Global Innovation Index 2022

NIGERIA

114th Nigeria ranks 114th 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 Nigeria 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 Nigeria in the GII 2022 is between ranks 108 and 125.

Rankings for Nigeria (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	117	115	121
2021	118	115	124
2022	114	113	107

- Nigeria performs better in innovation outputs than innovation inputs in 2022.
- This year Nigeria ranks 113th in innovation inputs, higher than both 2021 and 2020.
- As for innovation outputs, Nigeria ranks 107th. This position is higher than both 2021 and 2020.

29th Nigeria ranks 29th among the 36 lower-middle-income group economies.

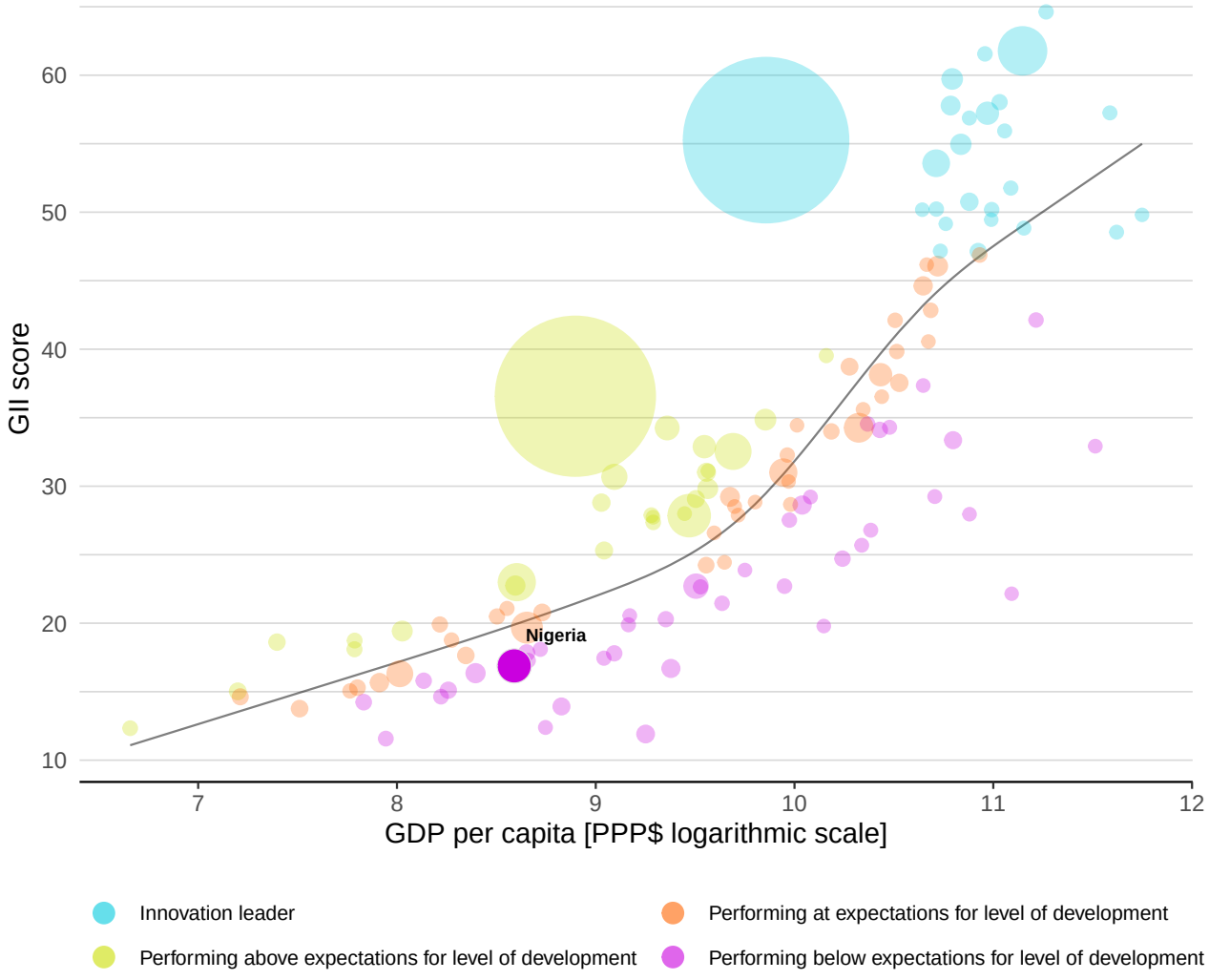
13th Nigeria ranks 13th among the 27 economies in Sub-Saharan Africa.

