

# 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 highincome 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 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	
<b>▼ -5.5%</b>	<b>▼ -3.2%</b>	<b>▲ 39.3%</b>	▼ -62.5%	<b>▼ -6.5%</b>
2022 - 2023	2021 - 2022	2022 - 2023	2022 - 2023	2022 - 2023
<b>3%</b> 2013 - 2023	▲ <b>1.1%</b>	▲ <b>19.3%</b>	<b>▲ 15%</b>	▲ 0.8%
	2012 - 2022	2013 - 2023	2013 - 2023	2013 - 2023

### Technology adoption

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

## Socioeconomic impact

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

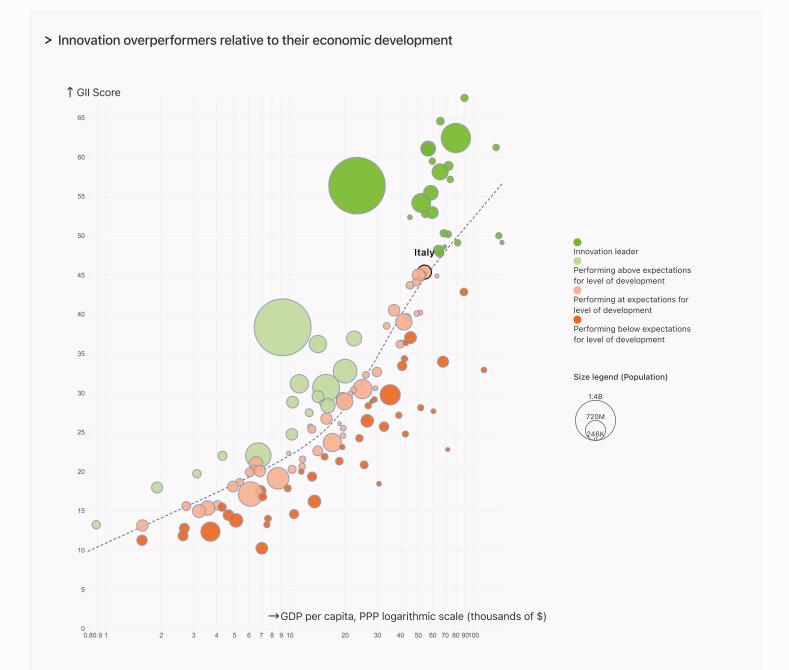
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## Expected vs. observed innovation performance

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.



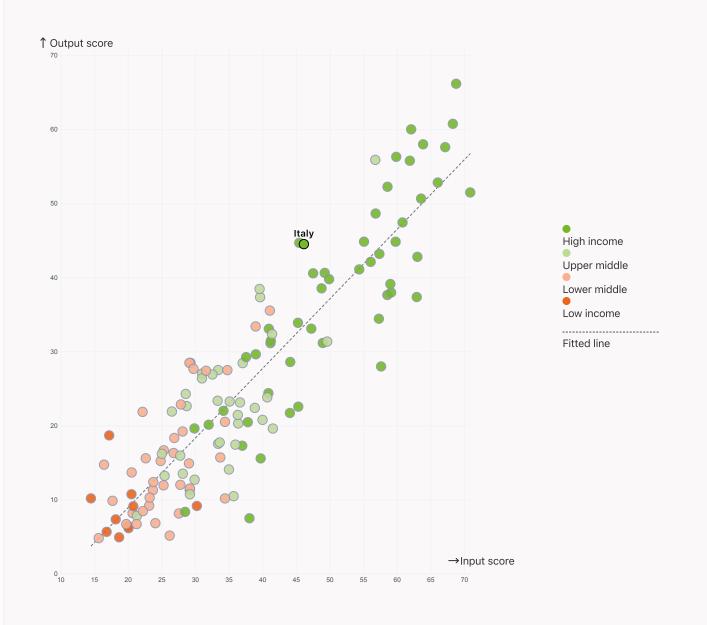


# Effectively translating innovation investments into innovation outputs

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.



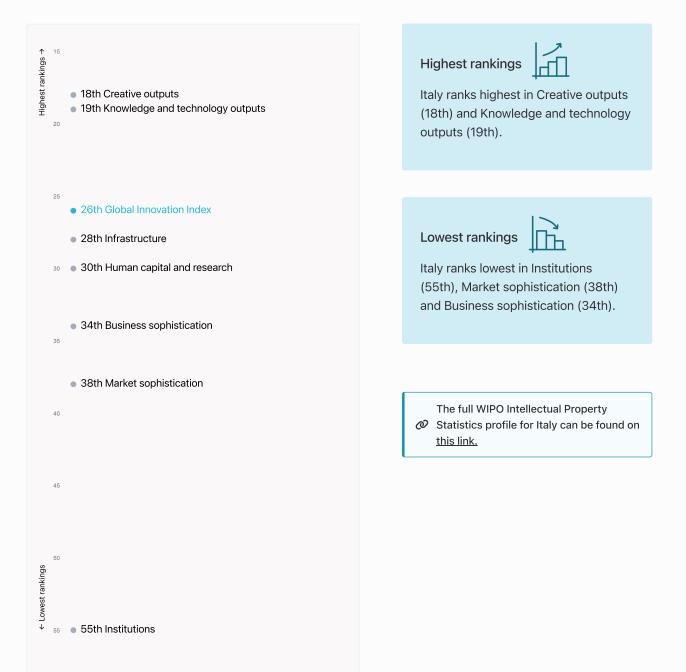
## > Relationship between innovation inputs and outputs





