1.2	Trademarks by origin/bn PPP\$ GDP
3	3.1.2	ICT use*	58	4.3.3	Domestic market scale, bn PPP\$
4	7.3.2	GitHub commits/mn pop. 15–69	58	2.1.5	Pupil–teacher ratio, secondary
4	2.3.1	Researchers, FTE/mn pop.	53	3.2.3	Gross capital formation, % GDP
5	5.3.3	ICT services imports, % total trade	51	7.2.1	Cultural and creative services exports, % total trade
5	6.1.4	Scientific and technical articles/bn PPP\$ GDP	21	4.3.1	Applied tariff rate, weighted avg., %
5	2.2.1	Tertiary enrolment, % gross			

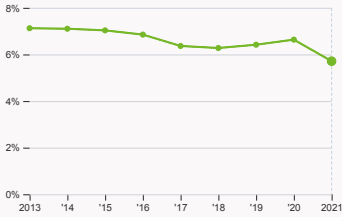
# Global Innovation Index 2024



## Finland's innovation system

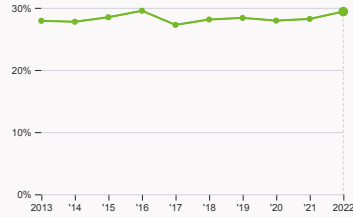
As far as practicable, the plots below present unscaled indicator data.

### > Innovation inputs in Finland



#### 2.1.1 Expenditure on education

was equal to 5.71 % GDP in 2021, down by 0.92 percentage points from the year prior – and equivalent to an indicator rank of 21.



#### 2.2.2 Graduates in science and engineering

was equal to 29.4 % of total graduates in 2022, up by 1.19 percentage points from the year prior – and equivalent to an indicator rank of 24.



#### 2.3.1 Researchers

was equal to 8073.19 FTE per million population in 2022, up by 2.57% from the year prior – and equivalent to an indicator rank of 4.



#### 2.3.2 Gross expenditure on R&D

was equal to 2.96 % GDP in 2022, down by 0.02 percentage points from the year prior – and equivalent to an indicator rank of 10.



#### 2.3.4 QS university ranking

was equal to an average score of 49.8 for the top three universities in 2023, down by 0.06% from the year prior – and equivalent to an indicator rank of 21.

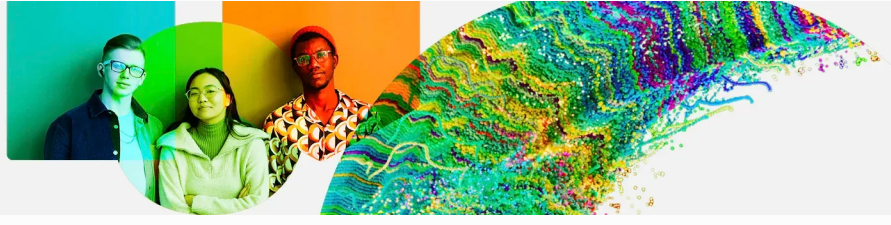


#### 4.2.4 VC received, value

was equal to 553.82 thousand USD in 2023, down by 67.87% from the year prior – and equivalent to an indicator rank of 15.



# Global Innovation Index 2024



### 4.3.2 Domestic industry diversification

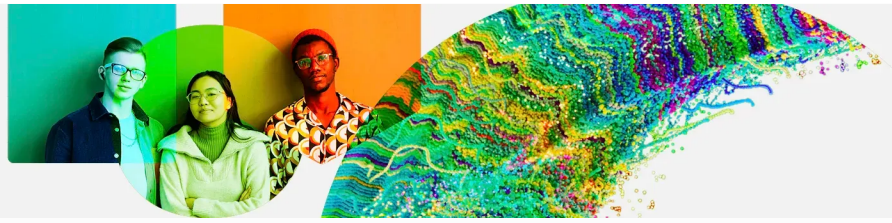
was equal to an index score of 0.08 in 2021, down by 3.87% from the year prior – and equivalent to an indicator rank of 13.



### 5.1.1 Knowledge-intensive employment

was equal to 47.42 % in 2022, up by 0.2 percentage points from the year prior – and equivalent to an indicator rank of 15.