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

The positive relationship between innovation and development

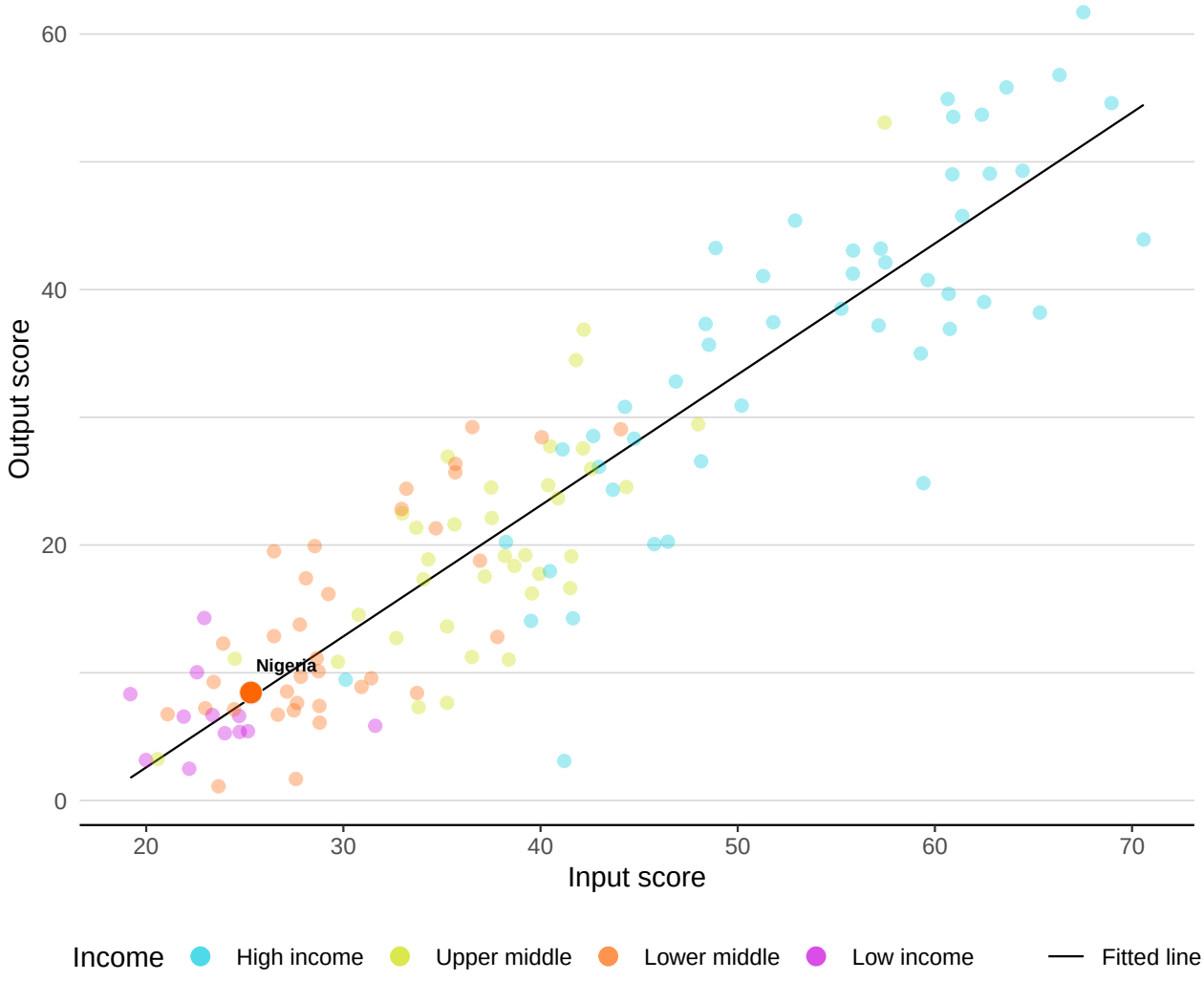


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

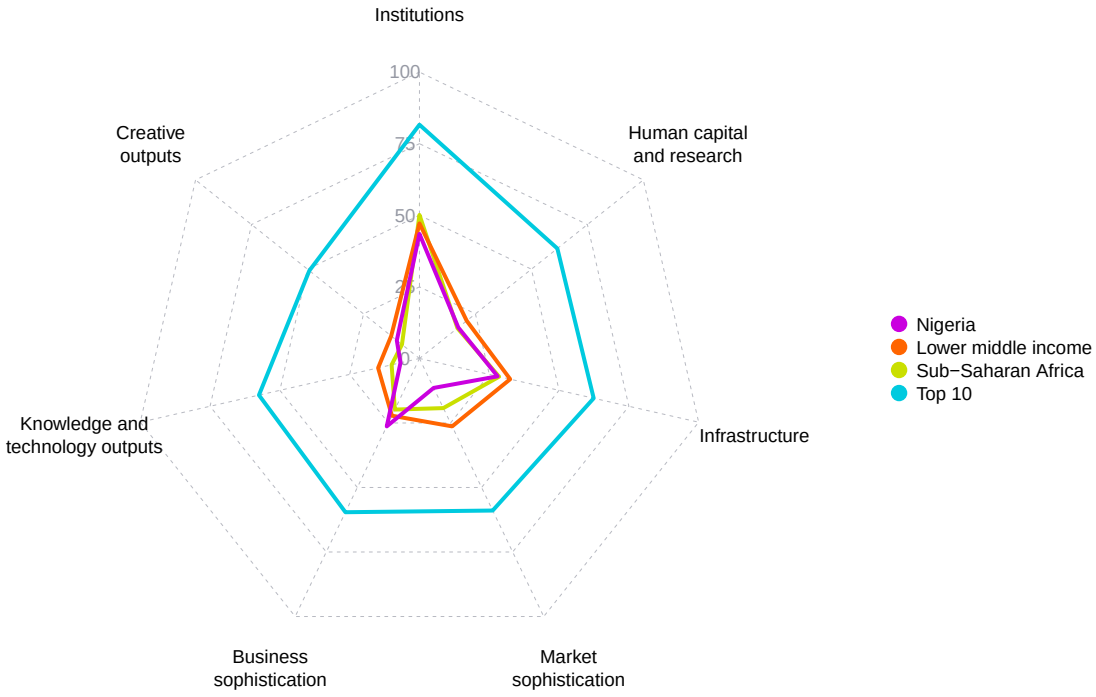
Nigeria produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND SUB-SAHARAN AFRICA

The seven GII pillar scores for Nigeria



Lower-middle-income group economies

Nigeria performs above the lower-middle-income group average in Business sophistication.

