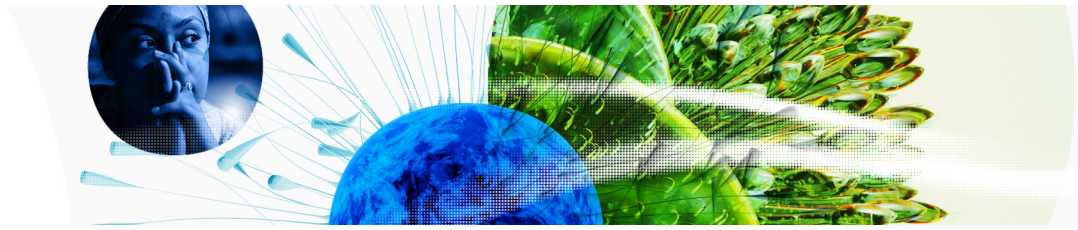
Global Innovation Index 2023



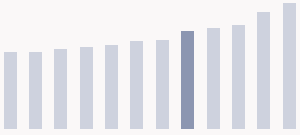
The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Uganda ranking in the Global Innovation Index 2023

> Uganda ranks 121st among the 132 economies featured in the GII 2023.

> Uganda ranks 5th among the 12 low-income group economies.



> Uganda ranks 18th among the 28 economies in Sub-Saharan Africa.

> Uganda GII Ranking (2020-2023)

The table shows the rankings of Uganda 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 Uganda in the GII 2023 is between ranks 115 and 122.

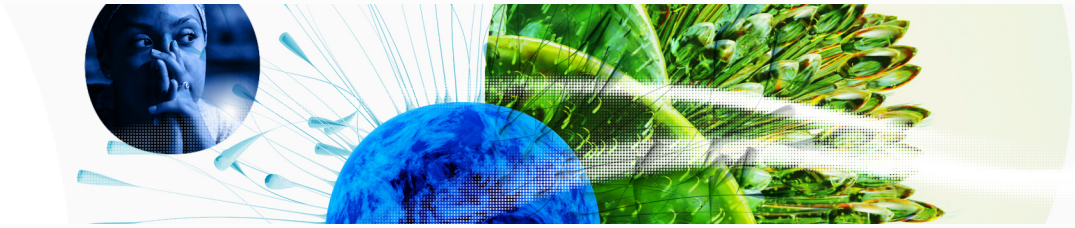
	GII Position	Innovation Inputs	Innovation Outputs
2020	114th	103rd	123rd
2021	119th	119th	122nd
2022	119th	116th	120th
2023	121st	117th	121st

Uganda performs worse in innovation outputs than innovation inputs in 2023.

This year Uganda ranks 117th in innovation inputs. This position is lower than last year.

Uganda ranks 121st in innovation outputs. This position is lower than last year.

