



ANGOLA

127th Angola ranks 127th 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 Angola 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 Angola in the GII 2022 is between ranks 122 and 132.

Rankings for Angola (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020			
2021	132	131	131
2022	127	129	117

- Angola performs better in innovation outputs than innovation inputs in 2022.
- This year Angola ranks 129th in innovation inputs, higher than last year.
- As for innovation outputs, Angola ranks 117th. This position is higher than last year.

35th Angola ranks 35th among the 36 lower-middle-income group economies.

24th Angola ranks 24th among the 27 economies in Sub-Saharan Africa.

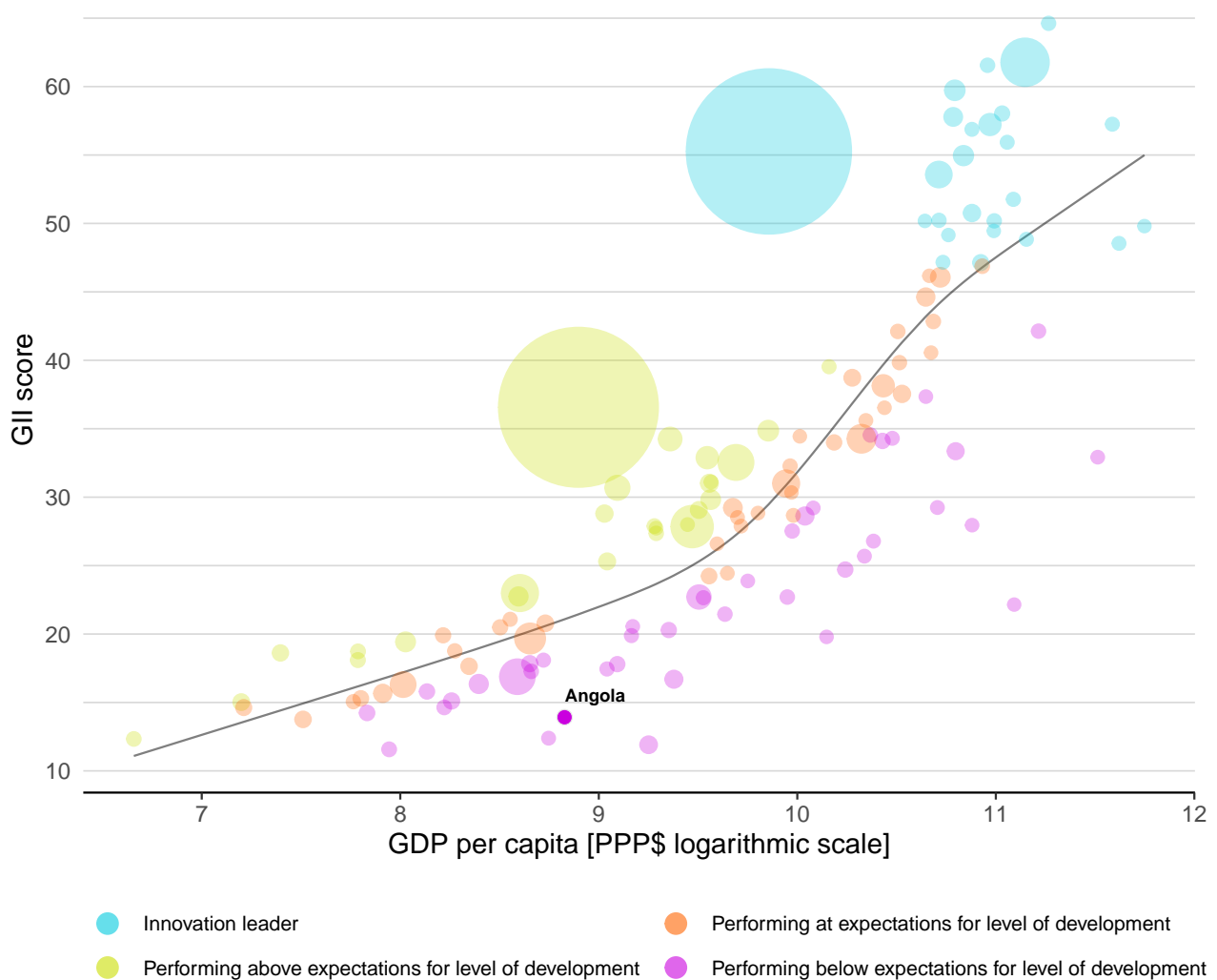


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

The positive relationship between innovation and development

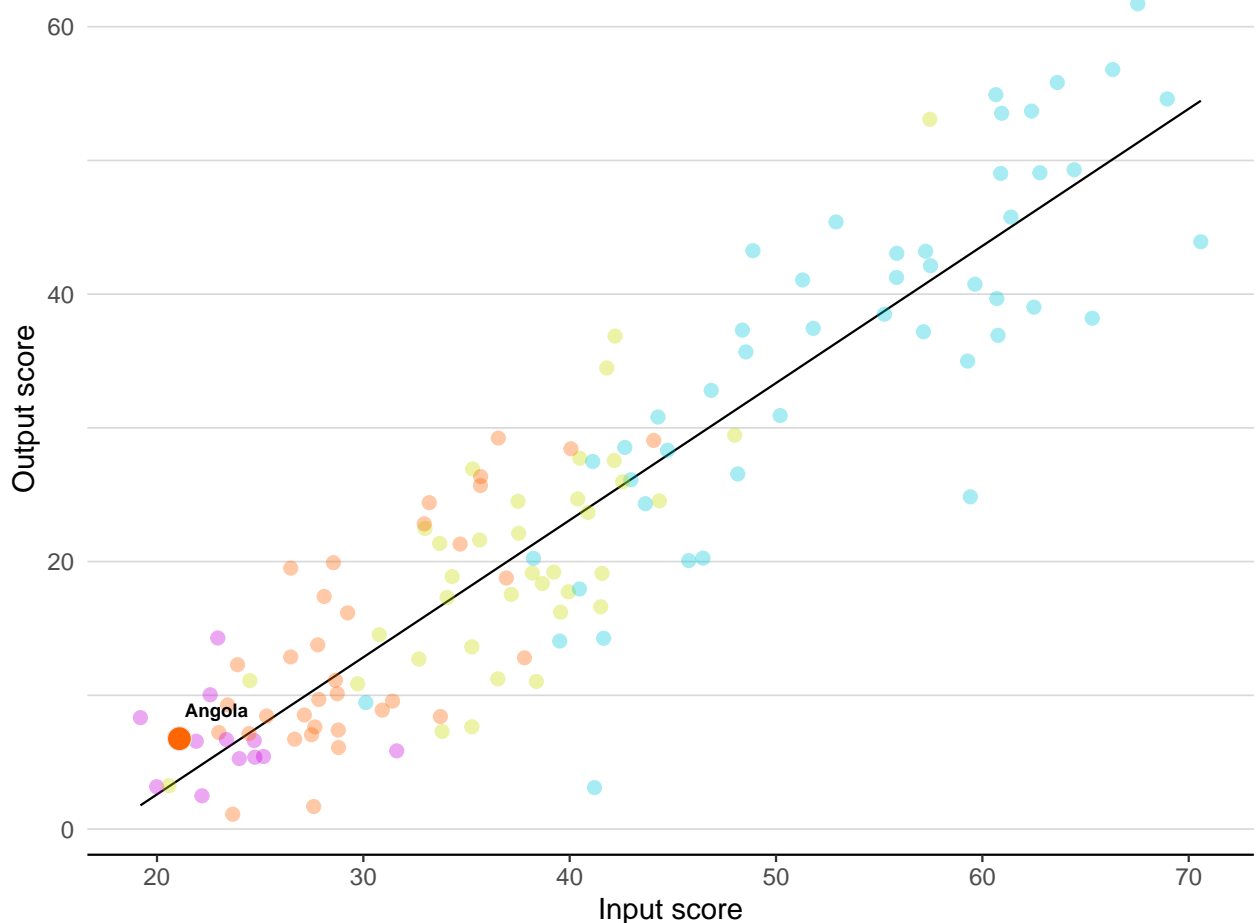


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

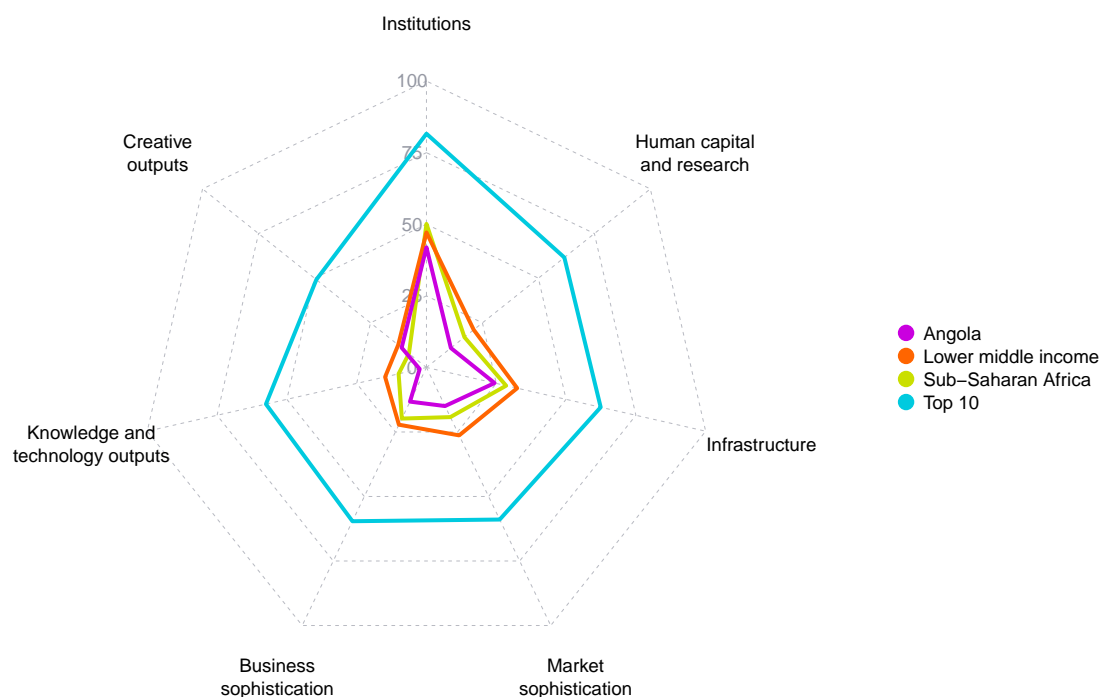
Innovation input to output performance



