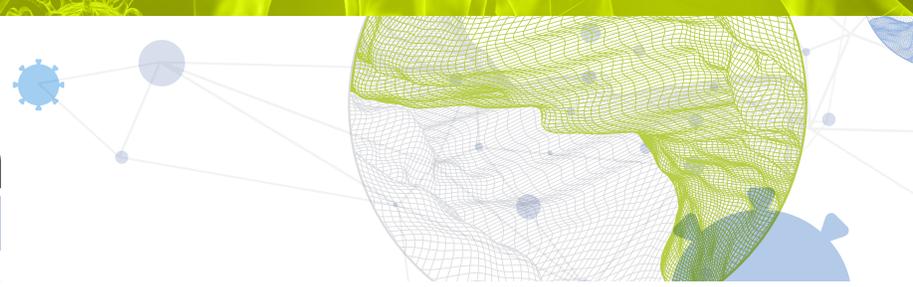




# Global Innovation Index 2021



## ARMENIA

**69th**

Armenia ranks 69th among the 132 economies featured in the GII 2021.

The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.

The following table shows the rankings of Armenia over the past three years, noting that data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Armenia in the GII 2021 is between ranks 64 and 71.

### Rankings for Armenia (2019–2021)

|      | GII | Innovation inputs | Innovation outputs |
|------|-----|-------------------|--------------------|
| 2021 | 69  | 85                | 56                 |
| 2020 | 61  | 83                | 47                 |
| 2019 | 64  | 85                | 50                 |

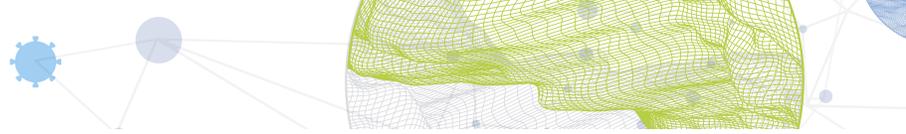
- Armenia performs better in innovation outputs than innovation inputs in 2021.
- This year Armenia ranks 85th in innovation inputs, lower than last year but the same as 2019.
- As for innovation outputs, Armenia ranks 56th. This position is lower than both 2020 and 2019.

**18th**

Armenia ranks 18th among the 34 upper middle-income group economies.

**8th**

Armenia ranks 8th among the 19 economies in Northern Africa and Western Asia.

