# GLOBAL INNOVATION INDEX 2020

# HONG KONG, CHINA

**11th** Hong Kong (China) ranks 11th among the 131 economies featured in the GII 2020.

**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 (China) 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 (China) in the GII 2020 is between ranks 9 and 18.

### Rankings of Hong Kong, China (2018–2020)

|  | GII | Innovation inputs | Innovation outputs |
|---|---|---|---|
| **2020** | 11 | 7 | 16 |
| **2019** | 13 | 8 | 16 |
| **2018** | 14 | 8 | 21 |

- Hong Kong (China) performs better in innovation inputs than innovation outputs in 2020.
- This year Hong Kong (China) ranks 7th in innovation inputs, higher than last year and higher compared to 2018.
- As for innovation outputs, Hong Kong (China) ranks 16th. This position is the same as last year and higher compared to 2018.

**11th** Hong Kong (China) ranks 11th among the 49 high-income group economies.

**3rd** Hong Kong (China) ranks 3rd 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 (China) is performing above expectations for its level of development.

## The positive relationship between innovation and development



Legend:
▲ GII score
▶ GDP per capita in PPP$ logarithmic scale
● Bubbles sized by population
● Innovation leaders
● Performing above expectations for level of development
● Performing at expectations for level of development
● Performing below expectations for level of development
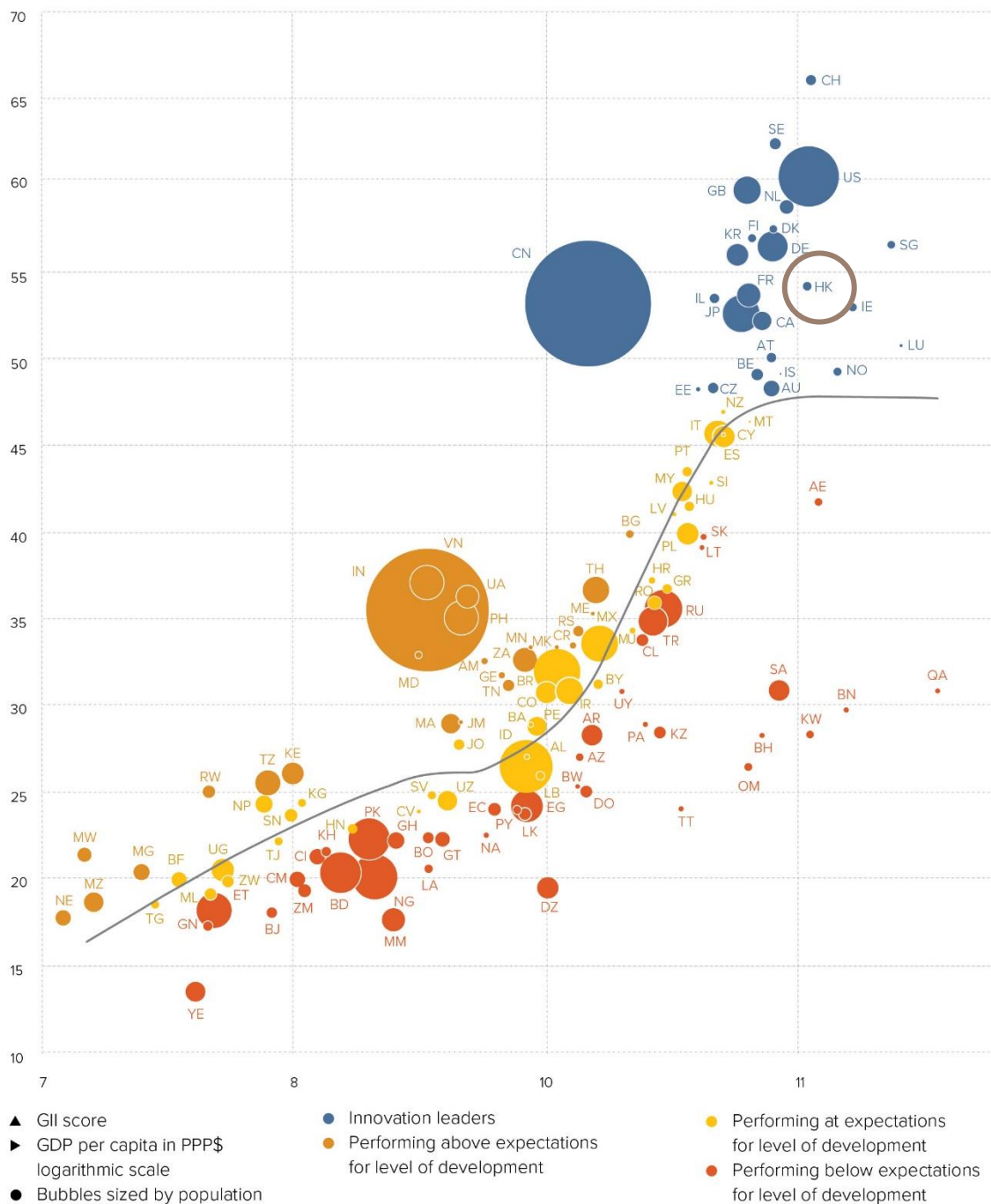
# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

