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.

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→ 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

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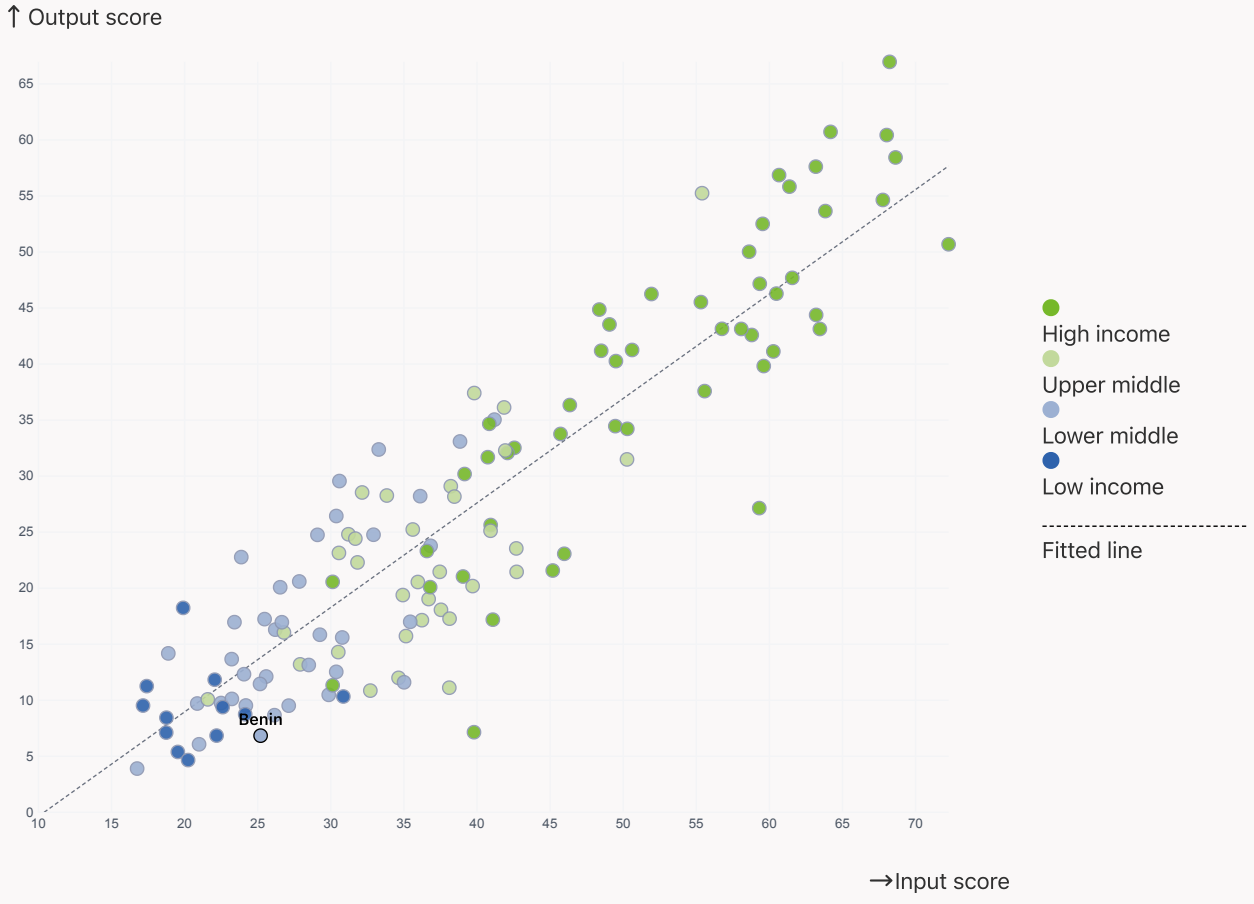
→ Effectively translating innovation investments into innovation outputs

