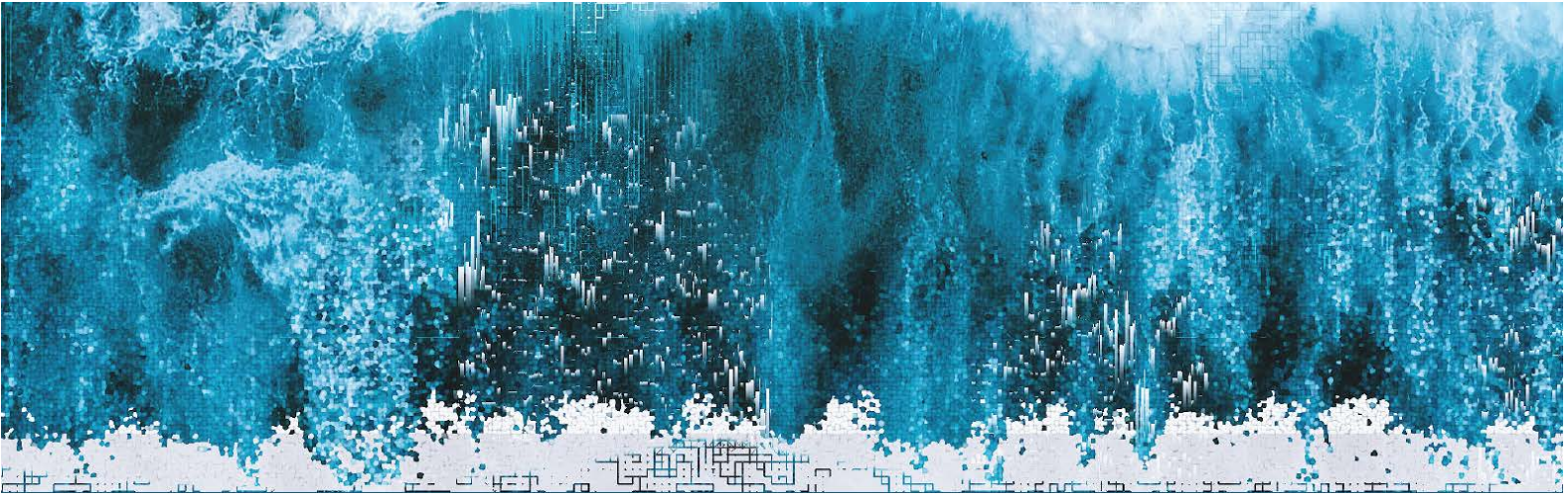


# GLOBAL INNOVATION INDEX 2018

## Hong Kong (China)

**14th** Hong Kong (China) is ranked 14th in the GII 2018, moving up 2 positions from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects Hong Kong (China)'s rankings over time[1].

**Hong Kong (China)'s ranking over time**

| | GII | Input | Output | Efficiency |
|---|---|---|---|---|
| **2018** | 14 | 8 | 21 | 54 |
| **2017** | 16 | 8 | 25 | 73 |
| **2016** | 14 | 2 | 25 | 83 |

- Hong Kong (China) has consistently shown a much better performance in innovation inputs than outputs. It ranked 8th in innovation inputs over the last two years, down six spots from 2016.
- This year Hong Kong (China) improves remarkably in innovation outputs, ranking 21st globally, up from the 25th position it held over 2016 and 2017.
- Thanks to this advancement, Hong Kong (China) substantially improved in the Innovation Efficiency Ratio, moving from the 83rd position in 2016 to the 54th in 2018. Despite this, its efficiency in translating innovation inputs into outputs is still rather low compared to its GII position (14th) and to other economies at the same income level.

