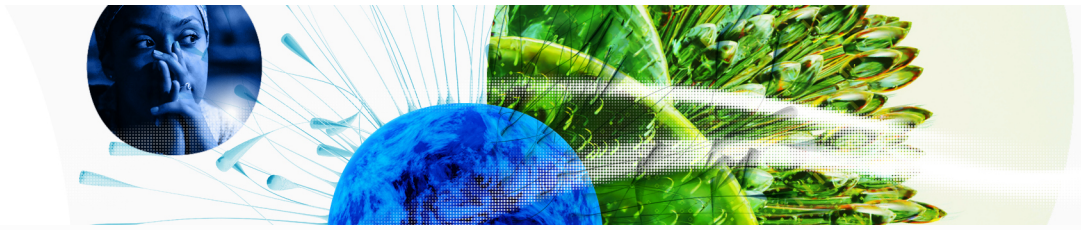


Global Innovation Index 2023

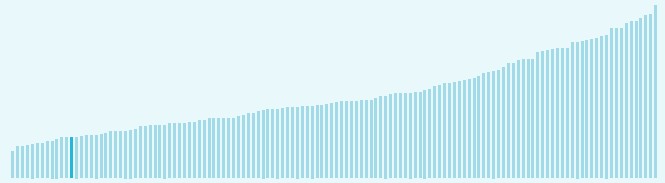


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

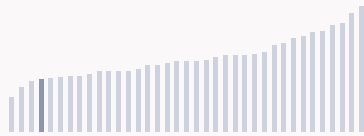
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Benin ranking in the Global Innovation Index 2023

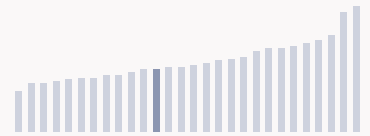
> Benin ranks **120th** among the 132 economies featured in the GII 2023.



> Benin ranks **34th** among the 37 lower-middle-income group economies.



> Benin ranks **17th** among the 28 economies in Sub-Saharan Africa.



> Benin GII Ranking (2020-2023)

The table shows the rankings of Benin over the past four years. 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 Benin in the GII 2023 is between ranks 114 and 126.

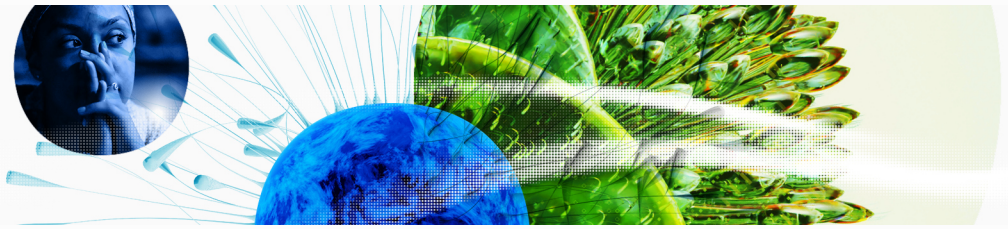
| | GII Position | Innovation Inputs | Innovation Outputs |
|------|--------------|-------------------|--------------------|
| 2020 | 126th | 116th | 131st |
| 2021 | 128th | 113rd | 132nd |
| 2022 | 124th | 107th | 131st |
| 2023 | 120th | 108th | 128th |

Benin performs worse in innovation outputs than innovation inputs in 2023.

This year Benin ranks **108th in innovation inputs**. This position is lower than last year.

Benin ranks **128th in innovation outputs**. This position is higher than last year.

Global Innovation Index 2023



→ Expected vs. observed innovation performance

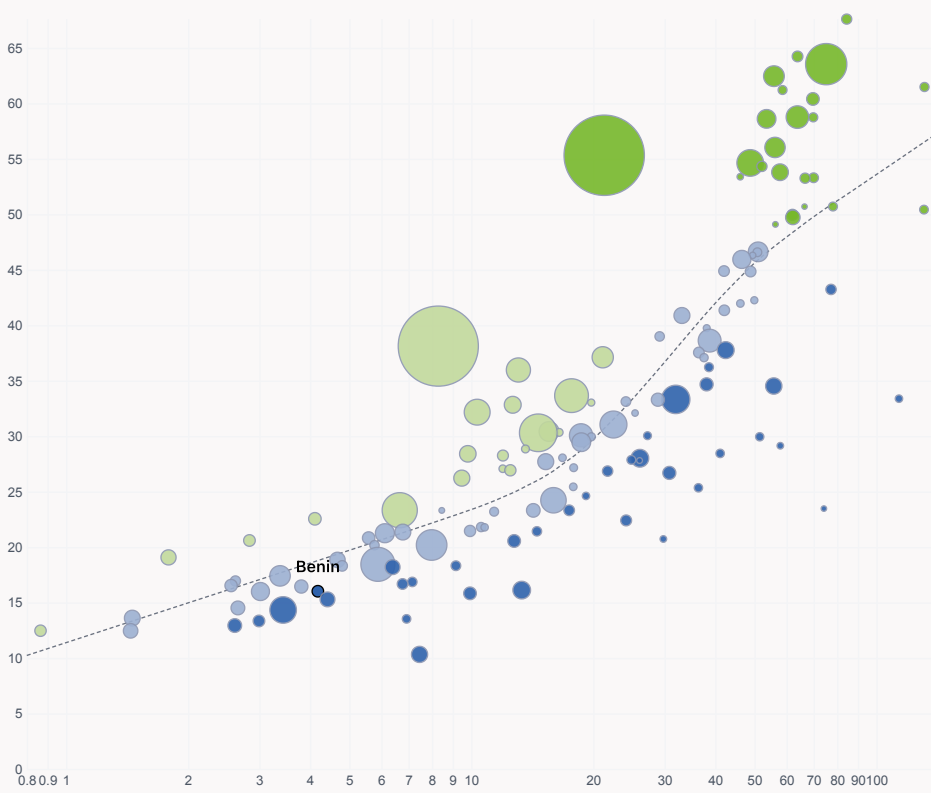
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



> Relative to GDP, Benin's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ **GII Score**



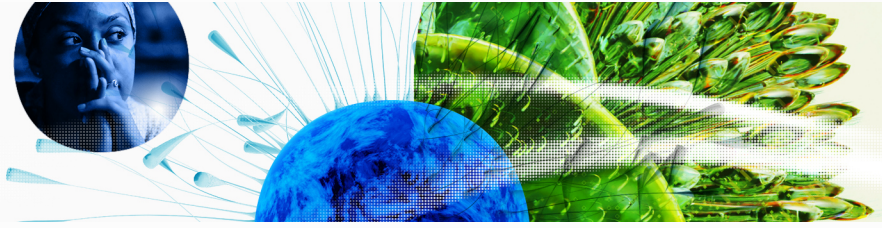
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

