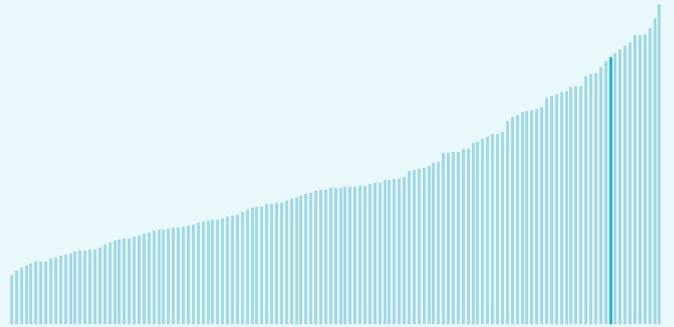


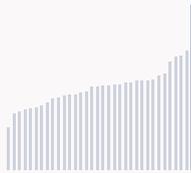
China ranking in the Global Innovation Index 2024

China ranks **11th** among the 133 economies featured in the GII 2024.

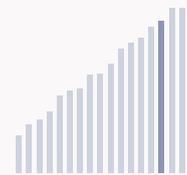
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



China ranks **1st** among the 34 upper-middle-income group economies.



China ranks **3rd** among the 17 economies in South East Asia, East Asia, and Oceania.



> China GII Ranking (2020-2024)

The table shows the rankings of China 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 China in the GII 2024 is between ranks 6 and 12.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	14th	26th	6th
2021	12th	25th	7th
2022	11th	21st	8th
2023	12th	25th	8th
2024	11th	23rd	7th

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

This year China ranks 23rd in innovation inputs. This position is higher than last year.

China ranks 7th in innovation outputs. This position is higher than last year.

China has 26 clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

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



For China, 8 indicators have improved in the short-term and 5 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -1.2% 2022 - 2023	▲ 7.7% 2021 - 2022	▼ -11.9% 2022 - 2023	▼ -23.6% 2022 - 2023	▼ -0.6% 2022 - 2023
▲ 12.1% 2013 - 2023	▲ 9.3% 2012 - 2022	▲ 20.8% 2013 - 2023	▲ 28.2% 2013 - 2023	▲ 12.5% 2013 - 2023

Technology adoption

Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 2% 2021 - 2022	▲ 10.1% 2021 - 2022	▲ 218.7% 2021 - 2022	▲ 22.4% 2021 - 2022	▲ 54.6% 2022 - 2023
▲ 5.3% 2012 - 2022	▲ 12.4% 2012 - 2022		▲ 31.5% 2012 - 2022	▲ 91.7% 2013 - 2023
67.2 per 100 inhabitants in 2022	41.4 per 100 inhabitants in 2022	80 per 100 inhabitants in 2022		7.6 per 100 inhabitants in 2023

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 4.4% 2022 - 2023	▲ 0.5% 2021 - 2022	▲ 1.8°C 2023
▲ 6.6% 2013 - 2023	▲ 0.3% 2012 - 2022	n/a
44,671 USD in 2023	78.6 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.