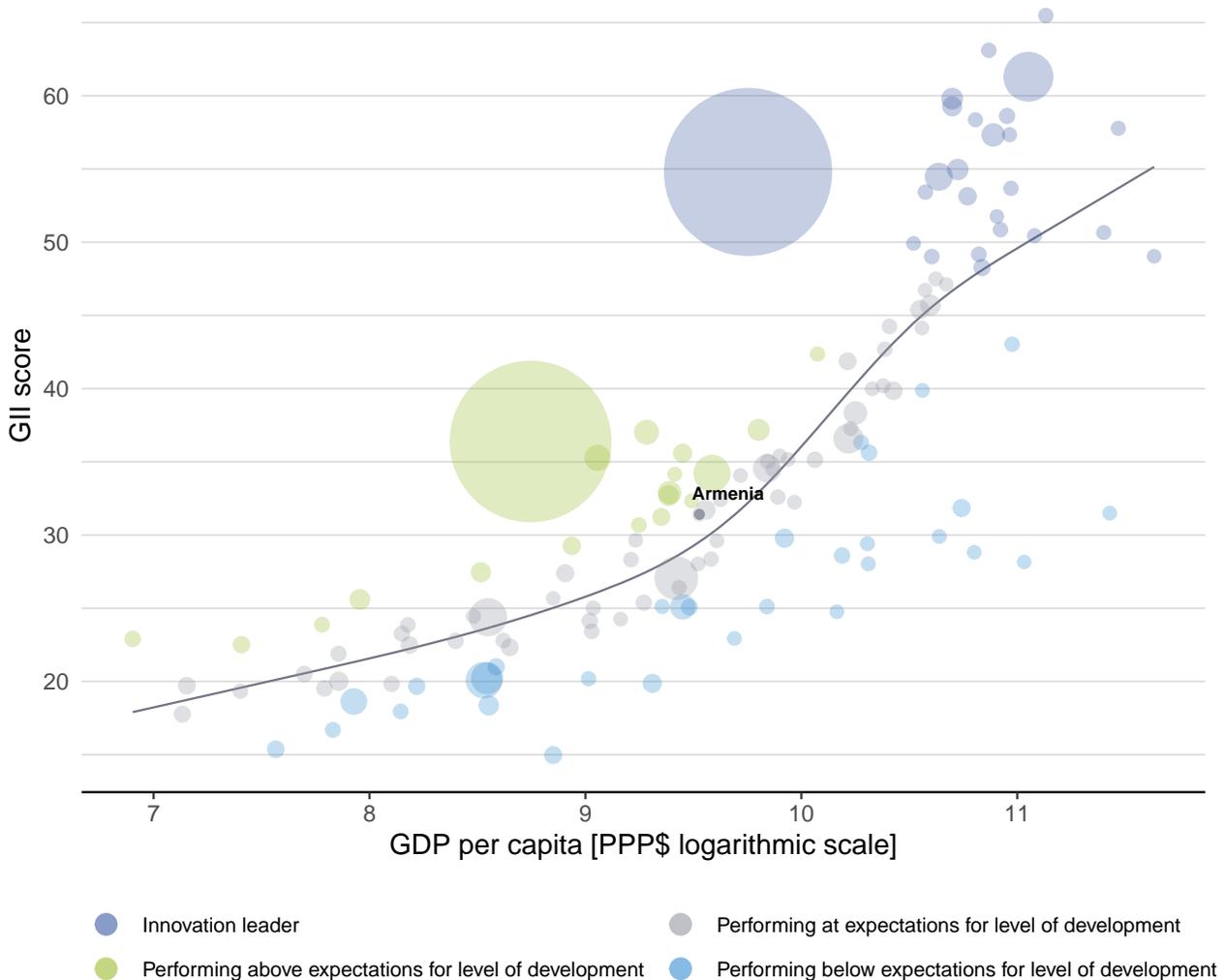


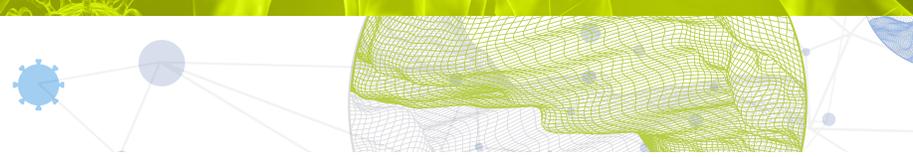
## EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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 performing below expectations.

Relative to GDP, Armenia's performance is at expectations for its level of development.