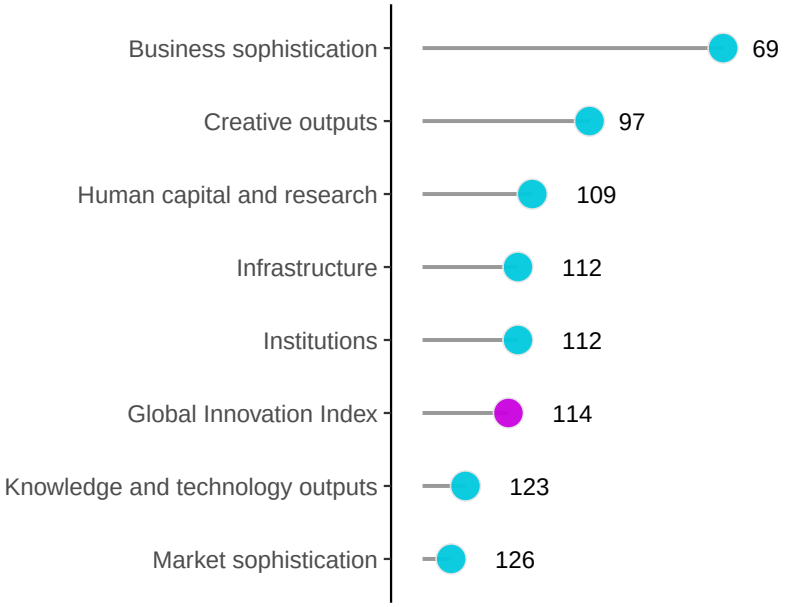
Sub-Saharan Africa

Nigeria performs above the regional average in three pillars, namely: Human capital and research; Business sophistication; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Nigeria performs best in Business sophistication and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Nigeria



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Nigeria

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.3	Cost of redundancy dismissal	1	1.1.1	Political and operational stability	126
3.2.3	Gross capital formation, % GDP	23	2.1.3	School life expectancy, years	113
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	42	2.3.3	Global corporate R&D investors, top 3, mn USD	38
4.2.4	Venture capital received, value, % GDP	42	2.3.4	QS university ranking, top 3	72
4.3.3	Domestic market scale, bn PPP$	25	3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	130
5.1.1	Knowledge-intensive employment, %	35	4.3.1	Applied tariff rate, weighted avg., %	130
5.1.2	Firms offering formal training, %	54	5.2.5	Patent families/bn PPP$ GDP	101
5.3.2	High-tech imports, % total trade	45	6.3.1	Intellectual property receipts, % total trade	113
6.1.5	Citable documents H-index	61	6.3.2	Production and export complexity	120
7.1.4	Industrial designs by origin/bn PPP$ GDP	69	7.2.5	Creative goods exports, % total trade	131

GII 2022 rank

Nigeria

114

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
107	113	Lower middle	SSA	211.4	1,136.8	5,377

		Score/ Value	Rank	
Institutions		**43.5**	**112**	
1.1	**Political environment**	36.5	126	◇
1.1.1	Political and operational stability*	45.5	126	○ ◇
1.1.2	Government effectiveness*	27.5	126	◇
1.2	**Regulatory environment**	61.5	76	
1.2.1	Regulatory quality*	20.9	125	◇
1.2.2	Rule of law*	25.0	111	
1.2.3	Cost of redundancy dismissal	8.0	1	● ◆
1.3	**Business environment**	32.5	[103]	
1.3.1	Policies for doing business†	32.5	113	
1.3.2	Entrepreneurship policies and culture*	n/a	n/a	
Human capital and research		**17.3**	**[109]**	
2.1	**Education**	46.5	[75]	
2.1.1	Expenditure on education, % GDP	n/a	n/a	
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3	School life expectancy, years	8.7	113	○ ◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	14.7	71	
2.2	**Tertiary education**	5.5	[119]	
2.2.1	Tertiary enrolment, % gross	12.1	109	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	0.0	[120]	
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 USD	0.0	38	○ ◇
2.3.4	QS university ranking, top 3*	0.0	72	○ ◇
Infrastructure		**28.0**	**112**	
3.1	**Information and communication technologies (ICTs)**	47.1	110	
3.1.1	ICT access*	56.6	116	◇
3.1.2	ICT use*	31.3	110	
3.1.3	Government's online service*	51.8	102	
3.1.4	E-participation*	48.8	105	
3.2	**General infrastructure**	22.5	93	
3.2.1	Electricity output, GWh/mn pop.	156.3	120	
3.2.2	Logistics performance*	22.3	102	
3.2.3	Gross capital formation, % GDP	30.4	23	●
3.3	**Ecological sustainability**	14.3	128	○ ◇
3.3.1	GDP/unit of energy use	6.4	107	
3.3.2	Environmental performance*	28.3	117	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.1	130	○
Market sophistication		**11.4**	**126**	◇
4.1	**Credit**	3.7	127	○ ◇
4.1.1	Finance for startups and scaleups*	n/a	n/a	
4.1.2	Domestic credit to private sector, % GDP	12.1	123	
4.1.3	Loans from microfinance institutions, % GDP	0.3	44	
4.2	**Investment**	7.8	62	●
4.2.1	Market capitalization, % GDP	10.3	74	
4.2.2	Venture capital investors, deals/bn PPP$ GDP	0.0	60	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.0	42	●
4.2.4	Venture capital received, value, % GDP	0.0	42	●
4.3	**Trade, diversification, and market scale**	22.7	123	◇
4.3.1	Applied tariff rate, weighted avg., %	12.4	130	○ ◇
4.3.2	Domestic industry diversification	n/a	n/a	
4.3.3	Domestic market scale, bn PPP$	1,136.8	25	●