## 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.





# 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.			research, Infras	bove the regional average in Human capital and tructure, Market sophistication, Knowledge and puts, Creative outputs.
Institutions	Human capital and resea	arch		Infrastructure
<b>Top 10   Score: 80.81</b>	Top 10   Score: 61.30			Top 10   Score: 58.57
High income   Score: 67.41	High income   Score: 4	6.99		Italy   Score: 52.50
Europe   Score: 59.14	Italy   Score: 45.43			High income   Score: 51.96
Italy   Score: 51.25	Europe   Score: 44.92			Europe   Score: 51.74
Market sophistication	Business sophistication			Knowledge and technology outputs
Top 10   Score: 62.12	Top 10   Score: 63.64			Top 10   Score: 57.29
High income   Score: 44.90	High income   Score: 4	4.71		Italy   Score: 41.39
Italy   Score: 43.06	Europe   Score: 42.68			Europe   Score: 36.30
Europe   Score: 42.79	Italy   Score: 38.69			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

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# 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		Weaknes	sses		
Rank	Code	Indicator name	Rank	Code	Indicator name
1	7.1.4	Industrial designs by origin/bn PPP\$ GDP	110	5.3.4	FDI net inflows, % GDP
3	6.3.5	ISO 9001 quality/bn PPP\$ GDP	92	5.1.2	Firms offering formal training, %
4	4.3.2	Domestic industry diversification	91	3.2.3	Gross capital formation, % GDP
6	6.2.3	Software spending, % GDP	80	6.2.1	Labor productivity growth, %
8	6.1.5	Citable documents H-index	73	6.3.4	ICT services exports, % total trade
12	3.3.3	ISO 14001 environment/bn PPP\$ GDP	72	2.1.1	Expenditure on education, % GDP
13	4.3.3	Domestic market scale, bn PPP\$	61	1.3.2	Entrepreneurship policies and culture <sup>+</sup>
14	2.3.3	Global corporate R&D investors, top 3, mn USD	61	4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP
16	6.3.2	Production and export complexity	60	4.2.3	VC recipients, deals/bn PPP\$ GDP
18	2.3.4	QS university ranking, top 3*			



## Italy's innovation system

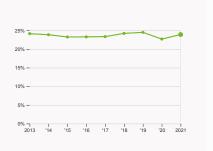
As far as practicable, the plots below present unscaled indicator data.

## > Innovation inputs in Italy

5% -								
4%	_	-	-		-	~	^	-
3% -								
2% -								
1% -								
0% - 2013	1 '14	'15	ا 16	ן 17'	۱ 18	' '19	1 '20	2

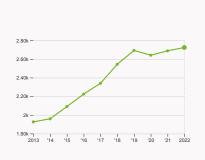
#### 2.1.1 Expenditure on education

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.



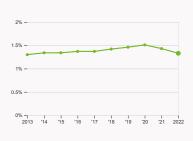
# 2.2.2 Graduates in science and engineering

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.



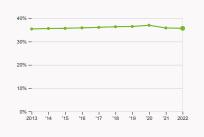
#### 4.2.4 VC received, value

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.





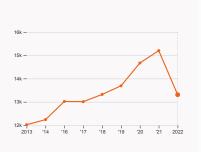
4.3.2 Domestic industry diversification was equal to an index score of 0.07 in 2021, down by 1.68% from the year prior – and equivalent to an indicator rank of 4.



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.



## > Innovation outputs in Italy



#### 6.1.1 Patents by origin

1.5 1.45

1.4

1 35

1.3 -2013

an indicator rank of 16.

'14 '15

'16 '17 '18 '19 '20

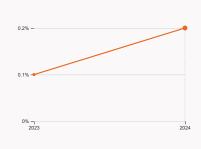
6.3.2 Production and export complexity

2.27% from the year prior - and equivalent to

was equal to a score of 1.35 in 2021, up by

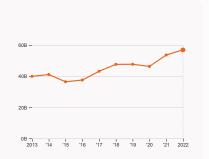
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was equal to 13.31 thousand patents in 2022, down by 12.43% from the year prior – and equivalent to an indicator rank of 18.



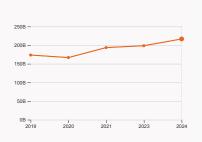
#### 6.2.2 Unicorn valuation

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.



#### 6.3.3 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.



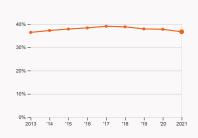
#### 7.1.3 Global brand value

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.



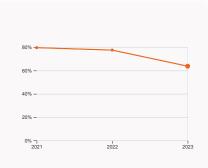
#### 7.2.2 National feature films

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



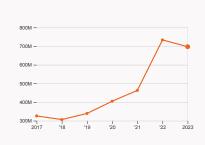
#### 6.2.4 High-tech manufacturing

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.



