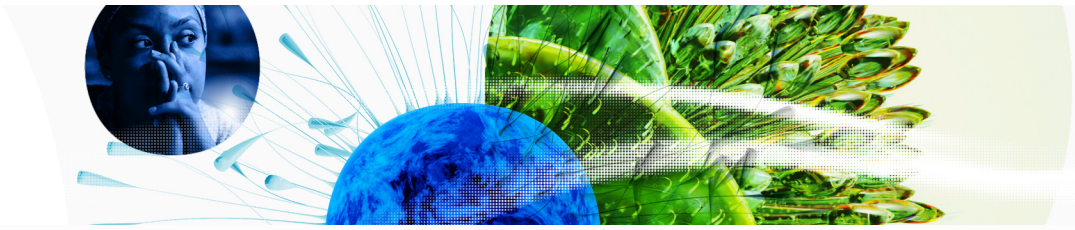
Global Innovation Index 2023



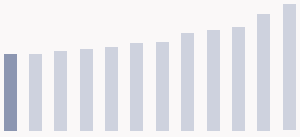
The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

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

Niger ranking in the Global Innovation Index 2023

> Niger ranks 131st among the 132 economies featured in the GII 2023.

> Niger ranks 12th among the 12 low-income group economies.



> Niger ranks 27th among the 28 economies in Sub-Saharan Africa.

> Niger GII Ranking (2020-2023)

The table shows the rankings of Niger 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 Niger in the GII 2023 is between ranks 125 and 132.

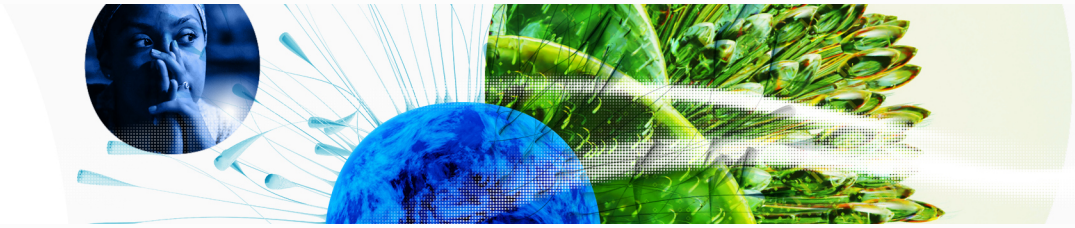
	GII Position	Innovation Inputs	Innovation Outputs
2020	128th	124th	129th
2021	129th	125th	130th
2022	125th	119th	126th
2023	131st	124th	131st

Niger performs worse in **innovation outputs** than innovation inputs in 2023.

This year **Niger ranks 124th in innovation inputs.** This position is lower than last year.

Niger ranks 131st in innovation outputs. This position is lower than last year.