Global Innovation Index 2023

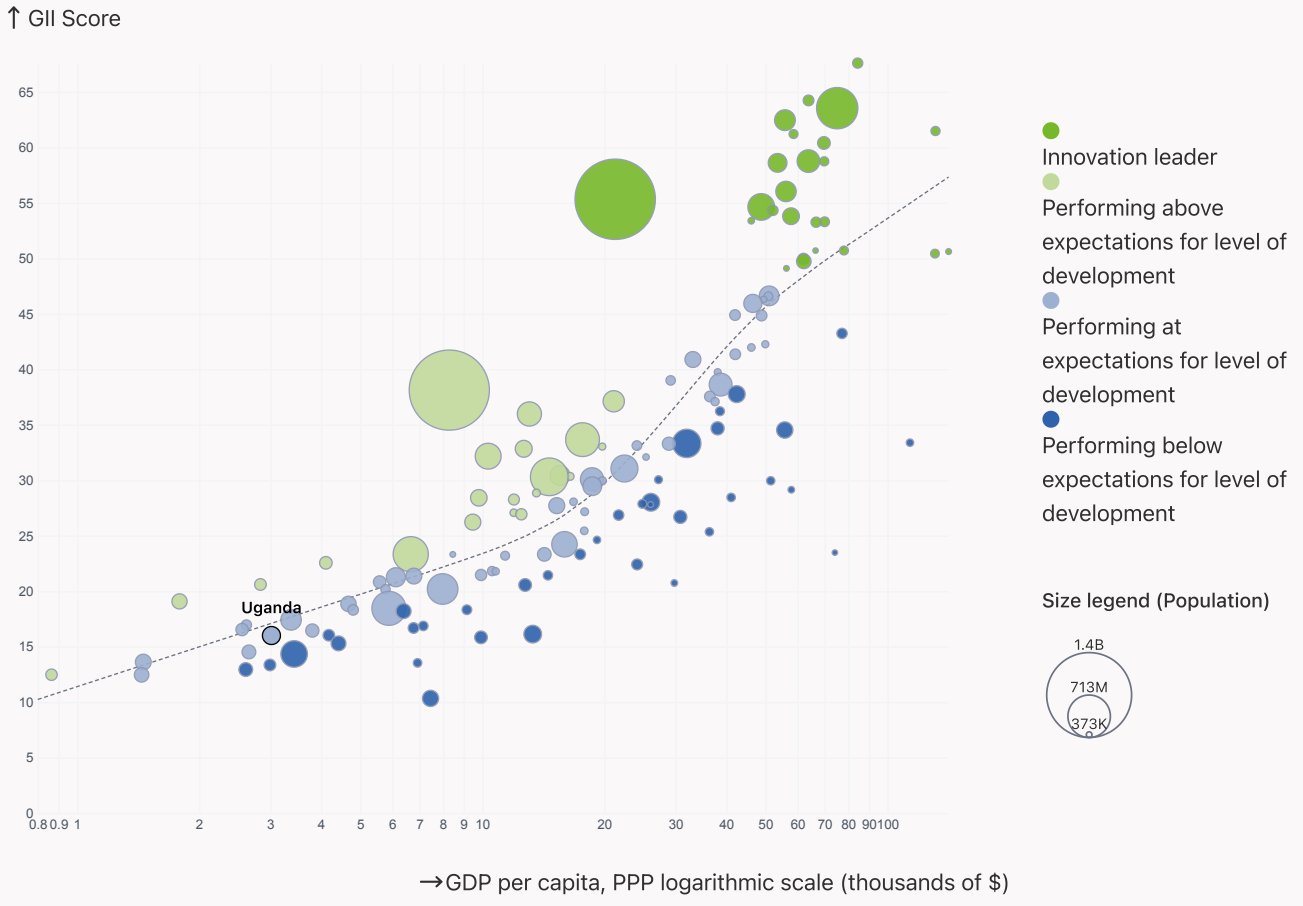


→ Expected vs. observed innovation performance

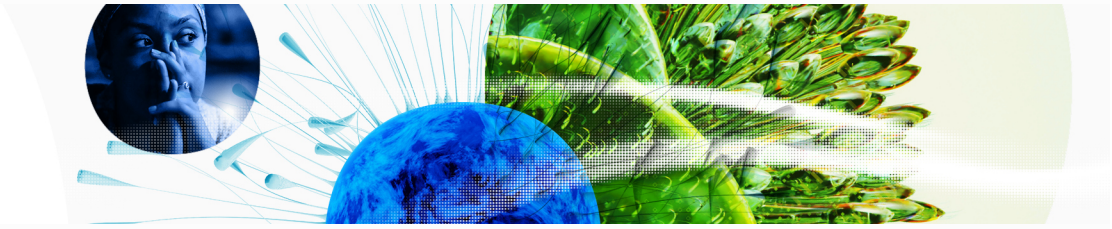
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

