

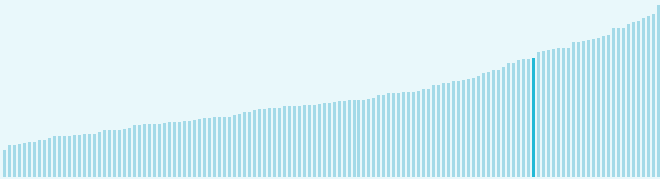
Global Innovation Index 2023



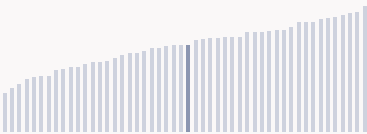
The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities**. Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Italy ranking in the Global Innovation Index 2023

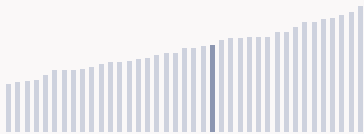
> Italy ranks **26th** among the 132 economies featured in the GII 2023.



> Italy ranks **25th** among the 50 high-income group economies.



> Italy ranks **17th** among the 39 economies in Europe.



> Italy GII Ranking (2020-2023)

The table shows the rankings of Italy 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 Italy in the GII 2023 is between ranks 25 and 28.

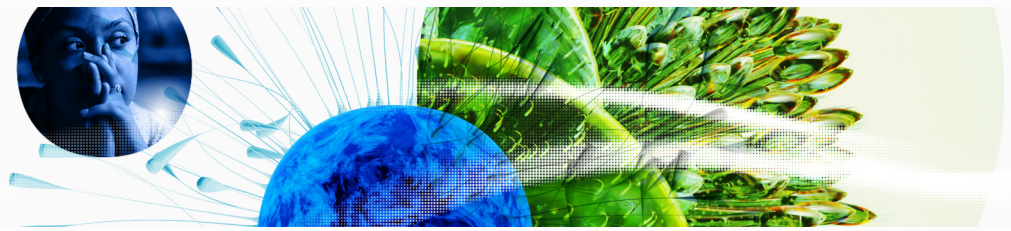
	GII Position	Innovation Inputs	Innovation Outputs
2020	28th	33rd	24th
2021	29th	33rd	25th
2022	28th	31st	15th
2023	26th	35th	19th

Italy performs better in innovation outputs than innovation inputs in 2023.

This year Italy ranks **35th** in innovation inputs. This position is lower than last year.

Italy ranks **19th** in innovation outputs. This position is lower than last year.

Global Innovation Index 2023



→ Expected vs. observed innovation performance

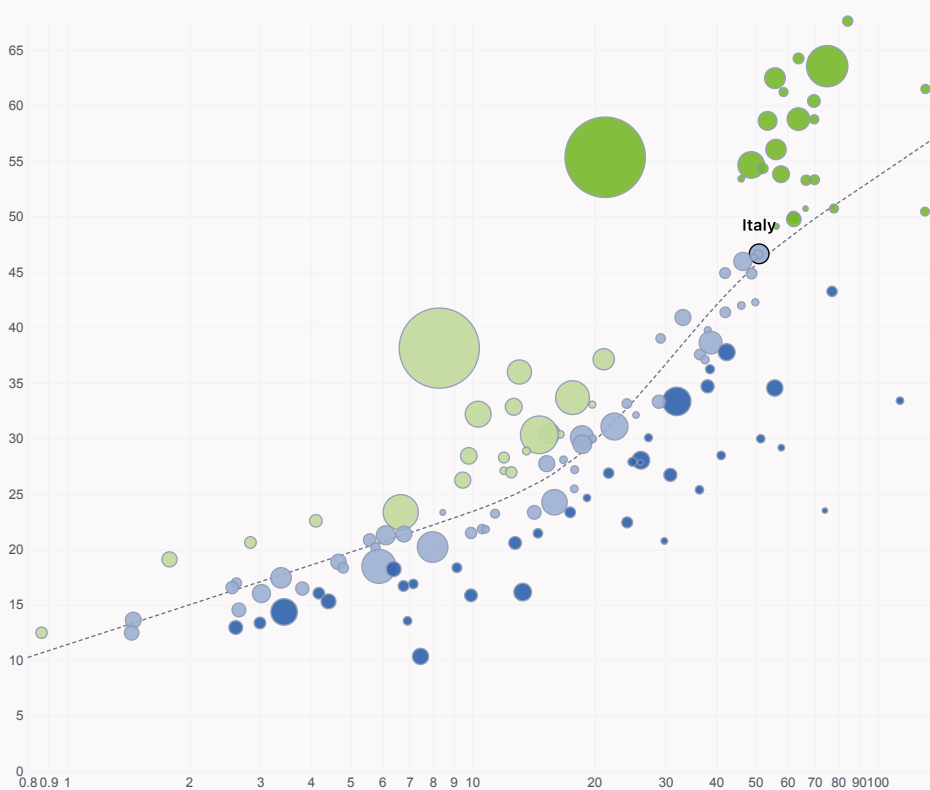
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



> Relative to GDP, Italy's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ **GII Score**



- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

Global Innovation Index 2023



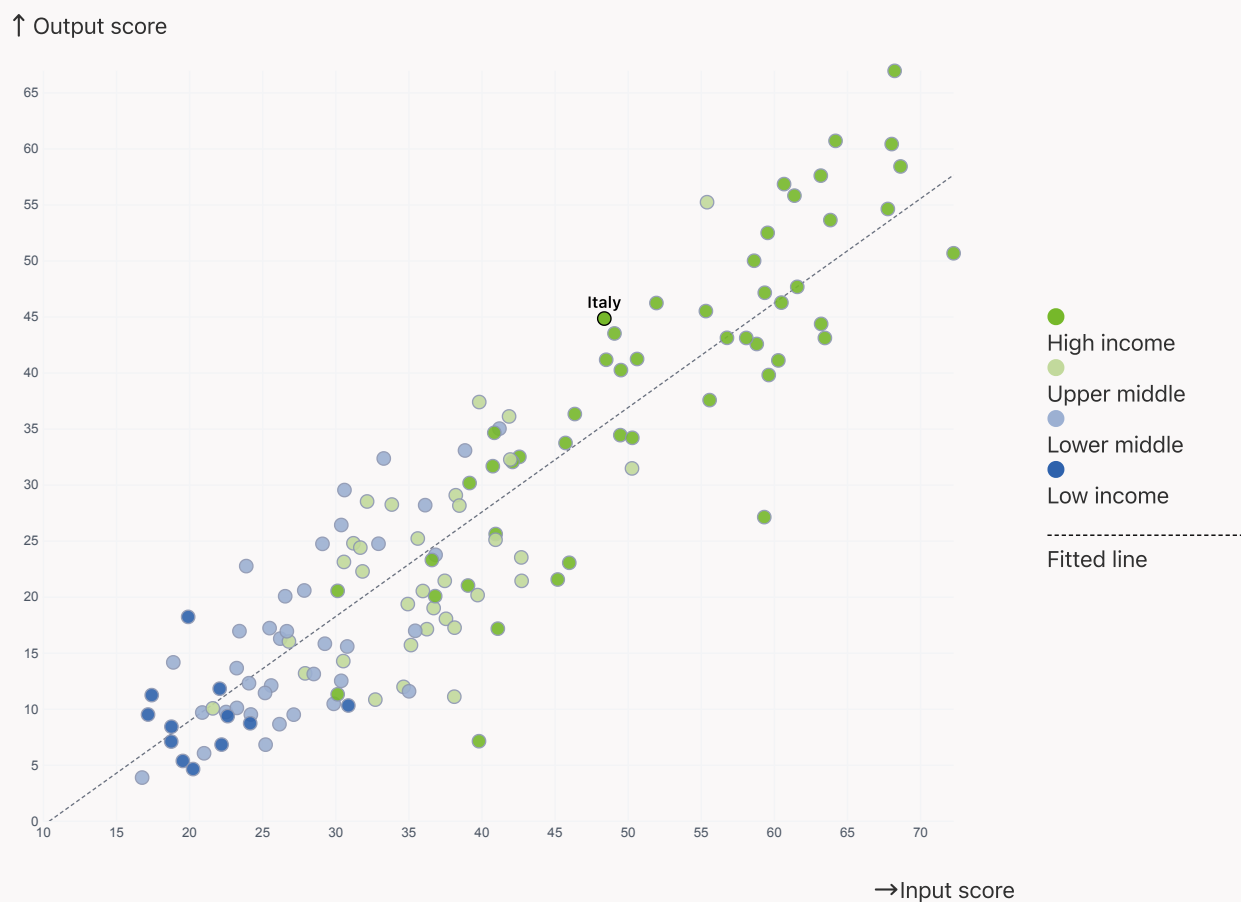
→ Effectively translating innovation investments into innovation outputs

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.



> Italy produces more innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs



Global Innovation Index 2023



→ Overview of Italy's rankings in the seven areas of the GII in 2023

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

Highest rankings →

- 18th Knowledge and technology outputs

- 21st 2 pillars *

- 26th Global Innovation Index

- 33rd 2 pillars **

- 40th Market sophistication

← Lowest rankings

- 52nd Institutions

* Infrastructure, Creative outputs

** Human capital and research, Business sophistication

> Highest rankings




Italy ranks highest in Knowledge and technology outputs (18th) and Infrastructure, Creative outputs (21st).

> Lowest rankings



Italy ranks lowest in Institutions (52nd), Market sophistication (40th) and Human capital and research, Business sophistication (33rd).

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

Global Innovation Index 2023



→ Benchmark of Italy against other country groupings for each of the seven areas of the GII Index

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

> High-Income economies

Italy performs below the high-income group average in Business sophistication, Market sophistication, Human capital and research, Institutions.



> Europe

Italy performs above the regional average in Knowledge and technology outputs, Creative outputs, Market sophistication, Infrastructure.



