

| Output rank                                     | Input rank   | Income      | Region    | Population (mn) | GDP, PPP\$ | GDP per capita, PPP\$ | GII 2019 rank |      |  |
|---|--|-------------|-----------|-----------------|------------|-----------------------|---------------|------|--|
| 21  | 31   | High        | EUR       | 0.4             | 23.0       | 41,386.0              | 27            |      |  |
|   |  | Score/Value | Rank      |                 |            |                       | Score/Value   | Rank |  |
| <b>INSTITUTIONS</b> .....                       |  |             |           | <b>75.6</b>     | <b>34</b>  |                       |               |      |  |
| <b>1.1</b>                                      | <b>Political environment</b> .....                               | <b>75.8</b> | <b>31</b> |                 |            |                       |               |      |  |
| 1.1.1   | Political and operational stability*.....                        | 83.9        | 21        |                 |            |                       |               |      |  |
| 1.1.2   | Government effectiveness*.....                                   | 71.8        | 34        |                 |            |                       |               |      |  |
| <b>1.2</b>                                      | <b>Regulatory environment</b> .....                              | <b>87.8</b> | <b>15</b> |                 |            |                       |               |      |  |
| 1.2.1   | Regulatory quality*.....   | 77.1        | 21        |                 |            |                       |               |      |  |
| 1.2.2   | Rule of law*.....  | 74.1        | 27        |                 |            |                       |               |      |  |
| 1.2.3   | Cost of redundancy dismissal, salary weeks.....                  | 8.0         | 1         | ●               | ◆          |                       |               |      |  |
| <b>1.3</b>                                      | <b>Business environment</b> .....                                | <b>63.3</b> | <b>93</b> | ◇               |            |                       |               |      |  |
| 1.3.1   | Ease of starting a business*.....                                | 88.2        | 69        |                 |            |                       |               |      |  |
| 1.3.2   | Ease of resolving insolvency*.....                               | 38.3        | 105       | ○               | ◇          |                       |               |      |  |
| <b>HUMAN CAPITAL &amp; RESEARCH</b> .....       |  |             |           | <b>33.6</b>     | <b>52</b>  | ◇                     |               |      |  |
| <b>2.1</b>                                      | <b>Education</b> .....   | <b>57.7</b> | <b>21</b> |                 |            |                       |               |      |  |
| 2.1.1   | Expenditure on education, % GDP.....                             | 5.2         | 36        |                 |            |                       |               |      |  |
| 2.1.2   | Government funding/pupil, secondary, % GDP/cap.....              | 29.5        | 14        | ◆               |            |                       |               |      |  |
| 2.1.3   | School life expectancy, years.....                               | 16.1        | 32        |                 |            |                       |               |      |  |
| 2.1.4   | PISA scales in reading, maths, & science.....                    | 458.8       | 42        |                 |            |                       |               |      |  |
| 2.1.5   | Pupil-teacher ratio, secondary.....                              | 7.1         | 2         | ●               | ◆          |                       |               |      |  |
| <b>2.2</b>                                      | <b>Tertiary education</b> .....                                  | <b>34.7</b> | <b>60</b> |                 |            |                       |               |      |  |
| 2.2.1   | Tertiary enrolment, % gross.....                                 | 54.3        | 55        |                 |            |                       |               |      |  |
| 2.2.2   | Graduates in science & engineering, %.....                       | 20.3        | 72        |                 |            |                       |               |      |  |
| 2.2.3   | Tertiary inbound mobility, %.....                                | 8.3         | 26        |                 |            |                       |               |      |  |
| <b>2.3</b>                                      | <b>Research &amp; development (R&amp;D)</b> .....                | <b>8.5</b>  | <b>63</b> | ◇               |            |                       |               |      |  |
| 2.3.1   | Researchers, FTE/mn pop.....                                     | 1,937.4     | 40        |                 |            |                       |               |      |  |
| 2.3.2   | Gross expenditure on R&D, % GDP.....                             | 0.6         | 60        |                 |            |                       |               |      |  |
