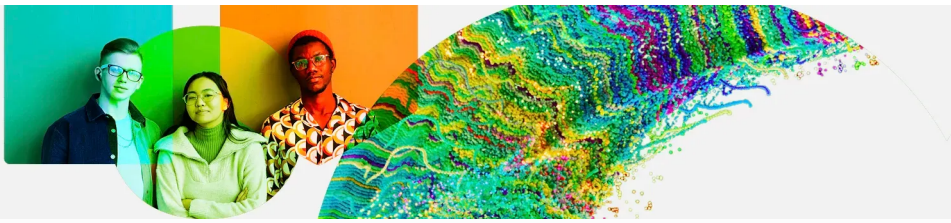
Global Innovation Index 2024



Italy ranking in the Global Innovation Index 2024

Italy ranks 26th 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.

Italy ranks 25th among the 51 high-income group economies.

Italy ranks 16th among the 39 economies in Europe.

Italy GII Ranking (2020-2024)

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 2024 is between ranks 23 and 29.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	28th	33rd	24th
2021	29th	33rd	25th
2022	28th	31st	15th
2023	26th	35th	19th
2024	26th	34th	18th

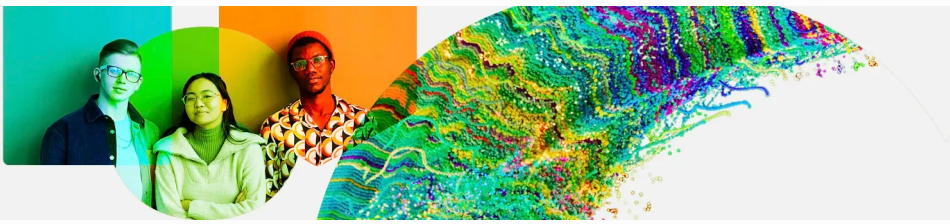
Italy performs better in innovation outputs than innovation inputs in 2024.

This year **Italy ranks 34th in innovation inputs.** This position is higher than last year.

Italy ranks 18th in innovation outputs. This position is higher than last year.

Italy has 2 clusters 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 Italy, how rapidly is technology being embraced and what are the resulting societal impacts.

For Italy, 4 indicators have improved in the short-term and 7 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -5.5% 2022 - 2023	▼ -3.2% 2021 - 2022	▲ 39.3% 2022 - 2023	▼ -62.5% 2022 - 2023	▼ -6.5% 2022 - 2023
▲ 3% 2013 - 2023	▲ 1.1% 2012 - 2022	▲ 19.3% 2013 - 2023	▲ 15% 2013 - 2023	▲ 0.8% 2013 - 2023

Technology adoption

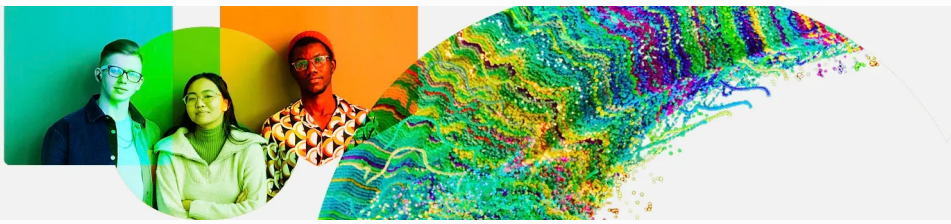
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
0% 2021 - 2022	▼ -0.1% 2021 - 2022	n/a	▲ 8.2% 2021 - 2022	▲ 40% 2022 - 2023
0% 2012 - 2022	▲ 3.3% 2012 - 2022		▲ 4.2% 2012 - 2022	▲ 71.9% 2013 - 2023
79 per 100 inhabitants in 2022	31.5 per 100 inhabitants in 2022	30 per 100 inhabitants in 2022		1.3 per 100 inhabitants in 2023

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -1.4% 2022 - 2023	▲ 0.3% 2021 - 2022	▲ 2.3°C 2023
▲ 0.1% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
124,361 USD in 2023	82.9 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.

Global Innovation Index 2024



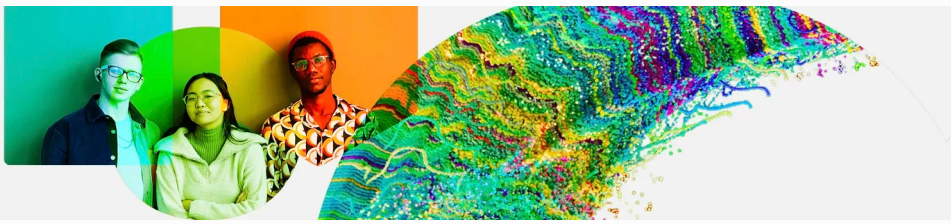
Expected vs. observed innovation performance

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

Global Innovation Index 2024



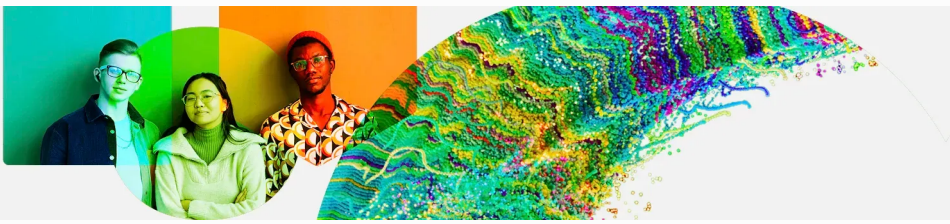
Effectively translating innovation investments into innovation outputs

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 2024



Overview of Italy'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 Italy are those that rank above the GII (shown in blue) and the weakest are those that rank below.

