

| Output rank                               | Input rank   | Income       | Region  | Population (mn) | GDP, PPP\$ | GDP per capita, PPP\$ | GII 2018 rank |
|---|--|--------------|---------|-----------------|------------|-----------------------|---------------|
| 92  | 64   | Upper middle | CSA     | 18.4            | 507.6      | 27,549.8              | 74            |
|   |  |              |         | Score/Value     | Rank       |                       |               |
| <b>INSTITUTIONS</b>                       |  |              |         | 68.3            | 49         |                       |               |
| 1.1                                       | <b>Political environment</b>                               |              | 54.6    | 66              |            |                       |               |
| 1.1.1                                     | Political and operational stability*                       |              | 70.2    | 61              |            |                       |               |
| 1.1.2                                     | Government effectiveness*                                  |              | 46.8    | 69              |            |                       |               |
| 1.2                                       | <b>Regulatory environment</b>                              |              | 70.0    | 53              |            |                       |               |
| 1.2.1                                     | Regulatory quality*  |              | 46.5    | 62              |            |                       |               |
| 1.2.2                                     | Rule of law*   |              | 35.5    | 87              |            |                       |               |
| 1.2.3                                     | Cost of redundancy dismissal, salary weeks                 |              | 8.7     | 19              | ●          |                       |               |
| 1.3                                       | <b>Business environment</b>                                |              | 80.4    | 31              | ● ◆        |                       |               |
| 1.3.1                                     | Ease of starting a business*                               |              | 93.0    | 33              | ●          |                       |               |
| 1.3.2                                     | Ease of resolving insolvency*                              |              | 67.8    | 34              | ● ◆        |                       |               |
| <b>HUMAN CAPITAL &amp; RESEARCH</b>       |  |              |         | 29.8            | 67         |                       |               |
| 2.1                                       | <b>Education</b>   |              | 44.3    | 72              |            |                       |               |
| 2.1.1                                     | Expenditure on education, % GDP                            |              | 2.9     | 105             | ◇          |                       |               |
| 2.1.2                                     | Government funding/pupil, secondary, % GDP/cap             |              | 20.2    | 49              |            |                       |               |
| 2.1.3                                     | School life expectancy, years                              |              | 15.3    | 45              |            |                       |               |
| 2.1.4                                     | PISA scales in reading, maths, & science                   |              | 416.4   | 53              |            |                       |               |
| 2.1.5                                     | Pupil-teacher ratio, secondary                             |              | 7.0     | 2               | ● ◆        |                       |               |
| 2.2                                       | <b>Tertiary education</b>                                  |              | 34.5    | 54              |            |                       |               |
| 2.2.1                                     | Tertiary enrolment, % gross                                |              | 53.3    | 53              |            |                       |               |
| 2.2.2                                     | Graduates in science & engineering, %                      |              | 24.8    | 31              |            |                       |               |
| 2.2.3                                     | Tertiary inbound mobility, %                               |              | 2.2     | 72              |            |                       |               |
| 2.3                                       | <b>Research &amp; development (R&amp;D)</b>                |              | 10.7    | 56              |            |                       |               |
| 2.3.1                                     | Researchers, FTE/mn pop.                                   |              | 687.6   | 59              |            |                       |               |
| 2.3.2                                     | Gross expenditure on R&D, % GDP                            |              | 0.1     | 97              |            |                       |               |
| 2.3.3                                     | Global R&D companies, avg. exp. top 3, mn US\$             |              | 0.0     | 43              | ◇          |                       |               |
| 2.3.4                                     | QS university ranking, average score top 3*                |              | 31.7    | 35              | ●          |                       |               |
| <b>INFRASTRUCTURE</b>                     |  |              |         | 46.1            | 67         |                       |               |
| 3.1                                       | <b>Information &amp; communication technologies (ICTs)</b> |              | 76.2    | 40              | ◆          |                       |               |
| 3.1.1                                     | ICT access*  |              | 75.4    | 41              | ◆          |                       |               |
| 3.1.2                                     | ICT use*   |              | 58.9    | 58              |            |                       |               |
| 3.1.3                                     | Government's online service*                               |              | 86.8    | 32              | ● ◆        |                       |               |
| 3.1.4                                     | E-participation*   |              | 83.7    | 42              |            |                       |               |
| 3.2                                       | <b>General infrastructure</b>                              |              | 35.4    | 63              |            |                       |               |
| 3.2.1                                     | Electricity output, kWh/mn pop.                            |              | 5,990.3 | 34              | ◆          |                       |               |