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



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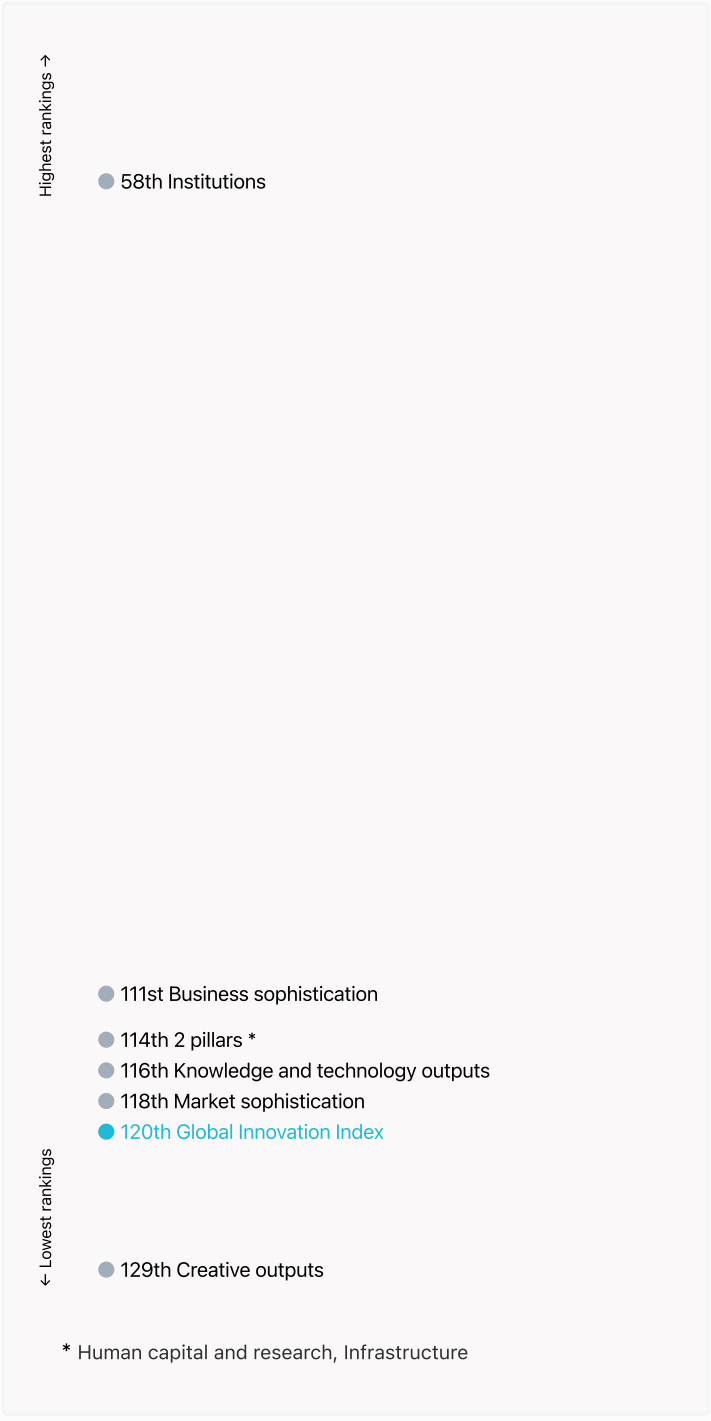
→ Overview of Benin's rankings in the seven areas of the GII in 2023

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.

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

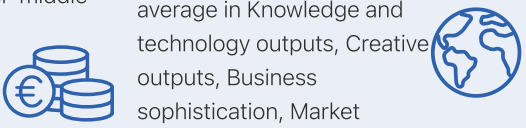
The charts shows the relative position of Benin (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> 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

- Top 10 | Score: 58.96
- Lower middle income | Score: 17.21
- Sub-Saharan Africa | Score: 12.16
- Benin | Score: 11.00

Creative outputs

- Top 10 | 56.09
- Lower middle income | 16.35
- Sub-Saharan Africa | 10.36
- Benin | 2.56

Business sophistication

- Top 10 | 64.39
- Lower middle income | 22.71
- Sub-Saharan Africa | 19.85
- Benin | 19.41

Market sophistication

- Top 10 | 61.93
- Lower middle income | 28.01
- Sub-Saharan Africa | 20.00
- Benin | 16.67

Human capital and research

- Top 10 | 60.28
- Lower middle income | 21.73
- Sub-Saharan Africa | 17.80
- Benin | 15.16

Infrastructure

- Top 10 | 62.83
- Lower middle income | 27.83
- Sub-Saharan Africa | 23.36
- Benin | 22.74

Institutions

- Top 10 | 79.85
- Benin | 52.23
- Sub-Saharan Africa | 43.27
- Lower middle income | 39.43

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→ 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

