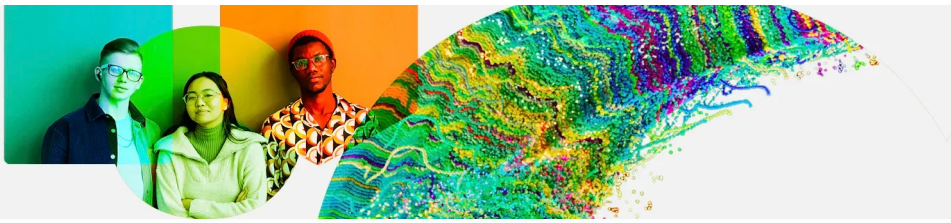
Global Innovation Index 2024



Angola ranking in the Global Innovation Index 2024

Angola ranks 133rd among the 133 economies featured in the GII 2024.

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.

Angola ranks 38th among the 38 lower-middle-income group economies.

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

Angola GII Ranking (2020-2024)

The table shows the rankings of Angola 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 Angola in the GII 2024 is between ranks 131 and 133.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	n/a	n/a	n/a
2021	132nd	131st	131st
2022	127th	129th	117th
2023	132nd	132nd	132nd
2024	133rd	132nd	133rd

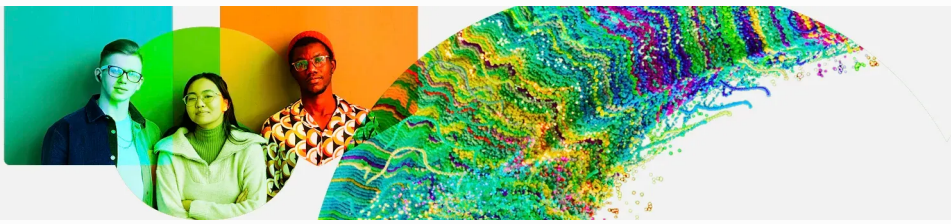
Angola performs worse in innovation outputs than innovation inputs in 2024.

This year **Angola ranks 132nd in innovation inputs.** This position is the same as last year.

Angola ranks 133rd in innovation outputs. This position is lower than last year.

Angola has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Angola, how rapidly is technology being embraced and what are the resulting societal impacts.

For Angola, 2 indicators have improved in the short-term and 3 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▲ 7.1% 2022 - 2023	n/a	n/a	n/a	n/a
▲ 14.8% 2013 - 2023	n/a	n/a	n/a	▼ -100% 2013 - 2023

Technology adoption

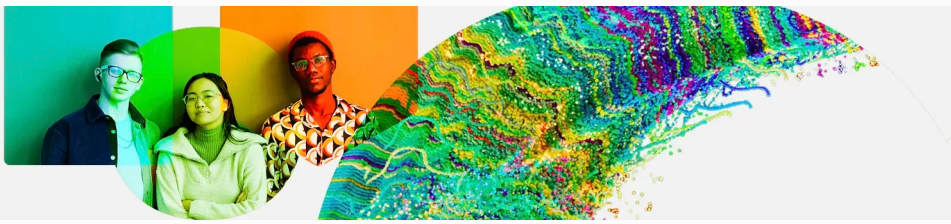
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
n/a	▼ -1% 2021 - 2022	n/a	n/a	n/a
n/a	▲ 16.9% 2012 - 2022		n/a	n/a
n/a	0.4 per 100 inhabitants in 2022	n/a		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -2.2% 2022 - 2023	▲ 0.5% 2021 - 2022	▲ 1.2°C 2023
▼ -3.5% 2013 - 2023	▲ 0.6% 2012 - 2022	n/a
19,914 USD in 2023	61.9 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024



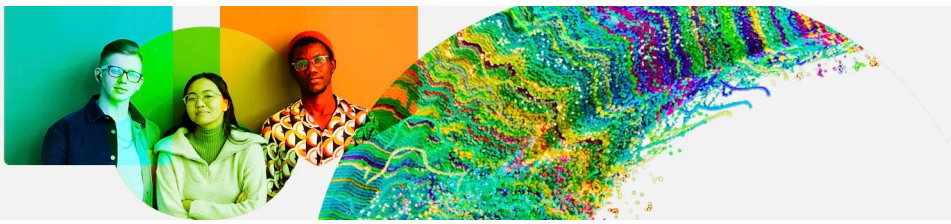
Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development