Highest rankings

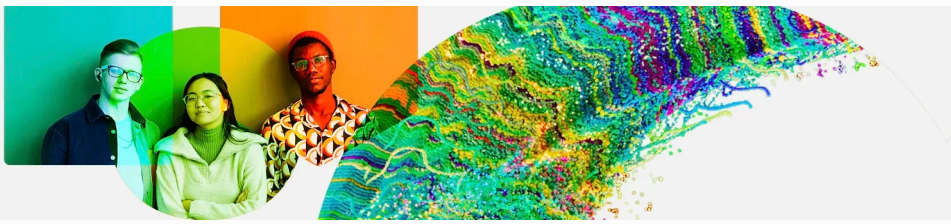
Italy ranks highest in Creative outputs (18th) and Knowledge and technology outputs (19th).

Lowest rankings

Italy ranks lowest in Institutions (55th), Market sophistication (38th) and Business sophistication (34th).

The full WIPO Intellectual Property Statistics profile for Italy can be found on this link.

Global Innovation Index 2024



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

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

High-Income economies

Italy performs above the high-income group average in Infrastructure, Knowledge and technology outputs, Creative outputs.

Europe

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

Institutions

- Top 10 | Score: 80.81
- High income | Score: 67.41
- Europe | Score: 59.14
- Italy | Score: 51.25

Human capital and research

- Top 10 | Score: 61.30
- High income | Score: 46.99
- Italy | Score: 45.43
- Europe | Score: 44.92

Infrastructure

- Top 10 | Score: 58.57
- Italy | Score: 52.50
- High income | Score: 51.96
- Europe | Score: 51.74

Market sophistication

- Top 10 | Score: 62.12
- High income | Score: 44.90
- Italy | Score: 43.06
- Europe | Score: 42.79

Business sophistication

- Top 10 | Score: 63.64
- High income | Score: 44.71
- Europe | Score: 42.68
- Italy | Score: 38.69

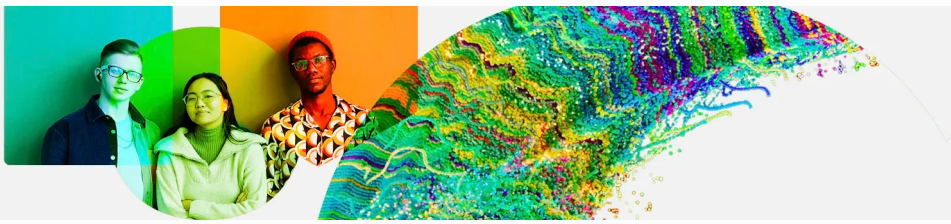
Knowledge and technology outputs

- Top 10 | Score: 57.29
- Italy | Score: 41.39
- Europe | Score: 36.30
- High income | Score: 35.79

Creative outputs

- Top 10 | Score: 56.54
- Italy | Score: 47.54
- High income | Score: 39.44
- Europe | Score: 39.15

Global Innovation Index 2024



Innovation strengths and weaknesses in Italy

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

Italy's main innovation strengths are **Industrial designs by origin/bn PPP$ GDP** (rank 1), **ISO 9001 quality/bn PPP$ GDP** (rank 3) and **Domestic industry diversification** (rank 4).

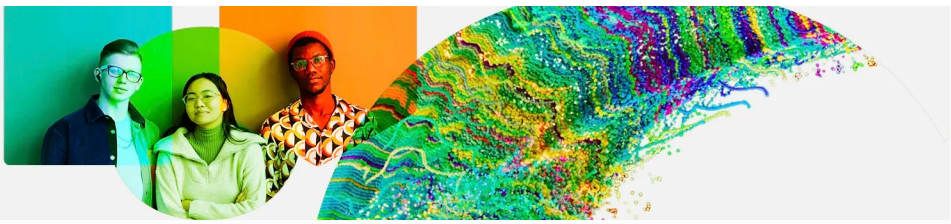
Strengths

Rank	Code	Indicator name
1	7.1.4	Industrial designs by origin/bn PPP$ GDP
3	6.3.5	ISO 9001 quality/bn PPP$ GDP
4	4.3.2	Domestic industry diversification
6	6.2.3	Software spending, % GDP
8	6.1.5	Citable documents H-index
12	3.3.3	ISO 14001 environment/bn PPP$ GDP
13	4.3.3	Domestic market scale, bn PPP$
14	2.3.3	Global corporate R&D investors, top 3, mn USD
16	6.3.2	Production and export complexity
18	2.3.4	QS university ranking, top 3*

Weaknesses

Rank	Code	Indicator name
110	5.3.4	FDI net inflows, % GDP
92	5.1.2	Firms offering formal training, %
91	3.2.3	Gross capital formation, % GDP
80	6.2.1	Labor productivity growth, %
73	6.3.4	ICT services exports, % total trade
72	2.1.1	Expenditure on education, % GDP
61	1.3.2	Entrepreneurship policies and culture†
61	4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP
60	4.2.3	VC recipients, deals/bn PPP$ GDP

Global Innovation Index 2024



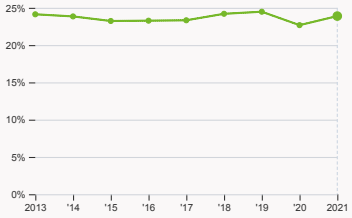
Italy's innovation system

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

Innovation inputs in Italy

2.1.1 **Expenditure on education**

was equal to 4.02 % GDP in 2021, down by 0.42 percentage points from the year prior – and equivalent to an indicator rank of 72.

