



Global Innovation Index 2021



ZAMBIA

121st Zambia ranks 121st among the 132 economies featured in the GII 2021.

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 Zambia 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 Zambia in the GII 2021 is between ranks 119 and 127.

Rankings for Zambia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	121	111	127
2020	122	109	128
2019	124	126	121

- Zambia performs better in innovation inputs than innovation outputs in 2021.
- This year Zambia ranks 111th in innovation inputs, lower than last year but higher than 2019.
- As for innovation outputs, Zambia ranks 127th. This position is higher than last year but lower than 2019.

30th Zambia ranks 30th among the 34 lower middle-income group economies.

18th Zambia ranks 18th among the 27 economies in Sub-Saharan Africa.

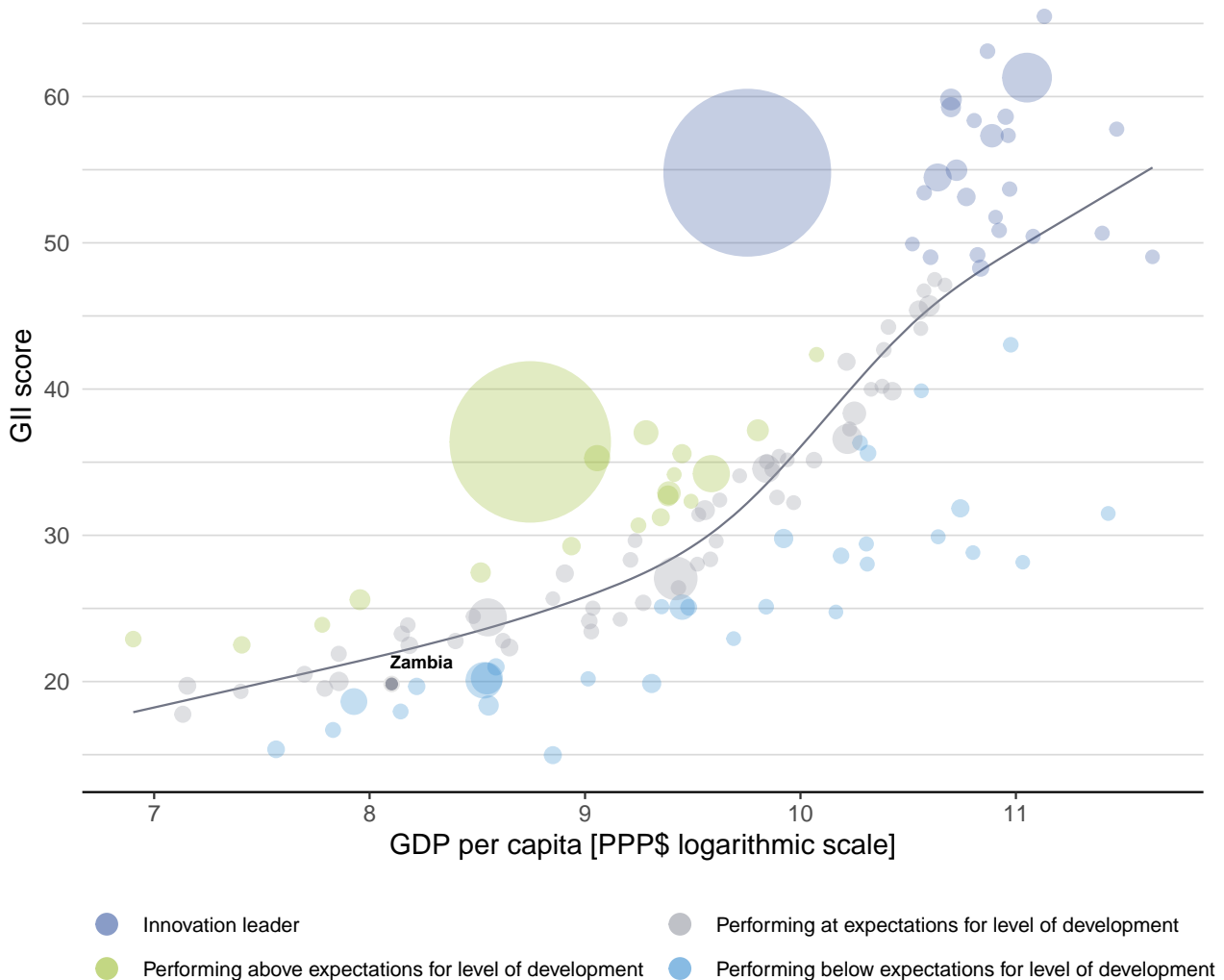


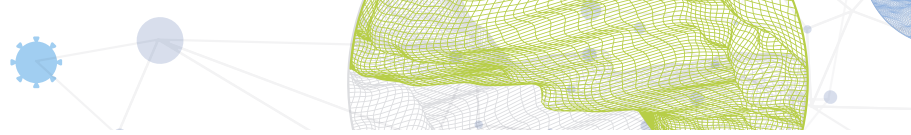
EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

