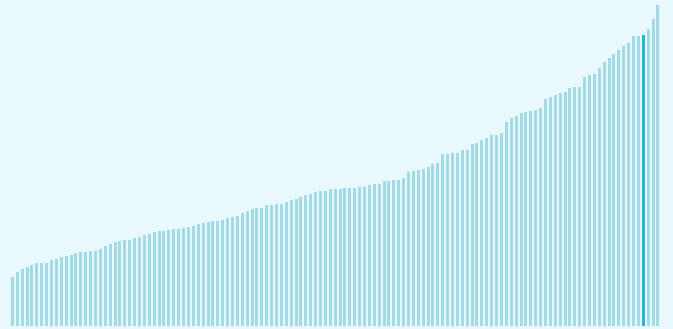


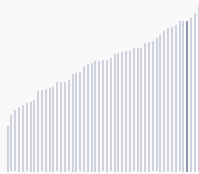
## Singapore ranking in the Global Innovation Index 2024

Singapore ranks **4th** among the 133 economies featured in the GII 2024.

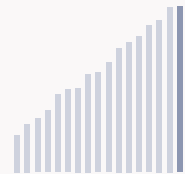
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



Singapore ranks **4th** among the 51 high-income group economies.



Singapore ranks **1st** among the 17 economies in South East Asia, East Asia, and Oceania.



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

The table shows the rankings of Singapore 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 Singapore in the GII 2024 is between ranks 3 and 8.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	8th	1st	15th
2021	8th	1st	13th
2022	7th	1st	14th
2023	5th	1st	12th
2024	4th	1st	11th

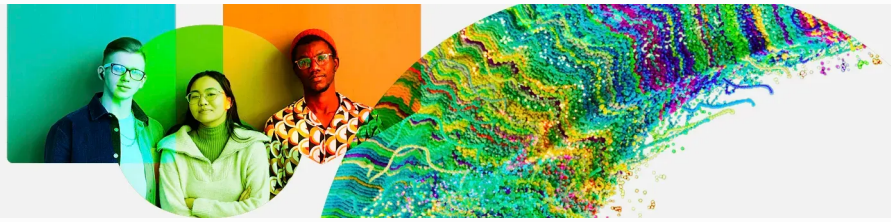
Singapore performs worse in innovation outputs than innovation inputs in 2024.

This year Singapore ranks 1st in innovation inputs. This position is the same as last year.

Singapore ranks 11th in innovation outputs. This position is higher than last year.

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

# Global Innovation Index 2024



## > Global Innovation Tracker

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



For Singapore, 3 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	
▼ -5.4% 2022 - 2023	▲ 10.3% 2019 - 2020	▼ -16.9% 2022 - 2023	▼ -36.1% 2022 - 2023	▼ -5.1% 2022 - 2023
▲ 3.2% 2013 - 2023	▲ 4.3% 2010 - 2020	▲ 30.9% 2013 - 2023	▲ 17.3% 2013 - 2023	▲ 7.6% 2013 - 2023

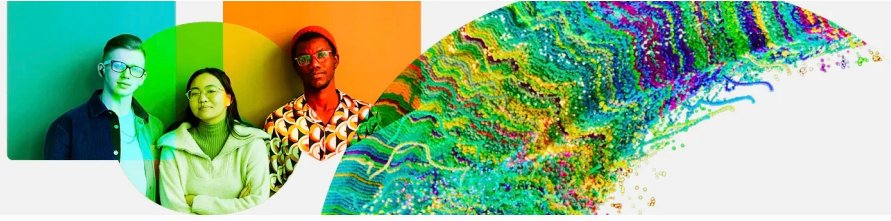
### Technology adoption

Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
0% 2021 - 2022	▲ 46.7% 2021 - 2022	n/a	▲ 17% 2021 - 2022	n/a
0% 2012 - 2022	▲ 3.5% 2012 - 2022		▲ 20.7% 2012 - 2022	n/a
100 per 100 inhabitants in 2022	37.7 per 100 inhabitants in 2022	73.6 per 100 inhabitants in 2021		n/a

### Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -2.4% 2022 - 2023	▼ -0.2% 2021 - 2022	▲ 1.8°C 2023
▲ 2.2% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
191,807 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.