> Relative to GDP, Uganda's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

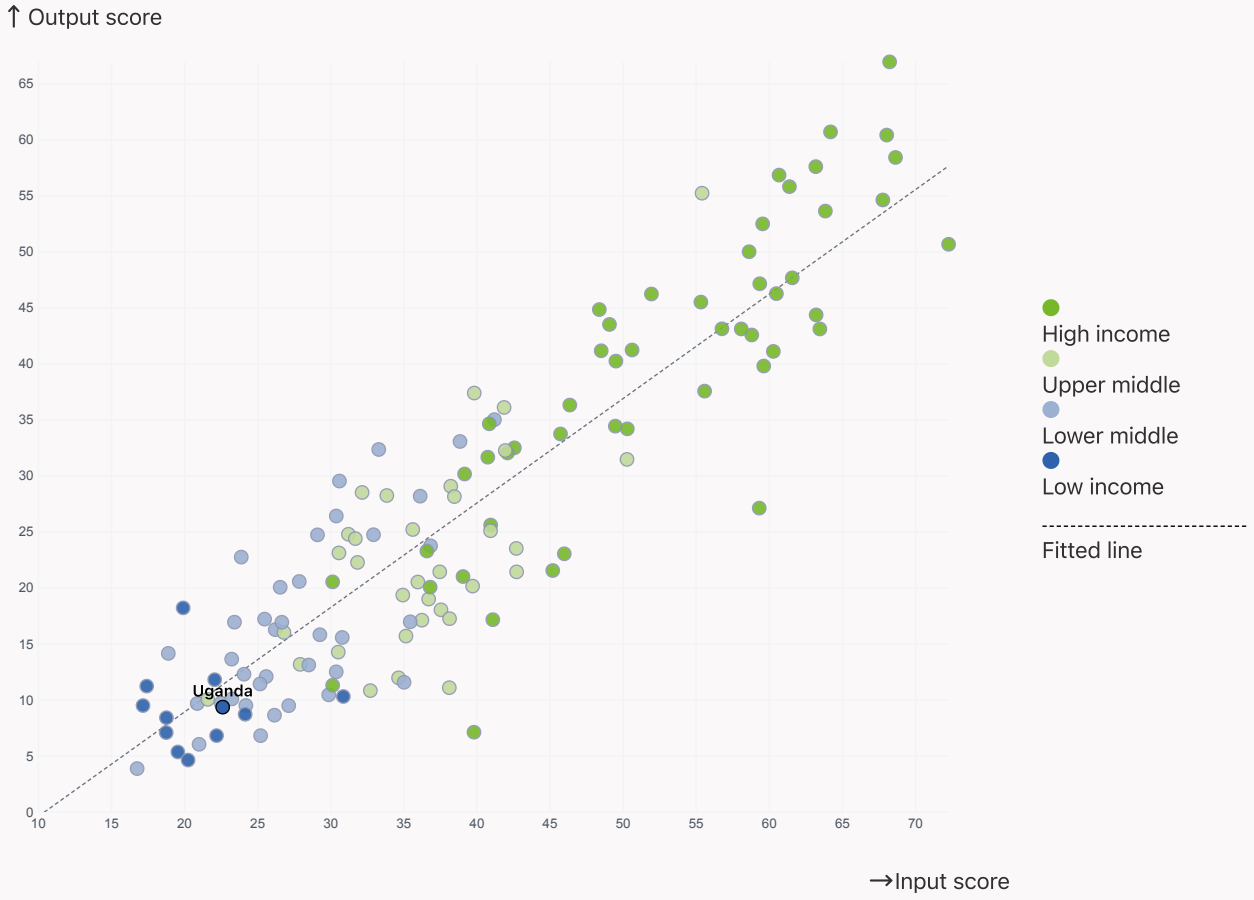


→ Effectively translating innovation investments into innovation outputs

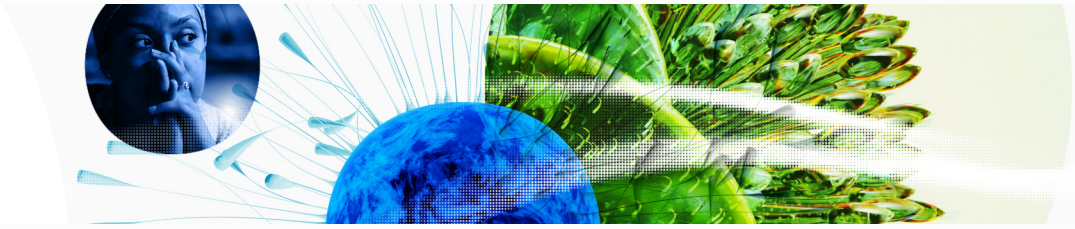
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> Uganda produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

