



IRAQ

131st Iraq ranks 131st among the 132 economies featured in the GII 2022.

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 Iraq 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 Iraq in the GII 2022 is between ranks 127 and 132.

Rankings for Iraq (2020–2022)

| GIIYR | GII | Innovation inputs | Innovation outputs |
|-------|-----|-------------------|--------------------|
| 2020 | | | |
| 2021 | | | |
| 2022 | 131 | 130 | 127 |

- Iraq performs better in innovation outputs than innovation inputs in 2022.
- This year Iraq ranks 130th in innovation inputs and was not ranked last year.
- As for innovation outputs, Iraq ranks 127th .

36th Iraq ranks 36th among the 36 upper-middle-income group economies.

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

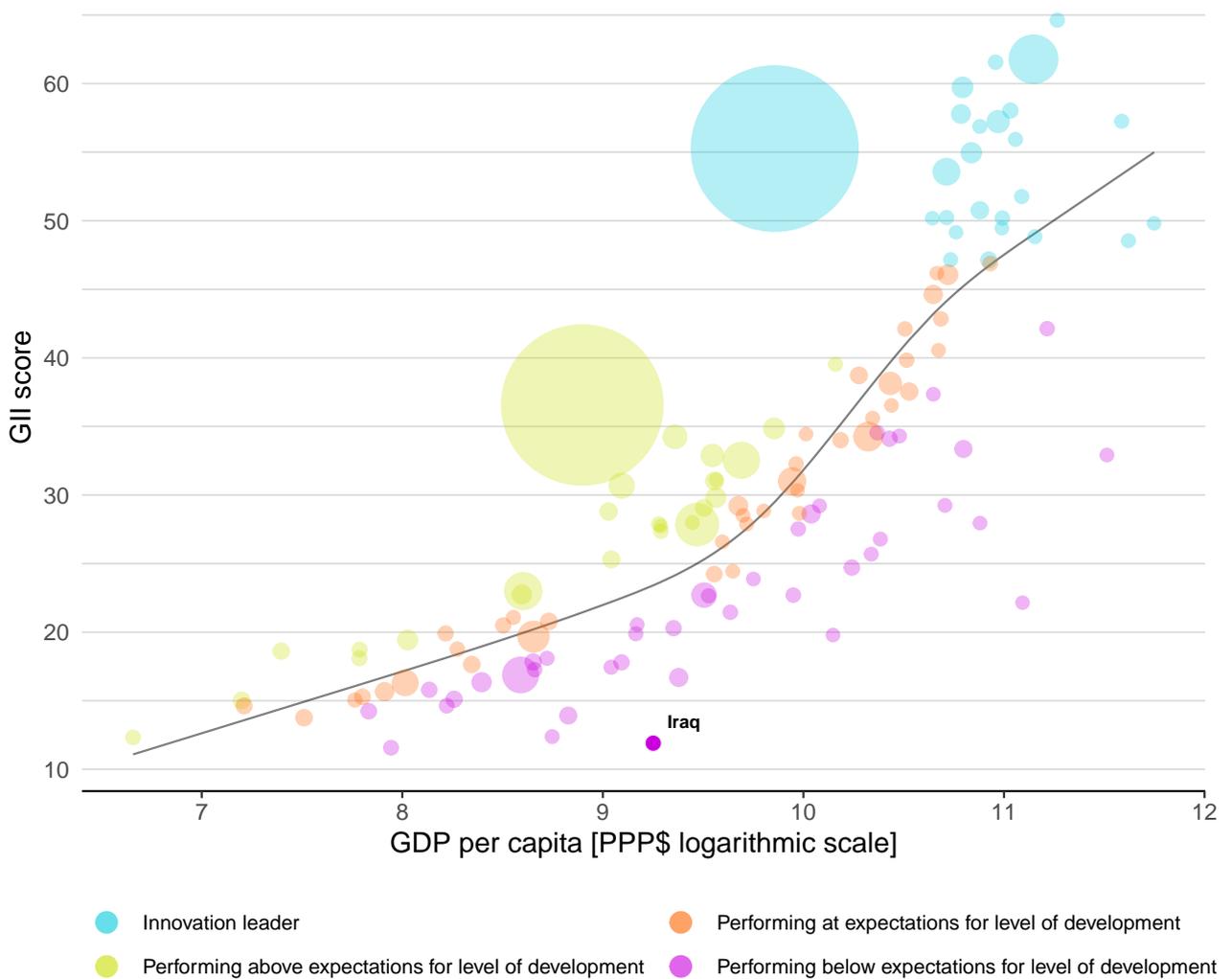


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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, Iraq's performance is below expectations for its level of development.