Income ● High income ● Upper middle ● Lower middle ● Low income — Fitted line

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

The seven GII pillar scores for Angola



Lower-middle-income group economies

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

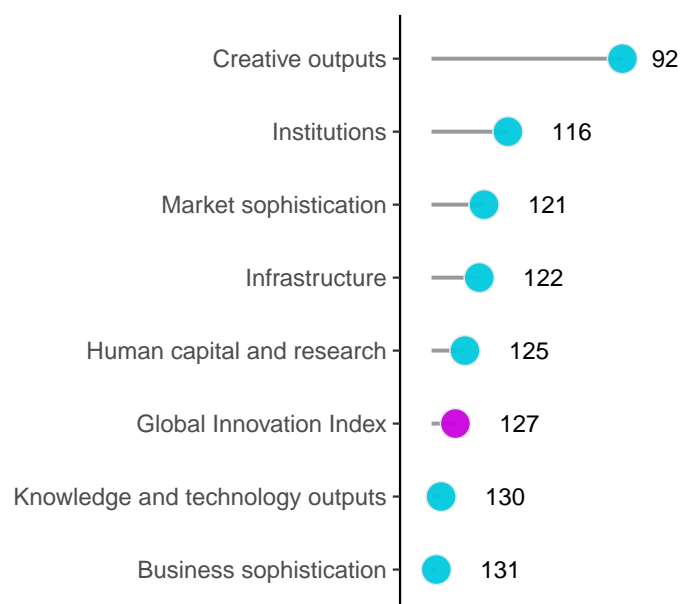
Sub-Saharan Africa

Angola performs above the regional average in Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Angola performs best in Creative outputs and its weakest performance is in Business sophistication.