#### 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.



#### 7.3.3 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.

# Italy

Score / Value       Rank         In Institutional environment       60.0       51       ○         1.1 Institutional environment       60.0       51       ○         1.2 Regulatory environment       53.0       0       ○         1.2.1 Regulatory quality*       55.3       43       ○         1.2.1 Regulatory quality*       55.3       43       ○         1.3.1 Delicy stability for doing business*       63.1       55       54         1.3.2 Entropreneurship policies and culture*       25.2       61       ○         2.1 Education       55       63       72       ○         2.1.1 Expenditure on education, % GDP       0.4       72       ○         2.1.3 School life expectancy, years       0.16       72       ○         2.1.4 PIAS actions in reading, maths and science       47.6       0       ○         2.2.3 Tortiary encluent, % gross       0.11.3       23.0       24       ○         2.3.4 Researchers, FIF(mn pap.       2.7.3.8       23       24       ○         2.3.3 Global corporate R&D (newstor, top 3, m USD       2.3.7       33       0.0       0         2.3.4 Corse expenditure on ending (RIO)       3.2.8       2.3       0       0       0	Output rank 18	Input rank 34	Income High	Regio		
11.1 Institutional environment       60.5       51       ◆         1.1.1 Operational stability for businesses*       65.5       55       ◆         1.1.2 Regulatory quaity*       55.3       47       ◆         1.2.1 Regulatory quaity*       55.3       47       ◆         1.2.2 Regulatory quaity*       55.3       47       ◆         1.3.1 Policy stability for doing business*       53.1       55       −         1.3.2 Interpreneurship policies and culture*       25.7       61       ○         2.1 Education       45.4       30       ⊂         2.1.1 Expenditure on education, % GDP       4       42       ○         2.1.3 Scholing expectancy, Years       ●1.6       7.7       2         2.1.4 PiSA cales in reading, maths and science       47.8.8       31       -         2.2.2 Tertiary education       34.2       64       -       -         2.2.3 Craduates in science and engineering, %       23.9       54       -       -         2.3.3 Cross expenditure on RAD, % GDP       1.3       24       -       -       -         2.3.4 OS university ranking, top 3*       53.5       18       ●       -       -       -         2.3.3 Global corporate R&D investory, top 3, m				Score / Value	Rank	
1.1.1 Operational stability for businesses*       65.3       65.       ◆         1.1.2 Government effectiveness*       55.7       48       ◇         1.2.1 Regulatory quality*       53.8       60       ◇         1.2.1 Regulatory quality*       53.8       60       ◇         1.3.1 Policy stallity for ding business*       53.1       65       ○         1.3.1 Policy stallity for ding business*       53.1       65       ○         1.3.2 Entrepreneurship policies and culture*       25.5       61       ○         2.1 Education       59       42       C       2         1.1.2 Sovernment funding/pupil, secondary, % GDP/Cap       24       7       2         2.1.3 School life expectancy, years       1.6.7       27       2         2.1.5 Pupil-teacher ratic, secondary       9.9       9.2       2         2.2.1 Tertiary education       34.2       64       2         2.2.1 Tratiary enrolment, % gross       0.7.1.3       22       2         2.3.2 Goduates in science and engineering, %       2.3.8       63       4         2.3.4 OS university ranking, top 3*       63.5       14       ●         2.3.3 Colobal corporate RAD (wedopment (RAD)       43.1       2       2	<b>m</b> Institutions			51.2	55	$\diamond$
1.12 Government effectiveness*       55.7       48       ◆         1.2 Regulatory environment       53.8       60       ◆         1.2 Rule of law*       52.4       63       ◆         1.3 I policy stability for doing business*       53.1       55       13.8       60       ○         1.3 I policy stability for doing business*       53.1       55       13.8       57       48       ∞       ○         2.1 Education       59       42       7       ○       ○       21.1 Expenditure on education, % GDP       0       4       72       ○       ○       21.1 Expenditure on education, % GDP       0       4       72       ○       21.1 School file expectancy, years       0 <td>1.1 Institutional environme</td> <td>ent</td> <td></td> <td>60.5</td> <td>51</td> <td><math>\diamond</math></td>	1.1 Institutional environme	ent		60.5	51	$\diamond$
1.2.1 Regulatory quality*       5.3.       50       ◆         1.2.1 Regulatory quality*       5.3.       47       ◆         1.2.2 Rule of law*       52.4.       63       ◆         1.3.1 Policy stability for doing business*       5.3.       65       ○         1.3.1 Policy stability for doing business*       5.3.       65       ○         2.1.1 Expenditure on education, % GDP       47       72       ○         2.1.1 Expenditure on education, % GDP       4       72       ○         2.1.2 Covernment funding/punil, secondary, % GDP(cap       24.       27       ○         2.1.3 School life expectancy, years       ● 16.3       27       ○         2.1.4 PiSA scales in reading, maths and science       476.8       31       ○         2.2.1 Tertiary enducation       3.4.2       64       ○       ○         2.2.3 Craduates in science and engineering, %       2.3.9       54       ○       ○         2.3.3 Global corporate R&D investors, top 3, m USD       63.5       18       ●       ●         3.3.4 OS university ranking up 0*       9.6       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○	1.1.1 Operational stability for	r businesses*		65.3	55	$\diamond$
1.2.1 Regulatory quality*       5.3.       47       ◆         1.2.2 Rule of law*       5.4.       6.3       ◇         1.3 Buisness environment       3.9.4.       80       ○         1.3 Policy stallity for ding buisness*       3.1.       6.5       1.3         1.3.1 Policy stallity for ding buisness*       25.7       61       ○         2.1 Education       59       42       72       ○         2.1.3 School life expectancy, vars       ● 16.7       27       ○         2.1.3 School life expectancy, vars       ● 16.7       27       ○         2.1.4 PIAS acales in reading, maths and science       47.6.8       31       ○         2.2.1 Tortiary encolment, % gross       ● 7.1.3       40       ○       ○         2.2.2 Tortiary encolment, % gross       ● 7.1.3       40       ○       ○         2.3.3 Researchers, FIFInn pop.       2,72.8       32       ○       ○       ○         3.3.4 QS university ranking, top 3*       ● 5.8       14       ●       ●         3.3.4 QS university ranking, top 3*       ● 5.8       14       ●       ●         3.3.4 QS university ranking, top 3*       ● 5.8       14       ●       ●         3.1.1 ICT access* <t< td=""><td>1.1.2 Government effectiven</td><td>iess*</td><td></td><td>55.7</td><td>48</td><td><math>\diamond</math></td></t<>	1.1.2 Government effectiven	iess*		55.7	48	$\diamond$
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       1       ○ <b>4. Human capital and research</b> 45.4       30       ○         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       0       6.7       7         2.1.4 PISA scales in reading, maths and science       476.8       31       -         2.2.2 Tertiary enducation       34.2       64       -       -         2.2.3 Craduates in science and engineering, %       23.9       54       -       -         2.3.1 Researchers, FTE/m pop.       2.72.83       1       -       -         2.3.2 Gross expenditure on R&D, % GDP       1.3       2       -       -         2.3.4 Goss expenditure on R&D, % GDP       1.3       32       -       -       -         2.3.4 Goss expenditure on R&D, % GDP       1.3       32       -       -       -       - <td< td=""><td>1.2 Regulatory environment</td><td>nt</td><td></td><td>53.8</td><td>50</td><td><math>\diamond</math></td></td<>	1.2 Regulatory environment	nt		53.8	50	$\diamond$
1.3 Business environment       39.4       80       ○         1.31 Policy stability for doing business*       53.1       55       55         1.3.2 Entrepreneurship policies and culture*       25.7       61       ○         2.1 Expenditure on education, % GDP       4       42       ○         2.1.1 Expenditure on education, % GDP       4       72       ○         2.1.3 School life expectancy, years       16.7       27       ○         2.1.5 Pupil-teacher ratio, secondary       9.9       32       ○         2.1.5 Pupil-teacher ratio, secondary       9.9       32       ○         2.2.1 Tertiary encolment, % gross       0.71.3       40       ○         2.2.2 Graduates in science and engineering, %       3.4       60       ○         2.3.3 Research and development (RAD)       43.1       24       ○         2.3.4 Goss expenditure on RAD, % GDP       1.3       32       ○       ○         2.3.4 Goss expenditure on RAD, % GDP       1.3       32       ○       ○       ○         3.1.1 Information and communication technologies (ICTS)       3.2.9       34       ○       ○       ○         3.1.1 IcT acces*       3.1.1       ○       ○       ○       ○       ○       3.3.2 <td>1.2.1 Regulatory quality*</td> <td></td> <td></td> <td>55.3</td> <td>47</td> <td></td>	1.2.1 Regulatory quality*			55.3	47	