The positive relationship between innovation and development



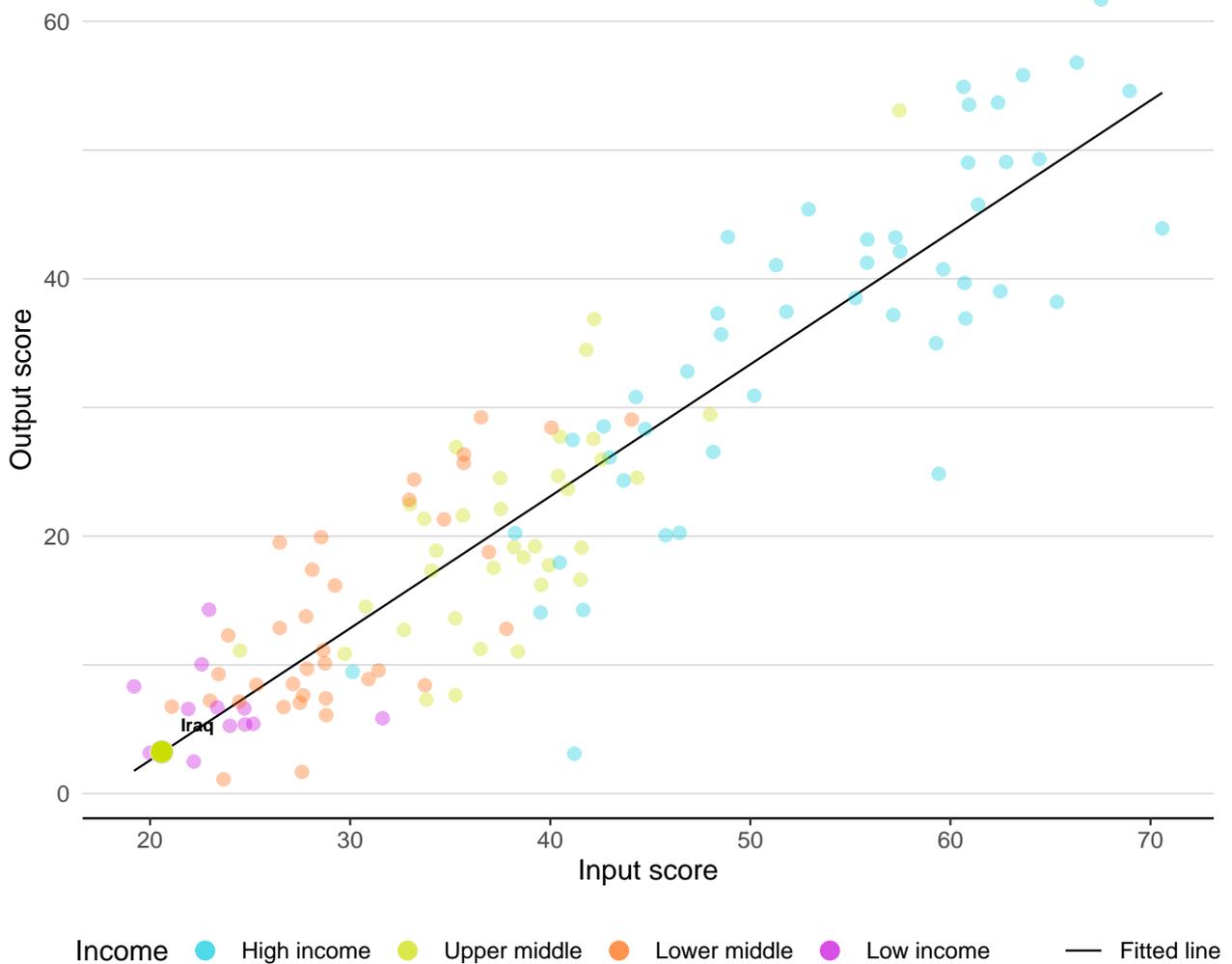


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

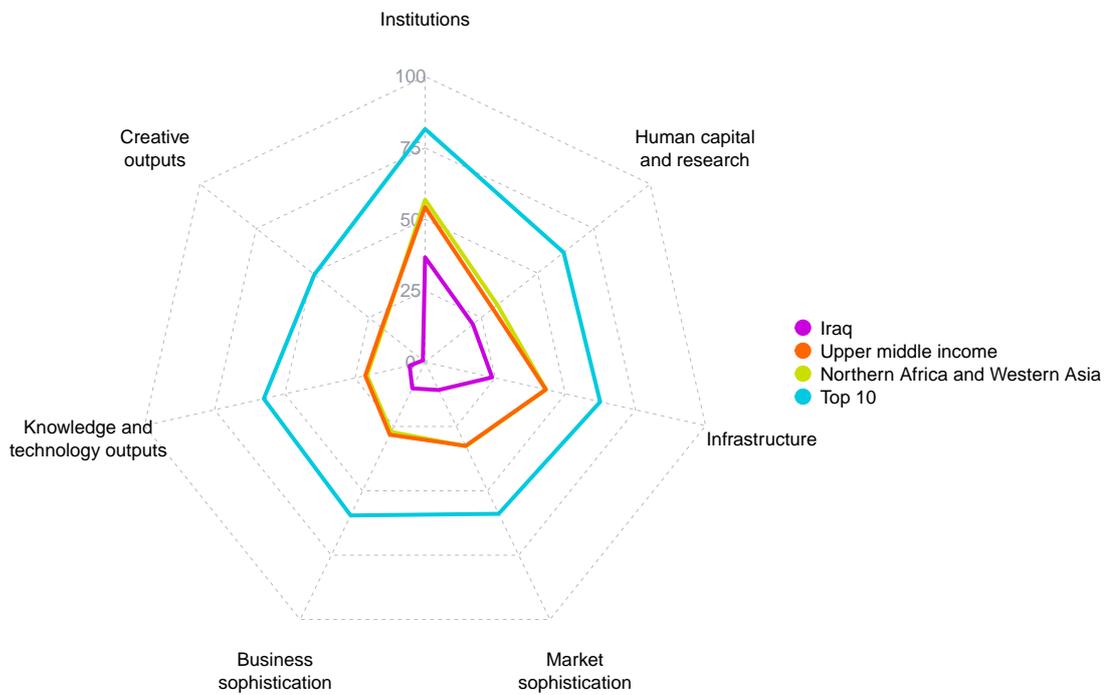
Innovation input to output performance





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

The seven GII pillar scores for Iraq



Upper-middle-income group economies

Iraq performs below the upper-middle-income group average in all GII pillars.

Northern Africa and Western Asia

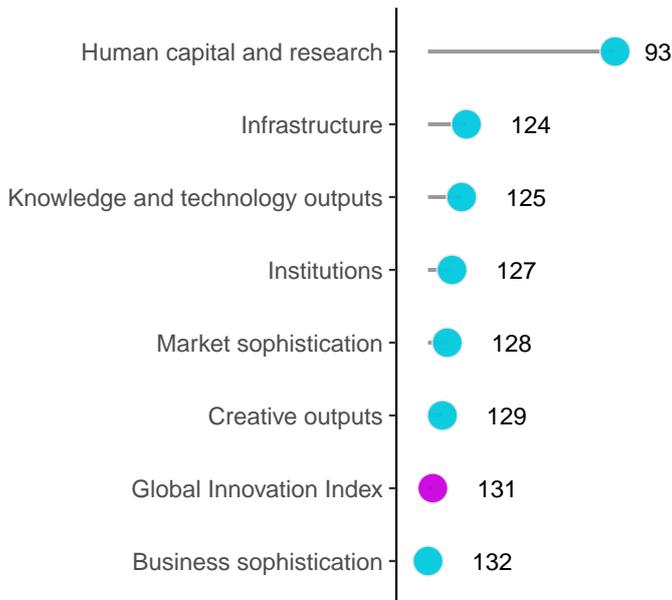
Iraq performs below the regional average in all GII pillars.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Iraq performs best in Human capital and research and its weakest performance is in Business sophistication.

The seven GII pillar ranks for Iraq



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Iraq can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=IQ.



INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Iraq in the GII 2022.

Strengths and weaknesses for Iraq

| Strengths | | | Weaknesses | | |
