Global Innovation Index 2021

HONG KONG

14th Hong Kong ranks 14th among the 132 economies featured in the GII 2021.

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.

The following table shows the rankings of Hong Kong over the past three years, noting that 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 Hong Kong in the GII 2021 is between ranks 11 and 23.

Rankings for Hong Kong (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	14	10	17
2020	11	7	16
2019	13	8	16

- Hong Kong performs better in innovation inputs than innovation outputs in 2021.
- This year Hong Kong ranks 10th in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Hong Kong ranks 17th. This position is lower than both 2020 and 2019.

13th Hong Kong ranks 13th among the 51 high-income group economies.

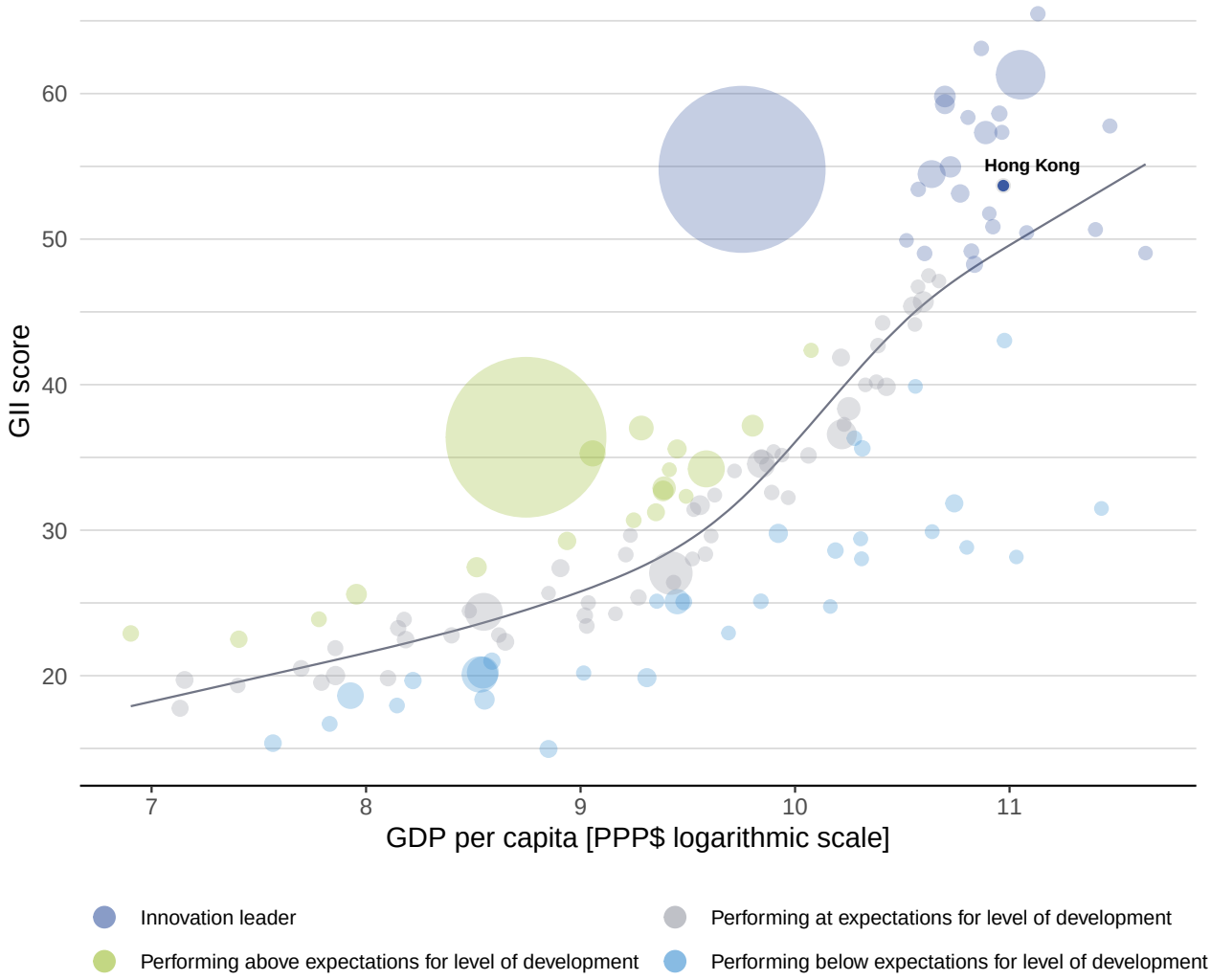
5th Hong Kong ranks 5th among the 17 economies in South East Asia, East Asia, and Oceania.

