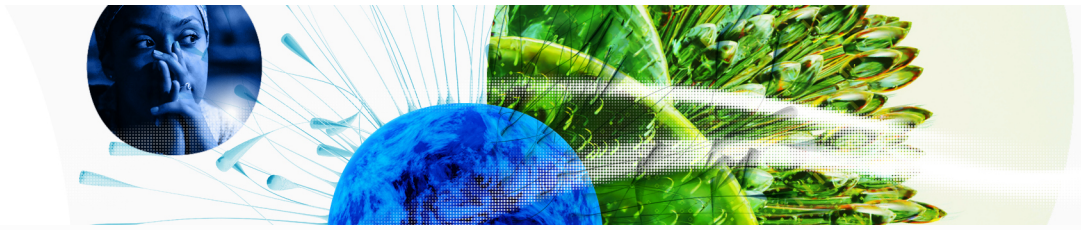# Global Innovation Index 2023

The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**
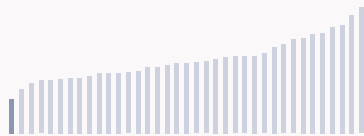
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.
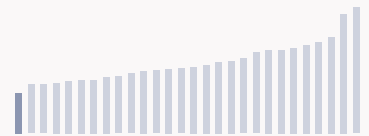
Angola ranking in the Global Innovation Index 2023

> Angola ranks **132nd** among the 132 economies featured in the GII 2023.
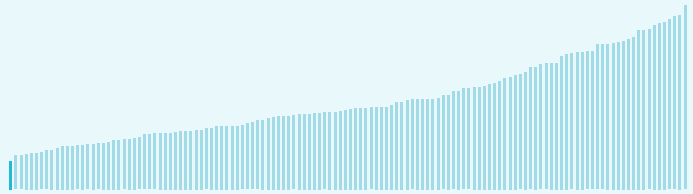
> Angola ranks 37th among the 37 lower-middle-income group economies.

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

> **Angola GII Ranking (2020-2023)**

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 2023 is between ranks 131 and 132.

	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

Angola performs the same in **innovation outputs** as in innovation inputs in 2023.

This year **Angola ranks 132nd in innovation inputs**. This position is lower than last year.

Angola ranks 132nd **in innovation outputs**. This position is lower than last year.

Global Innovation Index 2023
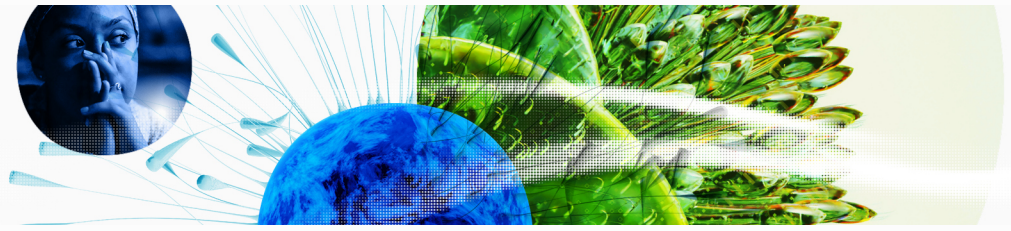
→ **Expected vs. observed innovation performance**

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

> Innovation overperformers relative to their economic development
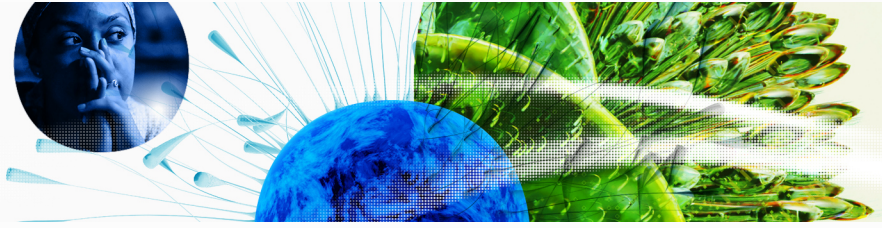

↑ GII Score
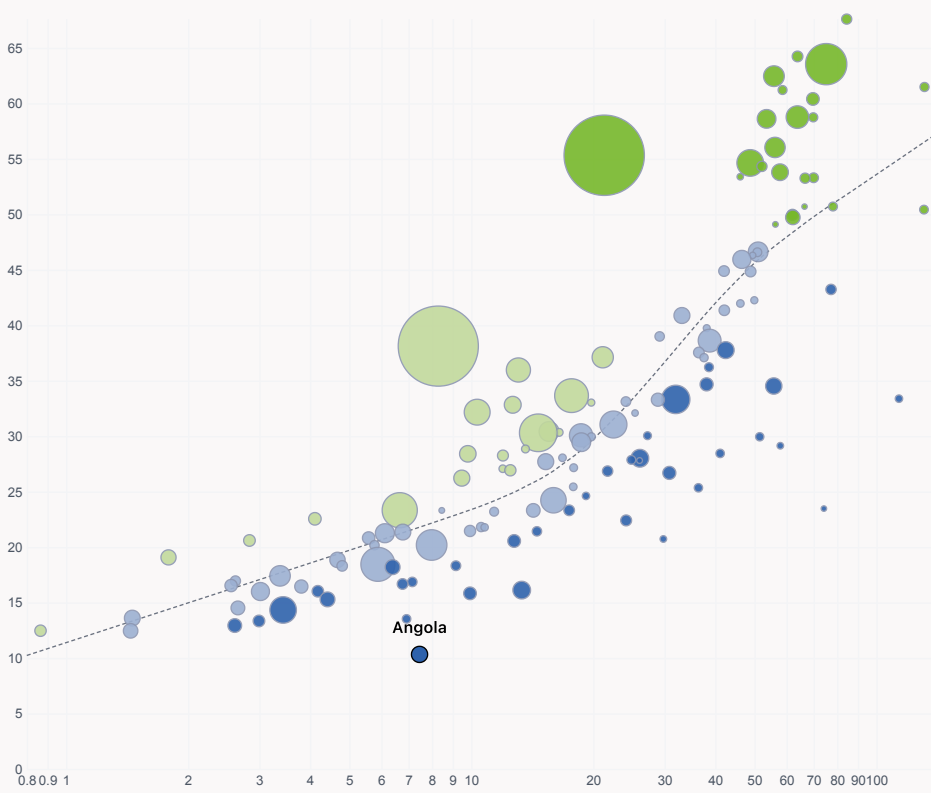
Innovation leader

Performing above expectations for level of development

Performing at expectations for level of development

Performing below expectations for level of development

Size legend (Population)