Rank	Code	Indicator name
9	6.2.1	Labor productivity growth, %
12	5.3.3	ICT services imports, % total trade
18	4.1.3	Loans from microfinance institutions, % GDP
28	3.2.3	Gross capital formation, % GDP
38	1.2.3	Cost of redundancy dismissal
38	1.3.1	Policies for doing business
65	3.2.2	Logistics performance
66	2.2.3	Tertiary inbound mobility, %
79	6.1.4	Scientific and technical articles/bn PPP$ GDP
85	1.1.2	Government effectiveness

Weaknesses

Rank	Code	Indicator name
132	6.3.4	ICT services exports, % total trade
127	7.1.2	Trademarks by origin/bn PPP$ GDP
123	3.2.1	Electricity output, GWh/mn pop.
111	7.2.1	Cultural and creative services exports, % total trade
95	5.2.5	Patent families/bn PPP$ GDP
75	6.1.3	Utility models by origin/bn PPP$ GDP
74	7.1.3	Global brand value, top 5,000
71	2.3.4	QS university ranking, top 3
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

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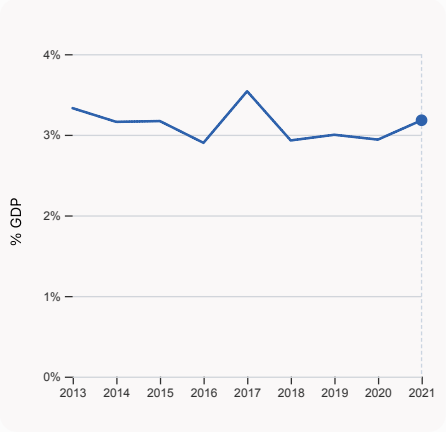
→ Benin's innovation system

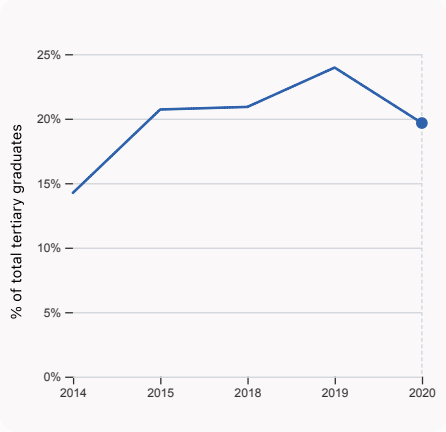
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Benin



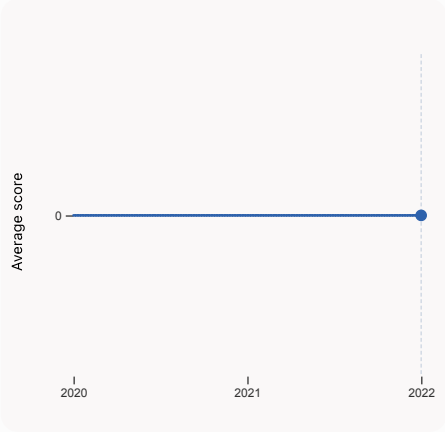
2.1.1 Expenditure on education, % GDP

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.



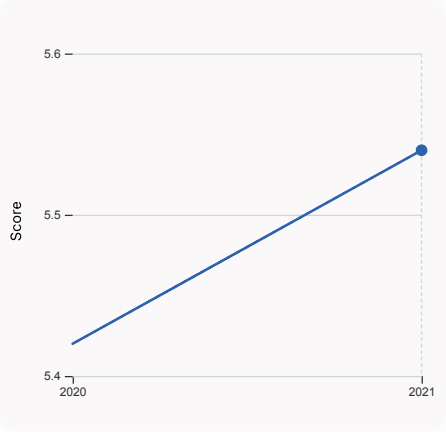
2.2.2 Graduates in science and engineering, %

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.