Knowledge and technology outputs

Top 10 | Score: 58.96

Italy | Score: 44.29

Europe | Score: 38.80

High income | Score: 38.62

Creative outputs

Top 10 | 56.09

Italy | 45.32

High income | 40.27

Europe | 39.87

Business sophistication

Top 10 | 64.39

High income | 46.38

Europe | 44.61

Italy | 41.31

Market sophistication

Top 10 | 61.93

High income | 46.42

Italy | 44.34

Europe | 43.65

Human capital and research

Top 10 | 60.28

High income | 46.30

Europe | 44.05

Italy | 43.73

Infrastructure

Top 10 | 62.83

Italy | 57.23

High income | 55.85

Europe | 54.69

Institutions

Top 10 | 79.85

High income | 68.16

Europe | 61.69

Italy | 55.45

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Italy

The table below gives an overview of the indicator strengths and weaknesses of Italy in the GII 2023.



> Italy's main innovation strengths are **Cost of redundancy dismissal** (rank 1), **Software spending, % GDP** (rank 3) and **ISO 9001 quality/bn PPP\$ GDP** (rank 3).

Strengths

Rank	Code	Indicator name
1	1.2.3	Cost of redundancy dismissal
3	6.2.3	Software spending, % GDP
3	6.3.5	ISO 9001 quality/bn PPP\$ GDP
5	4.3.2	Domestic industry diversification
7	7.1.4	Industrial designs by origin/bn PPP\$ GDP
8	6.1.5	Citable documents H-index
9	7.1.1	Intangible asset intensity, top 15, %
12	4.3.3	Domestic market scale, bn PPP\$
12	5.2.2	State of cluster development
14	3.3.3	ISO 14001 environment/bn PPP\$ GDP
15	6.1.1	Patents by origin/bn PPP\$ GDP

Weaknesses

Rank	Code	Indicator name
117	5.3.4	FDI net inflows, % GDP
93	5.1.2	Firms offering formal training, %
89	6.2.1	Labor productivity growth, %
82	3.2.3	Gross capital formation, % GDP
69	2.2.3	Tertiary inbound mobility, %
67	4.2.3	VC recipients, deals/bn PPP\$ GDP
65	1.3.2	Entrepreneurship policies and culture
64	4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP
58	4.2.4	VC received, value, % GDP

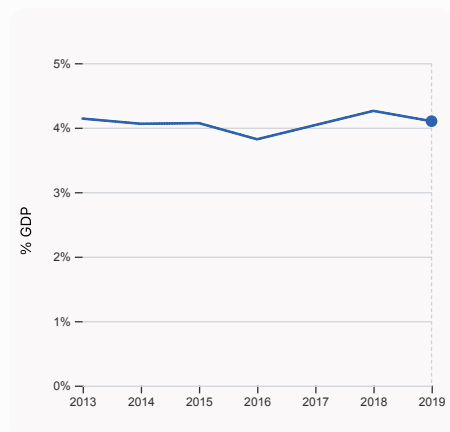
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→ Italy's innovation system

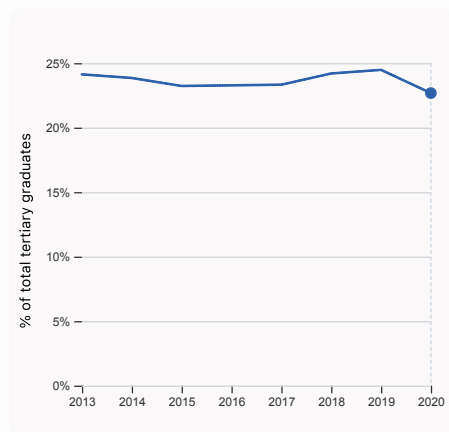
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Italy



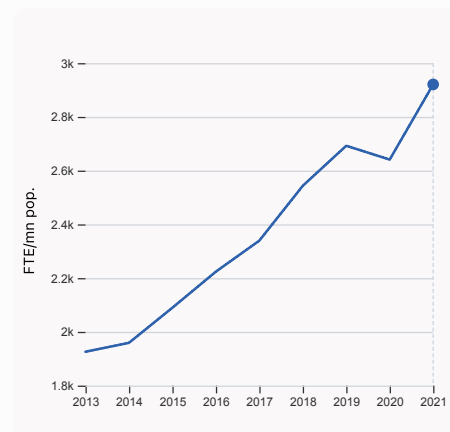
2.1.1 Expenditure on education, % GDP

was equal to 4.1% GDP in 2019, down by 0.16 percentage points from the year prior – and equivalent to an indicator rank of 68.



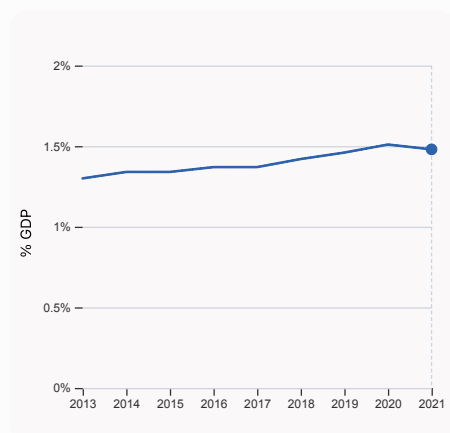
2.2.2 Graduates in science and engineering, %

was equal to 22.68% of total tertiary graduates in 2020, down by 1.8 percentage points from the year prior – and equivalent to an indicator rank of 58.