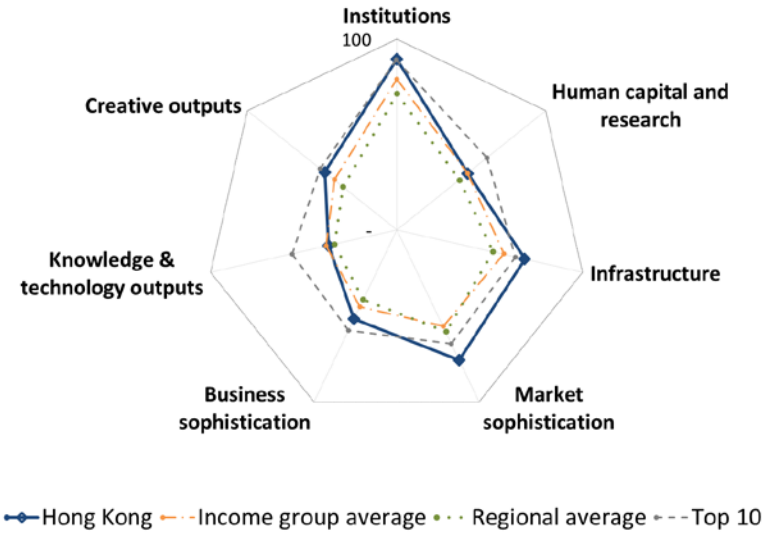
**14th** Hong Kong (China) is ranked 14th among the 47 high-income economies in the GII 2018.

**4th** Hong Kong (China) is ranked 4th among the 15 economies in South East Asia and Oceania.

[1] Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

## Benchmarking Hong Kong (China) to other high-income economies and the South East Asia and Oceania region

Hong Kong (China)'s scores by area




### High-income economies

Hong Kong (China) has high scores in the 6 areas of the GII – **Institutions, Human Capital and Research, Infrastructure, Market Sophistication, Business Sophistication**, and **Creative Outputs** in which it scores above the average of the high-income group.

Top scores in areas such as *Regulatory environment, Tertiary education, Information and Communication Technologies (ICTs), Credit, Knowledge absorption,* and *Intangible assets* are behind these high rankings.

### South East Asia and Oceania region

Compared to other economies in the South East Asia and Oceania region, Hong Kong (China) performs above-average in all 7 GII areas.

## The innovation profile of Hong Kong (China)

### Strengths

- The majority of Hong Kong (China)'s strengths are concentrated in the innovation input side of the GII. Indeed, two of the five GII input areas are identified as comparative strengths: **Infrastructure** (1st) and **Market Sophistication** (2nd).

- In **Infrastructure**, it performs strongly in the area *Ecological sustainability* (2nd) as well as in the indicators *ICT access* (3rd) and *GDP per unit of energy use* (1st).

- In **Market Sophistication** (2nd), Hong Kong (China) exhibits strengths in the area *Credit* (2nd) and four indicators – *Domestic credit to private sector* (2nd), *Market capitalization* (1st), *Applied tariff rate* (1st), and *Intensity of local competition* (3rd).

- Hong Kong (China) also shows strong rankings in **Institutions** (10th), and in particular in the area *Regulatory environment* (3rd) and indicators *Regulatory quality* (2nd), *Cost of redundancy dismissal* (1st), and *Ease of starting a business* (3rd).

- Other strengths are found in **Business Sophistication** (15th), where the area *Knowledge absorption* (3rd) and indicators *Joint Venture-strategic alliance deals*, *High-tech imports*, and *FDI inflows* – all ranking 1st – are all identified as relative strengths for Hong Kong (China).

- Finally, on the innovation input side, another important indicator presents a strong rank: in **Human Capital and Research** (25th), Hong Kong (China) performs strongly in *PISA results* – positioning number 2 in the world.

- On the **innovation output** side, Hong Kong (China) shows strengths in **Knowledge and Technology Outputs** (26th) in indicators *New businesses* and *FDI outflows* – both number 1 globally. In **Creative Outputs** (13th), it performs strongly in *Printing and other media* (1st).

## Weaknesses

- Hong Kong (China) present an equal number of weaknesses on the innovation input and output sides. On the **innovation input** side, these are concentrated in two areas: Human capital and research and Business sophistication.