Global Innovation Index 2023



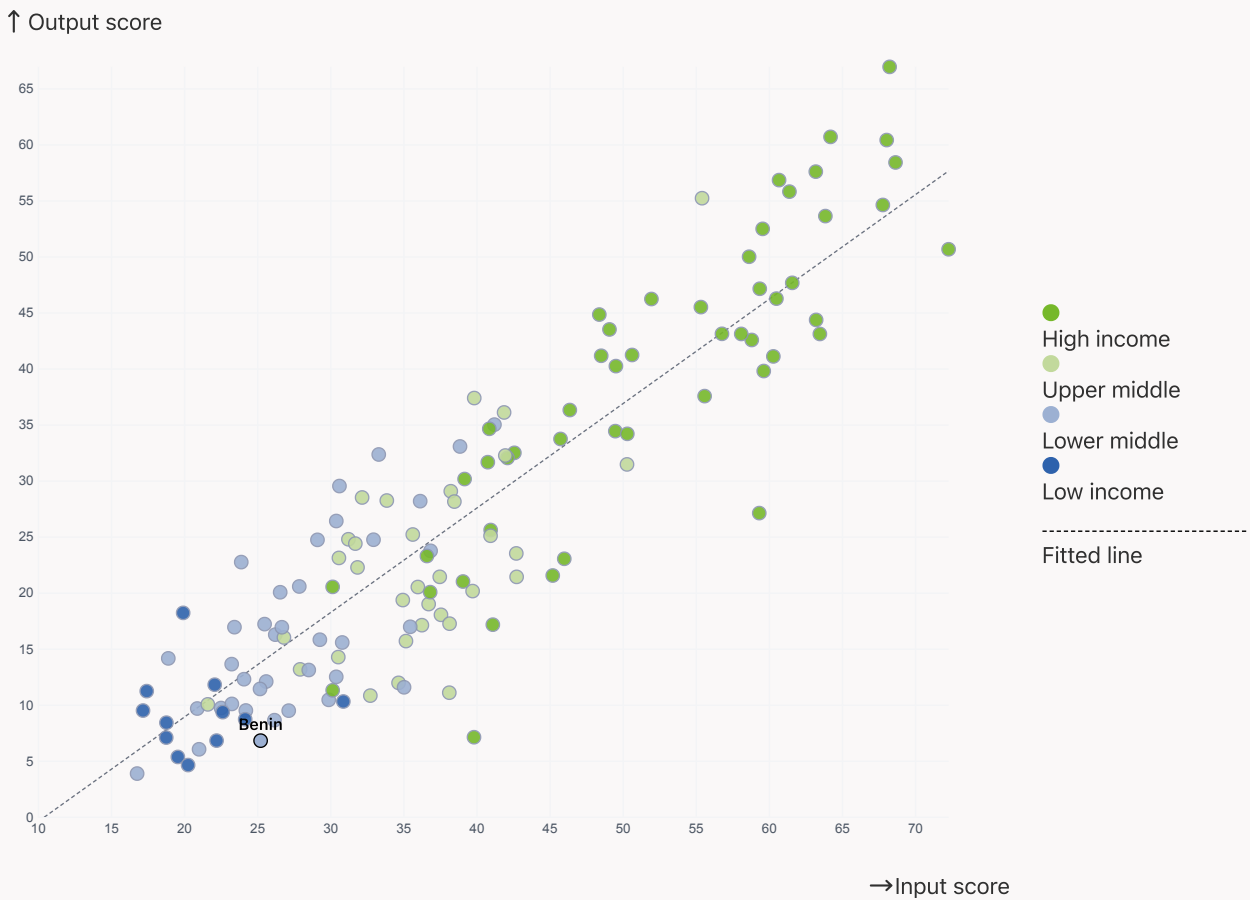
→ Effectively translating innovation investments into innovation outputs

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.