1.3.1 Policy stability for doing business*       5.3.1 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 Overmment funding/puli, secondary, % GDP/cap       24       7       ○         2.1.3 School life expectancy, years       16.7       27       ○         2.1.4 PIAS acales in reading, maths and science       476.8       31       ○         2.2.1 Tertiary education       34.2       64       ○         2.2.2 Craduates in science and engineering, %       23.9       64       ○         2.3.3 Clobal corporate R&D investors, top 3, m USD       33.4       ○       ○         2.3.4 OS university ranking, top 3*       91.0       ○       \$3.1       ○         3.1.1 ICT acces*       91.2       60       ◇       \$3.1       ●         3.1.2 ICT use*       83.1       40       ○       \$3.2       ○       \$3.1         3.1.2 ICT acces*       91.2       60       ◇       \$3.1       ○       \$3.2       \$3.1       ○       \$3.2       \$3.1						
1.3.2 Entrepreneurship policies and culture*       25.7       61       ○         ▲ Human capital and research       45.4       30         2.1.1 Education       59       42       ○         2.1.1 Education       59       42       ○         2.1.2 Government funding/pupil, secondary, % GDP/cap       24       27       ○         2.1.3 School Iffe expectancy, years       16.7       27       ○         2.1.4 PISA scales in reading, maths and science       476.8       31       ○         2.2.1 Tertiary encolment, % gross       7.13       40       ○       ○         2.2.2 Craduates in science and engineering, %       23.9       54       ○         2.3.3 Global corporate R&D investors, top 3, mn USD       43.1       ●       ●         2.3.4 C soniversity ranking, top 3*       60.9       1.3       32         3.3.3 Global corporate R&D investors, top 3, mn USD       69.5       14       ●         3.1.1 IfOrmation and communication technologies (ICTs)       82.9       34       ○         3.1.2 ICT use*       83.1       40       ○       ○       31.2       ○         3.1.4 E-participation*       7.7       18       33.2       0       ○       33.2       ○       ○       33						0
A         Human capital and research         45.4         30           2.1 Education         59         42           2.11 Expenditure on education, % GDP         4         72         ○           2.1.3 School life expectancy, years         16.7         27         21.3 School life expectancy, years         16.7         27           2.1.3 School life expectancy, years         16.7         27         21.3 School life expectancy, years         16.7         27           2.1.4 PISA scales in reading, maths and science         476.8         31         21.5         Pupil-teacher ratio, secondary         9.93         32         2.2           2.2.1 Tertiary encliment, % gross         9.71.3         40         2.2.3         2.2.3         3.4         60         2.3.3         2.3.3         3.2         2.3.3         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.2         2.3.3         3.3         2.3.3         3.3         2.3.3         3.3         2.3.3         3.3         2.3.3         3.		-				0
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 Exploil life expectancy, years       16.7       27         2.1.3 Exploit 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       7.71.3       40         2.2.2 Graduates in science and engineering, %       2.3.4       60         2.3.3 Global corporate R&D, % GDP       1.3       32         2.3.4 OS university ranking, top 3*       53.5       18       ●         3.1.4 Corporate R&D investors, top 3, mn USD       69.5       14       ●         3.1.4 Corporate R&D investors       82.9       34       31.1       107         3.1.4 Corporate R&D investors       82.1       9       4       ●         3.1.4 Corporate R&D investors       82.9       34       31.1       107         3.1.4 Corporate R&D investors       82.9       34       31.1       10       <						0
2.1.1 Expenditure on education, % GDP       ●       4       72       ○         2.1.2 Government funding/pupil, secondary, % GDP/cap       2.4       27         2.1.3 Exbool life expectancy, years       ●       167       27         2.1.4 PISA scales in reading, maths and science       476.8       31         2.1.5 Pupil-teacher ratio, secondary       ●       9.32       22         2.2 Tertiary education       34.2       64       2.2.1 Tertiary enrolment, % gross       ●       71.3       40         2.2.3 Tertiary inbound mobility, %       ●       3.4       60       2.3.3 Research and development (R&D)       43.1       24         2.3.1 Researchers, FTE/mn pop.       2.723.8       32       2.3.3 Global corporate R&D investors, top 3, mn USD       69.9       1.4       ●         3.1.4 Researchers, TE/mn pop.       2.73.2       2.2       3.4       9.1       60       ◆         3.1.4 Constructure       53.5       18       ●       ●       ●       ●       ●         3.1.4 Constructure       52.5       28       ■       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ●       ● <td>Human capital and r</td> <td>esearch</td> <td></td> <td>45.4</td> <td>30</td> <td></td>	Human capital and r	esearch		45.4	30	
2.1.2 Government funding/pupil, secondary, % GDP/cap       24       27         2.1.3 School life expectancy, years <ul> <li>1.6.7</li> <li>27</li> </ul> 2.1.3 School life expectancy, years <ul> <li>1.5.7</li> <li>1.5.7</li> <li>1.5.9</li> <li>1.5.9</li></ul>						
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         2.2.3 Tertiary inbound mobility, %       ● 3.4       60         2.2.3 Tertiary inbound mobility, %       ● 3.4       61         2.3.4 Researchers, FTE/m pop.       2.723.8       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       ●         *       ●       1.11 ICT access*       91.2       60          3.1.4 Comment's online service*       85.2       3       3						0
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, %       ● 3.4       60         2.3.3 Tertiary inbound mobility, %       ● 3.4       60         2.3.4 Tertiary inbound mobility, %       ● 3.4       60         2.3.3 Global corporate R&D investors, top 3, mn USD       69.5       14       ●          2.3.4 QS university ranking, top 3*       ● 52.5       28          3.1.1 Information and communication technologies (ICTs)       82.9       34          3.1.3 Government's online service*       85.2       23          3.1.4 Cr cuse*       83.1       40           3.2.1 Electricity output, GWh/m pop.       4,826.5       44          3.2.2 Logistics performance*       72.7       18          3.2.3 Cross capital formation, % GDP       21.3       91       ○         3.3.4 GODP/unit of energy use, %       15.5       70          3.3.3 ISO 14001 environment/bn PPPS GDP       6.8       12       ●			сар			
2.1.5 Pupil-teacher ratio, scondary       ● 9.9       32         2.2 Tertiary education       34.2       64         2.2.1 Tertiary enrolment, % gross       ● 7.1.3       40         2.2.2 Graduates in science and engineering, %       2.3.9       54         2.2.3 Tertiary inbound mobility, %       ● 3.4       60         2.3.7 Gressearch and development (R&D)       2.1.1       2.1         2.3.1 Researchers, FTE/m 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       ● ●         3.1.1 Information and communication technologies (ICTs)       82.9       34         3.1.1 ICT access*       91.2       60       ◇         3.1.3 Government's online service*       82.2       33         3.1.3 Government's online service*       72.7       18         3.2.2 Leistics performance*       72.7       18         3.2.3 Gross capital formation, % GDP       21.3       91       ○         3.3.1 GDP/unit of energy use, %       15.9       70         3.3.3 ISO 14001 environment/bn PPPS GDP       6.8       12       ●						
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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       65.5       14       ●         2.3.4 QS university ranking, top 3*       53.5       18       ●         *       •       11       60       \$         3.1 Information and communication technologies (ICTs)       82.9       34       31.1         1.1 I CT access*       91.2       60       \$       \$         3.1.4 Government*s online service*       85.2       23       \$       \$         3.1.2 ICT use*       83.1       40       \$       \$       \$         3.2.1 Electricity output, GWh/m pop.       4,826.5       44       \$       \$       \$         3.2.1 Electricity output, GWh/m pop.       4,826.5       \$       \$       \$       \$       \$       \$       \$       \$       \$       \$		condary				