Global Innovation Index 2023

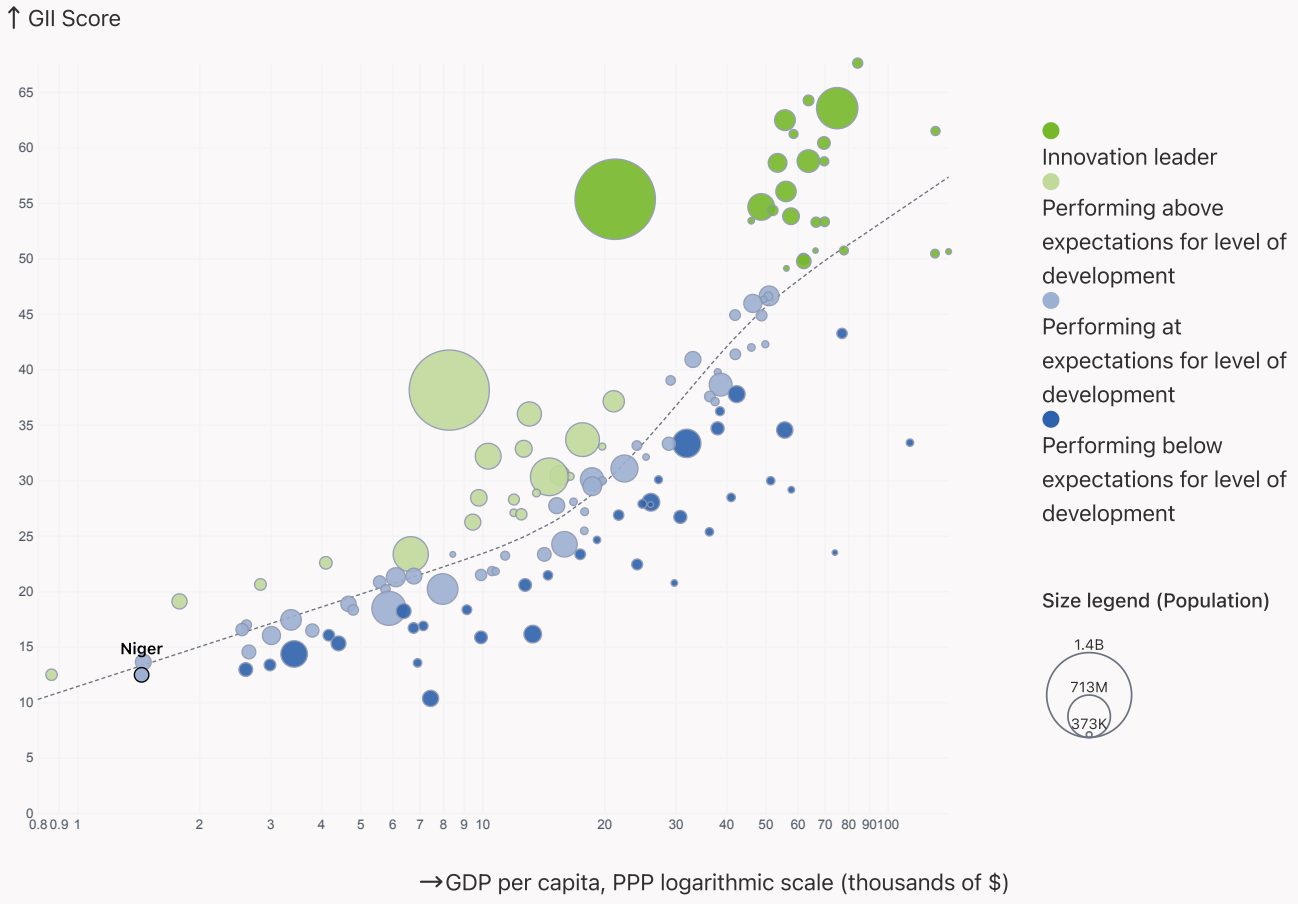


→ Expected vs. observed innovation performance

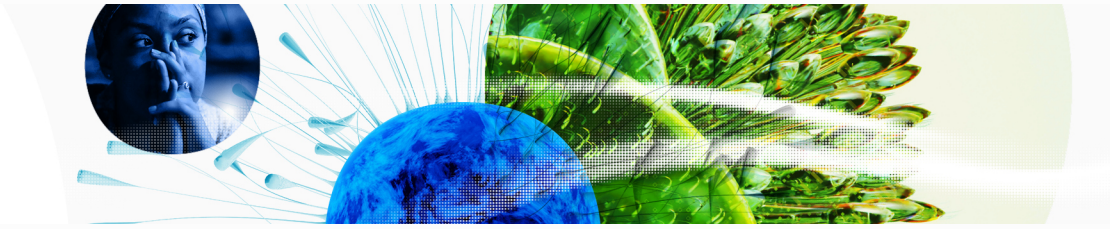
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

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

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

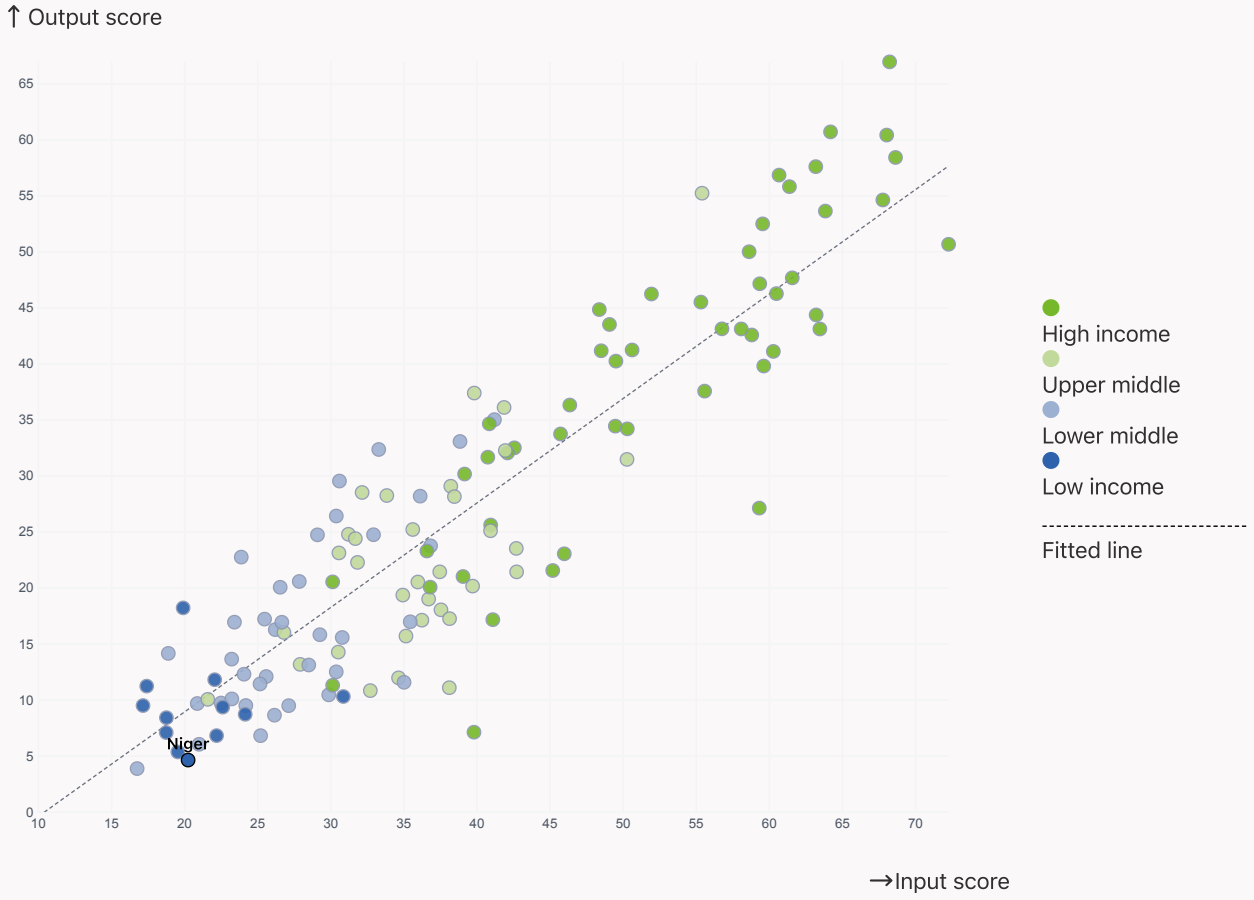


→ Effectively translating innovation investments into innovation outputs

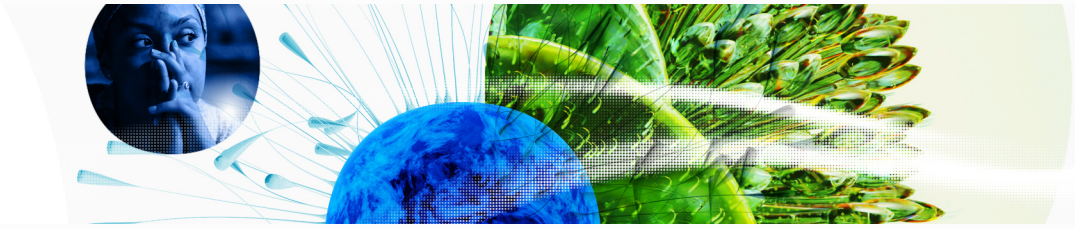
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