Global Innovation Index 2024

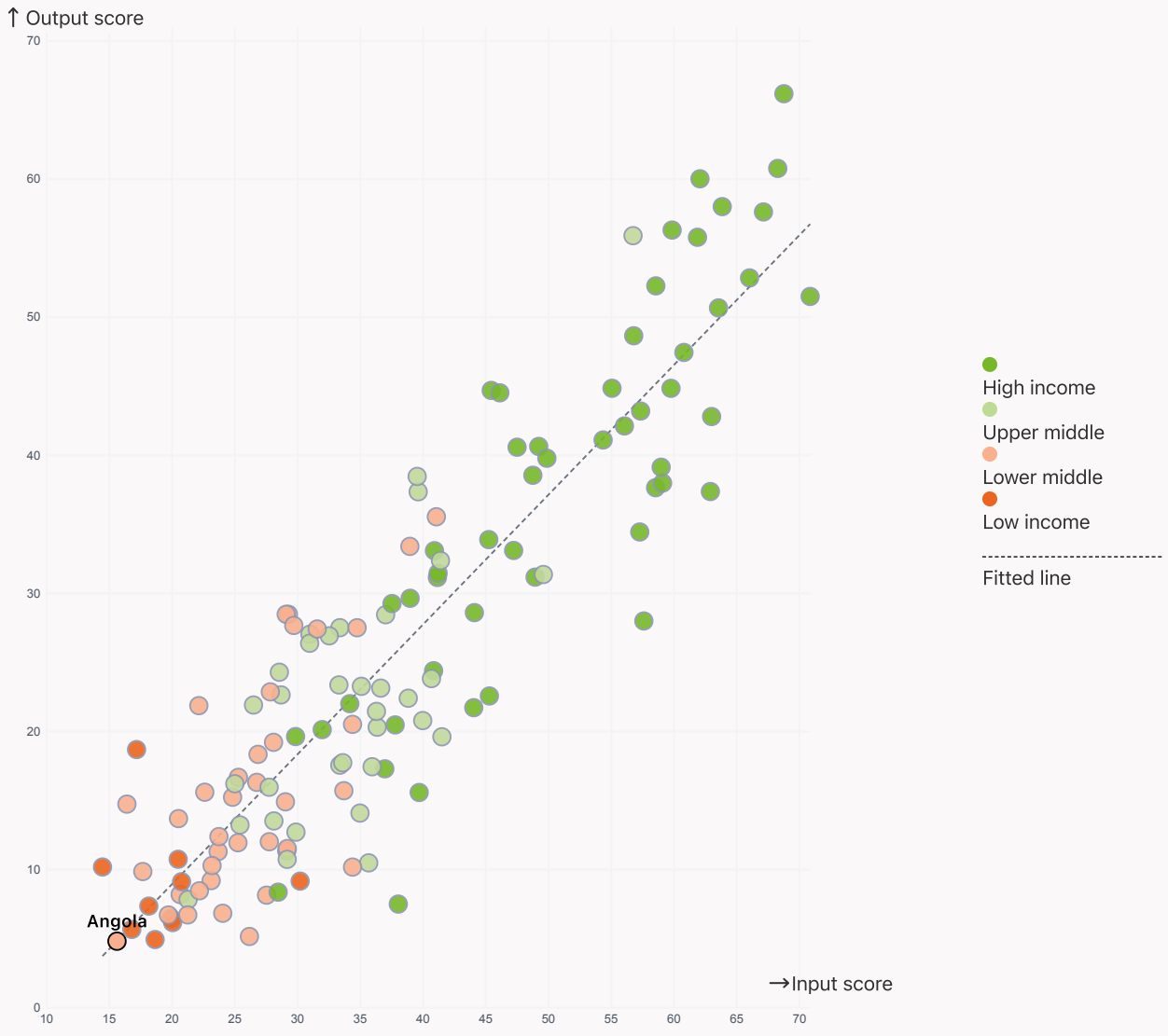


Effectively translating innovation investments into innovation outputs

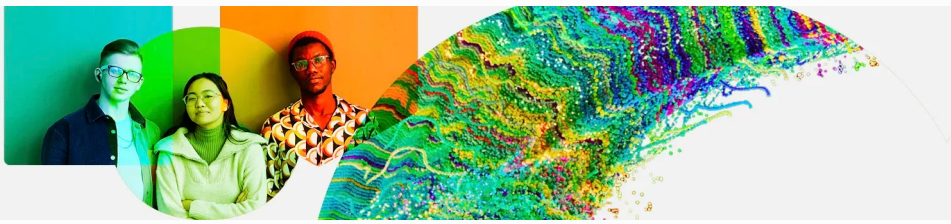
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