The positive relationship between innovation and development



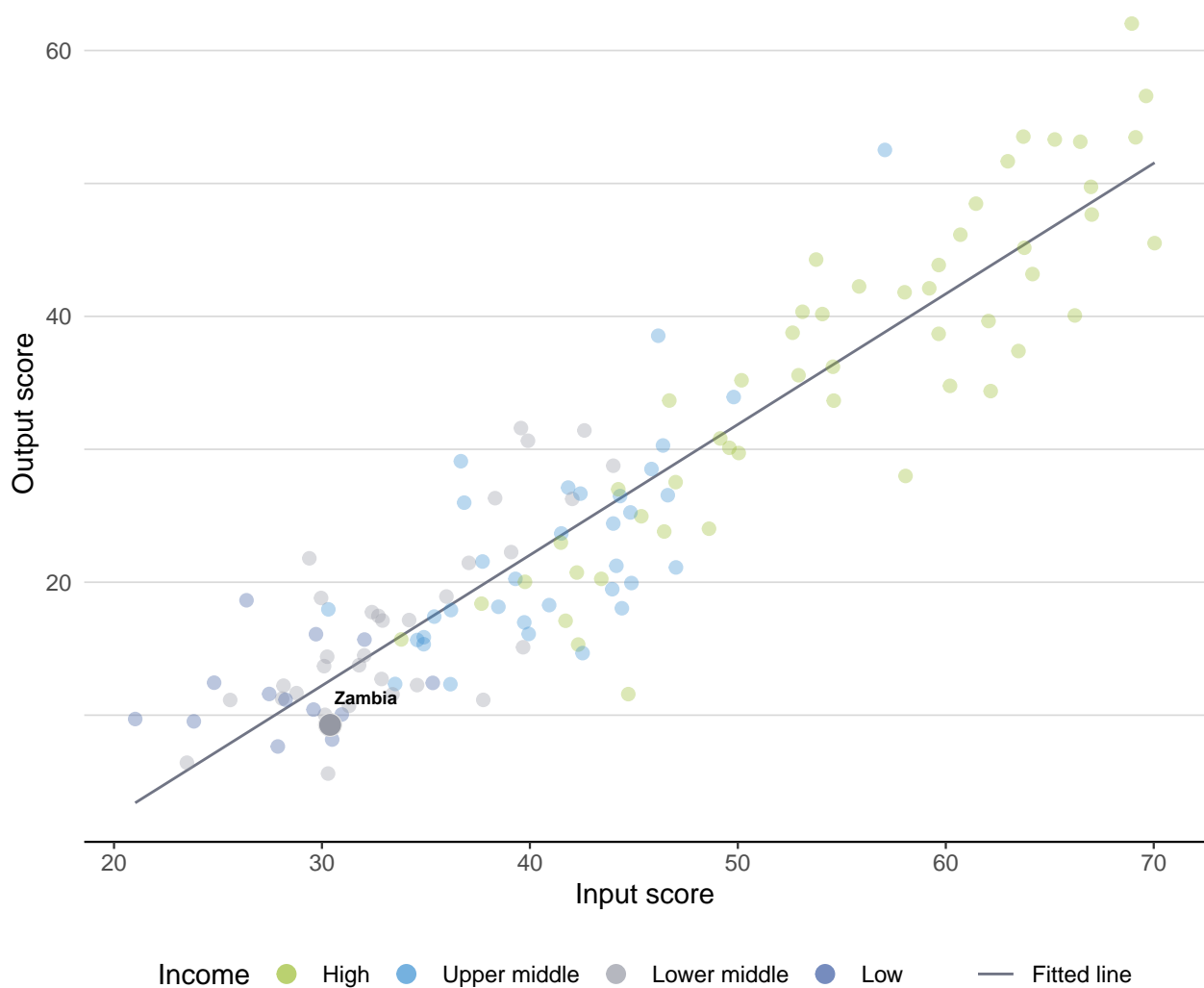


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance





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

The seven GII pillar scores for Zambia

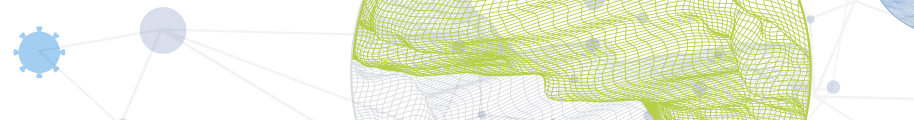


Lower middle-income group economies

Zambia performs above the lower middle-income group average in two pillars, namely: Market sophistication; and, Business sophistication.

Sub-Saharan Africa