		Score/ Value	Rank	
Business sophistication		**26.3**	**69**	●
5.1	**Knowledge workers**	37.1	[54]	
5.1.1	Knowledge-intensive employment, %	38.1	35	● ◆
5.1.2	Firms offering formal training, %	30.7	54	●
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, %	5.8	91	
5.2	**Innovation linkages**	18.2	106	
5.2.1	University-industry R&D collaboration†	26.2	123	◇
5.2.2	State of cluster development and depth†	42.5	92	
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	87	
5.2.5	Patent families/bn PPP$ GDP	0.0	101	○ ◇
5.3	**Knowledge absorption**	23.6	95	
5.3.1	Intellectual property payments, % total trade	0.4	76	
5.3.2	High-tech imports, % total trade	9.8	45	●
5.3.3	ICT services imports, % total trade	0.7	102	
5.3.4	FDI net inflows, % GDP	0.4	115	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**6.8**	**123**	
6.1	**Knowledge creation**	5.9	99	
6.1.1	Patents by origin/bn PPP$ GDP	0.4	81	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	99	
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific and technical articles/bn PPP$ GDP	6.1	107	
6.1.5	Citable documents H-index	12.7	61	●
6.2	**Knowledge impact**	12.1	113	
6.2.1	Labor productivity growth, %	−1.5	108	◇
6.2.2	New businesses/th pop. 15–64	0.9	83	
6.2.3	Software spending, % GDP	0.1	83	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.4	126	
6.2.5	High-tech manufacturing, %	n/a	n/a	
6.3	**Knowledge diffusion**	2.3	128	○ ◇
6.3.1	Intellectual property receipts, % total trade	0.0	113	○ ◇
6.3.2	Production and export complexity	0.0	120	○ ◇
6.3.3	High-tech exports, % total trade	0.3	96	
6.3.4	ICT services exports, % total trade	0.3	116	
Creative outputs		**10.1**	**97**	
7.1	**Intangible assets**	19.4	81	
7.1.1	Intangible asset intensity, top 15, %	44.4	60	
7.1.2	Trademarks by origin/bn PPP$ GDP	10.5	109	
7.1.3	Global brand value, top 5,000, % GDP	4.7	68	
7.1.4	Industrial designs by origin/bn PPP$ GDP	1.0	69	●
7.2	**Creative goods and services**	1.0	[122]	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
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	1.9	54	
7.2.4	Printing and other media, % manufacturing	n/a	n/a	
7.2.5	Creative goods exports, % total trade	0.0	131	○ ◇
7.3	**Online creativity**	0.7	107	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	107	
7.3.2	Country-code TLDs/th pop. 15–69	0.4	99	
7.3.3	GitHub commit pushes received/mn pop. 15–69	1.2	99	
7.3.4	Mobile app creation/bn PPP$ GDP	0.5	82	

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 Nigeria.