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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       ●         *0       Infrastructure       52.5       28         3.1 Information and communication technologies (ICTs)       82.9       34         3.1.1 ICT access*       91.2       60       ◇         3.1.4 E-participation*       72.1       32       32         3.2 General infrastructure       37.8       42       32.1         3.2.1 Electricity output, GWh/mn pop.       4,826.5       44       32.2         3.2.1 Electricity output, GWh/m pop.       4,826.5       44       32.3       33.1 GDP/unit of energy use       16.6       26         3.3.1 GDP/unit of energy use       36.8       26       33.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12       ●         4.1 Credit       36.8       36       9.1       41       41.2       21.9       21         3.3.3 ISO 14001		-				
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 RAD investors, top 3, mn USD       69.5       14       ●         2.3.4 QS university ranking, top 3*       53.5       18       ● <b>*9</b> Infrastructure       52.5       28          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 CT use*       83.1       40           3.1.3 Government's online service*       72.7       18           3.2.2 Legistics performance*       72.7       18            3.2.1 Electricity output, GWh/mn pop.       4,826.5       44               3.2.1 Gross capital formation, % GDP       21.3       91       O						
2.3.1 Researchers, FTE/mn pop.       2,72.3.8       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       ● <b>*g</b> 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           3.2.2 General infrastructure       37.8       42           3.2.2 Logistics performance*       72.7       18           3.2.3 Gross capital formation, % GDP       21.3       91       O          3.3.1 GDP/unit of energy use       16.6       21            3.3.2 Low-carbon energy use, %       15.9       70              3.3.1 GDP/unit of energy use       16.6       21 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
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       ● <b>\$ 0. Infrastructure</b> 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       ○         3.3.1 GDP/unit of energy use       16.6       21       ■         3.3.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12       ●         IM Market sophistication       43.1       38       ■         4.1 Credit       36.8       38       ■         4.1.1 Finance for startups and scaleups <sup>†</sup> 48.9       1       ■					32	
2.3.4 QS university ranking, top 3*       53.5       18       ◆         \$\Psi_0 Infrastructure       52.5       28         3.11 Information and communication technologies (ICTs)       82.9       34         3.11 ICT access*       91.2       60       ◇         3.12 ICT use*       83.1       40       31.3       60       ◇         3.1.3 Government's online service*       85.2       23       3       3.1       40       31.3         3.1.4 E-participation*       72.1       32       32       3.2       3.3       3.2       3.2       3.2       3.3       3.2       3.3       3.2       3.3       3.2       3.3       3.2       3.1       60       ◇       3.3       3.3       3.1       0       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.3       3.4	2.3.2 Gross expenditure on	R&D, % GDP		1.3	32	
Pos         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         31.4         60         ◇           3.1.3 Government's online service*         85.2         23         3.3         3.3         40         3.3         32         32         33         32         32         32         32         32         33         33         32         33         32         32         33         32         33         32         33         32         33         32         33         33         33         33         33         33         33         33         33         33         33         33         34         34         34         34         34         34         34         34         34         34         35         33         33         33         33         33         33         33         34         34         34         34         34         34         34         34         34         34         34         34         33         33	2.3.3 Global corporate R&D	investors, top 3, mn USI	D	69.5	14	•+
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       O         3.3.3 IGODP/unit of energy use       16.6       21          3.3.1 GDP/unit of energy use, %       15.9       70          3.3.2 Low-carbon energy use, %       15.9       70          3.3.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12       ●         Im Market sophistication       43.1       88       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         4.2.1 Nestment       8       69       O         4.2.1 Verture	2.3.4 QS university ranking,	top 3*		53.5	18	•+
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/m pop.       4,826.5       44         3.2.2 Logistics performance*       72.7       18         3.2.3 Gross capital formation, % GDP       21.3       91       O         3.3 Ecological sustainability       36.8       26       6         3.3.1 GDP/unit of energy use       16.6       21       3.3         3.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12       ●         Let Market sophistication       43.1       38       -         4.1.1 Finance for startups and scaleups†       48.8       41       -         4.1.2 Domestic credit to private sector, % GDP       71.5       44       -         4.1.3 Loans from microfinance institutions, % GDP       n/a       -       -         4.2.1 Nerkment       8       69       O       -       -         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.006       61       O         4.2.2 Venture ca	🍫 Infrastructure			52.5	28	
3.1.2 ICT use*       8.3.1       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/m pop.       4,826.5       44         3.2.2 Logistics performance*       72.7       18         3.2.3 Gross capital formation, % GDP       21.3       91       0         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       0.06       61       0         4.2.1 Warket capitalization, % GDP       0.000       62       -         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.000       62	3.1 Information and comm	unication technologies	(ICTs)	82.9	34	
3.1.3 Government's online service*85.2233.1.4 E-participation*72.1323.2 General infrastructure37.8423.2.1 Electricity output, GWh/m pop.4,826.5443.2.2 Logistics performance*72.7183.2.3 Gross capital formation, % GDP21.39103.3 Ecological sustainability36.82643.3.1 GDP/unit of energy use16.62133.3.1 SD 14001 environment/bn PPP\$ GDP6.812•4.1 Credit36.838-4.1.1 Finance for startups and scaleups†48.9414.1.2 Domestic credit to private sector, % GDP71.5444.1.3 Loans from microfinance institutions, % GDPn/an/a4.2 Investment86904.2.1 Market capitalization, % GDP0.0007594.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP0.0007594.2.3 VC recipients, deals/bn PPP\$ GDP0.0007594.3.1 Applied tariff rate, weighted avg., %1.1214.3.2 Domestic industry diversification99.14	3.1.1 ICT access*			91.2	60	$\diamond$
3.1.4 E-participation*7.2.1323.2 General infrastructure3.8423.2.1 Electricity output, GWh/m pop.4,826.5443.2.2 Logistics performance*7.2.7183.2.3 Gross capital formation, % GDP21.39103.3 Ecological sustainability36.82613.3.1 GDP/unit of energy use16.62113.3.2 Low-carbon energy use, %15.97013.3.3 ISO 14001 environment/bn PPP\$ GDP6.812●4.1 Credit36.838114.1.2 Domestic credit to private sector, % GDP71.54414.1.3 Loans from microfinance institutions, % GDPn/an/a14.2.1 Westment869004.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP0.00614.2.3 VC recipients, deals/bn PPP\$ GDP0.005914.3.1 Applied tariff rate, weighted avg., %1.12114.3.2 Domestic industry diversification99.14•	3.1.2 ICT use*			83.1	40	
3.2 General infrastructure37.8423.2.1 Electricity output, GWh/mn pop.4,826.5443.2.2 Logistics performance*72.7183.2.3 Gross capital formation, % GDP21.39103.3 Ecological sustainability36.82613.3.1 GDP/unit of energy use16.62113.3.2 Low-carbon energy use, %15.97013.3.3 ISO 14001 environment/bn PPP\$ GDP6.812●4.1 Credit36.83814.1.1 Finance for startups and scaleups†48.9414.1.2 Domestic credit to private sector, % GDP71.5444.1.3 Loans from microfinance institutions, % GDPn/an/a4.2 Investment86904.2.1 Market capitalization, % GDP0.0007594.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP0.0007594.3.3 AC received, value, % GDP0.0007594.3.1 Applied tariff rate, weighted avg., %1.1214.3.2 Domestic industry diversification99.4.4	3.1.3 Government's online s	ervice*		85.2	23	