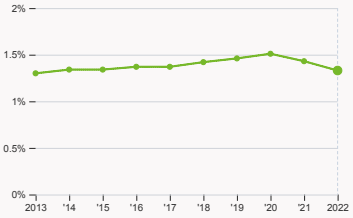


2.2.2 **Graduates in science and engineering**

was equal to 23.89 % of total graduates in 2021, up by 1.21 percentage points from the year prior – and equivalent to an indicator rank of 54.

2.3.1 **Researchers**

was equal to 2723.79 FTE per million population in 2022, up by 1.33% from the year prior – and equivalent to an indicator rank of 32.



2.3.2 **Gross expenditure on R&D**

was equal to 1.33 % GDP in 2022, down by 0.1 percentage points from the year prior – and equivalent to an indicator rank of 32.

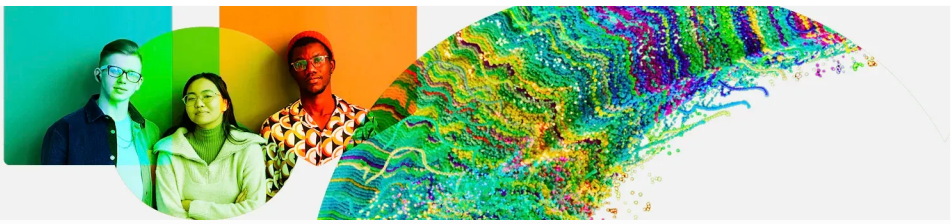
2.3.4 **QS university ranking**

was equal to an average score of 52.87 for the top three universities in 2023, up by 8.12% from the year prior – and equivalent to an indicator rank of 18.

4.2.4 **VC received, value**

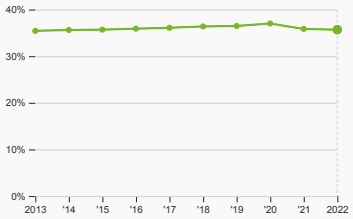
was equal to 839.89 thousand USD in 2023, down by 62.46% from the year prior – and equivalent to an indicator rank of 59.

Global Innovation Index 2024



4.3.2 **Domestic industry diversification**

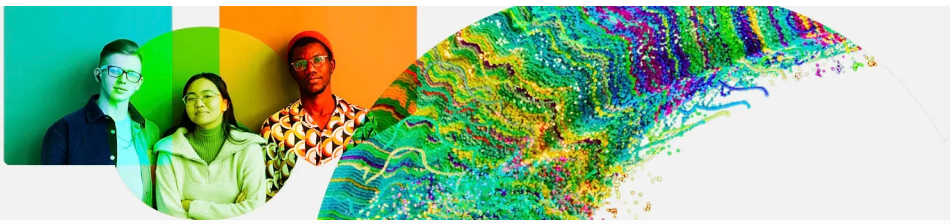
was equal to an index score of 0.07 in 2021, down by 1.68% from the year prior – and equivalent to an indicator rank of 4.



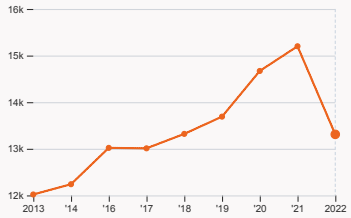
5.1.1 **Knowledge-intensive employment**

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.

Global Innovation Index 2024



Innovation outputs in Italy

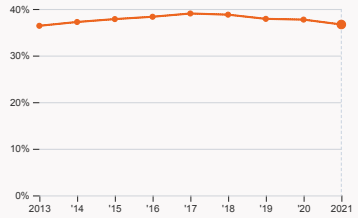


6.1.1 Patents by origin

was equal to 13.31 thousand patents in 2022, down by 12.43% from the year prior – and equivalent to an indicator rank of 18.

6.2.2 Unicorn valuation

was equal to 0.2 % GDP in 2024, up by 0.1 percentage points from the year prior – and equivalent to an indicator rank of 47.

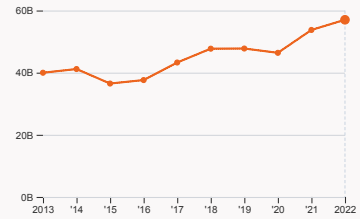


6.2.4 High-tech manufacturing

was equal to 36.67 % of total manufacturing output in 2021, down by 1.05 percentage points from the year prior – and equivalent to an indicator rank of 32.

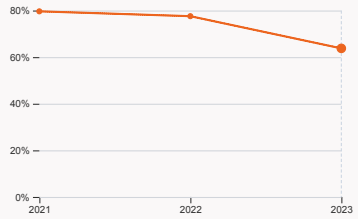
6.3.2 Production and export complexity

was equal to a score of 1.35 in 2021, up by 2.27% from the year prior – and equivalent to an indicator rank of 16.