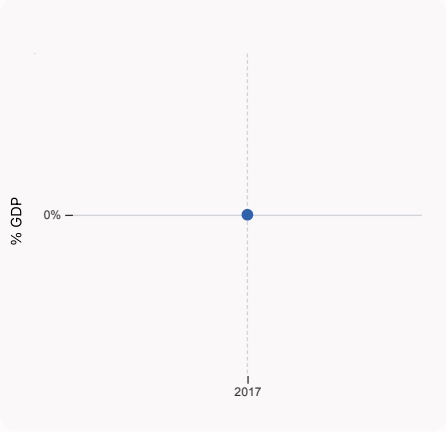
2.3.4 QS university ranking, top 3

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



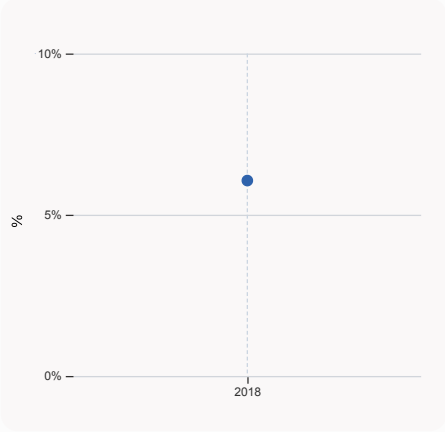
3.1.1 ICT access

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.

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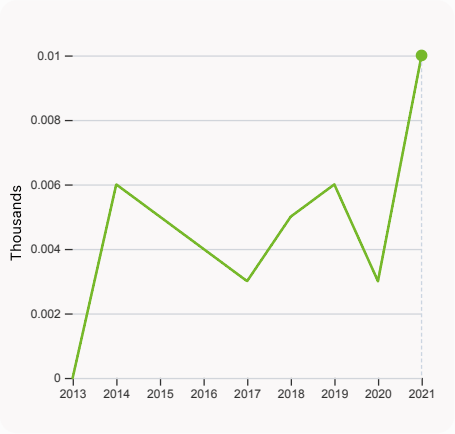
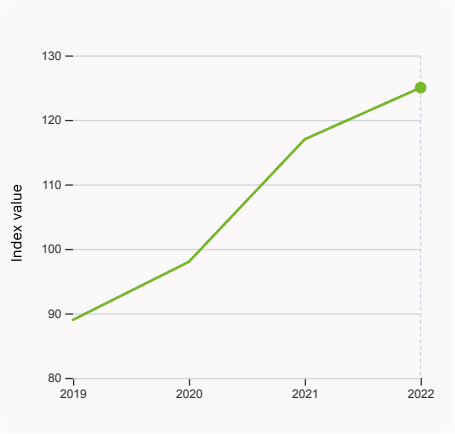
> Innovation outputs in Benin



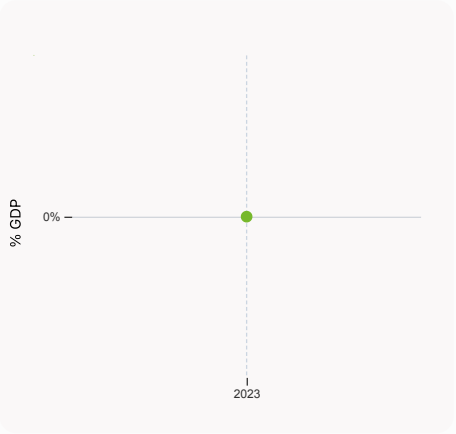
6.1.1 Patents by origin

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



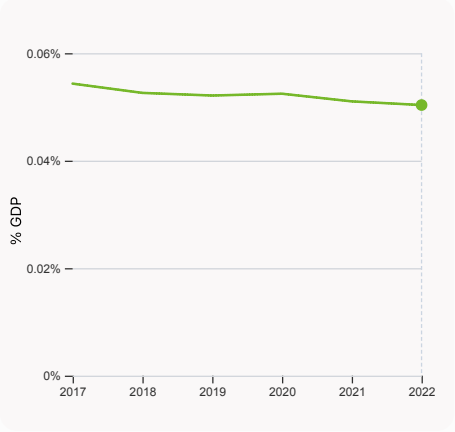
6.1.5 Citable documents H-index

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.