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

> Innovation overperformers relative to their economic development





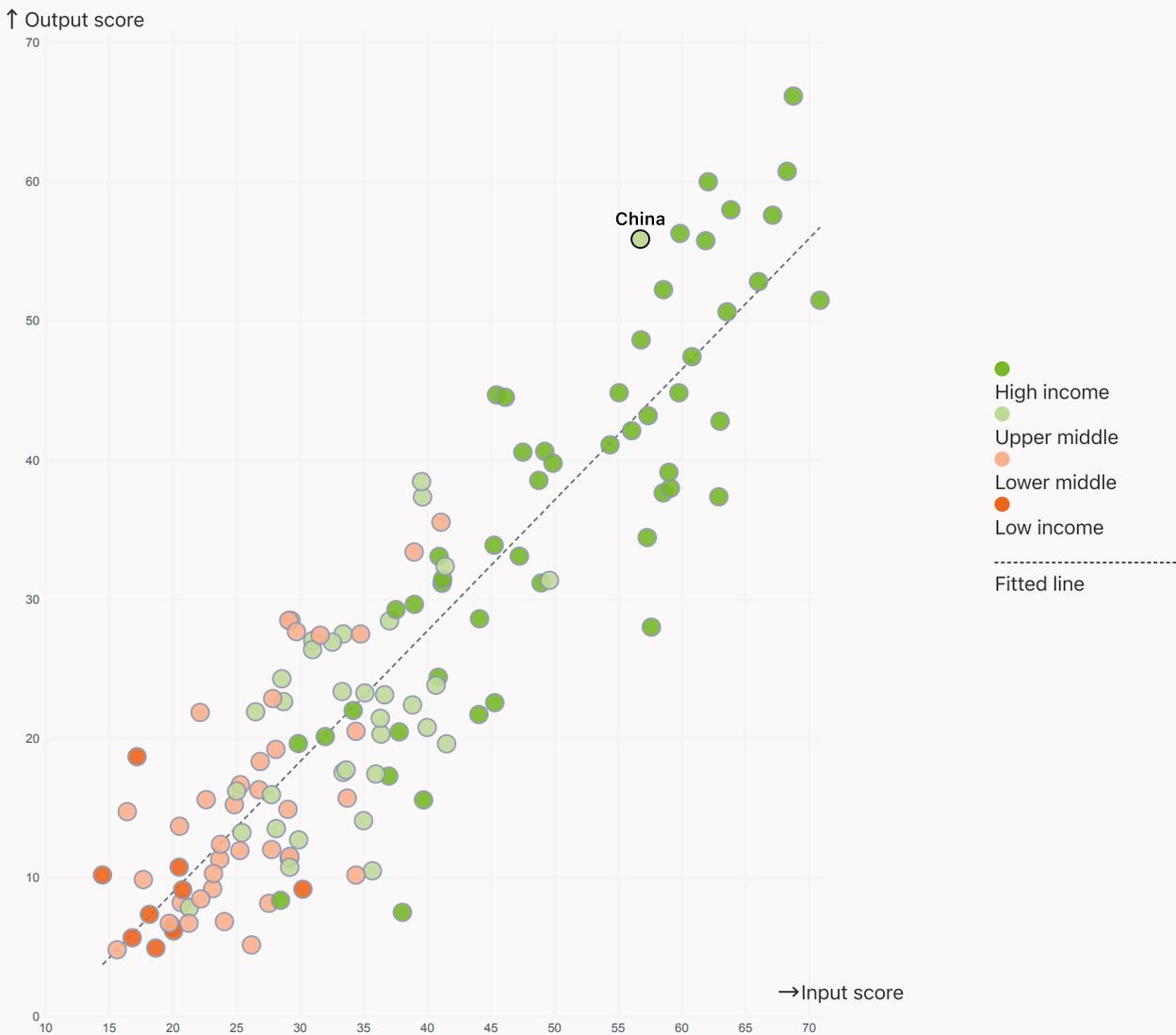
Effectively translating innovation investments into innovation outputs

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.



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

> Relationship between innovation inputs and outputs



Global Innovation Index 2024



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



Highest rankings



China ranks highest in Knowledge and technology outputs (3rd), Infrastructure (5th) and Business sophistication (11th).

Lowest rankings



China ranks lowest in Institutions (44th), Human capital and research (22nd) and Market sophistication (16th).

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



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

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



Upper-Middle-Income economies

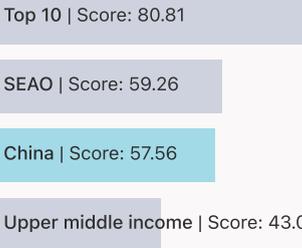
China performs above the upper-middle-income group average in all pillars.



South East Asia, East Asia, And Oceania

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

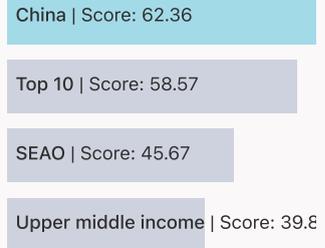
Institutions



Human capital and research



Infrastructure



Market sophistication



Business sophistication



Knowledge and technology outputs



Creative outputs





Innovation strengths and weaknesses in China

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



China's main innovation strengths are **Creative goods exports, % total trade (rank 1)**, **Domestic market scale, bn PPP\$ (rank 1)** and **High-tech exports, % total trade (rank 1)**.

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	7.2.4	Creative goods exports, % total trade	103	2.2.3	Tertiary inbound mobility, %
1	4.3.3	Domestic market scale, bn PPP\$	101	3.3.1	GDP/unit of energy use
1	6.3.3	High-tech exports, % total trade	95	2.1.1	Expenditure on education, % GDP
1	7.1.4	Industrial designs by origin/bn PPP\$ GDP	94	1.2.1	Regulatory quality*
1	2.1.4	PISA scales in reading, maths and science	84	5.3.4	FDI net inflows, % GDP
1	5.2.3	State of cluster development†	79	7.2.2	National feature films/mn pop. 15–69
1	7.1.2	Trademarks by origin/bn PPP\$ GDP	75	5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP
1	6.1.3	Utility models by origin/bn PPP\$ GDP	73	4.3.1	Applied tariff rate, weighted avg., %
2	3.2.3	Gross capital formation, % GDP	36	4.1.3	Loans from microfinance institutions, % GDP
2	6.2.1	Labor productivity growth, %	35	7.2.3	Entertainment and media market/th pop. 15–69
2	6.1.1	Patents by origin/bn PPP\$ GDP			
2	2.3.3	Global corporate R&D investors, top 3, mn USD			
3	5.1.4	GERD financed by business, %			
4	4.1.2	Domestic credit to private sector, % GDP			
4	3.3.3	ISO 14001 environment/bn PPP\$ GDP			
4	5.2.1	Public Research–Industry co-publications, %			

