



# GLOBAL INNOVATION INDEX 2019

## KYRGYZSTAN

**90th**

Kyrgyzstan ranks 90th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Kyrgyzstan over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Kyrgyzstan's ranking in the GII 2019 is between 87 and 99.

### Kyrgyzstan's Rankings, 2017 - 2019

|             | GII | Innovation<br>Inputs | Innovation<br>Outputs |
|-------------|-----|----------------------|-----------------------|
| <b>2019</b> | 90  | 78                   | 111                   |
| <b>2018</b> | 94  | 85                   | 101                   |
| <b>2017</b> | 95  | 86                   | 104                   |

- Kyrgyzstan performs better in Innovation Inputs than Outputs.
- This year Kyrgyzstan ranks 78th in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Kyrgyzstan ranks 111th. This position is worse than last year and compared to 2017.

**13th**

Kyrgyzstan ranks 13th among the 26 lower middle-income economies.

**5th**

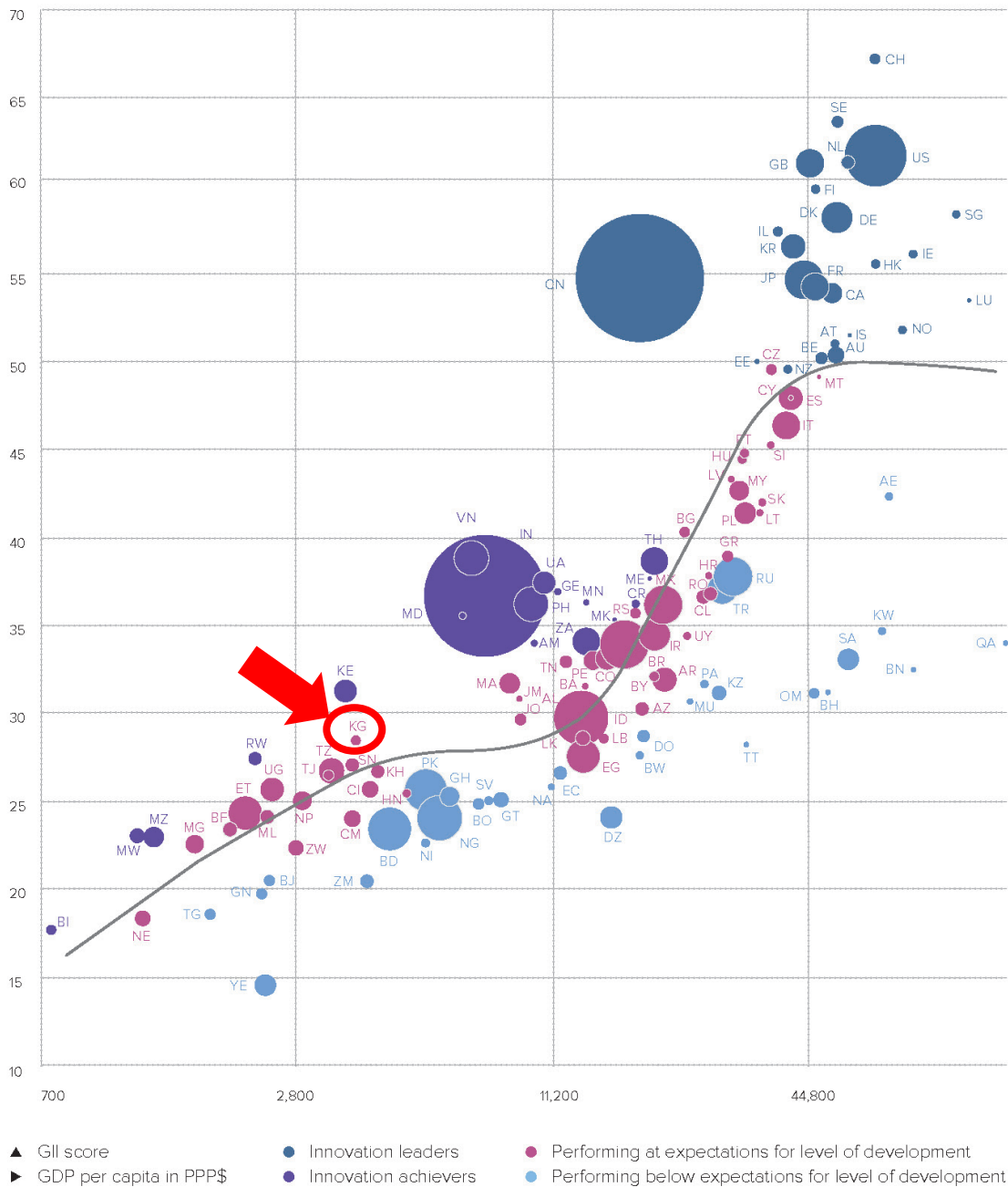
Kyrgyzstan ranks 5th among the 9 economies in Central and Southern Asia.