# Global Innovation Index 2024

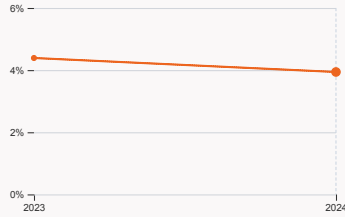


## › Innovation outputs in Finland



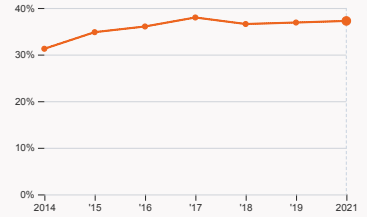
### 6.1.1 Patents by origin

was equal to 3.5 thousand patents in 2022, down by 4.37% from the year prior – and equivalent to an indicator rank of 7.



### 6.2.2 Unicorn valuation

was equal to 3.94 % GDP in 2024, down by 0.45 percentage points from the year prior – and equivalent to an indicator rank of 9.



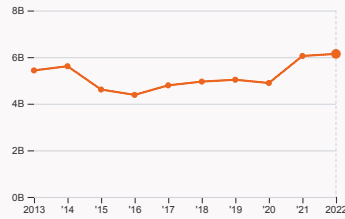
### 6.2.4 High-tech manufacturing

was equal to 37.22 % of total manufacturing output in 2021, up by 0.34 percentage points from the year prior – and equivalent to an indicator rank of 29.



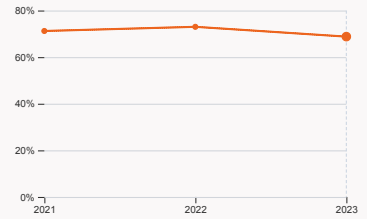
### 6.3.2 Production and export complexity

was equal to a score of 1.36 in 2021, down by 4.23% from the year prior – and equivalent to an indicator rank of 15.



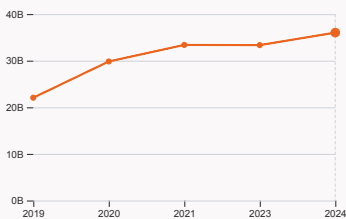
### 6.3.3 High-tech exports

was equal to 6.14 billion USD in 2022, up by 1.49% from the year prior – and equivalent to an indicator rank of 39.



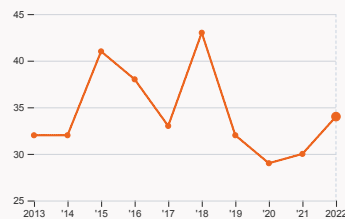
### 7.1.1 Intangible asset intensity

was equal to 68.8 % for the top 15 companies in 2023, down by 4.21 percentage points from the year prior – and equivalent to an indicator rank of 19.



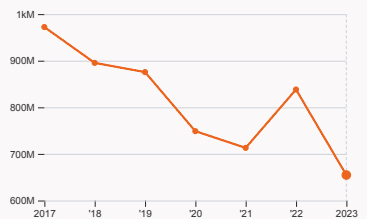
### 7.1.3 Global brand value

was equal to 36.02 billion USD for the brands in the top 5,000 in 2024, up by 8.04% from the year prior – and equivalent to an indicator rank of 14.



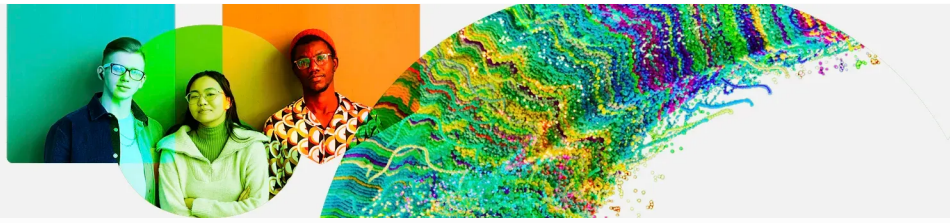
### 7.2.2 National feature films

was equal to 34 films in 2022, up by 13.33% from the year prior – and equivalent to an indicator rank of 8.



### 7.3.3 Mobile app creation

was equal to 654.7 million global downloads of mobile apps in 2023, down by 21.89% from the year prior – and equivalent to an indicator rank of 9.



## Finland's innovation top performers

### 2.3.3 Global corporate R&D investors from Finland

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
47	NOKIA	Technology Hardware & Equipment	4,513	9	18
604	WARTSILA	Industrial Engineering	308	36	5
928	KONE	Industrial Engineering	188	-0.5	2
1272	ORION OYJ	Pharmaceuticals & Biotechnology	131	15	10

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).  
 Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

### 2.3.4 QS university ranking of Finland's top universities

Rank	University	Score
109	AALTO UNIVERSITY	58.70
115	UNIVERSITY OF HELSINKI	57.20
313	UNIVERSITY OF OULU	33.50

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).  
 Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].  
 Ranks can represent a single value "x", a tie "x=" or a range "x-y".

