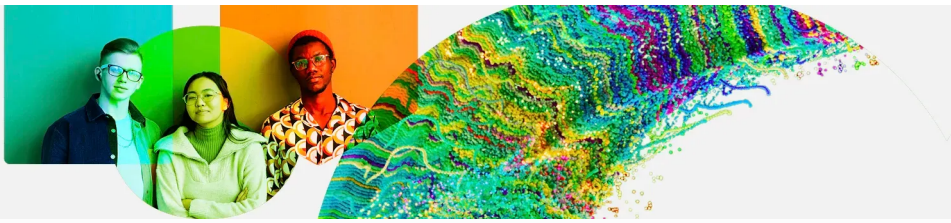
Global Innovation Index 2024



South Africa ranking in the Global Innovation Index 2024

South Africa ranks 69th 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.

South Africa ranks 18th among the 34 upper-middle-income group economies.

South Africa ranks 2nd among the 27 economies in Sub-Saharan Africa.

South Africa GII Ranking (2020-2024)

The table shows the rankings of South Africa 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 South Africa in the GII 2024 is between ranks 63 and 71.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	60th	49th	68th
2021	61st	55th	68th
2022	61st	69th	61st
2023	59th	71st	57th
2024	69th	75th	61st

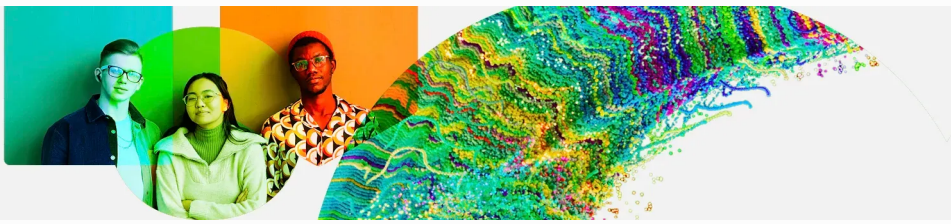
South Africa performs better in innovation outputs than innovation inputs in 2024.

This year **South Africa ranks 75th in innovation inputs.** This position is lower than last year.

South Africa ranks 61st in innovation outputs. This position is lower than last year.

South Africa 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 South Africa, how rapidly is technology being embraced and what are the resulting societal impacts.

For South Africa, 5 indicators have improved in the short-term and 8 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -9.8% 2022 - 2023	▼ -7.6% 2019 - 2020	▼ -21.9% 2022 - 2023	▼ -0.1% 2022 - 2023	▼ -9.8% 2022 - 2023
▲ 4.7% 2013 - 2023	▼ -0.1% 2010 - 2020	▲ 32.5% 2013 - 2023	▲ 21.1% 2013 - 2023	▼ -5.8% 2013 - 2023

Technology adoption

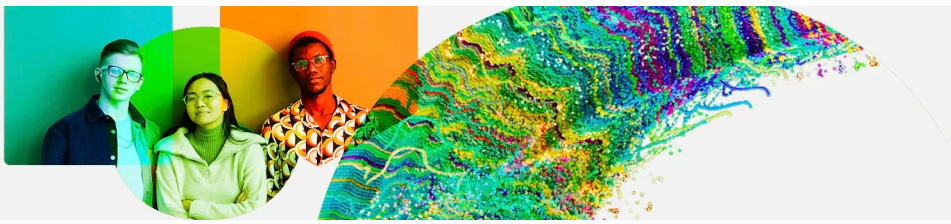
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 1% 2021 - 2022	▲ 14% 2021 - 2022	▲ 42.9% 2021 - 2022	▲ 4.6% 2021 - 2022	▲ 57.7% 2022 - 2023
▲ 1.1% 2012 - 2022	▲ 4.6% 2012 - 2022		▲ 8.8% 2012 - 2022	▲ 58.9% 2013 - 2023
71.7 per 100 inhabitants in 2022	3.3 per 100 inhabitants in 2022	23.7 per 100 inhabitants in 2022		0.04 per 100 inhabitants in 2023