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, Hong Kong's performance is above expectations for its level of development.

The positive relationship between innovation and development

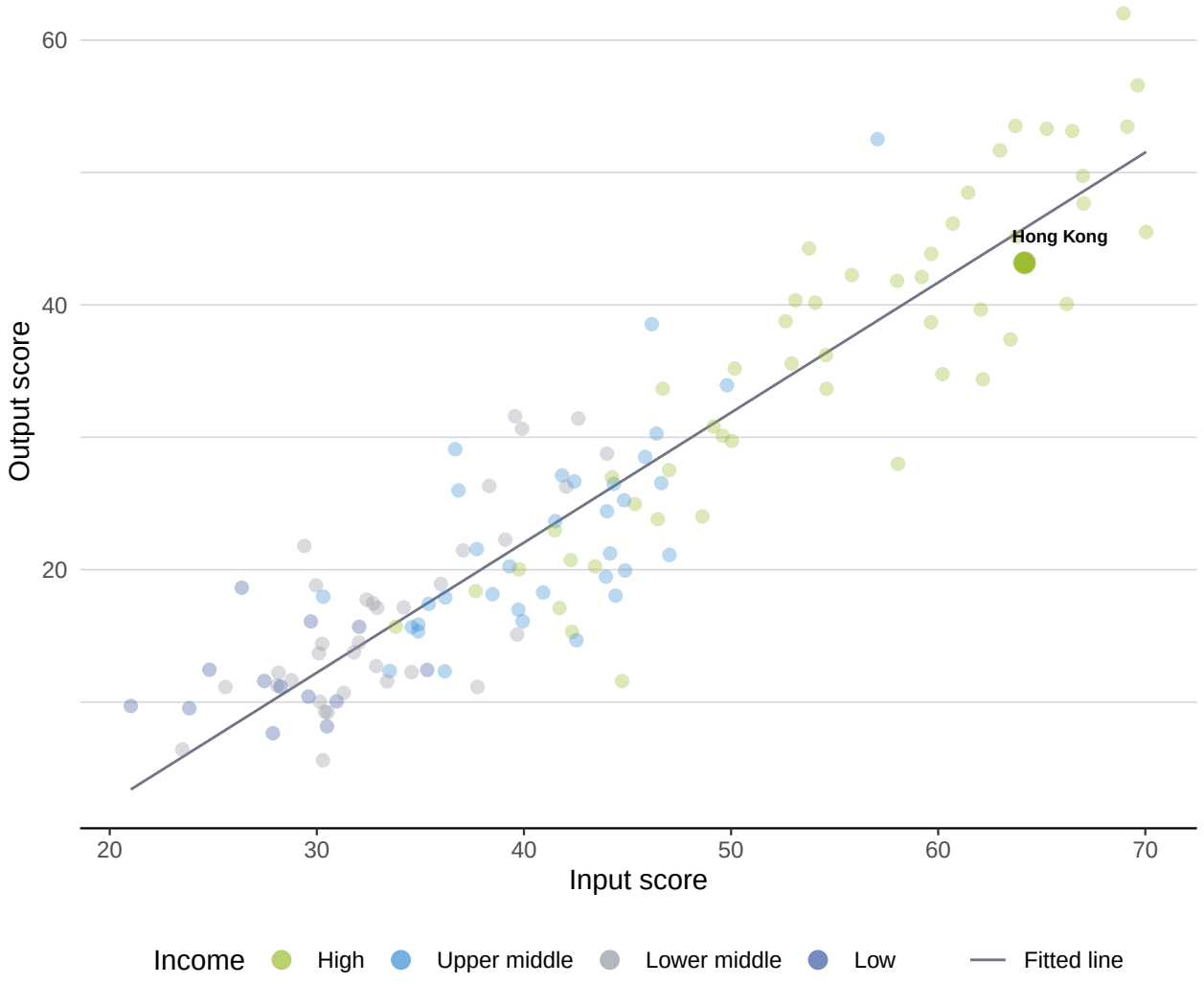


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

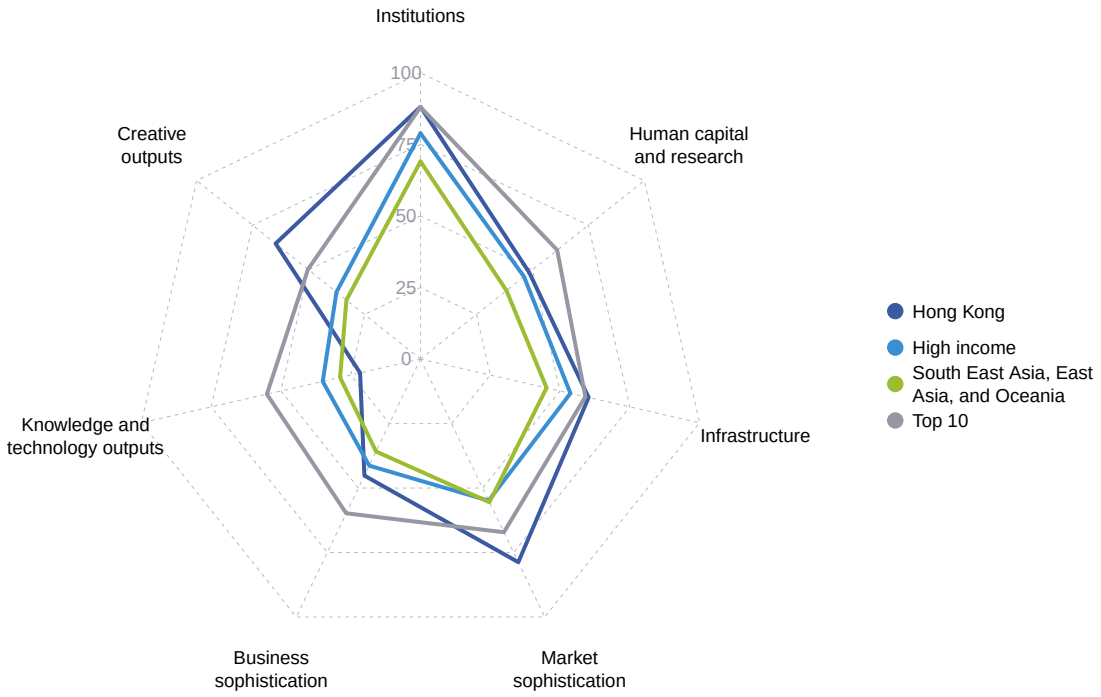
Hong Kong produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

The seven GII pillar scores for Hong Kong



High-income group economies

Hong Kong performs above the high-income group average in six pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; Business sophistication; and, Creative outputs.