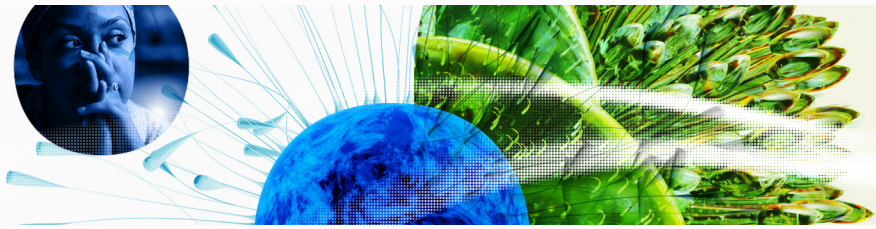


> Benin produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

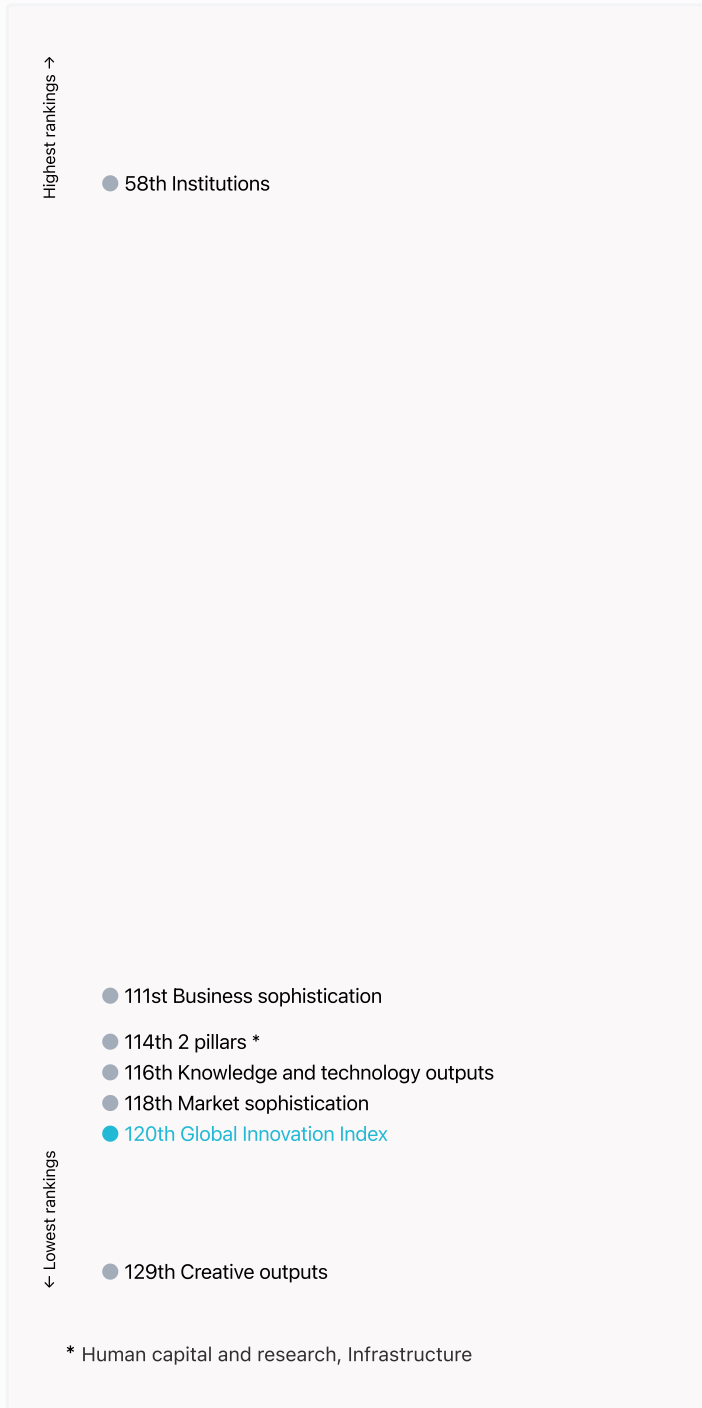


Global Innovation Index 2023



→ Overview of Benin's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Benin are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings



Benin ranks highest in Institutions (58th), Business sophistication (111st), Human capital and research, Infrastructure (114th), Knowledge and technology outputs (116th) and Market sophistication (118th).

> Lowest rankings

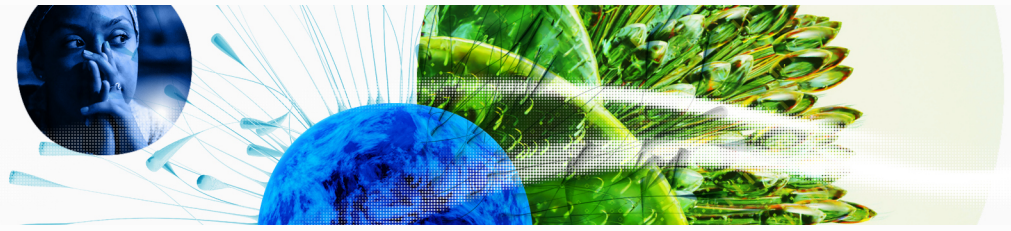


Benin ranks lowest in Creative outputs (129th), Market sophistication (118th) and Knowledge and technology outputs (116th).



The full WIPO Intellectual Property Statistics profile for Benin can be found on [this link](#).

Global Innovation Index 2023



→ Benchmark of Benin against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Benin (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Lower-Middle-Income economies

Benin performs below the lower-middle-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

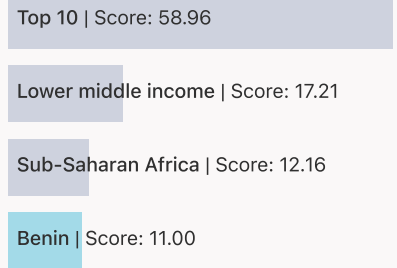


> Sub-Saharan Africa

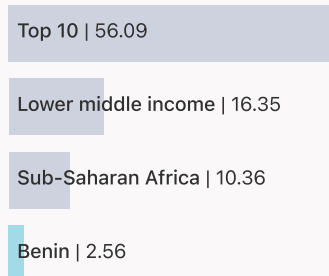
Benin performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.



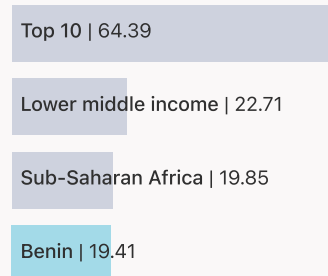
Knowledge and technology outputs



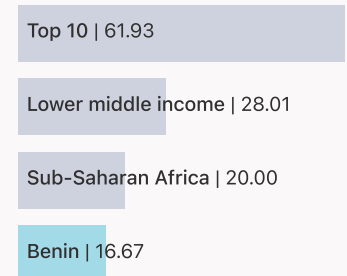
Creative outputs



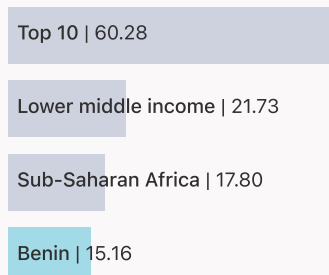
Business sophistication



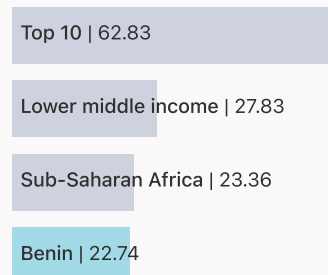
Market sophistication



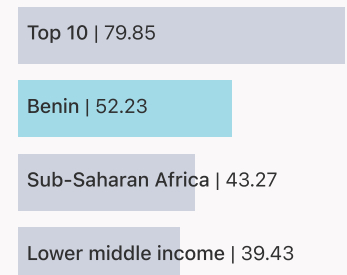
Human capital and research



Infrastructure



Institutions



Global Innovation Index 2023



→ Innovation strengths and weaknesses in Benin

The table below gives an overview of the indicator strengths and weaknesses of Benin in the GII 2023.



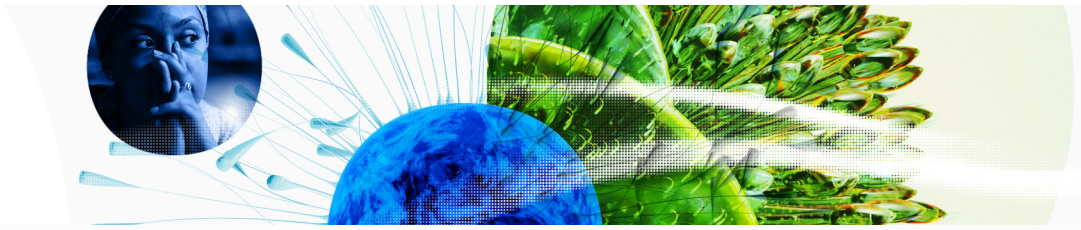
> Benin's main innovation strengths are **Labor productivity growth, % (rank 9)**, **ICT services imports, % total trade (rank 12)** and **Loans from microfinance institutions, % GDP (rank 18)**.