**Innovation input to output performance, 2020**
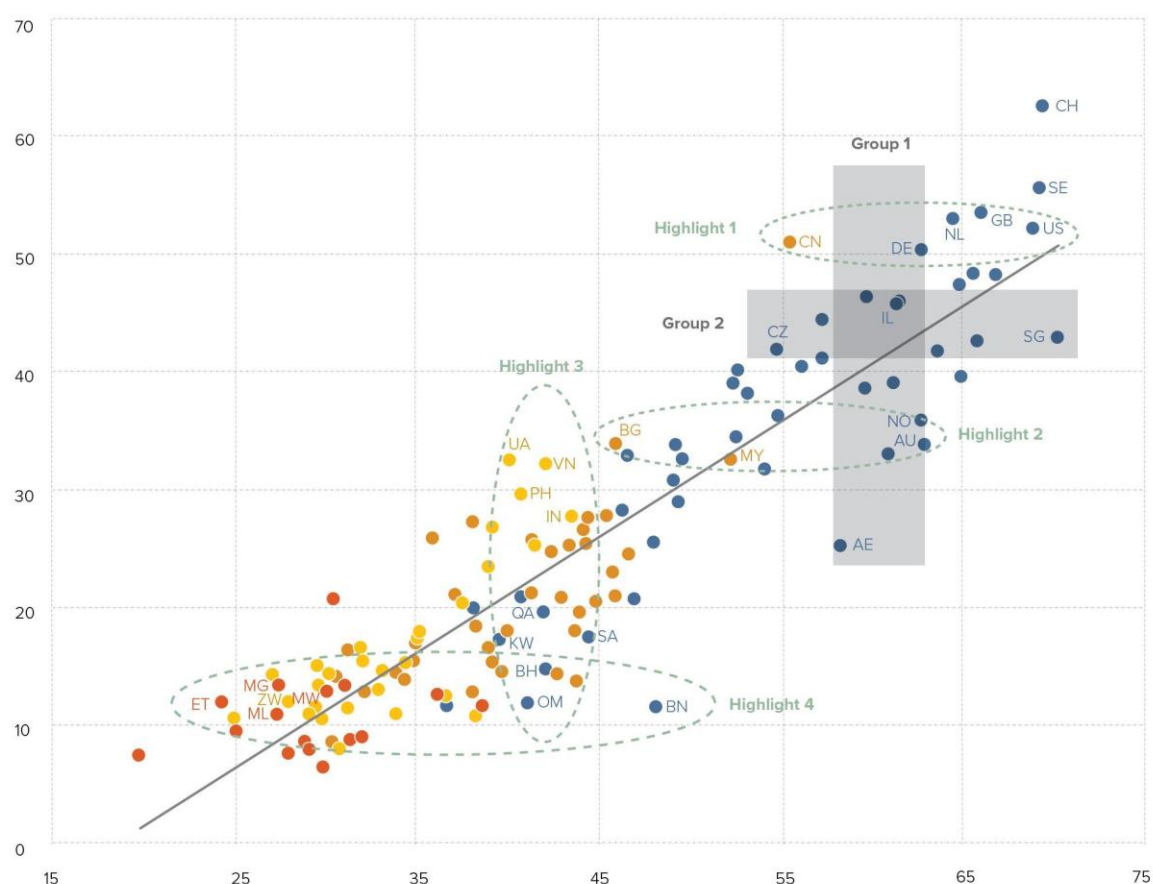


| AU | Australia | IN | India | NL | Netherlands | CH | Switzerland |
| BH | Bahrain | IL | Israel | NO | Norway | UA | Ukraine |
| BN | Brunei Darussalam | KW | Kuwait | OM | Oman | AE | United Arab Emirates |
| BG | Bulgaria | MG | Madagascar | PH | Philippines | GB | United Kingdom |
| CN | China | MW | Malawi | QA | Qatar | US | United States of America |
| CZ | Czech Republic | ML | Mali | SA | Saudi Arabia | VN | Viet Nam |
| ET | Ethiopia | MY | Malaysia | SG | Singapore | ZW | Zimbabwe |
| DE | Germany | | | SE | Sweden | | |