1.4B
713M
373K

Angola

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

Global Innovation Index 2023

## → Effectively translating innovation investments into innovation outputs

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.
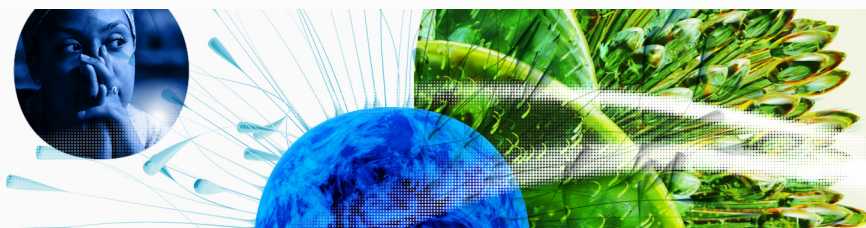
> Angola produces the same innovation outputs as its level of innovation investments.

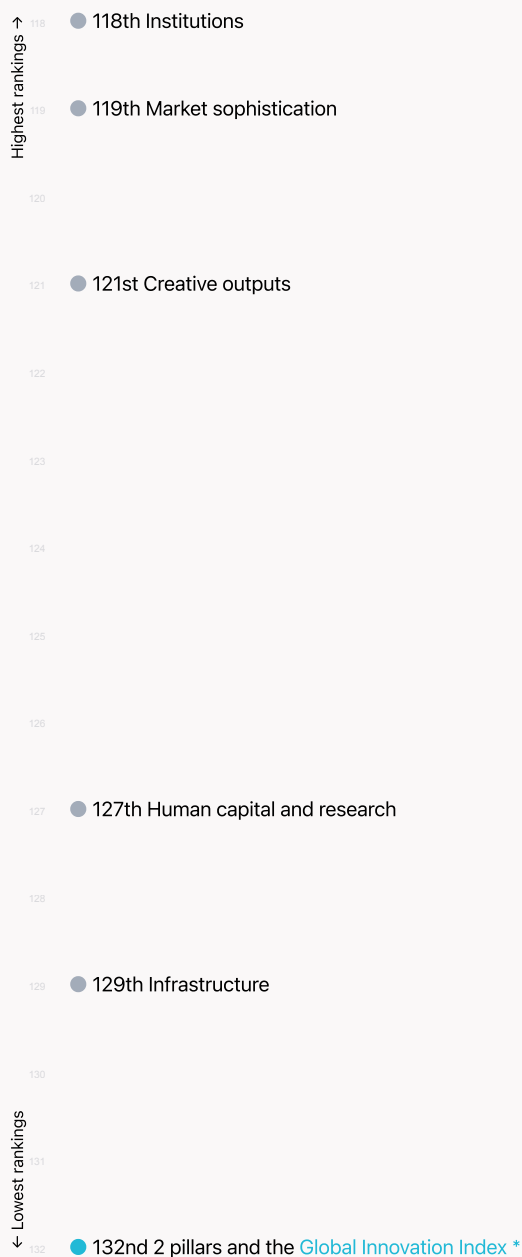> Relationship between innovation inputs and outputs
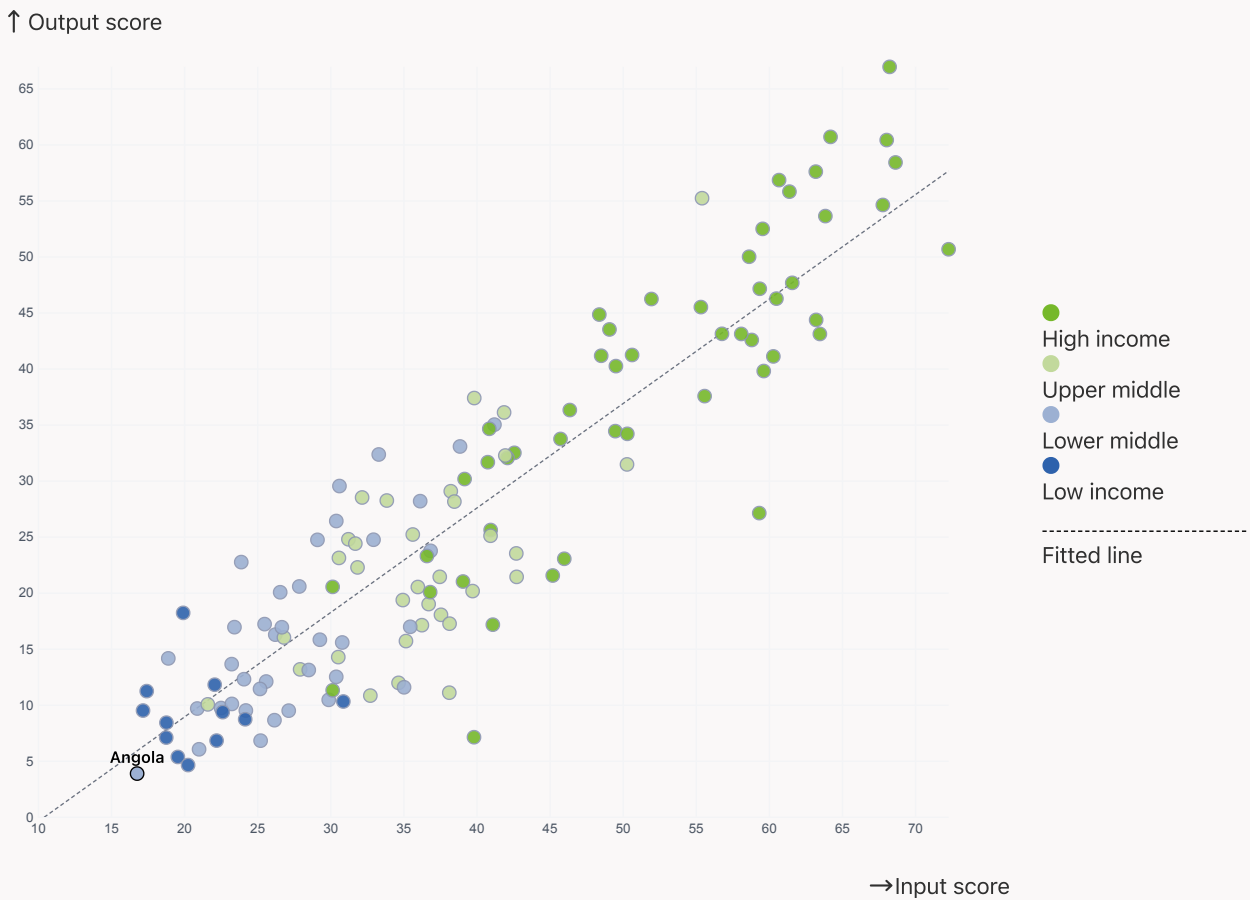
Global Innovation Index 2023