## Expected vs. observed innovation performance

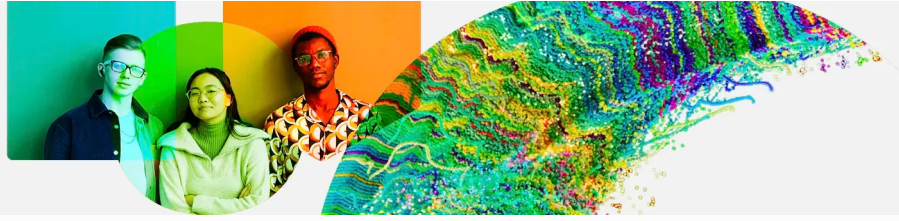
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



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

### > Innovation overperformers relative to their economic development





## Effectively translating innovation investments into innovation outputs

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

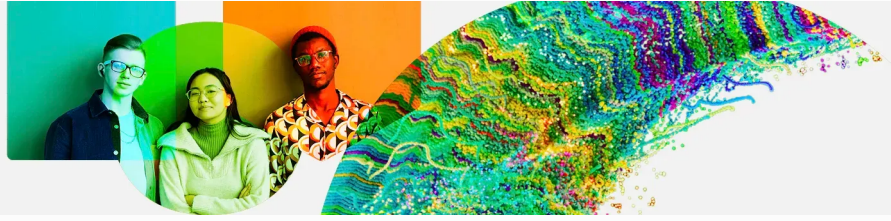


Singapore produces less innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs



# Global Innovation Index 2024



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



### Highest rankings




Singapore ranks highest in Institutions (1st), Human capital and research (2nd) and Business sophistication (3rd).

### Lowest rankings



Singapore ranks lowest in Creative outputs (19th), Infrastructure (11th) and Knowledge and technology outputs (9th).

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

# Global Innovation Index 2024



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

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



### High-Income economies

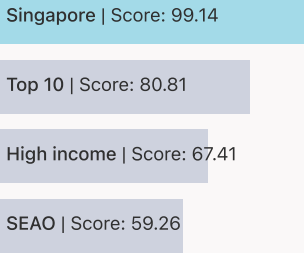
Singapore performs above the high-income group average in all pillars.



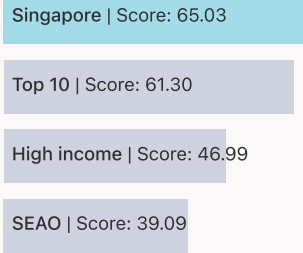
### South East Asia, East Asia, And Oceania

Singapore performs above the regional average in all pillars.