# 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 considered Innovation under-performers relative to GDP.

Relative to GDP, Kyrgyzstan performs at its expected level of development.

GII scores and GDP per capita in PPP US\$  
(bubbles sized by population)

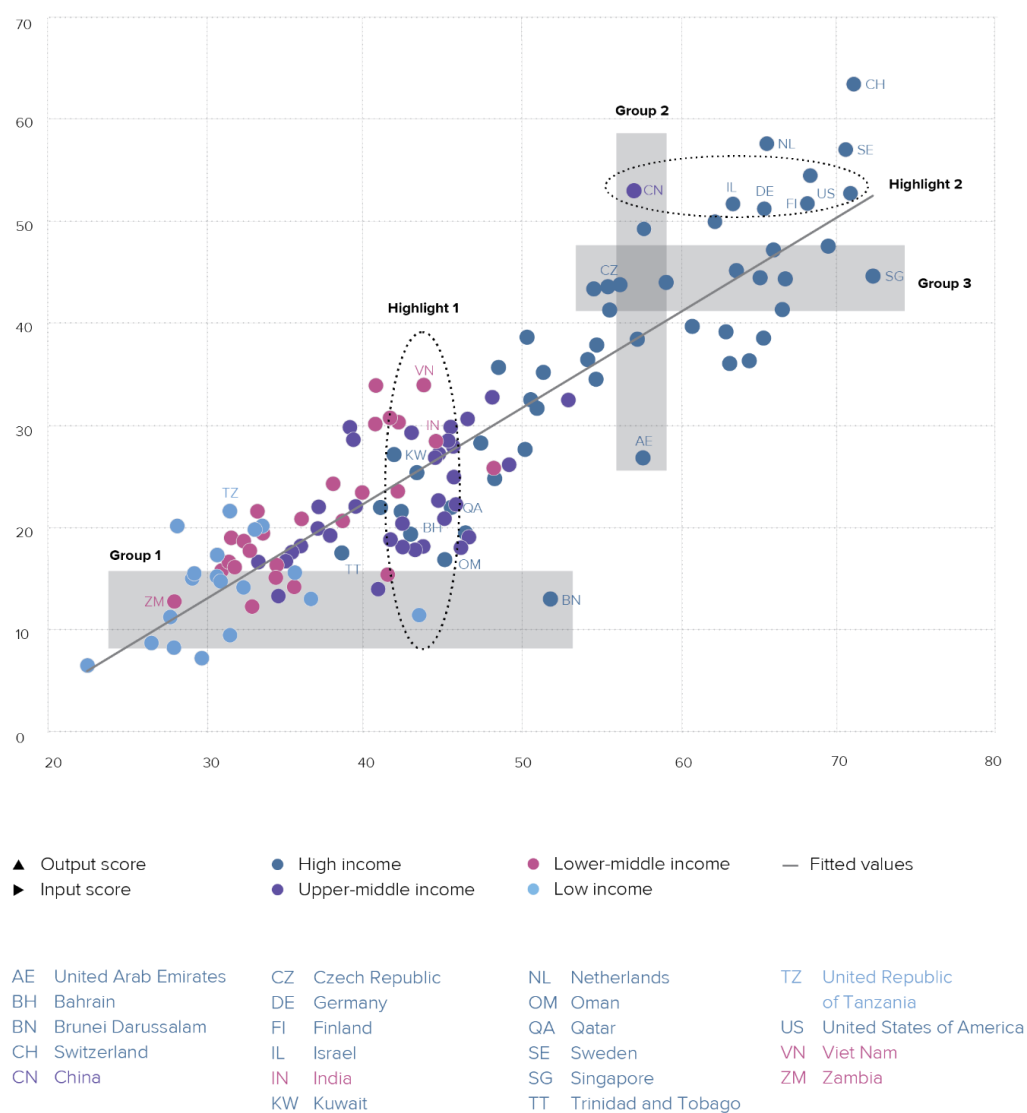


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

Kyrgyzstan produces less innovation outputs relative to its level of innovation investments.