### 6.2.2 Top Unicorn Companies in Finland

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	RELEX	Consumer & Retail	Helsinki	6
2	AIVEN	Enterprise Tech	Helsinki	3
3	OURA	Healthcare & Life Sciences	Oulu	3

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: <https://www.cbinsights.com/research-unicorn-companies>



## 7.1.1 Top 15 intangible-asset intensive companies in Finland

Rank	Firm	Intensity, %
1	KONE OYJ	90.41
2	NESTE OYJ	61.16
3	SAMPO OYJ	58.80

Source: Brand Finance (<https://brandirectory.com/reports/gift-2022>).

Note: Brand Finance only provides within economy ranks.

## 7.1.3 Top 5,000 companies in Finland with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	NOKIA	Electronics	8,028.9
2	NESTE	Oil & Gas	3,442.1
3	K GROUP	Retail	2,208.9

Source: Brand Finance (<https://brandirectory.com>).

Note: Rank corresponds to within economy ranks.

# Global Innovation Index 2024



GII 2024 rank

7

## Finland

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
9	5	High	EUR	5.6	335.8	59,869.1
			Score / Value Rank			
<b>Institutions</b>			85.5 4	<b>Business sophistication</b> 61.1 8		
<b>1.1 Institutional environment</b>			85.9 10	<b>5.1 Knowledge workers</b> 69.5 11		
1.1.1 Operational stability for businesses*			82 17	5.1.1 Knowledge-intensive employment, % 47.4 15		
1.1.2 Government effectiveness*			89.8 6	5.1.2 Firms offering formal training, % 50.2 17		
<b>1.2 Regulatory environment</b>			94.3 3	5.1.3 GERD performed by business, % GDP 2 10		
1.2.1 Regulatory quality*			88.6 6	5.1.4 GERD financed by business, % 58.1 16		
1.2.2 Rule of law*			100 1	5.1.5 Females employed w/advanced degrees, % 26.9 13		
<b>1.3 Business environment</b>			76.4 12	<b>5.2 Innovation linkages</b> 65 5		
1.3.1 Policy stability for doing business*			84.2 6	5.2.1 Public Research-Industry co-publications, % 5.9 7		
1.3.2 Entrepreneurship policies and culture*			68.7 14	5.2.2 University-industry R&D collaboration+ 83.4 9		
<b>Human capital and research</b>			61.1 6	5.2.3 State of cluster development+ 76.5 23		
<b>2.1 Education</b>			68 10	5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.1 14		
2.1.1 Expenditure on education, % GDP 5.7 21				5.2.5 Patent families/bn PPP\$ GDP 7 6		
2.1.2 Government funding/pupil, secondary, % GDP/cap 25.2 20				<b>5.3 Knowledge absorption</b> 48.7 13		
2.1.3 School life expectancy, years 19.5 5				5.3.1 Intellectual property payments, % total trade 1 38		
2.1.4 PISA scales in reading, maths and science 495.1 11				5.3.2 High-tech imports, % total trade 7.5 77		
2.1.5 Pupil-teacher ratio, secondary 12.7 58				5.3.3 ICT services imports, % total trade 4.3 5		
<b>2.2 Tertiary education</b>			52.1 10	5.3.4 FDI net inflows, % GDP 3.5 42		
2.2.1 Tertiary enrolment, % gross 104.9 5				5.3.5 Research talent, % in businesses 60.5 15		
2.2.2 Graduates in science and engineering, % 29.4 24				<b>Knowledge and technology outputs</b> 58 6		
2.2.3 Tertiary inbound mobility, % 8.5 33				<b>6.1 Knowledge creation</b> 60.9 6		