# BENCHMARKING HONG KONG (CHINA) AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

**Hong Kong, China's scores in the seven GII pillars**
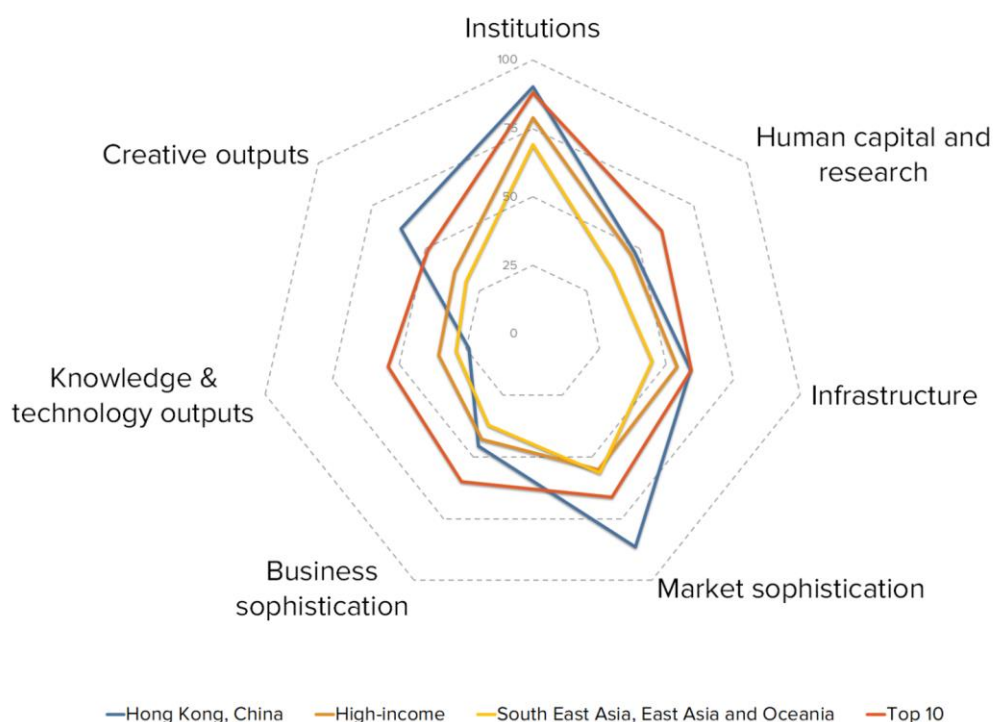


**High-income group economies**

Hong Kong (China) has high scores in six out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, Business sophistication and Creative outputs, which are above average for the high-income group.

Conversely, Hong Kong (China) scores below average for its income group in one pillar: Knowledge & technology outputs.

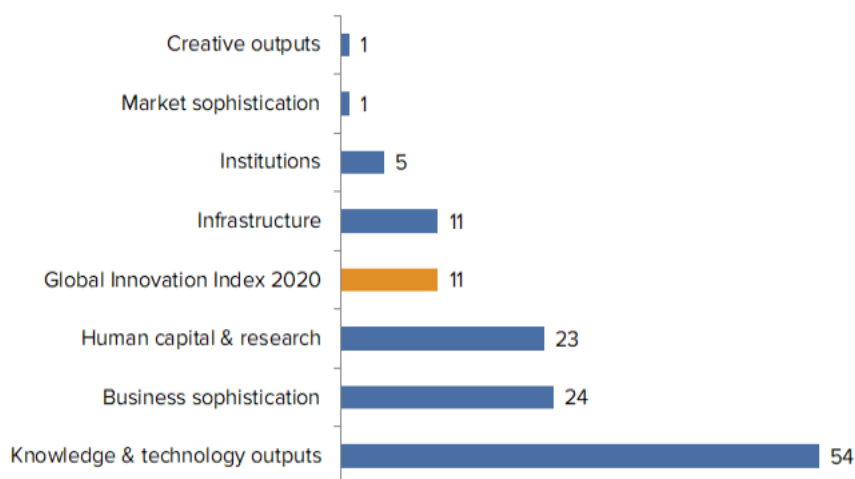**South East Asia, East Asia, and Oceania**