|-----------|--|------|------------|---|------|
| Code | Indicator name | Rank | Code | Indicator name | Rank |
| 1.2.3 | Cost of redundancy dismissal | 34 | 1.1.1 | Political and operational stability | 131 |
| 2.1.1 | Expenditure on education, % GDP | 50 | 1.1.2 | Government effectiveness | 131 |
| 2.3.4 | QS university ranking, top 3 | 70 | 1.2.2 | Rule of law | 131 |
| 3.1.1 | ICT access | 86 | 2.3.3 | Global corporate R&D investors, top 3, mn USD | 38 |
| 3.2.1 | Electricity output, GWh/mn pop. | 73 | 4.1.2 | Domestic credit to private sector, % GDP | 127 |
| 4.3.3 | Domestic market scale, bn PPP\$ | 48 | 5.2.3 | GERD financed by abroad, % GDP | 97 |
| 5.1.1 | Knowledge-intensive employment, % | 67 | 5.2.4 | Joint venture/strategic alliance deals/bn PPP\$ GDP | 128 |
| 6.1.1 | Patents by origin/bn PPP\$ GDP | 49 | 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP | 130 |
| 6.1.4 | Scientific and technical articles/bn PPP\$ GDP | 81 | 7.1.3 | Global brand value, top 5,000, % GDP | 77 |
| 6.1.5 | Citable documents H-index | 89 | 7.2.4 | Printing and other media, % manufacturing | 97 |