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -4.7% 2022 - 2023	▼ -1.4% 2021 - 2022	▲ 1.1°C 2023
▼ -0.1% 2013 - 2023	▼ -0.1% 2012 - 2022	n/a
60,193 USD in 2023	61.5 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



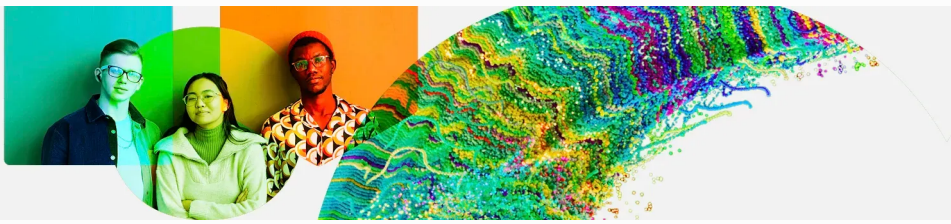
Expected vs. observed innovation performance

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, South Africa is performing above expectations for its level of development.

> Innovation overperformers relative to their economic development

Global Innovation Index 2024



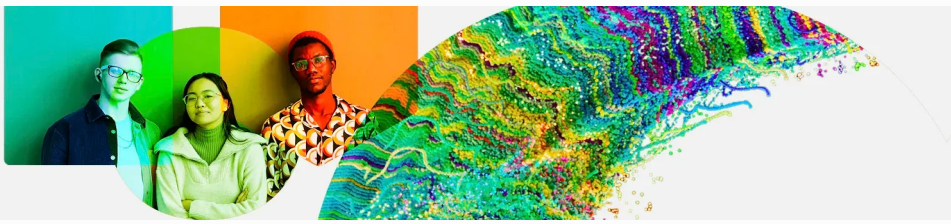
Effectively translating innovation investments into innovation outputs

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.

South Africa produces more innovation outputs relative to its level of innovation investments.

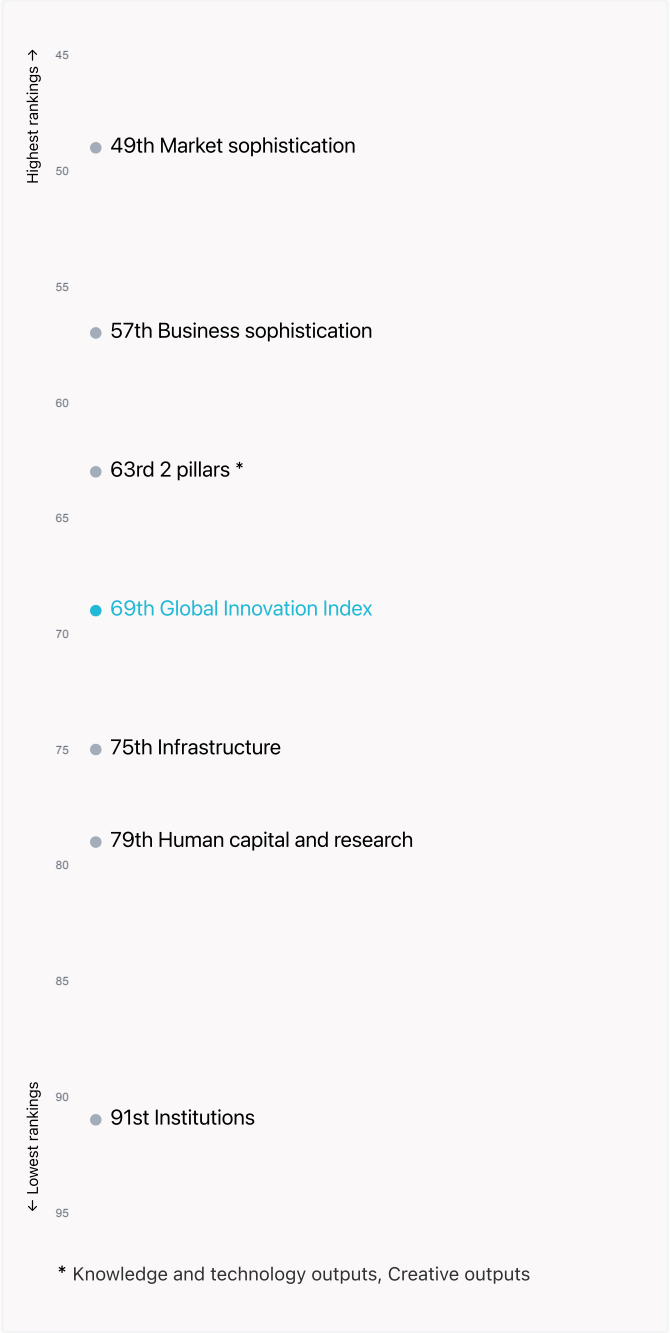
> Relationship between innovation inputs and outputs

