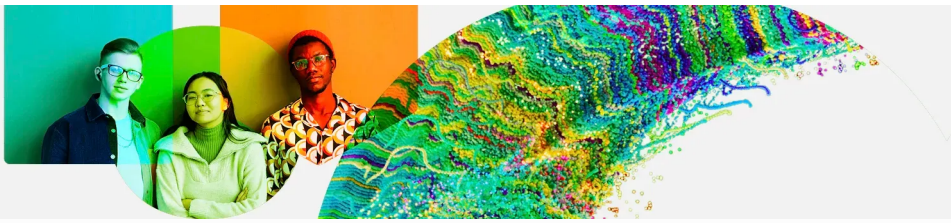
Global Innovation Index 2024



Zambia ranking in the Global Innovation Index 2024

Zambia ranks 116th 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.

Zambia ranks 30th among the 38 lower-middle-income group economies.

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

Zambia GII Ranking (2020-2024)

The table shows the rankings of Zambia 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 Zambia in the GII 2024 is between ranks 112 and 127.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	122nd	109th	128th
2021	121st	111st	127th
2022	118th	118th	115th
2023	118th	111st	122nd
2024	116th	103rd	131st

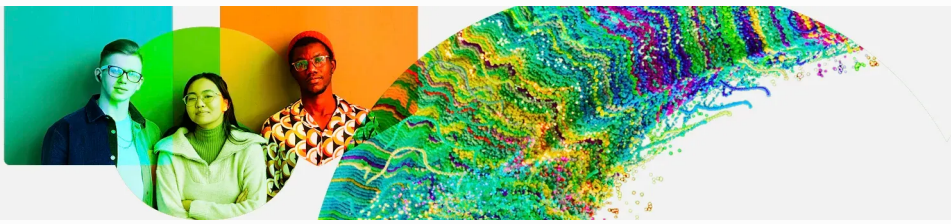
Zambia performs worse in innovation outputs than innovation inputs in 2024.

This year **Zambia ranks 103rd in innovation inputs.** This position is higher than last year.

Zambia ranks 131st in innovation outputs. This position is lower than last year.

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

For Zambia, 3 indicators have improved in the short-term and 4 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	n/a	▼ -75% 2022 - 2023	▼ -30.4% 2022 - 2023	n/a
▲ 9.9% 2013 - 2023	n/a	n/a	n/a	n/a

Technology adoption

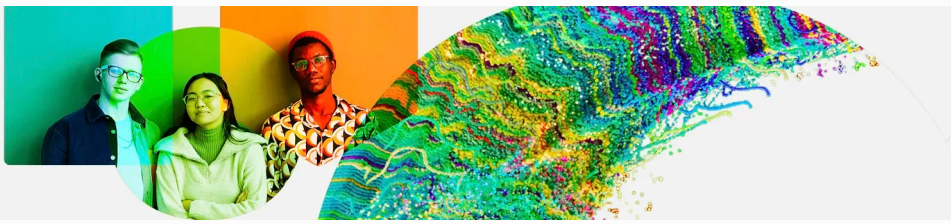
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
n/a	▲ 1.5% 2021 - 2022	n/a	n/a	n/a
n/a	▲ 15.2% 2012 - 2022		n/a	n/a
n/a	0.4 per 100 inhabitants in 2022	n/a		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▲ 0.2% 2022 - 2023	▲ 0.9% 2021 - 2022	▲ 1.3°C 2023
▼ -1.7% 2013 - 2023	▲ 0.5% 2012 - 2022	n/a
13,521 USD in 2023	61.8 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



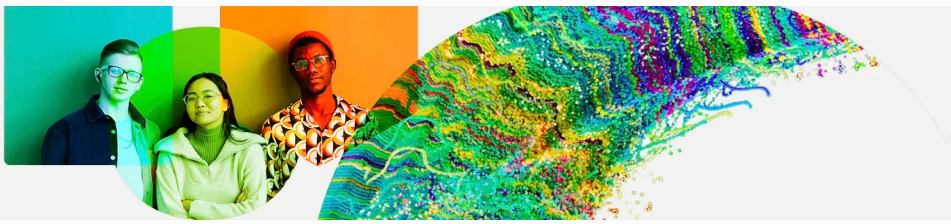
Expected vs. observed innovation performance

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, Zambia's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development