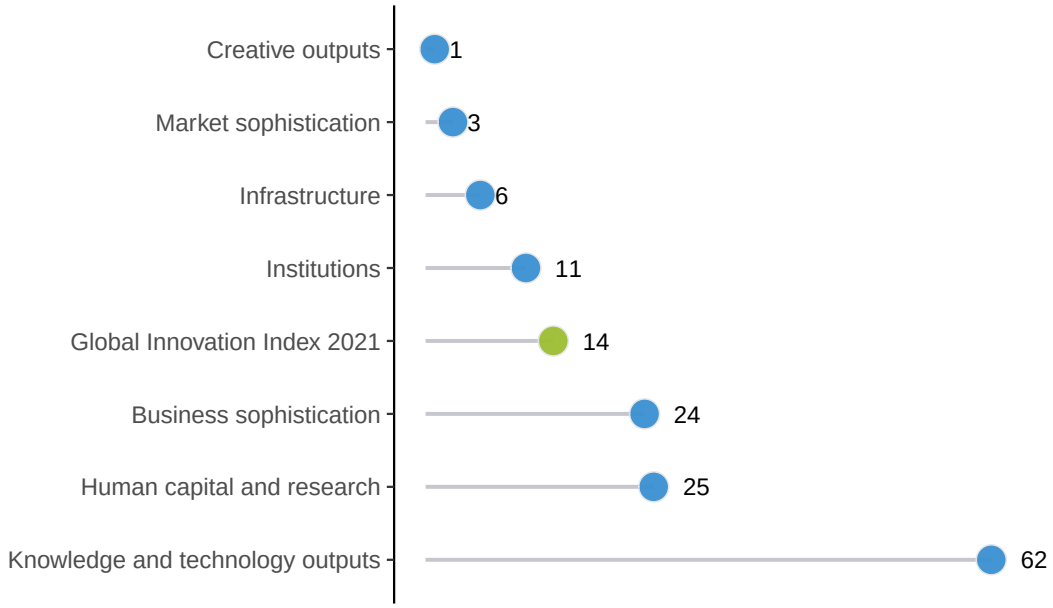
South East Asia, East Asia, and Oceania

Hong Kong performs above the regional average in six pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; Business sophistication; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Hong Kong performs best in Creative outputs and its weakest performance is in Knowledge and technology outputs.

The seven GII pillar ranks for Hong Kong



Note: The highest possible ranking in each pillar is one.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Hong Kong in the GII 2021.

Strengths and weaknesses for Hong Kong

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.1	Regulatory quality	2	2.1.1	Expenditure on education, % GDP	76
1.2.3	Cost of redudancy dismissal	1	2.3.3	Global corporate R&D investors, top 3, mn US$	41
2.1.4	PISA scales in reading, maths and science	3	3.2.3	Gross capital formation, % GDP	101
3.1.1	ICT access	2	4.3.2	Domestic industry diversification	92
3.3.1	GDP/unit of energy use	1	5.3.1	Intellectual property payments, % total trade	81
4.1	Credit	2	5.3.3	ICT services imports, % total trade	119
4.1.2	Domestic credit to private sector, % GDP	1	6.2.1	Labor productivity growth, %	74
4.2.2	Market capitalization, % GDP	1	6.3	Knowledge diffusion	128
4.2.3	Venture capital investors, deals/bn PPP$ GDP	1	6.3.3	High-tech exports, % total trade	121
4.3.1	Applied tariff rate, weighted avg., %	1	6.3.4	ICT services exports, % total trade	102
5.3.2	High-tech imports, % total trade	1	7.2.1	Cultural and creative services exports, % total trade	78
6.2.2	New businesses/th pop. 15–64	1			
7.1.2	Global brand value, top 5,000, % GDP	1			
7.2	Creative goods and services	1			
7.2.4	Printing and other media, % manufacturing	1			
7.2.5	Creative goods exports, % total trade	1			

Hong Kong, China

GII 2021 rank
14

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
17	10	High	SEAO	7.5	439.5	58,165	11

		Score/ Value	Rank	
Institutions		**88.1**	**11**	
1.1	**Political environment**	**86.3**	**12**	
1.1.1	Political and operational stability*	80.4	29	
1.1.2	Government effectiveness*	89.3	8	
1.2	**Regulatory environment**	**96.1**	**4**	
1.2.1	Regulatory quality*	95.3	2	● ◆
1.2.2	Rule of law*	89.0	15	