Global Innovation Index 2024



China's innovation system

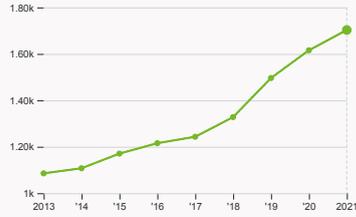
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in China



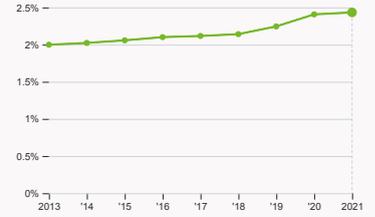
2.1.1 Expenditure on education

was equal to 3.3 % GDP in 2022, up by 0.001 percentage points from the year prior – and equivalent to an indicator rank of 95.



2.3.1 Researchers

was equal to 1702.89 FTE per million population in 2021, up by 5.42% from the year prior – and equivalent to an indicator rank of 43.



2.3.2 Gross expenditure on R&D

was equal to 2.43 % GDP in 2021, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 14.



2.3.4 QS university ranking

was equal to an average score of 83.23 for the top three universities in 2023, down by 5.02% from the year prior – and equivalent to an indicator rank of 5.



4.2.4 VC received, value

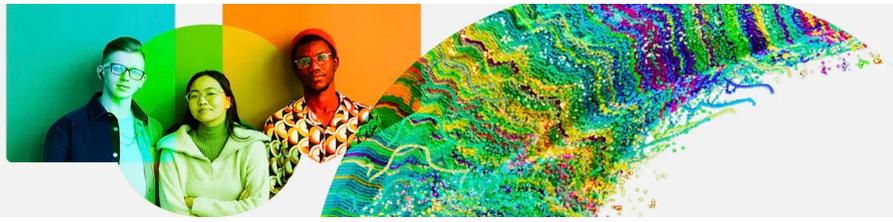
was equal to 39.42 million USD in 2023, down by 23.56% from the year prior – and equivalent to an indicator rank of 21.



4.3.2 Domestic industry diversification

was equal to an index score of 0.07 in 2018, up by 5.04% from the year prior – and equivalent to an indicator rank of 5.

Global Innovation Index 2024

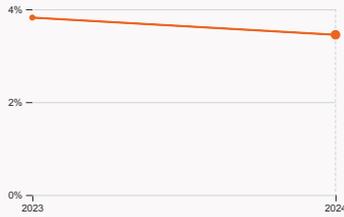


> Innovation outputs in China



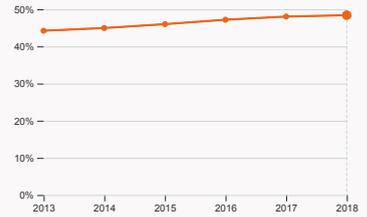
6.1.1 Patents by origin

was equal to 1.46 million patents in 2022, up by 2.1% from the year prior – and equivalent to an indicator rank of 2.



6.2.2 Unicorn valuation

was equal to 3.45 % GDP in 2024, down by 0.37 percentage points from the year prior – and equivalent to an indicator rank of 12.



6.2.4 High-tech manufacturing

was equal to 48.4 % of total manufacturing output in 2018, up by 0.37 percentage points from the year prior – and equivalent to an indicator rank of 11.



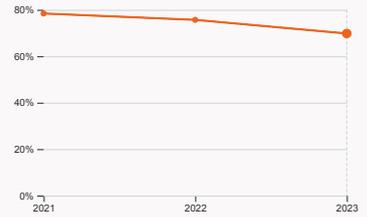
6.3.2 Production and export complexity

was equal to a score of 1.33 in 2021, up by 0.76% from the year prior – and equivalent to an indicator rank of 18.



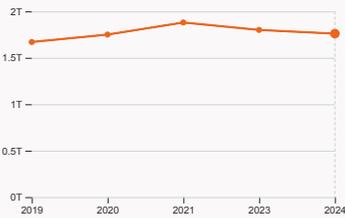
6.3.3 High-tech exports

was equal to 908.15 billion USD in 2022, down by 8.84% from the year prior – and equivalent to an indicator rank of 1.



7.1.1 Intangible asset intensity

was equal to 69.8 % for the top 15 companies in 2023, down by 5.87 percentage points from the year prior – and equivalent to an indicator rank of 17.



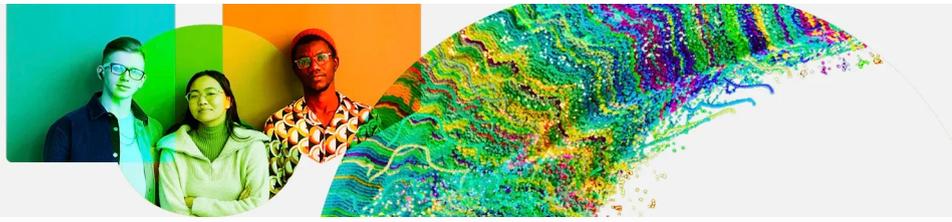
7.1.3 Global brand value

was equal to 1.76 trillion USD for the brands in the top 5,000 in 2024, down by 2.22% from the year prior – and equivalent to an indicator rank of 19.