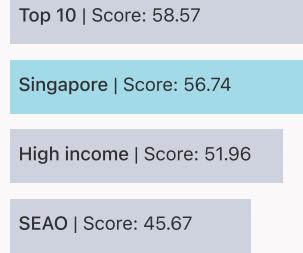
#### Institutions



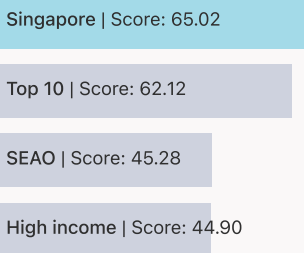
#### Human capital and research



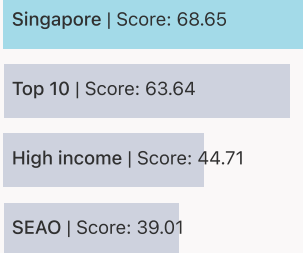
#### Infrastructure



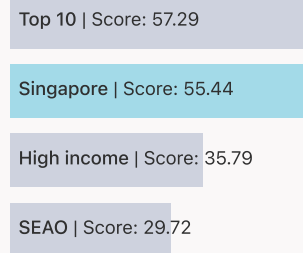
#### Market sophistication



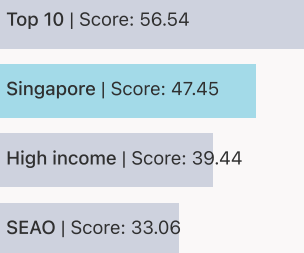
#### Business sophistication



#### Knowledge and technology outputs



#### Creative outputs





## Innovation strengths and weaknesses in Singapore

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



Singapore's main innovation strengths are **Cultural and creative services exports, % total trade** (rank 1), **GitHub commits/mn pop. 15–69** (rank 1) and **Government effectiveness\*** (rank 1).

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	7.2.1	Cultural and creative services exports, % total trade	123	3.3.2	Low-carbon energy use, %
1	7.3.2	GitHub commits/mn pop. 15–69	116	2.1.1	Expenditure on education, % GDP
1	1.1.2	Government effectiveness*	93	4.3.2	Domestic industry diversification
1	6.2.4	High-tech manufacturing, %	92	7.1.2	Trademarks by origin/bn PPP\$ GDP
1	6.3.3	High-tech exports, % total trade	78	7.1.4	Industrial designs by origin/bn PPP\$ GDP
1	3.1.1	ICT access*	77	3.2.3	Gross capital formation, % GDP
1	3.2.2	Logistics performance*	59	7.2.2	National feature films/mn pop. 15–69
1	1.3.1	Policy stability for doing business <sup>†</sup>	58	6.2.3	Software spending, % GDP
1	1.1.1	Operational stability for businesses*	54	7.1.1	Intangible asset intensity, top 15, %
1	1.2.1	Regulatory quality*	46	2.1.2	Government funding/pupil, secondary, % GDP/cap
1	6.2.2	Unicorn valuation, % GDP			
1	4.2.4	VC received, value, % GDP			
1	4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP			
1	4.2.3	VC recipients, deals/bn PPP\$ GDP			
2	4.3.1	Applied tariff rate, weighted avg., %			
2	5.1.1	Knowledge-intensive employment, %			
2	2.1.4	PISA scales in reading, maths and science			
3	3.1.4	E-participation*			
3	5.3.4	FDI net inflows, % GDP			
3	5.1.5	Females employed w/advanced degrees, %			
3	1.2.2	Rule of law*			

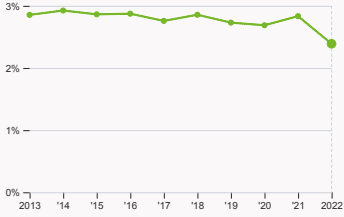
# Global Innovation Index 2024



## Singapore's innovation system

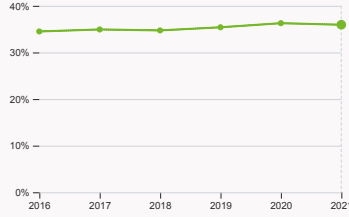
As far as practicable, the plots below present unscaled indicator data.

### > Innovation inputs in Singapore



#### 2.1.1 Expenditure on education

was equal to 2.39 % GDP in 2022, down by 0.44 percentage points from the year prior – and equivalent to an indicator rank of 116.



#### 2.2.2 Graduates in science and engineering

was equal to 35.94 % of total graduates in 2021, down by 0.33 percentage points from the year prior – and equivalent to an indicator rank of 5.



#### 2.3.1 Researchers

was equal to 7488.43 FTE per million population in 2020, up by 0.54% from the year prior – and equivalent to an indicator rank of 5.



#### 2.3.2 Gross expenditure on R&D

was equal to 2.16 % GDP in 2020, up by 0.28 percentage points from the year prior – and equivalent to an indicator rank of 17.



#### 2.3.4 QS university ranking

was equal to an average score of 67.83 for the top three universities in 2023, up by 0.24% from the year prior – and equivalent to an indicator rank of 13.