### The positive relationship between innovation and development



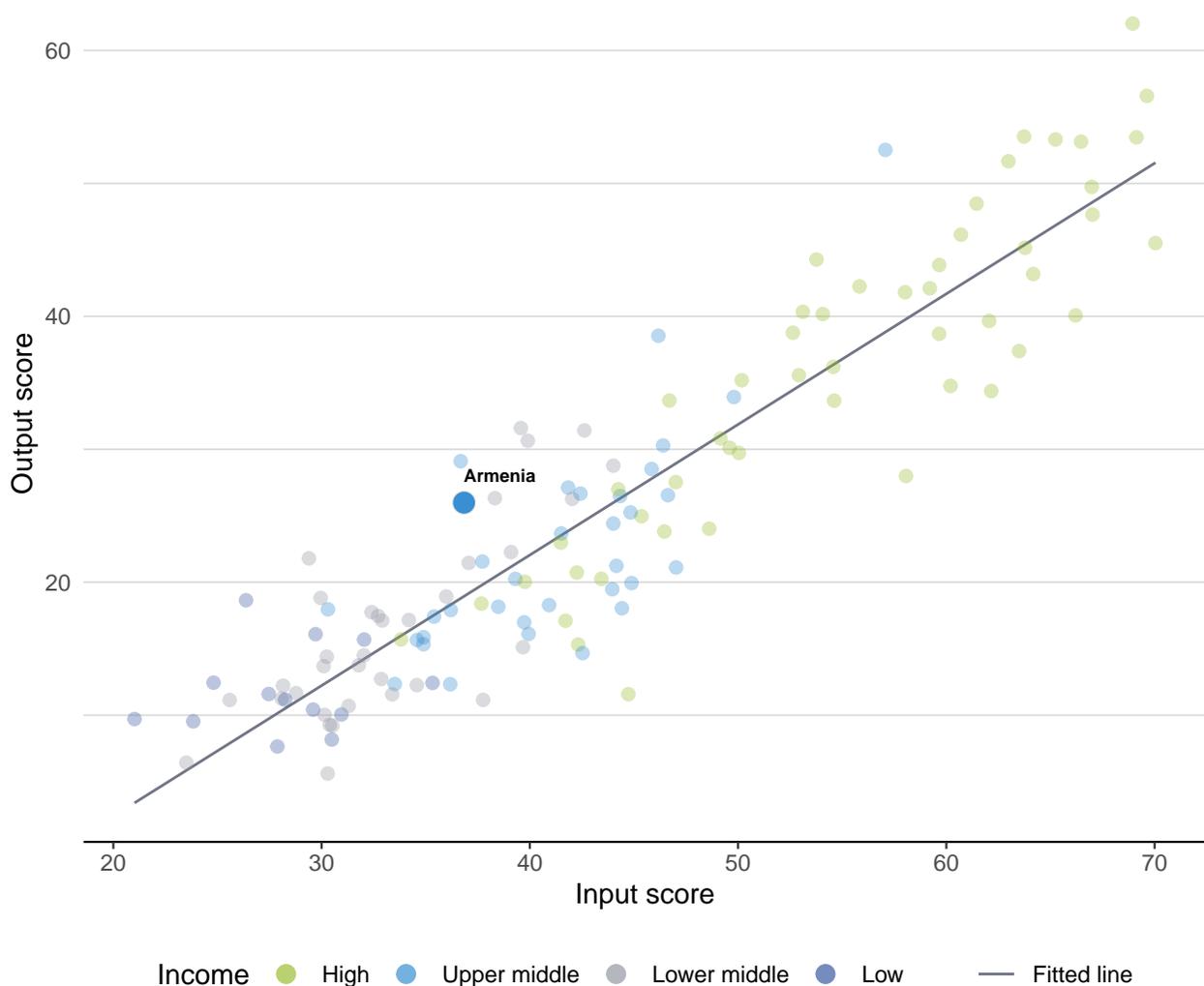


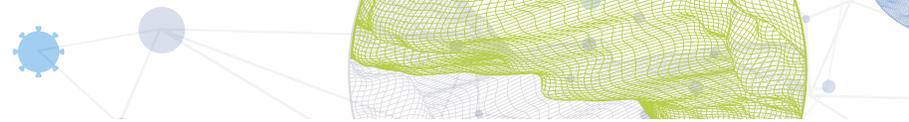
## EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

Armenia produces more innovation outputs relative to its level of innovation investments.

### Innovation input to output performance





# BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

## The seven GII pillar scores for Armenia

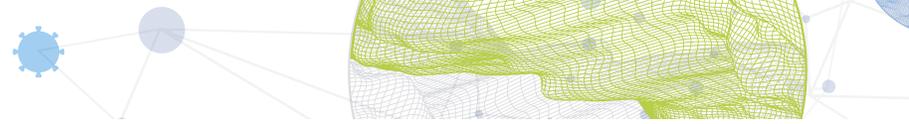


### Upper middle-income group economies

Armenia performs above the upper middle-income group average in three pillars, namely: Institutions; Knowledge and technology outputs; and, Creative outputs.