7.2.2 National feature films

was equal to 485 films in 2022, down by 14.16% from the year prior – and equivalent to an indicator rank of 79.



China's innovation top performers

2.3.3 Global corporate R&D investors from China

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
5	HUAWEI INVESTMENT & HOLDING	Technology Hardware & Equipment	20,925	11	24
19	TENCENT	Software & Computer Services	8,240	18	11
22	ALIBABA GROUP HOLDING	Software & Computer Services	7,681	3	7
30	CHINA STATE CONSTRUCTION ENGINEERING	Construction & Materials	6,670	25	2

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 China's top universities

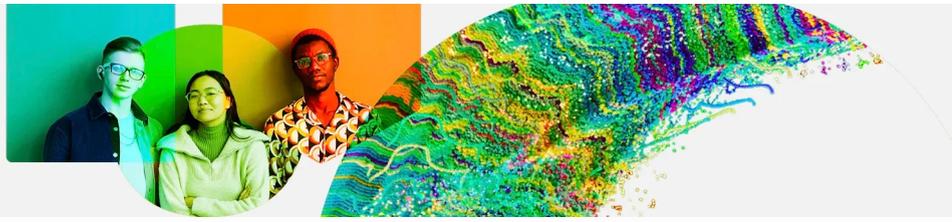
Rank	University	Score
17	PEKING UNIVERSITY	87.00
25	TSINGHUA UNIVERSITY	84.90
44	ZHEJIANG UNIVERSITY	77.80

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

6.2.2 Top Unicorn Companies in China

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	BYTEDANCE	Media & Entertainment	Beijing	225
2	XIAOHONGSHU	Media & Entertainment	Shanghai	20
3	YUANFUDAO	Consumer & Retail	Beijing	16

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 China

Rank	Firm	Intensity, %
1	TENCENT HOLDINGS LIMITED	76.19
2	ALIBABA GROUP HOLDING LIMITED	42.57
3	CONTEMPORARY AMPEREX TECHNOLOGY CO., LIMITED	71.28

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 China with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	TIKTOK/DOUYIN	Media	84,198.5
2	ICBC	Banking	71,828.2
3	STATE GRID CORPORATION OF CHINA	Utilities	71,144.7

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

Note: Rank corresponds to within economy ranks.