Angola produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

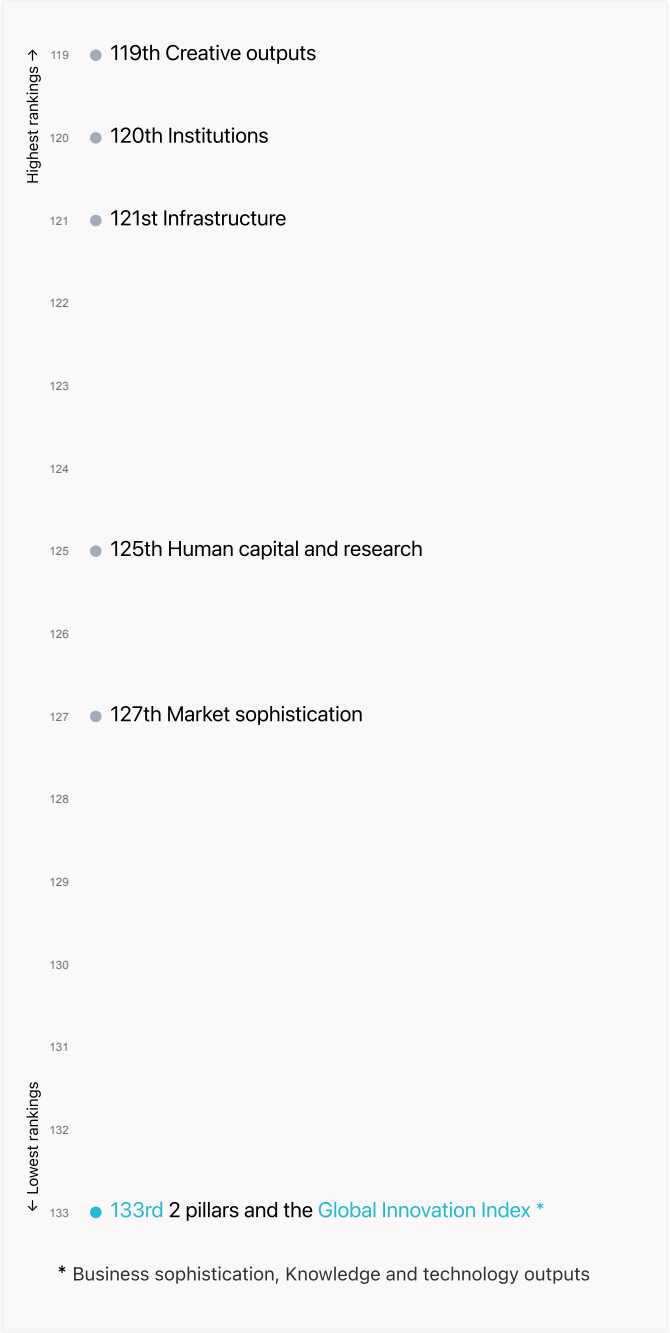


Global Innovation Index 2024



Overview of Angola's rankings in the seven areas of the GII in 2024

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



Highest rankings

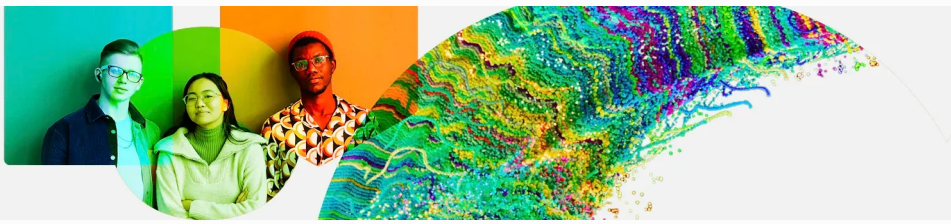
Angola ranks highest in Creative outputs (119th), Institutions (120th) and Infrastructure (121st).

Lowest rankings

Angola ranks lowest in Business sophistication, Knowledge and technology outputs, GII Index (133rd), Market sophistication (127th) and Human capital and research (125th).

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

Global Innovation Index 2024



Benchmark of Angola against other economy groupings for each of the seven areas of the GII Index

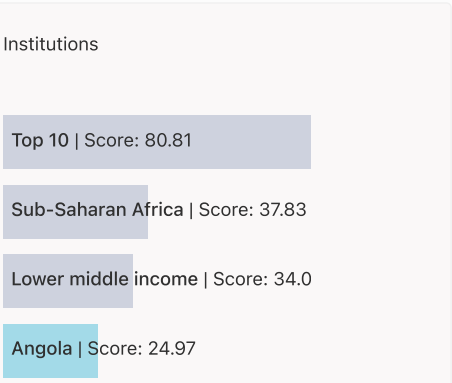
The charts shows the relative position of Angola (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