| 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*.....                 | 0.0         | 77        | ○               | ◇          |                       |               |      |  |
| <b>INFRASTRUCTURE</b> .....                     |  |             |           | <b>54.4</b>     | <b>25</b>  |                       |               |      |  |
| <b>3.1</b>                                      | <b>Information &amp; communication technologies (ICTs)</b> ..... | <b>86.3</b> | <b>19</b> |                 |            |                       |               |      |  |
| 3.1.1   | ICT access*.....   | 91.4        | 5         | ●               | ◆          |                       |               |      |  |
| 3.1.2   | ICT use*.....  | 84.8        | 9         |                 |            |                       |               |      |  |
| 3.1.3   | Government's online service*.....                                | 84.0        | 36        |                 |            |                       |               |      |  |
| 3.1.4   | E-participation*.....  | 84.8        | 39        |                 |            |                       |               |      |  |
| <b>3.2</b>                                      | <b>General infrastructure</b> .....                              | <b>20.9</b> | <b>94</b> | ◇               |            |                       |               |      |  |
| 3.2.1   | Electricity output, kWh/mn pop.....                              | 3,499.0     | 56        |                 |            |                       |               |      |  |
| 3.2.2   | Logistics performance*.....                                      | 34.9        | 68        | ◇               |            |                       |               |      |  |
| 3.2.3   | Gross capital formation, % GDP.....                              | 20.3        | 97        | ○               |            |                       |               |      |  |
| <b>3.3</b>                                      | <b>Ecological sustainability</b> .....                           | <b>56.1</b> | <b>9</b>  | ◆               |            |                       |               |      |  |
| 3.3.1   | GDP/unit of energy use.....                                      | 24.4        | 3         | ●               | ◆          |                       |               |      |  |
| 3.3.2   | Environmental performance*.....                                  | 70.7        | 23        |                 |            |                       |               |      |  |
| 3.3.3   | ISO 14001 environmental certificates/bn PPP\$ GDP.....           | 1.7         | 51        |                 |            |                       |               |      |  |
| <b>MARKET SOPHISTICATION</b> .....              |  |             |           | <b>46.4</b>     | <b>74</b>  |                       |               |      |  |
| <b>4.1</b>                                      | <b>Credit</b> .....  | <b>34.2</b> | <b>94</b> | ◇               |            |                       |               |      |  |
| 4.1.1   | Ease of getting credit*.....                                     | 35.0        | 118       | ○               | ◇          |                       |               |      |  |
| 4.1.2   | Domestic credit to private sector, % GDP.....                    | 77.1        | 40        |                 |            |                       |               |      |  |
| 4.1.3   | Microfinance gross loans, % GDP.....                             | n/a         | n/a       |                 |            |                       |               |      |  |
| <b>4.2</b>                                      | <b>Investment</b> .....  | <b>43.3</b> | <b>43</b> |                 |            |                       |               |      |  |
| 4.2.1   | Ease of protecting minority investors*.....                      | 66.0        | 50        |                 |            |                       |               |      |  |
| 4.2.2   | Market capitalization, % GDP.....                                | 38.0        | 38        |                 |            |                       |               |      |  |
| 4.2.3   | Venture capital deals/bn PPP\$ GDP.....                          | 0.3         | 11        |                 |            |                       |               |      |  |
| <b>4.3</b>                                      | <b>Trade, competition, and market scale</b> .....                | <b>61.6</b> | <b>70</b> |                 |            |                       |               |      |  |
| 4.3.1   | Applied tariff rate, weighted avg., %.....                       | 1.7         | 22        |                 |            |                       |               |      |  |
| 4.3.2   | Intensity of local competition*.....                             | 80.4        | 7         | ◆               |            |                       |               |      |  |
| 4.3.3   | Domestic market scale, bn PPP\$.....                             | 23.0        | 127       | ○               | ◇          |                       |               |      |  |