The seven GII pillar ranks for Angola



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES




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

Strengths and weaknesses for Angola

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.1.1	Political and operational stability	87	2.3.1	Researchers, FTE/mn pop.	107
1.2.3	Cost of redundancy dismissal	76	2.3.3	Global corporate R&D investors, top 3, mn USD	38
1.3.1	Policies for doing business	97	2.3.4	QS university ranking, top 3	72
3.2.3	Gross capital formation, % GDP	68	3.2.2	Logistics performance	125
3.3.1	GDP/unit of energy use	37	5.2.1	University-industry R&D collaboration	128
4.3.3	Domestic market scale, bn PPP\$	65	5.2.2	State of cluster development and depth	128
5.3.1	Intellectual property payments, % total trade	62	5.2.5	Patent families/bn PPP\$ GDP	101
5.3.3	ICT services imports, % total trade	93	6.1.4	Scientific and technical articles/bn PPP\$ GDP	131
6.3.3	High-tech exports, % total trade	100	6.2.1	Labor productivity growth, %	117
7.2.4	Printing and other media, % manufacturing	8	6.3.4	ICT services exports, % total trade	131

Angola

127

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
117	129	Lower middle	SSA	33.9	218.0	6,820
		Score/Value	Rank			
 Institutions		41.9	116			
1.1	Political environment	43.0	122			
1.1.1	Political and operational stability*	61.8	87 ●			
1.1.2	Government effectiveness*	24.2	128 ◇			
1.2	Regulatory environment	51.1	103			
1.2.1	Regulatory quality*	22.3	122			
1.2.2	Rule of law*	21.1	119			
1.2.3	Cost of redundancy dismissal	17.9	76 ●			
1.3	Business environment	31.7	106			
1.3.1	Policies for doing business†	39.3	97 ●			
1.3.2	Entrepreneurship policies and culture*	24.2	57 ◇			
 Human capital and research		10.9	125 ◇			
2.1	Education	26.6	[124]			
2.1.1	Expenditure on education, % GDP	2.4	119 ◇			
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	n/a			
2.1.3	School life expectancy, years	9.6	106 ◇			
2.1.4	PISA scales in reading, maths and science	n/a	n/a			
2.1.5	Pupil-teacher ratio, secondary	26.8	112 ◇			
2.2	Tertiary education	6.1	117 ◇			
2.2.1	Tertiary enrolment, % gross	9.3	115			
2.2.2	Graduates in science and engineering, %	12.0	103 ◇			
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	107 ◇			
2.3.2	Gross expenditure on R&D, % GDP	0.0	112 ◇			
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		24.4	122 ◇			
3.1	Information and communication technologies (ICTs)	40.0	120 ◇			
3.1.1	ICT access*	41.9	125 ◇			
3.1.2	ICT use*	24.0	123 ◇			
3.1.3	Government's online service*	48.8	108			
3.1.4	E-participation*	45.2	108			
3.2	General infrastructure	11.1	128 ◇			
3.2.1	Electricity output, GWh/mn pop.	485.7	110			
3.2.2	Logistics performance*	0.0	125 ◇			
3.2.3	Gross capital formation, % GDP	23.1	68 ●			
3.3	Ecological sustainability	22.1	82 ●			
3.3.1	GDP/unit of energy use	13.0	37 ●			
3.3.2	Environmental performance*	30.5	106			
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	0.1	129			
 Market sophistication		14.9	121 ◇			
4.1	Credit	9.6	112			
4.1.1	Finance for startups and scaleups*	25.7	67 ◇			
4.1.2	Domestic credit to private sector, % GDP	12.9	122			
4.1.3	Loans from microfinance institutions, % GDP	0.0	59			
4.2	Investment	n/a	[n/a]			
4.2.1	Market capitalization, % GDP	n/a	n/a			
4.2.2	Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a			
4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a			
4.2.4	Venture capital received, value, % GDP	n/a	n/a			
4.3	Trade, diversification, and market scale	20.3	126 ◇			