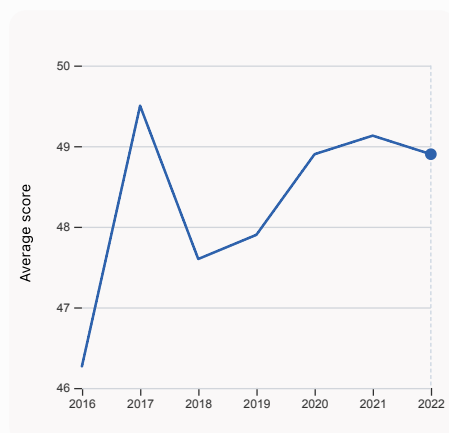
2.3.1 Researchers, FTE/mn pop.

was equal to 2,920.84 FTE/mn pop. in 2021, up by 10.59% from the year prior – and equivalent to an indicator rank of 32.



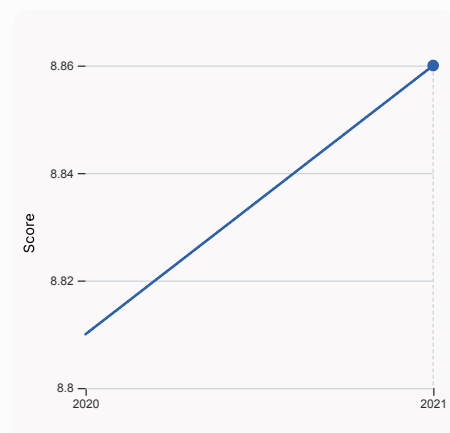
2.3.2 Gross expenditure on R&D, % GDP

was equal to 1.48% GDP in 2021, down by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 27.



2.3.4 QS university ranking, top 3

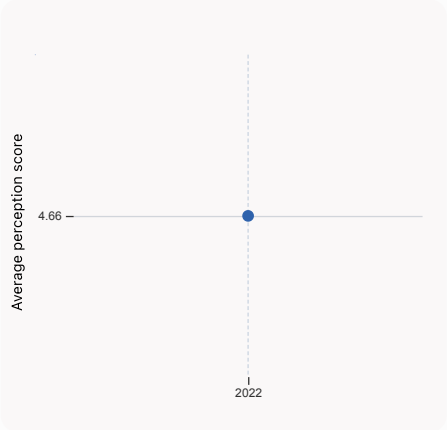
was equal to an average score of 48.9 for the top 3 universities in 2022, down by 0.47% from the year prior – and equivalent to an indicator rank of 19.



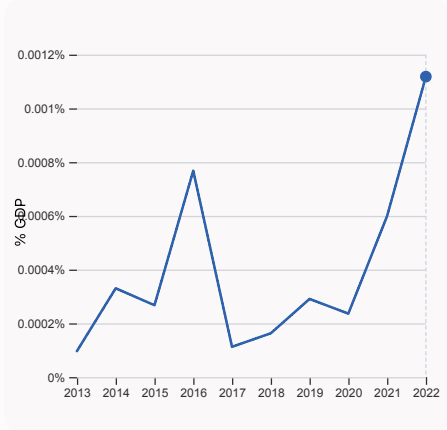
3.1.1 ICT access

was equal to a score of 8.86 in 2021, up by 0.57% from the year prior – and equivalent to an indicator rank of 62.

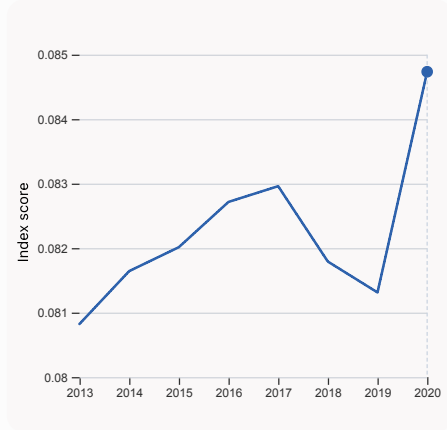
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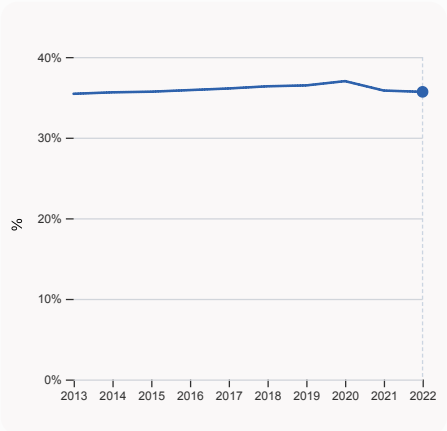
4.1.1 Finance for startups and scaleups
was equal to an average perception score of 4.66 in 2022, equivalent to an indicator rank of 43.



4.2.4 VC received, value, % GDP
was equal to 0.00112% GDP in 2022, up by 0.00052 percentage points from the year prior – and equivalent to an indicator rank of 58.



4.3.2 Domestic industry diversification
was equal to an index score of 0.085 in 2020, up by 4.21% from the year prior – and equivalent to an indicator rank of 5.