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

Highest rankings →

118 ● 118th Institutions

119 ● 119th Market sophistication

120

121 ● 121st Creative outputs

122

123

124

125

126

127 ● 127th Human capital and research

128

129 ● 129th Infrastructure

130

← Lowest rankings

131

132 ● 132nd 2 pillars and the Global Innovation Index *

* Business sophistication, Knowledge and technology outputs

> Highest rankings

Angola ranks highest in Institutions (118th), Market sophistication (119th), Creative outputs (121st), Human capital and research (127th), Infrastructure (129th) and Business sophistication, Knowledge and technology outputs (132nd).
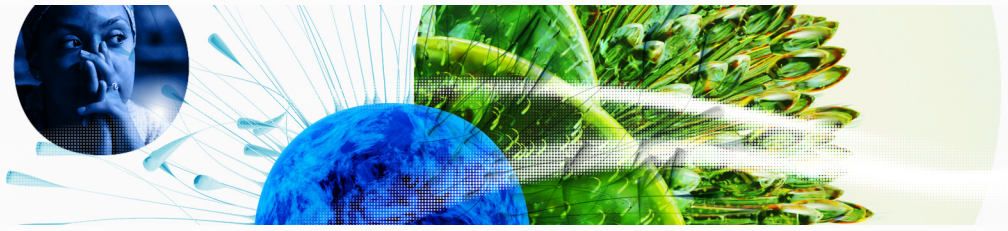
> Lowest rankings

Angola ranks lowest in Business sophistication, Knowledge and technology outputs, GII Index (132nd), Infrastructure (129th) and Human capital and research (127th).

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

Global Innovation Index 2023

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

The charts shows the relative position of Angola (blue bar) against other country 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 the pillars.

> **Sub-Saharan Africa**

Angola performs below the regional average in all the pillars.

Knowledge and technology outputs

Top 10 | Score: 58.96

Lower middle income | Score: 17.21

Sub-Saharan Africa | Score: 12.16

Angola | Score: 1.62

Creative outputs

Top 10 | 56.09

Lower middle income | 16.35

Sub-Saharan Africa | 10.36

Angola | 6.07

Business sophistication

Top 10 | 64.39

Lower middle income | 22.71

Sub-Saharan Africa | 19.85

Angola | 8.48

Market sophistication

Top 10 | 61.93

Lower middle income | 28.01

Sub-Saharan Africa | 20.00

Angola | 16.61

Human capital and research

Top 10 | 60.28

Lower middle income | 21.73

Sub-Saharan Africa | 17.80

Angola | 10.96

Infrastructure

Top 10 | 62.83

Lower middle income | 27.83

Sub-Saharan Africa | 23.36

Angola | 16.08

Institutions

Top 10 | 79.85

Sub-Saharan Africa | 43.27

Lower middle income | 39.43

Angola | 31.85

Global Innovation Index 2023

→ Innovation strengths and weaknesses in Angola

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

> Angola's main innovation strengths are **GDP/unit of energy use** (rank 32), **Domestic market scale, bn PPP\$** (rank 64) and **Utility models by origin/bn PPP\$ GDP** (rank 65).

Strengths

Rank	Code	Indicator name
32	3.3.1	GDP/unit of energy use
64	4.3.3	Domestic market scale, bn PPP\$
65	6.1.3	Utility models by origin/bn PPP\$ GDP
66	5.3.1	Intellectual property payments, % total trade
77	1.2.3	Cost of redundancy dismissal
78	3.2.3	Gross capital formation, % GDP
96	1.1.1	Operational stability for businesses
104	1.3.1	Policies for doing business
106	3.1.3	Government's online service
106	7.1.2	Trademarks by origin/bn PPP\$ GDP