3.2.1 Electricity output, GWh/mn pop.4,826.5443.2.2 Logistics performance*72.7183.2.3 Gross capital formation, % GDP21.39103.3 Ecological sustainability36.82613.3.1 GDP/unit of energy use16.62113.3.2 Low-carbon energy use, %15.97013.3.3 ISO 14001 environment/bn PPP\$ GDP6.812●▲4.186.888414.1.1 Finance for startups and scaleups†48.9414.1.2 Domestic credit to private sector, % GDP71.5444.1.3 Loans from microfinance institutions, % GDPn/an/a4.2 Investment86904.2.1 Market capitalization, % GDP0.066104.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP0.066104.2.3 VC recipients, deals/bn PPP\$ GDP0.00075944.3.1 Applied tariff rate, weighted avg., %1.1214.3.2 Domestic industry diversification99.14●	3.1.4 E-participation*			72.1	32	
3.2.2 Logistics performance*       72.7       18         3.2.3 Gross capital formation, % GDP       21.3       91       0         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 $\bullet \bullet$ 1.1 Finance for startups and scaleups <sup>†</sup> 48.9       41 $\bullet$ 4.1.2 Domestic credit to private sector, % GDP       71.5       44 $\bullet$ 4.1.3 Loans from microfinance institutions, % GDP $n/a$ $n/a$ $\bullet$ 4.2.1 Nerket capitalization, % GDP $0.0$ $0.0$ $\bullet$ 4.2.1 Narket capitalization, % GDP $0.0$ $0.0$ $\bullet$ 4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP $0.06$ $\bullet$ 4.3.3 A Crecipients, deals/bn PPP\$ GDP $0.007$ $\bullet$ 4.3.4 VC received, value, % GDP $0.007$ $\bullet$ 4.3.1 Applied tariff rate, weighted avg., % $1.1$ $21$ 4.3.1 Applied tariff rate, weighted avg., % $1.1$ $21$ 4.3.2 Domestic industry diversification $99$ $\bullet$ <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
3.2.3 Gross capital formation, % GDP       21.3       91       O         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 $\underline{L}$ Market sophistication       43.1       38         4.1 Credit       36.8       38         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       O         4.2.1 Warket capitalization, % GDP       0.00       52         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.00       61       O         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.00       59       4         4.3.1 Applied tariff rate, weighted avg., %       11       21         4.3.1 Applied tariff rate, weighted avg., %       11       21         4.3.2 Domestic industry diversification       99.1       4						
3.3 Ecological sustainability       3.6.8       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       ••         Image: Market sophistication       43.1       33       33         4.1 Credit       36.8       38       -         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       0       -         4.2.1 Market capitalization, % GDP       0.00       61       0         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.00       61       0         4.2.3 VC recipients, deals/bn PPP\$ 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       •						0
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 $\bullet \bullet$ 1       Market sophistication       43.1       38         4.1 Credit       36.8       38       41.1         4.1 Credit       36.8       38       41.1         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       0         4.2.1 Market capitalization, % GDP       0.06       61       0         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ 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       •						0
3.3.2 Low-carbon energy use, %       15.9       70         3.3.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12 $\bullet \bullet$ 11       Market sophistication       43.1       38         4.1 Credit       36.8       38         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       0         4.2.1 Market capitalization, % GDP       0       0       0         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.0007       59       0         4.3.1 Applied tariff rate, weighted avg., %       11       21       1         4.3.1 Applied tariff rate, weighted avg., %       11       21       1         4.3.2 Domestic industry diversification       99.1       4 $\bullet \bullet$	-	-				
3.3.3 ISO 14001 environment/bn PPP\$ GDP       6.8       12       •         Image: Market sophistication       43.1       38         4.1 Credit       36.8       38         4.1 Credit       36.8       48         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       0         4.2.1 Market capitalization, % GDP       0       0       0         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.0007       59       0         4.3.1 Applied tariff rate, weighted avg., %       1.1       21       1         4.3.2 Domestic industry diversification       99.1       4       ••						
LetMarket sophistication43.1384.1 Credit36.8384.1.1 Finance for startups and scaleups†48.9414.1.2 Domestic credit to private sector, % GDP71.5444.1.3 Loans from microfinance institutions, % GDP $n/a$ $n/a$ 4.2 Investment86904.2.1 Market capitalization, % GDP $0.06$ 6104.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP $0.006$ 6104.2.3 VC recipients, deals/bn PPP\$ GDP $0.0007$ 594.3 Trade, diversification and market scale84.49 $\bullet$ 4.3.1 Applied tariff rate, weighted avg., %1.1214.4 $\bullet$						••
4.1 Credit       36.8       38         4.1.1 Finance for startups and scaleups <sup>†</sup> 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       0         4.2.1 Market capitalization, % GDP       0       27.9       52         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.0007       59       4.3 Trade, diversification and market scale       84.4       9       4.4 3.1 Applied tariff rate, weighted avg., %       1.1       21         4.3.2 Domestic industry diversification       99.1       4       4       4						
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       0         4.2.1 Market capitalization, % GDP       27.9       52         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.000       59       0         4.3 Trade, diversification and market scale       84.4       9       •••         4.3.1 Applied tariff rate, weighted avg., %       1.1       21       1         4.3.2 Domestic industry diversification       99.1       4       ••						
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     0       4.2.1 Market capitalization, % GDP     2.7.9     52     52       4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP     0.06     61     0       4.2.3 VC recipients, deals/bn PPP\$ GDP     0.00     59       4.3.1 Applied tariff rate, weighted avg., %     1.1     21       4.3.2 Domestic industry diversification     99.1     4		od scaleunst				
4.1.3 Loans from microfinance institutions, % GDP     n/a     n/a       4.2 Investment     8     69     0       4.2.1 Market capitalization, % GDP     2.2.9     52     52       4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP     0.06     61     0       4.2.3 VC recipients, deals/bn PPP\$ GDP     0.00     60     0       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						
4.2 Investment       8       69       0         4.2.1 Market capitalization, % GDP       1       27.9       52         4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.04       60       0         4.2.4 VC received, value, % GDP       0.0007       59       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						
4.2.1 Market capitalization, % GDP <ul> <li>27.9</li> <li>21.2 Venture capital (VC) investors, deals/bn PPP\$ GDP</li> <li>0.06</li> <li>0.06</li> <li>0.0007</li> <li>25.4 VC received, value, % GDP</li> <li>0.0007</li> <li>25.4 VC received, value, % GDP</li> <li>0.0007</li> <li>25.4 VC received, value, % GDP</li> <li>0.0007</li> <li>26.4 VC received, value, % GDP</li> <li>0.0007</li> <li>26.4 VC received, value, % GDP</li> <li>0.0007</li> <li>27.4 VC received, value, % GDP</li> <li>0.0007</li> <li>26.4 VC received, value, % GDP</li> <li>0.0007</li> <li>27.4 VC received, value, % GDP</li> <li>0.0007</li> <li>27.4 VC received, value, % GDP</li> <li>0.0007</li> <li>29.4 VC received, value, % GDP</li> <li>20.00007</li> <li>20.00007</li></ul>		,				0
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP       0.06       61       0         4.2.3 VC recipients, deals/bn PPP\$ GDP       0.04       60       0         4.2.4 VC received, value, % GDP       0.0007       59       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		% GDP				
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       99.9       4			GDP	0.06	61	0
4.3 Trade, diversification and market scale84.49●4.3.1 Applied tariff rate, weighted avg., %1.1214.3.2 Domestic industry diversification99.14●	4.2.3 VC recipients, deals/b	n PPP\$ GDP		0.04	60	0
4.3.1 Applied tariff rate, weighted avg., %     1.1     21       4.3.2 Domestic industry diversification     99.1     4     • •	4.2.4 VC received, value, %	GDP		0.0007	59	
4.3.2 Domestic industry diversification 99.1 4 • •	4.3 Trade, diversification	and market scale		84.4	9	••
	4.3.1 Applied tariff rate, wei	ghted avg., %		1.1	21	
4.3.3 Domestic market scale, bn PPP\$ 3,193.2 13 ●◆				99.1	4	••
	4.3.3 Domestic market scale	e, bn PPP\$		3,193.2	13	••