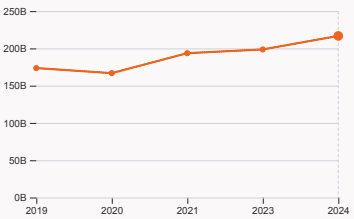
6.3.3 High-tech exports

was equal to 57.02 billion USD in 2022, up by 6.08% from the year prior – and equivalent to an indicator rank of 27.



7.1.1 Intangible asset intensity

was equal to 63.76 % for the top 15 companies in 2023, down by 13.81 percentage points from the year prior – and equivalent to an indicator rank of 29.

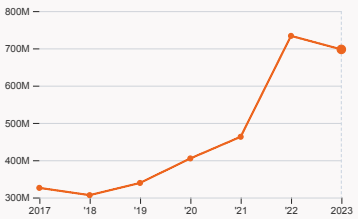


7.1.3 Global brand value

was equal to 216.69 billion USD for the brands in the top 5,000 in 2024, up by 9.13% from the year prior – and equivalent to an indicator rank of 18.

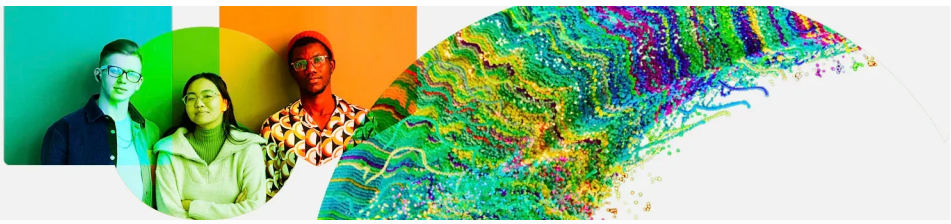
7.2.2 National feature films

was equal to 251 films in 2022, up by 3.72% from the year prior – and equivalent to an indicator rank of 20.



7.3.3 Mobile app creation

was equal to 697.23 million global downloads of mobile apps in 2023, down by 4.94% from the year prior – and equivalent to an indicator rank of 60.



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]	[%]	[%]
115	LEONARDO	Aerospace & Defence	1,975	238	13
222	INTESA SANPAOLO	Banks	990	17	4
231	TELECOM ITALIA	Fixed Line Telecommunications	955	-11	6
358	CHIESI FARMACEUTICI	Pharmaceuticals & Biotechnology	589	32	21

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

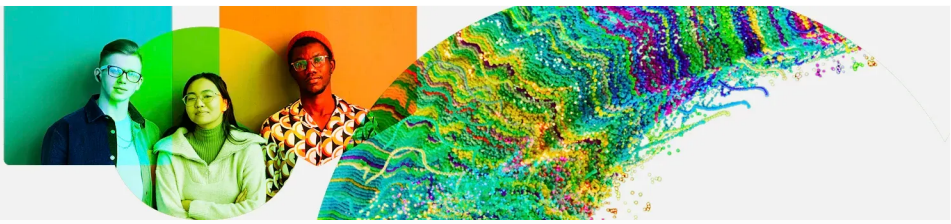
Rank	University	Score
123	POLITECNICO DI MILANO	55.20
134	SAPIENZA UNIVERSITY OF ROME	52.90
154	ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA	50.50

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 Italy

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	BENDING SPOONS	Consumer & Retail	Milan	3
2	SATISPAY	Financial Services	Milan	1
2	SCALAPAY	Financial Services	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	ENEL SPA	45.56
2	FERRARI N.V.	93.72
3	ASSICURAZIONI GENERALI S.P.A.	65.48

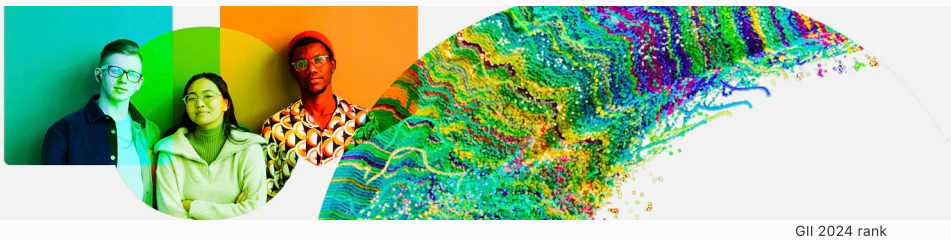
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

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

Rank	Brand	Industry	Brand Value, mn USD
1	GUCCI	Apparel	14,864.3
2	GENERALI GROUP	Insurance	11,574.8
3	ENEL	Utilities	11,108.9

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

Global Innovation Index 2024



Italy

GII 2024 rank **26**

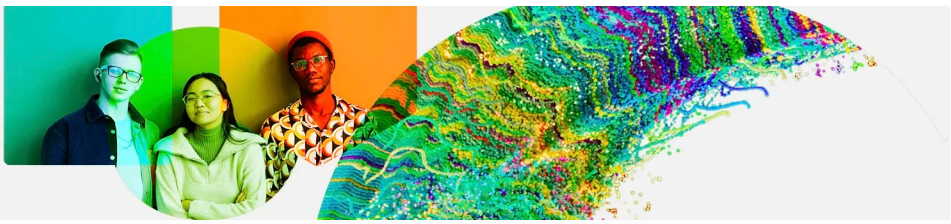
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
18	34	High	EUR	59.5	3,193.2	54,259