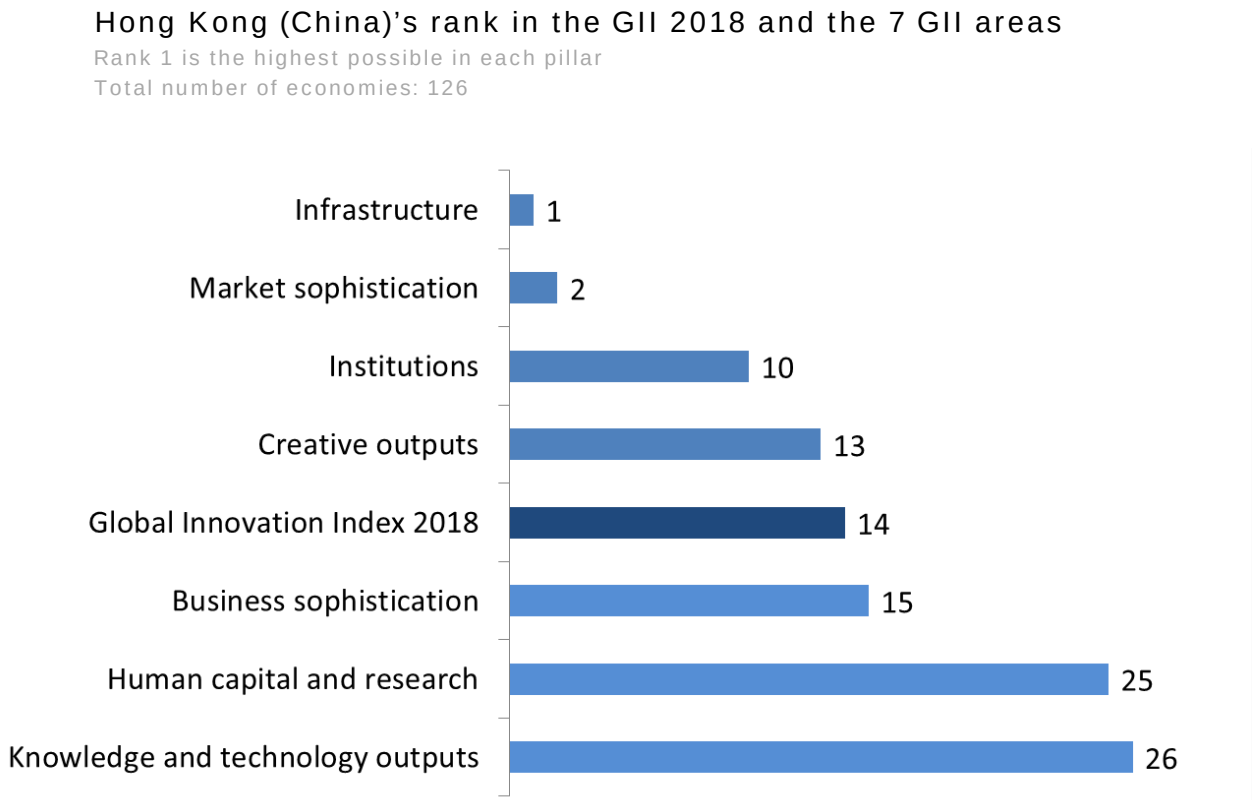
- In **Human Capital and Research** (25th), it presents relative weaknesses in indicators *Expenditure on education* (98th) and *Global R&D companies expenditures* (40th).

- In **Business Sophistication** (15th), weaknesses are highlighted in elements *R&D financed by abroad* (65th), *Intellectual property payments* (75th), and *ICT services imports* (111th).

- On the **innovation output** side, most of the relative weaknesses are found in **Knowledge and Technology Outputs** (25th), where Hong Kong (China) exhibits relative weaknesses in indicators *Patents by origin* (81st), *High- & medium-high-tech manufactures* (76th), *High-tech exports* (113th), and *ICT services exports* (100th).