Global Innovation Index 2024



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



Highest rankings

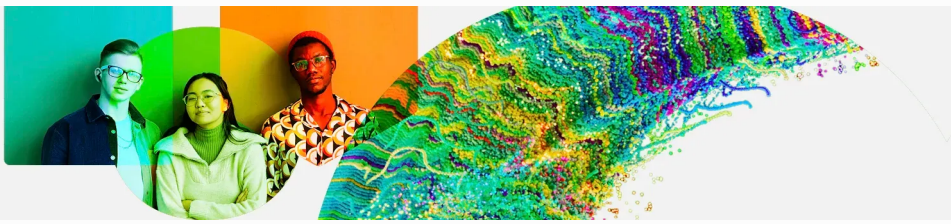
South Africa ranks highest in Market sophistication (49th), Business sophistication (57th) and Knowledge and technology outputs, Creative outputs (63rd).

Lowest rankings

South Africa ranks lowest in Institutions (91st), Human capital and research (79th) and Infrastructure (75th).

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

Global Innovation Index 2024



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

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

Upper-Middle-Income economies

South Africa performs above the upper-middle-income group average in Market sophistication, Business sophistication, Knowledge and technology outputs, Creative outputs.

Sub-Saharan Africa

South Africa performs above the regional average in Human capital and research, Infrastructure, Market sophistication, Business sophistication, Knowledge and technology outputs, Creative outputs.

Institutions

- Top 10 | Score: 80.81
- Upper middle income | Score: 43.0
- Sub-Saharan Africa | Score: 37.83
- South Africa | Score: 36.53

Human capital and research

- Top 10 | Score: 61.30
- Upper middle income | Score: 29.5
- South Africa | Score: 26.80
- Sub-Saharan Africa | Score: 17.86

Infrastructure

- Top 10 | Score: 58.57
- Upper middle income | Score: 39.8
- South Africa | Score: 37.10
- Sub-Saharan Africa | Score: 25.40

Market sophistication

- Top 10 | Score: 62.12
- South Africa | Score: 37.83
- Upper middle income | Score: 32.9
- Sub-Saharan Africa | Score: 18.79

Business sophistication

- Top 10 | Score: 63.64
- South Africa | Score: 28.55
- Upper middle income | Score: 27.6
- Sub-Saharan Africa | Score: 18.73

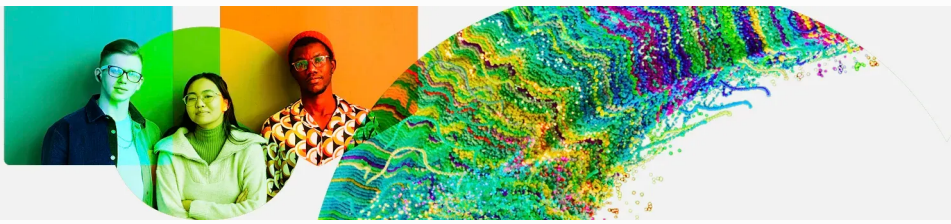
Knowledge and technology outputs

- Top 10 | Score: 57.29
- South Africa | Score: 21.36
- Upper middle income | Score: 20.6
- Sub-Saharan Africa | Score: 10.99

Creative outputs

- Top 10 | Score: 56.54
- South Africa | Score: 25.26
- Upper middle income | Score: 24.3
- Sub-Saharan Africa | Score: 10.35

Global Innovation Index 2024



Innovation strengths and weaknesses in South Africa

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

South Africa's main innovation strengths are **Market capitalization, % GDP** (rank 4), **Expenditure on education, % GDP** (rank 8) and **ICT services imports, % total trade** (rank 18).