4.3.1	Applied tariff rate, weighted avg., %	9.2	113			
4.3.2	Domestic industry diversification	16.0	108 ◇			
4.3.3	Domestic market scale, bn PPP\$	218.0	65 ●			
 Business sophistication		13.2	131 ◇			
5.1	Knowledge workers	9.7	[124]			
5.1.1	Knowledge-intensive employment, %	11.1	103			
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, %	1.6	110			
5.2	Innovation linkages	12.1	127 ◇			
5.2.1	University-industry R&D collaboration†	18.7	128 ◇			
5.2.2	State of cluster development and depth†	28.1	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	123			
5.2.5	Patent families/bn PPP\$ GDP	0.0	101 ◇			
5.3	Knowledge absorption	18.0	124			
5.3.1	Intellectual property payments, % total trade	0.6	62 ●			
5.3.2	High-tech imports, % total trade	3.3	125			
5.3.3	ICT services imports, % total trade	0.8	93 ●			
5.3.4	FDI net inflows, % GDP	-4.7	129 ◇			
5.3.5	Research talent, % in businesses	n/a	n/a			
 Knowledge and technology outputs		2.4	130 ◇			
6.1	Knowledge creation	0.3	132 ◇			
6.1.1	Patents by origin/bn PPP\$ GDP	0.0	129			
6.1.2	PCT patents by origin/bn PPP\$ GDP	0.0	97			
6.1.3	Utility models by origin/bn PPP\$ GDP	0.0	67			
6.1.4	Scientific and technical articles/bn PPP\$ GDP	0.5	131 ◇			
6.1.5	Citable documents H-index	0.4	130 ◇			
6.2	Knowledge impact	3.6	[127]			
6.2.1	Labor productivity growth, %	-4.6	117 ◇			
6.2.2	New businesses/th pop. 15-64	n/a	n/a			
6.2.3	Software spending, % GDP	n/a	n/a			
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	0.5	120			
6.2.5	High-tech manufacturing, %	3.0	107 ◇			
6.3	Knowledge diffusion	3.4	125 ◇			
6.3.1	Intellectual property receipts, % total trade	0.0	95			
6.3.2	Production and export complexity	6.7	117 ◇			
6.3.3	High-tech exports, % total trade	0.3	100 ●			
6.3.4	ICT services exports, % total trade	0.1	131 ◇			
 Creative outputs		11.1	[92]			
7.1	Intangible assets	7.0	[110]			
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a			
7.1.2	Trademarks by origin/bn PPP\$ GDP	12.0	105			
7.1.3	Global brand value, top 5,000, % GDP	n/a	n/a			
7.1.4	Industrial designs by origin/bn PPP\$ GDP	n/a	n/a			
7.2	Creative goods and services	30.3	[28]			
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	Printing and other media, % manufacturing	2.3	8 ● ◆			
7.2.5	Creative goods exports, % total trade	0.0	127			
7.3	Online creativity	0.1	128			
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 commit pushes received/mn pop. 15-69	0.2	119			
7.3.4	Mobile app creation/bn PPP\$ GDP	0.0	111			

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 Angola.

Missing data for Angola

Code	Indicator name	Economy year	Model year	Source
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
2.2.3	Tertiary inbound mobility, %	n/a	2019	UNESCO Institute for Statistics
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP\$ GDP	n/a	2021	Refinitiv
4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	n/a	2021	Refinitiv
4.2.4	Venture capital received, value, % GDP	n/a	2021	Refinitiv
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
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
6.2.2	New businesses/th pop. 15–64	n/a	2020	World Bank, Entrepreneurship Database
6.2.3	Software spending, % GDP	n/a	2021	IHS Markit
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance
7.1.3	Global brand value, top 5,000, % GDP	n/a	2021	Brand Finance
7.1.4	Industrial designs by origin/bn PPP\$ GDP	n/a	2020	World Intellectual Property 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
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