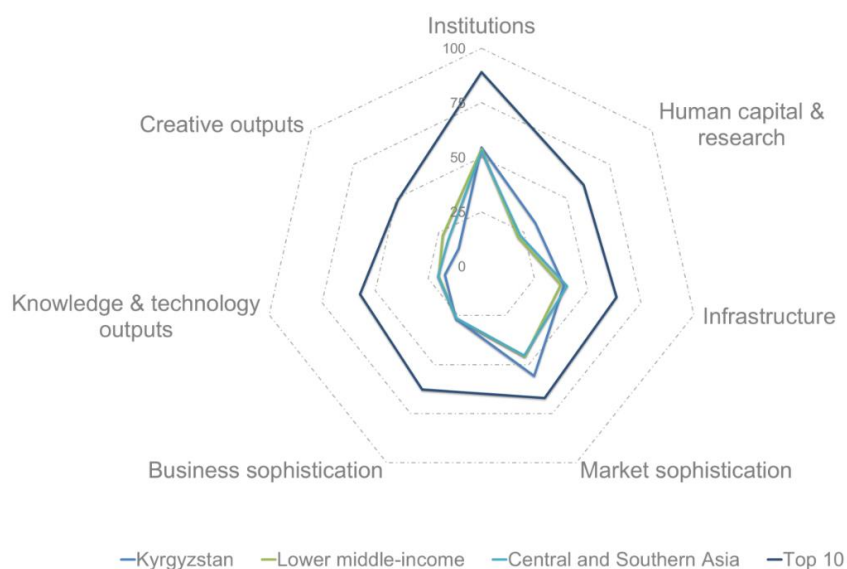
Innovation input/output performance by income group, 2019



Source: Global Innovation Index Database, Cornell, INSEAD, and WIPO, 2019.

# BENCHMARKING KYRGYZSTAN TO OTHER LOWER MIDDLE-INCOME ECONOMIES AND THE CENTRAL AND SOUTHERN ASIA REGION

## Kyrgyzstan's scores in the seven GII pillars



### Lower middle-income economies

Kyrgyzstan has high scores in 5 out of the 7 GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, and Business sophistication, which are above the average of the lower middle-income group.

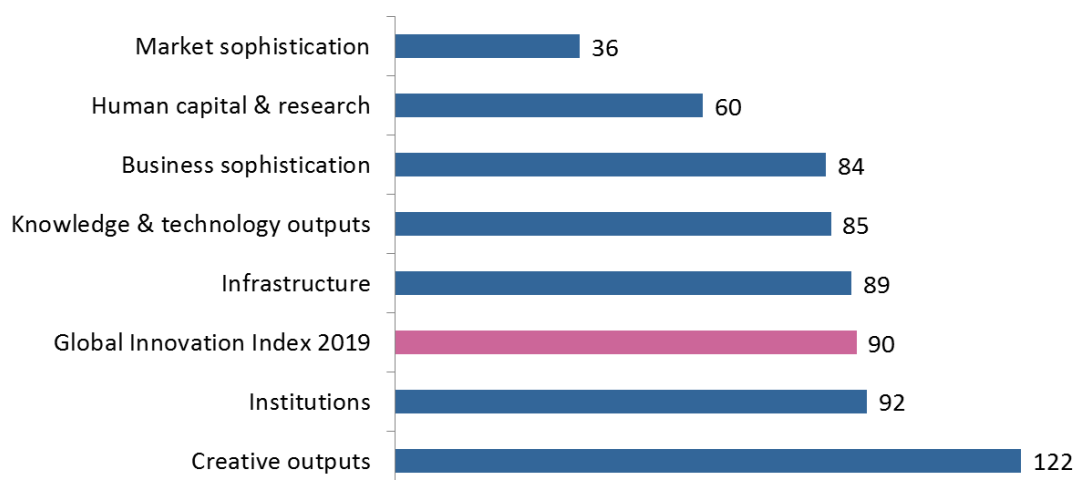
### Central and Southern Asia Region

Compared to other economies in Central and Southern Asia, Kyrgyzstan performs above average in 4 out of the 7 GII pillars: Institutions, Human capital & research, Market sophistication, and Business sophistication.