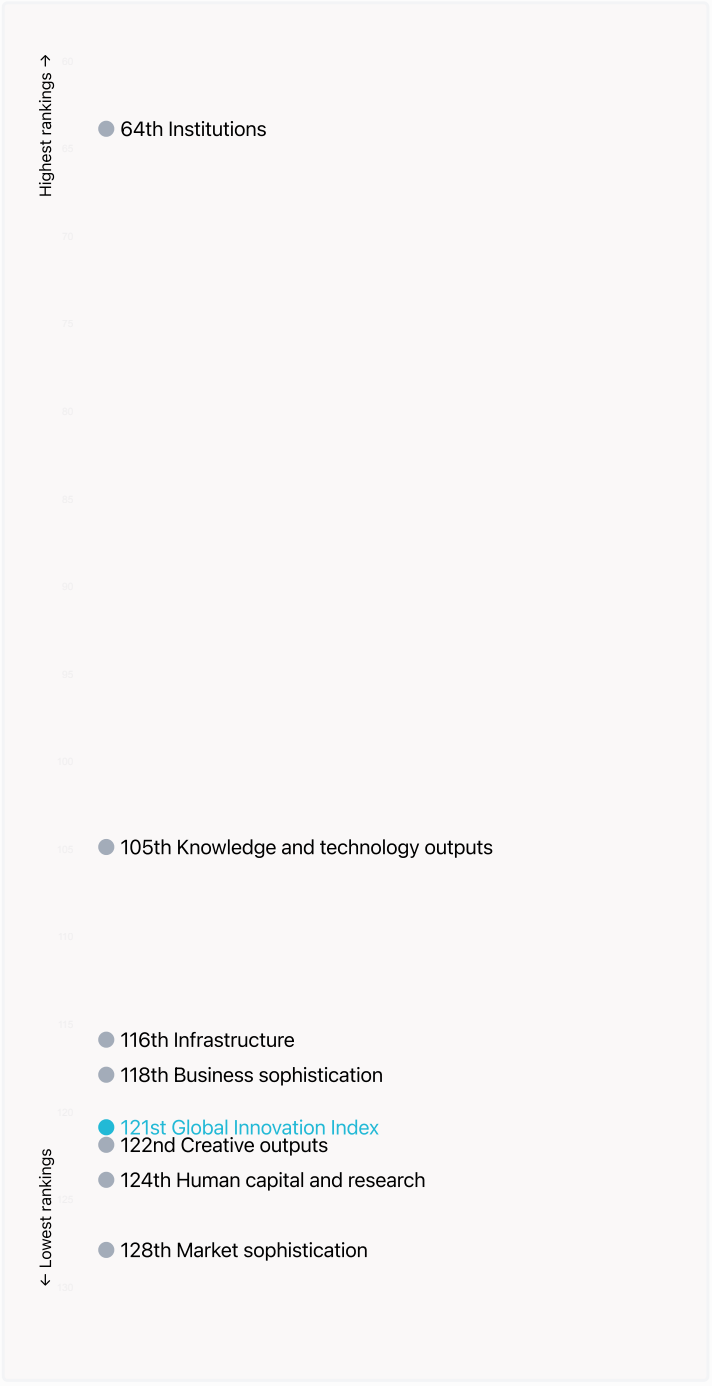


Global Innovation Index 2023



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



> Highest rankings

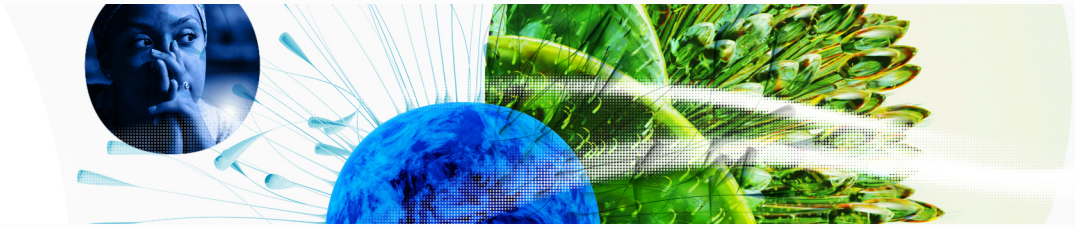
Uganda ranks highest in Institutions (64th), Knowledge and technology outputs (105th), Infrastructure (116th) and Business sophistication (118th).

> Lowest rankings

Uganda ranks lowest in Market sophistication (128th), Human capital and research (124th) and Creative outputs (122nd).

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

Global Innovation Index 2023



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

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

> Low-Income economies

Uganda performs above the low-income group average in Knowledge and technology outputs, Business sophistication, Infrastructure, Institutions.

> Sub-Saharan Africa

Uganda performs below the regional average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Uganda | Score: 12.81
- Sub-Saharan Africa | Score: 12.16