<b>2.3 Research and development (R&amp;D)</b>			63.2 11	6.1.1 Patents by origin/bn PPP\$ GDP 10.8 7		
2.3.1 Researchers, FTE/mn pop. 8,073.2 4				6.1.2 PCT patents by origin/bn PPP\$ GDP 4.6 1		
2.3.2 Gross expenditure on R&D, % GDP 3 10				6.1.3 Utility models by origin/bn PPP\$ GDP 0.7 24		
2.3.3 Global corporate R&D investors, top 3, mn USD 71.8 11				6.1.4 Scientific and technical articles/bn PPP\$ GDP 39 5		
2.3.4 QS university ranking, top 3* 50.4 21				6.1.5 Citable documents H-index 42.5 20		
<b>Infrastructure</b>			65.9 2	<b>6.2 Knowledge impact</b> 54.9 8		
<b>3.1 Information and communication technologies (ICTs)</b>			97.2 2	6.2.1 Labor productivity growth, % -0.7 113		
3.1.1 ICT access* 100 8				6.2.2 Unicorn valuation, % GDP 3.9 9		
3.1.2 ICT use* 95.3 3				6.2.3 Software spending, % GDP 0.6 18		
3.1.3 Government's online service* 98.2 2				6.2.4 High-tech manufacturing, % 37.2 29		
3.1.4 E-participation* 95.3 6				<b>6.3 Knowledge diffusion</b> 58.1 3		
<b>3.2 General infrastructure</b>			59.4 11	6.3.1 Intellectual property receipts, % total trade 2.8 7		
3.2.1 Electricity output, GWh/mn pop. 12,990.8 10				6.3.2 Production and export complexity 77.1 15		
3.2.2 Logistics performance* 95.5 2				6.3.3 High-tech exports, % total trade 4.7 39		
3.2.3 Gross capital formation, % GDP 25 53				6.3.4 ICT services exports, % total trade 9.9 6		
<b>3.3 Ecological sustainability</b>			40.9 14	6.3.5 ISO 9001 quality/bn PPP\$ GDP 9.4 31		
3.3.1 GDP/unit of energy use 8.2 87				<b>Creative outputs</b> 47.6 17		
3.3.2 Low-carbon energy use, % 53.7 11				<b>7.1 Intangible assets</b> 45 27		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 5.4 17				7.1.1 Intangible asset intensity, top 15, % 68.8 19		
<b>Market sophistication</b>			56.9 11	7.1.2 Trademarks by origin/bn PPP\$ GDP 29.8 65		
<b>4.1 Credit</b>			58.4 13	7.1.3 Global brand value, top 5,000, % GDP 11.4 14		
4.1.1 Finance for startups and scaleups* 100 1				7.1.4 Industrial designs by origin/bn PPP\$ GDP 2.5 36		
4.1.2 Domestic credit to private sector, % GDP 95.4 25				<b>7.2 Creative goods and services</b> 31.4 33		
4.1.3 Loans from microfinance institutions, % GDP 3.7 8				7.2.1 Cultural and creative services exports, % total trade 0.5 51		
<b>4.2 Investment</b>			47.9 14	7.2.2 National feature films/mn pop. 15-69 9 8		
4.2.1 Market capitalization, % GDP n/a n/a				7.2.3 Entertainment and media market/th pop. 15-69 48.9 14		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.4 19				7.2.4 Creative goods exports, % total trade 0.5 66		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.3 9				<b>7.3 Online creativity</b> 69 8		
4.2.4 VC received, value, % GDP 0.004 15				7.3.1 Top-level domains (TLDs)/th pop. 15-69 31.8 22		
<b>4.3 Trade, diversification and market scale</b>			64.4 29	7.3.2 GitHub commits/mn pop. 15-69 95.5 4		
4.3.1 Applied tariff rate, weighted avg., % 1.1 21				7.3.3 Mobile app creation/bn PPP\$ GDP 79.9 9		
4.3.2 Domestic industry diversification 95.7 13						
4.3.3 Domestic market scale, bn PPP\$ 335.8 58						