### Northern Africa and Western Asia

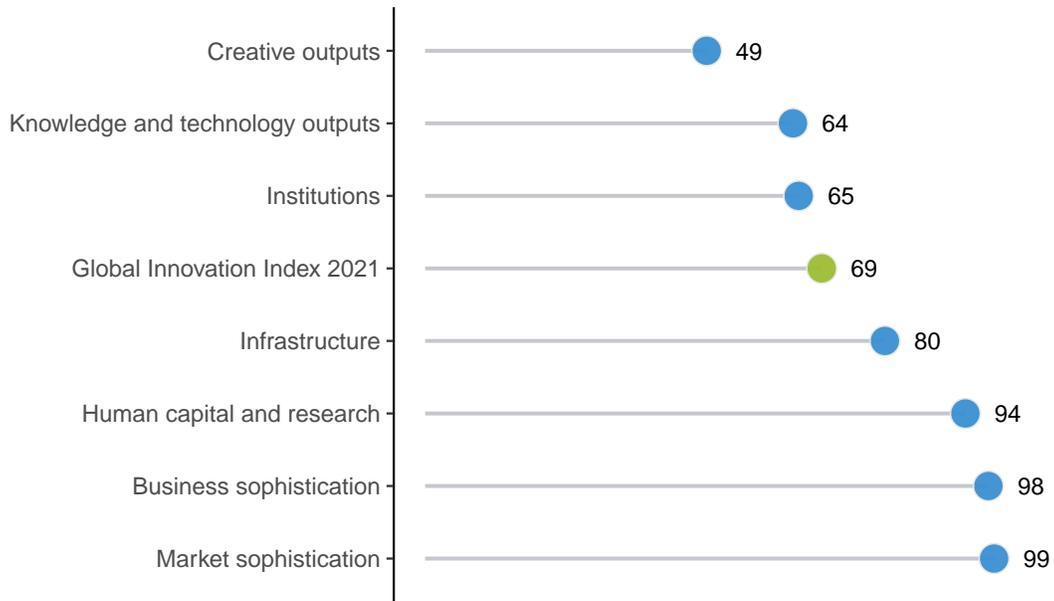
Armenia performs above the regional average in three pillars, namely: Institutions; Knowledge and technology outputs; and, Creative outputs.



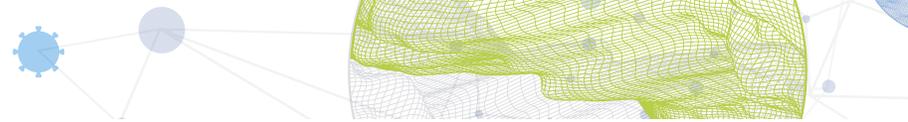
## OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

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

### The seven GII pillar ranks for Armenia



Note: The highest possible ranking in each pillar is one.



## INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Armenia in the GII 2021.

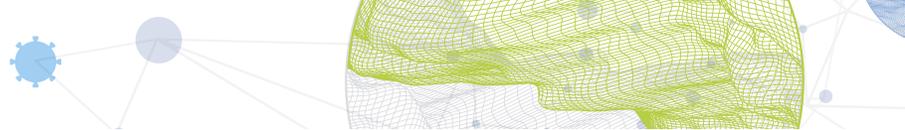
### Strengths and weaknesses for Armenia