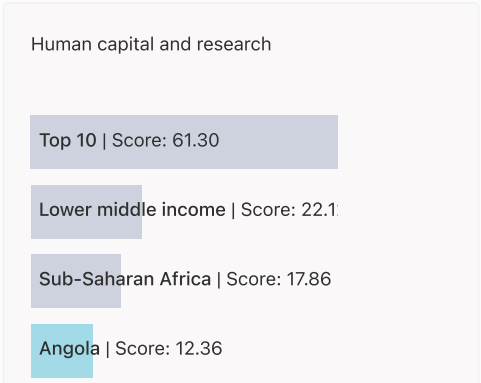
Lower-Middle-Income economies

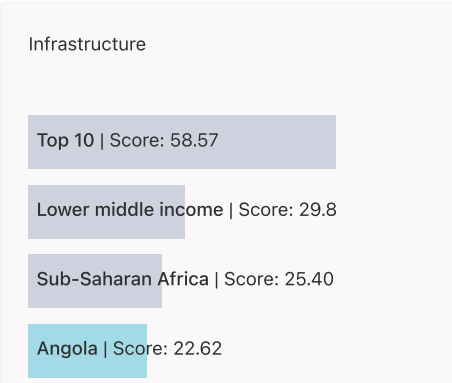
Angola performs below the lower-middle-income group average in all pillars.

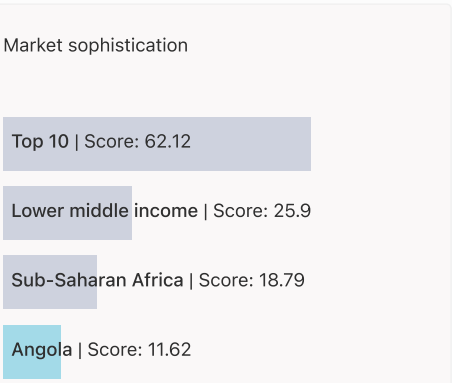
Sub-Saharan Africa

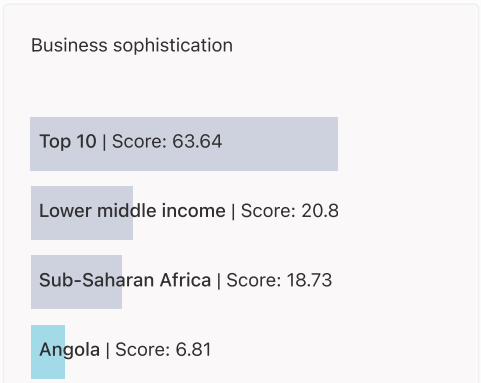
Angola performs below the regional average in all pillars.

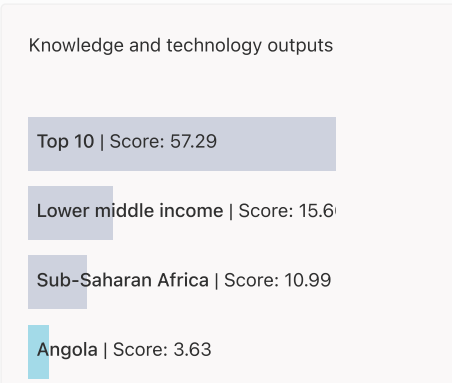


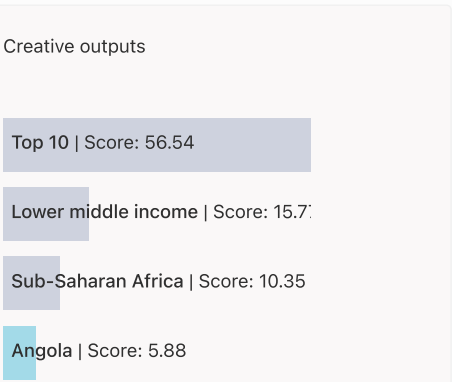




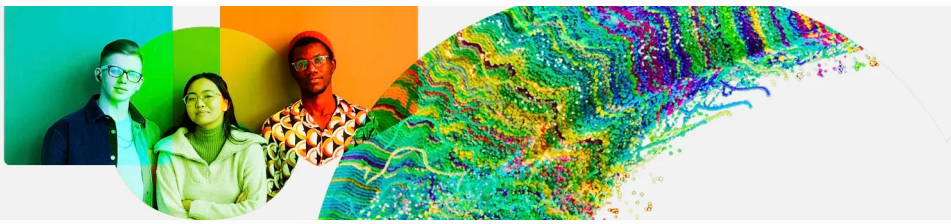








Global Innovation Index 2024



Innovation strengths and weaknesses in Angola

The table below gives an overview of the indicator strengths and weaknesses of Angola in the GII 2024.