| <b>BUSINESS SOPHISTICATION</b> .....            |  |             |           | <b>53.1</b>     | <b>13</b>  |                       |               |      |  |
| <b>5.1</b>                                      | <b>Knowledge workers</b> .....                                   | <b>51.9</b> | <b>25</b> |                 |            |                       |               |      |  |
| 5.1.1   | Knowledge-intensive employment, %.....                           | 43.8        | 19        |                 |            |                       |               |      |  |
| 5.1.2   | Firms offering formal training, %.....                           | 49.9        | 17        |                 |            |                       |               |      |  |
| 5.1.3   | GERD performed by business, % GDP.....                           | 0.3         | 46        |                 |            |                       |               |      |  |
| 5.1.4   | GERD financed by business, %.....                                | 56.4        | 16        |                 |            |                       |               |      |  |
| 5.1.5   | Females employed w/advanced degrees, %.....                      | 15.6        | 43        |                 |            |                       |               |      |  |
| <b>5.2</b>                                      | <b>Innovation linkages</b> .....                                 | <b>55.2</b> | <b>11</b> |                 |            |                       |               |      |  |
| 5.2.1   | University/industry research collaboration*.....                 | 45.1        | 52        |                 |            |                       |               |      |  |
| 5.2.2   | State of cluster development*.....                               | 53.1        | 40        |                 |            |                       |               |      |  |
| 5.2.3   | GERD financed by abroad, % GDP.....                              | 0.1         | 46        |                 |            |                       |               |      |  |
| 5.2.4   | JV-strategic alliance deals/bn PPP\$ GDP.....                    | 0.3         | 2         | ●               | ◆          |                       |               |      |  |
| 5.2.5   | Patent families 2+ offices/bn PPP\$ GDP.....                     | 4.3         | 11        |                 |            |                       |               |      |  |
| <b>5.3</b>                                      | <b>Knowledge absorption</b> .....                                | <b>52.2</b> | <b>11</b> |                 |            |                       |               |      |  |
| 5.3.1   | Intellectual property payments, % total trade.....               | 3.3         | 4         | ●               | ◆          |                       |               |      |  |
| 5.3.2   | High-tech imports, % total trade.....                            | 5.7         | 102       | ○               |            |                       |               |      |  |
| 5.3.3   | ICT services imports, % total trade.....                         | 1.2         | 61        |                 |            |                       |               |      |  |
| 5.3.4   | FDI net inflows, % GDP.....                                      | 30.4        | 3         | ●               | ◆          |                       |               |      |  |
| 5.3.5   | Research talent, % in business enterprise.....                   | 52.6        | 20        |                 |            |                       |               |      |  |
| <b>KNOWLEDGE &amp; TECHNOLOGY OUTPUTS</b> ..... |  |             |           | <b>26.8</b>     | <b>49</b>  |                       |               |      |  |
| <b>6.1</b>                                      | <b>Knowledge creation</b> .....                                  | <b>25.5</b> | <b>39</b> |                 |            |                       |               |      |  |
| 6.1.1   | Patents by origin/bn PPP\$ GDP.....                              | 5.1         | 21        |                 |            |                       |               |      |  |
| 6.1.2   | PCT patents by origin/bn PPP\$ GDP.....                          | 1.7         | 20        |                 |            |                       |               |      |  |
| 6.1.3   | Utility models by origin/bn PPP\$ GDP.....                       | n/a         | n/a       |                 |            |                       |               |      |  |
| 6.1.4   | Scientific & technical articles/bn PPP\$ GDP.....                | 9.8         | 52        |                 |            |                       |               |      |  |
| 6.1.5   | Citable documents H-index.....                                   | 6.5         | 93        | ◇               |            |                       |               |      |  |
| <b>6.2</b>                                      | <b>Knowledge impact</b> .....                                    | <b>27.4</b> | <b>54</b> |                 |            |                       |               |      |  |