Top ranks are found in areas such as Business environment, Education, Tertiary education, Credit, Investment, and Knowledge workers where the country ranks in the top 65 worldwide.

## OVERVIEW OF KYRGYZSTAN'S RANKINGS IN THE 7 GII AREAS

Kyrgyzstan performs the best in Market sophistication and its weakest performance is in Creative outputs.



\*The highest possible ranking in each pillar is 1.

## KYRGYZSTAN'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Kyrgyzstan's strengths and weaknesses in the GII 2019.

| Strengths |  |      |
|-----------|--|------|
| Code      | Indicator name                                     | Rank |
| 1.3.1     | Ease of starting a business*                       | 32   |
| 2.1.1     | Expenditure on education, % GDP                    | 9    |
| 2.1.5     | Pupil-teacher ratio, secondary                     | 35   |
| 3.2.3     | Gross capital formation, % GDP                     | 19   |
| 4         | Market sophistication                              | 36   |
| 4.1       | Credit   | 30   |
| 4.1.1     | Ease of getting credit*                            | 29   |
| 4.1.3     | Microfinance gross loans, % GDP                    | 7    |
| 5.1.2     | Firms offering formal training, % firms            | 6    |
| 5.3.4     | FDI net inflows, % GDP, 3-year average             | 17   |
| 6.1.1     | Patents by origin/bn PPP\$ GDP                     | 18   |
| 6.2.1     | Growth rate of PPP\$ GDP/worker, %, 3-year average | 25   |

| Weaknesses |   |      |
|------------|---|------|
| Code       | Indicator name                                    | Rank |
| 2.3.3      | Global R&D companies, top 3, in mn US\$           | 43   |
| 2.3.4      | QS university ranking, average score top 3*       | 78   |
| 3.3.3      | ISO 14001 environmental certificates/bn PPP\$ GDP | 124  |
| 5.2.2      | State of cluster development†                     | 123  |
| 5.2.5      | Patent families 2+ offices/bn PPP\$ GDP           | 93   |
| 6.1.2      | PCT patents by origin/bn PPP\$ GDP                | 99   |
| 6.1.5      | Citable documents H index                         | 125  |
| 6.2.4      | ISO 9001 quality certificates/bn PPP\$ GDP        | 124  |
| 6.2.5      | High- & medium-high-tech manufactures, %          | 100  |
| 7.1        | Intangible assets                                 | 125  |
| 7.1.3      | ICTs & business model creation†                   | 124  |
| 7.2.2      | National feature films/mn pop. 15–69              | 103  |

## **STRENGTHS**

- GII strengths for Kyrgyzstan are found in six of the seven GII pillars, and mostly on the innovation input side of the GII.
- Pillar Market sophistication (36) is a notable strength of Kyrgyzstan.
- In Market sophistication (36), additional strengths are sub-pillar Credit (30) and indicators Ease of getting credit (29) and Microfinance gross loans, where Kyrgyzstan places 7th globally.
- In Institutions (92), Kyrgyzstan's strength is indicator Ease of starting a business (32).
- In Human capital & research (60), relative strengths for this country are indicators Expenditure on education (9) and Pupil-teacher ratio (35).
- In Infrastructure (89), indicator Gross capital formation (19) is a GII strength of Kyrgyzstan.
- In Business sophistication (84), two indicators – Firms offering formal training (6) and FDI inflows (17) – are relative strengths.
- In Knowledge & technology outputs (85), Kyrgyzstan has GII strengths in two indicators: Patents by origin (18) and Labor productivity growth (25).

## **WEAKNESSES**

- Kyrgyzstan's weaknesses in the GII are found in five of the seven GII pillars, and mostly on the innovation output side of the GII.
- In Knowledge & technology outputs (85), relative weaknesses are four indicators: PCT patents by origin (99), Quality of scientific publications (125), ISO 9001 quality certificates (124), and High- & medium-high-tech manufactures (100).
- In Creative outputs (122), Kyrgyzstan's weaknesses are sub-pillar Intangible assets (125) and indicators ICTs & business model creation (124) and National feature films (103).
- In Human capital & research (60), Kyrgyzstan exhibits weaknesses in two important indicators: Global R&D companies (43) and Quality of universities (78).
- In Infrastructure (89), only one weakness for the country is found in indicator ISO 14001 environmental certificates (124).
- In Business sophistication (84), Kyrgyzstan's weaknesses are indicators State of cluster development (123) and Patent families in two or more offices (93).