Weaknesses

| Rank	Code	Indicator name
131	6.1.4	Scientific and technical articles/bn PPP\$ GDP
130	6.2.1	Labor productivity growth, %
129	5.2.1	University-industry R&D collaboration
128	5.2.2	State of cluster development
120	6.3.2	Production and export complexity
111	3.2.2	Logistics performance
101	6.1.2	PCT patents by origin/bn PPP\$ GDP
95	5.2.5	Patent families/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
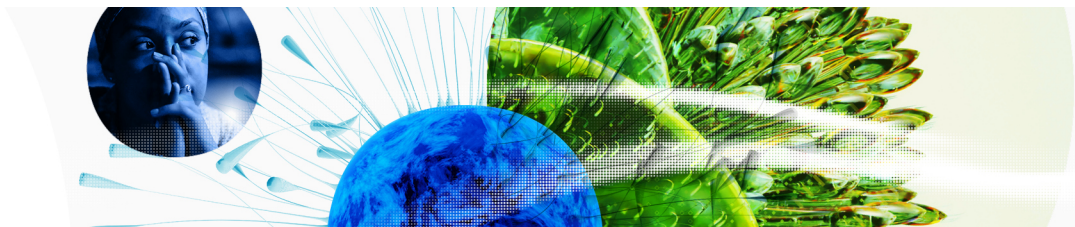
→ Angola's innovation system

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

> Innovation inputs in Angola
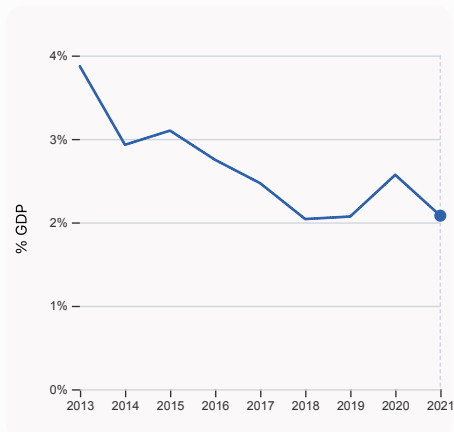
2.1.1 Expenditure on education, % GDP

was equal to 2.08% GDP in 2021, down by 0.49 percentage points from the year prior – and equivalent to an indicator rank of 116.
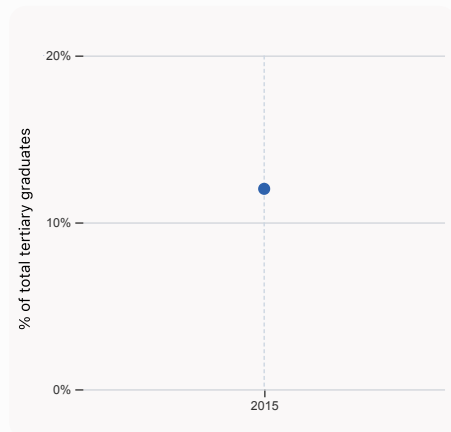
2.2.2 Graduates in science and engineering, %

was equal to 12.01 % of total tertiary graduates in 2015, equivalent to an indicator rank of 105.
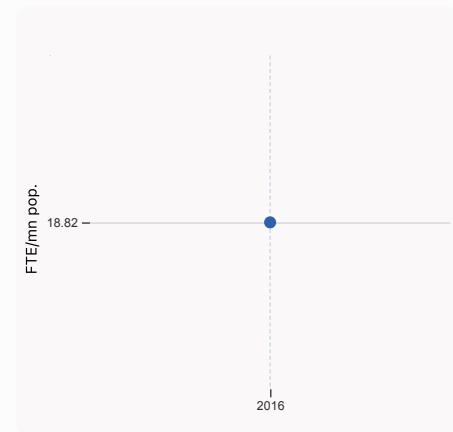
2.3.1 Researchers, FTE/mn pop.

was equal to 18.82 FTE/mn pop. in 2016, equivalent to an indicator rank of 105.
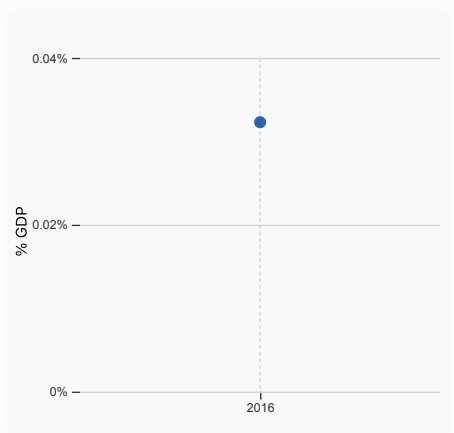
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.032 % GDP in 2016, equivalent to an indicator rank of 111.
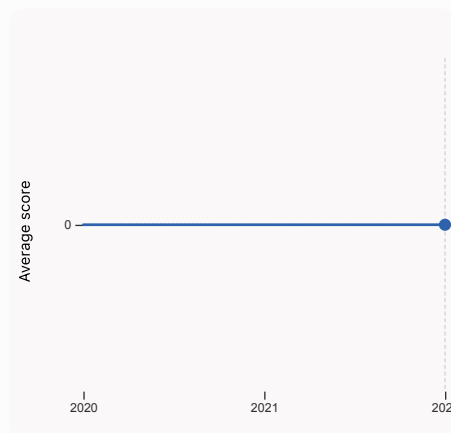
2.3.4 QS university ranking, top 3

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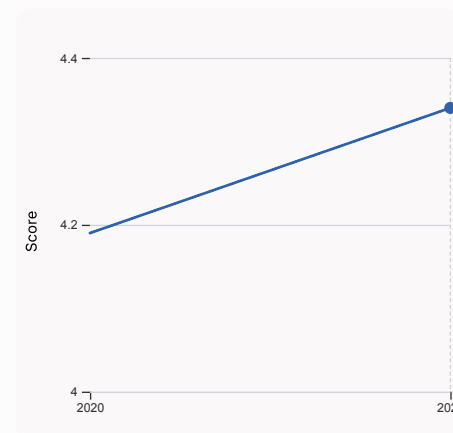
3.1.1 ICT access

was equal to a score of 4.34 in 2021, up by 3.58% from the year prior – and equivalent to an indicator rank of 128.