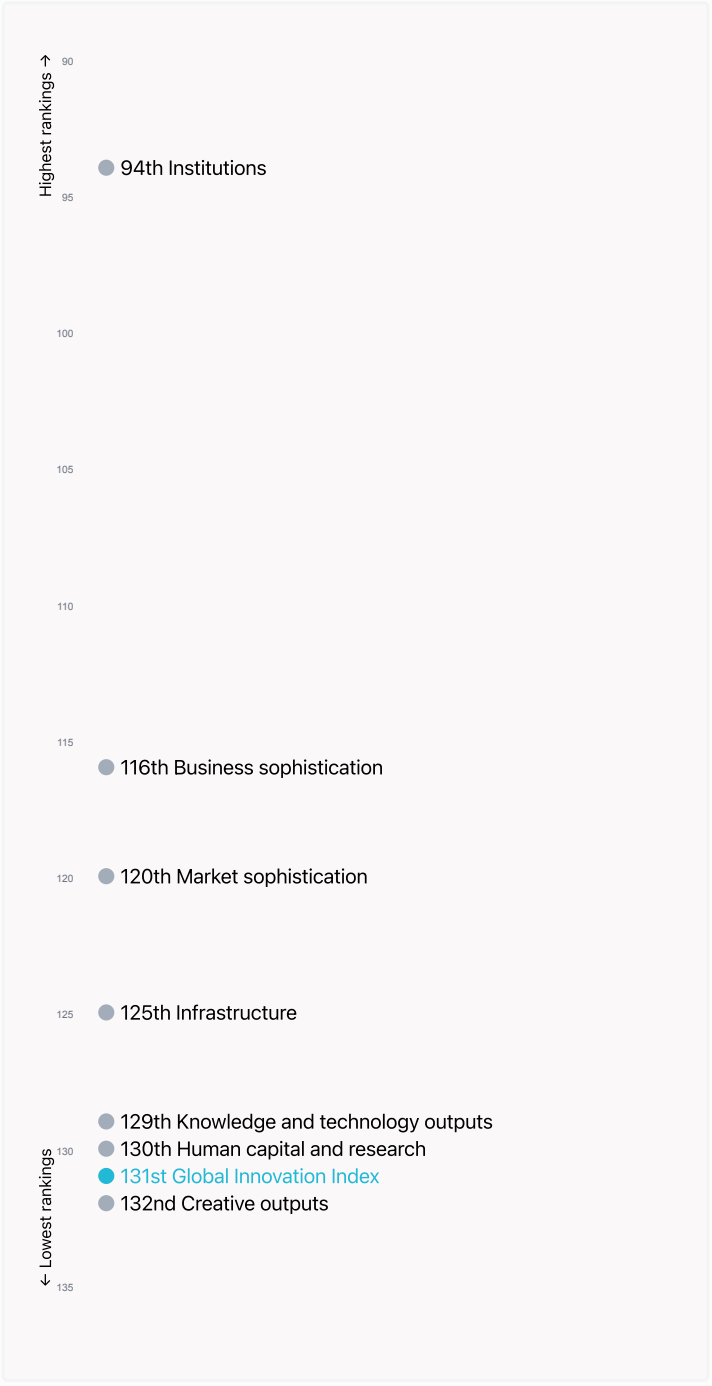


Global Innovation Index 2023



→ Overview of Niger'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 Niger are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

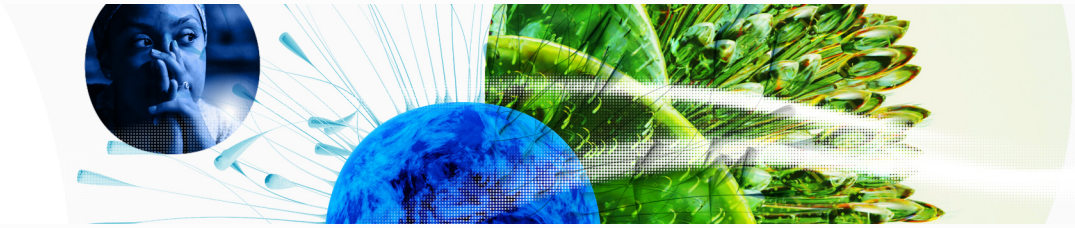
Niger ranks highest in Institutions (94th), Business sophistication (116th), Market sophistication (120th), Infrastructure (125th), Knowledge and technology outputs (129th) and Human capital and research (130th).

> Lowest rankings

Niger ranks lowest in Creative outputs (132nd), Human capital and research (130th) and Knowledge and technology outputs (129th).

The full WIPO Intellectual Property Statistics profile for Niger can be found on this link.

Global Innovation Index 2023



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

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

> Low-Income economies

Niger performs below the low-income group average in Knowledge and technology outputs, Creative outputs, Human capital and research, Infrastructure.

> Sub-Saharan Africa

Niger performs below the regional average in all the pillars.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Sub-Saharan Africa | Score: 12.16
- Low income | Score: 11.03
- Niger | Score: 9.01

Creative outputs

- Top 10 | 56.09
- Sub-Saharan Africa | 10.36
- Low income | 7.48
- Niger | 0.20

Business sophistication

- Top 10 | 64.39
- Sub-Saharan Africa | 19.85
- Niger | 17.85
- Low income | 16.81

Market sophistication

- Top 10 | 61.93
- Sub-Saharan Africa | 20.00
- Niger | 15.84
- Low income | 15.67

Human capital and research

- Top 10 | 60.28
- Sub-Saharan Africa | 17.80
- Low income | 15.55
- Niger | 9.04

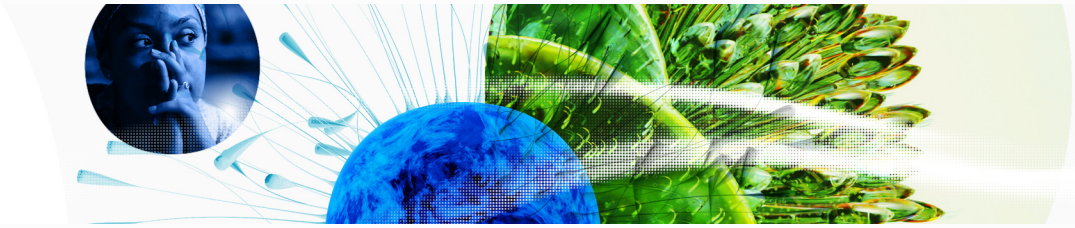
Infrastructure

- Top 10 | 62.83
- Sub-Saharan Africa | 23.36
- Low income | 19.43
- Niger | 17.75

Institutions

- Top 10 | 79.85
- Sub-Saharan Africa | 43.27
- Niger | 40.93
- Low income | 38.42

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Niger

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

> Niger's main innovation strengths are **Gross capital formation, % GDP** (rank 12), **ICT services imports, % total trade** (rank 26) and **FDI net inflows, % GDP** (rank 30).