| Output rank                        | Input rank   | Income       | Region | Population (mn)  | GDP, PPP\$ | GDP per capita, PPP\$ | GII 2018 rank |
|------------------------------------|--|--------------|--------|------------------|------------|-----------------------|---------------|
| 111                                | 78   | Lower middle | CSA    | 6.1              | 24.4       | 3,843.6               | 94            |
|                                    |  |              |        | Score/Value Rank |            |                       |               |
| INSTITUTIONS.....                  |  |              |        | 54.6             | 92         |                       |               |
| 1.1                                | Political environment.....                               |              |        | 37.0             | 117        | ◇                     |               |
| 1.1.1                              | Political and operational stability*.....                |              |        | 52.6             | 118        |                       |               |
| 1.1.2                              | Government effectiveness*.....                           |              |        | 29.2             | 114        |                       |               |
| 1.2                                | Regulatory environment.....                              |              |        | 56.5             | 96         |                       |               |
| 1.2.1                              | Regulatory quality*.....                                 |              |        | 32.6             | 95         |                       |               |
| 1.2.2                              | Rule of law*.....  |              |        | 21.9             | 118        | ◇                     |               |
| 1.2.3                              | Cost of redundancy dismissal, salary weeks.....          |              |        | 17.3             | 71         |                       |               |
| 1.3                                | Business environment.....                                |              |        | 70.3             | 64         |                       |               |
| 1.3.1                              | Ease of starting a business*.....                        |              |        | 93.0             | 32         | ●                     |               |
| 1.3.2                              | Ease of resolving insolvency*.....                       |              |        | 47.6             | 74         |                       |               |
| HUMAN CAPITAL & RESEARCH.....      |  |              |        | 31.7             | 60         | ◆                     |               |
| 2.1                                | Education.....   |              |        | 64.1             | [11]       |                       |               |
| 2.1.1                              | Expenditure on education, % GDP.....                     |              |        | 7.2              | 9          | ● ◆                   |               |
| 2.1.2                              | Government funding/pupil, secondary, % GDP/cap... n/a    |              |        | n/a              | n/a        |                       |               |
| 2.1.3                              | School life expectancy, years.....                       |              |        | 13.4             | 77         |                       |               |
| 2.1.4                              | PISA scales in reading, maths, & science.....            |              |        | n/a              | n/a        |                       |               |
| 2.1.5                              | Pupil-teacher ratio, secondary.....                      |              |        | 10.4             | 35         | ● ◆                   |               |
| 2.2                                | Tertiary education.....                                  |              |        | 30.4             | 65         |                       |               |
| 2.2.1                              | Tertiary enrolment, % gross.....                         |              |        | 43.7             | 67         |                       |               |
| 2.2.2                              | Graduates in science & engineering, %.....               |              |        | 20.5             | 63         |                       |               |
| 2.2.3                              | Tertiary inbound mobility, %.....                        |              |        | 6.4              | 36         | ◆                     |               |
| 2.3                                | Research & development (R&D).....                        |              |        | 0.7              | 111        |                       |               |
| 2.3.1                              | Researchers, FTE/mn pop.....                             |              |        | n/a              | n/a        |                       |               |
| 2.3.2                              | Gross expenditure on R&D, % GDP.....                     |              |        | 0.1              | 104        |                       |               |
| 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*.....         |              |        | 0.0              | 78         | ○ ◇                   |               |
| INFRASTRUCTURE.....                |  |              |        | 38.8             | 89         |                       |               |
| 3.1                                | Information & communication technologies (ICTs) 55.0     |              |        | 85               |            |                       |               |
| 3.1.1                              | ICT access*.....   |              |        | 47.1             | 95         |                       |               |
| 3.1.2                              | ICT use*.....  |              |        | 39.7             | 91         |                       |               |
| 3.1.3                              | Government's online service*.....                        |              |        | 64.6             | 83         |                       |               |
| 3.1.4                              | E-participation*.....                                    |              |        | 68.5             | 73         |                       |               |
| 3.2                                | General infrastructure.....                              |              |        | 34.6             | 66         |                       |               |
| 3.2.1                              | Electricity output, kWh/mn pop.....                      |              |        | 2,181.3          | 74         | ◆                     |               |