| 3.2.2                                     | Logistics performance*                                     |              | 34.9    | 70              |            |                       |               |
| 3.2.3                                     | Gross capital formation, % GDP                             |              | 25.5    | 42              |            |                       |               |
| 3.3                                       | <b>Ecological sustainability</b>                           |              | 26.7    | 109             | ◇          |                       |               |
| 3.3.1                                     | GDP/unit of energy use                                     |              | 5.0     | 109             | ◇          |                       |               |
| 3.3.2                                     | Environmental performance*                                 |              | 54.6    | 85              |            |                       |               |
| 3.3.3                                     | ISO 14001 environmental certificates/bn PPP\$ GDP          |              | 0.3     | 99              |            |                       |               |
| <b>MARKET SOPHISTICATION</b>              |  |              |         | 46.3            | 69         |                       |               |
| 4.1                                       | <b>Credit</b>  |              | 26.8    | 102             |            |                       |               |
| 4.1.1                                     | Ease of getting credit*                                    |              | 65.0    | 54              |            |                       |               |
| 4.1.2                                     | Domestic credit to private sector, % GDP                   |              | 29.9    | 95              |            |                       |               |
| 4.1.3                                     | Microfinance gross loans, % GDP                            |              | 0.2     | 46              |            |                       |               |
| 4.2                                       | <b>Investment</b>  |              | 44.9    | 57              |            |                       |               |
| 4.2.1                                     | Ease of protecting minority investors*                     |              | 85.0    | 1               | ● ◆        |                       |               |
| 4.2.2                                     | Market capitalization, % GDP                               |              | 25.4    | 52              |            |                       |               |
| 4.2.3                                     | Venture capital deals/bn PPP\$ GDP                         |              | 0.0     | 75              | ○          |                       |               |
| 4.3                                       | <b>Trade, competition, &amp; market scale</b>              |              | 67.3    | 45              |            |                       |               |
| 4.3.1                                     | Applied tariff rate, weighted avg., %                      |              | 2.4     | 58              |            |                       |               |
| 4.3.2                                     | Intensity of local competition*                            |              | 60.0    | 107             | ◇          |                       |               |
| 4.3.3                                     | Domestic market scale, bn PPP\$                            |              | 507.6   | 40              |            |                       |               |
| <b>BUSINESS SOPHISTICATION</b>            |  |              |         | 28.1            | 78         |                       |               |
| 5.1                                       | <b>Knowledge workers</b>                                   |              | 41.2    | 54              |            |                       |               |
| 5.1.1                                     | Knowledge-intensive employment, %                          |              | 33.3    | 39              | ◆          |                       |               |
| 5.1.2                                     | Firms offering formal training, % firms                    |              | 28.3    | 54              |            |                       |               |
| 5.1.3                                     | GERD performed by business, % GDP                          |              | 0.1     | 68              |            |                       |               |
| 5.1.4                                     | GERD financed by business, %                               |              | 39.6    | 45              |            |                       |               |
| 5.1.5                                     | Females employed w/advanced degrees, %                     |              | 17.5    | 33              |            |                       |               |
| 5.2                                       | <b>Innovation linkages</b>                                 |              | 15.6    | 118             | ○ ◇        |                       |               |
| 5.2.1                                     | University/industry research collaboration†                |              | 40.5    | 67              |            |                       |               |
| 5.2.2                                     | State of cluster development†                              |              | 34.4    | 110             | ◇          |                       |               |
| 5.2.3                                     | GERD financed by abroad, %                                 |              | 1.5     | 85              |            |                       |               |
| 5.2.4                                     | JV-strategic alliance deals/bn PPP\$ GDP                   |              | 0.0     | 74              |            |                       |               |
| 5.2.5                                     | Patent families 2+ offices/bn PPP\$ GDP                    |              | 0.1     | 54              |            |                       |               |
| 5.3                                       | <b>Knowledge absorption</b>                                |              | 27.6    | 92              |            |                       |               |
| 5.3.1                                     | Intellectual property payments, % total trade              |              | 0.3     | 80              |            |                       |               |
| 5.3.2                                     | High-tech imports, % total trade                           |              | 6.5     | 84              |            |                       |               |
| 5.3.3                                     | ICT services imports, % total trade                        |              | 0.6     | 99              |            |                       |               |
| 5.3.4                                     | FDI net inflows, % GDP                                     |              | 6.2     | 22              | ● ◆        |                       |               |