Compared to other economies in South East Asia, East Asia, and Oceania, Hong Kong (China) performs:

- above average in six out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, Business sophistication and Creative outputs; and

- below average in one of the seven GII pillars: Knowledge & technology outputs.

# OVERVIEW OF HONG KONG (CHINA) RANKINGS IN THE SEVEN GII AREAS

Hong Kong (China) performs best in Creative outputs and Market sophistication and its weakest performance is in Knowledge & technology outputs.



| | |
|---|---|
| Creative outputs | 1 |
| Market sophistication | 1 |
| Institutions | 5 |
| Infrastructure | 11 |
| Global Innovation Index 2020 | 11 |
| Human capital & research | 23 |
| Business sophistication | 24 |
| Knowledge & technology outputs | 54 |

*The highest possible ranking in each pillar is 1.

# INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Hong Kong (China) in the GII 2020.

| Strengths | | | Weaknesses | | |
|---|---|---|---|---|---|
| **Code** | **Indicator name** | **Rank** | **Code** | **Indicator name** | **Rank** |
| 1.2 | Regulatory environment | 1 | 2.1.1 | Expenditure on education, % GDP | 91 |
| 1.2.1 | Regulatory quality* | 1 | 2.3.3 | Global R&D companies, top 3, mn US$ | 42 |
| 1.2.3 | Cost of redundancy dismissal, salary weeks | 1 | 3.2.3 | Gross capital formation, % GDP | 103 |
| 2.1.4 | PISA scales in reading, maths & science | 3 | 5.2.3 | GERD financed by abroad, % GDP | 60 |
| 3.1.1 | ICT access* | 2 | 5.3.1 | Intellectual property payments, % total trade | 77 |
| 3.3.1 | GDP/unit of energy use | 1 | 5.3.3 | ICT services imports, % total trade | 115 |
| 4 | Market sophistication | 1 | 6.1.1 | Patents by origin/bn PPP$ GDP | 77 |
| 4.1 | Credit | 2 | 6.2.5 | High- & medium-high-tech manufacturing, % | 87 |
| 4.1.2 | Domestic credit to private sector, % GDP | 1 | 6.3 | Knowledge diffusion | 80 |
| 4.2 | Investment | 1 | 6.3.2 | High-tech net exports, % total trade | 111 |
| 4.2.2 | Market capitalization, % GDP | 1 | 6.3.3 | ICT services exports, % total trade | 101 |
| 4.3.1 | Applied tariff rate, weighted avg., % | 1 | 7.2.1 | Cultural & creative services exports, % total trade | 77 |
| 4.3.2 | Intensity of local competition† | 2 | | | |
| 5.3.2 | High-tech imports, % total trade | 1 | | | |
| 5.3.4 | FDI net inflows, % GDP | 2 | | | |
| 6.2.2 | New businesses/th pop. 15–64 | 1 | | | |
| 6.3.4 | FDI net outflows, % GDP | 1 | | | |
| 7 | Creative outputs | 1 | | | |
| 7.1.2 | Global brand value, top 5,000, % GDP | 1 | | | |
| 7.2 | Creative goods and services | 1 | | | |
| 7.2.4 | Printing & other media, % manufacturing | 1 | | | |
| 7.2.5 | Creative goods exports, % total trade | 1 | | | |

**STRENGTHS**

GII strengths for Hong Kong (China) are found in all seven of the GII pillars.

- Institutions (5): exhibits strengths in the sub-pillar Regulatory environment (1) and in the indicators Regulatory quality (1) and Cost of redundancy dismissal (1).