| 3.2.2                              | Logistics performance*.....                              |              |        | 22.6             | 100        |                       |               |
| 3.2.3                              | Gross capital formation, % GDP.....                      |              |        | 30.7             | 19         | ●                     |               |
| 3.3                                | Ecological sustainability.....                           |              |        | 26.7             | 110        |                       |               |
| 3.3.1                              | GDP/unit of energy use.....                              |              |        | 5.1              | 108        | ◇                     |               |
| 3.3.2                              | Environmental performance*.....                          |              |        | 54.9             | 83         |                       |               |
| 3.3.3                              | ISO 14001 environmental certificates/bn PPP\$ GDP..      |              |        | 0.1              | 124        | ○ ◇                   |               |
| MARKET SOPHISTICATION.....         |  |              |        | 55.6             | 36         | ● ◆                   |               |
| 4.1                                | Credit.....  |              |        | 51.2             | 30         | ●                     |               |
| 4.1.1                              | Ease of getting credit*.....                             |              |        | 75.0             | 29         | ●                     |               |
| 4.1.2                              | Domestic credit to private sector, % GDP.....            |              |        | 21.8             | 110        |                       |               |
| 4.1.3                              | Microfinance gross loans, % GDP.....                     |              |        | 4.1              | 7          | ● ◆                   |               |
| 4.2                                | Investment.....  |              |        | 66.7             | [12]       |                       |               |
| 4.2.1                              | Ease of protecting minority investors*.....              |              |        | 66.7             | 35         |                       |               |
| 4.2.2                              | Market capitalization, % GDP.....                        |              |        | n/a              | n/a        |                       |               |
| 4.2.3                              | Venture capital deals/bn PPP\$ GDP.....                  |              |        | n/a              | n/a        |                       |               |
| 4.3                                | Trade, competition, & market scale.....                  |              |        | 49.0             | 110        |                       |               |
| 4.3.1                              | Applied tariff rate, weighted avg., %.....               |              |        | 2.9              | 63         |                       |               |
| 4.3.2                              | Intensity of local competition*.....                     |              |        | 56.5             | 118        | ◇                     |               |
| 4.3.3                              | Domestic market scale, bn PPP\$.....                     |              |        | 24.4             | 122        | ◇                     |               |
| BUSINESS SOPHISTICATION.....       |  |              |        | 26.7             | 84         |                       |               |
| 5.1                                | Knowledge workers.....                                   |              |        | 37.3             | 62         |                       |               |
| 5.1.1                              | Knowledge-intensive employment, %.....                   |              |        | 18.5             | 78         |                       |               |
| 5.1.2                              | Firms offering formal training, % firms.....             |              |        | 62.7             | 6          | ● ◆                   |               |
| 5.1.3                              | GERD performed by business, % GDP.....                   |              |        | 0.0              | 77         |                       |               |
| 5.1.4                              | GERD financed by business, %.....                        |              |        | 6.4              | 78         |                       |               |
| 5.1.5                              | Females employed w/advanced degrees, %.....              |              |        | 10.8             | 61         |                       |               |
| 5.2                                | Innovation linkages.....                                 |              |        | 13.9             | 121        |                       |               |
| 5.2.1                              | University/industry research collaboration*.....         |              |        | 27.6             | 112        |                       |               |
| 5.2.2                              | State of cluster development*.....                       |              |        | 29.1             | 123        | ○ ◇                   |               |
| 5.2.3                              | GERD financed by abroad, %.....                          |              |        | 3.1              | 70         |                       |               |
| 5.2.4                              | JV-strategic alliance deals/bn PPP\$ GDP.....            |              |        | n/a              | n/a        |                       |               |
| 5.2.5                              | Patent families 2+ offices/bn PPP\$ GDP.....             |              |        | 0.0              | 93         | ○ ◇                   |               |
| 5.3                                | Knowledge absorption.....                                |              |        | 28.9             | 88         |                       |               |
| 5.3.1                              | Intellectual property payments, % total trade.....       |              |        | 0.2              | 91         |                       |               |
| 5.3.2                              | High-tech imports, % total trade.....                    |              |        | 7.1              | 70         |                       |               |
| 5.3.3                              | ICT services imports, % total trade.....                 |              |        | 0.6              | 95         |                       |               |
| 5.3.4                              | FDI net inflows, % GDP.....                              |              |        | 8.3              | 17         | ●                     |               |