Global Innovation Index 2024



China

GII 2024 rank

11

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
7	23	Upper middle	SEAO	1422.6	32,897.9	23,308.8
			Score / Value Rank	Score / Value Rank		
Institutions				57.6	44	◆
1.1 Institutional environment				61.8	49	◆
1.1.1 Operational stability for businesses*				66.7	51	
1.1.2 Government effectiveness*				56.9	46	◆
1.2 Regulatory environment				36.7	78	○
1.2.1 Regulatory quality*				30.8	94	○
1.2.2 Rule of law*				42.6	62	
1.3 Business environment				74.2	14	◆
1.3.1 Policy stability for doing business*				74.3	18	◆
1.3.2 Entrepreneurship policies and culture*				74	11	◆
Human capital and research				50.3	22	◆
2.1 Education				69.2	[5]	
2.1.1 Expenditure on education, % GDP				3.3	95	○
2.1.2 Government funding/pupil, secondary, % GDP/cap				n/a	n/a	
2.1.3 School life expectancy, years				n/a	n/a	
2.1.4 PISA scales in reading, maths and science				579	1	◆◆
2.1.5 Pupil-teacher ratio, secondary				13.3	63	
2.2 Tertiary education				23.6	87	○
2.2.1 Tertiary enrolment, % gross				72	36	
2.2.2 Graduates in science and engineering, %				n/a	n/a	
2.2.3 Tertiary inbound mobility, %				0.4	103	○◇
2.3 Research and development (R&D)				58.1	17	◆
2.3.1 Researchers, FTE/mn pop.				1,702.9	43	◆
2.3.2 Gross expenditure on R&D, % GDP				2.4	14	◆
2.3.3 Global corporate R&D investors, top 3, mn USD				91	2	◆◆
2.3.4 QS university ranking, top 3*				84.2	5	◆
Infrastructure				62.4	5	◆
3.1 Information and communication technologies (ICTs)				87	19	◆
3.1.1 ICT access*				89.6	66	
3.1.2 ICT use*				84.6	33	◆
3.1.3 Government's online service*				87.6	15	◆
3.1.4 E-participation*				86	13	◆
3.2 General infrastructure				62.1	7	◆
3.2.1 Electricity output, GWh/mn pop.				6,282.6	32	◆
3.2.2 Logistics performance*				72.7	18	◆
3.2.3 Gross capital formation, % GDP				43.1	2	◆◆
3.3 Ecological sustainability				38	23	◆
3.3.1 GDP/unit of energy use				6.9	101	○◇
3.3.2 Low-carbon energy use, %				18.3	63	
3.3.3 ISO 14001 environment/bn PPP\$ GDP				9.9	4	◆◆
Market sophistication				55.8	16	◆
4.1 Credit				48.9	25	◆
4.1.1 Finance for startups and scaleups*				69.3	15	◆
4.1.2 Domestic credit to private sector, % GDP				185.4	4	◆◆
4.1.3 Loans from microfinance institutions, % GDP				0.8	36	○
4.2 Investment				25.9	32	◆
4.2.1 Market capitalization, % GDP				76.2	23	
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP				0.1	43	
4.2.3 VC recipients, deals/bn PPP\$ GDP				0.1	36	◆
4.2.4 VC received, value, % GDP				0.003	21	◆
4.3 Trade, diversification and market scale				92.6	4	◆◆
4.3.1 Applied tariff rate, weighted avg., %				2.5	73	○
4.3.2 Domestic industry diversification				97.8	5	◆
4.3.3 Domestic market scale, bn PPP\$				32,897.9	1	◆◆
Business sophistication				58	11	◆
5.1 Knowledge workers				70.9	[8]	
5.1.1 Knowledge-intensive employment, %				n/a	n/a	
5.1.2 Firms offering formal training, %				n/a	n/a	
5.1.3 GERD performed by business, % GDP				1.9	13	◆
5.1.4 GERD financed by business, %				78	3	◆◆
5.1.5 Females employed w/advanced degrees, %				n/a	n/a	
5.2 Innovation linkages				58.4	13	◆
5.2.1 Public Research-Industry co-publications, %				7.1	4	◆◆
5.2.2 University-industry R&D collaboration*				83.8	8	◆
5.2.3 State of cluster development*				100	1	◆◆
5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP				0.01	75	○
5.2.5 Patent families/bn PPP\$ GDP				1.8	23	◆
5.3 Knowledge absorption				44.6	21	◆
5.3.1 Intellectual property payments, % total trade				1.4	26	
5.3.2 High-tech imports, % total trade				19.9	8	◆
5.3.3 ICT services imports, % total trade				1.1	72	
5.3.4 FDI net inflows, % GDP				1.6	84	○
5.3.5 Research talent, % in businesses				57.9	18	◆
Knowledge and technology outputs				61.7	3	◆◆
6.1 Knowledge creation				69.9	3	◆◆
6.1.1 Patents by origin/bn PPP\$ GDP				48.5	2	◆◆
6.1.2 PCT patents by origin/bn PPP\$ GDP				2.1	14	◆
6.1.3 Utility models by origin/bn PPP\$ GDP				97.4	1	◆◆
6.1.4 Scientific and technical articles/bn PPP\$ GDP				20.2	32	◆
6.1.5 Citable documents H-index				68.4	8	◆
6.2 Knowledge impact				63.1	4	◆◆
6.2.1 Labor productivity growth, %				5.4	2	◆◆
6.2.2 Unicorn valuation, % GDP				3.5	12	◆
6.2.3 Software spending, % GDP				0.4	28	◆
6.2.4 High-tech manufacturing, %				48.4	11	◆
6.3 Knowledge diffusion				52	14	◆
6.3.1 Intellectual property receipts, % total trade				0.4	32	◆
6.3.2 Production and export complexity				76.4	18	◆
6.3.3 High-tech exports, % total trade				26.3	1	◆◆
6.3.4 ICT services exports, % total trade				2.4	52	
6.3.5 ISO 9001 quality/bn PPP\$ GDP				18.6	12	◆
Creative outputs				50	14	◆
7.1 Intangible assets				82	1	◆◆
7.1.1 Intangible asset intensity, top 15, %				69.8	17	
7.1.2 Trademarks by origin/bn PPP\$ GDP				241.7	1	◆◆
7.1.3 Global brand value, top 5,000, % GDP				9.5	19	◆
7.1.4 Industrial designs by origin/bn PPP\$ GDP				25.7	1	◆◆
7.2 Creative goods and services				32.4	27	◆
7.2.1 Cultural and creative services exports, % total trade				0.6	49	
7.2.2 National feature films/mn pop. 15-69				0.5	79	○◇
7.2.3 Entertainment and media market/th pop. 15-69				10.7	35	
7.2.4 Creative goods exports, % total trade				10.9	1	◆◆
7.3 Online creativity				3.6	[126]	
7.3.1 Top-level domains (TLDs)/th pop. 15-69				3.6	63	◆
7.3.2 GitHub commits/mn pop. 15-69				n/a	n/a	
7.3.3 Mobile app creation/bn PPP\$ GDP				n/a	n/a	

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 China.



China has missing data for eight indicators and outdated data for eleven indicators.