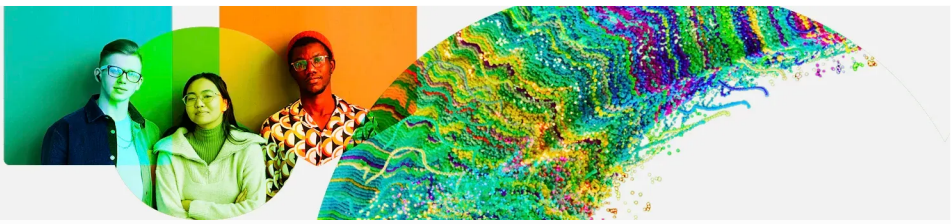
Strengths

Rank	Code	Indicator name
4	4.2.1	Market capitalization, % GDP
8	2.1.1	Expenditure on education, % GDP
18	5.3.3	ICT services imports, % total trade
18	3.2.2	Logistics performance*
24	7.1.3	Global brand value, top 5,000, % GDP
27	6.2.3	Software spending, % GDP
28	4.1.2	Domestic credit to private sector, % GDP
29	5.3.1	Intellectual property payments, % total trade
31	6.1.5	Citable documents H-index
31	5.3.4	FDI net inflows, % GDP
31	2.3.4	QS university ranking, top 3*

Weaknesses

Rank	Code	Indicator name
123	3.2.3	Gross capital formation, % GDP
121	2.1.5	Pupil–teacher ratio, secondary
107	3.3.1	GDP/unit of energy use
103	3.3.2	Low-carbon energy use, %
100	1.1.1	Operational stability for businesses*
99	5.1.2	Firms offering formal training, %
86	2.2.2	Graduates in science and engineering, %
78	1.3.2	Entrepreneurship policies and culture†
78	7.2.2	National feature films/mn pop. 15–69
41	2.3.3	Global corporate R&D investors, top 3, mn USD

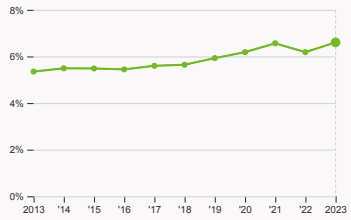
Global Innovation Index 2024



South Africa's innovation system

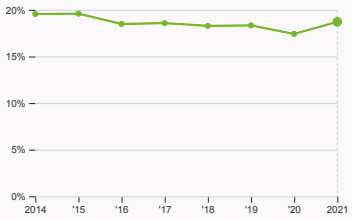
As far as practicable, the plots below present unscaled indicator data.

Innovation inputs in South Africa



2.1.1 **Expenditure on education**

was equal to 6.6 % GDP in 2023, up by 0.42 percentage points from the year prior – and equivalent to an indicator rank of 8.



2.2.2 **Graduates in science and engineering**

was equal to 18.71 % of total graduates in 2021, up by 1.3 percentage points from the year prior – and equivalent to an indicator rank of 86.

2.3.1 **Researchers**

was equal to 475.95 FTE per million population in 2020, down by 3.76% from the year prior – and equivalent to an indicator rank of 75.

2.3.2 **Gross expenditure on R&D**

was equal to 0.6 % GDP in 2020, down by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 55.

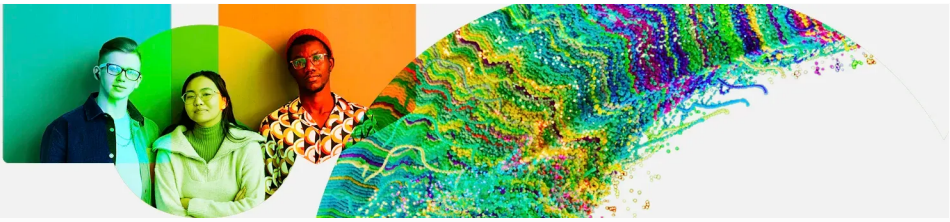
2.3.4 **QS university ranking**

was equal to an average score of 41.03 for the top three universities in 2023, up by 30.67% from the year prior – and equivalent to an indicator rank of 31.