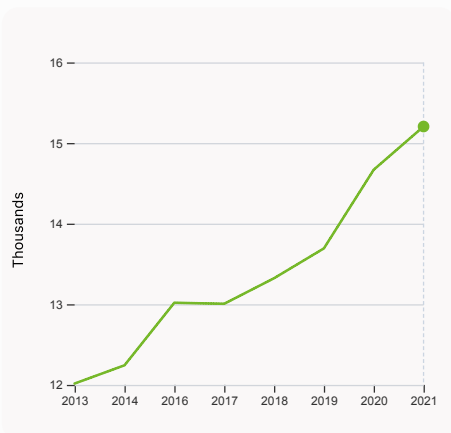


5.1.1 Knowledge-intensive employment, %
was equal to 35.68% in 2022, down by 0.16 percentage points from the year prior – and equivalent to an indicator rank of 40.

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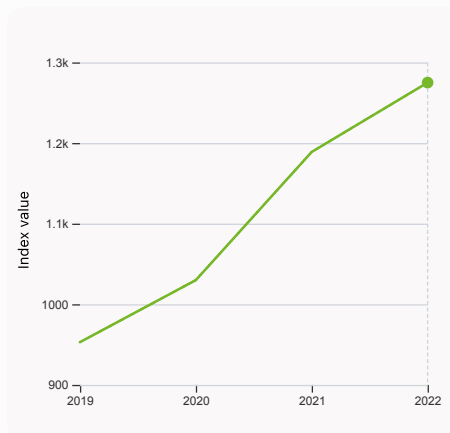


> Innovation outputs in Italy



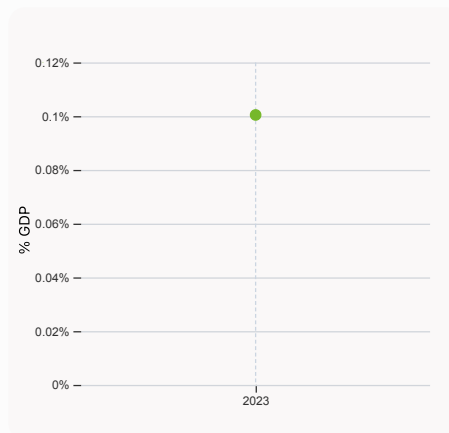
6.1.1 Patents by origin

was equal to 15.21 Thousands in 2021, up by 3.65% from the year prior – and equivalent to an indicator rank of 15.



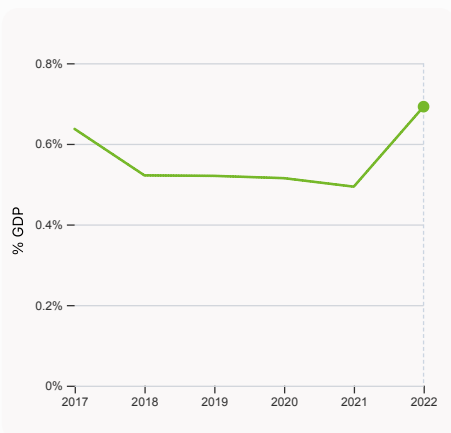
6.1.5 Citable documents H-index

was equal to an index value of 1,275 in 2022, up by 7.23% from the year prior – and equivalent to an indicator rank of 8.



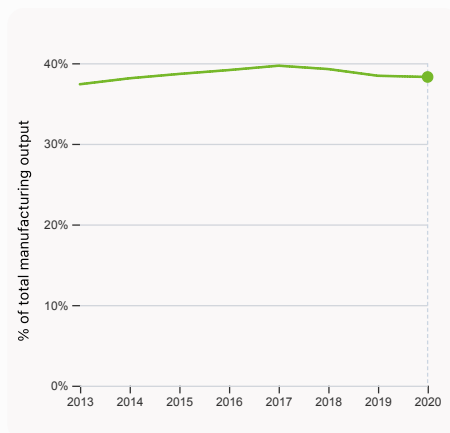
6.2.2 Unicorn valuation, % GDP

was equal to 0.1 % GDP in 2023 – and equivalent to an indicator rank of 47.



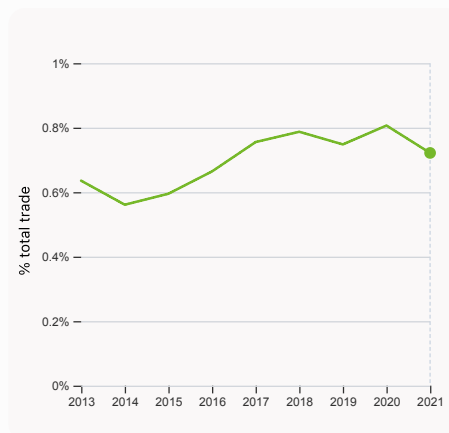
6.2.3 Software spending, % GDP

was equal to 0.692% GDP in 2022, up by 0.2 percentage points from the year prior – and equivalent to an indicator rank of 3.