Global Innovation Index 2023
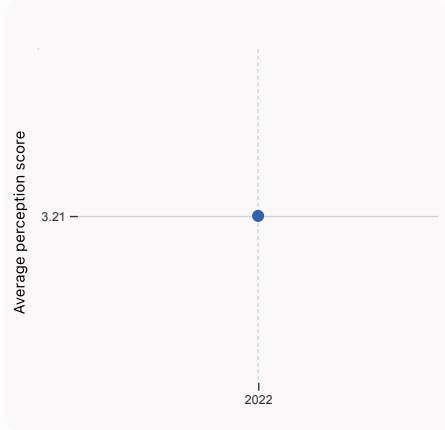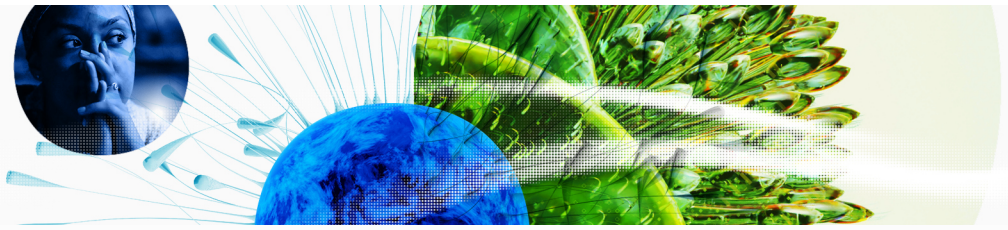
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 3.21 in 2022, equivalent to an indicator rank of 79.
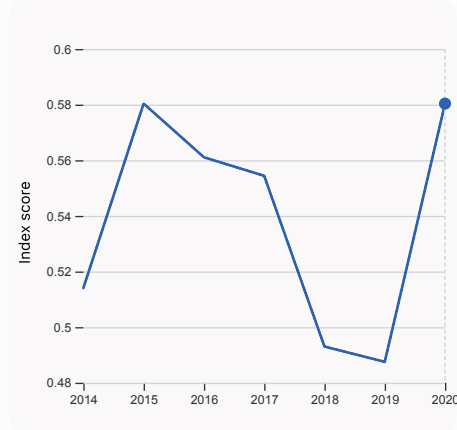
4.3.2 Domestic industry diversification

was equal to an index score of 0.58 in 2020, up by 19.043% from the year prior – and equivalent to an indicator rank of 110.
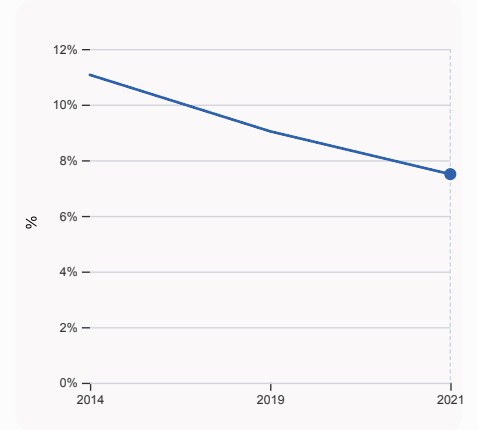
5.1.1 Knowledge-intensive employment, %

was equal to 7.5% in 2021, down by 1.54 percentage points from the year prior – and equivalent to an indicator rank of 113.

Global Innovation Index 2023
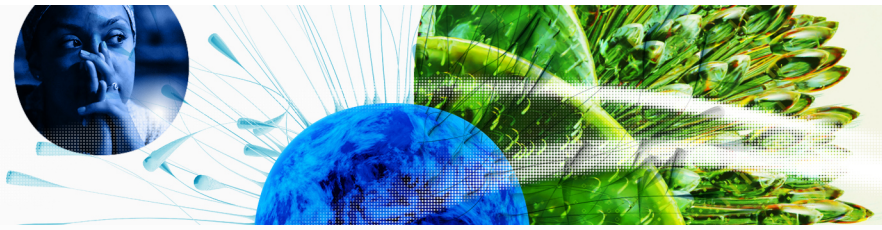
> ## Innovation outputs in Angola
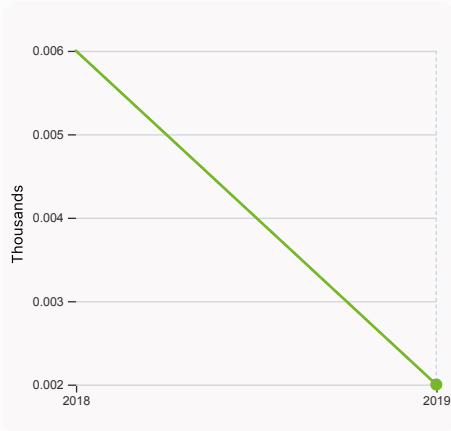
6.1.1 Patents by origin

was equal to 0.002 Thousands in 2019, down by 66.67% from the year prior – and equivalent to an indicator rank of 130.
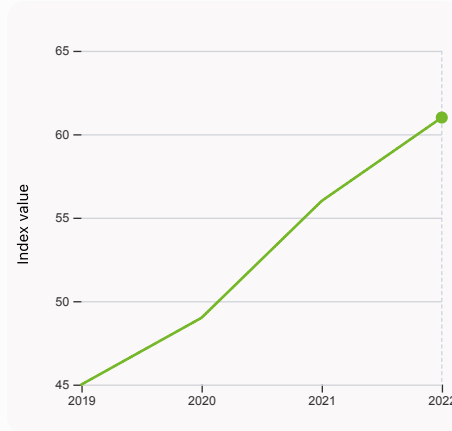
6.1.5 Citable documents H-index