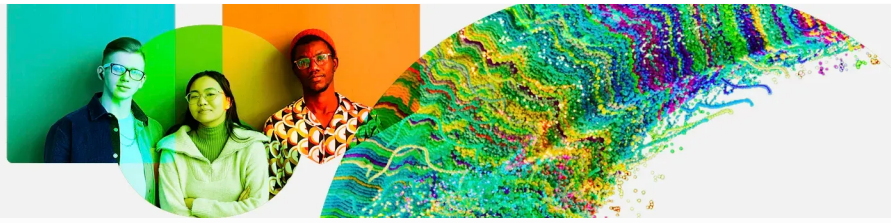


#### 4.2.4 VC received, value

was equal to 4.52 million USD in 2023, down by 36.16% from the year prior – and equivalent to an indicator rank of 1.

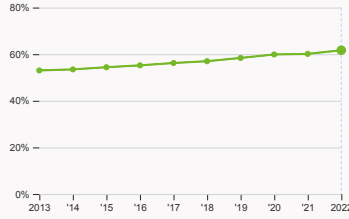


# Global Innovation Index 2024



### 4.3.2 Domestic industry diversification

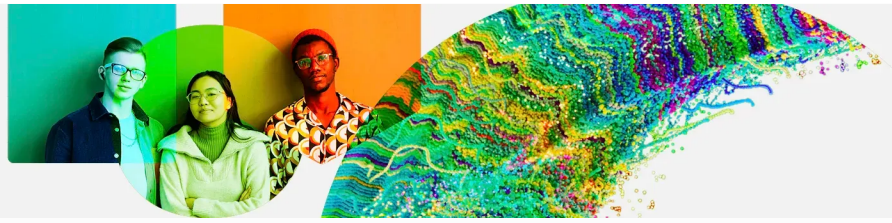
was equal to an index score of 0.25 in 2021, down by 0.97% from the year prior – and equivalent to an indicator rank of 93.



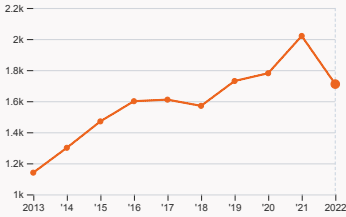
### 5.1.1 Knowledge-intensive employment

was equal to 61.69 % in 2022, up by 1.57 percentage points from the year prior – and equivalent to an indicator rank of 2.

# Global Innovation Index 2024

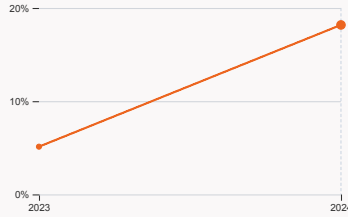


## > Innovation outputs in Singapore



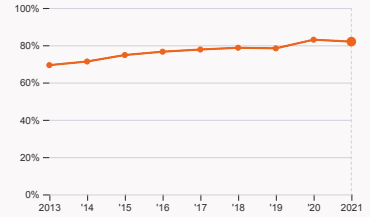
### 6.1.1 Patents by origin

was equal to 1.71 thousand patents in 2022, down by 15.35% from the year prior – and equivalent to an indicator rank of 27.



### 6.2.2 Unicorn valuation

was equal to 18.18 % GDP in 2024, up by 13.06 percentage points from the year prior – and equivalent to an indicator rank of 1.



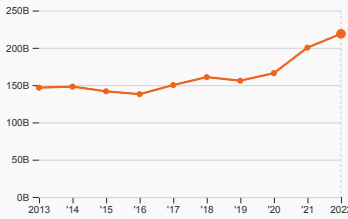
### 6.2.4 High-tech manufacturing

was equal to 81.95 % of total manufacturing output in 2021, down by 1.04 percentage points from the year prior – and equivalent to an indicator rank of 1.



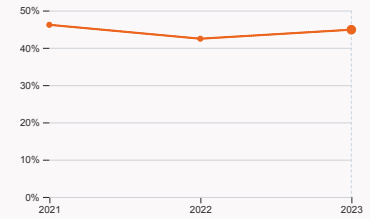
### 6.3.2 Production and export complexity

was equal to a score of 1.83 in 2021, down by 6.15% from the year prior – and equivalent to an indicator rank of 5.