Angola's main innovation strengths are **Low-carbon energy use, %** (rank 29), **GDP/unit of energy use** (rank 48) and **Gross capital formation, % GDP** (rank 58).

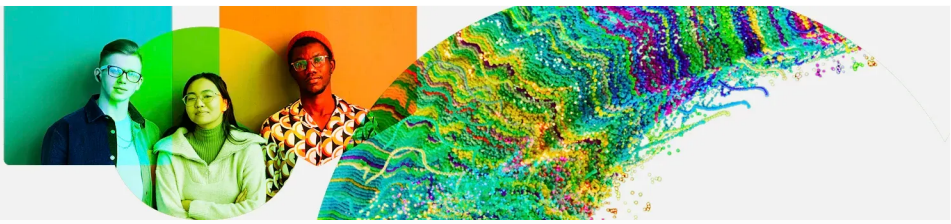
Strengths

Rank	Code	Indicator name
29	3.3.2	Low-carbon energy use, %
48	3.3.1	GDP/unit of energy use
58	3.2.3	Gross capital formation, % GDP
62	6.1.3	Utility models by origin/bn PPP$ GDP
64	4.3.3	Domestic market scale, bn PPP$
65	5.3.1	Intellectual property payments, % total trade
89	6.2.3	Software spending, % GDP
92	1.1.1	Operational stability for businesses*
105	6.3.3	High-tech exports, % total trade
105	1.2.1	Regulatory quality*

Weaknesses

Rank	Code	Indicator name
132	6.1.4	Scientific and technical articles/bn PPP$ GDP
130	4.1.2	Domestic credit to private sector, % GDP
130	5.2.3	State of cluster development†
116	6.3.1	Intellectual property receipts, % total trade
110	3.2.2	Logistics performance*
109	4.3.2	Domestic industry diversification
102	5.2.5	Patent families/bn PPP$ GDP
99	6.1.2	PCT patents by origin/bn PPP$ GDP
75	2.3.4	QS university ranking, top 3*
62	4.1.3	Loans from microfinance institutions, % GDP
49	6.2.2	Unicorn valuation, % GDP
41	2.3.3	Global corporate R&D investors, top 3, mn USD

Global Innovation Index 2024



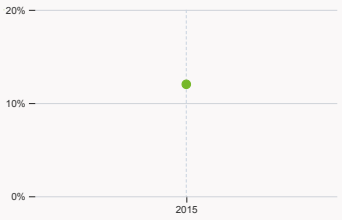
Angola's innovation system

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

Innovation inputs in Angola

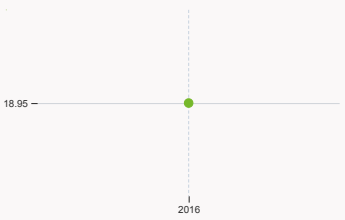
2.1.1 **Expenditure on education**

was equal to 2.33 % GDP in 2022, up by 0.04 percentage points from the year prior – and equivalent to an indicator rank of 117.



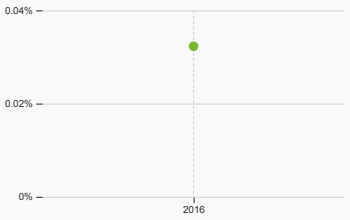
2.2.2 **Graduates in science and engineering**

was equal to 12.01 % of total graduates in 2015 – and equivalent to an indicator rank of 107.



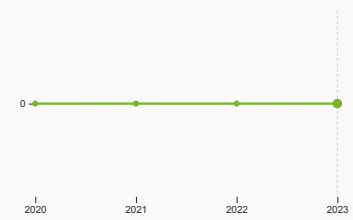
2.3.1 **Researchers**

was equal to 18.95 FTE per million population in 2016 – and equivalent to an indicator rank of 108.



2.3.2 **Gross expenditure on R&D**

was equal to 0.03 % GDP in 2016 – and equivalent to an indicator rank of 112.