Missing data for Nigeria

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	n/a	2020	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2018	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
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
2.3.1	Researchers, FTE/mn pop.	n/a	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	n/a	2020	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	n/a	2021	Global Entrepreneurship Monitor
4.3.2	Domestic industry diversification	n/a	2019	United Nations Industrial Development Organization
5.1.3	GERD performed by business, % GDP	n/a	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	n/a	2019	UNESCO Institute for Statistics
5.2.3	GERD financed by abroad, % GDP	n/a	2019	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	n/a	2019	United Nations Industrial Development Organization
7.2.1	Cultural and creative services exports, % total trade	n/a	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA
7.2.4	Printing and other media, % manufacturing	n/a	2019	United Nations Industrial Development Organization

Outdated data for Nigeria

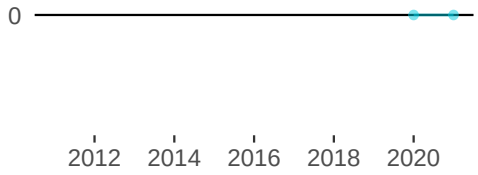
Code	Indicator name	Economy year	Model year	Source
2.1.3	School life expectancy, years	2011	2019	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics

Code	Indicator name	Economy year	Model year	Source
2.2.1	Tertiary enrolment, % gross	2018	2019	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
5.1.1	Knowledge-intensive employment, %	2019	2021	International Labour Organization
5.1.2	Firms offering formal training, %	2014	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2019	2021	International Labour Organization
7.1.2	Trademarks by origin/bn PPP$ GDP	2019	2020	World Intellectual Property Organization

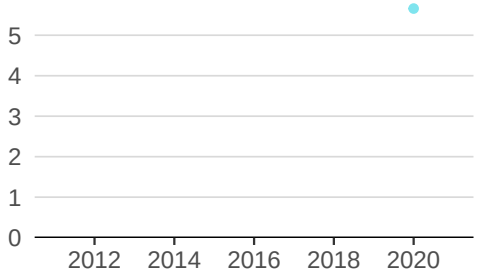
NIGERIA'S INNOVATION SYSTEM

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

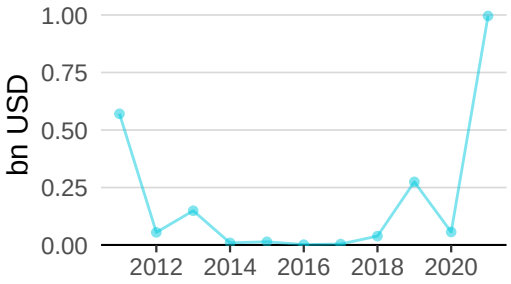
Innovation inputs



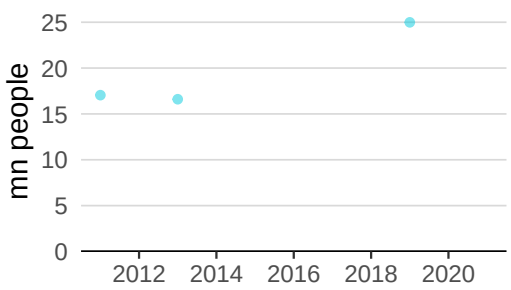
2.3.4 QS university ranking was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



3.1.1 ICT access was equal to 5.7 in 2020 and equivalent to an indicator rank of 116.

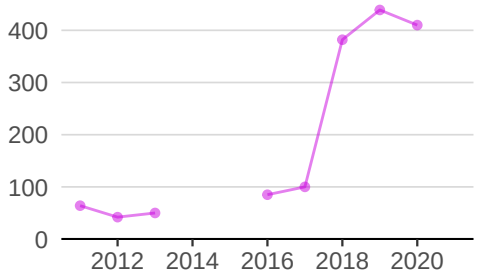


4.2.4 Venture capital received was equal to 1.0 bn USD in 2021–up by 1656 percentage points from the year prior–and equivalent to an indicator rank of 42.