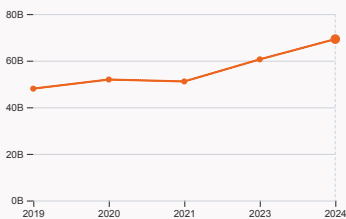
### 6.3.3 High-tech exports

was equal to 218.74 billion USD in 2022, up by 9.22% from the year prior – and equivalent to an indicator rank of 1.



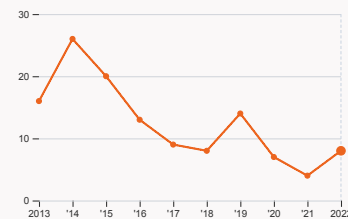
### 7.1.1 Intangible asset intensity

was equal to 44.86 % for the top 15 companies in 2023, up by 2.42 percentage points from the year prior – and equivalent to an indicator rank of 54.



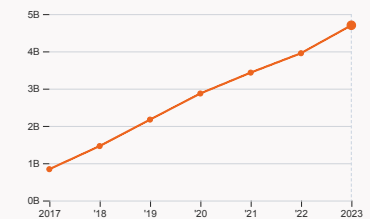
### 7.1.3 Global brand value

was equal to 69.26 billion USD for the brands in the top 5,000 in 2024, up by 14.35% from the year prior – and equivalent to an indicator rank of 11.



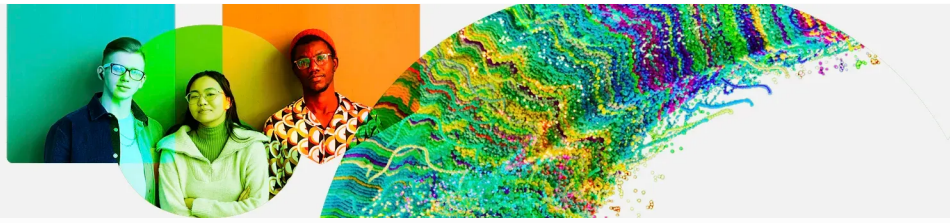
### 7.2.2 National feature films

was equal to 8 films in 2022, up by 100% from the year prior – and equivalent to an indicator rank of 59.



### 7.3.3 Mobile app creation

was equal to 4.7 billion global downloads of mobile apps in 2023, up by 18.99% from the year prior – and equivalent to an indicator rank of 5.



## Singapore's innovation top performers

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

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
180	SEA	Software & Computer Services	1,276	65	11
452	GRAB HOLDINGS	Software & Computer Services	451	32	34
1080	IGG	Leisure Goods	157	4	28
1223	CHINA YUCHAI	Industrial Engineering	137	-9	6

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 Singapore's top universities

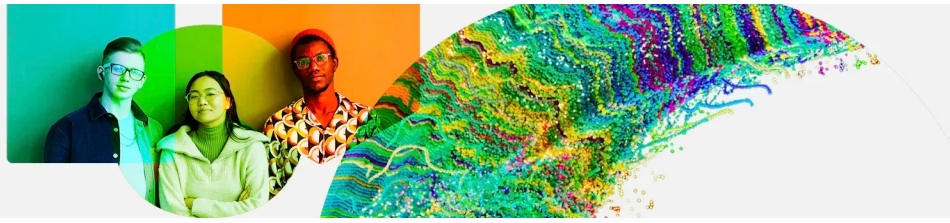
Rank	University	Score
8	NATIONAL UNIVERSITY OF SINGAPORE (NUS)	92.70
26	NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE (NTU)	84.50
429	SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN	26.30

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 Singapore

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	SHEIN	Consumer & Retail	Singapore	66
2	HYALROUTE	Industrials	Singapore	4
3	AMBER GROUP	Financial Services	Singapore	3

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



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

Rank	Firm	Intensity, %
1	DBS GROUP HOLDINGS LTD	31.29
2	SEA LIMITED	74.17
3	SINGAPORE TELECOMMUNICATIONS LIMITED	49.54

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 Singapore with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	DBS	Banking	11,031
2	MARINA BAY SANDS	Leisure & Tourism	6,164.3
3	UOB	Banking	5,644.1

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

Note: Rank corresponds to within economy ranks.