	Score / Value	Rank	
Institutions	**51.2**	**55**	◇
1.1 Institutional environment	**60.5**	**51**	◇
1.1.1 Operational stability for businesses*	65.3	55	◇
1.1.2 Government effectiveness*	55.7	48	◇
1.2 Regulatory environment	**53.8**	**50**	◇
1.2.1 Regulatory quality*	55.3	47	◇
1.2.2 Rule of law*	52.4	53	◇
1.3 Business environment	**39.4**	**80**	○
1.3.1 Policy stability for doing business†	53.1	55	
1.3.2 Entrepreneurship policies and culture†	25.7	61	○
Human capital and research	**45.4**	**30**	
2.1 Education	**59**	**42**	
2.1.1 Expenditure on education, % GDP	4	72	○
2.1.2 Government funding/pupil, secondary, % GDP/cap	24	27	
2.1.3 School life expectancy, years	16.7	27	
2.1.4 PISA scales in reading, maths and science	476.8	31	
2.1.5 Pupil–teacher ratio, secondary	9.9	32	
2.2 Tertiary education	**34.2**	**64**	
2.2.1 Tertiary enrolment, % gross	71.3	40	
2.2.2 Graduates in science and engineering, %	23.9	54	
2.2.3 Tertiary inbound mobility, %	3.4	60	
2.3 Research and development (R&D)	**43.1**	**24**	
2.3.1 Researchers, FTE/mn pop.	2,723.8	32	
2.3.2 Gross expenditure on R&D, % GDP	1.3	32	
2.3.3 Global corporate R&D investors, top 3, mn USD	69.5	14	●◆
2.3.4 QS university ranking, top 3*	53.5	18	●◆
Infrastructure	**52.5**	**28**	
3.1 Information and communication technologies (ICTs)	**82.9**	**34**	
3.1.1 ICT access*	91.2	60	◇
3.1.2 ICT use*	83.1	40	
3.1.3 Government's online service*	85.2	23	
3.1.4 E-participation*	72.1	32	
3.2 General infrastructure	**37.8**	**42**	
3.2.1 Electricity output, GWh/mn pop.	4,826.5	44	
3.2.2 Logistics performance*	72.7	18	
3.2.3 Gross capital formation, % GDP	21.3	91	○
3.3 Ecological sustainability	**36.8**	**26**	
3.3.1 GDP/unit of energy use	16.6	21	
3.3.2 Low-carbon energy use, %	15.9	70	
3.3.3 ISO 14001 environment/bn PPP$ GDP	6.8	12	●◆
Market sophistication	**43.1**	**38**	
4.1 Credit	**36.8**	**38**	
4.1.1 Finance for startups and scaleups†	48.9	41	
4.1.2 Domestic credit to private sector, % GDP	71.5	44	
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**8**	**69**	○
4.2.1 Market capitalization, % GDP	27.9	52	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.06	61	○
4.2.3 VC recipients, deals/bn PPP$ GDP	0.04	60	○
4.2.4 VC received, value, % GDP	0.0007	59	
4.3 Trade, diversification and market scale	**84.4**	**9**	●◆
4.3.1 Applied tariff rate, weighted avg., %	1.1	21	
4.3.2 Domestic industry diversification	99.1	4	●◆
4.3.3 Domestic market scale, bn PPP$	3,193.2	13	●◆

	Score / Value	Rank	
Business sophistication	**38.7**	**34**	
5.1 Knowledge workers	**39.8**	**48**	
5.1.1 Knowledge-intensive employment, %	35.7	40	
5.1.2 Firms offering formal training, %	12.6	92	○◇
5.1.3 GERD performed by business, % GDP	0.8	32	
5.1.4 GERD financed by business, %	53.9	22	
5.1.5 Females employed w/advanced degrees, %	14.6	54	
5.2 Innovation linkages	**42.3**	**27**	
5.2.1 Public Research-Industry co-publications, %	2.8	27	
5.2.2 University-industry R&D collaboration†	68.5	28	
5.2.3 State of cluster development†	75.8	25	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.02	48	
5.2.5 Patent families/bn PPP$ GDP	1.9	21	
5.3 Knowledge absorption	**34**	**44**	
5.3.1 Intellectual property payments, % total trade	0.8	53	
5.3.2 High-tech imports, % total trade	9.4	47	
5.3.3 ICT services imports, % total trade	1.9	35	
5.3.4 FDI net inflows, % GDP	0.4	110	○
5.3.5 Research talent, % in businesses	43.9	34	
Knowledge and technology outputs	**41.4**	**19**	
6.1 Knowledge creation	**39**	**24**	
6.1.1 Patents by origin/bn PPP$ GDP	4.4	18	
6.1.2 PCT patents by origin/bn PPP$ GDP	1	27	
6.1.3 Utility models by origin/bn PPP$ GDP	0.5	28	
6.1.4 Scientific and technical articles/bn PPP$ GDP	23.5	27	
6.1.5 Citable documents H-index	68.4	8	●◆
6.2 Knowledge impact	**39.7**	**23**	
6.2.1 Labor productivity growth, %	0.3	80	○
6.2.2 Unicorn valuation, % GDP	0.2	47	
6.2.3 Software spending, % GDP	0.6	6	●◆
6.2.4 High-tech manufacturing, %	36.7	32	
6.3 Knowledge diffusion	**45.4**	**19**	
6.3.1 Intellectual property receipts, % total trade	0.7	24	
6.3.2 Production and export complexity	77	16	●◆
6.3.3 High-tech exports, % total trade	7.5	27	
6.3.4 ICT services exports, % total trade	1.3	73	○
6.3.5 ISO 9001 quality/bn PPP$ GDP	31.1	3	●◆
Creative outputs	**47.5**	**18**	●◆
7.1 Intangible assets	**63.8**	**8**	●◆
7.1.1 Intangible asset intensity, top 15, %	63.8	29	
7.1.2 Trademarks by origin/bn PPP$ GDP	41.1	45	
7.1.3 Global brand value, top 5,000, % GDP	9.5	18	
7.1.4 Industrial designs by origin/bn PPP$ GDP	13.4	1	●◆
7.2 Creative goods and services	**26.3**	**44**	
7.2.1 Cultural and creative services exports, % total trade	0.5	57	
7.2.2 National feature films/mn pop. 15–69	6	20	
7.2.3 Entertainment and media market/th pop. 15–69	27	23	
7.2.4 Creative goods exports, % total trade	2.3	25	
7.3 Online creativity	**36.3**	**40**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	21.3	28	
7.3.2 GitHub commits/mn pop. 15–69	20.2	45	
7.3.3 Mobile app creation/bn PPP$ GDP	67.4	60	