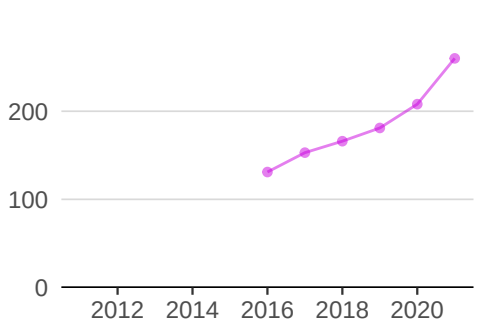


5.1.1 Knowledge-intensive employment was equal to 25.0 mn people in 2019 and equivalent to an indicator rank of 35.

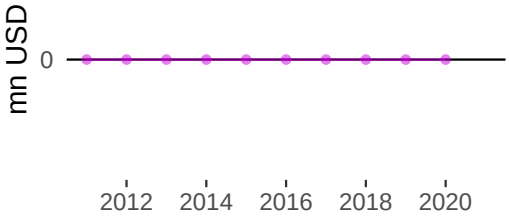
Innovation outputs



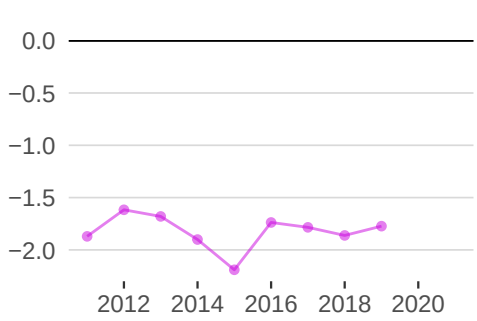
6.1.1 Patents by origin was equal to 410.0 in 2020–down by 7 percentage points from the year prior–and equivalent to an indicator rank of 81.



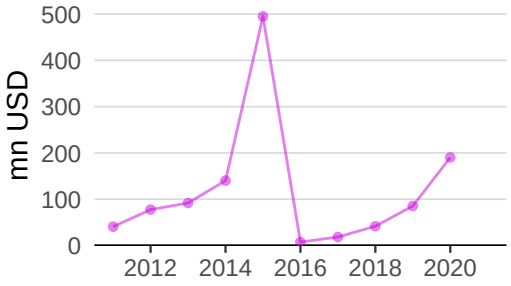
6.1.5 Citable documents H-index was equal to 260.0 in 2021–up by 25 percentage points from the year prior–and equivalent to an indicator rank of 61.



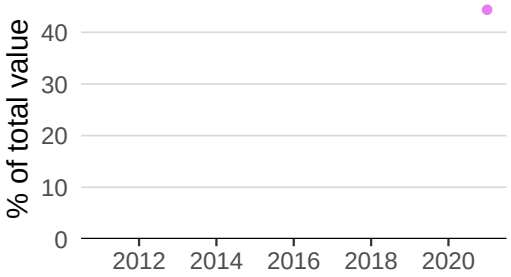
6.3.1 Intellectual property receipts was equal to 0.0 mn USD in 2020–effectively unchanged from the year prior–and equivalent to an indicator rank of 113.



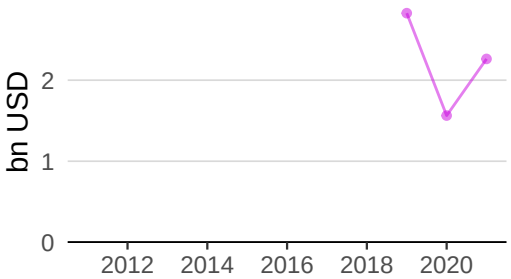
6.3.2 Production and export complexity was equal to -1.8 in 2019–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 120.