Global Innovation Index 2024

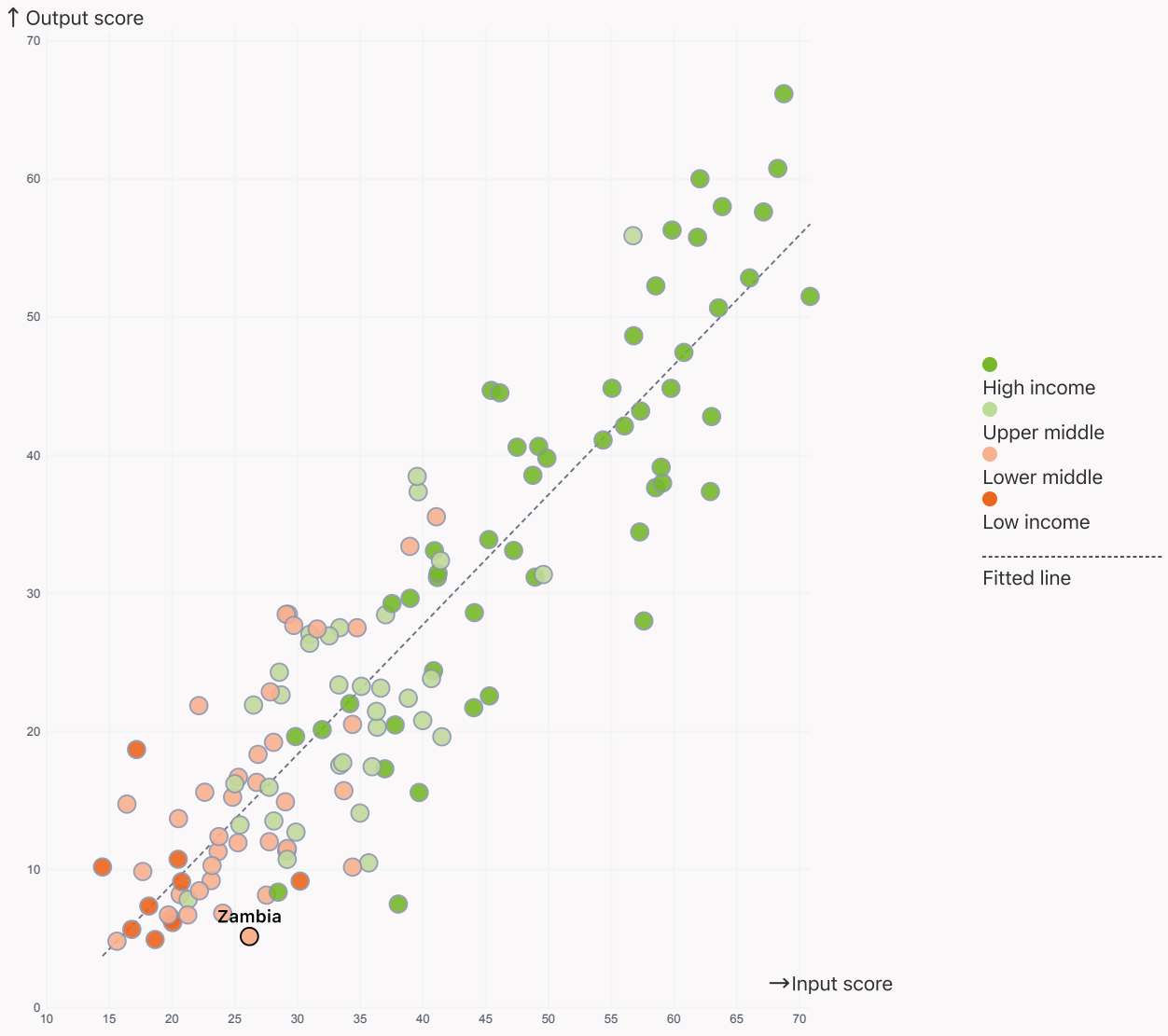


Effectively translating innovation investments into innovation outputs

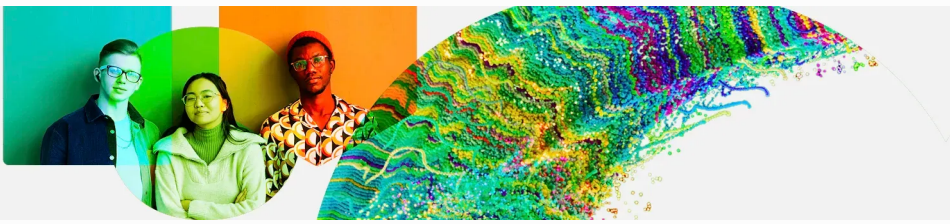
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