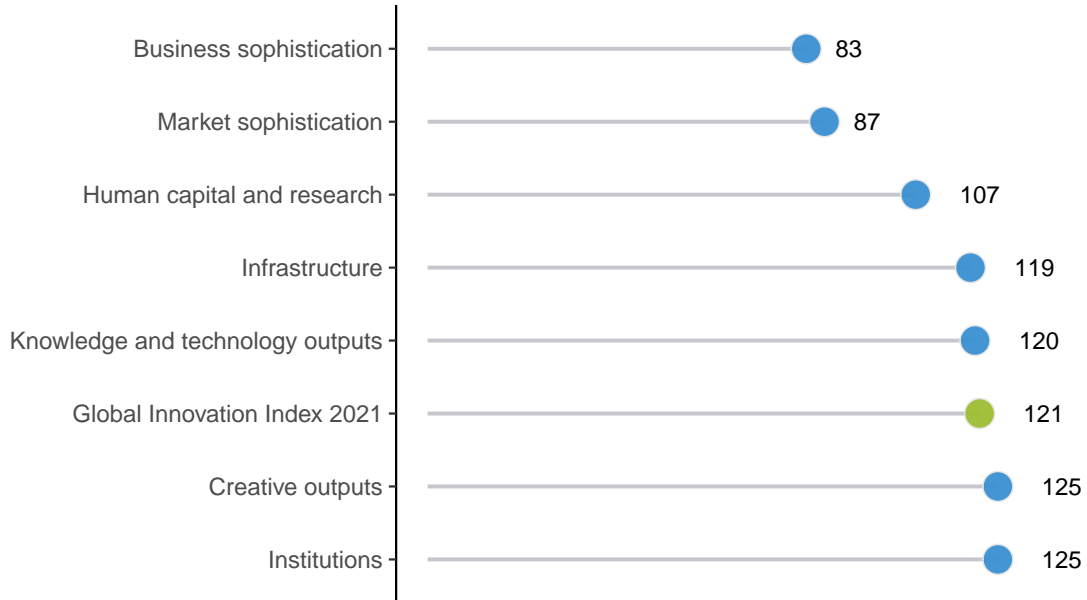
Zambia performs above the regional average in three pillars, namely: Human capital and research; Market sophistication; and, Business sophistication.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

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

The seven GII pillar ranks for Zambia



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









INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Zambia in the GII 2021.