| 5.3.5                              | Research talent, % in business enterprise.....           |              |        | n/a              | n/a        |                       |               |
| KNOWLEDGE & TECHNOLOGY OUTPUTS.... |  |              |        | 17.3             | 85         |                       |               |
| 6.1                                | Knowledge creation.....                                  |              |        | 10.3             | 70         |                       |               |
| 6.1.1                              | Patents by origin/bn PPP\$ GDP.....                      |              |        | 6.0              | 18         | ● ◆                   |               |
| 6.1.2                              | PCT patents by origin/bn PPP\$ GDP.....                  |              |        | 0.0              | 99         | ○ ◇                   |               |
| 6.1.3                              | Utility models by origin/bn PPP\$ GDP.....               |              |        | 0.9              | 26         |                       |               |
| 6.1.4                              | Scientific & technical articles/bn PPP\$ GDP.....        |              |        | 3.2              | 99         |                       |               |
| 6.1.5                              | Citable documents H-index.....                           |              |        | 1.4              | 125        | ○ ◇                   |               |
| 6.2                                | Knowledge impact.....                                    |              |        | 28.3             | 98         |                       |               |
| 6.2.1                              | Growth rate of PPP\$ GDP/worker, %.....                  |              |        | 2.9              | 25         | ●                     |               |
| 6.2.2                              | New businesses/th pop. 15-64.....                        |              |        | 1.3              | 65         |                       |               |
| 6.2.3                              | Computer software spending, % GDP.....                   |              |        | 0.1              | 90         |                       |               |
| 6.2.4                              | ISO 9001 quality certificates/bn PPP\$ GDP.....          |              |        | 0.3              | 124        | ○ ◇                   |               |
| 6.2.5                              | High- & medium-high-tech manufactures, %.....            |              |        | 0.0              | 100        | ○ ◇                   |               |
| 6.3                                | Knowledge diffusion.....                                 |              |        | 13.2             | 83         |                       |               |
| 6.3.1                              | Intellectual property receipts, % total trade.....       |              |        | 0.0              | 66         |                       |               |
| 6.3.2                              | High-tech net exports, % total trade.....                |              |        | 2.3              | 51         |                       |               |
| 6.3.3                              | ICT services exports, % total trade.....                 |              |        | 1.0              | 82         |                       |               |
| 6.3.4                              | FDI net outflows, % GDP.....                             |              |        | 0.7              | 58         |                       |               |
| CREATIVE OUTPUTS.....              |  |              |        | 13.3             | 122        | ◇                     |               |
| 7.1                                | Intangible assets.....                                   |              |        | 23.1             | 125        | ○ ◇                   |               |
| 7.1.1                              | Trademarks by origin/bn PPP\$ GDP.....                   |              |        | 22.4             | 84         |                       |               |
| 7.1.2                              | Industrial designs by origin/bn PPP\$ GDP.....           |              |        | 0.5              | 85         |                       |               |
| 7.1.3                              | ICTs & business model creation*.....                     |              |        | 36.5             | 124        | ○ ◇                   |               |
| 7.1.4                              | ICTs & organizational model creation*.....               |              |        | 34.8             | 120        | ◇                     |               |
| 7.2                                | Creative goods & services.....                           |              |        | 5.5              | 99         |                       |               |
| 7.2.1                              | Cultural & creative services exports, % total trade..... |              |        | 0.4              | 59         |                       |               |
| 7.2.2                              | National feature films/mn pop. 15-69.....                |              |        | 0.3              | 103        | ○                     |               |
| 7.2.3                              | Entertainment & Media market/th pop. 15-69.....          |              |        | n/a              | n/a        |                       |               |
| 7.2.4                              | Printing & other media, % manufacturing.....             |              |        | 0.7              | 81         |                       |               |
| 7.2.5                              | Creative goods exports, % total trade.....               |              |        | 0.1              | 99         |                       |               |
| 7.3                                | Online creativity.....                                   |              |        | 1.5              | 95         |                       |               |
| 7.3.1                              | Generic top-level domains (TLDs)/th pop. 15-69.....      |              |        | 0.2              | 116        | ◇                     |               |
| 7.3.2                              | Country-code TLDs/th pop. 15-69.....                     |              |        | 0.8              | 86         |                       |               |
| 7.3.3                              | Wikipedia edits/mn pop. 15-69.....                       |              |        | 7.3              | 69         |                       |               |
| 7.3.4                              | Mobile app creation/bn PPP\$ GDP.....                    |              |        | 0.1              | 85         |                       |               |