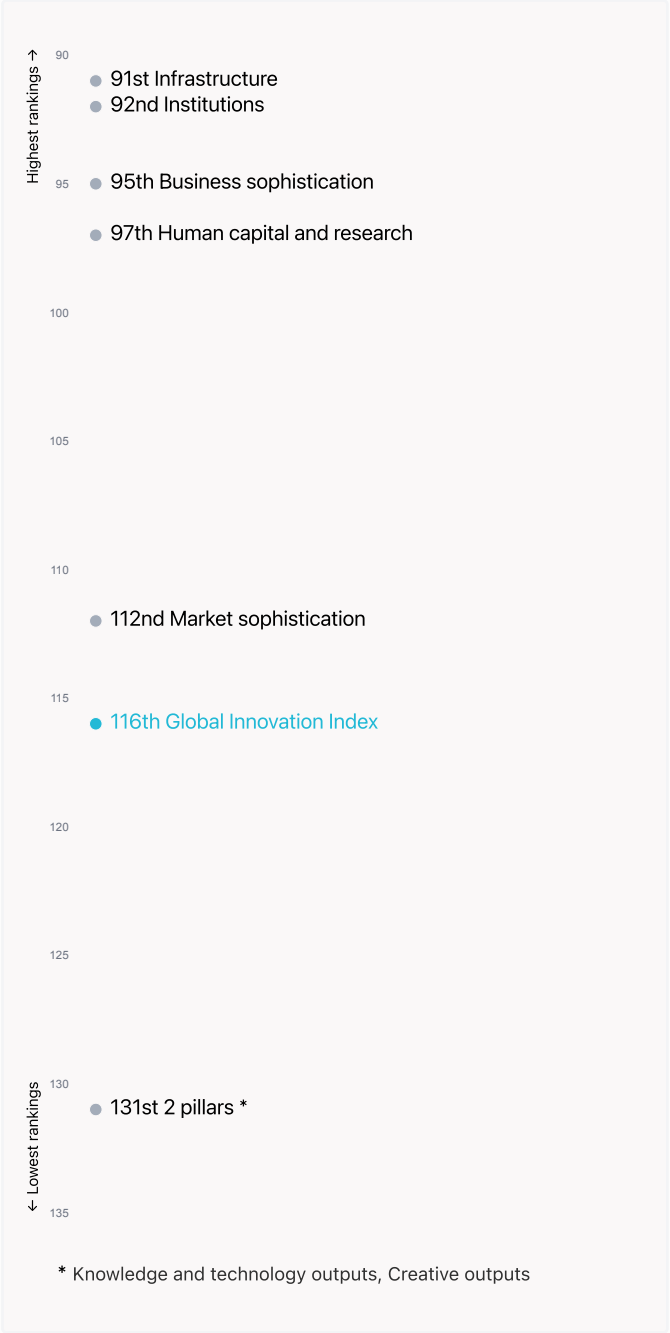


Global Innovation Index 2024



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



Highest rankings

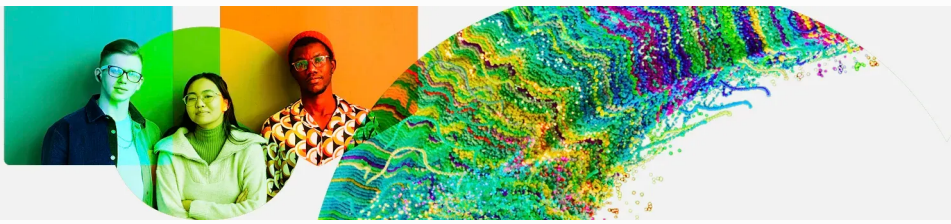
Zambia ranks highest in Infrastructure (91st), Institutions (92nd) and Business sophistication (95th).

Lowest rankings

Zambia ranks lowest in Knowledge and technology outputs, Creative outputs (131st), Market sophistication (112nd) and Human capital and research (97th).

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

Global Innovation Index 2024



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

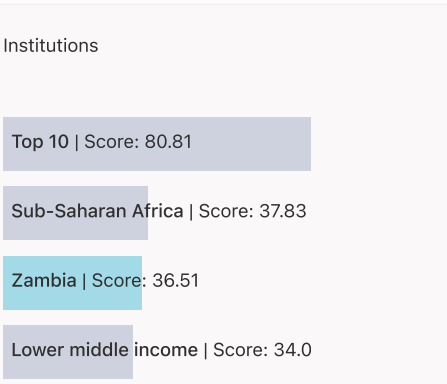
The charts shows the relative position of Zambia (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