- Low income | Score: 11.03

Creative outputs

- Top 10 | 56.09
- Sub-Saharan Africa | 10.36
- Low income | 7.48
- Uganda | 5.85

Business sophistication

- Top 10 | 64.39
- Sub-Saharan Africa | 19.85
- Uganda | 17.02
- Low income | 16.81

Market sophistication

- Top 10 | 61.93
- Sub-Saharan Africa | 20.00
- Low income | 15.67
- Uganda | 11.93

Human capital and research

- Top 10 | 60.28
- Sub-Saharan Africa | 17.80
- Low income | 15.55
- Uganda | 12.81

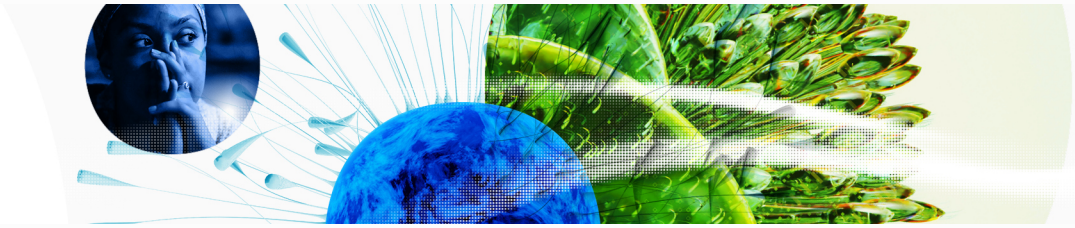
Infrastructure

- Top 10 | 62.83
- Sub-Saharan Africa | 23.36
- Uganda | 20.99
- Low income | 19.43

Institutions

- Top 10 | 79.85
- Uganda | 50.49
- Sub-Saharan Africa | 43.27
- Low income | 38.42

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Uganda

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

> Uganda's main innovation strengths are **Cost of redundancy dismissal** (rank 20), **Gross capital formation, % GDP** (rank 31) and **VC recipients, deals/bn PPP$ GDP** (rank 42).