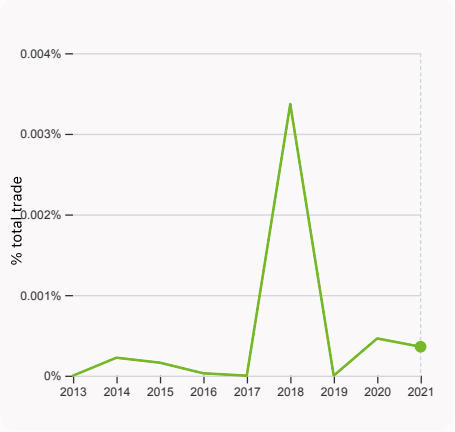
6.2.2 Unicorn valuation, % GDP

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



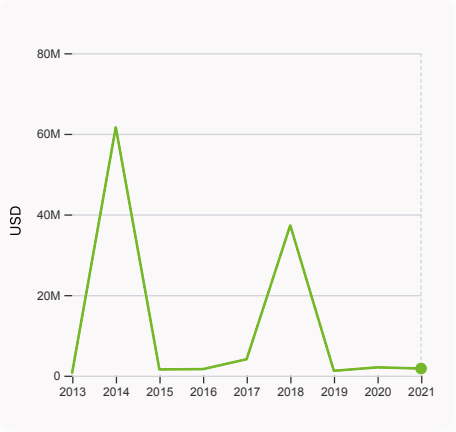
6.2.3 Software spending, % GDP

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.

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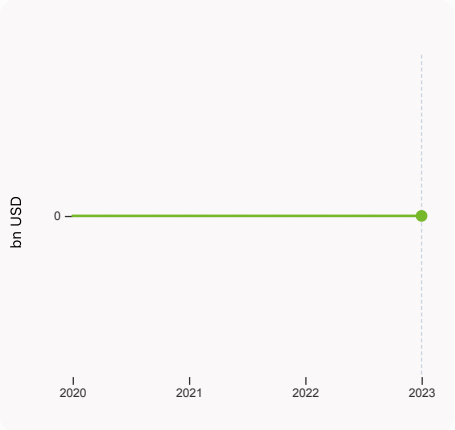
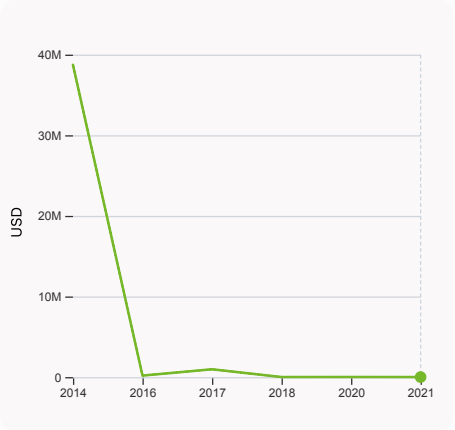


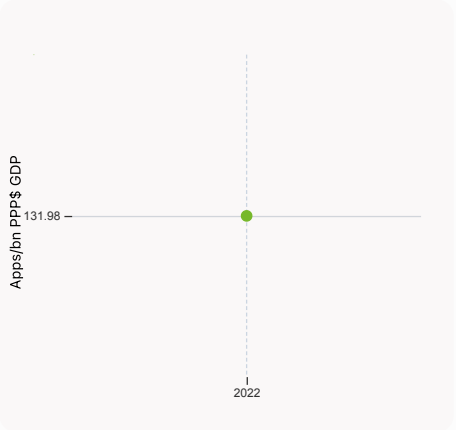
7.1.3 Global brand value, top 5,000

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.

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Benin

GII 2023 rank
120

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	
Institutions	**52.2**	**58**	
1.1 Institutional environment	**36.4**	**88**	
1.1.1 Operational stability for businesses*	41.7	87	
1.1.2 Government effectiveness*	31.0	85	●
1.2 Regulatory environment	**59.7**	**74**	
1.2.1 Regulatory quality*	30.9	95	
1.2.2 Rule of law*	22.3	100	
1.2.3 Cost of redundancy dismissal	11.6	38	●
1.3 Business environment	**60.6**	**32**	
1.3.1 Policies for doing business†	60.6	38	●
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**15.2**	**114**	
2.1 Education	**31.1**	**119**	
2.1.1 Expenditure on education, % GDP	3.2	103	
2.1.2 Government funding/pupil, secondary, % GDP/cap	8.2	95	
2.1.3 School life expectancy, years	10.8	100	
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil-teacher ratio, secondary	18.1	91	
2.2 Tertiary education	**14.4**	**104**	
2.2.1 Tertiary enrolment, % gross	11.1	111	
2.2.2 Graduates in science and engineering, %	19.7	74	
2.2.3 Tertiary inbound mobility, %	3.0	66	●
2.3 Research and development (R&D)	**0.0**	**119**	
2.3.1 Researchers, FTE/mn pop.	n/a	n/a	
2.3.2 Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40	○ ◇
2.3.4 QS university ranking, top 3*	0.0	71	○ ◇
Infrastructure	**22.7**	**114**	
3.1 Information and communication technologies (ICTs)	**35.8**	**114**	
3.1.1 ICT access*	32.6	121	◇
3.1.2 ICT use*	30.6	116	◇
3.1.3 Government's online service*	47.4	96	
3.1.4 E-participation*	32.6	100	
3.2 General infrastructure	**21.4**	**83**	
3.2.1 Electricity output, GWh/mn pop.	81.7	123	○ ◇
3.2.2 Logistics performance*	36.4	65	●
3.2.3 Gross capital formation, % GDP	28.6	28	●
3.3 Ecological sustainability	**11.0**	**124**	◇
3.3.1 GDP/unit of energy use	7.1	96	
3.3.2 Environmental performance*	18.1	113	
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.1	123	
Market sophistication	**16.7**	**118**	
4.1 Credit	**14.7**	**102**	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	15.5	117	
4.1.3 Loans from microfinance institutions, % GDP	2.2	18	●
4.2 Investment	**n/a**	**n/a**	
4.2.1 Market capitalization, % GDP	n/a	n/a	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3 VC recipients, deals/bn PPP$ GDP	n/a	n/a	
4.2.4 VC received, value, % GDP	n/a	n/a	
4.3 Trade, diversification, and market scale	**18.6**	**127**	◇
4.3.1 Applied tariff rate, weighted avg., %	9.9	117	
4.3.2 Domestic industry diversification	n/a	n/a	
4.3.3 Domestic market scale, bn PPP$	53.7	104	