1.2.3	Cost of redundancy dismissal	8.0	1	● ◆
1.3	**Business environment**	**81.9**	**28**	
1.3.1	Ease of starting a business*	98.2	5	◆
1.3.2	Ease of resolving insolvency*	65.7	41	◇
Human capital and research		**48.6**	**25**	
2.1	**Education**	**58.1**	**37**	
2.1.1	Expenditure on education, % GDP	3.8	76	○ ◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.7	30	
2.1.3	School life expectancy, years	17.2	17	
2.1.4	PISA scales in reading, maths and science	530.7	3	● ◆
2.1.5	Pupil-teacher ratio, secondary	11.0	40	
2.2	**Tertiary education**	**51.1**	**11**	
2.2.1	Tertiary enrolment, % gross	81.0	21	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	14.3	11	
2.3	**Research and development (R&D)**	**36.4**	**30**	◇
2.3.1	Researchers, FTE/mn pop.	◴4,026.6	25	
2.3.2	Gross expenditure on R&D, % GDP	◴ 0.9	42	◇
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	80.5	5	
Infrastructure		**60.3**	**6**	
3.1	**Information and communication technologies (ICTs)**	**89.6**	**[10]**	
3.1.1	ICT access*	94.3	2	● ◆
3.1.2	ICT use*	84.9	11	
3.1.3	Government's online service*	n/a	n/a	
3.1.4	E-participation*	n/a	n/a	
3.2	**General infrastructure**	**35.4**	**39**	◇
3.2.1	Electricity output, GWh/mn pop.	4,905.9	45	
3.2.2	Logistics performance*	86.9	12	
3.2.3	Gross capital formation, % GDP	17.4	101	○ ◇
3.3	**Ecological sustainability**	**55.7**	**4**	◆
3.3.1	GDP/unit of energy use	32.2	1	● ◆
3.3.2	Environmental performance*	n/a	n/a	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.9	46	
Market sophistication		**78.7**	**3**	● ◆
4.1	**Credit**	**87.5**	**2**	● ◆
4.1.1	Ease of getting credit*	75.0	34	
4.1.2	Domestic credit to private sector, % GDP	235.7	1	● ◆
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**75.2**	**6**	◆
4.2.1	Ease of protecting minority investors*	84.0	7	◆
4.2.2	Market capitalization, % GDP	1,223.5	1	● ◆
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.7	1	● ◆
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	33	
4.3	**Trade, diversification, and market scale**	**73.5**	**51**	
4.3.1	Applied tariff rate, weighted avg., %	0.0	1	●
4.3.2	Domestic industry diversification	◴ 73.6	92	○ ◇
4.3.3	Domestic market scale, bn PPP$	439.5	45	