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP\$ (bn) | GDP per capita, PPP\$ | |
|--|---|--------------|--------|---|---|-----------------------|-------|
| 127 | 130 | Upper middle | NAWA | 41.2 | 428.9 | 10,415 | |
| Institutions | | Score/Value | Rank | Business sophistication | | Score/Value | Rank |
| 1.1 Political environment | | 36.7 | 127 | 5.1 Knowledge workers | | 10.2 | 132 |
| 1.1.1 | Political and operational stability* | 23.3 | 131 | 5.1.1 | Knowledge-intensive employment, % | 16.1 | 109 |
| 1.1.2 | Government effectiveness* | 25.5 | 131 | 5.1.2 | Firms offering formal training, % | 22.1 | 67 |
| 1.2 Regulatory environment | | 50.1 | 106 | 5.1.3 | GERD performed by business, % GDP | 0.0 | 91 |
| 1.2.1 | Regulatory quality* | 10.6 | 129 | 5.1.4 | GERD financed by business, % | 1.8 | 89 |
| 1.2.2 | Rule of law* | 0.6 | 131 | 5.1.5 | Females employed w/advanced degrees, % | 7.2 | 87 |
| 1.2.3 | Cost of redundancy dismissal | 10.7 | 34 | 5.2 Innovation linkages | | 0.3 | [132] |
| 1.3 Business environment | | n/a | [n/a] | 5.2.1 | University-industry R&D collaboration [†] | n/a | n/a |
| 1.3.1 | Policies for doing business [†] | n/a | n/a | 5.2.2 | State of cluster development and depth [†] | n/a | n/a |
| 1.3.2 | Entrepreneurship policies and culture* | n/a | n/a | 5.2.3 | GERD financed by abroad, % GDP | 0.0 | 97 |
| Human capital and research | | 21.2 | [93] | 5.2.4 | Joint venture/strategic alliance deals/bn PPP\$ GDP | 0.0 | 128 |
| 2.1 Education | | 40.7 | [95] | 5.2.5 | Patent families/bn PPP\$ GDP | 0.0 | 99 |
| 2.1.1 | Expenditure on education, % GDP | 4.7 | 50 | 5.3 Knowledge absorption | | 14.3 | 132 |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | n/a | n/a | 5.3.1 | Intellectual property payments, % total trade | 0.0 | 116 |
| 2.1.3 | School life expectancy, years | n/a | n/a | 5.3.2 | High-tech imports, % total trade | n/a | n/a |
| 2.1.4 | PISA scales in reading, maths and science | n/a | n/a | 5.3.3 | ICT services imports, % total trade | 0.8 | 91 |
| 2.1.5 | Pupil-teacher ratio, secondary | n/a | n/a | 5.3.4 | FDI net inflows, % GDP | -1.8 | 126 |
| 2.2 Tertiary education | | n/a | [n/a] | 5.3.5 | Research talent, % in businesses | 0.8 | 79 |
| 2.2.1 | Tertiary enrolment, % gross | n/a | n/a | Knowledge and technology outputs | | 5.5 | [125] |
| 2.2.2 | Graduates in science and engineering, % | n/a | n/a | 6.1 Knowledge creation | | 11.1 | [71] |
| 2.2.3 | Tertiary inbound mobility, % | n/a | n/a | 6.1.1 | Patents by origin/bn PPP\$ GDP | 1.6 | 49 |
| 2.3 Research and development (R&D) | | 1.8 | 88 | 6.1.2 | PCT patents by origin/bn PPP\$ GDP | n/a | n/a |
| 2.3.1 | Researchers, FTE/mn pop. | 141.4 | 87 | 6.1.3 | Utility models by origin/bn PPP\$ GDP | n/a | n/a |
| 2.3.2 | Gross expenditure on R&D, % GDP | 0.0 | 110 | 6.1.4 | Scientific and technical articles/bn PPP\$ GDP | 10.7 | 81 |
| 2.3.3 | Global corporate R&D investors, top 3, mn USD | 0.0 | 38 | 6.1.5 | Citable documents H-index | 6.3 | 89 |
| 2.3.4 | QS university ranking, top 3* | 4.3 | 70 | 6.2 Knowledge impact | | 4.6 | 123 |