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 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.

Global Innovation Index 2024



Data availability

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

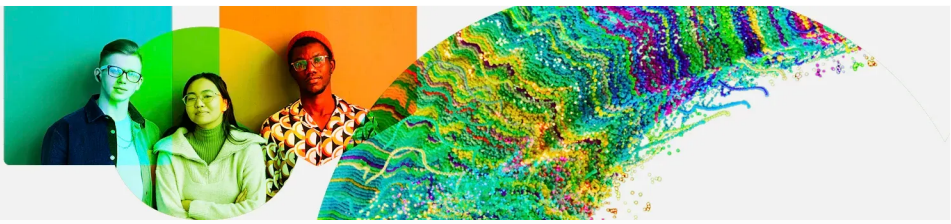
Italy has missing data for one indicator and outdated data for seven indicators.

Missing data for Italy

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	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	2021	2022	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2021	2022	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2021	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2021	2022	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2021	2022	UNESCO Institute for Statistics
4.2.1	Market capitalization, % GDP	2014	2022	World Federation of Exchanges; World Bank
5.1.2	Firms offering formal training, %	2019	2023	World Bank Enterprise Surveys

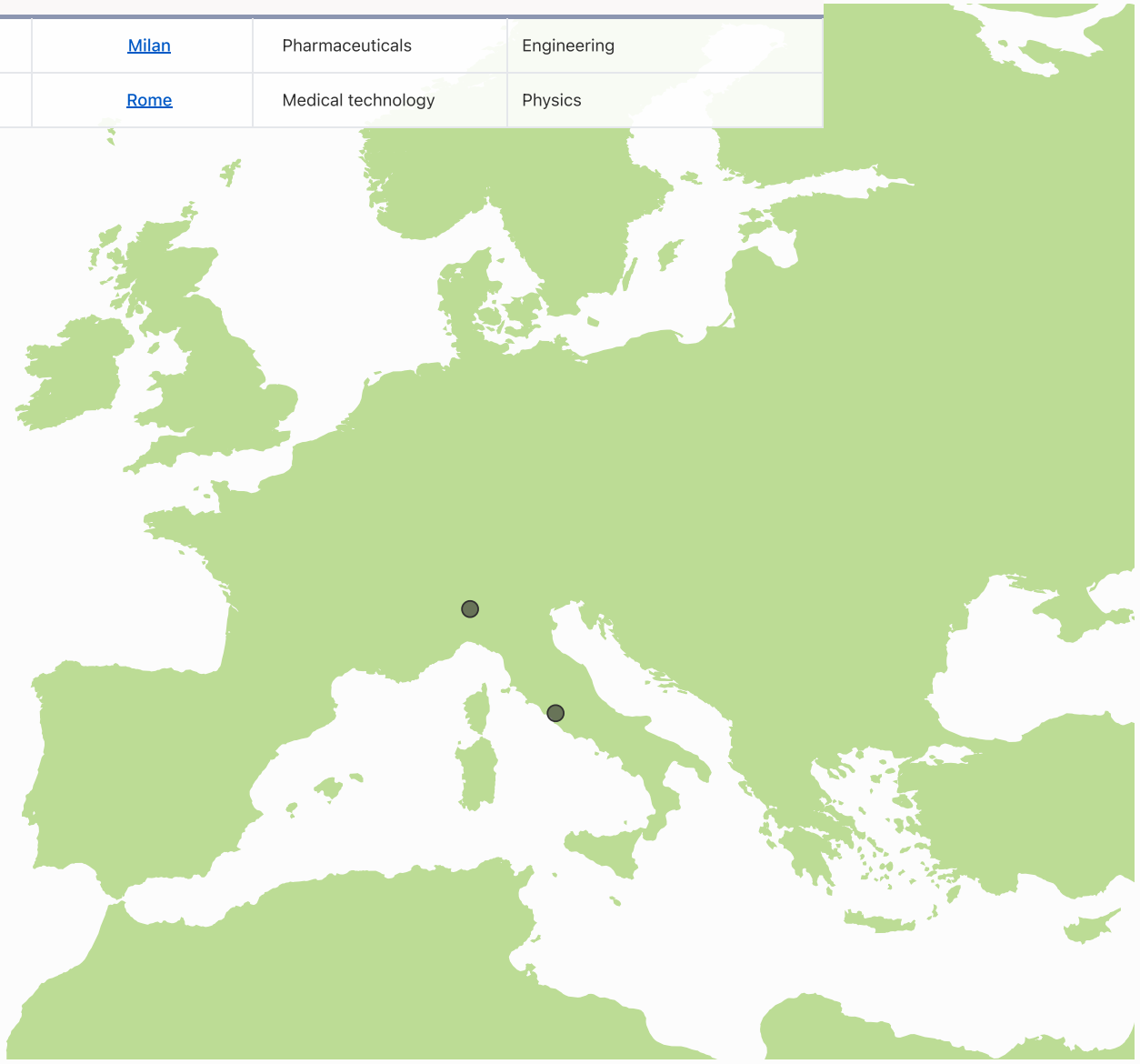


Top science and technology clusters in Italy

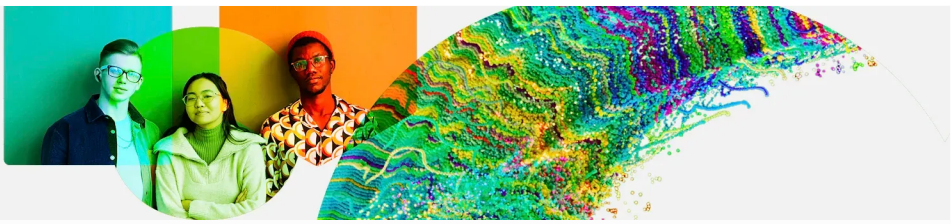
Italy has 2 clusters in the top 100 S&T clusters of the Global Innovation Index, the same number as in 2023.

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

Rank	Cluster name	Top patent field	Top academic subject
52	Milan	Pharmaceuticals	Engineering
67	Rome	Medical technology	Physics