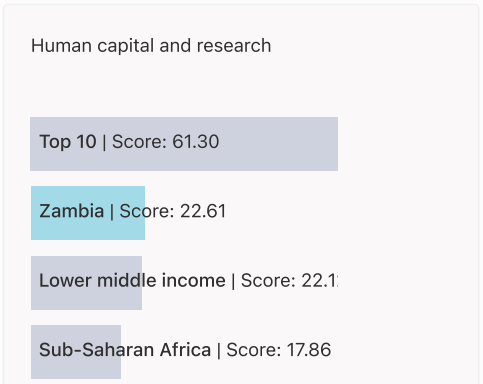
Lower-Middle-Income economies

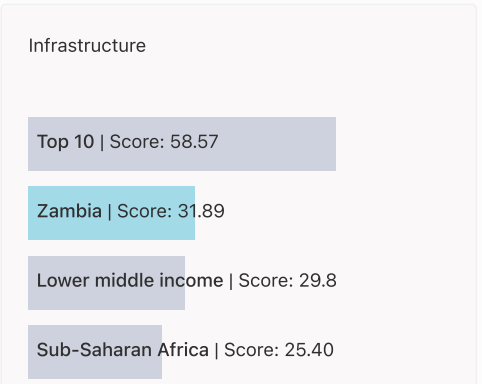
Zambia performs above the lower-middle-income group average in Institutions, Human capital and research, Infrastructure.

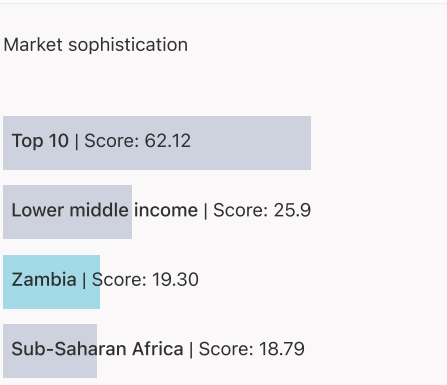
Sub-Saharan Africa

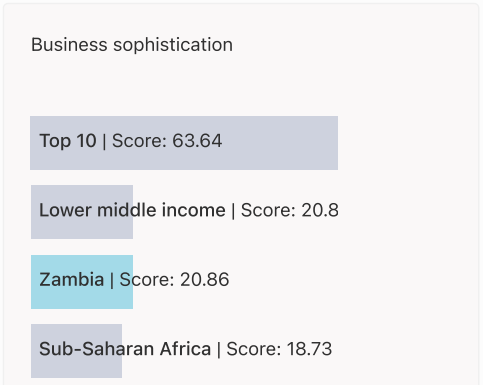
Zambia performs above the regional average in Human capital and research, Infrastructure, Market sophistication, Business sophistication.