was equal to an index value of 61 in 2022, up by 8.93% from the year prior – and equivalent to an indicator rank of 129.
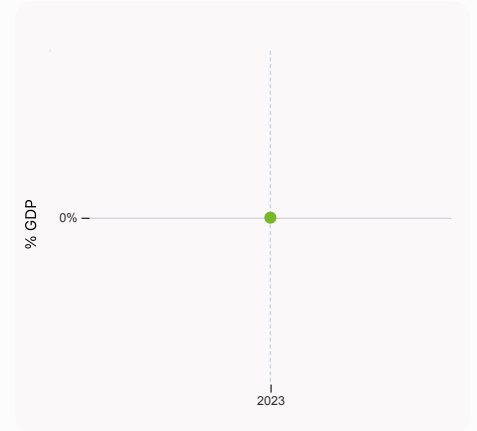
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.
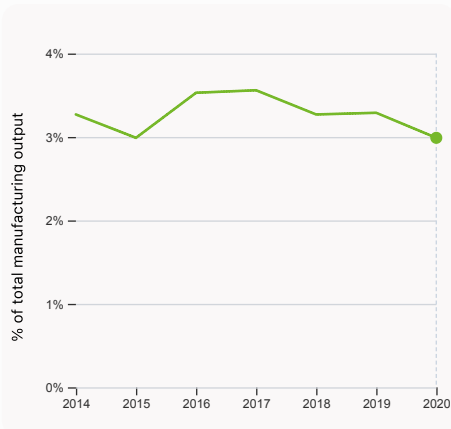
6.2.4 High-tech manufacturing, %

was equal to 2.99% of total manufacturing output in 2020, down by 0.3 percentage points from the year prior – and equivalent to an indicator rank of 108.
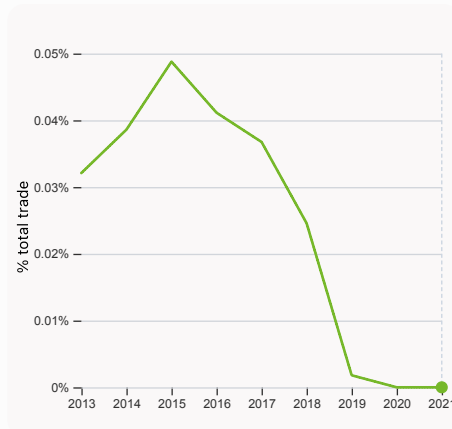
6.3.1 Intellectual property receipts, % total trade

was equal to 0% total trade in 2021 – and equivalent to an indicator rank of 105.
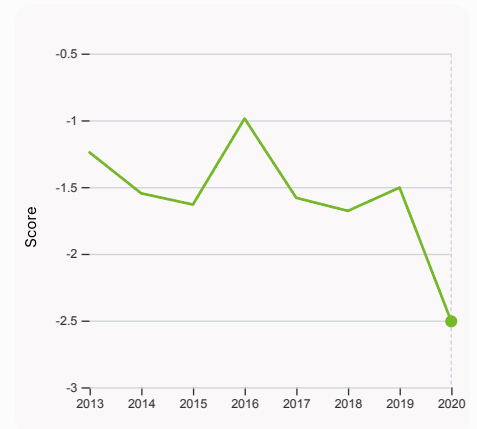
6.3.2 Production and export complexity

was equal to a score of -2.506 in 2020, down by 66.6% from the year prior – and equivalent to an indicator rank of 120.
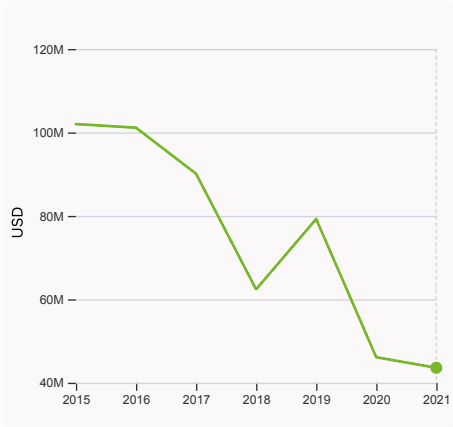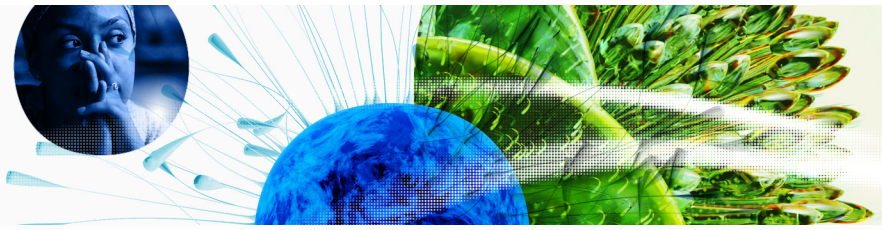
6.3.3 High-tech exports

was equal to 43,596,131 USD in 2021, down by 5.47% from the year prior – and equivalent to an indicator rank of 110.
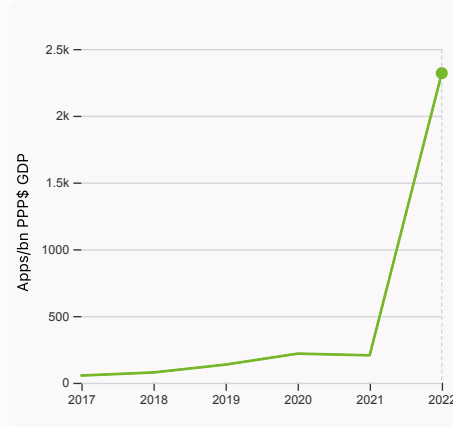
7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 2,319.03 Apps/bn PPP$ GDP in 2022, up by 1028.26% from the year prior – and equivalent to an indicator rank of 113.