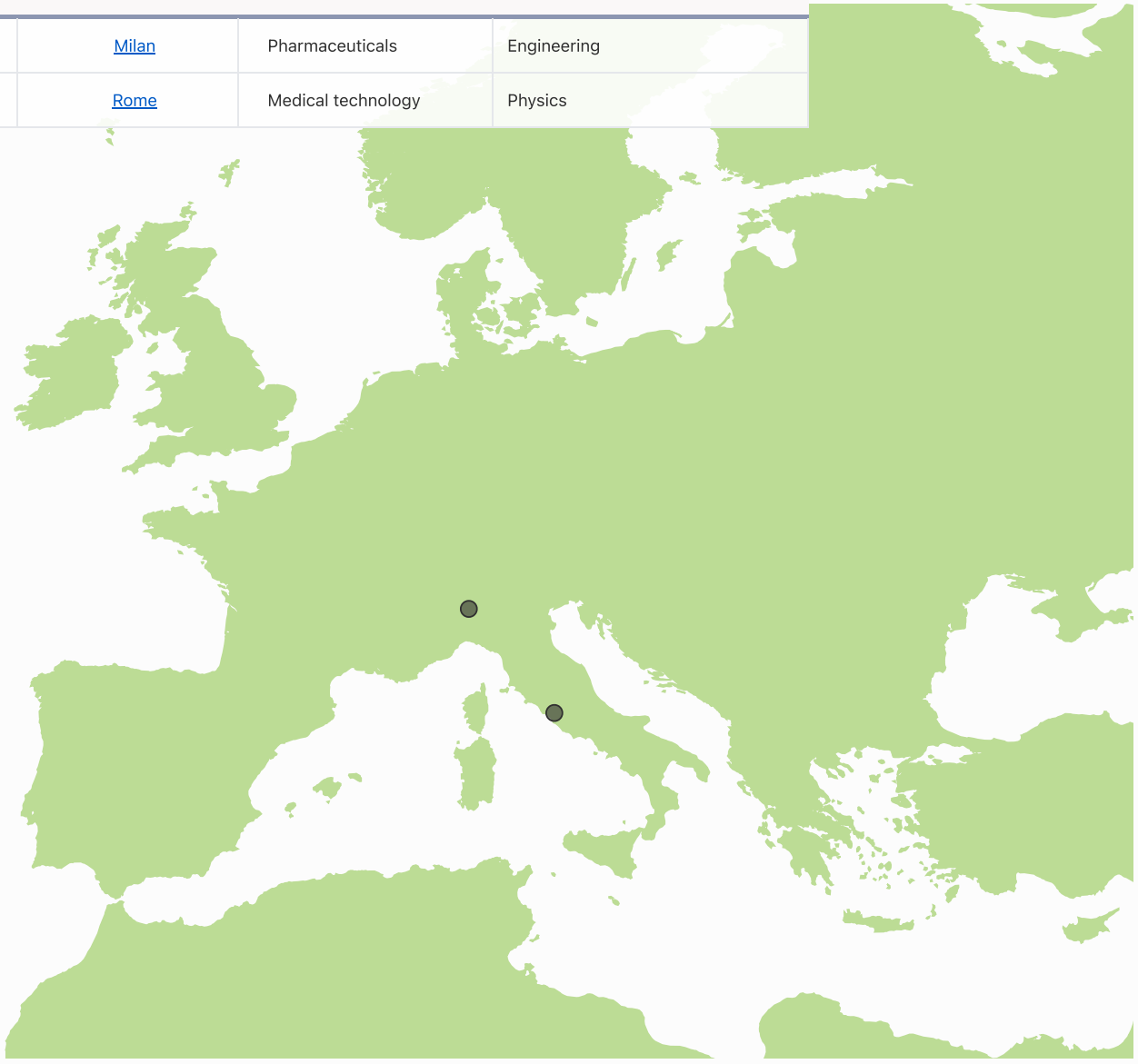


Global Innovation Index 2024

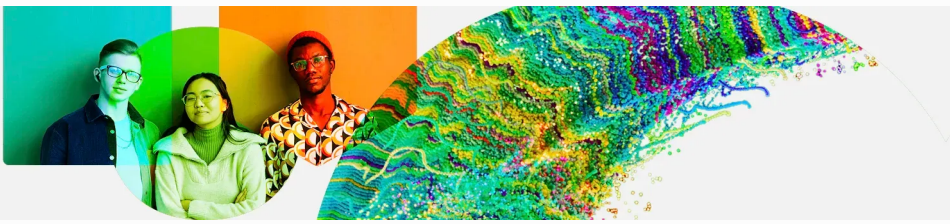


The table and map below give an overview of the top science and technology clusters by intensity in Italy.

Rank	Cluster name	Top patent field	Top academic subject