- Human capital & research (23): the indicator PISA scales in reading, maths & science (3) is a strength.

- Infrastructure (11): demonstrates strength in the indicators ICT access (2) and GDP/unit of energy use (1).

- Market sophistication (1): shows strengths in the sub-pillars Credit (2) and Investment (1) and in the indicators Domestic credit to private sector (1), Market capitalization (1), Applied tariff rate (1) and Intensity of local competition (2).

- Business sophistication (24): displays strengths in the indicators High-tech imports (1) and FDI net inflows (2).

- Knowledge & technology outputs (54): reveals strengths in the indicators New businesses (1) and FDI net outflows (1).

- Creative outputs (1): demonstrates strengths in the sub-pillar Creative goods and services (1) and in the indicators Global brand value (1), Printing and other media (1) and Creative goods exports (1).

**WEAKNESSES**

GII weaknesses for Hong Kong (China) are found in five of the seven GII pillars.

- Human capital & research (23): shows weaknesses in the indicators Expenditure on education (91) and Global R&D companies (42).

- Infrastructure (11): the indicator Gross capital formation (103) is a weakness.

- Business sophistication (24): demonstrates weaknesses in the indicators GERD financed by abroad (60), Intellectual property payments (77) and ICT services imports (115).

- Knowledge & technology outputs (54): displays weaknesses in the sub-pillar Knowledge diffusion (80) and in the indicators Patents by origin (77), High- & medium-high-tech manufacturing (87), High-tech net exports (111) and ICT services exports (101).

- Creative outputs (1): the indicator Cultural & creative services exports (77) is a weakness.

# HONG KONG, CHINA

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP$ | GDP per capita, PPP$ | GII 2019 rank |
|---|---|---|---|---|---|---|---|
| **16** | **7** | **High** | **SEAO** | **7.4** | **490.9** | **56,683.7** | **13** |

| | | Score/Value | Rank | |
|---|---|---|---|---|
| 🏛 | **INSTITUTIONS**..................... | **90.4** | **5** | |
| **1.1** | **Political environment**............... | **90.9** | **7** | |
| 1.1.1 | Political and operational stability*.................... | 87.5 | 11 | |
| 1.1.2 | Government effectiveness*............ | 92.7 | 4 | |
| **1.2** | **Regulatory environment**............ | **98.2** | **1** | ● ◆ |
| 1.2.1 | Regulatory quality*........................ | 100.0 | 1 | ● ◆ |
| 1.2.2 | Rule of law*.................................... | 92.8 | 11 | |
| 1.2.3 | Cost of redundancy dismissal, salary weeks............ | 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 & RESEARCH**.............. | **47.6** | **23** | ◇ |
| **2.1** | **Education**............... | **51.1** | **48** | |
| 2.1.1 | Expenditure on education, % GDP............ | 3.3 | 91 | ○ ◇ |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap........ | 22.0 | 37 | |
| 2.1.3 | School life expectancy, years............ | 16.9 | 18 | |
| 2.1.4 | PISA scales in reading, maths, & science............ | 530.7 | 3 | ● ◆ |
| 2.1.5 | Pupil-teacher ratio, secondary............ | 11.2 | 47 | |
| **2.2** | **Tertiary education**............... | **55.4** | **9** | |
| 2.2.1 | Tertiary enrolment, % gross............ | 76.9 | 22 | |
| 2.2.2 | Graduates in science & engineering, %............ | n/a | n/a | |
| 2.2.3 | Tertiary inbound mobility, %............ | 12.5 | 15 | |
| **2.3** | **Research & development (R&D)**............... | **36.4** | **30** | ◇ |
| 2.3.1 | Researchers, FTE/mn pop............ | 4,026.5 | 25 | ◇ |
| 2.3.2 | Gross expenditure on R&D, % GDP............ | 0.9 | 42 | ◇ |
| 2.3.3 | Global R&D companies, avg. exp. top 3, mn $US............ | 0.0 | 42 | ○ ◇ |
| 2.3.4 | QS university ranking, average score top 3*............ | 80.1 | 5 | |