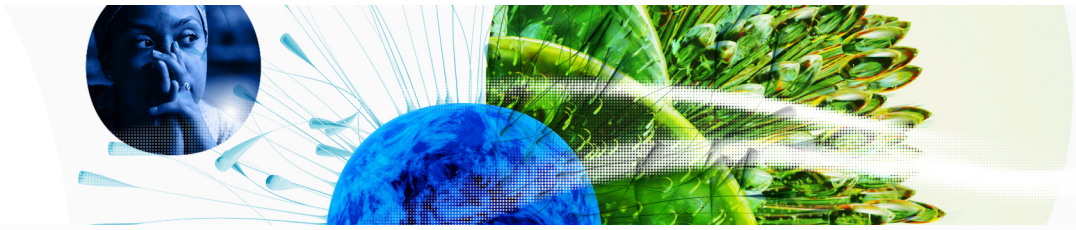
Strengths

Rank	Code	Indicator name
12	3.2.3	Gross capital formation, % GDP
26	5.3.3	ICT services imports, % total trade
30	5.3.4	FDI net inflows, % GDP
36	6.2.1	Labor productivity growth, %
44	4.2.3	VC recipients, deals/bn PPP$ GDP
46	2.2.3	Tertiary inbound mobility, %
54	1.2.3	Cost of redundancy dismissal
60	5.1.2	Firms offering formal training, %
82	3.3.2	Environmental performance
84	5.3.2	High-tech imports, % total trade

Weaknesses

Rank	Code	Indicator name
132	7.3.3	GitHub commits/mn pop. 15-69
132	3.1.1	ICT access
128	7.1.2	Trademarks by origin/bn PPP$ GDP
127	2.2.1	Tertiary enrolment, % gross
126	3.2.1	Electricity output, GWh/mn pop.
120	7.1.4	Industrial designs by origin/bn PPP$ GDP
118	5.3.1	Intellectual property payments, % total trade
113	2.1.3	School life expectancy, years
101	6.1.2	PCT patents by origin/bn PPP$ GDP
95	5.2.5	Patent families/bn PPP$ GDP
75	6.1.3	Utility models by origin/bn PPP$ GDP
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$

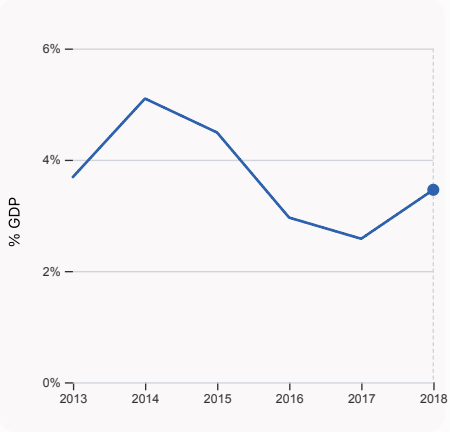
Global Innovation Index 2023



→ Niger's innovation system

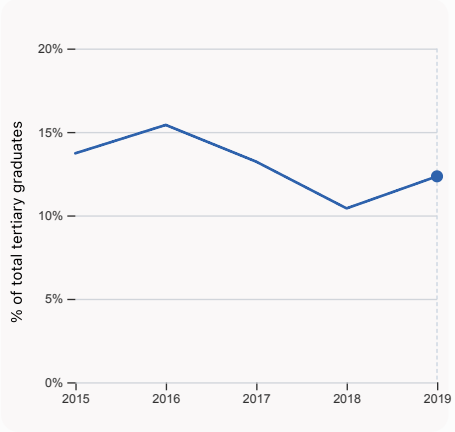
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Niger



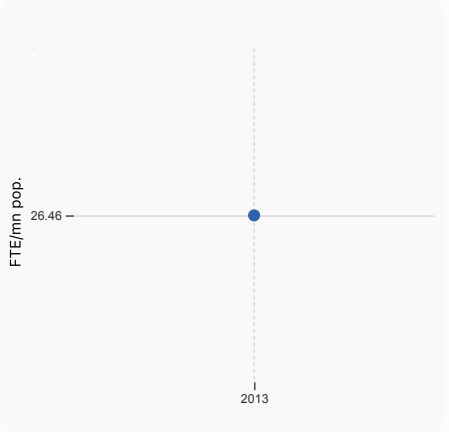
2.1.1 Expenditure on education, % GDP

was equal to 3.46% GDP in 2018, up by 0.88 percentage points from the year prior – and equivalent to an indicator rank of 93.



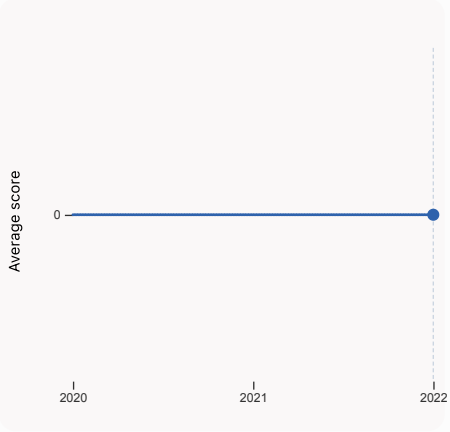
2.2.2 Graduates in science and engineering, %

was equal to 12.34% of total tertiary graduates in 2019, up by 1.92 percentage points from the year prior – and equivalent to an indicator rank of 104.



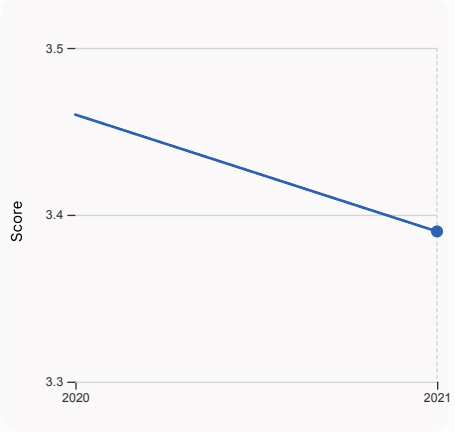
2.3.1 Researchers, FTE/mn pop.

was equal to 26.46 FTE/mn pop. in 2013, equivalent to an indicator rank of 102.