# Global Innovation Index 2024

## Singapore

GII 2024 rank

4

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
11	1	High	SEAO	5.8	753.3	133,107.6
Score / Value Rank			Score / Value Rank			
<b>Institutions</b>			99.1	1	<b>Business sophistication</b>	
<b>1.1 Institutional environment</b>			100	1	68.7	
1.1.1 Operational stability for businesses*			100	1	71.1	
1.1.2 Government effectiveness*			100	1	61.7	
<b>1.2 Regulatory environment</b>			97.4	1	42.9	
1.2.1 Regulatory quality*			100	1	1.4	
1.2.2 Rule of law*			94.9	3	58.3	
<b>1.3 Business environment</b>			100	[1]	30	
1.3.1 Policy stability for doing business*			100	1	3	
1.3.2 Entrepreneurship policies and culture*			n/a	n/a	7	
<b>Human capital and research</b>			65	2	<b>5.1 Knowledge workers</b>	
<b>2.1 Education</b>			59.6	39	71.1	
2.1.1 Expenditure on education, % GDP			2.4	116	61.7	
2.1.2 Government funding/pupil, secondary, % GDP/cap			20.5	46	42.9	
2.1.3 School life expectancy, years			16.9	23	1.4	
2.1.4 PISA scales in reading, maths and science			559.6	2	18	
2.1.5 Pupil-teacher ratio, secondary			11.6	49	58.3	
<b>2.2 Tertiary education</b>			75	2	30	
2.2.1 Tertiary enrolment, % gross			97.1	9	3	
2.2.2 Graduates in science and engineering, %			35.9	5	7	
2.2.3 Tertiary inbound mobility, %			n/a	n/a	7	
<b>2.3 Research and development (R&amp;D)</b>			60.6	14	14	
2.3.1 Researchers, FTE/mn pop.			7,488.4	5	84.5	
2.3.2 Gross expenditure on R&D, % GDP			2.2	17	0.2	
2.3.3 Global corporate R&D investors, top 3, mn USD			62.4	21	2.9	
2.3.4 QS university ranking, top 3*			68.7	13	15	
<b>Infrastructure</b>			56.7	11	<b>5.2 Innovation linkages</b>	
<b>3.1 Information and communication technologies (ICTs)</b>			96.2	3	63.5	
3.1.1 ICT access*			100	1	7	
3.1.2 ICT use*			91.5	16	3.8	
3.1.3 Government's online service*			95.8	5	21	
3.1.4 E-participation*			97.7	3	7	
<b>3.2 General infrastructure</b>			55.3	12	14	
3.2.1 Electricity output, GWh/mn pop.			10,234.2	15	84.9	
3.2.2 Logistics performance*			100	1	7	
3.2.3 Gross capital formation, % GDP			22.8	77	14	
<b>3.3 Ecological sustainability</b>			18.7	70	84.5	
3.3.1 GDP/unit of energy use			16.2	23	0.2	
3.3.2 Low-carbon energy use, %			0.6	123	5	
3.3.3 ISO 14001 environment/bn PPP\$ GDP			2.5	41	2	
<b>Market sophistication</b>			65	7	<b>5.3 Knowledge absorption</b>	
<b>4.1 Credit</b>			47.4	[27]	71.4	
4.1.1 Finance for startups and scaleups*			n/a	n/a	2	
4.1.2 Domestic credit to private sector, % GDP			129.5	14	2	
4.1.3 Loans from microfinance institutions, % GDP			n/a	n/a	10	
<b>4.2 Investment</b>			88.6	3	25.1	
4.2.1 Market capitalization, % GDP			158.8	7	3.3	
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP			2.7	1	7	
4.2.3 VC recipients, deals/bn PPP\$ GDP			1.8	1	3	
4.2.4 VC received, value, % GDP			0.02	1	21	
<b>4.3 Trade, diversification and market scale</b>			59	56	54.2	
4.3.1 Applied tariff rate, weighted avg., %			0.000009	2	2	
4.3.2 Domestic industry diversification			62.2	93	9	
4.3.3 Domestic market scale, bn PPP\$			753.3	37	9	
					<b>Knowledge and technology outputs</b>	
					55.4	
					<b>6.1 Knowledge creation</b>	
					39.9	
					21	
					2.4	
					13	
					-	
					19.2	
					40.3	
					2	
					53	
					18.2	
					0.2	
					58	
					82	
					1	
					57.5	
					1.7	
					14	
					89.2	
					5	
					28.8	
					1	
					35	
					7	
					37	
					<b>Creative outputs</b>	
					47.4	
					19	
					<b>7.1 Intangible assets</b>	
					37	
					41	
					71.1	
					44.9	
					54	
					19	
					92	
					11	
					13.3	
					11	
					0.5	
					78	
					9	
					9	
					48.6	
					9	
					5.7	
					1	
					59	
					1.8	
					59	
					41.5	
					20	
					3.3	
					15	
					<b>7.3 Online creativity</b>	
					67.1	
					9	
					7.1	
					9	
					67.1	
					9	
					16.3	
					34	
					100	
					1	
					5	