| | | | | |
|---|---|---|---|---|
| 🛠 | **INFRASTRUCTURE**............... | **59.1** | **11** | |
| **3.1** | **Information & communication technologies (ICTs)**.... | **88.2** | **[17]** | |
| 3.1.1 | ICT access*............ | 92.5 | 2 | ● ◆ |
| 3.1.2 | ICT use*............ | 84.0 | 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**............... | **34.2** | **36** | ◇ |
| 3.2.1 | Electricity output, kWh/mn pop............ | 5,010.4 | 41 | |
| 3.2.2 | Logistics performance*............ | 86.8 | 12 | |
| 3.2.3 | Gross capital formation, % GDP............ | 18.9 | 103 | ○ ◇ |
| **3.3** | **Ecological sustainability**............... | **54.9** | **13** | ◆ |
| 3.3.1 | GDP/unit of energy use............ | 28.6 | 1 | ● ◆ |
| 3.3.2 | Environmental performance*............ | n/a | n/a | |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP....... | 1.2 | 55 | |

| | | | | |
|---|---|---|---|---|
| 📊 | **MARKET SOPHISTICATION**............... | **86.5** | **1** | ● ◆ |
| **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............ | 219.1 | 1 | ● ◆ |
| 4.1.3 | Microfinance gross loans, % GDP............ | n/a | n/a | |
| **4.2** | **Investment**............... | **93.6** | **1** | ● ◆ |
| 4.2.1 | Ease of protecting minority investors*............ | 84.0 | 7 | ◆ |
| 4.2.2 | Market capitalization, % GDP............ | 1,107.2 | 1 | ● ◆ |
| 4.2.3 | Venture capital deals/bn PPP$ GDP............ | 0.5 | 4 | ◆ |
| **4.3** | **Trade, competition, and market scale**............... | **78.5** | **10** | |
| 4.3.1 | Applied tariff rate, weighted avg., %............ | 0.0 | 1 | ● ◆ |
| 4.3.2 | Intensity of local competition+............ | 85.6 | 2 | ● ◆ |
| 4.3.3 | Domestic market scale, bn PPP$............ | 490.9 | 42 | |

| | | | | |
|---|---|---|---|---|
| 🍩 | **BUSINESS SOPHISTICATION**............... | **45.4** | **24** | ◇ |
| **5.1** | **Knowledge workers**............... | **45.2** | **34** | ◇ |
| 5.1.1 | Knowledge-intensive employment, %.⊙............ | 39.0 | 30 | ◇ |
| 5.1.2 | Firms offering formal training, %............ | n/a | n/a | |
| 5.1.3 | GERD performed by business, % GDP............ | 0.4 | 41 | ◇ |
| 5.1.4 | GERD financed by business, %............ | 49.3 | 29 | |
| 5.1.5 | Females employed w/advanced degrees, %.⊙............ | 15.9 | 42 | ◇ |
| **5.2** | **Innovation linkages**............... | **41.4** | **25** | ◇ |
| 5.2.1 | University/industry research collaboration+............ | 65.8 | 18 | |
| 5.2.2 | State of cluster development+............ | 72.1 | 4 | ◆ |
| 5.2.3 | GERD financed by abroad, % GDP............ | 0.0 | 60 | ○ ◇ |
| 5.2.4 | JV-strategic alliance deals/bn PPP$ GDP............ | 0.2 | 10 | |
| 5.2.5 | Patent families 2+ offices/bn PPP$ GDP............ | 0.9 | 28 | ◇ |
| **5.3** | **Knowledge absorption**............... | **49.6** | **14** | |
| 5.3.1 | Intellectual property payments, % total trade.⊙...... | 0.3 | 77 | ○ ◇ |
| 5.3.2 | High-tech imports, % total trade............ | 52.1 | 1 | ● ◆ |
| 5.3.3 | ICT services imports, % total trade.⊙............ | 0.3 | 115 | ○ ◇ |
| 5.3.4 | FDI net inflows, % GDP............ | 34.1 | 2 | ● ◆ |
| 5.3.5 | Research talent, % in business enterprise............ | 35.6 | 36 | ◇ |