6.2.4 High-tech manufacturing, %

was equal to 38.29% of total manufacturing output in 2020, down by 0.15 percentage points from the year prior – and equivalent to an indicator rank of 27.



6.3.1 Intellectual property receipts, % total trade

was equal to 0.722% total trade in 2021, down by 0.085 percentage points from the year prior – and equivalent to an indicator rank of 25.

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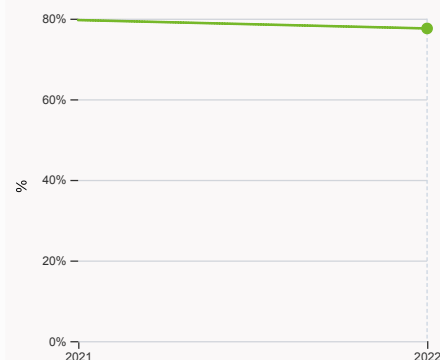
6.3.2 Production and export complexity

was equal to a score of 1.34 in 2020, down by 1.47% from the year prior – and equivalent to an indicator rank of 16.



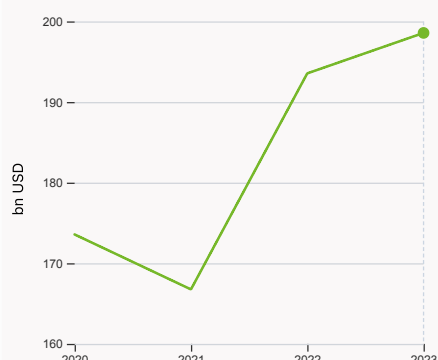
6.3.3 High-tech exports

was equal to 42,232,960,911 USD in 2021, up by 17.37% from the year prior – and equivalent to an indicator rank of 29.



7.1.1 Intangible asset intensity, top 15, %

was equal to 77.57% in 2022, down by 2.08 percentage points from the year prior – and equivalent to an indicator rank of 9.



7.1.3 Global brand value, top 5,000

was equal to 198.573 bn USD in 2023, up by 2.59% from the year prior – and equivalent to an indicator rank of 17.



7.2.1 Cultural and creative services exports

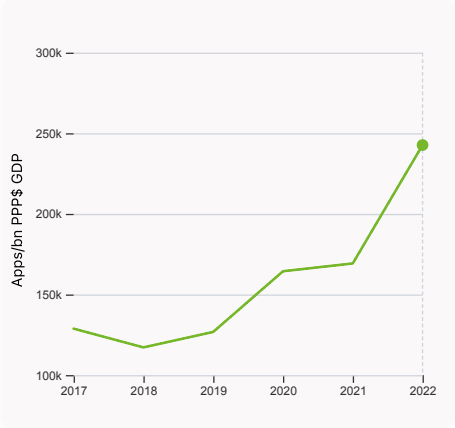
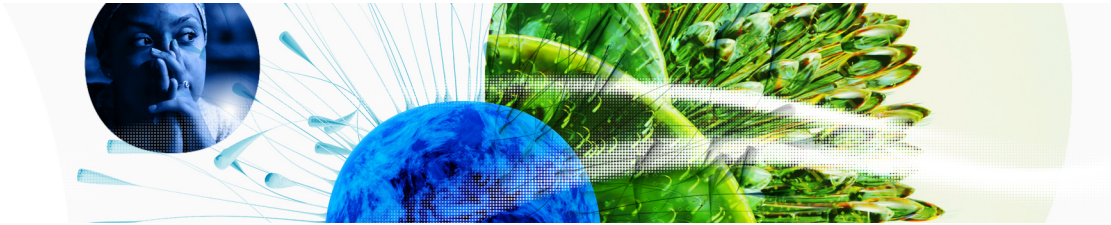
was equal to 2,982,950,000 USD in 2021, up by 14.38% from the year prior – and equivalent to an indicator rank of 57.



7.2.2 National feature films/mn pop. 15-69

was equal to 5.87 films/mn pop. 15-69 in 2021, up by 3.53% from the year prior – and equivalent to an indicator rank of 19.

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7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 242,699.14 Apps/bn PPP\$ GDP in 2022, up by 43.39% from the year prior – and equivalent to an indicator rank of 59.

Global Innovation Index 2023



→ Italy's innovation top performers

> 2.3.3 Global corporate R&D investors from Italy

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
185	TELECOM ITALIA	Fixed Line Telecommunications	1,072	-4	7
232	INTESA SANPAOLO	Banks	843	6	4
316	LEONARDO	Aerospace & Defence	584	4	4
346	UNICREDIT	Banks	528	7	3

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 Italy's top universities

Rank	University	Score
139	POLITECNICO DI MILANO	52.40
167	ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA	47.50
171	SAPIENZA - UNIVERSITA DI ROMA	46.80

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 Italy

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	SATISPAY	Fintech	Milan	1
1	SCALAPAY	Fintech	Milan	1

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 Italy

Rank	Firm	Intensity, %
1	ATLANTIA SPA	123.68
2	ENEL SPA	39.91
3	FERRARI NV	94.94

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 Italy with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	GUCCI	Apparel	17,839.2
2	ENEL	Utilities	11,729.4
3	ENI	Oil & Gas	10,026.4

Source: Brand Finance (<https://brandirectory.com>).
Note: Rank corresponds to within economy ranks.