4.2.4 **VC received, value**

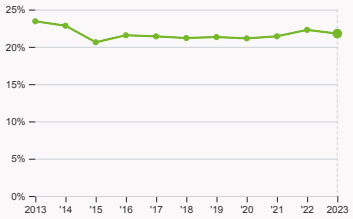
was equal to 434.24 thousand USD in 2023, down by 0.1% from the year prior – and equivalent to an indicator rank of 52.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

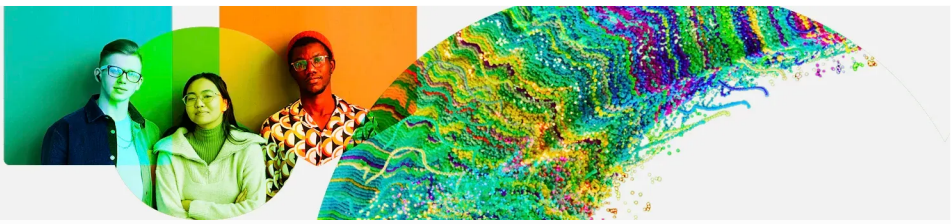
was equal to an index score of 0.18 in 2022, down by 0.3% from the year prior – and equivalent to an indicator rank of 72.



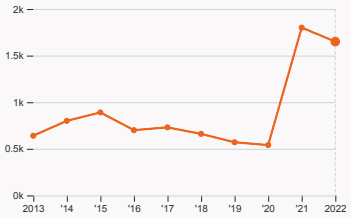
5.1.1 Knowledge-intensive employment

was equal to 21.77 % in 2023, down by 0.5 percentage points from the year prior – and equivalent to an indicator rank of 71.

Global Innovation Index 2024

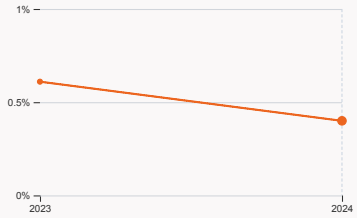


Innovation outputs in South Africa



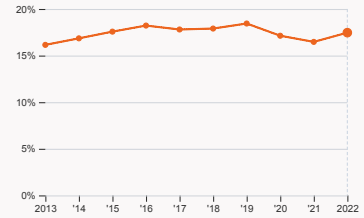
6.1.1 Patents by origin

was equal to 1.65 thousand patents in 2022, down by 8.33% from the year prior – and equivalent to an indicator rank of 35.



6.2.2 Unicorn valuation

was equal to 0.4 % GDP in 2024, down by 0.21 percentage points from the year prior – and equivalent to an indicator rank of 40.

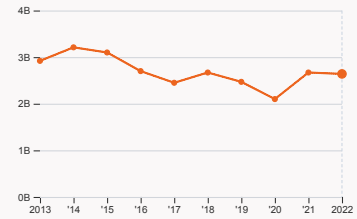


6.2.4 High-tech manufacturing

was equal to 17.46 % of total manufacturing output in 2022, up by 0.99 percentage points from the year prior – and equivalent to an indicator rank of 66.

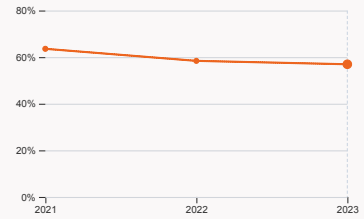
6.3.2 Production and export complexity

was equal to a score of -0.15 in 2021, up by 16.67% from the year prior – and equivalent to an indicator rank of 67.



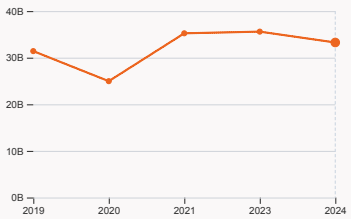
6.3.3 High-tech exports

was equal to 2.64 billion USD in 2022, down by 1.12% from the year prior – and equivalent to an indicator rank of 62.