Strengths

Weaknesses

| Rank | Code | Indicator name | Rank | Code | Indicator name |
|------|-------|--|------|-------|---|
| 9 | 6.2.1 | Labor productivity growth, % | 132 | 6.3.4 | ICT services exports, % total trade |
| 12 | 5.3.3 | ICT services imports, % total trade | 127 | 7.1.2 | Trademarks by origin/bn PPP\$ GDP |
| 18 | 4.1.3 | Loans from microfinance institutions, % GDP | 123 | 3.2.1 | Electricity output, GWh/mn pop. |
| 28 | 3.2.3 | Gross capital formation, % GDP | 111 | 7.2.1 | Cultural and creative services exports, % total trade |
| 38 | 1.2.3 | Cost of redundancy dismissal | 95 | 5.2.5 | Patent families/bn PPP\$ GDP |
| 38 | 1.3.1 | Policies for doing business | 75 | 6.1.3 | Utility models by origin/bn PPP\$ GDP |
| 65 | 3.2.2 | Logistics performance | 74 | 7.1.3 | Global brand value, top 5,000 |
| 66 | 2.2.3 | Tertiary inbound mobility, % | 71 | 2.3.4 | QS university ranking, top 3 |
| 79 | 6.1.4 | Scientific and technical articles/bn PPP\$ GDP | 48 | 6.2.2 | Unicorn valuation, % GDP |
| 85 | 1.1.2 | Government effectiveness | 40 | 2.3.3 | Global corporate R&D investors, top 3, mn US\$ |

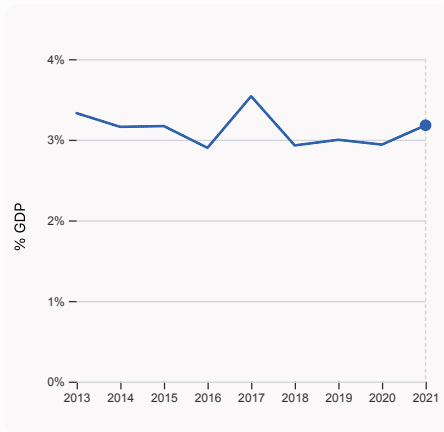
Global Innovation Index 2023



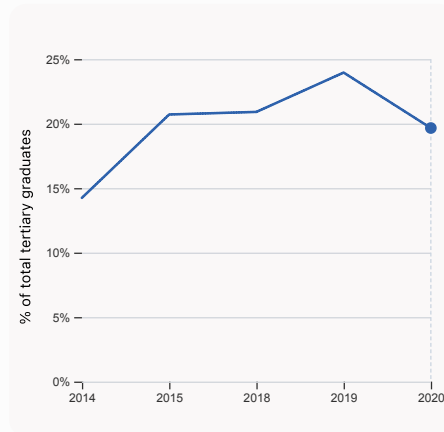
→ Benin's innovation system

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

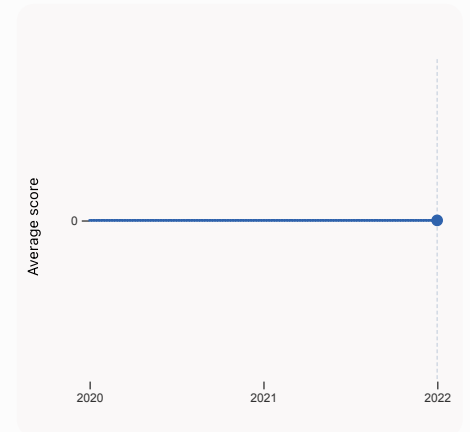
> Innovation inputs in Benin



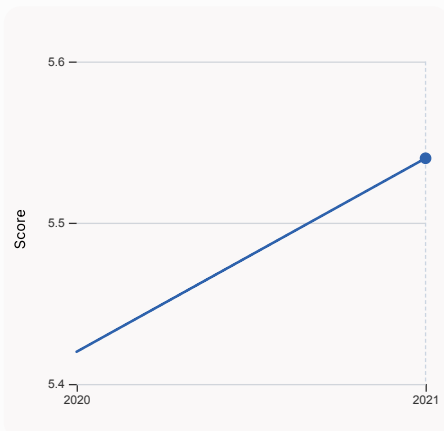
2.1.1 Expenditure on education, % GDP
was equal to 3.18% GDP in 2021, up by 0.24 percentage points from the year prior – and equivalent to an indicator rank of 103.



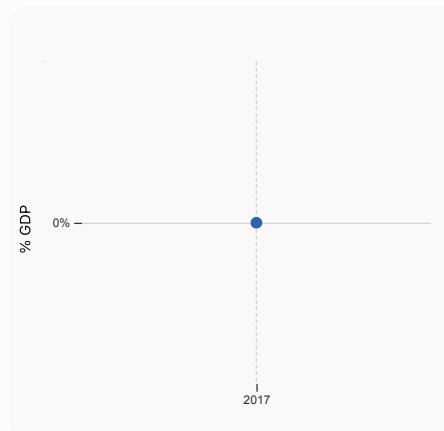
2.2.2 Graduates in science and engineering, %
was equal to 19.66% of total tertiary graduates in 2020, down by 4.3 percentage points from the year prior – and equivalent to an indicator rank of 74.



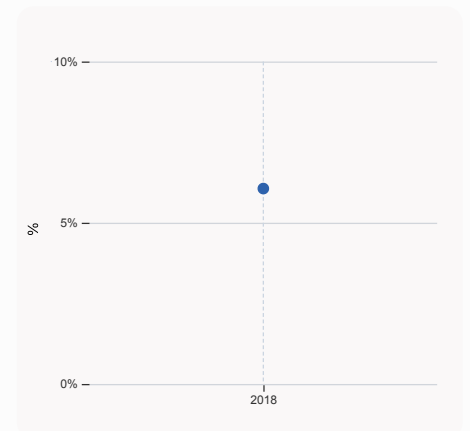
2.3.4 QS university ranking, top 3
was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.



3.1.1 ICT access
was equal to a score of 5.54 in 2021, up by 2.21% from the year prior – and equivalent to an indicator rank of 121.