| Strengths |   |      | Weaknesses |   |      |
|-----------|---|------|------------|---|------|
| Code      | Indicator name                            | Rank | Code       | Indicator name                                    | Rank |
| 1.3.1     | Ease of starting a business               | 10   | 2.1.1      | Expenditure on education, % GDP                   | 104  |
| 2.1.5     | Pupil-teacher ratio, secondary            | 27   | 2.3.3      | Global corporate R&D investors, top 3, mn US\$    | 41   |
| 6.1.1     | Patents by origin/bn PPP\$ GDP            | 28   | 2.3.4      | QS university ranking, top 3                      | 74   |
| 6.1.3     | Utility models by origin/bn PPP\$ GDP     | 25   | 3.3.3      | ISO 14001 environmental certificates/bn PPP\$ GDP | 130  |
| 6.2.1     | Labor productivity growth, %              | 15   | 4.3.2      | Domestic industry diversification                 | 95   |
| 6.3.4     | ICT services exports, % total trade       | 21   | 4.3.3      | Domestic market scale, bn PPP\$                   | 110  |
| 7.1.1     | Trademarks by origin/bn PPP\$ GDP         | 11   | 5.3        | Knowledge absorption                              | 119  |
| 7.2.2     | National feature films/mn pop. 15–69      | 12   | 5.3.1      | Intellectual property payments, % total trade     | 123  |
| 7.2.4     | Printing and other media, % manufacturing | 29   | 6.2.4      | ISO 9001 quality certificates/bn PPP\$ GDP        | 114  |
| 7.3.3     | Wikipedia edits/mn pop. 15–69             | 2    | 6.2.5      | High-tech manufacturing, %                        | 102  |
|           |   |      | 7.1.2      | Global brand value, top 5,000, % GDP              | 80   |

| Output rank | Input rank | Income       | Region | Population (mn) | GDP, PPP\$ (bn) | GDP per capita, PPP\$ | GII 2020 rank |
|-------------|------------|--------------|--------|-----------------|-----------------|-----------------------|---------------|
| 56          | 85         | Upper middle | NAWA   | 3.0             | 40.8            | 13,735                | 61            |