Missing data for China

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2022	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD
5.1.1	Knowledge-intensive employment, %	n/a	2022	International Labour Organization
5.1.2	Firms offering formal training, %	n/a	2023	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	n/a	2023	International Labour Organization
7.3.2	GitHub commits/mn pop. 15–69	n/a	2023	GitHub; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects 2024
7.3.3	Mobile app creation/bn PPP\$ GDP	n/a	2023	data.ia (a Sensor Tower Company); International Monetary Fund

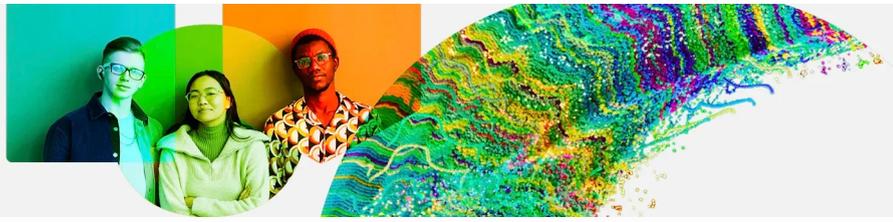
Outdated data for China

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policy stability for doing business [†]	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
2.1.4	PISA scales in reading, maths and science	2018	2022	OECD, PISA
2.3.1	Researchers, FTE/mn pop.	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.3.2	Domestic industry diversification	2018	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.3	GERD performed by business, % GDP	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2024



Code	Indicator name	Economy Year	Model Year	Source
5.2.2	University-industry R&D collaboration†	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	State of cluster development†	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.3.5	Research talent, % in businesses	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2018	2021	United Nations Industrial Development Organization
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2022	2023	ZookNIC Inc.; United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects 2024



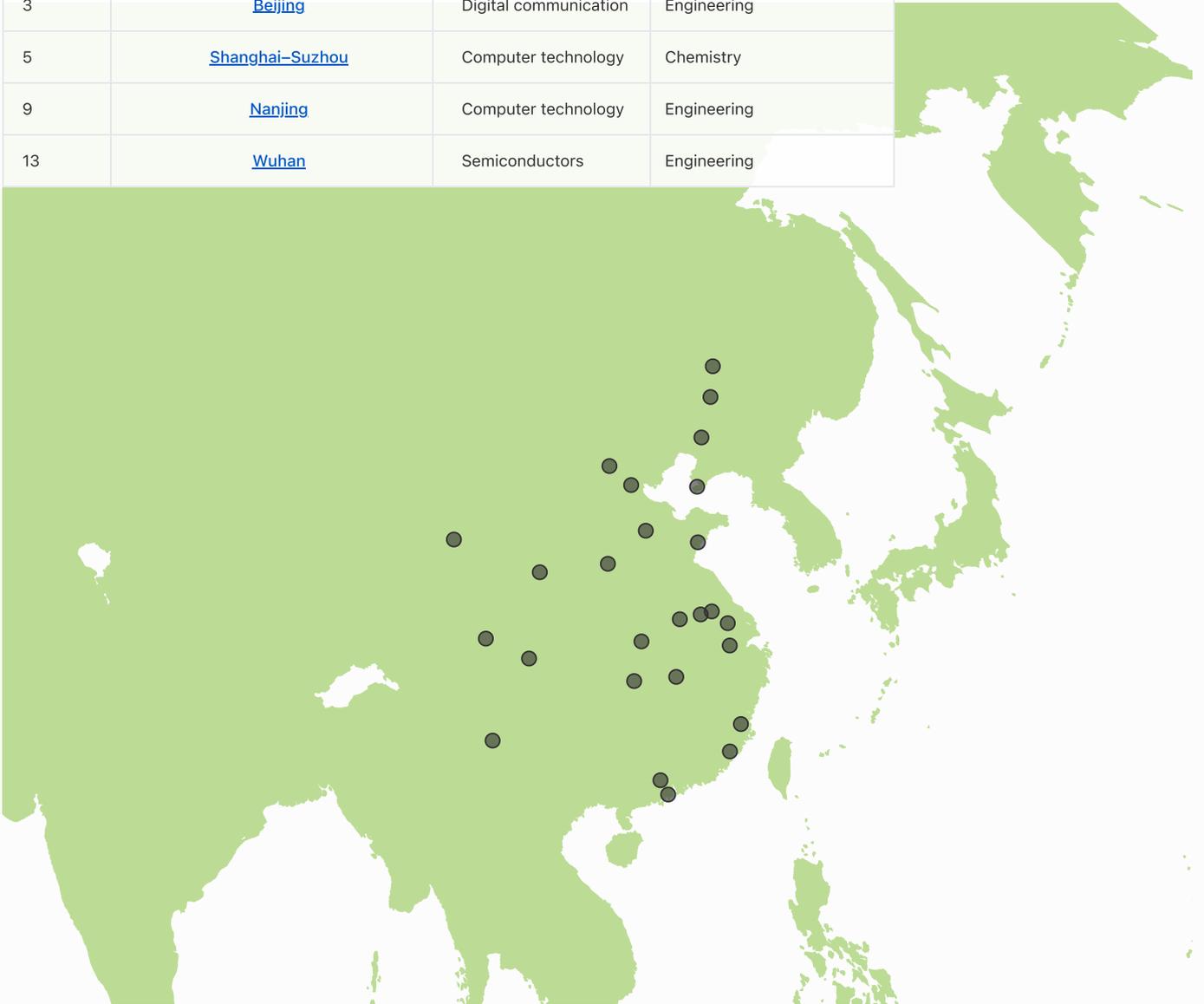
Top science and technology clusters in China