		<u></u>		4 rank
			2	0
Population (mn)	GDP, PPP\$ (bn)	GDP per capit	ta, F	PP\$
59.5	GDP, PPP\$ (bn) 3,193.2	54,259	)	
		Score / Value R	ank	
🗄 Business sophisticatio	n	38.7	34	
5.1 Knowledge workers		39.8	48	
5.1.1 Knowledge-intensive em	iplovment. %	35.7	40	
5.1.2 Firms offering formal tra		12.6	92	00
5.1.3 GERD performed by bus		0.8	32	
5.1.4 GERD financed by busin	ess, %	53.9	22	
5.1.5 Females employed w/ad	vanced degrees, %	14.6	54	
5.2 Innovation linkages		42.3	27	
5.2.1 Public Research-Industr	y co-publications, %	2.8	27	
5.2.2 University-industry R&E	collaboration <sup>+</sup>	68.5	28	
5.2.3 State of cluster develop	ment <sup>+</sup>	75.8	25	
5.2.4 Joint venture/strategic		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 pay		0.8	53	
5.3.2 High-tech imports, % to		9.4	47	
5.3.3 ICT services imports, %	total trade	1.9	35	0
5.3.4 FDI net inflows, % GDP 5.3.5 Research talent, % in bu	uning and a second	0.4	110 34	0
			34 19	
✓ Knowledge and technol	blogy outputs	41.4	19	
6.1 Knowledge creation		39	24	
6.1.1 Patents by origin/bn PPF		4.4	18	
δ.1.2 PCT patents by origin/b		1	27	
6.1.3 Utility models by origin/		0.5	28	
5.1.4 Scientific and technical		23.5	27	
6.1.5 Citable documents H-in	uex	68.4 <b>39.7</b>	8 23	•••
<ol> <li>6.2 Knowledge impact</li> <li>6.2.1 Labor productivity grow</li> </ol>	th %	0.3	23 80	0
5.2.2 Unicorn valuation, % GI		0.3	47	0
6.2.3 Software spending, % G		0.6	6	•+
6.2.4 High-tech manufacturin		36.7	32	
6.3 Knowledge diffusion		45.4	19	
5.3.1 Intellectual property rec	eipts, % total trade	0.7	24	
6.3.2 Production and export of	complexity	77	16	•+
5.3.3 High-tech exports, % to	tal trade	7.5	27	
6.3.4 ICT services exports, %	total trade	1.3	73	0
6.3.5 ISO 9001 quality/bn PPF	P\$ GDP	31.1	3	••
Creative outputs		47.5	18	••
7.1 Intangible assets		63.8	8	•+
7.1.1 Intangible asset intensity	ı, top 15, %	63.8	29	
7.1.2 Trademarks by origin/bn		41.1	45	
7.1.3 Global brand value, top		9.5	18	
7.1.4 Industrial designs by ori		13.4	1	••
7.2 Creative goods and serv		26.3	44	
7.2.1 Cultural and creative ser		0.5	57	
2.2 National feature films/m		6	20	
2.3 Entertainment and medi		27	23	
2.4 Creative goods exports,	70 IUIAI TRADE	2.3	25	
3 Online creativity 3.1 Top-level domains (TLD)	s)/th.pop. 15-69	<b>36.3</b> 21.3	<b>40</b> 28	
.3.2 GitHub commits/mn pop		21.3	28 45	
on nas commus/mit pop	20.2			