| 5.3.5                                     | Research talent, % in business enterprise                  |              | n/a     | n/a             |            |                       |               |
| <b>KNOWLEDGE &amp; TECHNOLOGY OUTPUTS</b> |  |              |         | 18.2            | 81         |                       |               |
| 6.1                                       | <b>Knowledge creation</b>                                  |              | 10.6    | 68              |            |                       |               |
| 6.1.1                                     | Patents by origin/bn PPP\$ GDP                             |              | 2.4     | 36              |            |                       |               |
| 6.1.2                                     | PCT patents by origin/bn PPP\$ GDP                         |              | 0.0     | 80              |            |                       |               |
| 6.1.3                                     | Utility models by origin/bn PPP\$ GDP                      |              | 1.6     | 16              | ●          |                       |               |
| 6.1.4                                     | Scientific & technical articles/bn PPP\$ GDP               |              | 1.8     | 116             | ○          |                       |               |
| 6.1.5                                     | Citable documents H-index                                  |              | 3.5     | 110             |            |                       |               |
| 6.2                                       | <b>Knowledge impact</b>                                    |              | 29.5    | 96              |            |                       |               |
| 6.2.1                                     | Growth rate of PPP\$ GDP/worker, %                         |              | 3.1     | 23              | ●          |                       |               |
| 6.2.2                                     | New businesses/th pop. 15-64                               |              | 2.2     | 47              |            |                       |               |
| 6.2.3                                     | Computer software spending, % GDP                          |              | 0.0     | 120             | ○ ◇        |                       |               |
| 6.2.4                                     | ISO 9001 quality certificates/bn PPP\$ GDP                 |              | 0.8     | 113             |            |                       |               |
| 6.2.5                                     | High- & medium-high-tech manufactures, %                   |              | 0.1     | 84              |            |                       |               |
| 6.3                                       | <b>Knowledge diffusion</b>                                 |              | 14.7    | 78              |            |                       |               |
| 6.3.1                                     | Intellectual property receipts, % total trade              |              | 0.0     | 99              | ○ ◇        |                       |               |
| 6.3.2                                     | High-tech net exports, % total trade                       |              | 3.6     | 41              |            |                       |               |
| 6.3.3                                     | ICT services exports, % total trade                        |              | 0.2     | 115             | ○          |                       |               |
| 6.3.4                                     | FDI net outflows, % GDP                                    |              | 1.6     | 38              |            |                       |               |
| <b>CREATIVE OUTPUTS</b>                   |  |              |         | 18.4            | 102        | ◇                     |               |
| 7.1                                       | <b>Intangible assets</b>                                   |              | 31.5    | 103             |            |                       |               |
| 7.1.1                                     | Trademarks by origin/bn PPP\$ GDP                          |              | 18.8    | 90              |            |                       |               |
| 7.1.2                                     | Industrial designs by origin/bn PPP\$ GDP                  |              | 0.2     | 98              |            |                       |               |
| 7.1.3                                     | ICTs & business model creation†                            |              | 54.7    | 87              |            |                       |               |
| 7.1.4                                     | ICTs & organizational model creation†                      |              | 48.2    | 87              |            |                       |               |
| 7.2                                       | <b>Creative goods &amp; services</b>                       |              | 6.8     | 96              |            |                       |               |
| 7.2.1                                     | Cultural & creative services exports, % total trade        |              | 0.1     | 91              |            |                       |               |
| 7.2.2                                     | National feature films/mn pop. 15-69                       |              | 6.0     | 37              |            |                       |               |
| 7.2.3                                     | Entertainment & Media market/th pop. 15-69                 |              | n/a     | n/a             |            |                       |               |
| 7.2.4                                     | Printing & other media, % manufacturing                    |              | 0.5     | 92              | ○          |                       |               |
| 7.2.5                                     | Creative goods exports, % total trade                      |              | 0.1     | 93              |            |                       |               |
| 7.3                                       | <b>Online creativity</b>                                   |              | 3.8     | 71              |            |                       |               |
| 7.3.1                                     | Generic top-level domains (TLDs)/th pop. 15-69             |              | 0.3     | 114             | ○          |                       |               |
| 7.3.2                                     | Country-code TLDs/th pop. 15-69                            |              | 3.2     | 60              |            |                       |               |
| 7.3.3                                     | Wikipedia edits/mn pop. 15-69                              |              | 17.3    | 52              |            |                       |               |
| 7.3.4                                     | Mobile app creation/bn PPP\$ GDP                           |              | 0.0     | 90              | ○          |                       |               |

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 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.