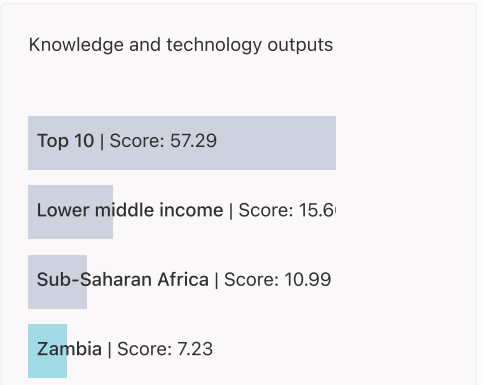


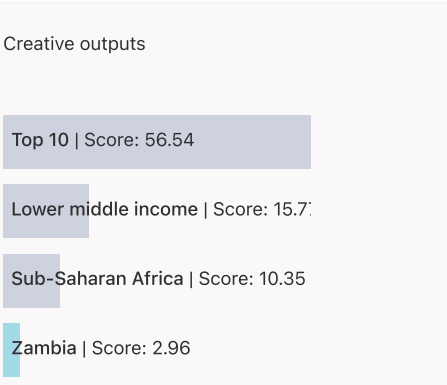




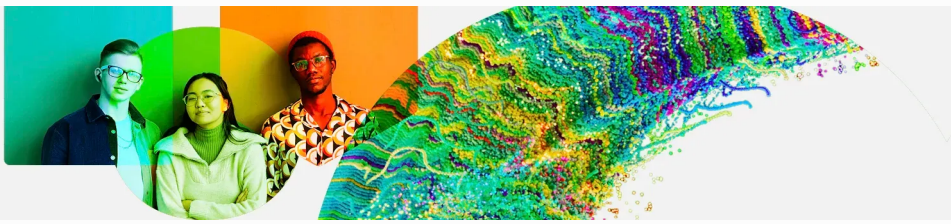








Global Innovation Index 2024



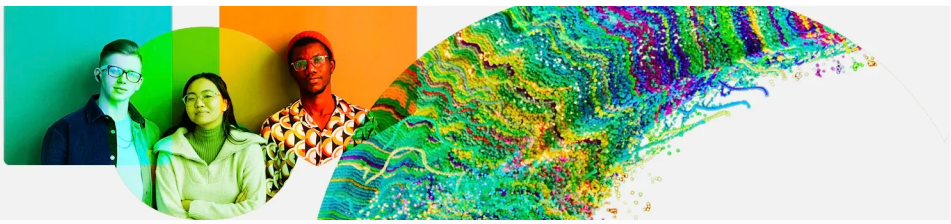
Innovation strengths and weaknesses in Zambia

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

Zambia's main innovation strengths are **Low-carbon energy use, %** (rank 8), **Loans from microfinance institutions, % GDP** (rank 21) and **Gross capital formation, % GDP** (rank 22).

Strengths			Weaknesses		
Rank	Code	Indicator name	Rank	Code	Indicator name
8	3.3.2	Low-carbon energy use, %	126	6.2.1	Labor productivity growth, %
21	4.1.3	Loans from microfinance institutions, % GDP	126	7.3.1	Top-level domains (TLDs)/th pop. 15–69
22	3.2.3	Gross capital formation, % GDP	125	4.1.2	Domestic credit to private sector, % GDP
39	5.2.1	Public Research-Industry co-publications, %	116	6.3.1	Intellectual property receipts, % total trade
46	5.1.2	Firms offering formal training, %	102	5.2.5	Patent families/bn PPP$ GDP
62	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	99	6.1.2	PCT patents by origin/bn PPP$ GDP
66	7.1.4	Industrial designs by origin/bn PPP$ GDP	75	7.1.3	Global brand value, top 5,000, % GDP
72	5.2.3	State of cluster development†	75	2.3.4	QS university ranking, top 3*
78	1.3.1	Policy stability for doing business†	49	6.2.2	Unicorn valuation, % GDP
82	5.2.2	University-industry R&D collaboration†	41	2.3.3	Global corporate R&D investors, top 3, mn USD

Global Innovation Index 2024



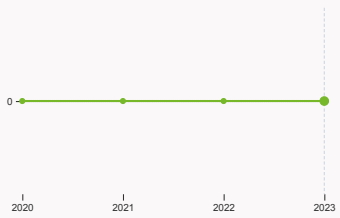
Zambia's innovation system

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

Innovation inputs in Zambia

2.1.1 **Expenditure on education**

was equal to 3.58 % GDP in 2022, up by 0.48 percentage points from the year prior – and equivalent to an indicator rank of 88.

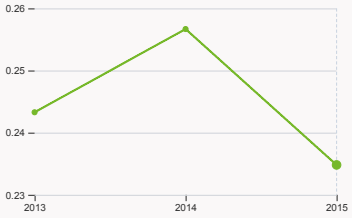


2.3.4 **QS university ranking**

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.

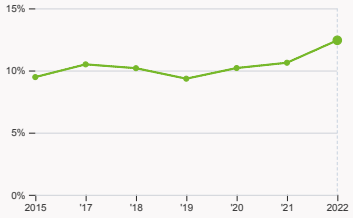
4.2.4 **VC received, value**

was equal to 8.5 thousand USD in 2023, down by 30.44% from the year prior – and equivalent to an indicator rank of 73.



4.3.2 **Domestic industry diversification**

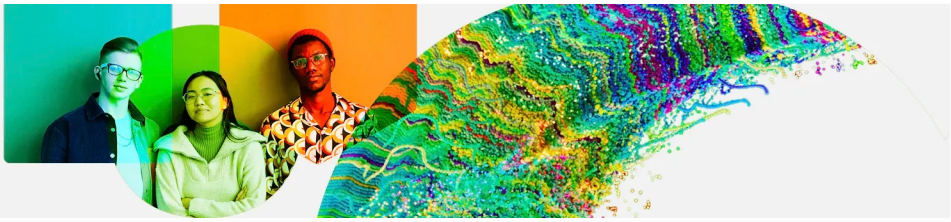
was equal to an index score of 0.23 in 2015, down by 8.52% from the year prior – and equivalent to an indicator rank of 88.