Global Innovation Index 2023

Angola

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
132	**132**	**Lower middle**	**SSA**	**35.6**	**245.4**	**7,455.5**

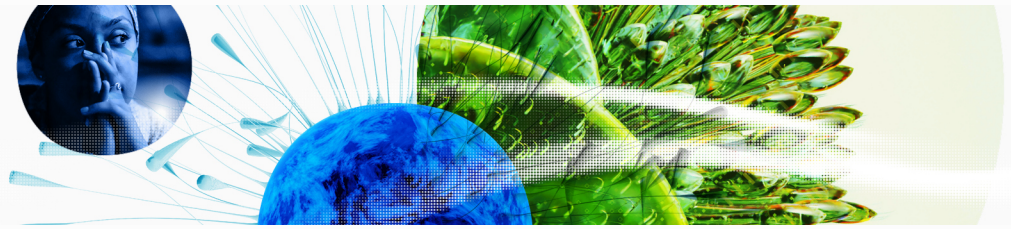|	Score / Value	Rank	
🏛 **Institutions**	**31.8**	**118**	
1.1 Institutional environment	23.2	118	
1.1.1 Operational stability for businesses*	38.9	96	●
1.1.2 Government effectiveness*	7.5	128	◇
1.2 Regulatory environment	49.4	101	
1.2.1 Regulatory quality*	24.9	111	
1.2.2 Rule of law*	11.8	119	
1.2.3 Cost of redundancy dismissal	17.9	77	●
1.3 Business environment	22.9	114	
1.3.1 Policies for doing business†	31.2	104	●
1.3.2 Entrepreneurship policies and culture†	14.6	73	◇
👥 **Human capital and research**	**11.0**	**127**	◇
2.1 Education	26.2	124	
2.1.1 Expenditure on education, % GDP	2.1	116	◇
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	114	◇
2.2 Tertiary education	6.6	118	◇
2.2.1 Tertiary enrolment, % gross	◕ 10.6	112	
2.2.2 Graduates in science and engineering, %	◕ 12.0	105	◇
2.2.3 Tertiary inbound mobility, %	n/a	n/a	
2.3 Research and development (R&D)	0.1	116	
2.3.1 Researchers, FTE/mn pop.	◕ 18.8	105	
2.3.2 Gross expenditure on R&D, % GDP	◕ 0.0	111	◇
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**	**16.1**	**129**	◇
3.1 Information and communication technologies (ICTs)	23.4	126	◇
3.1.1 ICT access*	14.3	128	◇
3.1.2 ICT use*	22.7	124	◇
3.1.3 Government's online service*	41.6	106	●
3.1.4 E-participation*	15.1	128	◇
3.2 General infrastructure	6.6	130	◇
3.2.1 Electricity output, GWh/mn pop.	◕ 498.4	111	
3.2.2 Logistics performance*	0.0	111	○◇
3.2.3 Gross capital formation, % GDP	22.6	78	●
3.3 Ecological sustainability	18.2	89	
3.3.1 GDP/unit of energy use	14.0	32	●
3.3.2 Environmental performance*	19.7	109	
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.1	128	
📊 **Market sophistication**	**16.6**	**119**	
4.1 Credit	7.9	119	
4.1.1 Finance for startups and scaleups†	20.8	79	◇
4.1.2 Domestic credit to private sector, % GDP	12.9	125	◇
4.1.3 Loans from microfinance institutions, % GDP	◕ 0.0	56	
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	25.3	120	◇
4.3.1 Applied tariff rate, weighted avg., %	9.2	113	
4.3.2 Domestic industry diversification	30.3	110	◇
4.3.3 Domestic market scale, bn PPP$	245.4	64	●

	Score / Value	Rank	
💼 **Business sophistication**	**8.5**	**132**	◇
5.1 Knowledge workers	5.7	127	
5.1.1 Knowledge-intensive employment, %	◕ 7.5	113	
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	113	
5.2 Innovation linkages	0.7	132	◇
5.2.1 University-industry R&D collaboration†	0.0	129	○◇
5.2.2 State of cluster development†	1.6	128	○◇
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	119	
5.2.5 Patent families/bn PPP$ GDP	0.0	95	○◇
5.3 Knowledge absorption	19.0	131	◇
5.3.1 Intellectual property payments, % total trade	0.5	66	●
5.3.2 High-tech imports, % total trade	3.8	125	
5.3.3 ICT services imports, % total trade	0.3	123	
5.3.4 FDI net inflows, % GDP	-5.3	129	◇
5.3.5 Research talent, % in businesses	n/a	n/a	
🚀 **Knowledge and technology outputs**	**1.6**	**132**	◇
6.1 Knowledge creation	0.4	132	◇
6.1.1 Patents by origin/bn PPP$ GDP	◕ 0.0	130	
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	65	●
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	1.0	129	◇
6.2 Knowledge impact	3.3	131	◇
6.2.1 Labor productivity growth, %	-3.9	130	○◇
6.2.2 Unicorn valuation, % GDP	0.0	48	○◇
6.2.3 Software spending, % GDP	n/a	n/a	
6.2.4 High-tech manufacturing, %	3.0	108	◇
6.3 Knowledge diffusion	1.1	131	◇
6.3.1 Intellectual property receipts, % total trade	0.0	105	
6.3.2 Production and export complexity	0.0	120	○◇
6.3.3 High-tech exports, % total trade	0.2	110	
6.3.4 ICT services exports, % total trade	0.1	126	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.5	121	
🎨 **Creative outputs**	**6.1**	**121**	
7.1 Intangible assets	7.1	112	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	◕ 12.0	106	●
7.1.3 Global brand value, top 5,000	n/a	n/a	
7.1.4 Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.2 Creative goods and services	0.1	131	
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	0.0	127	
7.3 Online creativity	9.9	115	
7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	0.0	130	
7.3.2 Country-code TLDs/th pop. 15–69	0.1	117	
7.3.3 GitHub commits/mn pop. 15–69	0.2	126	
7.3.4 Mobile app creation/bn PPP$ GDP	39.3	113	◇

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 Angola.