|   | Score/ Value | Rank |   | Score/ Value | Rank |
|---|--------------|------|---|--------------|------|
|  <b>Institutions</b>               | 64.1         | 65   |  <b>Business sophistication</b>          | 19.9         | 98   |
| <b>1.1 Political environment</b>  | 53.6         | 82   | <b>5.1 Knowledge workers</b>  | 30.1         | 69   |
| 1.1.1 Political and operational stability*  | 62.5         | 89   | 5.1.1 Knowledge-intensive employment, %   | 29.5         | 51   |
| 1.1.2 Government effectiveness*   | 49.2         | 77   | 5.1.2 Firms offering formal training, %   | 27.5         | 56   |
| <b>1.2 Regulatory environment</b>   | 68.4         | 56   | 5.1.3 GERD performed by business, % GDP   | n/a          | n/a  |
| 1.2.1 Regulatory quality*   | 50.0         | 59   | 5.1.4 GERD financed by business, %  | 16.7         | 71   |
| 1.2.2 Rule of law*  | 43.3         | 70   | 5.1.5 Females employed w/advanced degrees, %  | 6.3          | 86   |
| 1.2.3 Cost of redundancy dismissal  | 13.0         | 40   | <b>5.2 Innovation linkages</b>  | 14.9         | 109  |
| <b>1.3 Business environment</b>   | 70.3         | 70   | 5.2.1 University-industry R&D collaboration†  | 35.7         | 96   |
| 1.3.1 Ease of starting a business*  | 96.1         | 10   | 5.2.2 State of cluster development and depth†   | 43.6         | 82   |
| 1.3.2 Ease of resolving insolvency*   | 44.6         | 86   | 5.2.3 GERD financed by abroad, % GDP  | 0.0          | 78   |
|   |              |      | 5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP   | 0.0          | 100  |
|   |              |      | 5.2.5 Patent families/bn PPP\$ GDP  | 0.1          | 62   |
|  <b>Human capital and research</b> | 21.7         | 94   | <b>5.3 Knowledge absorption</b>   | 14.7         | 119  |
| <b>2.1 Education</b>  | 37.6         | 98   | 5.3.1 Intellectual property payments, % total trade   | 0.0          | 123  |
| 2.1.1 Expenditure on education, % GDP   | 2.7          | 104  | 5.3.2 High-tech imports, % total trade  | 5.9          | 98   |
| 2.1.2 Government funding/pupil, secondary, % GDP/cap  | 14.6         | 78   | 5.3.3 ICT services imports, % total trade   | 0.6          | 100  |
| 2.1.3 School life expectancy, years   | 13.1         | 81   | 5.3.4 FDI net inflows, % GDP  | 2.0          | 77   |
| 2.1.4 PISA scales in reading, maths and science   | n/a          | n/a  | 5.3.5 Research talent, % in businesses  | n/a          | n/a  |
| 2.1.5 Pupil-teacher ratio, secondary  | 9.9          | 27   |  <b>Knowledge and technology outputs</b> | 21.4         | 64   |
| <b>2.2 Tertiary education</b>   | 26.2         | 82   | <b>6.1 Knowledge creation</b>   | 19.6         | 53   |
| 2.2.1 Tertiary enrolment, % gross   | 51.5         | 61   | 6.1.1 Patents by origin/bn PPP\$ GDP  | 2.8          | 28   |
| 2.2.2 Graduates in science and engineering, %   | 17.1         | 89   | 6.1.2 PCT patents by origin/bn PPP\$ GDP  | 0.1          | 64   |
| 2.2.3 Tertiary inbound mobility, %  | 5.5          | 42   | 6.1.3 Utility models by origin/bn PPP\$ GDP   | 0.9          | 25   |
| <b>2.3 Research and development (R&amp;D)</b>   | 1.2          | 103  | 6.1.4 Scientific and technical articles/bn PPP\$ GDP  | 21.3         | 43   |
| 2.3.1 Researchers, FTE/mn pop.  | n/a          | n/a  | 6.1.5 Citable documents H-index   | 11.0         | 70   |
| 2.3.2 Gross expenditure on R&D, % GDP   | 0.2          | 92   | <b>6.2 Knowledge impact</b>   | 22.0         | 94   |
| 2.3.3 Global corporate R&D investors, top 3, mn US\$  | 0.0          | 41   | 6.2.1 Labor productivity growth, %  | 3.1          | 15   |
| 2.3.4 QS university ranking, top 3*   | 0.0          | 74   | 6.2.2 New businesses/th pop. 15–64  | 3.1          | 47   |
|   |              |      | 6.2.3 Software spending, % GDP  | 0.1          | 82   |