| Infrastructure | | 23.9 | 124 | 6.2.1 | Labor productivity growth, % | -4.3 | 116 |
| 3.1 Information and communication technologies (ICTs) | | 47.0 | 111 | 6.2.2 | New businesses/th pop. 15-64 | 0.1 | 119 |
| 3.1.1 | ICT access* | 80.2 | 86 | 6.2.3 | Software spending, % GDP | n/a | n/a |
| 3.1.2 | ICT use* | 43.2 | 99 | 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP | 0.3 | 130 |
| 3.1.3 | Government's online service* | 33.5 | 121 | 6.2.5 | High-tech manufacturing, % | 7.0 | 94 |
| 3.1.4 | E-participation* | 30.9 | 122 | 6.3 Knowledge diffusion | | 0.9 | [132] |
| 3.2 General infrastructure | | 8.9 | 130 | 6.3.1 | Intellectual property receipts, % total trade | 0.0 | 108 |
| 3.2.1 | Electricity output, GWh/mn pop. | 2,437.5 | 73 | 6.3.2 | Production and export complexity | n/a | n/a |
| 3.2.2 | Logistics performance* | 6.0 | 121 | 6.3.3 | High-tech exports, % total trade | n/a | n/a |
| 3.2.3 | Gross capital formation, % GDP | n/a | n/a | 6.3.4 | ICT services exports, % total trade | 0.2 | 122 |
| 3.3 Ecological sustainability | | 15.8 | 123 | Creative outputs | | 1.0 | 129 |
| 3.3.1 | GDP/unit of energy use | 7.8 | 96 | 7.1 Intangible assets | | 0.7 | 129 |
| 3.3.2 | Environmental performance* | 27.8 | 123 | 7.1.1 | Intangible asset intensity, top 15, % | n/a | n/a |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP\$ GDP | 0.1 | 120 | 7.1.2 | Trademarks by origin/bn PPP\$ GDP | 4.2 | 124 |
| Market sophistication | | 10.8 | [128] | 7.1.3 | Global brand value, top 5,000, % GDP | 0.0 | 77 |
| 4.1 Credit | | 1.2 | [131] | 7.1.4 | Industrial designs by origin/bn PPP\$ GDP | 0.2 | 105 |
| 4.1.1 | Finance for startups and scaleups* | n/a | n/a | 7.2 Creative goods and services | | 2.3 | [111] |
| 4.1.2 | Domestic credit to private sector, % GDP | 8.6 | 127 | 7.2.1 | Cultural and creative services exports, % total trade | 0.1 | 80 |
| 4.1.3 | Loans from microfinance institutions, % GDP | n/a | n/a | 7.2.2 | National feature films/mn pop. 15-69 | n/a | n/a |
| 4.2 Investment | | 0.5 | [112] | 7.2.3 | Entertainment and media market/th pop. 15-69 | n/a | n/a |
| 4.2.1 | Market capitalization, % GDP | n/a | n/a | 7.2.4 | Printing and other media, % manufacturing | 0.2 | 97 |
| 4.2.2 | Venture capital investors, deals/bn PPP\$ GDP | n/a | n/a | 7.2.5 | Creative goods exports, % total trade | n/a | n/a |
| 4.2.3 | Venture capital recipients, deals/bn PPP\$ GDP | 0.0 | 97 | 7.3 Online creativity | | 0.2 | 119 |
| 4.2.4 | Venture capital received, value, % GDP | 0.0 | 100 | 7.3.1 | Generic top-level domains (TLDs)/th pop. 15-69 | 0.2 | 115 |
| 4.3 Trade, diversification, and market scale | | 30.8 | 114 | 7.3.2 | Country-code TLDs/th pop. 15-69 | 0.0 | 128 |
| 4.3.1 | Applied tariff rate, weighted avg., % | n/a | n/a | 7.3.3 | GitHub commit pushes received/mn pop. 15-69 | 0.7 | 108 |
| 4.3.2 | Domestic industry diversification | 52.1 | 99 | 7.3.4 | Mobile app creation/bn PPP\$ GDP | 0.0 | 104 |
| 4.3.3 | Domestic market scale, bn PPP\$ | 428.9 | 48 | | | | |