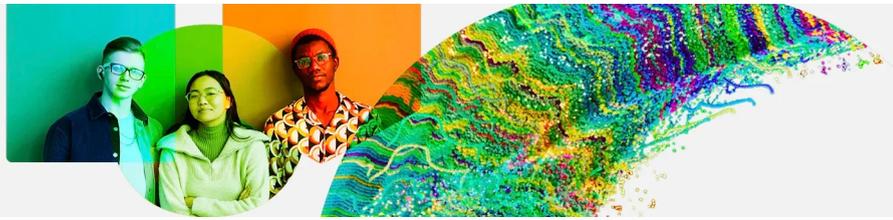
China has 26 clusters in the top 100 S&T clusters of the Global Innovation Index, 2 more than in 2023.

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

Rank	Cluster name	Top patent field	Top academic subject
2	Shenzhen–Hong Kong–Guangzhou	Digital communication	Engineering
3	Beijing	Digital communication	Engineering
5	Shanghai–Suzhou	Computer technology	Chemistry
9	Nanjing	Computer technology	Engineering
13	Wuhan	Semiconductors	Engineering

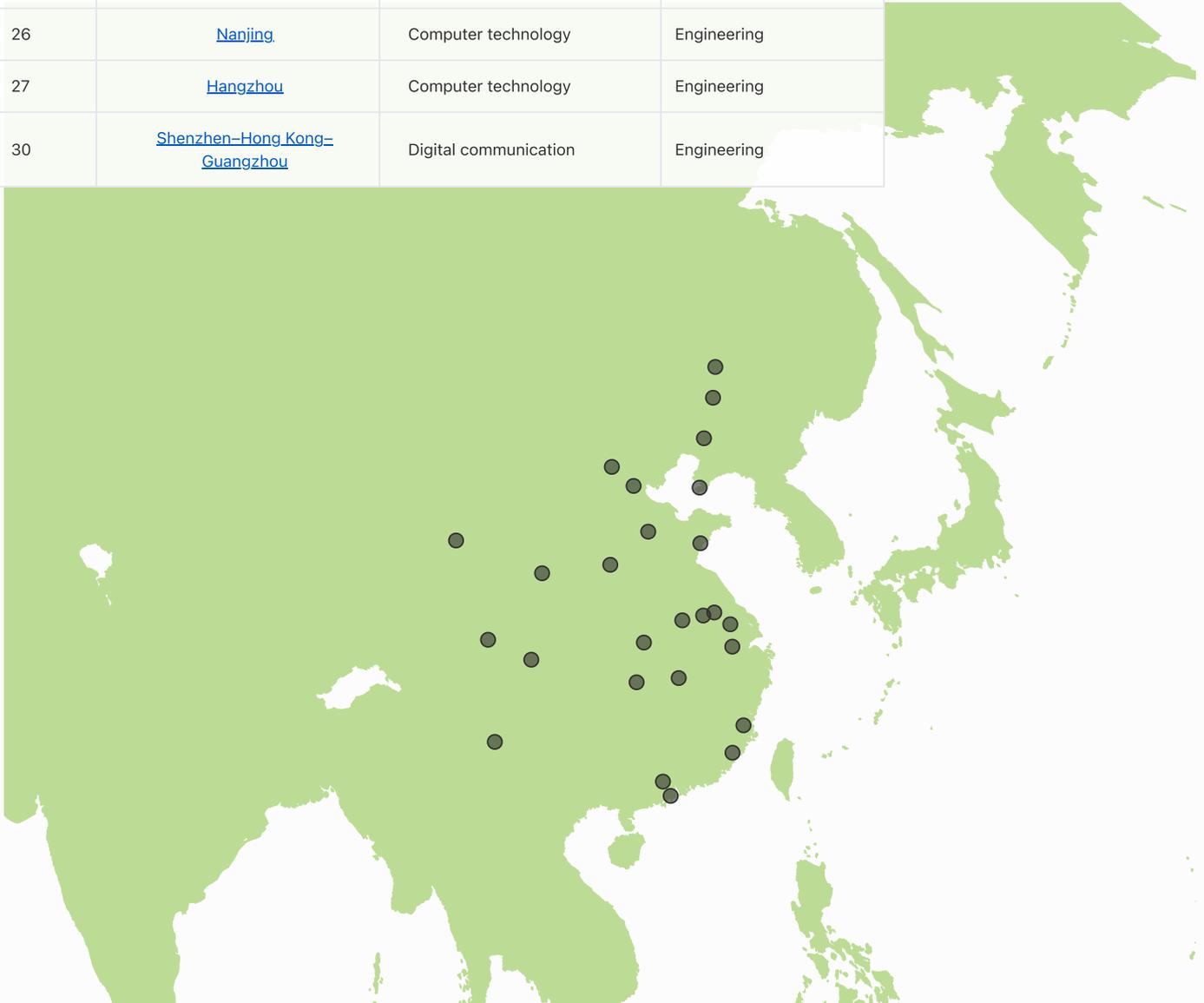


Global Innovation Index 2024