59	Milan	Pharmaceuticals	Engineering
61	Rome	Medical technology	Physics

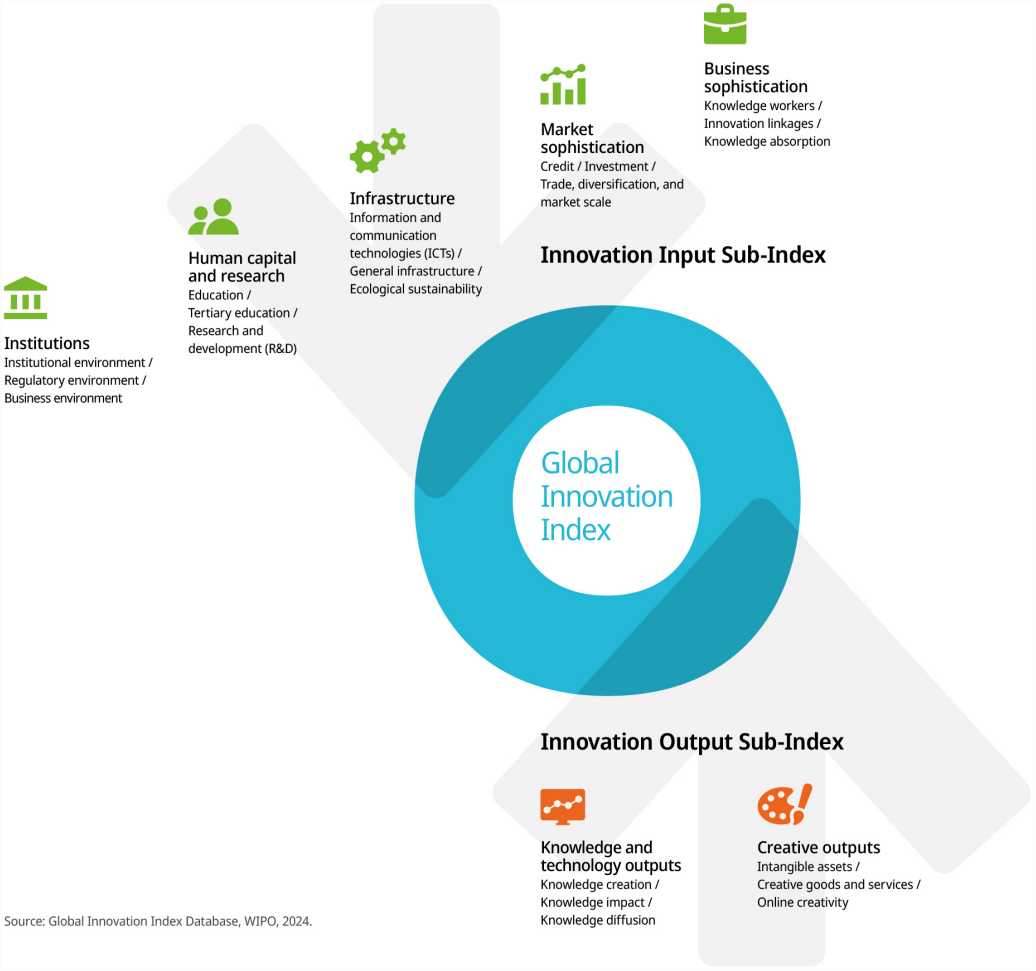


Global Innovation Index 2024



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.



Source: Global Innovation Index Database, WIPO, 2024.

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.