- In **Creative Outputs** (25th), the only element that is marked as a relative weakness is *Creative goods export* (88th).

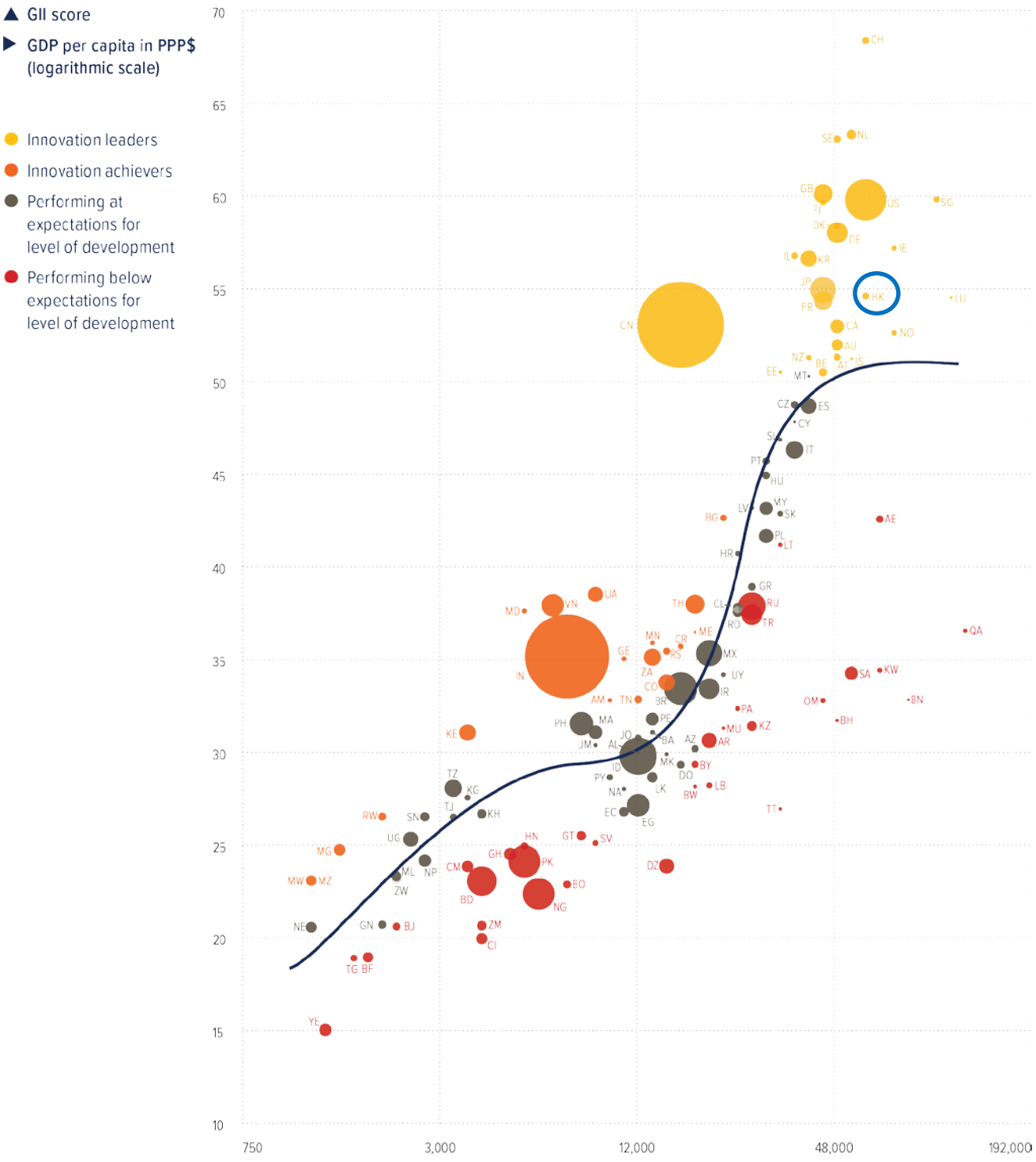
The following figure presents a summary of the rankings of Hong Kong (China) in the 7 GII areas, as well as the overall rank in the GII 2018.



## Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Economies located above the trendline are performing better that what would be expected based on their income level. Economies below the line are Innovation Under-performers relative to GDP.

Relative to GDP, Hong Kong (China) performs well above its expected level of development.



## Missing and Outdated Data

More and better data improve the ability of an economy to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 economies that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for Hong Kong (China) that is not available or that is outdated.

### Missing Data

| Code | Indicator | Country Year | Model Year | Source |
|---|---|---|---|---|
| 2.2.2 | Graduates in science & engineering, % | n/a | 2016 | UNESCO Institute for Statistics |
| 3.1.3 | Government's online service* | n/a | 2016 | UN Public Administration Network, e-Government Survey |
| 3.1.4 | E-participation* | n/a | 2016 | UN Public Administration Network, e-Government Survey |
| 3.3.2 | Environmental performance* | n/a | 2017 | Yale University and Columbia University, Environmental Performance Index |
| 4.1.3 | Microfinance gross loans, % GDP | n/a | 2016 | Microfinance Information Exchange, Mix Market |
| 5.1.2 | Firms offering formal training, % firms | n/a | 2013 | World Bank, Enterprise Surveys |
| 6.1.2 | PCT patents by origin/bn PPP$ GDP | n/a | 2017 | WIPO, Intellectual Property Statistics |
| 6.1.4 | Scientific & technical articles/bn PPP$ GDP | n/a | 2017 | Clarivate Analytics |

### Outdated Data

| Code | Indicator | Country Year | Model Year | Source |
|---|---|---|---|---|
| 6.2.5 | High- & medium-high-tech manufactures, % | 2014 | 2015 | UNIDO, Industrial Statistics |

# HONG KONG (CHINA)

GII 2018 rank **14**

| Output rank | Input rank | Income | Region | Efficiency ratio | Population (mn) | GDP, PPP$ | GDP per capita, PPP$ | GII 2017 rank |
|---|---|---|---|---|---|---|---|---|
| 21 | 8 | High | SEAO | 54 | 7.4 | 453.0 | 61,393.3 | 16 |