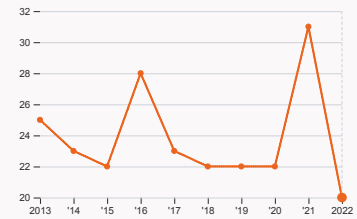
7.1.1 Intangible asset intensity

was equal to 56.94 % for the top 15 companies in 2023, down by 1.46 percentage points from the year prior – and equivalent to an indicator rank of 36.



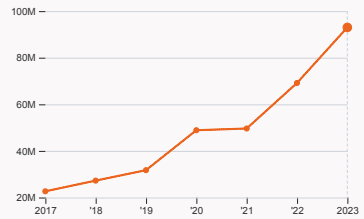
7.1.3 Global brand value

was equal to 33.26 billion USD for the brands in the top 5,000 in 2024, down by 6.55% from the year prior – and equivalent to an indicator rank of 24.



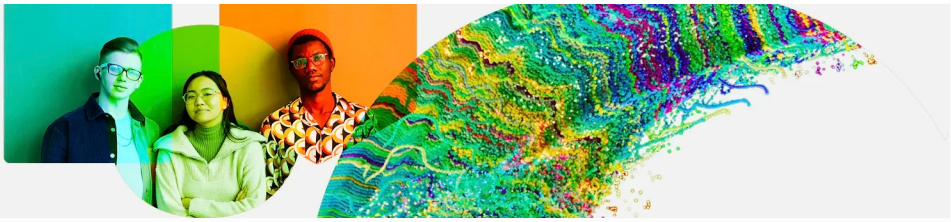
7.2.2 National feature films

was equal to 20 films in 2022, down by 35.48% from the year prior – and equivalent to an indicator rank of 78.



7.3.3 Mobile app creation

was equal to 92.98 million global downloads of mobile apps in 2023, up by 34.46% from the year prior – and equivalent to an indicator rank of 81.



South Africa's innovation top performers

2.3.4 QS university ranking of South Africa's top universities

Rank	University	Score
173	UNIVERSITY OF CAPE TOWN	48.70
264	UNIVERSITY OF WITWATERSRAND	37.90
283	STELLENBOSCH UNIVERSITY	36.50

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].
Ranks can represent a single value "x", a tie "x=" or a range "x-y".

6.2.2 Top Unicorn Companies in South Africa

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	PROMASIDOR HOLDINGS	Consumer & Retail	Bryanston	2

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies

7.1.1 Top 15 intangible-asset intensive companies in South Africa

Rank	Firm	Intensity, %
1	NASPERS LIMITED	29.08
2	FIRSTRAND LIMITED	39.03
3	CAPITEC BANK HOLDINGS LIMITED	73.48

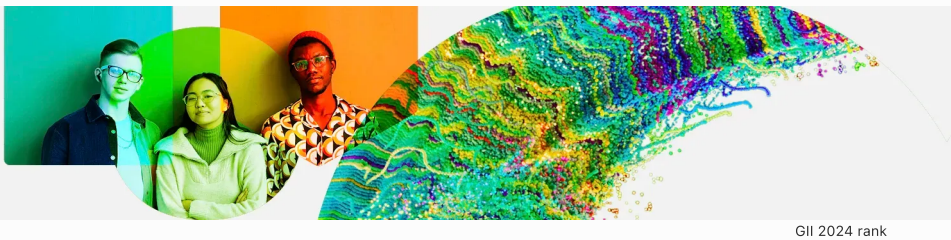
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

7.1.3 Top 5,000 companies in South Africa with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	MTN	Telecoms	3,569.9
2	VODACOM	Telecoms	2,297.6
3	STANDARD BANK	Banking	1,966