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 appendices for details, including the year of the data, at https://www.wipo.int/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Iraq.

Missing data for Iraq

| Code | Indicator name | Economy year | Model year | Source |
|-------|--|--------------|------------|--|
| 1.3.1 | Policies for doing business | n/a | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 1.3.2 | Entrepreneurship policies and culture | n/a | 2021 | Global Entrepreneurship Monitor |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | n/a | 2018 | UNESCO Institute for Statistics |
| 2.1.3 | School life expectancy, years | n/a | 2019 | UNESCO Institute for Statistics |
| 2.1.4 | PISA scales in reading, maths and science | n/a | 2018 | OECD, PISA |
| 2.1.5 | Pupil-teacher ratio, secondary | n/a | 2019 | UNESCO Institute for Statistics |
| 2.2.1 | Tertiary enrolment, % gross | n/a | 2019 | UNESCO Institute for Statistics |
| 2.2.2 | Graduates in science and engineering, % | n/a | 2020 | UNESCO Institute for Statistics |
| 2.2.3 | Tertiary inbound mobility, % | n/a | 2019 | UNESCO Institute for Statistics |
| 3.2.3 | Gross capital formation, % GDP | n/a | 2021 | International Monetary Fund |
| 4.1.1 | Finance for startups and scaleups | n/a | 2021 | Global Entrepreneurship Monitor |
| 4.1.3 | Loans from microfinance institutions, % GDP | n/a | 2020 | International Monetary Fund, Financial Access Survey (FAS) |
| 4.2.1 | Market capitalization, % GDP | n/a | 2020 | World Federation of Exchanges |
| 4.2.2 | Venture capital investors, deals/bn PPP\$ GDP | n/a | 2021 | Refinitiv |
| 4.3.1 | Applied tariff rate, weighted avg., % | n/a | 2020 | World Bank |
| 5.2.1 | University-industry R&D collaboration | n/a | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 5.2.2 | State of cluster development and depth | n/a | 2021 | World Economic Forum, Executive Opinion Survey (EOS) |
| 5.3.2 | High-tech imports, % total trade | n/a | 2020 | United Nations Comtrade Database |
| 6.1.2 | PCT patents by origin/bn PPP\$ GDP | n/a | 2021 | World Intellectual Property Organization |
| 6.1.3 | Utility models by origin/bn PPP\$ GDP | n/a | 2020 | World Intellectual Property Organization |
| 6.2.3 | Software spending, % GDP | n/a | 2021 | IHS Markit |
| 6.3.2 | Production and export complexity | n/a | 2019 | Harvard University, Growth Lab |
| 6.3.3 | High-tech exports, % total trade | n/a | 2020 | United Nations Comtrade Database |
| 7.1.1 | Intangible asset intensity, top 15, % | n/a | 2021 | Brand Finance |
| 7.2.2 | National feature films/mn pop. 15–69 | n/a | 2019 | OMDIA |
| 7.2.3 | Entertainment and media market/th pop. 15–69 | n/a | 2021 | PwC, GEMO |



| Code | Indicator name | Economy year | Model year | Source |
|-------|---------------------------------------|--------------|------------|----------------------------------|
| 7.2.5 | Creative goods exports, % total trade | n/a | 2020 | United Nations Comtrade Database |

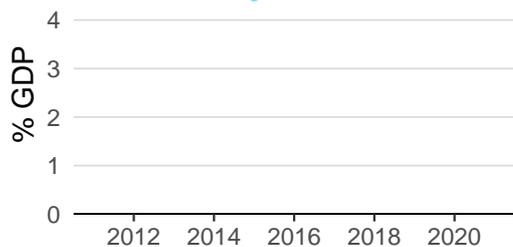
Outdated data for Iraq

| Code | Indicator name | Economy year | Model year | Source |
|-------|---|--------------|------------|--|
| 2.1.1 | Expenditure on education, % GDP | 2016 | 2020 | UNESCO Institute for Statistics |
| 3.2.1 | Electricity output, GWh/mn pop. | 2019 | 2020 | International Energy Agency |
| 4.1.2 | Domestic credit to private sector, % GDP | 2018 | 2020 | International Monetary Fund |
| 5.1.1 | Knowledge-intensive employment, % | 2012 | 2021 | International Labour Organization |
| 5.1.2 | Firms offering formal training, % | 2011 | 2019 | World Bank Enterprise Surveys |
| 5.1.3 | GERD performed by business, % GDP | 2018 | 2020 | UNESCO Institute for Statistics |
| 5.1.4 | GERD financed by business, % | 2018 | 2019 | UNESCO Institute for Statistics |
| 5.1.5 | Females employed w/advanced degrees, % | 2012 | 2021 | International Labour Organization |
| 5.2.3 | GERD financed by abroad, % GDP | 2018 | 2019 | UNESCO Institute for Statistics |
| 5.3.5 | Research talent, % in businesses | 2018 | 2020 | UNESCO Institute for Statistics |
| 6.2.2 | New businesses/th pop. 15–64 | 2016 | 2020 | World Bank, Entrepreneurship Database |
| 7.1.2 | Trademarks by origin/bn PPP\$ GDP | 2018 | 2020 | World Intellectual Property Organization |
| 7.1.4 | Industrial designs by origin/bn PPP\$ GDP | 2018 | 2020 | World Intellectual Property Organization |

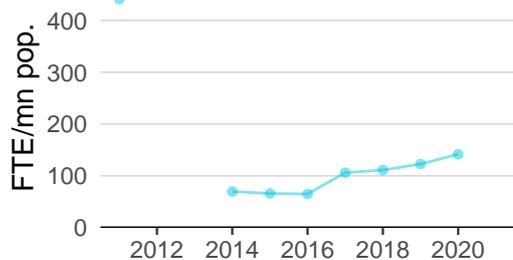
IRAQ'S INNOVATION SYSTEM

As far as practicable, the plots below present unscaled indicator data.