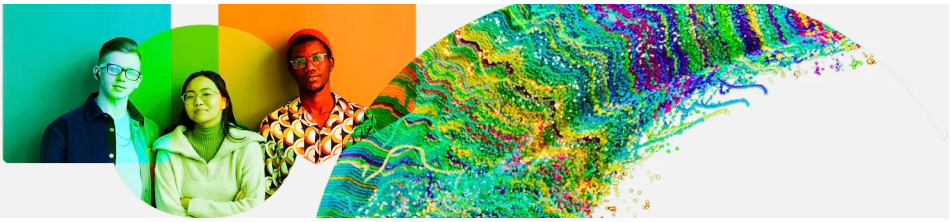
2.3.4 **QS university ranking**

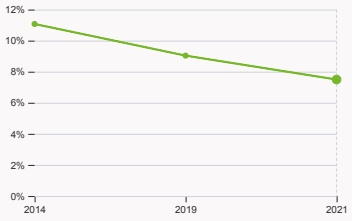
was equal to an average score of 0 for the top three universities in 2023 with no change from the year prior – and equivalent to an indicator rank of 75.

4.3.2 **Domestic industry diversification**

was equal to an index score of 0.55 in 2022 with no change from the year prior – and equivalent to an indicator rank of 109.

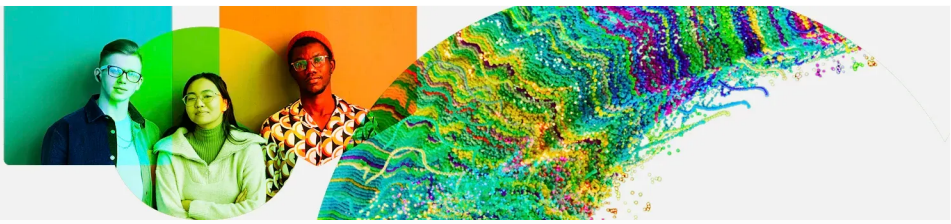
Global Innovation Index 2024





5.1.1 **Knowledge-intensive employment**
was equal to 7.5 % in 2021, down by 1.54 percentage points from the year prior – and equivalent to an indicator rank of 114.

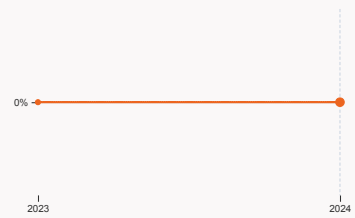
Global Innovation Index 2024



Innovation outputs in Angola

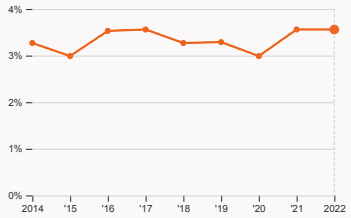
6.1.1 Patents by origin

was equal to 2 patents in 2019, down by 66.67% from the year prior – and equivalent to an indicator rank of 126.



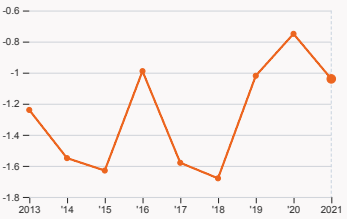
6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.



6.2.4 High-tech manufacturing

was equal to 3.56 % of total manufacturing output in 2022 with no change from the year prior – and equivalent to an indicator rank of 103.

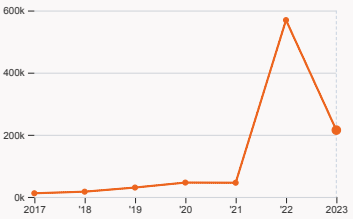


6.3.2 Production and export complexity

was equal to a score of -1.04 in 2021, down by 38.67% from the year prior – and equivalent to an indicator rank of 112.

6.3.3 High-tech exports

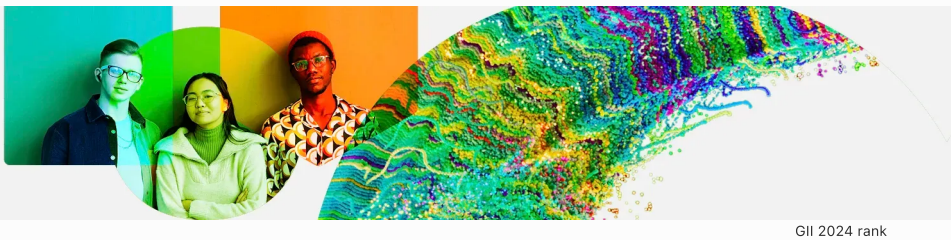
was equal to 90.41 million USD in 2022, up by 32.24% from the year prior – and equivalent to an indicator rank of 105.



7.3.3 Mobile app creation

was equal to 215.13 thousand global downloads of mobile apps in 2023, down by 62.2% from the year prior – and equivalent to an indicator rank of 119.