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



## Data availability

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



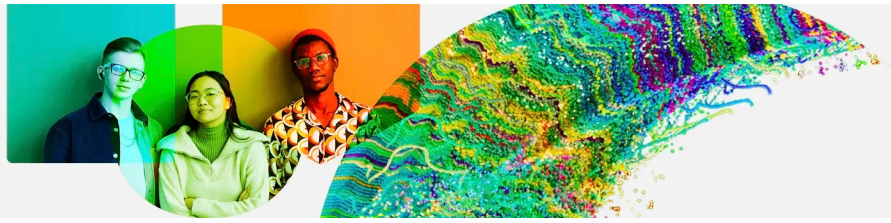
Singapore has missing data for five indicators and outdated data for ten indicators.

### Missing data for Singapore

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture <sup>†</sup>	n/a	2023	Global Entrepreneurship Monitor
2.2.3	Tertiary inbound mobility, %	n/a	2022	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups <sup>†</sup>	n/a	2023	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund

### Outdated data for Singapore

Code	Indicator name	Economy Year	Model Year	Source
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
2.3.1	Researchers, FTE/mn pop.	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.2	Domestic credit to private sector, % GDP	2020	2022	International Monetary Fund; World Bank and OECD GDP estimates.
5.1.3	GERD performed by business, % GDP	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2022	2023	International Labour Organization
5.3.5	Research talent, % in businesses	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT



## Top science and technology clusters in Singapore



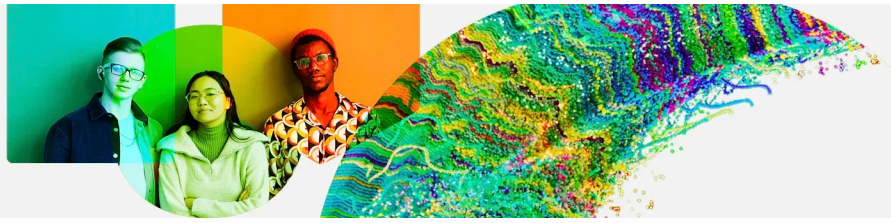
Singapore has 1 cluster in the top 100 S&T clusters of the Global Innovation Index, the same number as in 2023.