		Score/ Value	Rank	
Business sophistication		**45.2**	**24**	◇
5.1	**Knowledge workers**	**44.6**	**35**	◇
5.1.1	Knowledge-intensive employment, %	◴ 39.0	29	◇
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP	◴ 0.4	43	◇
5.1.4	GERD financed by business, %	49.2	29	
5.1.5	Females employed w/advanced degrees, %	◴ 15.9	44	◇
5.2	**Innovation linkages**	**40.8**	**24**	
5.2.1	University-industry R&D collaboration†	61.3	21	
5.2.2	State of cluster development and depth†	68.3	10	
5.2.3	GERD financed by abroad, % GDP	0.0	58	◇
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.2	7	
5.2.5	Patent families/bn PPP$ GDP	0.8	29	◇
5.3	**Knowledge absorption**	**50.1**	**12**	
5.3.1	Intellectual property payments, % total trade	0.3	81	○ ◇
5.3.2	High-tech imports, % total trade	51.6	1	● ◆
5.3.3	ICT services imports, % total trade	0.3	119	○ ◇
5.3.4	FDI net inflows, % GDP	26.1	4	◆
5.3.5	Research talent, % in businesses	◴ 35.6	37	◇
Knowledge and technology outputs		**21.6**	**62**	◇
6.1	**Knowledge creation**	**24.2**	**[40]**	
6.1.1	Patents by origin/bn PPP$ GDP	0.7	72	◇
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	1.1	21	
6.1.4	Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5	Citable documents H-index	37.3	25	
6.2	**Knowledge impact**	**38.4**	**31**	
6.2.1	Labor productivity growth, %	–0.3	74	○
6.2.2	New businesses/th pop. 15–64	28.6	1	● ◆
6.2.3	Software spending, % GDP	0.4	25	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.6	57	
6.2.5	High-tech manufacturing, %	18.1	66	◇
6.3	**Knowledge diffusion**	**2.3**	**128**	○ ◇
6.3.1	Intellectual property receipts, % total trade	0.1	54	◇
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.1	121	○ ◇
6.3.4	ICT services exports, % total trade	0.4	102	○
Creative outputs		**64.7**	**1**	● ◆
7.1	**Intangible assets**	**64.7**	**4**	◆
7.1.1	Trademarks by origin/bn PPP$ GDP	62.3	32	
7.1.2	Global brand value, top 5,000, % GDP	307.2	1	● ◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	3.2	35	
7.1.4	ICTs and organizational model creation†	67.6	23	
7.2	**Creative goods and services**	**63.7**	**1**	● ◆
7.2.1	Cultural and creative services exports, % total trade	0.1	78	○ ◇
7.2.2	National feature films/mn pop. 15–69	9.3	22	
7.2.3	Entertainment and media market/th pop. 15–69	47.1	19	
7.2.4	Printing and other media, % manufacturing	5.0	1	● ◆
7.2.5	Creative goods exports, % total trade	11.0	1	● ◆
7.3	**Online creativity**	**65.7**	**5**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	74.0	7	
7.3.2	Country-code TLDs/th pop. 15–69	12.2	37	◇
7.3.3	Wikipedia edits/mn pop. 15–69	86.8	4	◆
7.3.4	Mobile app creation/bn PPP$ GDP	84.9	6	◆

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; see Appendix IV for details, including the year of the data, at http://globalinnovationindex.org. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

DATA AVAILABILITY

The following tables list data that are either missing or outdated for Hong Kong.