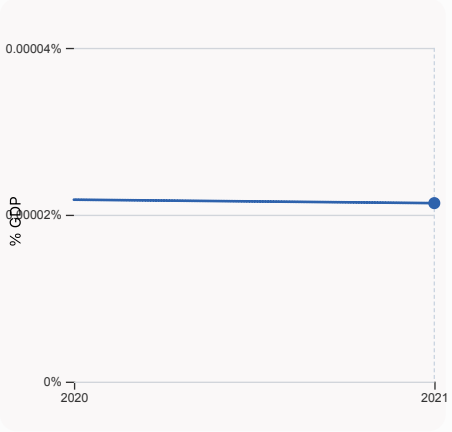
2.3.4 QS university ranking, top 3

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

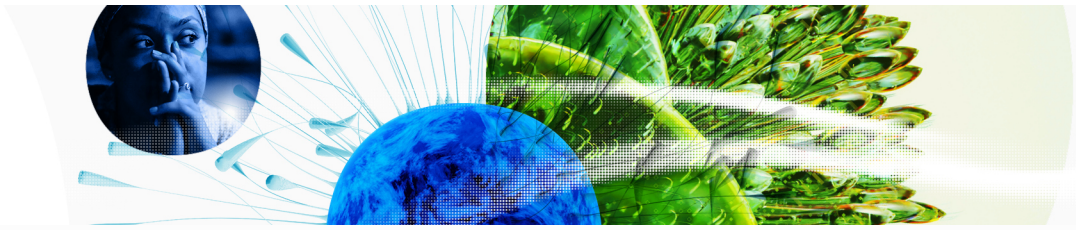
was equal to a score of 3.39 in 2021, down by 2.023% from the year prior – and equivalent to an indicator rank of 132.

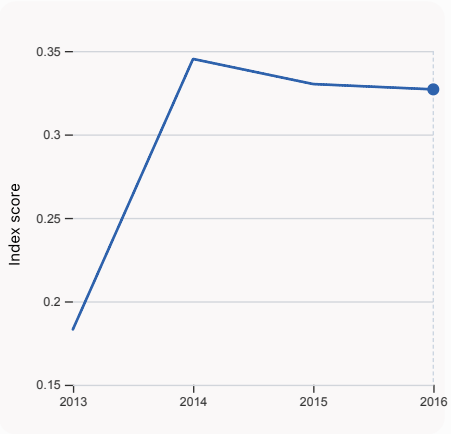


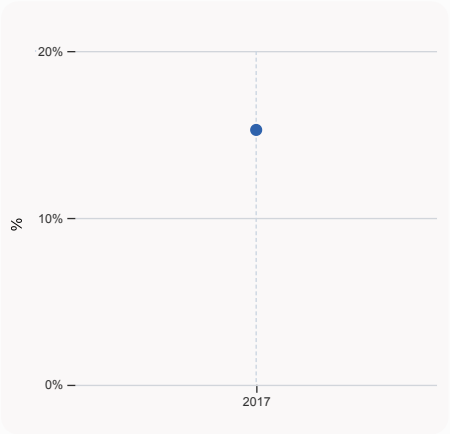
4.2.4 VC received, value, % GDP

was equal to 0.00002% GDP in 2021, down by 0 percentage points from the year prior – and equivalent to an indicator rank of 95.

Global Innovation Index 2023







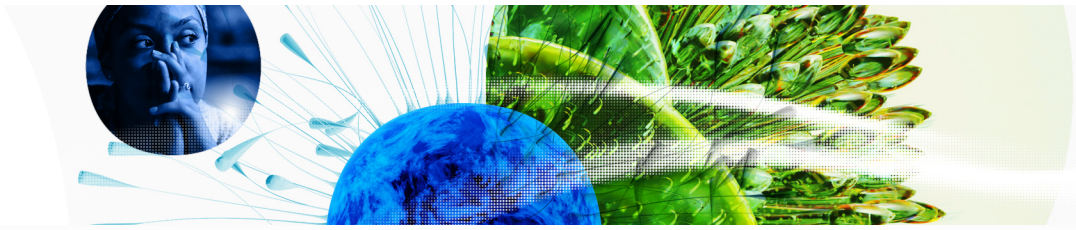
4.3.2 Domestic industry diversification

was equal to an index score of 0.327 in 2016, down by 0.96% from the year prior – and equivalent to an indicator rank of 99.

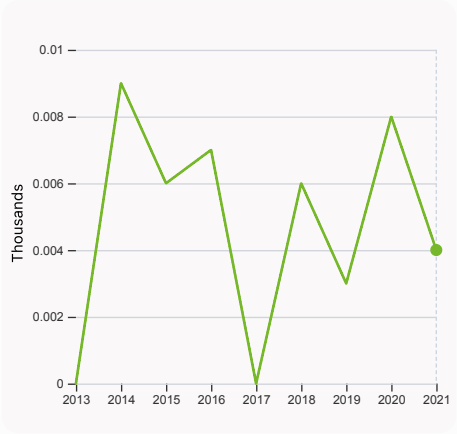
5.1.1 Knowledge-intensive employment, %

was equal to 15.27 % in 2017, equivalent to an indicator rank of 87.

Global Innovation Index 2023

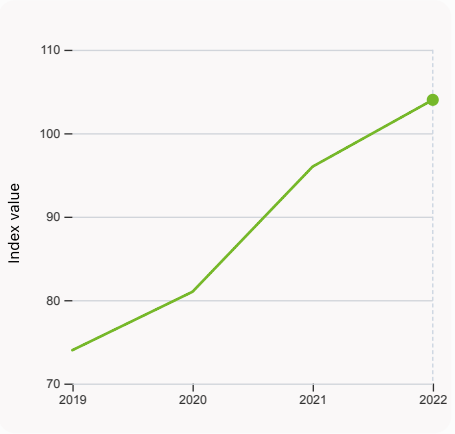


> Innovation outputs in Niger



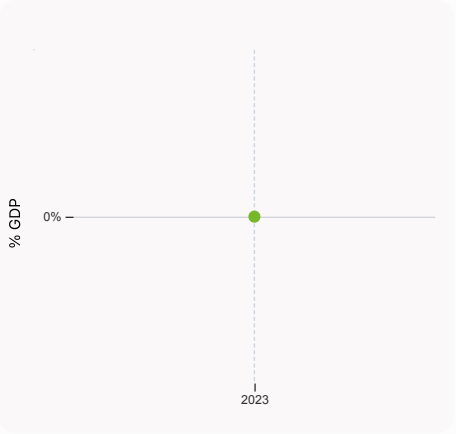
6.1.1 Patents by origin

was equal to 0.004 Thousands in 2021, down by 50% from the year prior – and equivalent to an indicator rank of 109.