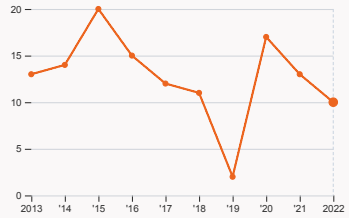
5.1.1 **Knowledge-intensive employment**

was equal to 12.43 % in 2022, up by 1.81 percentage points from the year prior – and equivalent to an indicator rank of 101.

Global Innovation Index 2024



Innovation outputs in Zambia

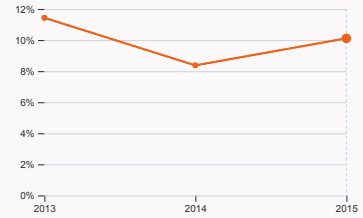


6.1.1 Patents by origin

was equal to 10 patents in 2022, down by 23.08% from the year prior – and equivalent to an indicator rank of 106.

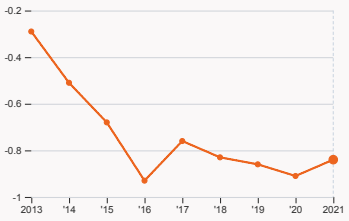
6.2.2 Unicorn valuation

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



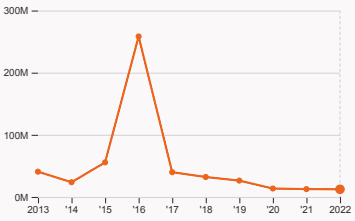
6.2.4 High-tech manufacturing

was equal to 10.11 % of total manufacturing output in 2015, up by 1.74 percentage points from the year prior – and equivalent to an indicator rank of 86.



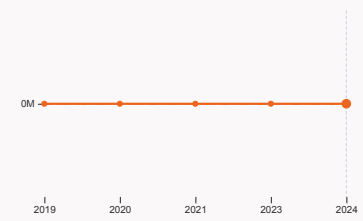
6.3.2 Production and export complexity

was equal to a score of -0.84 in 2021, up by 7.69% from the year prior – and equivalent to an indicator rank of 101.



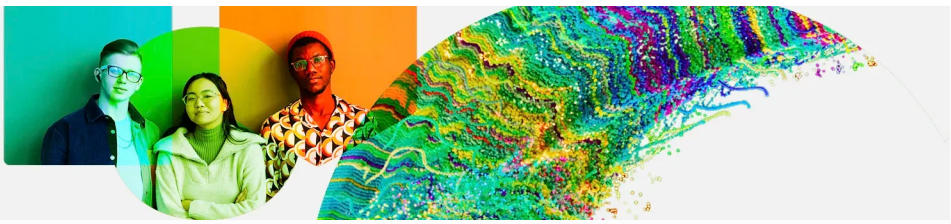
6.3.3 High-tech exports

was equal to 12.31 million USD in 2022, down by 2.61% from the year prior – and equivalent to an indicator rank of 118.



7.1.3 Global brand value

was equal to 0 million USD for the brands in the top 5,000 in 2024 with no change from the year prior – and equivalent to an indicator rank of 75.



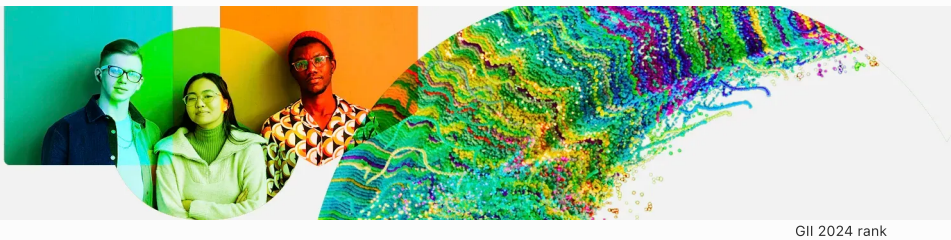
Zambia's innovation top performers

7.1.1 Top 15 intangible-asset intensive companies in Zambia

Rank	Firm	Intensity, %
1	ZAMBIA NATIONAL COMMERCIAL BANK PLC	33.90
2	ZAMBIA REINSURANCE PLC	3.99
3	ZAMBIA BATA SHOE COMPANY PLC	2.63

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

Global Innovation Index 2024



Zambia

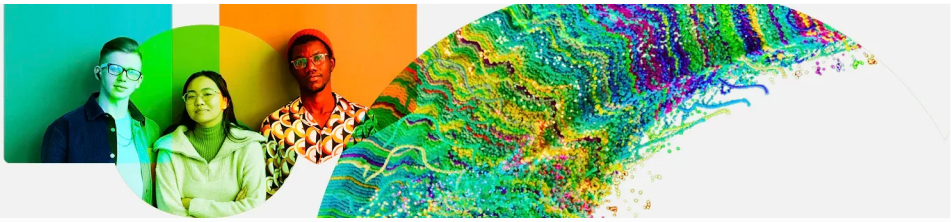
GII 2024 rank **116**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
131	103	Lower middle	SSA	20.7	83.7	4,068.4