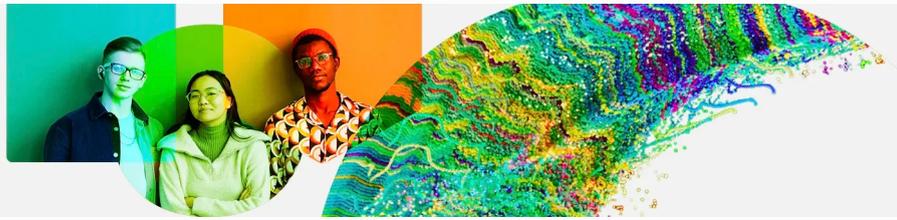


The table and map below give an overview of the top science and technology clusters by intensity in China.

Rank	Cluster name	Top patent field	Top academic subject
11	Beijing	Digital communication	Engineering
23	Qingdao	Thermal processes and apparatus	Engineering
26	Nanjing	Computer technology	Engineering
27	Hangzhou	Computer technology	Engineering
30	Shenzhen-Hong Kong-Guangzhou	Digital communication	Engineering

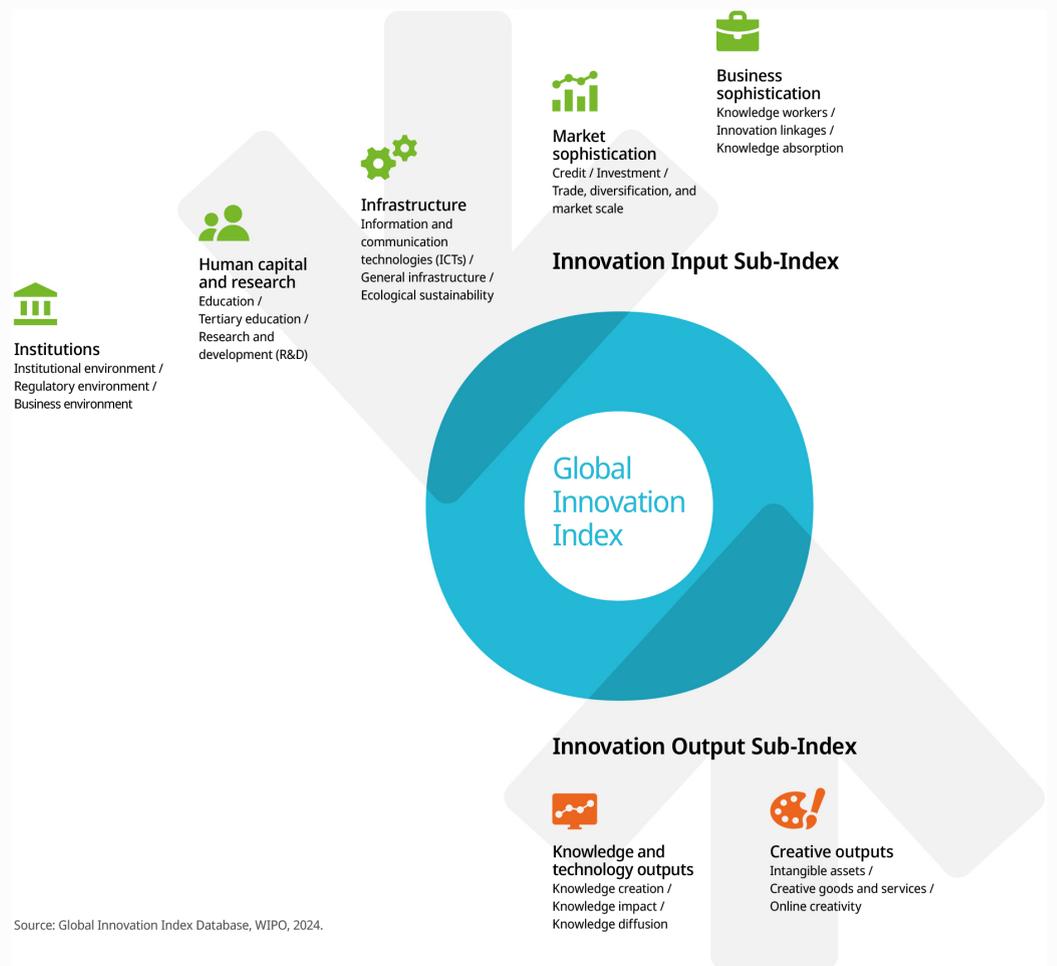


Global Innovation Index 2024



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.