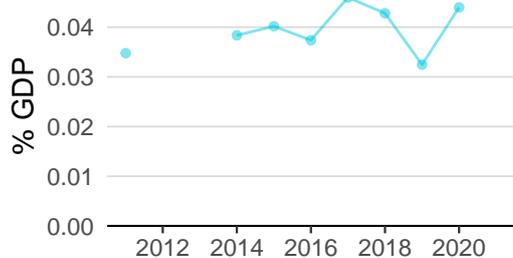
Innovation inputs



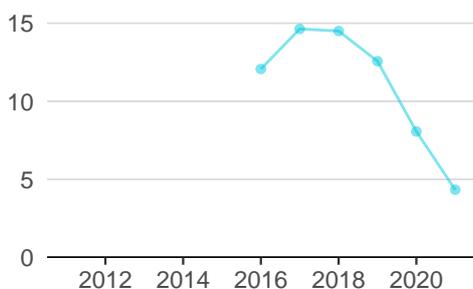
2.1.1 Expenditure on education was equal to 4.7% GDP in 2016—up by 5 percentage points from the year prior—and equivalent to an indicator rank of 50.



2.3.1 Researchers was equal to 141.4 FTE/mn pop. in 2020—up by 15 percentage points from the year prior—and equivalent to an indicator rank of 87.



2.3.2 Gross expenditure on R&D was equal to 0.0% GDP in 2020—up by 35 percentage points from the year prior—and equivalent to an indicator rank of 110.



2.3.4 QS university ranking was equal to 4.3 in 2021—down by 46 percentage points from the year prior—and equivalent to an indicator rank of 70.



3.1.1 ICT access was equal to 8.0 in 2020 and equivalent to an indicator rank of 86.



4.2.4 Venture capital received was equal to 1.6 mn USD in 2021—up by 16 percentage points from the year prior—and equivalent to an indicator rank of 100.

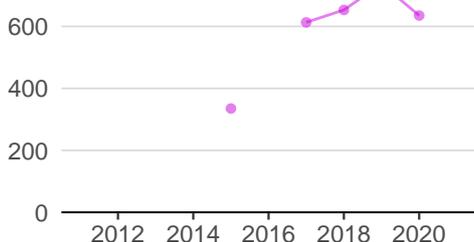


4.3.2 Domestic industry diversification was equal to 0.4 in 2019—up by 24 percentage points from the year prior—and equivalent to an indicator rank of 99.

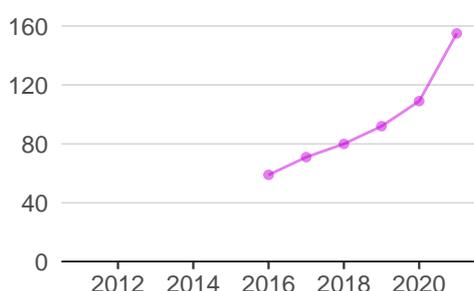


5.1.1 Knowledge-intensive employment was equal to 1.7 mn people in 2012 and equivalent to an indicator rank of 67.

Innovation outputs



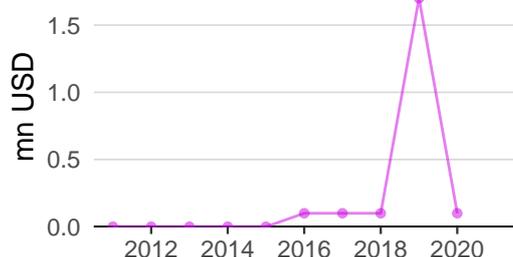
6.1.1 Patents by origin was equal to 635.0 in 2020—down by 14 percentage points from the year prior—and equivalent to an indicator rank of 49.



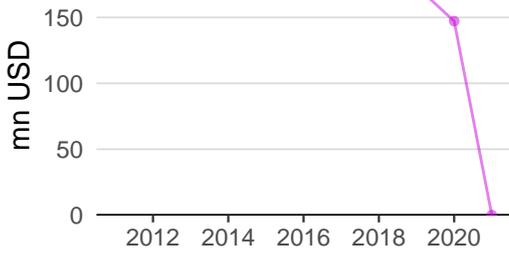
6.1.5 Citable documents H-index was equal to 155.0 in 2021—up by 42 percentage points from the year prior—and equivalent to an indicator rank of 89.