Outdated data for Angola

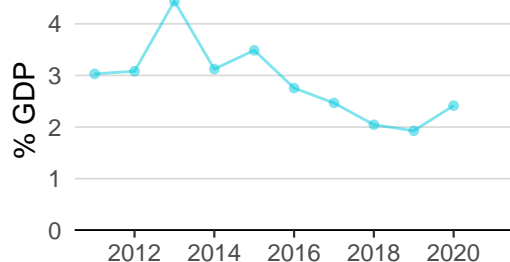
Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2020	2021	Global Entrepreneurship Monitor
2.1.3	School life expectancy, years	2011	2019	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2019	UNESCO Institute for Statistics

Code	Indicator name	Economy year	Model year	Source
2.2.1	Tertiary enrolment, % gross	2016	2019	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2015	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2016	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2016	2020	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
4.1.1	Finance for startups and scaleups	2020	2021	Global Entrepreneurship Monitor
4.3.2	Domestic industry diversification	2015	2019	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2014	2021	International Labour Organization
5.1.5	Females employed w/advanced degrees, %	2014	2021	International Labour Organization
5.3.2	High-tech imports, % total trade	2019	2020	United Nations Comtrade Database
6.1.1	Patents by origin/bn PPP\$ GDP	2019	2020	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP\$ GDP	2019	2020	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2015	2019	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2019	2020	United Nations Comtrade Database
7.2.4	Printing and other media, % manufacturing	2015	2019	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2019	2020	United Nations Comtrade Database

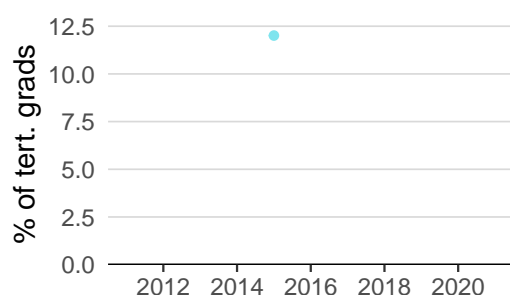
ANGOLA'S INNOVATION SYSTEM

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

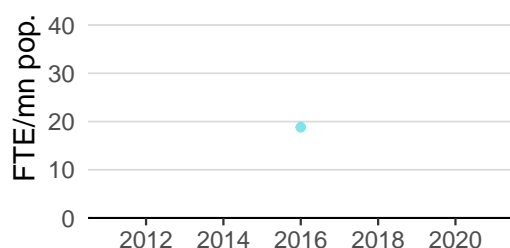
Innovation inputs



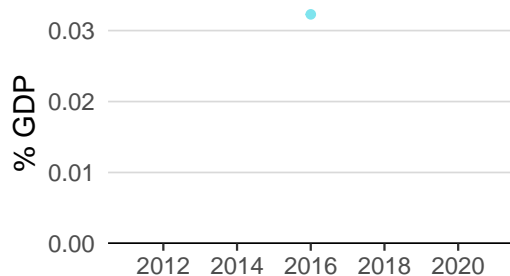
2.1.1 Expenditure on education was equal to 2.4% GDP in 2020—up by 25 percentage points from the year prior—and equivalent to an indicator rank of 119.



2.2.2 Graduates in science and engineering was equal to 12.0% of tert. grads in 2015 and equivalent to an indicator rank of 103.



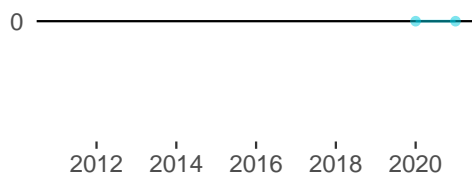
2.3.1 Researchers was equal to 18.8 FTE/mn pop. in 2016 and equivalent to an indicator rank of 107.



2.3.2 Gross expenditure on R&D was equal to 0.0% GDP in 2016 and equivalent to an indicator rank of 112.



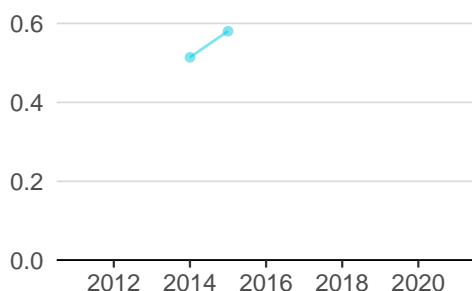
2.3.4 QS university ranking was equal to 0.0 in 2021—effectively unchanged from the year prior—and equivalent to an indicator rank of 72.