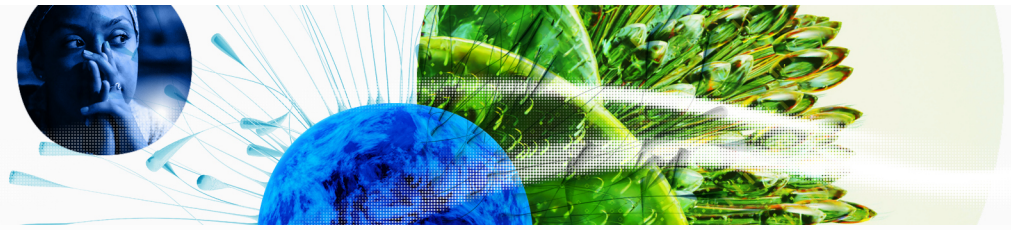


4.2.4 VC received, value, % GDP
was equal to 0 % GDP in 2017.

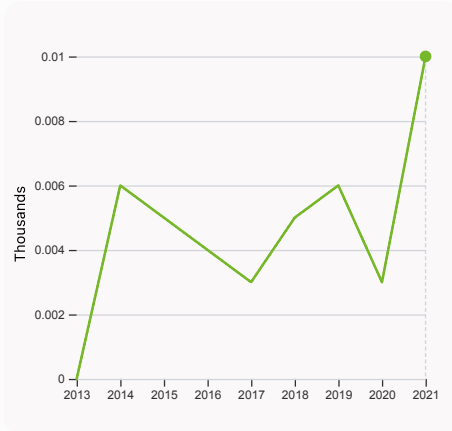


5.1.1 Knowledge-intensive employment, %
was equal to 6.06 % in 2018, equivalent to an indicator rank of 117.

Global Innovation Index 2023

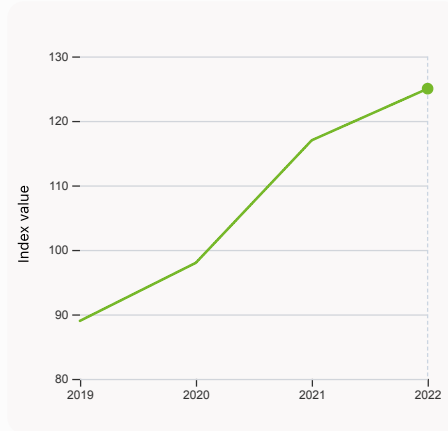


> Innovation outputs in Benin



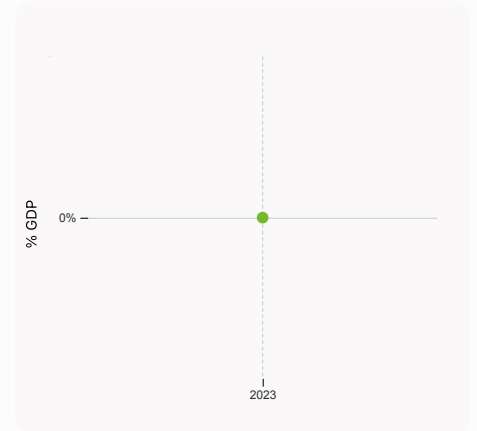
6.1.1 Patents by origin

was equal to 0.01 Thousands in 2021, up by 233.33% from the year prior – and equivalent to an indicator rank of 99.



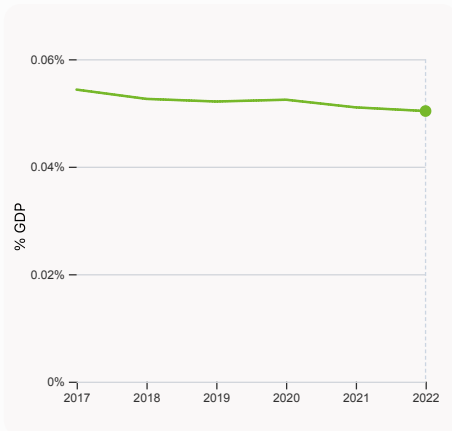
6.1.5 Citable documents H-index

was equal to an index value of 125 in 2022, up by 6.84% from the year prior – and equivalent to an indicator rank of 108.



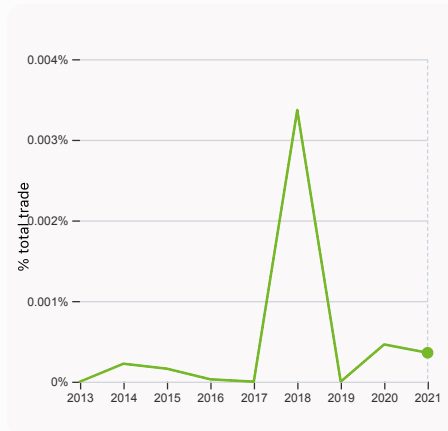
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



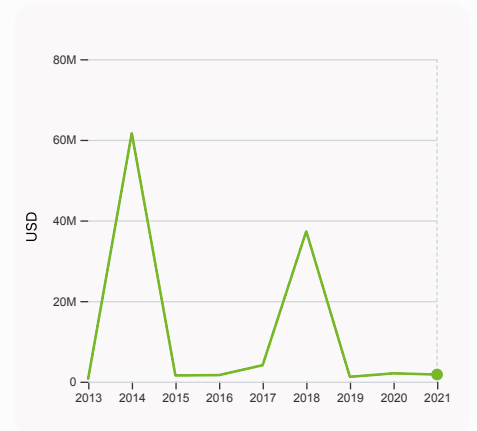
6.2.3 Software spending, % GDP

was equal to 0.05% GDP in 2022, down by 0.00068 percentage points from the year prior – and equivalent to an indicator rank of 104.



6.3.1 Intellectual property receipts, % total trade

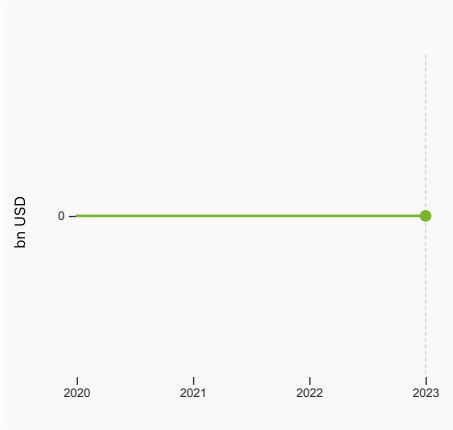
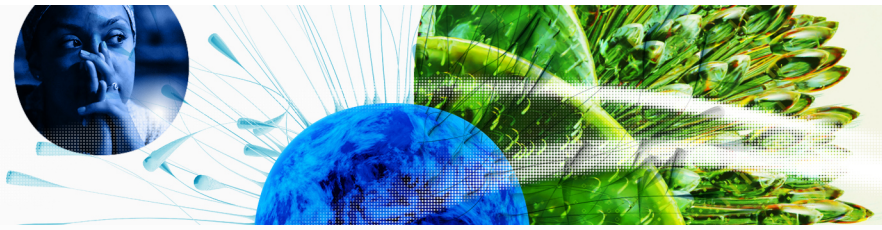
was equal to 0% total trade in 2021, down by 0.0001 percentage points from the year prior – and equivalent to an indicator rank of 108.