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GII 2023 rank

26

Italy

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
19	35	High	EUR	59.0	3,022.2	51,061.8

Score / Value Rank

Score / Value Rank

Institutions

55.4 52

1.1 Institutional environment	51.1	53	◇
1.1.1 Operational stability for businesses*	55.6	56	◇
1.1.2 Government effectiveness*	46.7	50	◇
1.2 Regulatory environment	76.0	32	
1.2.1 Regulatory quality*	56.2	45	◇
1.2.2 Rule of law*	47.6	52	◇
1.2.3 Cost of redundancy dismissal	8.0	1	●
1.3 Business environment	39.2	87	
1.3.1 Policies for doing business*	52.4	56	
1.3.2 Entrepreneurship policies and culture*	26.1	65	○ ◇

Human capital and research

43.7 33

2.1 Education	57.2	49	
2.1.1 Expenditure on education, % GDP	4.1	68	●
2.1.2 Government funding/pupil, secondary, % GDP/cap	23.2	31	
2.1.3 School life expectancy, years	16.3	28	
2.1.4 PISA scales in reading, maths and science	477.0	34	
2.1.5 Pupil-teacher ratio, secondary	9.8	30	
2.2 Tertiary education	30.5	64	◇
2.2.1 Tertiary enrolment, % gross	69.5	39	
2.2.2 Graduates in science and engineering, %	22.7	58	
2.2.3 Tertiary inbound mobility, %	2.9	69	○
2.3 Research and development (R&D)	43.4	23	
2.3.1 Researchers, FTE/mn pop.	2,920.8	32	
2.3.2 Gross expenditure on R&D, % GDP	1.5	27	
2.3.3 Global corporate R&D investors, top 3, mn US\$	67.3	17	
2.3.4 QS university ranking, top 3*	49.5	19	

Infrastructure

57.2 21

3.1 Information and communication technologies (ICTs)	81.1	35	
3.1.1 ICT access*	82.9	62	◇
3.1.2 ICT use*	84.0	44	
3.1.3 Government's online service*	85.2	23	
3.1.4 E-participation*	72.1	32	
3.2 General infrastructure	37.9	36	
3.2.1 Electricity output, GWh/mn pop.	4,818.3	46	
3.2.2 Logistics performance*	72.7	18	
3.2.3 Gross capital formation, % GDP	21.9	82	○
3.3 Ecological sustainability	52.8	17	
3.3.1 GDP/unit of energy use	15.5	22	
3.3.2 Environmental performance*	65.8	23	
3.3.3 ISO 14001 environment/bn PPP\$ GDP	6.8	14	●

Market sophistication

44.3 40

4.1 Credit	41.4	40	
4.1.1 Finance for startups and scaleups*	52.1	43	
4.1.2 Domestic credit to private sector, % GDP	83.1	38	
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	6.7	67	
4.2.1 Market capitalization, % GDP	26.3	50	●
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP	0.0	64	○
4.2.3 VC recipients, deals/bn PPP\$ GDP	0.0	67	○
4.2.4 VC received, value, % GDP	0.0	58	○
4.3 Trade, diversification, and market scale	84.9	10	
4.3.1 Applied tariff rate, weighted avg., %	1.5	20	
4.3.2 Domestic industry diversification	99.3	5	●
4.3.3 Domestic market scale, bn PPP\$	3,022.2	12	●

Business sophistication

41.3 33

5.1 Knowledge workers	37.9	52	
5.1.1 Knowledge-intensive employment, %	35.7	40	
5.1.2 Firms offering formal training, %	12.6	93	○ ◇
5.1.3 GERD performed by business, % GDP	0.9	25	
5.1.4 GERD financed by business, %	52.8	23	
5.1.5 Females employed w/advanced degrees, %	13.9	53	
5.2 Innovation linkages	45.6	26	
5.2.1 University-industry R&D collaboration*	74.0	19	
5.2.2 State of cluster development*	80.2	12	●
5.2.3 GERD financed by abroad, % GDP	0.2	25	
5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	44	
5.2.5 Patent families/bn PPP\$ GDP	1.8	22	
5.3 Knowledge absorption	40.4	43	
5.3.1 Intellectual property payments, % total trade	0.8	50	
5.3.2 High-tech imports, % total trade	8.3	65	
5.3.3 ICT services imports, % total trade	2.0	36	
5.3.4 FDI net inflows, % GDP	0.4	117	○
5.3.5 Research talent, % in businesses	48.8	26	