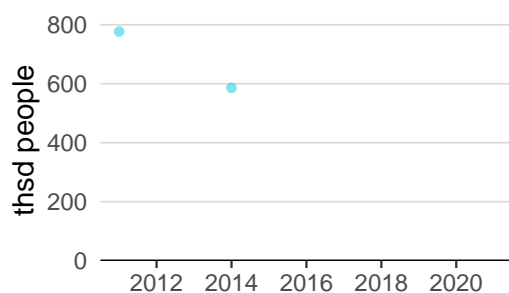
3.1.1 ICT access was equal to 4.2 in 2020 and equivalent to an indicator rank of 125.



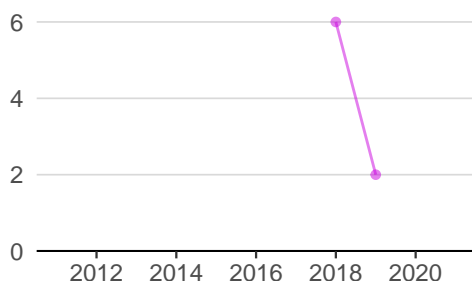
4.3.2 Domestic industry diversification was equal to 0.6 in 2015—up by 13 percentage points from the year prior—and equivalent to an indicator rank of 108.



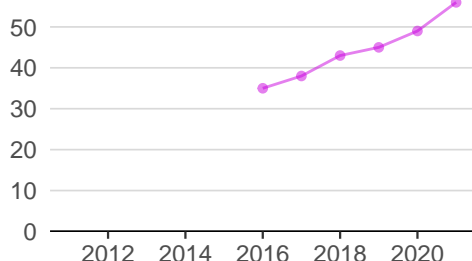
5.1.1 Knowledge-intensive employment was equal to 585.9 thsd people in 2014 and equivalent to an indicator rank of 103.



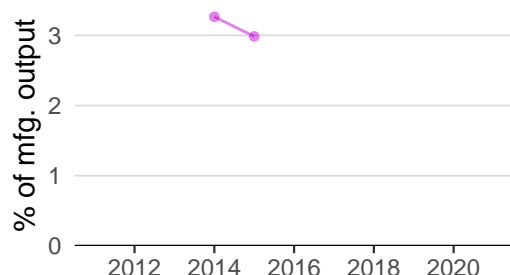
Innovation outputs



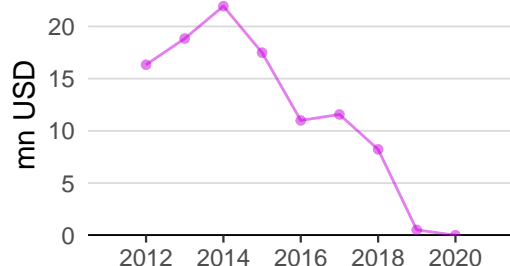
6.1.1 Patents by origin was equal to 2.0 in 2019—down by 67 percentage points from the year prior—and equivalent to an indicator rank of 129.



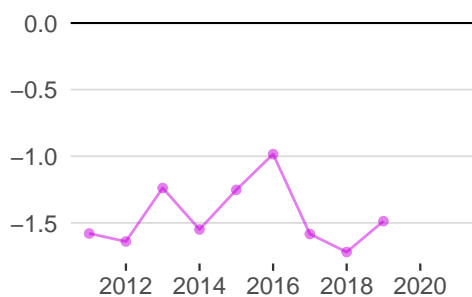
6.1.5 Citable documents H-index was equal to 56.0 in 2021—up by 14 percentage points from the year prior—and equivalent to an indicator rank of 130.



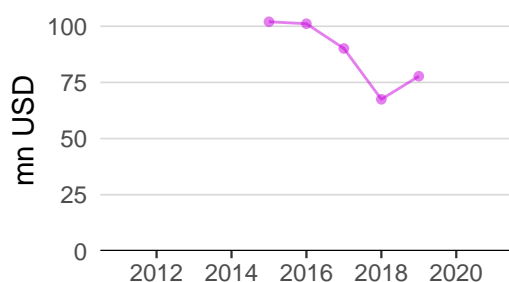
6.2.5 High-tech manufacturing was equal to 3.0% of mfg. output in 2015—down by 9 percentage points from the year prior—and equivalent to an indicator rank of 107.