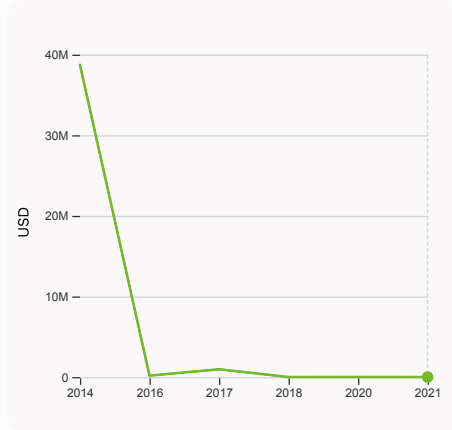
6.3.3 High-tech exports

was equal to 1,769,854 USD in 2021, down by 14.19% from the year prior – and equivalent to an indicator rank of 127.

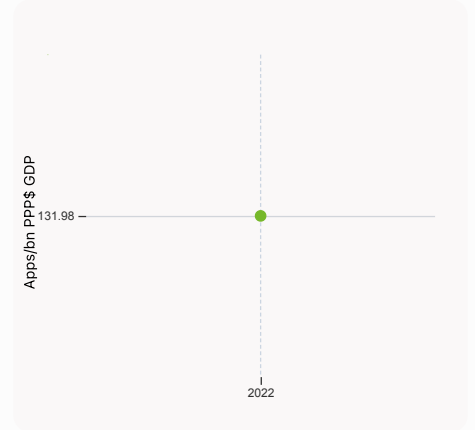
Global Innovation Index 2023



7.1.3 Global brand value, top 5,000 was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.

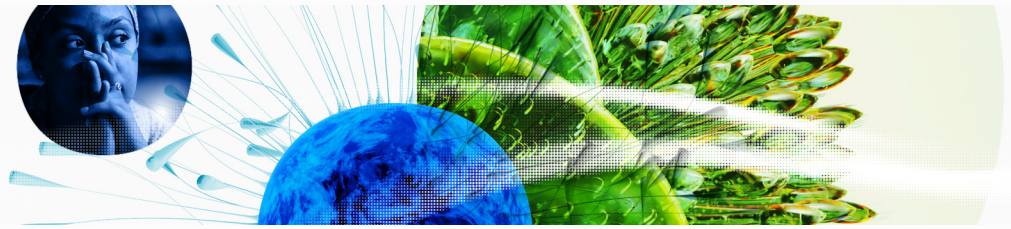


7.2.1 Cultural and creative services exports was equal to 8,000 USD in 2021, down by 42.86% from the year prior – and equivalent to an indicator rank of 111.



7.3.4 Mobile app creation/bn PPP\$ GDP was equal to 131.98 Apps/bn PPP\$ GDP in 2022 – and equivalent to an indicator rank of 119.

Global Innovation Index 2023



GII 2023 rank

120

Benin

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP\$ (bn) | GDP per capita, PPP\$ |
|-------------|------------|--------------|--------|-----------------|-----------------|-----------------------|
| 128 | 108 | Lower middle | SSA | 13.4 | 53.7 | 4,182.9 |