|   |              |      | 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP  | 0.8          | 114  |
|   |              |      | 6.2.5 High-tech manufacturing, %  | 4.7          | 102  |
|  <b>Infrastructure</b>           | 38.1         | 80   | <b>6.3 Knowledge diffusion</b>  | 22.6         | 50   |
| <b>3.1 Information and communication technologies (ICTs)</b>  | 68.0         | 63   | 6.3.1 Intellectual property receipts, % total trade   | n/a          | n/a  |
| 3.1.1 ICT access*   | 69.4         | 61   | 6.3.2 Production and export complexity  | 34.8         | 78   |
| 3.1.2 ICT use*  | 57.5         | 67   | 6.3.3 High-tech exports, % total trade  | 0.8          | 81   |
| 3.1.3 Government's online service*  | 70.0         | 69   | 6.3.4 ICT services exports, % total trade   | 4.2          | 21   |
| 3.1.4 E-participation*  | 75.0         | 57   |  <b>Creative outputs</b>               | 30.6         | 49   |
| <b>3.2 General infrastructure</b>   | 21.0         | 104  | <b>7.1 Intangible assets</b>  | 37.9         | 44   |
| 3.2.1 Electricity output, GWh/mn pop.   | 2,639.2      | 72   | 7.1.1 Trademarks by origin/bn PPP\$ GDP   | 92.9         | 11   |
| 3.2.2 Logistics performance*  | 26.0         | 88   | 7.1.2 Global brand value, top 5,000, % GDP  | 0.0          | 80   |
| 3.2.3 Gross capital formation, % GDP  | 20.9         | 80   | 7.1.3 Industrial designs by origin/bn PPP\$ GDP   | 0.9          | 73   |
| <b>3.3 Ecological sustainability</b>  | 25.2         | 80   | 7.1.4 ICTs and organizational model creation†   | 52.8         | 67   |
| 3.3.1 GDP/unit of energy use  | 9.4          | 75   | <b>7.2 Creative goods and services</b>  | 19.9         | 54   |
| 3.3.2 Environmental performance*  | 52.3         | 51   | 7.2.1 Cultural and creative services exports, % total trade   | 0.4          | 55   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP   | 0.1          | 130  | 7.2.2 National feature films/mn pop. 15–69  | 13.2         | 12   |
|   |              |      | 7.2.3 Entertainment and media market/th pop. 15–69  | n/a          | n/a  |
|   |              |      | 7.2.4 Printing and other media, % manufacturing   | 1.4          | 29   |
|   |              |      | 7.2.5 Creative goods exports, % total trade   | 0.8          | 53   |
|  <b>Market sophistication</b>    | 40.4         | 99   | <b>7.3 Online creativity</b>  | 26.7         | 44   |
| <b>4.1 Credit</b>   | 39.4         | 73   | 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69  | 3.0          | 63   |
| 4.1.1 Ease of getting credit*   | 70.0         | 44   | 7.3.2 Country-code TLDs/th pop. 15–69   | 5.2          | 54   |
| 4.1.2 Domestic credit to private sector, % GDP  | 59.9         | 55   | 7.3.3 Wikipedia edits/mn pop. 15–69   | 88.9         | 2    |
| 4.1.3 Microfinance gross loans, % GDP   | 0.6          | 33   | 7.3.4 Mobile app creation/bn PPP\$ GDP  | 4.4          | 58   |
| <b>4.2 Investment</b>   | 23.5         | [97] |   |              |      |
| 4.2.1 Ease of protecting minority investors*  | 42.0         | 102  |   |              |      |
| 4.2.2 Market capitalization, % GDP  | n/a          | n/a  |   |              |      |
| 4.2.3 Venture capital investors, deals/bn PPP\$ GDP   | 0.0          | 58   |   |              |      |
| 4.2.4 Venture capital recipients, deals/bn PPP\$ GDP  | n/a          | n/a  |   |              |      |
| <b>4.3 Trade, diversification, and market scale</b>   | 58.4         | 98   |   |              |      |
| 4.3.1 Applied tariff rate, weighted avg., %   | 4.1          | 75   |   |              |      |
| 4.3.2 Domestic industry diversification   | 71.5         | 95   |   |              |      |
| 4.3.3 Domestic market scale, bn PPP\$   | 40.8         | 110  |   |              |      |