Strengths and weaknesses for Zambia

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.3	Business environment	78	1.2	Regulatory environment	129
1.3.2	Ease of resolving insolvency	71	1.2.3	Cost of redundancy dismissal	128
2.1.1	Expenditure on education, % GDP	54	2.2.1	Tertiary enrolment, % gross	126
3.2	General infrastructure	59	2.3.3	Global corporate R&D investors, top 3, mn US\$	41
3.2.3	Gross capital formation, % GDP	12	2.3.4	QS university ranking, top 3	74
4.1	Credit	71	3.1	Information and communication technologies (ICTs)	126
4.1.1	Ease of getting credit	4	3.1.3	Government's online service	128
4.2.1	Ease of protecting minority investors	71	3.1.4	E-participation	124
4.2.4	Venture capital recipients, deals/bn PPP\$ GDP	46	3.3	Ecological sustainability	125
4.3	Trade, diversification, and market scale	77	6.1.1	Patents by origin/bn PPP\$ GDP	123
4.3.1	Applied tariff rate, weighted avg., %	65	7.1.2	Global brand value, top 5,000, % GDP	80
5.1.2	Firms offering formal training, %	37	7.1.4	ICTs and organizational model creation	119
5.3.4	FDI net inflows, % GDP	63	7.2.1	Cultural and creative services exports, % total trade	112
7.1.3	Industrial designs by origin/bn PPP\$ GDP	75	7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	124

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$	GII 2020 rank
127	111	Lower middle	SSF	18.4	62.4	3,302	122