| | | | | |
|---|---|---|---|---|
| 📉 | **KNOWLEDGE & TECHNOLOGY OUTPUTS**.... | **23.8** | **54** | ◇ |
| **6.1** | **Knowledge creation**............... | **20.9** | **[47]** | |
| 6.1.1 | Patents by origin/bn PPP$ GDP............ | 0.7 | 77 | ○ ◇ |
| 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 & technical articles/bn PPP$ GDP............ | n/a | n/a | |
| 6.1.5 | Citable documents H-index............ | 36.5 | 26 | |
| **6.2** | **Knowledge impact**............... | **31.0** | **38** | |
| 6.2.1 | Growth rate of PPP$ GDP/worker, %............ | 1.1 | 59 | |
| 6.2.2 | New businesses/th pop. 15-64............ | 28.6 | 1 | ● ◆ |
| 6.2.3 | Computer software spending, % GDP............ | 0.0 | 27 | |
| 6.2.4 | ISO 9001 quality certificates/bn PPP$ GDP............ | 3.7 | 65 | |
| 6.2.5 | High- and medium-high-tech manufacturing, %....... | 8.6 | 87 | ○ ◇ |
| **6.3** | **Knowledge diffusion**............... | **19.5** | **80** | ○ ◇ |
| 6.3.1 | Intellectual property receipts, % total trade.⊙.......... | 0.1 | 56 | ◇ |
| 6.3.2 | High-tech net exports, % total trade............ | 0.1 | 111 | ○ ◇ |
| 6.3.3 | ICT services exports, % total trade.⊙............ | 0.4 | 101 | ○ ◇ |
| 6.3.4 | FDI net outflows, % GDP............ | 24.7 | 1 | ● ◆ |

| | | | | |
|---|---|---|---|---|
| ⚜ | **CREATIVE OUTPUTS**............... | **61.6** | **1** | ● ◆ |
| **7.1** | **Intangible assets**............... | **58.1** | **5** | ◆ |
| 7.1.1 | Trademarks by origin/bn PPP$ GDP............ | 66.0 | 30 | |
| 7.1.2 | Global brand value, top 5,000, % GDP............ | 278.5 | 1 | ● ◆ |
| 7.1.3 | Industrial designs by origin/bn PPP$ GDP............ | 2.6 | 44 | |
| 7.1.4 | ICTs & organizational model creation+............ | 67.6 | 23 | ◇ |
| **7.2** | **Creative goods and services**............... | **64.4** | **1** | ● ◆ |
| 7.2.1 | Cultural & creative services exports, % total trade....... | 0.1 | 77 | ○ ◇ |
| 7.2.2 | National feature films/mn pop. 15-69............ | 9.3 | 22 | |
| 7.2.3 | Entertainment & Media market/th pop. 15-69........ | 51.7 | 16 | |
| 7.2.4 | Printing and other media, % manufacturing............ | 5.0 | 1 | ● ◆ |
| 7.2.5 | Creative goods exports, % total trade............ | 11.1 | 1 | ● ◆ |
| **7.3** | **Online creativity**............... | **65.7** | **7** | |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15-69............ | 72.1 | 8 | |
| 7.3.2 | Country-code TLDs/th pop. 15-69............ | 12.6 | 37 | ◇ |
| 7.3.3 | Wikipedia edits/mn pop. 15-69............ | 87.6 | 10 | |
| 7.3.4 | Mobile app creation/bn PPP$ GDP............ | 91.0 | 5 | ◆ |

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25-ranked GII economies; ◇ a weakness relative to the other top 25-ranked GII economies; * an index; + a survey question. ⊙ indicates that the economy's data are older than the base year; see Appendix II 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 (China).