	Score / Value	Rank	
Institutions	**36.5**	**92**	
1.1 Institutional environment	**36.7**	**104**	
1.1.1 Operational stability for businesses*	46.7	100	
1.1.2 Government effectiveness*	26.8	109	
1.2 Regulatory environment	**28.4**	**98**	
1.2.1 Regulatory quality*	27.9	101	
1.2.2 Rule of law*	28.9	96	
1.3 Business environment	**44.4**	**[67]**	
1.3.1 Policy stability for doing business†	44.4	78	●◆
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**22.6**	**[97]**	
2.1 Education	**45.2**	**[80]**	
2.1.1 Expenditure on education, % GDP	3.6	88	
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	21.1	103	
2.2 Tertiary education	**n/a**	**[n/a]**	
2.2.1 Tertiary enrolment, % gross	n/a	n/a	
2.2.2 Graduates in science and engineering, %	n/a	n/a	
2.2.3 Tertiary inbound mobility, %	n/a	n/a	
2.3 Research and development (R&D)	**0**	**[120]**	
2.3.1 Researchers, FTE/mn pop.	n/a	n/a	
2.3.2 Gross expenditure on R&D, % GDP	n/a	n/a	
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○◇
2.3.4 QS university ranking, top 3*	0	75	○◇
Infrastructure	**31.9**	**91**	
3.1 Information and communication technologies (ICTs)	**40.1**	**112**	
3.1.1 ICT access*	46.1	111	
3.1.2 ICT use*	n/a	n/a	
3.1.3 Government's online service*	38.3	111	
3.1.4 E-participation*	36	94	
3.2 General infrastructure	**27.7**	**81**	●◆
3.2.1 Electricity output, GWh/mn pop.	969.1	97	
3.2.2 Logistics performance*	n/a	n/a	
3.2.3 Gross capital formation, % GDP	30.7	22	●◆
3.3 Ecological sustainability	**27.8**	**43**	●◆
3.3.1 GDP/unit of energy use	5.3	116	◇
3.3.2 Low-carbon energy use, %	62.3	8	●◆
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.2	123	
Market sophistication	**19.3**	**112**	
4.1 Credit	**12.1**	**108**	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	13	125	○
4.1.3 Loans from microfinance institutions, % GDP	2	21	●◆
4.2 Investment	**5.6**	**75**	
4.2.1 Market capitalization, % GDP	15.7	68	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.03	71	
4.2.4 VC received, value, % GDP	0.0003	73	
4.3 Trade, diversification and market scale	**40.2**	**99**	
4.3.1 Applied tariff rate, weighted avg., %	5.8	101	
4.3.2 Domestic industry diversification	64.8	88	
4.3.3 Domestic market scale, bn PPP$	83.7	93	

	Score / Value	Rank	
Business sophistication	**20.9**	**95**	
5.1 Knowledge workers	**24.5**	**[90]**	
5.1.1 Knowledge-intensive employment, %	12.4	101	
5.1.2 Firms offering formal training, %	36.6	46	●◆
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, %	3.4	100	
5.2 Innovation linkages	**22.2**	**71**	●◆
5.2.1 Public Research-Industry co-publications, %	2.2	39	●◆
5.2.2 University-industry R&D collaboration†	37.3	82	●◆
5.2.3 State of cluster development†	43.2	72	●◆
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.02	62	●◆
5.2.5 Patent families/bn PPP$ GDP	0	102	○◇
5.3 Knowledge absorption	**15.9**	**119**	
5.3.1 Intellectual property payments, % total trade	0.2	93	
5.3.2 High-tech imports, % total trade	5.8	103	
5.3.3 ICT services imports, % total trade	0.5	109	
5.3.4 FDI net inflows, % GDP	0.05	117	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**7.2**	**131**	○◇
6.1 Knowledge creation	**5.9**	**107**	
6.1.1 Patents by origin/bn PPP$ GDP	0.1	106	
6.1.2 PCT patents by origin/bn PPP$ GDP	0	99	○◇
6.1.3 Utility models by origin/bn PPP$ GDP	-	-	
6.1.4 Scientific and technical articles/bn PPP$ GDP	7.4	88	
6.1.5 Citable documents H-index	6	93	
6.2 Knowledge impact	**10.8**	**129**	○◇
6.2.1 Labor productivity growth, %	-1.8	126	○◇
6.2.2 Unicorn valuation, % GDP	0	49	○◇
6.2.3 Software spending, % GDP	0.03	119	◇
6.2.4 High-tech manufacturing, %	10.1	86	
6.3 Knowledge diffusion	**5**	**121**	
6.3.1 Intellectual property receipts, % total trade	0	116	○◇
6.3.2 Production and export complexity	21.9	101	
6.3.3 High-tech exports, % total trade	0.1	118	
6.3.4 ICT services exports, % total trade	0.2	118	
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.5	124	◇
Creative outputs	**3**	**131**	○◇
7.1 Intangible assets	**5.5**	**111**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	13.3	101	
7.1.3 Global brand value, top 5,000, % GDP	0	75	○◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.8	66	●◆
7.2 Creative goods and services	**0.5**	**[126]**	
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	0.04	112	
7.3 Online creativity	**0.3**	**130**	○◇
7.3.1 Top-level domains (TLDs)/th pop. 15–69	0.09	126	○
7.3.2 GitHub commits/mn pop. 15–69	0.6	120	
7.3.3 Mobile app creation/bn PPP$ GDP	n/a	n/a	