| | | Score/Value | Rank | |
|---|---|---|---|---|
| | **Institutions** | **89.4** | **10** | |
| 1.1 | Political environment | 89.0 | 11 | |
| 1.1.1 | Political stability & safety* | 84.1 | 24 | |
| 1.1.2 | Government effectiveness* | 91.4 | 5 | |
| 1.2 | Regulatory environment | 97.4 | 3 | ● |
| 1.2.1 | Regulatory quality* | 99.3 | 2 | ● ◆ |
| 1.2.2 | Rule of law* | 90.4 | 13 | |
| 1.2.3 | Cost of redundancy dismissal, salary weeks | 8.0 | 1 | ● |
| 1.3 | Business environment | 81.9 | 29 | |
| 1.3.1 | Ease of starting a business* | 98.1 | 3 | ● ◆ |
| 1.3.2 | Ease of resolving insolvency* | 65.7 | 40 | ◇ |
| | **Human capital & research** | **47.5** | **25** | ◇ |
| 2.1 | Education | 50.7 | 52 | ◇ |
| 2.1.1 | Expenditure on education, % GDP | 3.3 | 98 | ○ ◇ |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 21.4 | 48 | |
| 2.1.3 | School life expectancy, years | 16.3 | 26 | |
| 2.1.4 | PISA scales in reading, maths & science | 532.6 | 2 | ● ◆ |
| 2.1.5 | Pupil-teacher ratio, secondary | 12.4 | 47 | |
| 2.2 | Tertiary education | 56.1 | 12 | |
| 2.2.1 | Tertiary enrolment, % gross | 71.8 | 22 | |
| 2.2.2 | Graduates in science & engineering, % | n/a | n/a | |
| 2.2.3 | Tertiary inbound mobility, % | 10.7 | 17 | |
| 2.3 | Research & development (R&D) | 35.6 | 31 | ◇ |
| 2.3.1 | Researchers, FTE/mn pop. | 3,404.8 | 26 | ◇ |
| 2.3.2 | Gross expenditure on R&D, % GDP | 0.8 | 43 | ◇ |
| 2.3.3 | Global R&D companies, top 3, mn US$ | 0.0 | 40 | ○ ◇ |
| 2.3.4 | QS university ranking, average score top 3* | 82.9 | 4 | |
| | **Infrastructure** | **68.9** | **1** | ● ◆ |
| 3.1 | Information & communication technologies (ICTs) | 87.2 | 9 | |
| 3.1.1 | ICT access* | 92.2 | 3 | ● ◆ |
| 3.1.2 | ICT use* | 82.1 | 10 | |
| 3.1.3 | Government's online service* | n/a | n/a | |
| 3.1.4 | E-participation* | n/a | n/a | |
| 3.2 | General infrastructure | 49.1 | 31 | |
| 3.2.1 | Electricity output, kWh/cap | 5,202.5 | 40 | |
| 3.2.2 | Logistics performance* | 92.7 | 9 | |
| 3.2.3 | Gross capital formation, % GDP | 21.8 | 72 | |
| 3.3 | Ecological sustainability | 70.5 | 2 | ● ◆ |
| 3.3.1 | GDP/unit of energy use | 27.8 | 1 | ● ◆ |
| 3.3.2 | Environmental performance* | n/a | n/a | |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP | 1.6 | 54 | |
| | **Market sophistication** | **75.7** | **2** | ● ◆ |
| 4.1 | Credit | 82.2 | 2 | ● ◆ |
| 4.1.1 | Ease of getting credit* | 75.0 | 26 | |
| 4.1.2 | Domestic credit to private sector, % GDP | 203.8 | 2 | ● ◆ |
| 4.1.3 | Microfinance gross loans, % GDP | n/a | n/a | |
| 4.2 | Investment | 68.2 | 7 | ◆ |
| 4.2.1 | Ease of protecting minority investors* | 76.7 | 9 | ◆ |
| 4.2.2 | Market capitalization, % GDP | 1,044.6 | 1 | ● ◆ |
| 4.2.3 | Venture capital deals/bn PPP$ GDP | 0.1 | 23 | |
| 4.3 | Trade, competition, & market scale | 76.9 | 14 | |
| 4.3.1 | Applied tariff rate, weighted mean, % | 0.0 | 1 | ● ◆ |
| 4.3.2 | Intensity of local competition† | 86.1 | 3 | ● ◆ |
| 4.3.3 | Domestic market scale, bn PPP$ | 453.0 | 41 | |