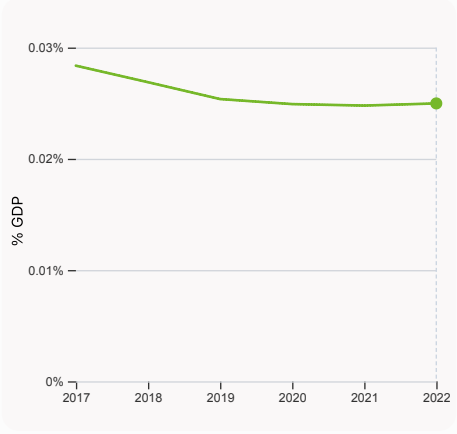
6.1.5 Citable documents H-index

was equal to an index value of 104 in 2022, up by 8.33% from the year prior – and equivalent to an indicator rank of 120.



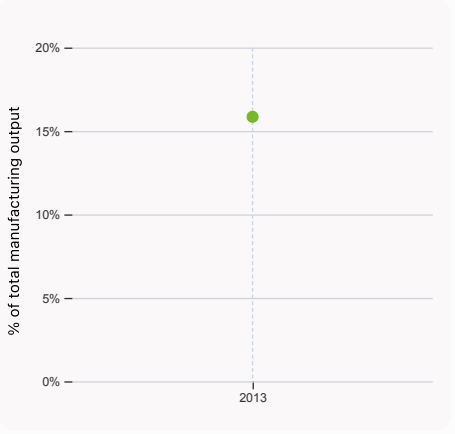
6.2.2 Unicorn valuation, % GDP

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



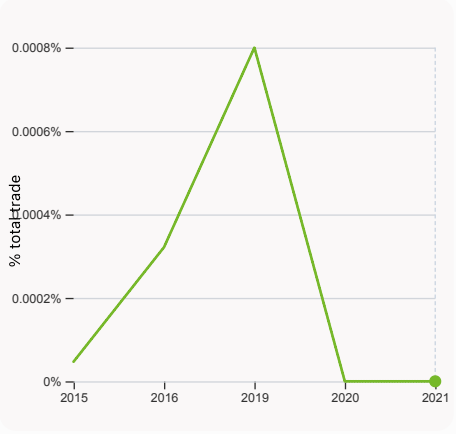
6.2.3 Software spending, % GDP

was equal to 0.025% GDP in 2022, up by 0.00019 percentage points from the year prior – and equivalent to an indicator rank of 119.



6.2.4 High-tech manufacturing, %

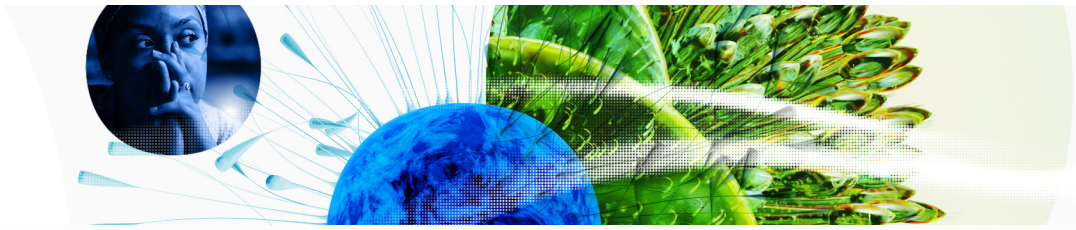
was equal to 15.85 % of total manufacturing output in 2013 – and equivalent to an indicator rank of 75.

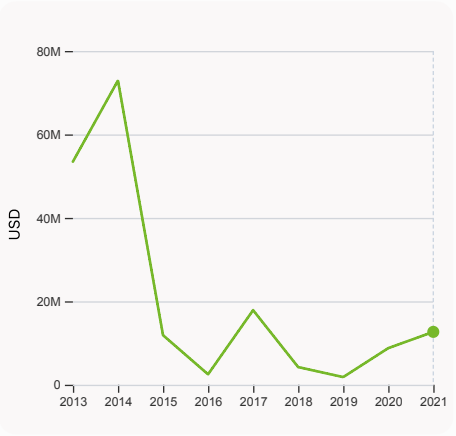


6.3.1 Intellectual property receipts, % total trade

was equal to 0% total trade in 2021 – and equivalent to an indicator rank of 109.

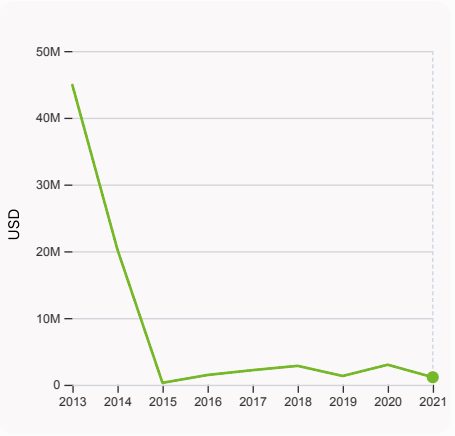
Global Innovation Index 2023





6.3.3 High-tech exports

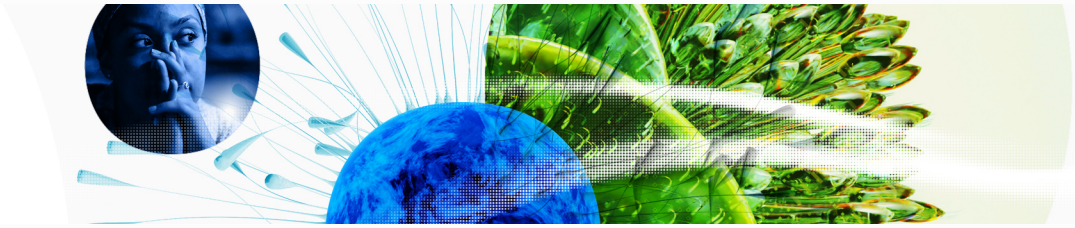
was equal to 12,677,801 USD in 2021, up by 44.42% from the year prior – and equivalent to an indicator rank of 89.



7.2.1 Cultural and creative services exports

was equal to 1,130,000 USD in 2021, down by 62.35% from the year prior – and equivalent to an indicator rank of 92.