Knowledge and technology outputs

44.3 18

6.1 Knowledge creation	41.2	23	
6.1.1 Patents by origin/bn PPP\$ GDP	5.6	15	●
6.1.2 PCT patents by origin/bn PPP\$ GDP	1.1	26	
6.1.3 Utility models by origin/bn PPP\$ GDP	0.7	29	
6.1.4 Scientific and technical articles/bn PPP\$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	68.6	8	●
6.2 Knowledge impact	40.5	29	
6.2.1 Labor productivity growth, %	0.2	89	○
6.2.2 Unicorn valuation, % GDP	0.1	47	
6.2.3 Software spending, % GDP	0.7	3	●
6.2.4 High-tech manufacturing, %	38.3	27	
6.3 Knowledge diffusion	51.2	15	
6.3.1 Intellectual property receipts, % total trade	0.8	25	
6.3.2 Production and export complexity	80.5	16	
6.3.3 High-tech exports, % total trade	6.4	29	
6.3.4 ICT services exports, % total trade	1.4	73	
6.3.5 ISO 9001 quality/bn PPP\$ GDP	34.3	3	●

Creative outputs

45.3 21

7.1 Intangible assets	60.1	9	
7.1.1 Intangible asset intensity, top 15, %	77.6	9	●
7.1.2 Trademarks by origin/bn PPP\$ GDP	53.8	43	
7.1.3 Global brand value, top 5,000	10.0	17	
7.1.4 Industrial designs by origin/bn PPP\$ GDP	13.9	7	●
7.2 Creative goods and services	26.5	38	
7.2.1 Cultural and creative services exports, % total trade	0.5	57	
7.2.2 National feature films/mn pop. 15-69	5.9	19	
7.2.3 Entertainment and media market/th pop. 15-69	30.4	23	
7.2.4 Creative goods exports, % total trade	2.4	23	
7.3 Online creativity	34.5	35	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	27.3	25	
7.3.2 Country-code TLDs/th pop. 15-69	24.9	29	
7.3.3 GitHub commits/mn pop. 15-69	18.5	47	
7.3.4 Mobile app creation/bn PPP\$ GDP	67.4	59	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, ● indicates that the economy's data are older than the base year; see appendices for details, including the year of the data, at <https://www.wipo.int/gii-ranking>. Square brackets [] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.



→ Data availability

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



> Italy has missing data for one indicator and outdated data for two indicators.

> Missing data for Italy

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)

> Outdated data for Italy

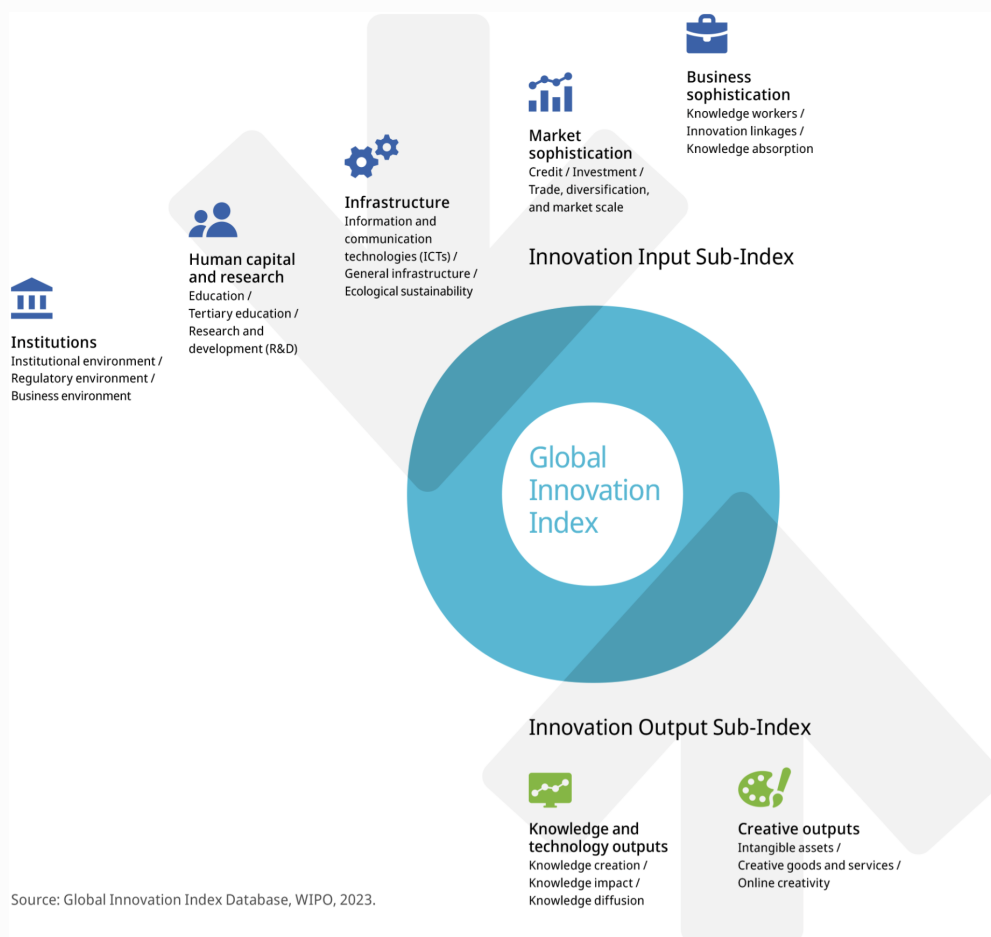
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
4.2.1	Market capitalization, % GDP	2014	2020	World Federation of Exchanges; World Bank

Global Innovation Index 2023



→ 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.