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

Global Innovation Index 2024



South Africa

GII 2024 rank **69**

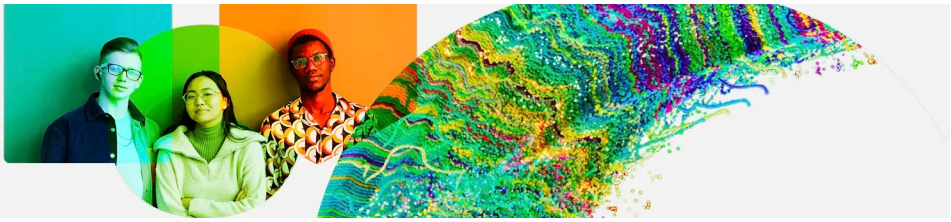
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
61	75	Upper middle	SSA	63.2	997.4	16,211.2

	Score / Value	Rank	
Institutions	**36.5**	**91**	
1.1 Institutional environment	**43.7**	**89**	
1.1.1 Operational stability for businesses*	46.7	100	○
1.1.2 Government effectiveness*	40.7	77	
1.2 Regulatory environment	**40.7**	**69**	
1.2.1 Regulatory quality*	37	84	
1.2.2 Rule of law*	44.4	61	
1.3 Business environment	**25.2**	**110**	○
1.3.1 Policy stability for doing business†	40.6	87	
1.3.2 Entrepreneurship policies and culture†	9.8	78	○ ◇
Human capital and research	**26.8**	**79**	
2.1 Education	**48.7**	**71**	
2.1.1 Expenditure on education, % GDP	6.6	8	● ◆
2.1.2 Government funding/pupil, secondary, % GDP/cap	22	38	
2.1.3 School life expectancy, years	14.1	67	
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil–teacher ratio, secondary	29.8	121	○ ◇
2.2 Tertiary education	**17.7**	**102**	○ ◇
2.2.1 Tertiary enrolment, % gross	25.4	94	◇
2.2.2 Graduates in science and engineering, %	18.7	86	○
2.2.3 Tertiary inbound mobility, %	2.9	66	
2.3 Research and development (R&D)	**14**	**51**	
2.3.1 Researchers, FTE/mn pop.	475.9	75	
2.3.2 Gross expenditure on R&D, % GDP	0.6	55	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	41.5	31	● ◆
Infrastructure	**37.1**	**75**	
3.1 Information and communication technologies (ICTs)	**72.4**	**67**	
3.1.1 ICT access*	81.6	83	
3.1.2 ICT use*	77.7	67	
3.1.3 Government's online service*	72.2	55	
3.1.4 E-participation*	58.1	61	
3.2 General infrastructure	**30**	**72**	
3.2.1 Electricity output, GWh/mn pop.	3,851.3	55	
3.2.2 Logistics performance*	72.7	18	● ◆
3.2.3 Gross capital formation, % GDP	14.8	123	○ ◇
3.3 Ecological sustainability	**8.9**	**112**	○ ◇
3.3.1 GDP/unit of energy use	6.2	107	○ ◇
3.3.2 Low-carbon energy use, %	5.7	103	○
3.3.3 ISO 14001 environment/bn PPP$ GDP	1.2	65	
Market sophistication	**37.8**	**49**	
4.1 Credit	**27.9**	**63**	
4.1.1 Finance for startups and scaleups†	37.5	58	
4.1.2 Domestic credit to private sector, % GDP	92.2	28	● ◆
4.1.3 Loans from microfinance institutions, % GDP	1.2	26	
4.2 Investment	**33.9**	**23**	● ◆
4.2.1 Market capitalization, % GDP	290.7	4	● ◆
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.1	41	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.06	49	
4.2.4 VC received, value, % GDP	0.001	52	
4.3 Trade, diversification and market scale	**51.7**	**76**	
4.3.1 Applied tariff rate, weighted avg., %	5.2	96	◇
4.3.2 Domestic industry diversification	76.2	72	
4.3.3 Domestic market scale, bn PPP$	997.4	32	