Global Innovation Index 2023



Niger

GII 2023 rank **131**

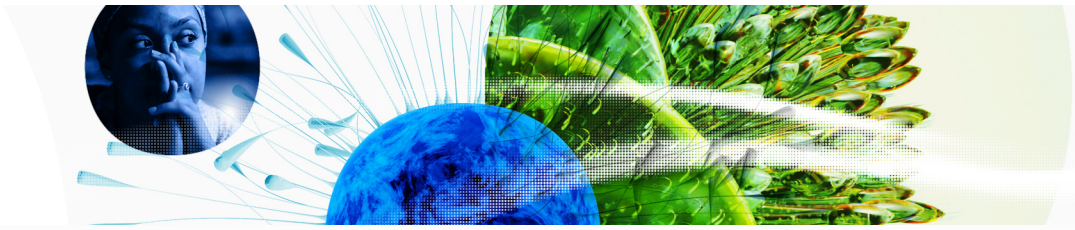
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
131	124	Low	SSA	26.2	37.6	1,443.3

	Score / Value	Rank	
Institutions	**40.9**	**94**	
1.1 Institutional environment	**25.2**	**112**	
1.1.1 Operational stability for businesses*	30.6	117	
1.1.2 Government effectiveness*	19.8	104	
1.2 Regulatory environment	**56.7**	**82**	●◆
1.2.1 Regulatory quality*	22.8	114	
1.2.2 Rule of law*	27.9	87	
1.2.3 Cost of redundancy dismissal	14.0	54	●◆
1.3 Business environment	**n/a**	**[n/a]**	
1.3.1 Policies for doing business†	n/a	n/a	
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**9.0**	**130**	◇
2.1 Education	**19.1**	**129**	◇
2.1.1 Expenditure on education, % GDP	3.5	93	
2.1.2 Government funding/pupil, secondary, % GDP/cap	11.8	87	◇
2.1.3 School life expectancy, years	6.4	113	○◇
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil-teacher ratio, secondary	29.7	120	
2.2 Tertiary education	**8.0**	**114**	
2.2.1 Tertiary enrolment, % gross	4.4	127	○◇
2.2.2 Graduates in science and engineering, %	12.3	104	◇
2.2.3 Tertiary inbound mobility, %	5.4	46	●◆
2.3 Research and development (R&D)	**0.0**	**118**	
2.3.1 Researchers, FTE/mn pop.	26.5	102	
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	**17.7**	**125**	
3.1 Information and communication technologies (ICTs)	**17.1**	**131**	◇
3.1.1 ICT access*	0.0	132	○◇
3.1.2 ICT use*	12.7	130	
3.1.3 Government's online service*	32.6	119	
3.1.4 E-participation*	23.3	115	
3.2 General infrastructure	**19.1**	**95**	
3.2.1 Electricity output, GWh/mn pop.	26.4	126	○◇
3.2.2 Logistics performance*	n/a	n/a	
3.2.3 Gross capital formation, % GDP	35.3	12	●◆
3.3 Ecological sustainability	**17.0**	**99**	◆
3.3.1 GDP/unit of energy use	8.5	84	◆
3.3.2 Environmental performance*	31.9	82	●◆
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.1	124	
Market sophistication	**15.8**	**120**	
4.1 Credit	**3.2**	**127**	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	11.7	127	◇
4.1.3 Loans from microfinance institutions, % GDP	0.3	43	
4.2 Investment	**6.3**	**[69]**	
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	0.0	44	●◆
4.2.4 VC received, value, % GDP	0.0	95	
4.3 Trade, diversification, and market scale	**38.1**	**108**	
4.3.1 Applied tariff rate, weighted avg., %	8.1	105	
4.3.2 Domestic industry diversification	65.6	99	
4.3.3 Domestic market scale, bn PPP$	37.6	120	

	Score / Value	Rank	
Business sophistication	**17.8**	**[116]**	
5.1 Knowledge workers	**17.4**	**[108]**	
5.1.1 Knowledge-intensive employment, %	15.3	87	◆
5.1.2 Firms offering formal training, %	27.5	60	●◆
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, %	0.7	123	
5.2 Innovation linkages	**1.8**	**[130]**	
5.2.1 University-industry R&D collaboration†	n/a	n/a	
5.2.2 State of cluster development†	n/a	n/a	
5.2.3 GERD financed by abroad, % GDP	n/a	n/a	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	90	
5.2.5 Patent families/bn PPP$ GDP	0.0	95	○◇
5.3 Knowledge absorption	**34.4**	**60**	●◆
5.3.1 Intellectual property payments, % total trade	0.0	118	○◇
5.3.2 High-tech imports, % total trade	7.2	84	●◆
5.3.3 ICT services imports, % total trade	2.6	26	●◆
5.3.4 FDI net inflows, % GDP	4.1	30	●◆
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**9.0**	**129**	
6.1 Knowledge creation	**2.6**	**123**	
6.1.1 Patents by origin/bn PPP$ GDP	0.1	109	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	101	○◇
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	3.4	120	
6.2 Knowledge impact	**20.5**	**101**	
6.2.1 Labor productivity growth, %	1.9	36	●◆
6.2.2 Unicorn valuation, % GDP	0.0	48	○◇
6.2.3 Software spending, % GDP	0.0	119	
6.2.4 High-tech manufacturing, %	15.8	75	
6.3 Knowledge diffusion	**3.9**	**127**	◇
6.3.1 Intellectual property receipts, % total trade	0.0	109	
6.3.2 Production and export complexity	n/a	n/a	
6.3.3 High-tech exports, % total trade	0.5	89	◆
6.3.4 ICT services exports, % total trade	0.7	94	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.2	130	◇
Creative outputs	**0.2**	**[132]**	
7.1 Intangible assets	**0.0**	**[132]**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	1.4	128	○◇
7.1.3 Global brand value, top 5,000	n/a	n/a	
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.0	120	○◇
7.2 Creative goods and services	**0.5**	**[123]**	
7.2.1 Cultural and creative services exports, % total trade	0.0	92	
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	125	
7.3 Online creativity	**0.3**	**128**	◇
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.9	100	◆
7.3.2 Country-code TLDs/th pop. 15-69	0.0	130	
7.3.3 GitHub commits/mn pop. 15-69	0.0	132	○◇
7.3.4 Mobile app creation/bn PPP$ GDP	n/a	n/a	

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.