Score / Value Rank

Score / Value Rank

| Institutions | | 52.2 | 58 | Business sophistication | | 19.4 | 111 |
|--|--|------|-------|---|---|------|-------|
| 1.1 Institutional environment | | 36.4 | 88 | 5.1 Knowledge workers | | 9.2 | 123 |
| 1.1.1 | Operational stability for businesses* | 41.7 | 87 | 5.1.1 | Knowledge-intensive employment, % | 6.1 | 117 ◊ |
| 1.1.2 | Government effectiveness* | 31.0 | 85 ● | 5.1.2 | Firms offering formal training, % | 20.0 | 81 |
| 1.2 Regulatory environment | | 59.7 | 74 | 5.1.3 | GERD performed by business, % GDP | n/a | n/a |
| 1.2.1 | Regulatory quality* | 30.9 | 95 | 5.1.4 | GERD financed by business, % | n/a | n/a |
| 1.2.2 | Rule of law* | 22.3 | 100 | 5.1.5 | Females employed w/advanced degrees, % | 1.2 | 115 |
| 1.2.3 | Cost of redundancy dismissal | 11.6 | 38 ● | 5.2 Innovation linkages | | 14.5 | 97 |
| 1.3 Business environment | | 60.6 | 32 | 5.2.1 | University-industry R&D collaboration ⁺ | 26.8 | 102 |
| 1.3.1 | Policies for doing business [†] | 60.6 | 38 ● | 5.2.2 | State of cluster development [†] | 16.6 | 117 |
| 1.3.2 | Entrepreneurship policies and culture [†] | n/a | n/a | 5.2.3 | GERD financed by abroad, % GDP | n/a | n/a |
| Human capital and research | | 15.2 | 114 | 5.2.4 | Joint venture/strategic alliance deals/bn PPP\$ GDP | n/a | n/a |
| 2.1 Education | | 31.1 | 119 | 5.2.5 | Patent families/bn PPP\$ GDP | 0.0 | 95 ◊ |
| 2.1.1 | Expenditure on education, % GDP | 3.2 | 103 | 5.3 Knowledge absorption | | 34.6 | 58 |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 8.2 | 95 | 5.3.1 | Intellectual property payments, % total trade | 0.0 | 114 ◊ |
| 2.1.3 | School life expectancy, years | 10.8 | 100 | 5.3.2 | High-tech imports, % total trade | 3.8 | 126 |
| 2.1.4 | PISA scales in reading, maths and science | n/a | n/a | 5.3.3 | ICT services imports, % total trade | 3.4 | 12 ● |
| 2.1.5 | Pupil-teacher ratio, secondary | 18.1 | 91 | 5.3.4 | FDI net inflows, % GDP | 1.5 | 87 |
| 2.2 Tertiary education | | 14.4 | 104 | 5.3.5 | Research talent, % in businesses | n/a | n/a |
| 2.2.1 | Tertiary enrolment, % gross | 11.1 | 111 | Knowledge and technology outputs | | 11.0 | 116 |
| 2.2.2 | Graduates in science and engineering, % | 19.7 | 74 | 6.1 Knowledge creation | | 5.4 | 111 |
| 2.2.3 | Tertiary inbound mobility, % | 3.0 | 66 ● | 6.1.1 | Patents by origin/bn PPP\$ GDP | 0.2 | 99 |
| 2.3 Research and development (R&D) | | 0.0 | 119 | 6.1.2 | PCT patents by origin/bn PPP\$ GDP | 0.0 | 90 |
| 2.3.1 | Researchers, FTE/mn pop. | n/a | n/a | 6.1.3 | Utility models by origin/bn PPP\$ GDP | 0.0 | 75 ◊ |
| 2.3.2 | Gross expenditure on R&D, % GDP | n/a | n/a | 6.1.4 | Scientific and technical articles/bn PPP\$ GDP | n/a | n/a |
| 2.3.3 | Global corporate R&D investors, top 3, mn US\$ | 0.0 | 40 ◊ | 6.1.5 | Citable documents H-index | 4.6 | 108 |
| 2.3.4 | QS university ranking, top 3* | 0.0 | 71 ◊ | 6.2 Knowledge impact | | 26.9 | 64 |
| Infrastructure | | 22.7 | 114 | 6.2.1 | Labor productivity growth, % | 3.5 | 9 ● |
| 3.1 Information and communication technologies (ICTs) | | 35.8 | 114 | 6.2.2 | Unicorn valuation, % GDP | 0.0 | 48 ◊ |
| 3.1.1 | ICT access* | 32.6 | 121 ◊ | 6.2.3 | Software spending, % GDP | 0.1 | 104 |
| 3.1.2 | ICT use* | 30.6 | 116 ◊ | 6.2.4 | High-tech manufacturing, % | n/a | n/a |
| 3.1.3 | Government's online service* | 47.4 | 96 | 6.3 Knowledge diffusion | | 0.8 | 132 ◊ |
| 3.1.4 | E-participation* | 32.6 | 100 | 6.3.1 | Intellectual property receipts, % total trade | 0.0 | 108 |
| 3.2 General infrastructure | | 21.4 | 83 | 6.3.2 | Production and export complexity | n/a | n/a |
| 3.2.1 | Electricity output, GWh/mn pop. | 81.7 | 123 ◊ | 6.3.3 | High-tech exports, % total trade | 0.0 | 127 |
| 3.2.2 | Logistics performance* | 36.4 | 65 ● | 6.3.4 | ICT services exports, % total trade | 0.0 | 132 ◊ |
| 3.2.3 | Gross capital formation, % GDP | 28.6 | 28 ● | 6.3.5 | ISO 9001 quality/bn PPP\$ GDP | 0.9 | 111 |
| 3.3 Ecological sustainability | | 11.0 | 124 ◊ | Creative outputs | | 2.6 | 129 ◊ |
| 3.3.1 | GDP/unit of energy use | 7.1 | 96 | 7.1 Intangible assets | | 1.5 | 129 ◊ |
| 3.3.2 | Environmental performance* | 18.1 | 113 | 7.1.1 | Intangible asset intensity, top 15, % | n/a | n/a |
| 3.3.3 | ISO 14001 environment/bn PPP\$ GDP | 0.1 | 123 | 7.1.2 | Trademarks by origin/bn PPP\$ GDP | 4.0 | 127 ◊ |
| Market sophistication | | 16.7 | 118 | 7.1.3 | Global brand value, top 5,000 | 0.0 | 74 ◊ |
| 4.1 Credit | | 14.7 | 102 | 7.1.4 | Industrial designs by origin/bn PPP\$ GDP | 0.1 | 112 |
| 4.1.1 | Finance for startups and scaleups [†] | n/a | n/a | 7.2 Creative goods and services | | 0.1 | 130 |
| 4.1.2 | Domestic credit to private sector, % GDP | 15.5 | 117 | 7.2.1 | Cultural and creative services exports, % total trade | 0.0 | 111 ◊ |
| 4.1.3 | Loans from microfinance institutions, % GDP | 2.2 | 18 ● | 7.2.2 | National feature films/mn pop. 15-69 | n/a | n/a |
| 4.2 Investment | | n/a | n/a | 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 | Creative goods exports, % total trade | 0.0 | 122 |
| 4.2.2 | Venture capital (VC) investors, deals/bn PPP\$ GDP | n/a | n/a | 7.3 Online creativity | | 7.1 | 120 ◊ |
| 4.2.3 | VC recipients, deals/bn PPP\$ GDP | n/a | n/a | 7.3.1 | Generic top-level domains (TLDs)/th pop. 15-69 | 0.6 | 105 |
| 4.2.4 | VC received, value, % GDP | n/a | n/a | 7.3.2 | Country-code TLDs/th pop. 15-69 | 0.1 | 124 |
| 4.3 Trade, diversification, and market scale | | 18.6 | 127 ◊ | 7.3.3 | GitHub commits/mn pop. 15-69 | 0.8 | 117 |
| 4.3.1 | Applied tariff rate, weighted avg., % | 9.9 | 117 | 7.3.4 | Mobile app creation/bn PPP\$ GDP | 26.9 | 119 ◊ |
| 4.3.2 | Domestic industry diversification | n/a | n/a | | | | |
| 4.3.3 | Domestic market scale, bn PPP\$ | 53.7 | 104 | | | | |

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/gii-ranking>. 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 Benin.

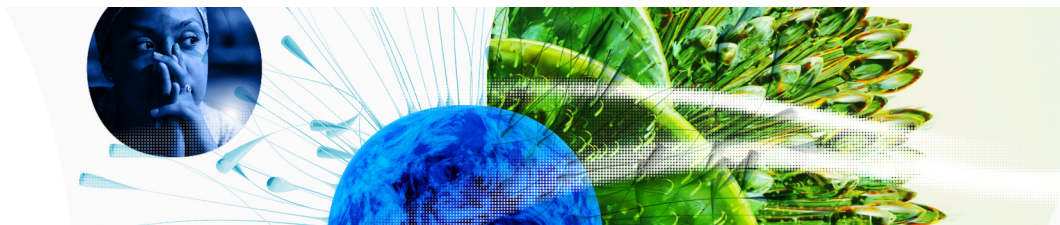


> Benin has missing data for twenty indicators and outdated data for five indicators.