	Score / Value	Rank	
Business sophistication	**28.6**	**57**	
5.1 Knowledge workers	**21.8**	**101**	◇
5.1.1 Knowledge-intensive employment, %	21.8	71	
5.1.2 Firms offering formal training, %	7.9	99	○ ◇
5.1.3 GERD performed by business, % GDP	0.2	57	
5.1.4 GERD financed by business, %	26.9	64	
5.1.5 Females employed w/advanced degrees, %	10.7	71	
5.2 Innovation linkages	**31**	**42**	
5.2.1 Public Research-Industry co-publications, %	1.4	72	
5.2.2 University-industry R&D collaboration†	63.1	33	◆
5.2.3 State of cluster development†	58.9	40	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.03	31	◆
5.2.5 Patent families/bn PPP$ GDP	0.2	46	
5.3 Knowledge absorption	**32.9**	**51**	
5.3.1 Intellectual property payments, % total trade	1.2	29	● ◆
5.3.2 High-tech imports, % total trade	9.4	48	
5.3.3 ICT services imports, % total trade	2.7	18	● ◆
5.3.4 FDI net inflows, % GDP	4.3	31	● ◆
5.3.5 Research talent, % in businesses	11.1	62	
Knowledge and technology outputs	**21.4**	**63**	
6.1 Knowledge creation	**22.4**	**51**	
6.1.1 Patents by origin/bn PPP$ GDP	1.7	35	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.2	49	
6.1.3 Utility models by origin/bn PPP$ GDP	-	-	
6.1.4 Scientific and technical articles/bn PPP$ GDP	14.2	46	
6.1.5 Citable documents H-index	32.1	31	● ◆
6.2 Knowledge impact	**27.6**	**61**	
6.2.1 Labor productivity growth, %	0.2	87	
6.2.2 Unicorn valuation, % GDP	0.4	40	
6.2.3 Software spending, % GDP	0.4	27	● ◆
6.2.4 High-tech manufacturing, %	17.5	66	
6.3 Knowledge diffusion	**14.1**	**78**	
6.3.1 Intellectual property receipts, % total trade	0.1	50	
6.3.2 Production and export complexity	39.3	67	
6.3.3 High-tech exports, % total trade	2	62	
6.3.4 ICT services exports, % total trade	0.7	92	
6.3.5 ISO 9001 quality/bn PPP$ GDP	4.9	60	
Creative outputs	**25.3**	**63**	
7.1 Intangible assets	**34.9**	**48**	
7.1.1 Intangible asset intensity, top 15, %	56.9	36	
7.1.2 Trademarks by origin/bn PPP$ GDP	23.4	80	
7.1.3 Global brand value, top 5,000, % GDP	8.3	24	● ◆
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.7	68	
7.2 Creative goods and services	**7.2**	**86**	
7.2.1 Cultural and creative services exports, % total trade	0.4	65	
7.2.2 National feature films/mn pop. 15–69	0.5	78	○ ◇
7.2.3 Entertainment and media market/th pop. 15–69	7.3	41	
7.2.4 Creative goods exports, % total trade	0.7	56	
7.3 Online creativity	**24.1**	**73**	
7.3.1 Top-level domains (TLDs)/th pop. 15–69	5.3	52	
7.3.2 GitHub commits/mn pop. 15–69	5	73	
7.3.3 Mobile app creation/bn PPP$ GDP	61.8	81	

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.

Global Innovation Index 2024



Data availability

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

South Africa has missing data for two indicators and outdated data for ten indicators.

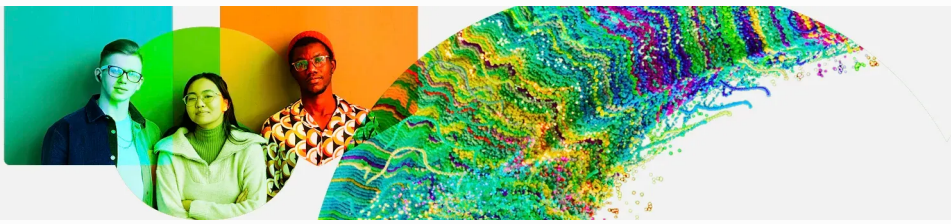
Missing data for South Africa

Code	Indicator name	Economy Year	Model Year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2022	OECD, PISA
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund

Outdated data for South Africa

Code	Indicator name	Economy Year	Model Year	Source
2.1.3	School life expectancy, years	2021	2022	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2021	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2021	2022	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2021	2022	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.2	Firms offering formal training, %	2020	2023	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2020	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

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.