Global Innovation Index 2023



→ Data availability

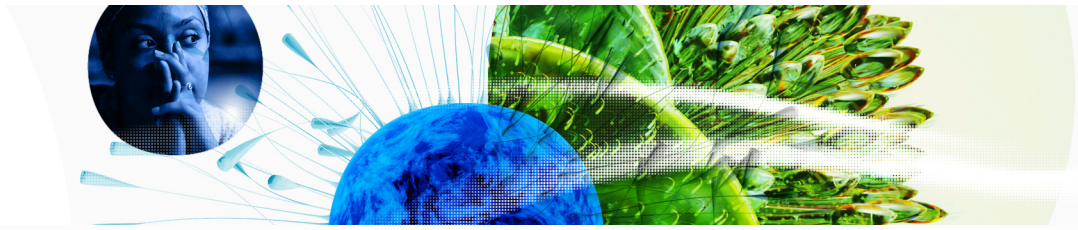
The following tables list indicators that are either missing or outdated for Niger.

> Niger has missing data for twenty indicators and outdated data for sixteen indicators.

> Missing data for Niger

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	n/a	2022	World Economic Forum, Executive Opinion Survey (EOS)
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
2.3.2	Gross expenditure on R&D, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.2	Logistics performance	n/a	2023	World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org/); and World Bank 2023, Connecting to Compete 2023: Trade Logistics in the Global Economy ÔÇô The Logistics Performance Index and its Indicators.
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
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
5.2.1	University-industry R&D collaboration	n/a	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	n/a	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.3.2	Production and export complexity	n/a	2020	Harvard University, Growth Lab

Global Innovation Index 2023

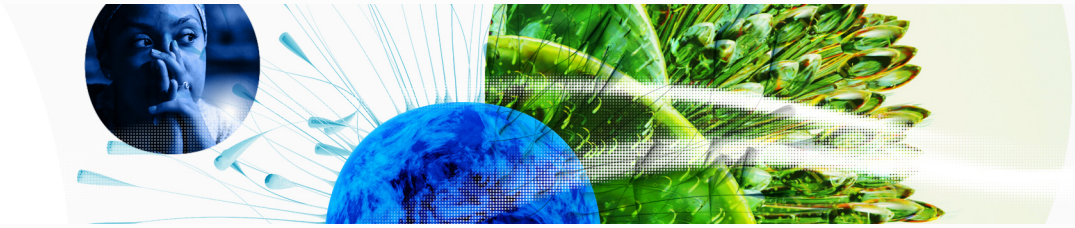


Code	Indicator name	Economy Year	Model Year	Source
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.1.3	Global brand value, top 5,000	n/a	2023	Brand Finance; International Monetary Fund
7.2.2	National feature films/mn pop. 15-69	n/a	2021	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund
7.3.4	Mobile app creation/bn PPP$ GDP	n/a	2022	data.ia; International Monetary Fund

> Outdated data for Niger

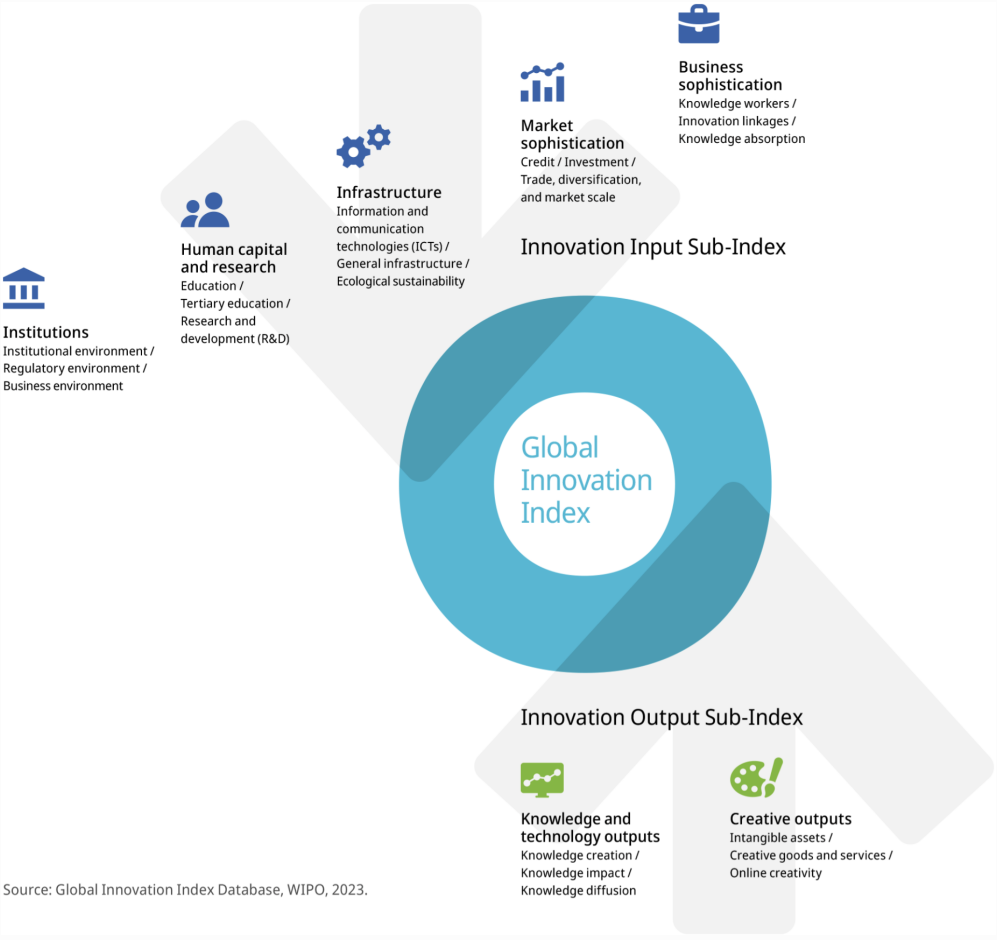
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2018	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2017	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2017	2020	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	2019	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.2.3	VC recipients, deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	2021	2022	Refinitiv; International Monetary Fund
4.3.2	Domestic industry diversification	2016	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2017	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2017	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2017	2022	International Labour Organization
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2020	2022	Refinitiv; International Monetary Fund
6.2.4	High-tech manufacturing, %	2013	2020	United Nations Industrial Development 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.



Source: Global Innovation Index Database, WIPO, 2023.

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.