	Score / Value	Rank	
Business sophistication	**19.4**	**111**	
5.1 Knowledge workers	**9.2**	**123**	
5.1.1 Knowledge-intensive employment, %	6.1	117	◇
5.1.2 Firms offering formal training, %	20.0	81	
5.1.3 GERD performed by business, % GDP	n/a	n/a	
5.1.4 GERD financed by business, %	n/a	n/a	
5.1.5 Females employed w/advanced degrees, %	1.2	115	
5.2 Innovation linkages	**14.5**	**97**	
5.2.1 University-industry R&D collaboration†	26.8	102	
5.2.2 State of cluster development†	16.6	117	
5.2.3 GERD financed by abroad, % GDP	n/a	n/a	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	n/a	n/a	
5.2.5 Patent families/bn PPP$ GDP	0.0	95	○ ◇
5.3 Knowledge absorption	**34.6**	**58**	
5.3.1 Intellectual property payments, % total trade	0.0	114	◇
5.3.2 High-tech imports, % total trade	3.8	126	
5.3.3 ICT services imports, % total trade	3.4	12	●
5.3.4 FDI net inflows, % GDP	1.5	87	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**11.0**	**116**	
6.1 Knowledge creation	**5.4**	**111**	
6.1.1 Patents by origin/bn PPP$ GDP	0.2	99	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	90	
6.1.3 Utility models by origin/bn PPP$ GDP	0.0	75	○ ◇
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	4.6	108	
6.2 Knowledge impact	**26.9**	**64**	
6.2.1 Labor productivity growth, %	3.5	9	●
6.2.2 Unicorn valuation, % GDP	0.0	48	○ ◇
6.2.3 Software spending, % GDP	0.1	104	
6.2.4 High-tech manufacturing, %	n/a	n/a	
6.3 Knowledge diffusion	**0.8**	**132**	◇
6.3.1 Intellectual property receipts, % total trade	0.0	108	
6.3.2 Production and export complexity	n/a	n/a	
6.3.3 High-tech exports, % total trade	0.0	127	
6.3.4 ICT services exports, % total trade	0.0	132	○ ◇
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.9	111	
Creative outputs	**2.6**	**129**	◇
7.1 Intangible assets	**1.5**	**129**	◇
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	4.0	127	○
7.1.3 Global brand value, top 5,000	0.0	74	○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.1	112	
7.2 Creative goods and services	**0.1**	**130**	
7.2.1 Cultural and creative services exports, % total trade	0.0	111	○ ◇
7.2.2 National feature films/mn pop. 15-69	n/a	n/a	
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.0	122	
7.3 Online creativity	**7.1**	**120**	◇
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.6	105	
7.3.2 Country-code TLDs/th pop. 15-69	0.1	124	
7.3.3 GitHub commits/mn pop. 15-69	0.8	117	
7.3.4 Mobile app creation/bn PPP$ GDP	26.9	119	◇

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.

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→ 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

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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.