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 Zambia.

Zambia has missing data for twenty two indicators and outdated data for nine indicators.

Missing data for Zambia

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture†	n/a	2023	Global Entrepreneurship Monitor
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
2.2.1	Tertiary enrolment, % gross	n/a	2022	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	n/a	2022	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.1.2	ICT use*	n/a	2022	World Intellectual Property Organization; International Telecommunication Union ITU DataHub (accessed May 1st, 2024)
3.2.2	Logistics performance*	n/a	2023	World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org/); and World Bank 2023, Connecting to Compete 2023: Trade Logistics in the Global Economy The Logistics Performance Index and its Indicators.
4.1.1	Finance for startups and scaleups†	n/a	2023	Global Entrepreneurship Monitor
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
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

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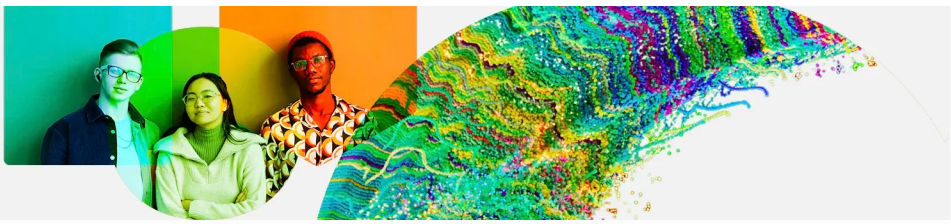

Code	Indicator name	Economy Year	Model Year	Source
5.3.5	Research talent, % in businesses	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2022	World Intellectual Property Organization; International Monetary Fund
7.1.1	Intangible asset intensity, top 15, %	n/a	2023	Brand Finance
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
7.3.3	Mobile app creation/bn PPP$ GDP	n/a	2023	data.ia (a Sensor Tower Company); International Monetary Fund

Outdated data for Zambia

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policy stability for doing business†	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
2.1.5	Pupil–teacher ratio, secondary	2014	2022	UNESCO Institute for Statistics
4.3.2	Domestic industry diversification	2015	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.2	Firms offering formal training, %	2019	2023	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2022	2023	International Labour Organization
5.2.2	University-industry R&D collaboration†	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	State of cluster development†	2022	2023	World Economic Forum, Executive Opinion Survey (EOS)
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2022	2023	LSEG Data & Analytics; International Monetary Fund
6.2.4	High-tech manufacturing, %	2015	2021	United Nations Industrial Development Organization

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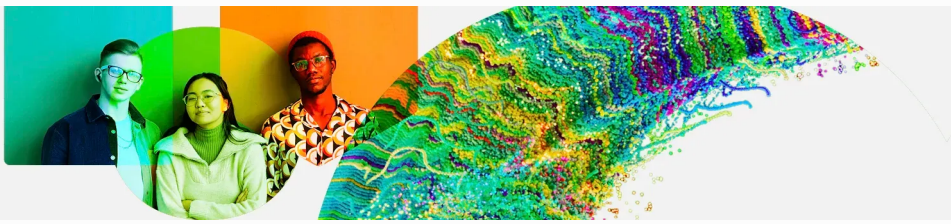

About the Global Innovation Index

- 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.

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.