> Angola has missing data for twenty indicators and outdated data for twelve indicators.

> ## Missing data for Angola

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2020	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.2.3	Tertiary inbound mobility, %	n/a	2020	UNESCO Institute for Statistics
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
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
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
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.3	Software spending, % GDP	n/a	2022	S&P Global, Market Intelligence
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
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.1	Cultural and creative services exports, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development

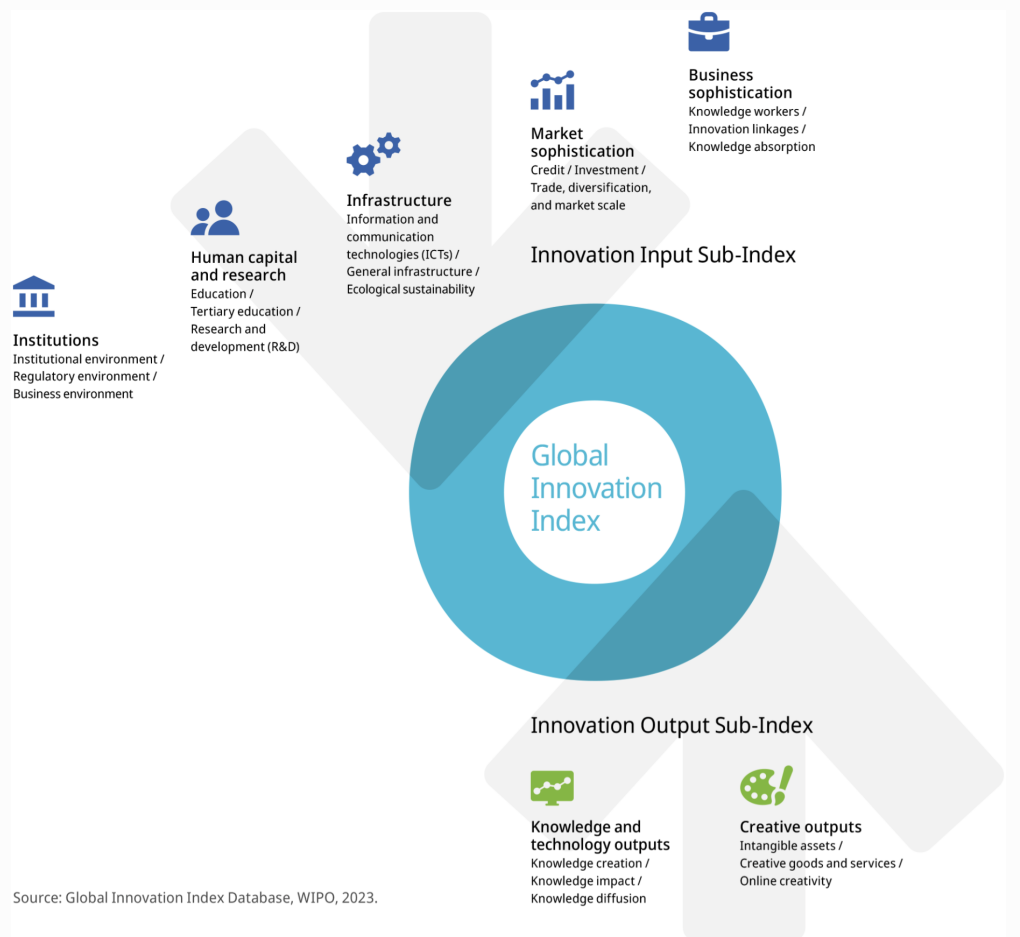| Code	Indicator name	Economy Year	Model Year	Source
7.2.2	National feature films/mn pop. 15-69	n/a	2021	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

> Outdated data for Angola

Code	Indicator name	Economy Year	Model Year	Source
2.1.5	Pupil-teacher ratio, secondary	2016	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2019	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2015	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.3.1	Researchers, FTE/mn pop.	2016	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2016	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.3	Loans from microfinance institutions, % GDP	2020	2021	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	2022	International Labour Organization
6.1.1	Patents by origin/bn PPP$ GDP	2019	2021	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	2019	2021	World Intellectual Property Organization; International Monetary Fund
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund

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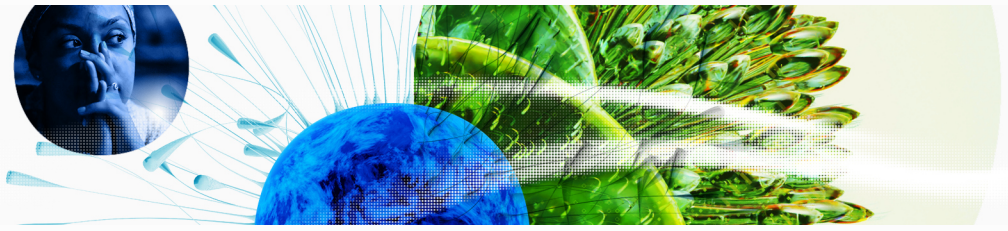
→ **About the Global Innovation Index**

- 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.

Institutions
Institutional environment /
Regulatory environment /
Business environment

Human capital and research
Education /
Tertiary education /
Research and development (R&D)

Infrastructure
Information and communication technologies (ICTs) /
General infrastructure /
Ecological sustainability

Market sophistication
Credit / Investment /
Trade, diversification, and market scale

Business sophistication
Knowledge workers /
Innovation linkages /
Knowledge absorption

Innovation Input Sub-Index

Global Innovation Index

Innovation Output Sub-Index

Knowledge and technology outputs
Knowledge creation /
Knowledge impact /
Knowledge diffusion

Creative outputs
Intangible assets /
Creative goods and services /
Online creativity

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.