> Missing data for Benin

| Code | Indicator name | Economy Year | Model Year | Source |
|-------|---|--------------|------------|--|
| 1.3.2 | Entrepreneurship policies and culture | n/a | 2022 | Global Entrepreneurship Monitor |
| 2.1.4 | PISA scales in reading, maths and science | n/a | 2018 | OECD, PISA |
| 2.3.1 | Researchers, FTE/mn pop. | n/a | 2021 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 2.3.2 | Gross expenditure on R&D, % GDP | n/a | 2021 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 4.1.1 | Finance for startups and scaleups | n/a | 2022 | Global Entrepreneurship Monitor |
| 4.2.1 | Market capitalization, % GDP | n/a | 2020 | World Federation of Exchanges; World Bank |
| 4.2.2 | Venture capital (VC) investors, deals/bn PPP\$ GDP | n/a | 2022 | Refinitiv; International Monetary Fund |
| 4.2.3 | VC recipients, deals/bn PPP\$ GDP | n/a | 2022 | Refinitiv; International Monetary Fund |
| 4.2.4 | VC received, value, % GDP | n/a | 2022 | Refinitiv; International Monetary Fund |
| 4.3.2 | Domestic industry diversification | n/a | 2020 | United Nations Industrial Development Organization |
| 5.1.3 | GERD performed by business, % GDP | n/a | 2021 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 5.1.4 | GERD financed by business, % | n/a | 2020 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 5.2.3 | GERD financed by abroad, % GDP | n/a | 2020 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 5.2.4 | Joint venture/strategic alliance deals/bn PPP\$ GDP | n/a | 2022 | Refinitiv; International Monetary Fund |
| 5.3.5 | Research talent, % in businesses | n/a | 2021 | UNESCO Institute for Statistics; Eurostat; OECD; RICYT |
| 6.2.4 | High-tech manufacturing, % | n/a | 2020 | United Nations Industrial Development Organization |
| 6.3.2 | Production and export complexity | n/a | 2020 | Harvard University, Growth Lab |

Global Innovation Index 2023

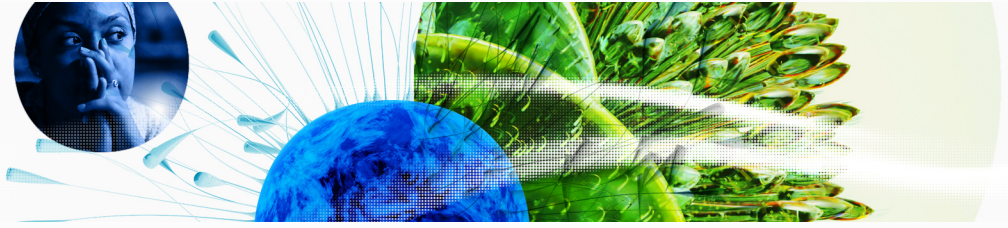


| Code | Indicator name | Economy Year | Model Year | Source |
|-------|--|--------------|------------|--|
| 7.1.1 | Intangible asset intensity, top 15, % | n/a | 2022 | Brand Finance |
| 7.2.2 | National feature films/mn pop. 15-69 | n/a | 2021 | OMDIA; United Nations, World Population Prospects |
| 7.2.3 | Entertainment and media market/th pop. 15-69 | n/a | 2022 | PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund |

> Outdated data for Benin

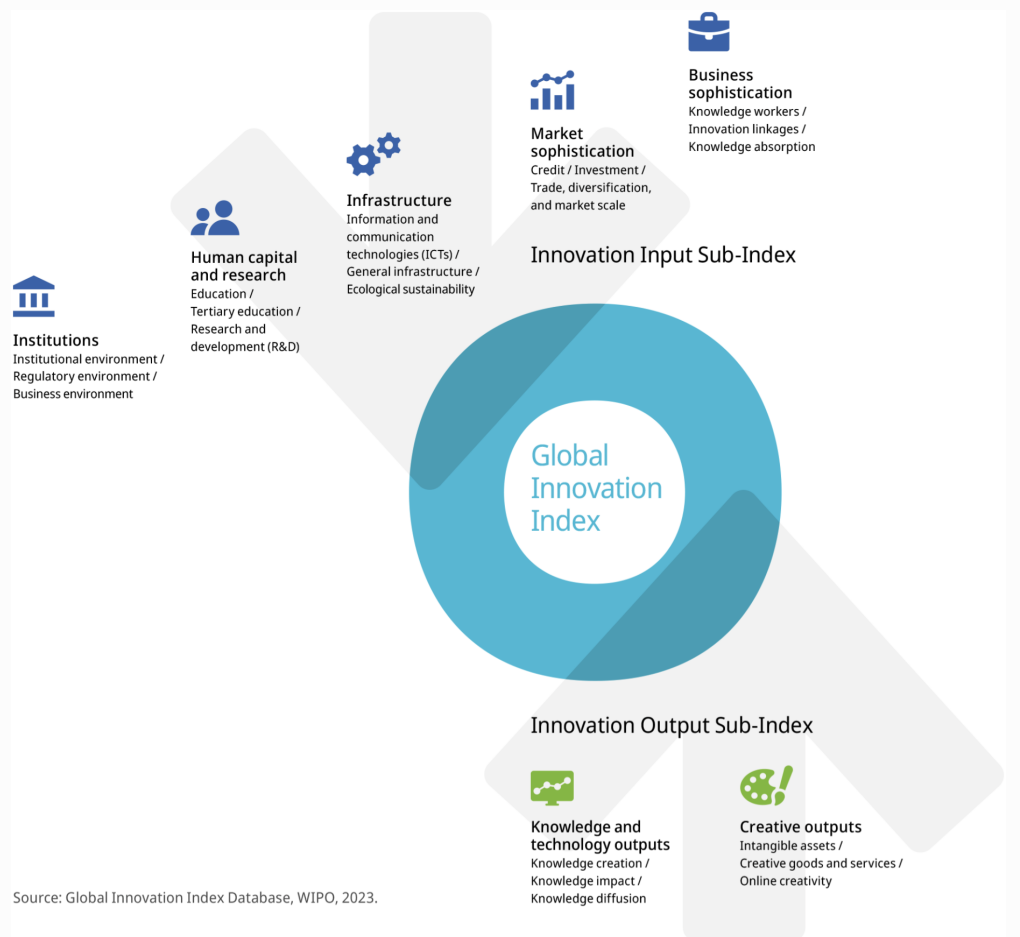
| Code | Indicator name | Economy Year | Model Year | Source |
|-------|--|--------------|------------|-----------------------------------|
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 2015 | 2019 | UNESCO Institute for Statistics |
| 3.2.1 | Electricity output, GWh/mn pop. | 2020 | 2021 | International Energy Agency |
| 5.1.1 | Knowledge-intensive employment, % | 2018 | 2022 | International Labour Organization |
| 5.1.2 | Firms offering formal training, % | 2016 | 2019 | World Bank Enterprise Surveys |
| 5.1.5 | Females employed w/advanced degrees, % | 2018 | 2022 | International Labour Organization |

Global Innovation Index 2023



→ 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.