| 6.2.1   | Growth rate of PPP\$ GDP/worker, %.....                          | -0.5        | 102       | ○               |            |                       |               |      |  |
| 6.2.2   | New businesses/th pop. 15-64.....                                | 17.5        | 6         | ●               | ◆          |                       |               |      |  |
| 6.2.3   | Computer software spending, % GDP.....                           | 0.0         | 33        |                 |            |                       |               |      |  |
| 6.2.4   | ISO 9001 quality certificates/bn PPP\$ GDP.....                  | 8.2         | 31        |                 |            |                       |               |      |  |
| 6.2.5   | High- and medium-high-tech manufacturing, %.....                 | 12.5        | 76        | ◇               |            |                       |               |      |  |
| <b>6.3</b>                                      | <b>Knowledge diffusion</b> .....                                 | <b>27.5</b> | <b>52</b> |                 |            |                       |               |      |  |
| 6.3.1   | Intellectual property receipts, % total trade.....               | 2.1         | 9         |                 |            |                       |               |      |  |
| 6.3.2   | High-tech net exports, % total trade.....                        | 4.4         | 36        |                 |            |                       |               |      |  |
| 6.3.3   | ICT services exports, % total trade.....                         | 0.5         | 98        | ○               |            |                       |               |      |  |
| 6.3.4   | FDI net outflows, % GDP.....                                     | -51.5       | 130       | ○               | ◇          |                       |               |      |  |
| <b>CREATIVE OUTPUTS</b> .....                   |  |             |           | <b>53.5</b>     | <b>4</b>   | ●                     | ◆             |      |  |
| <b>7.1</b>                                      | <b>Intangible assets</b> .....                                   | <b>60.1</b> | <b>4</b>  | ●               | ◆          |                       |               |      |  |
| 7.1.1   | Trademarks by origin/bn PPP\$ GDP.....                           | 117.5       | 7         | ◆               |            |                       |               |      |  |
| 7.1.2   | Global brand value, top 5,000, % GDP.....                        | n/a         | n/a       |                 |            |                       |               |      |  |
| 7.1.3   | Industrial designs by origin/bn PPP\$ GDP.....                   | 12.9        | 9         | ◆               |            |                       |               |      |  |
| 7.1.4   | ICTs & organizational model creation*.....                       | 64.4        | 31        |                 |            |                       |               |      |  |
| <b>7.2</b>                                      | <b>Creative goods and services</b> .....                         | <b>45.6</b> | <b>5</b>  | ●               | ◆          |                       |               |      |  |
| 7.2.1   | Cultural & creative services exports, % total trade.....         | 11.0        | 1         | ●               | ◆          |                       |               |      |  |
| 7.2.2   | National feature films/mn pop. 15-69.....                        | 15.7        | 7         | ◆               |            |                       |               |      |  |
| 7.2.3   | Entertainment & Media market/th pop. 15-69.....                  | 15.6        | 29        | ◇               |            |                       |               |      |  |
| 7.2.4   | Printing and other media, % manufacturing.....                   | 12.9        | 1         | ●               | ◆          |                       |               |      |  |
| 7.2.5   | Creative goods exports, % total trade.....                       | 0.2         | 79        |                 |            |                       |               |      |  |
| <b>7.3</b>                                      | <b>Online creativity</b> .....                                   | <b>48.1</b> | <b>22</b> |                 |            |                       |               |      |  |
| 7.3.1   | Generic top-level domains (TLDs)/th pop. 15-69.....              | 94.9        | 3         | ●               | ◆          |                       |               |      |  |
| 7.3.2   | Country-code TLDs/th pop. 15-69.....                             | 17.9        | 31        |                 |            |                       |               |      |  |
| 7.3.3   | Wikipedia edits/mn pop. 15-69.....                               | 66.6        | 44        |                 |            |                       |               |      |  |
| 7.3.4   | Mobile app creation/bn PPP\$ GDP.....                            | 14.8        | 33        |                 |            |                       |               |      |  |

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.