Global Innovation Index 2024



Angola

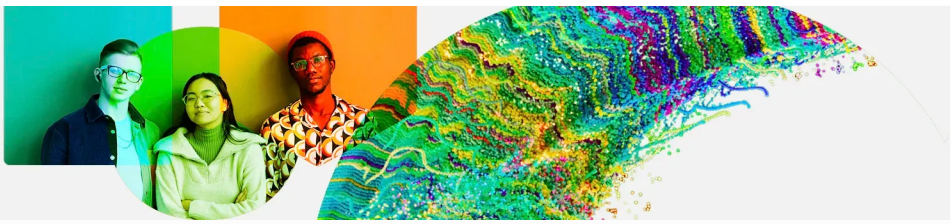
GII 2024 rank **133**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
133	132	Lower middle	SSA	36.8	260.3	7,077.3

	Score / Value	Rank	
Institutions	**25**	**120**	
1.1 Institutional environment	**33.7**	**108**	
1.1.1 Operational stability for businesses*	50.7	92	●◆
1.1.2 Government effectiveness*	16.8	127	◇
1.2 Regulatory environment	**20.2**	**114**	
1.2.1 Regulatory quality*	25.9	105	●◆
1.2.2 Rule of law*	14.5	121	
1.3 Business environment	**21**	**116**	◇
1.3.1 Policy stability for doing business†	27.7	109	
1.3.2 Entrepreneurship policies and culture†	14.2	72	
Human capital and research	**12.4**	**125**	◇
2.1 Education	**29.7**	**[123]**	
2.1.1 Expenditure on education, % GDP	2.3	117	
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3 School life expectancy, years	n/a	n/a	
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil–teacher ratio, secondary	26.8	113	
2.2 Tertiary education	**7.3**	**116**	◇
2.2.1 Tertiary enrolment, % gross	11.1	114	
2.2.2 Graduates in science and engineering, %	12	107	
2.2.3 Tertiary inbound mobility, %	n/a	n/a	
2.3 Research and development (R&D)	**0.1**	**118**	
2.3.1 Researchers, FTE/mn pop.	19	108	
2.3.2 Gross expenditure on R&D, % GDP	0.03	112	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○◇
2.3.4 QS university ranking, top 3*	0	75	○◇
Infrastructure	**22.6**	**121**	
3.1 Information and communication technologies (ICTs)	**34.7**	**116**	
3.1.1 ICT access*	36.7	118	◇
3.1.2 ICT use*	45.4	110	
3.1.3 Government's online service*	41.6	107	
3.1.4 E-participation*	15.1	129	◇
3.2 General infrastructure	**11.5**	**122**	
3.2.1 Electricity output, GWh/mn pop.	486.3	111	
3.2.2 Logistics performance*	0	110	○◇
3.2.3 Gross capital formation, % GDP	24.5	58	●◆
3.3 Ecological sustainability	**21.7**	**60**	●◆
3.3.1 GDP/unit of energy use	12.3	48	●◆
3.3.2 Low-carbon energy use, %	32.5	29	●◆
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.1	128	
Market sophistication	**11.6**	**127**	◇
4.1 Credit	**6.9**	**122**	
4.1.1 Finance for startups and scaleups†	20.8	78	◇
4.1.2 Domestic credit to private sector, % GDP	8.4	130	○◇
4.1.3 Loans from microfinance institutions, % GDP	0.005	62	○◇
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	**16.3**	**126**	◇
4.3.1 Applied tariff rate, weighted avg., %	7.1	113	
4.3.2 Domestic industry diversification	0	109	○◇
4.3.3 Domestic market scale, bn PPP$	260.3	64	●◆