6.3.3 High-tech exports was equal to 190.3 mn USD in 2020–up by 123 percentage points from the year prior–and equivalent to an indicator rank of 96.



7.1.1 Intangible asset intensity was equal to 44.4% of total value in 2021 and equivalent to an indicator rank of 60.



7.1.3 Global brand value was equal to 2.3 bn USD in 2021–up by 45 percentage points from the year prior–and equivalent to an indicator rank of 68.

NIGERIA'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

No observations

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

7.1.1 Intangible asset intensity, top 15

Firm	Rank
MTN NIGERIA COMMUNICATIONS	1
DANGOTE CEMENT	2
BUA CEMENT	3

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

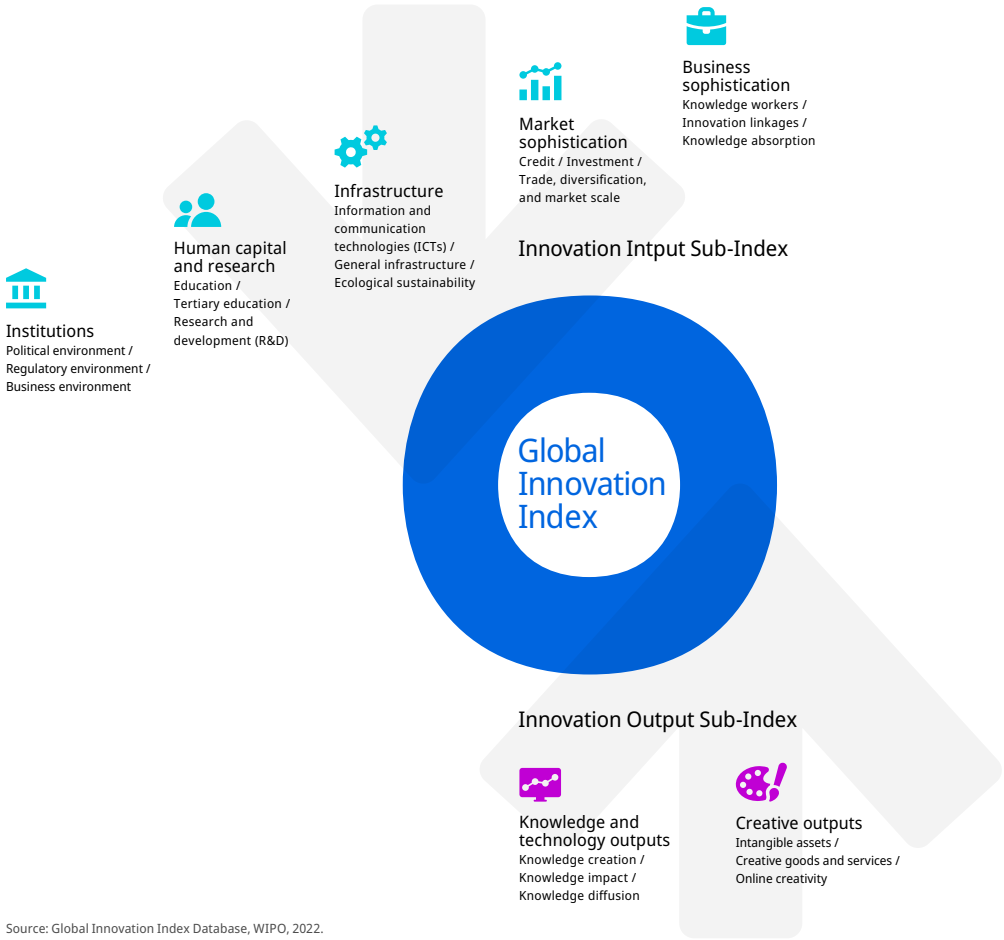
Brand	Industry	Rank
ACCESS BANK	Banking	1
DANGOTE CEMENT	Engineering & Construction	2
ZENITH BANK	Banking	3

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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, 2022.

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.