	Score/ Value Rank		Score/ Value Rank
 Institutions	44.4 125 ○ ◇	 Business sophistication	22.0 83
1.1 Political environment	42.2 108	5.1 Knowledge workers	31.5 [65]
1.1.1 Political and operational stability*	55.4 112	5.1.1 Knowledge-intensive employment, %	○ 19.1 81
1.1.2 Government effectiveness*	35.6 108	5.1.2 Firms offering formal training, %	● 36.6 37
1.2 Regulatory environment	23.8 129 ○ ◇	5.1.3 GERD performed by business, % GDP	n/a n/a
1.2.1 Regulatory quality*	29.0 105	5.1.4 GERD financed by business, %	n/a n/a
1.2.2 Rule of law*	34.5 92	5.1.5 Females employed w/advanced degrees, %	○ 6.2 88
1.2.3 Cost of redundancy dismissal	50.6 128 ○ ◇	5.2 Innovation linkages	17.8 86
1.3 Business environment	67.1 78 ●	5.2.1 University-industry R&D collaboration†	32.2 105
1.3.1 Ease of starting a business*	84.9 90	5.2.2 State of cluster development and depth†	42.1 95
1.3.2 Ease of resolving insolvency*	49.3 71 ●	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 91
		5.2.5 Patent families/bn PPP\$ GDP	0.0 89
 Human capital and research	17.9[107]	5.3 Knowledge absorption	16.6 107
2.1 Education	51.4 [65]	5.3.1 Intellectual property payments, % total trade	0.2 93
2.1.1 Expenditure on education, % GDP	4.6 54 ●	5.3.2 High-tech imports, % total trade	5.1 112
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a n/a	5.3.3 ICT services imports, % total trade	0.9 82
2.1.3 School life expectancy, years	n/a n/a	5.3.4 FDI net inflows, % GDP	2.7 63 ●
2.1.4 PISA scales in reading, maths and science	n/a n/a	5.3.5 Research talent, % in businesses	n/a n/a
2.1.5 Pupil-teacher ratio, secondary	○ 21.1 98	 Knowledge and technology outputs	9.0 120
2.2 Tertiary education	2.3[127]	6.1 Knowledge creation	5.8 106
2.2.1 Tertiary enrolment, % gross	○ 4.1 126 ○ ◇	6.1.1 Patents by origin/bn PPP\$ GDP	0.0 123 ○
2.2.2 Graduates in science and engineering, %	n/a n/a	6.1.2 PCT patents by origin/bn PPP\$ GDP	0.0 92
2.2.3 Tertiary inbound mobility, %	n/a n/a	6.1.3 Utility models by origin/bn PPP\$ GDP	n/a n/a
2.3 Research and development (R&D)	0.0[123]	6.1.4 Scientific and technical articles/bn PPP\$ GDP	8.8 95
2.3.1 Researchers, FTE/mn pop.	n/a n/a	6.1.5 Citable documents H-index	6.9 90
2.3.2 Gross expenditure on R&D, % GDP	n/a n/a	6.2 Knowledge impact	14.1 117
2.3.3 Global corporate R&D investors, top 3, mn US\$	0.0 41 ○ ◇	6.2.1 Labor productivity growth, %	-1.8 98 ◇
2.3.4 QS university ranking, top 3*	0.0 74 ○ ◇	6.2.2 New businesses/th pop. 15-64	1.1 82
		6.2.3 Software spending, % GDP	0.0 113 ◇
 Infrastructure	24.9 119 ◇	6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	0.5 120
3.1 Information and communication technologies (ICTs)	28.5 126 ○ ◇	6.2.5 High-tech manufacturing, %	○ 10.1 88
3.1.1 ICT access*	35.3 116	6.3 Knowledge diffusion	7.1 108
3.1.2 ICT use*	22.1 111	6.3.1 Intellectual property receipts, % total trade	n/a n/a
3.1.3 Government's online service*	25.9 128 ○ ◇	6.3.2 Production and export complexity	29.6 93
3.1.4 E-participation*	31.0 124 ○ ◇	6.3.3 High-tech exports, % total trade	0.3 101
3.2 General infrastructure	30.7 59 ●	6.3.4 ICT services exports, % total trade	0.2 119
3.2.1 Electricity output, GWh/mn pop.	933.0 99	 Creative outputs	9.5 125 ○ ◇
3.2.2 Logistics performance*	22.3 105	7.1 Intangible assets	14.8 120
3.2.3 Gross capital formation, % GDP	35.3 12 ●	7.1.1 Trademarks by origin/bn PPP\$ GDP	16.8 97
3.3 Ecological sustainability	15.3 125 ○ ◇	7.1.2 Global brand value, top 5,000, % GDP	0.0 80 ○ ◇
3.3.1 GDP/unit of energy use	5.5 113	7.1.3 Industrial designs by origin/bn PPP\$ GDP	0.9 75 ●
3.3.2 Environmental performance*	34.7 103	7.1.4 ICTs and organizational model creation†	37.3 119 ○ ◇
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	0.2 112	7.2 Creative goods and services	0.8[130]
		7.2.1 Cultural and creative services exports, % total trade	0.0 112 ○
 Market sophistication	42.9 87	7.2.2 National feature films/mn pop. 15-69	n/a n/a
4.1 Credit	40.0 71 ●	7.2.3 Entertainment and media market/th pop. 15-69	n/a n/a
4.1.1 Ease of getting credit*	95.0 4 ● ◆	7.2.4 Printing and other media, % manufacturing	n/a n/a
4.1.2 Domestic credit to private sector, % GDP	15.6 118	7.2.5 Creative goods exports, % total trade	0.1 99
4.1.3 Microfinance gross loans, % GDP	0.1 63	7.3 Online creativity	7.7 109
4.2 Investment	24.6 84	7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.1 124 ○
4.2.1 Ease of protecting minority investors*	60.0 71 ●	7.3.2 Country-code TLDs/th pop. 15-69	0.1 115
4.2.2 Market capitalization, % GDP	○ 13.6 66	7.3.3 Wikipedia edits/mn pop. 15-69	26.2 110
4.2.3 Venture capital investors, deals/bn PPP\$ GDP	n/a n/a	7.3.4 Mobile app creation/bn PPP\$ GDP	n/a n/a
4.2.4 Venture capital recipients, deals/bn PPP\$ GDP	0.0 46 ●		
4.3 Trade, diversification, and market scale	64.0 77 ●		
4.3.1 Applied tariff rate, weighted avg., %	○ 3.4 65 ●		
4.3.2 Domestic industry diversification	○ 79.1 81		
4.3.3 Domestic market scale, bn PPP\$	62.3 95		

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 Appendix IV for details, including the year of the data, at <http://globalinnovationindex.org>. 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 data that are either missing or outdated for Zambia.