	Score / Value	Rank	
Business sophistication	**6.8**	**133**	○◇
5.1 Knowledge workers	**5.7**	**[130]**	
5.1.1 Knowledge-intensive employment, %	7.5	114	
5.1.2 Firms offering formal training, %	n/a	n/a	
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, %	1.3	115	
5.2 Innovation linkages	**1.4**	**132**	◇
5.2.1 Public Research-Industry co-publications, %	0.6	114	
5.2.2 University-industry R&D collaboration†	0.6	129	◇
5.2.3 State of cluster development†	0	130	○◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.004	115	
5.2.5 Patent families/bn PPP$ GDP	0	102	○◇
5.3 Knowledge absorption	**13.3**	**129**	◇
5.3.1 Intellectual property payments, % total trade	0.6	65	●◆
5.3.2 High-tech imports, % total trade	4.5	115	
5.3.3 ICT services imports, % total trade	0.4	117	
5.3.4 FDI net inflows, % GDP	-5.5	129	◇
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**3.6**	**133**	○◇
6.1 Knowledge creation	**0.4**	**133**	○◇
6.1.1 Patents by origin/bn PPP$ GDP	0.009	126	
6.1.2 PCT patents by origin/bn PPP$ GDP	0	99	○◇
6.1.3 Utility models by origin/bn PPP$ GDP	0.04	62	●◆
6.1.4 Scientific and technical articles/bn PPP$ GDP	0.6	132	○◇
6.1.5 Citable documents H-index	0.9	130	◇
6.2 Knowledge impact	**6.7**	**132**	◇
6.2.1 Labor productivity growth, %	-4.1	131	◇
6.2.2 Unicorn valuation, % GDP	0	49	○◇
6.2.3 Software spending, % GDP	0.1	89	●◆
6.2.4 High-tech manufacturing, %	3.6	103	◇
6.3 Knowledge diffusion	**3.8**	**124**	
6.3.1 Intellectual property receipts, % total trade	0	116	○◇
6.3.2 Production and export complexity	16.9	112	
6.3.3 High-tech exports, % total trade	0.2	105	●◆
6.3.4 ICT services exports, % total trade	0.06	132	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.5	127	◇
Creative outputs	**5.9**	**[119]**	
7.1 Intangible assets	**4.9**	**[113]**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	12	106	
7.1.3 Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.2	102	
7.2 Creative goods and services	**0.1**	**[133]**	
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	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.008	127	
7.3 Online creativity	**13.5**	**119**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	0.07	130	
7.3.2 GitHub commits/mn pop. 15–69	0.4	125	
7.3.3 Mobile app creation/bn PPP$ GDP	40.1	119	◇

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕓 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.



Data availability

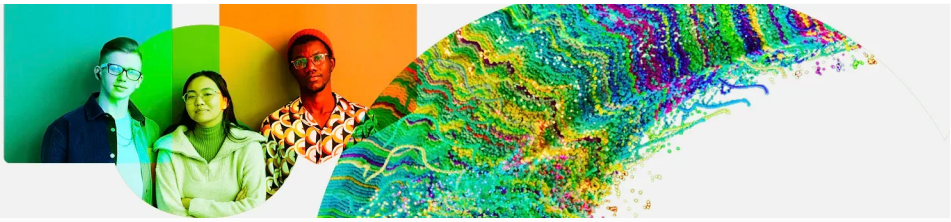
The following tables list indicators that are either missing or outdated for Angola.

Angola has missing data for seventeen indicators and outdated data for fourteen indicators.

Missing data for Angola

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2022	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2022	OECD, PISA
2.2.3	Tertiary inbound mobility, %	n/a	2022	UNESCO Institute for Statistics
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
5.1.2	Firms offering formal training, %	n/a	2023	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.1.1	Intangible asset intensity, top 15, %	n/a	2023	Brand Finance
7.1.3	Global brand value, top 5,000, % GDP	n/a	2024	Brand Finance; International Monetary Fund
7.2.1	Cultural and creative services exports, % total trade	n/a	2022	World Trade Organization Global Services Trade Data Hub
7.2.2	National feature films/mn pop. 15–69	n/a	2022	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

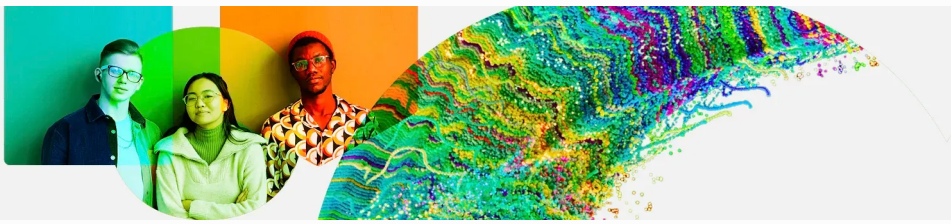
Global Innovation Index 2024



Outdated data for Angola

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture†	2022	2023	Global Entrepreneurship Monitor
2.1.5	Pupil–teacher ratio, secondary	2016	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2019	2022	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2015	2021	UNESCO Institute for Statistics; Eurostat; OECD
2.3.1	Researchers, FTE/mn pop.	2016	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2016	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2021	2022	International Energy Agency
4.1.1	Finance for startups and scaleups†	2022	2023	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	2020	2022	International Monetary Fund, Financial Access Survey (FAS)
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.5	Females employed w/advanced degrees, %	2021	2023	International Labour Organization
6.1.1	Patents by origin/bn PPP$ GDP	2019	2022	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	2019	2022	World Intellectual Property Organization; International Monetary Fund
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2022	World Intellectual Property Organization; International Monetary Fund

Global Innovation Index 2024



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, 2024.

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.