| | | Score/Value | Rank | |
|---|---|---|---|---|
| | **Business sophistication** | **52.0** | **15** | |
| 5.1 | Knowledge workers | 50.5 | 35 | ◇ |
| 5.1.1 | Knowledge-intensive employment, % | 39.0 | 28 | |
| 5.1.2 | Firms offering formal training, % firms | n/a | n/a | |
| 5.1.3 | GERD performed by business, % GDP | 0.3 | 42 | ◇ |
| 5.1.4 | GERD financed by business, % | 48.9 | 25 | |
| 5.1.5 | Females employed w/advanced degrees, % | 15.9 | 39 | ◇ |
| 5.2 | Innovation linkages | 48.7 | 17 | |
| 5.2.1 | University/industry research collaboration† | 65.4 | 15 | |
| 5.2.2 | State of cluster development† | 72.4 | 6 | ◆ |
| 5.2.3 | GERD financed by abroad, % | 3.9 | 65 | ○ |
| 5.2.4 | JV–strategic alliance deals/bn PPP$ GDP | 0.3 | 1 | ● ◆ |
| 5.2.5 | Patent families 2+ offices/bn PPP$ GDP | 1.0 | 26 | ◇ |
| 5.3 | Knowledge absorption | 56.7 | 3 | ● |
| 5.3.1 | Intellectual property payments, % total trade | 0.3 | 75 | ○ ◇ |
| 5.3.2 | High-tech net imports, % total trade | 48.6 | 1 | ● ◆ |
| 5.3.3 | ICT services imports, % total trade | 0.3 | 111 | ○ ◇ |
| 5.3.4 | FDI net inflows, % GDP | 46.5 | 1 | ● ◆ |
| 5.3.5 | Research talent, % in business enterprise | 38.0 | 31 | ◇ |
| | **Knowledge & technology outputs** | **36.7** | **26** | ◇ |
| 6.1 | Knowledge creation | 19.6 | 49 | ◇ |
| 6.1.1 | Patents by origin/bn PPP$ GDP | 0.5 | 81 | ○ ◇ |
| 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 | 23 | |
| 6.1.4 | Scientific & technical articles/bn PPP$ GDP | n/a | n/a | |
| 6.1.5 | Citable documents H index | 35.0 | 25 | |
| 6.2 | Knowledge impact | 49.0 | 21 | |
| 6.2.1 | Growth rate of PPP$ GDP/worker, % | 1.4 | 46 | |
| 6.2.2 | New businesses/th pop. 15–64 | 27.3 | 1 | ● ◆ |
| 6.2.3 | Computer software spending, % GDP | 0.4 | 26 | |
| 6.2.4 | ISO 9001 quality certificates/bn PPP$ GDP | 5.2 | 61 | |
| 6.2.5 | High- & medium-high-tech manufactures, %◴ | 0.1 | 76 | ○ ◇ |
| 6.3 | Knowledge diffusion | 41.5 | 18 | |
| 6.3.1 | Intellectual property receipts, % total trade | 0.1 | 55 | ◇ |
| 6.3.2 | High-tech net exports, % total trade | 0.1 | 113 | ○ ◇ |
| 6.3.3 | ICT services exports, % total trade | 0.5 | 100 | ○ |
| 6.3.4 | FDI net outflows, % GDP | 32.0 | 1 | ● ◆ |
| | **Creative outputs** | **48.4** | **13** | |
| 7.1 | Intangible assets | 51.2 | 32 | |
| 7.1.1 | Trademarks by origin/bn PPP$ GDP | 62.9 | 32 | |
| 7.1.2 | Industrial designs by origin/bn PPP$ GDP | 3.0 | 41 | |
| 7.1.3 | ICTs & business model creation† | 74.0 | 25 | |
| 7.1.4 | ICTs & organizational model creation† | 67.9 | 22 | |
| 7.2 | Creative goods & services | 44.9 | 8 | |
| 7.2.1 | Cultural & creative services exports, % total trade | 0.2 | 48 | ◇ |
| 7.2.2 | National feature films/mn pop. 15–69 | 10.4 | 14 | |
| 7.2.3 | Entertainment & Media market/th pop. 15–69 | 59.0 | 12 | |
| 7.2.4 | Printing & other media, % manufacturing | 6.4 | 1 | ● ◆ |
| 7.2.5 | Creative goods exports, % total trade | 0.2 | 88 | ○ ◇ |
| 7.3 | Online creativity | 46.2 | 14 | |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69 | 70.3 | 9 | |
| 7.3.2 | Country-code TLDs/th pop. 15–69 | 13.3 | 34 | ◇ |
| 7.3.3 | Wikipedia edits/mn pop. 15–69 | 84.1 | 11 | |
| 7.3.4 | Mobile app creation/bn PPP$ GDP | 44.5 | 10 | |

**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;** * an index; † a survey question. ◴ indicates that the country'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; see pagepage 75 of this appendix for details.