6.2.5 High-tech manufacturing was equal to 7.0% of mfg. output in 2019—up by 23 percentage points from the year prior—and equivalent to an indicator rank of 94.



6.3.1 Intellectual property receipts was equal to 0.1 mn USD in 2020—down by 94 percentage points from the year prior—and equivalent to an indicator rank of 108.



7.1.3 Global brand value was equal to 0.0 mn USD in 2021—down by 100 percentage points from the year prior—and equivalent to an indicator rank of 77.



7.2.1 Cultural and creative services exports was equal to 73.4 mn USD in 2020—down by 9 percentage points from the year prior—and equivalent to an indicator rank of 80.



IRAQ'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

| Firm | Industry | R&D | R&D Growth | R&D Intensity | Rank |
|------|----------|-----|------------|---------------|------|
|------|----------|-----|------------|---------------|------|

No observations

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard>).

2.3.4 QS university ranking

| University | Score | Rank |
|-----------------------|-------|----------|
| UNIVERSITY OF BAGHDAD | 13.0 | 801-1000 |

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2022>).

Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

7.1.1 Intangible asset intensity, top 15

| Firm | Rank |
|------|------|
|------|------|

No observations

Source: Brand Finance (<https://brandirectory.com/reports/gift-2021>).

7.1.3 Global brand value, top 5,000

| Brand | Industry | Rank |
|-------|----------|------|
|-------|----------|------|

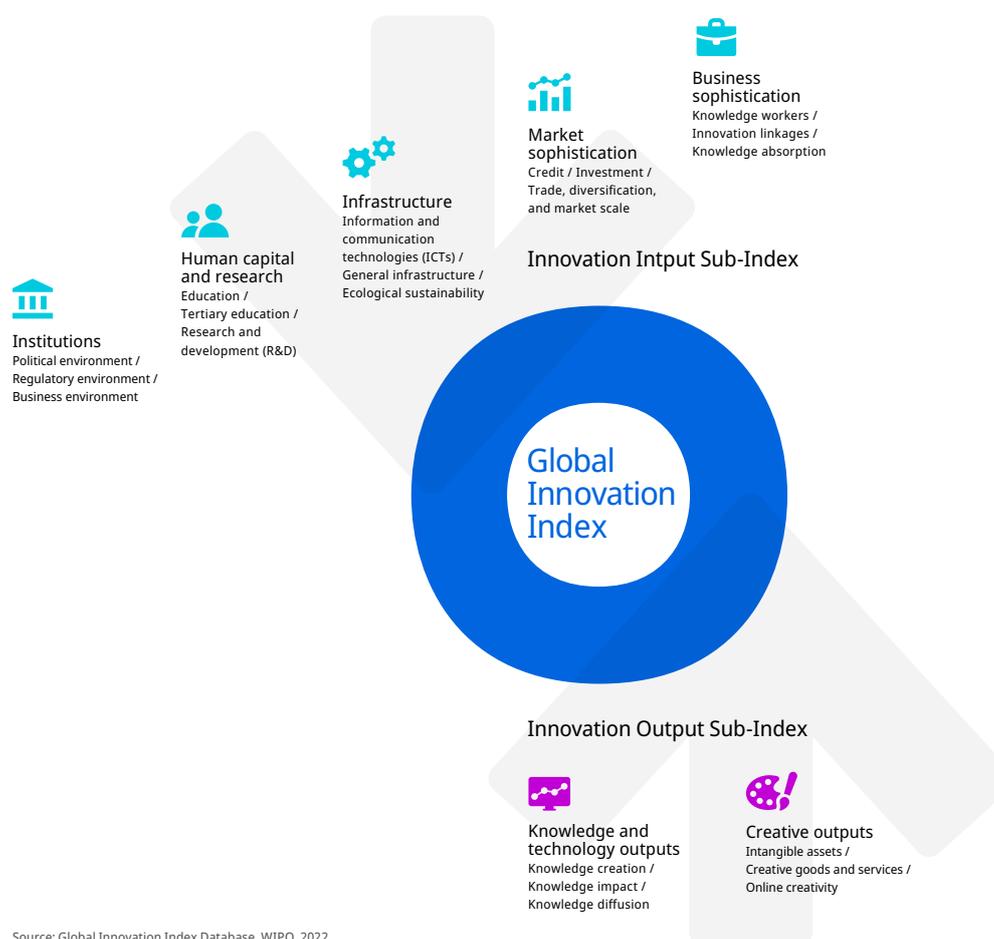
No observations

Source: Brand Finance (<https://brandirectory.com>).

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.