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; \* an index; + a survey question, ● that the economy's data is outdated. Square brackets [ ] indicate the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.



## Data availability

The following tables list indicators that are either missing or outdated for Finland.



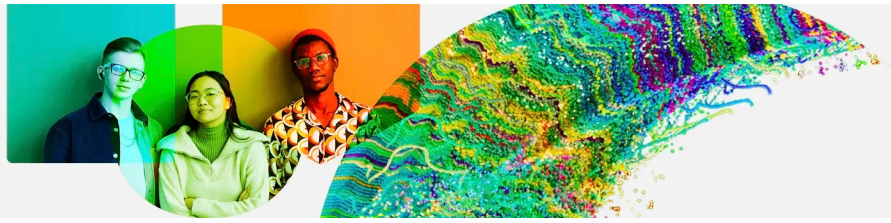
Finland has missing data for one indicator and outdated data for four indicators.

### Missing data for Finland

Code	Indicator name	Economy Year	Model Year	Source
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank

### Outdated data for Finland

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture <sup>†</sup>	2021	2023	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2021	2022	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups <sup>†</sup>	2021	2023	Global Entrepreneurship Monitor
5.1.2	Firms offering formal training, %	2020	2023	World Bank Enterprise Surveys



## Top science and technology clusters in Finland



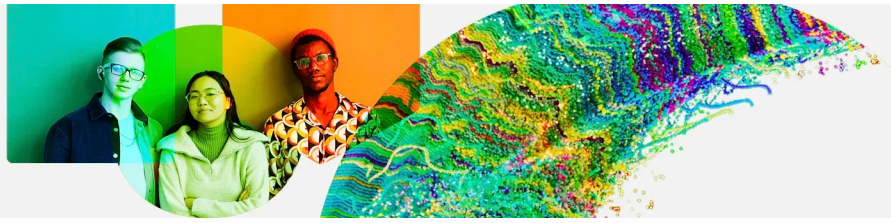
Finland has 1 cluster in the top 100 S&T clusters of the Global Innovation Index, the same number as in 2023.

The table and map below give an overview of the top science and technology clusters in Finland.

Rank	Cluster name	Top patent field	Top academic subject
71	<a href="#">Helsinki</a>	Digital communication	Environmental Sciences & Ecology



# Global Innovation Index 2024



The table and map below give an overview of the top science and technology clusters by intensity in Finland.

Rank	Cluster name	Top patent field	Top academic subject
17	<a href="#">Helsinki</a>	Digital communication	Environmental Sciences & Ecology



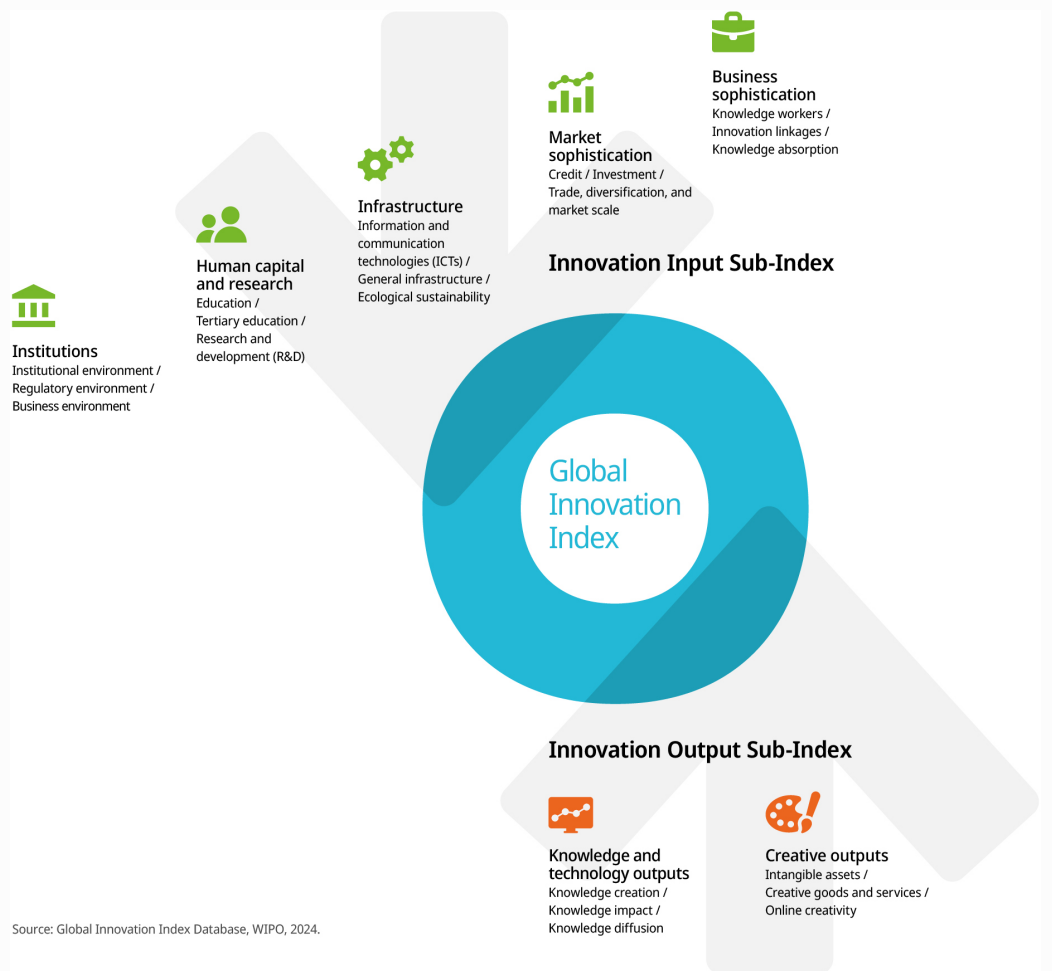


# Global Innovation Index 2024



## About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for economies that incorporate the GII into their innovation agendas.



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.