### Missing data

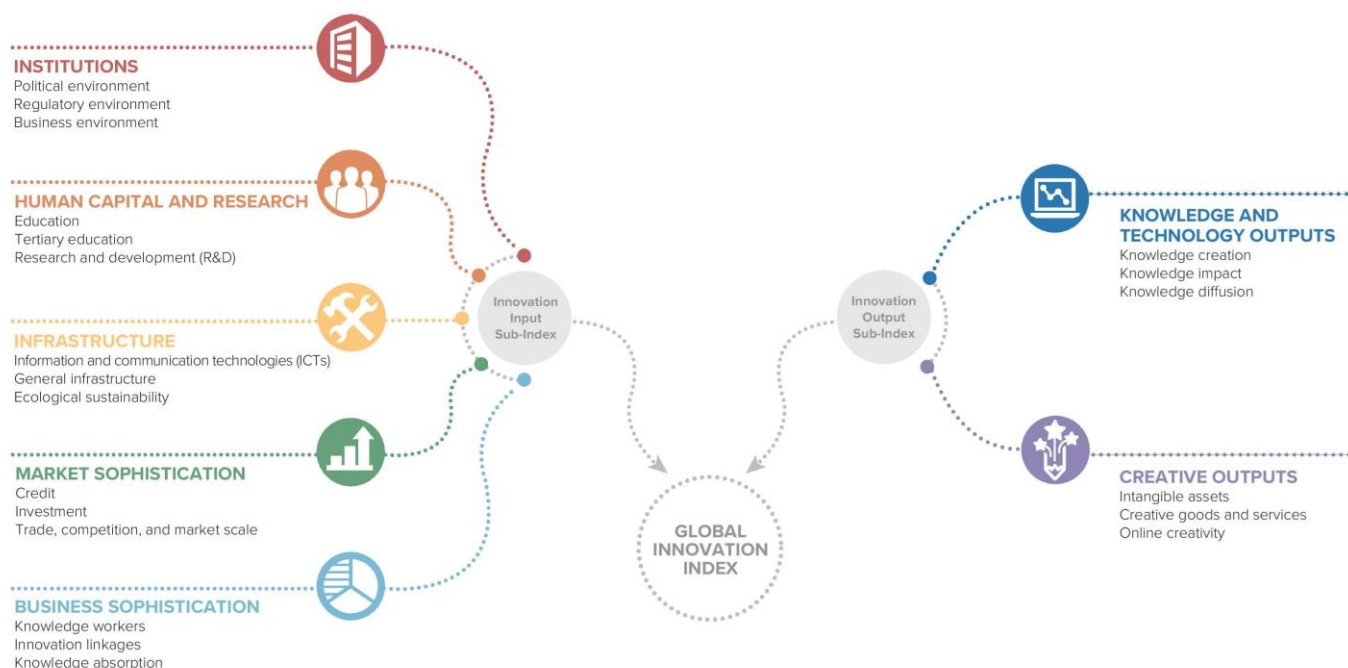| Code | Indicator name | Country year | Model year | Source |
|------|----------------|--------------|------------|--------|
| 2.2.2 | Graduates in science & engineering, % | n/a | 2017 | UNESCO Institute for Statistics |
| 3.1.3 | Government's online service* | n/a | 2018 | United Nations Public Administration Network |
| 3.1.4 | E-participation* | n/a | 2018 | 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 | 2018 | World Bank |
| 6.1.2 | PCT patents by origin/bn PPP$ GDP | n/a | 2019 | World Intellectual Property Organization |
| 6.1.4 | Scientific & technical articles/bn PPP$ GDP | n/a | 2019 | Clarivate Analytics |

### Outdated data

| Code | Indicator name | Country year | Model year | Source |
|------|----------------|--------------|------------|--------|
| 5.1.1 | Knowledge-intensive employment, % | 2016 | 2018 | International Labour Organization |
| 5.1.5 | Females employed w/advanced degrees, % | 2016 | 2018 | International Labour Organization |
| 5.3.1 | Intellectual property payments, % total trade | 2017 | 2018 | World Trade Organization |
| 5.3.3 | ICT services imports, % total trade | 2017 | 2018 | World Trade Organization |
| 6.3.1 | Intellectual property receipts, % total trade | 2017 | 2018 | World Trade Organization |
| 6.3.3 | ICT services exports, % total trade | 2017 | 2018 | World Trade Organization |

# ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

### Framework of the Global Innovation Index 2020

**INSTITUTIONS**
Political environment
Regulatory environment
Business environment

**HUMAN CAPITAL AND RESEARCH**
Education
Tertiary education
Research and development (R&D)

**INFRASTRUCTURE**
Information and communication technologies (ICTs)
General infrastructure
Ecological sustainability

**MARKET SOPHISTICATION**
Credit
Investment
Trade, competition, and market scale

**BUSINESS SOPHISTICATION**
Knowledge workers
Innovation linkages
Knowledge absorption

Innovation Input Sub-Index

Innovation Output Sub-Index

GLOBAL INNOVATION INDEX

**KNOWLEDGE AND TECHNOLOGY OUTPUTS**
Knowledge creation
Knowledge impact
Knowledge diffusion

**CREATIVE OUTPUTS**
Intangible assets
Creative goods and services
Online creativity

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.