Missing data for Zambia

Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2018	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.2	Graduates in science and engineering, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.2.3	Venture capital investors, deals/bn PPP\$ GDP	n/a	2020	Refinitiv Eikon
5.1.3	GERD performed by business, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	n/a	2018	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2019	World Intellectual Property Organization
6.3.1	Intellectual property receipts, % total trade	n/a	2019	World Trade Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics



Code	Indicator name	Economy year	Model year	Source
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC
7.2.4	Printing and other media, % manufacturing	n/a	2018	United Nations Industrial Development Organization
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2020	App Annie

Outdated data for Zambia

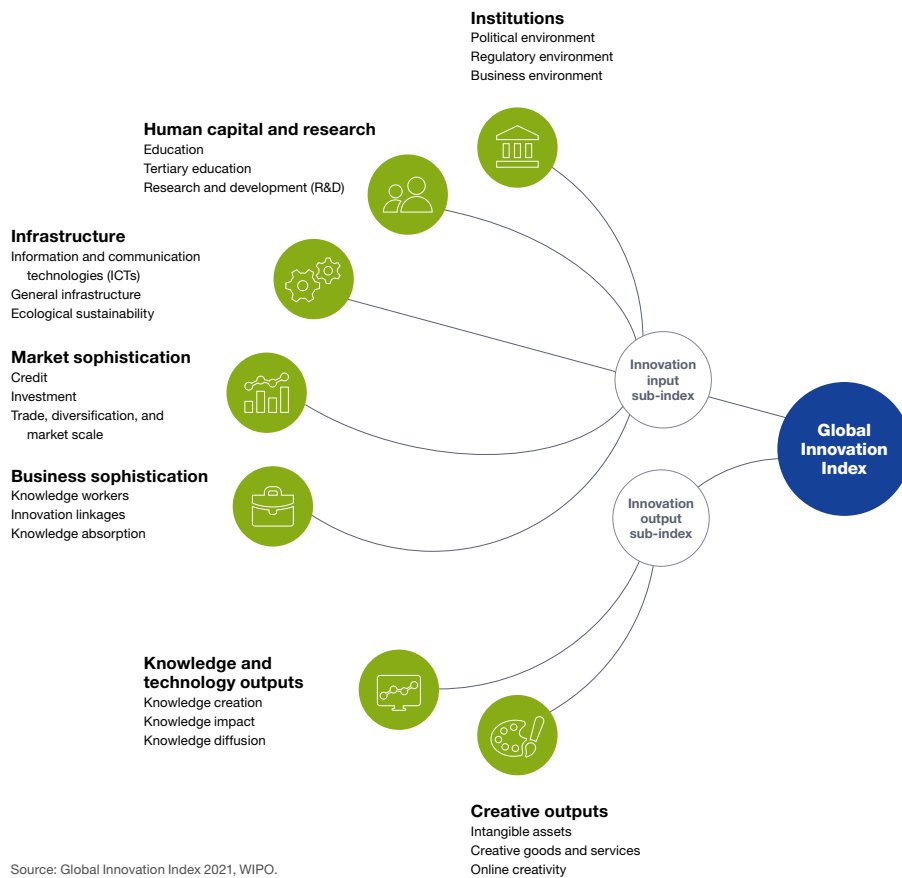
Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2014	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2012	2018	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	2011	2019	World Federation of Exchanges
4.3.1	Applied tariff rate, weighted avg., %	2018	2019	World Bank
4.3.2	Domestic industry diversification	2015	2018	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2018	2019	International Labour Organization
5.1.5	Females employed w/advanced degrees, %	2018	2019	International Labour Organization
6.2.5	High-tech manufacturing, %	2015	2018	United Nations Industrial Development Organization



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.