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 IV for details, including the year of the data, at <http://globalinnovationindex.org>. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.



## DATA AVAILABILITY

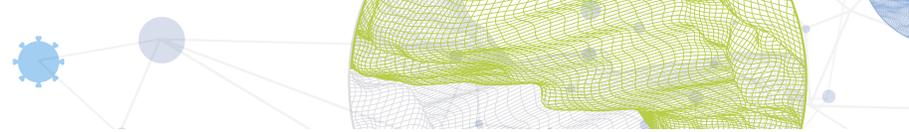
The following tables list data that are either missing or outdated for Armenia.

### Missing data for Armenia

| Code  | Indicator name                                 | Economy year | Model year | Source   |
|-------|--|--------------|------------|--|
| 2.1.4 | PISA scales in reading, maths and science      | n/a          | 2018       | OECD Programme for International Student Assessment (PISA)                               |
| 2.3.1 | Researchers, FTE/mn pop.                       | n/a          | 2019       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 4.2.2 | Market capitalization, % GDP                   | n/a          | 2019       | World Federation of Exchanges  |
| 4.2.4 | Venture capital recipients, deals/bn PPP\$ GDP | n/a          | 2020       | Refinitiv Eikon  |
| 5.1.3 | GERD performed by business, % GDP              | n/a          | 2019       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 5.3.5 | Research talent, % in businesses               | n/a          | 2019       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 6.3.1 | Intellectual property receipts, % total trade  | n/a          | 2019       | World Trade Organization   |
| 7.2.3 | Entertainment and media market/th pop. 15–69   | n/a          | 2020       | PwC  |

### Outdated data for Armenia

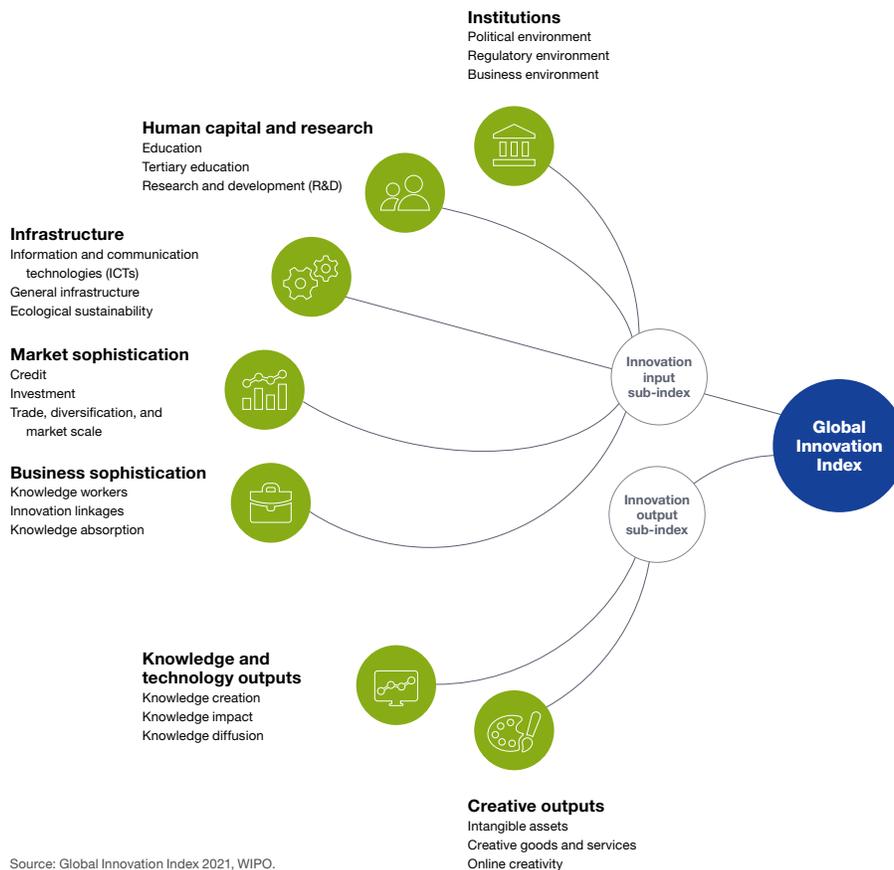
| Code  | Indicator name                                 | Economy year | Model year | Source   |
|-------|--|--------------|------------|--|
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 2014         | 2017       | UNESCO Institute for Statistics  |
| 2.3.2 | Gross expenditure on R&D, % GDP                | 2018         | 2019       | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 4.2.3 | Venture capital investors, deals/bn PPP\$ GDP  | 2019         | 2020       | Refinitiv Eikon  |
| 5.3.1 | Intellectual property payments, % total trade  | 2012         | 2019       | World Trade Organization   |



## ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for economies that incorporate the GII into their innovation agendas.



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.