Missing data for Hong Kong

Code	Indicator name	Economy year	Model year	Source
2.2.2	Graduates in science and engineering, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
3.1.3	Government's online service	n/a	2020	United Nations Public Administration Network
3.1.4	E-participation	n/a	2020	United Nations Public Administration Network
3.3.2	Environmental performance	n/a	2020	Yale University and Columbia University
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2019	World Bank
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
6.1.4	Scientific and technical articles/bn PPP$ GDP	n/a	2020	Clarivate, Web of Science
6.3.2	Production and export complexity	n/a	2018	Growth Lab, Harvard University

Outdated data for Hong Kong

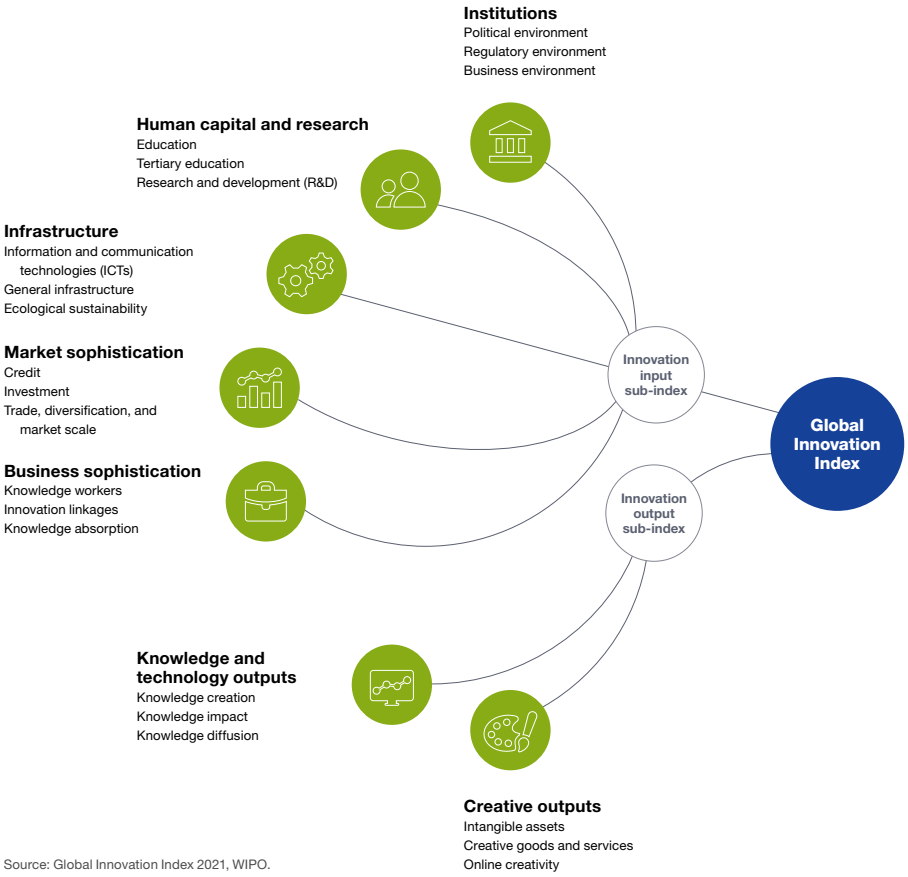
Code	Indicator name	Economy year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.2	Domestic industry diversification	2017	2018	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2016	2019	International Labour Organization

Code	Indicator name	Economy year	Model year	Source
5.1.3	GERD performed by business, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2016	2019	International Labour Organization
5.3.5	Research talent, % in businesses	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a "tool for action" for economies that incorporate the GII into their innovation agendas.



Source: Global Innovation Index 2021, WIPO.

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.