67.4 60

NOTES: • indicates a strength; O a weakness; • an income group strength;  $\diamond$  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.

7.3.3 Mobile app creation/bn PPP\$ GDP



## Data availability

8

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 sub	bject
52	Milan	Pharmaceuticals	Engineering	
67	Rome	Medical technology	Physics	
		•		



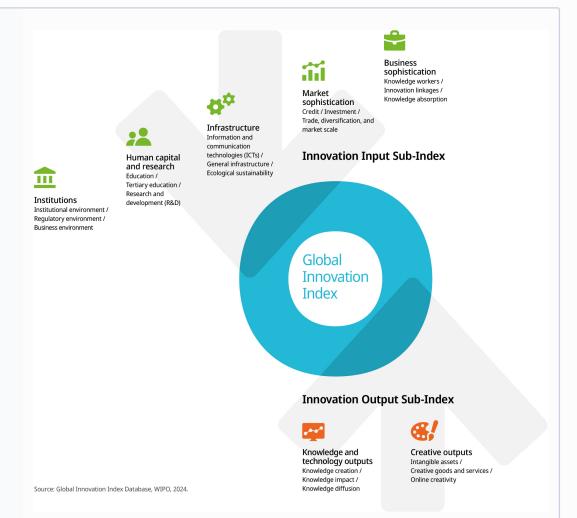
The table and map below give an overview of the top science and technology clusters by intensity in Italy.

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



## 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.