6.3.1 Intellectual property receipts was equal to 0.0 mn USD in 2020—down by 100 percentage points from the year prior—and equivalent to an indicator rank of 95.



6.3.2 Production and export complexity was equal to -1.5 in 2019—up by 13 percentage points from the year prior—and equivalent to an indicator rank of 117.



6.3.3 High-tech exports was equal to 77.8 mn USD in 2019—up by 15 percentage points from the year prior—and equivalent to an indicator rank of 100.



ANGOLA'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank
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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
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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
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No observations

Source: Brand Finance (<https://brandirectory.com/reports/gift-2021>).

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank
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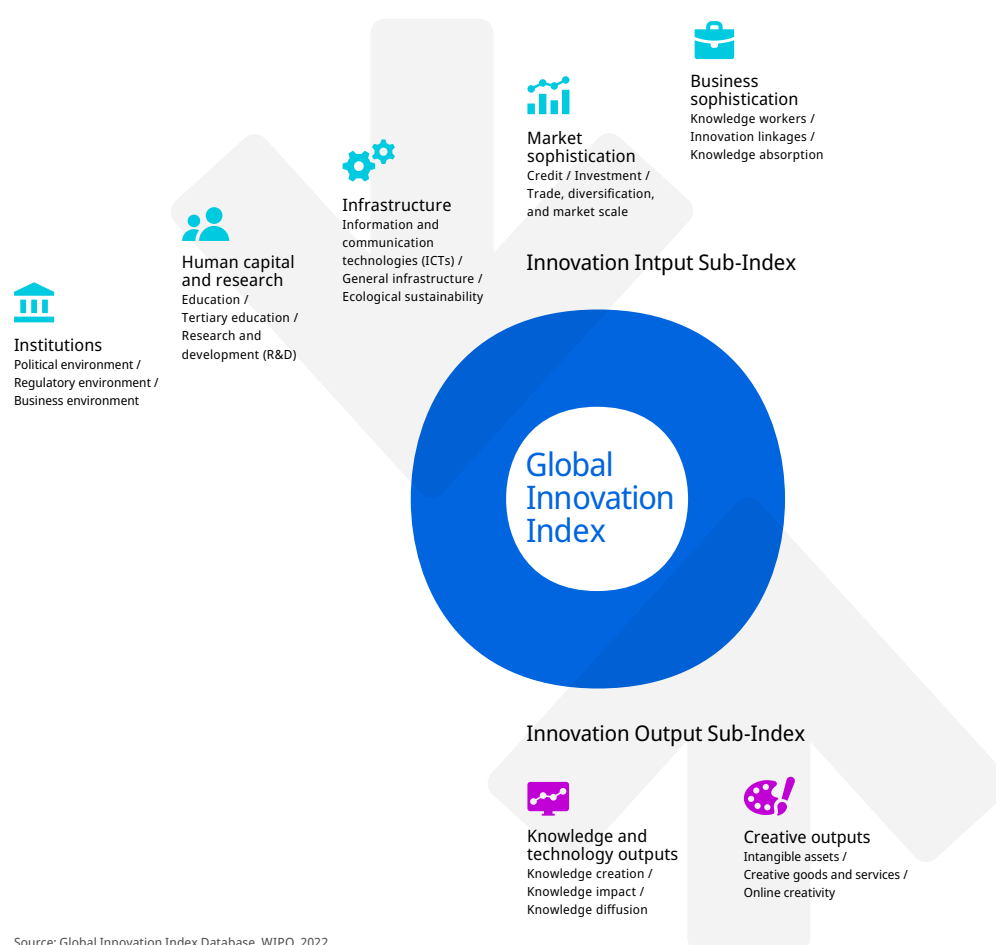
No observations

Source: Brand Finance (<https://brandirectory.com>).

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for economies that incorporate the GII into their innovation agendas.



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.