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

Rank	Cluster name	Top patent field	Top academic subject
33	<a href="#">Singapore</a>	Computer technology	Engineering



# Global Innovation Index 2024



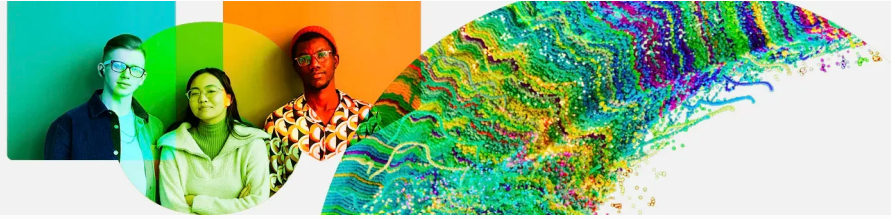
The table and map below give an overview of the top science and technology clusters by intensity in Singapore.

Rank	Cluster name	Top patent field	Top academic subject
73	<a href="#">Singapore</a>	Computer technology	Engineering



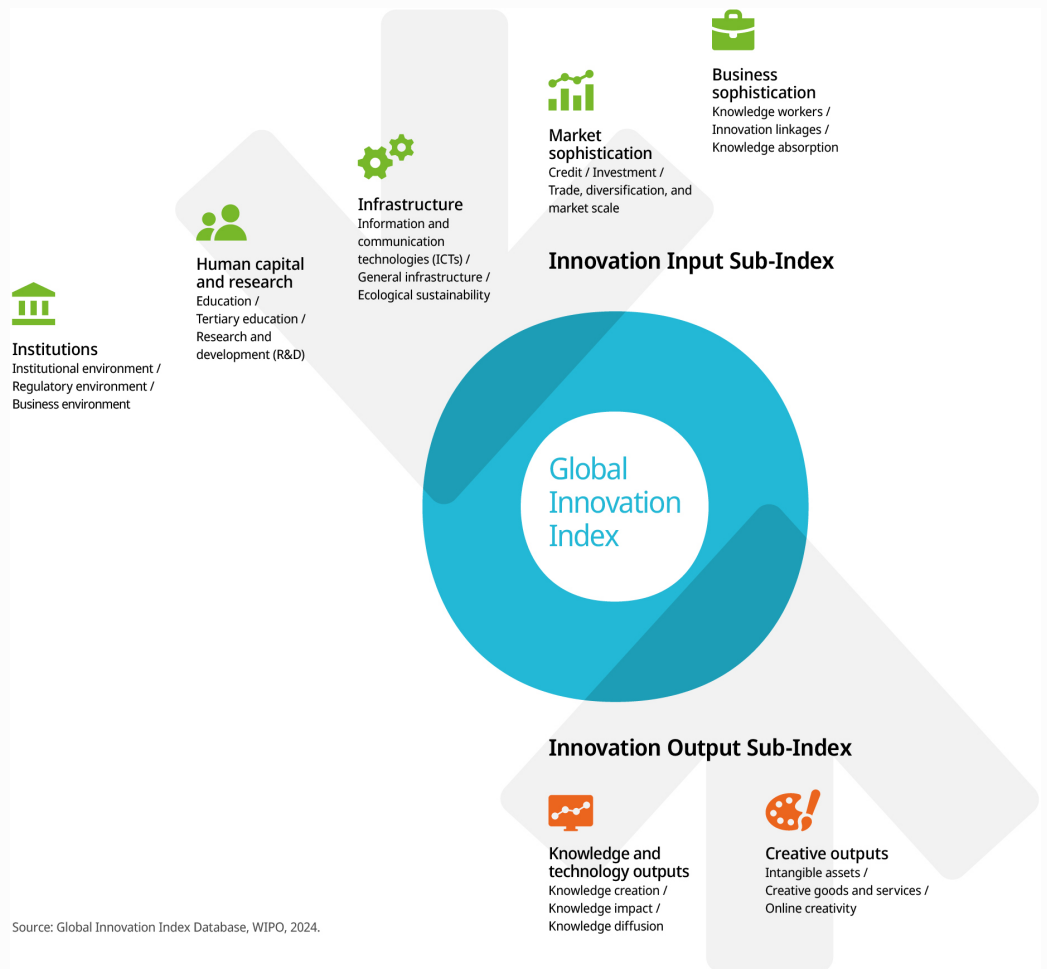


# Global Innovation Index 2024



## About the Global Innovation Index

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



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

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