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.



## DATA AVAILABILITY

The following tables list data that are missing or are outdated for Kyrgyzstan.

### Missing data

| Code  | Indicator name                                 | Country year | Model year | Source   |
|-------|--|--------------|------------|--|
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | n/a          | 2015       | UNESCO Institute for Statistics  |
| 2.1.4 | PISA scales in reading, maths & science        | n/a          | 2015       | OECD Programme for International Student Assessment (PISA)                               |
| 2.3.1 | Researchers, FTE/mn pop.                       | n/a          | 2017       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 4.2.2 | Market capitalization, % GDP                   | n/a          | 2017       | World Federation of Exchanges  |
| 4.2.3 | Venture capital deals/bn PPP\$ GDP             | n/a          | 2018       | Thomson Reuters  |
| 5.2.4 | JV–strategic alliance deals/bn PPP\$ GDP       | n/a          | 2018       | Thomson Reuters  |
| 5.3.5 | Research talent, % in business enterprise      | n/a          | 2017       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 7.2.3 | Entertainment & Media market/th pop. 15–69     | n/a          | 2017       | PwC  |

### Outdated data

| Code  | Indicator name                         | Country year | Model year | Source                            |
|-------|--|--------------|------------|-----------------------------------|
| 5.1.5 | Females employed w/advanced degrees, % | 2013         | 2017       | International Labour Organization |
| 7.3.3 | Wikipedia edits/mn pop. 15–69          | 2014         | 2017       | Wikimedia Foundation              |

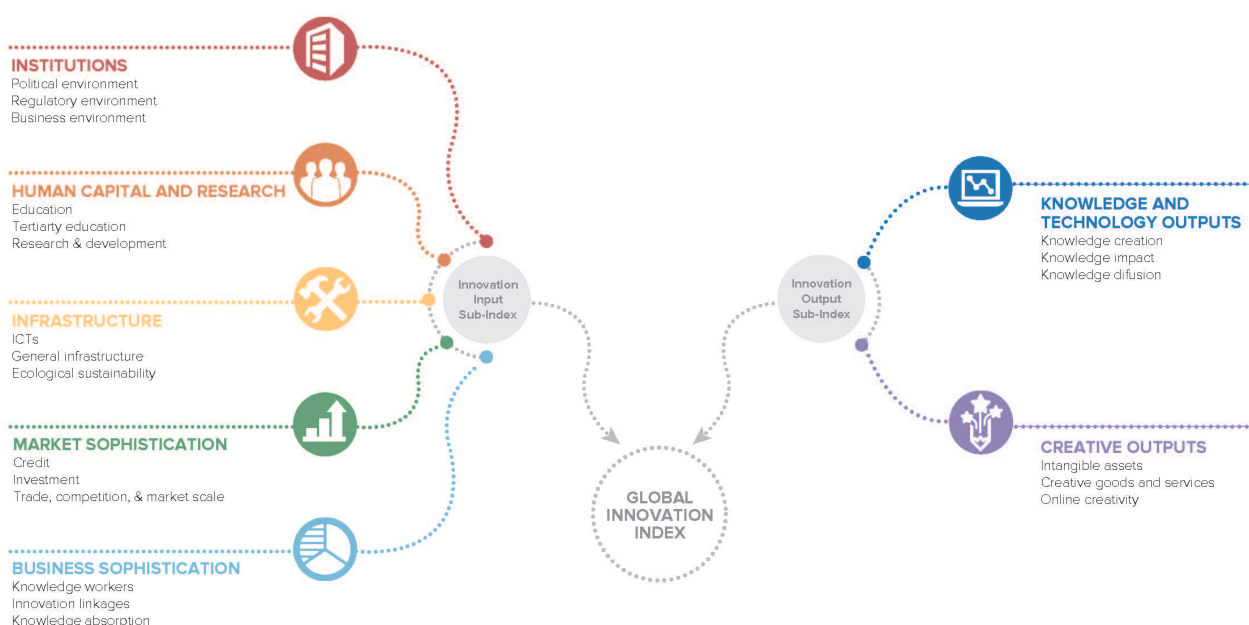


# ABOUT THE GLOBAL INNOVATION INDEX

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 2019, the GII presents its 12<sup>th</sup> edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.



[www.globalinnovationindex.org](http://www.globalinnovationindex.org)



GII app for iOS



GII app for android