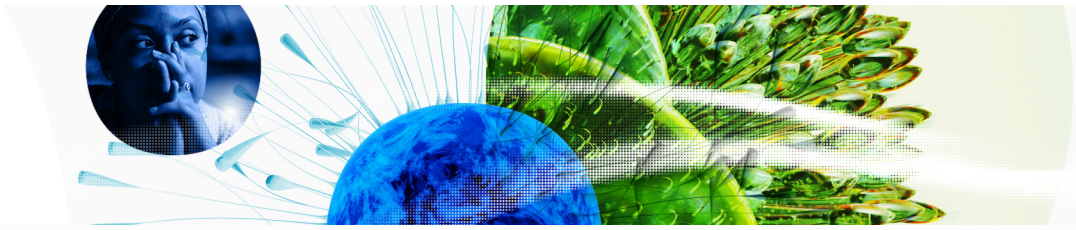
Strengths

Rank	Code	Indicator name
20	1.2.3	Cost of redundancy dismissal
31	3.2.3	Gross capital formation, % GDP
42	4.2.3	VC recipients, deals/bn PPP$ GDP
43	1.3.1	Policies for doing business
44	6.1.3	Utility models by origin/bn PPP$ GDP
50	5.3.4	FDI net inflows, % GDP
52	6.3.1	Intellectual property receipts, % total trade
56	6.1.4	Scientific and technical articles/bn PPP$ GDP

Weaknesses

Rank	Code	Indicator name
126	6.2.3	Software spending, % GDP
125	2.2.1	Tertiary enrolment, % gross
121	3.2.1	Electricity output, GWh/mn pop.
120	5.1.1	Knowledge-intensive employment, %
95	5.2.5	Patent families/bn PPP$ GDP
74	7.1.3	Global brand value, top 5,000
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$

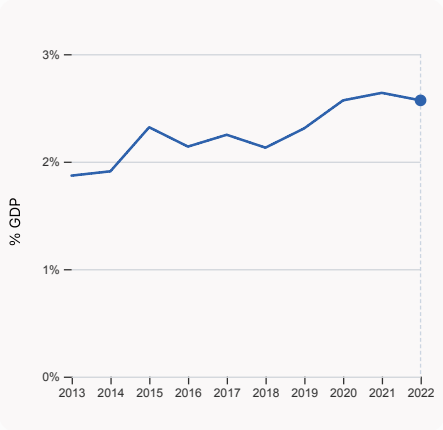
Global Innovation Index 2023



→ Uganda's innovation system

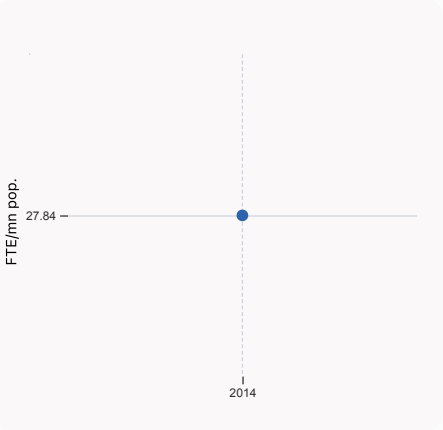
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Uganda



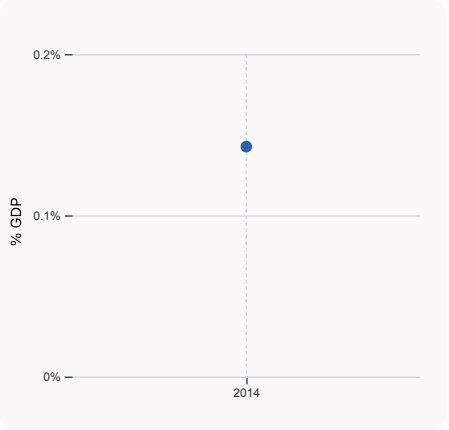
2.1.1 Expenditure on education, % GDP

was equal to 2.57% GDP in 2022, down by 0.07 percentage points from the year prior – and equivalent to an indicator rank of 112.



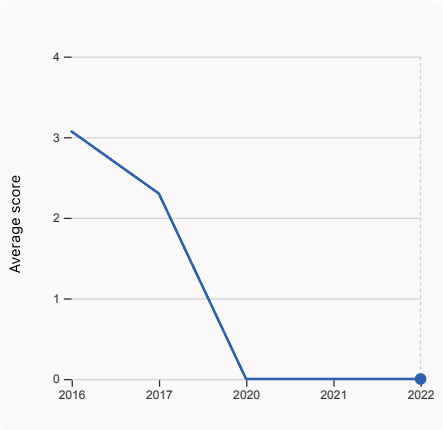
2.3.1 Researchers, FTE/mn pop.

was equal to 27.84 FTE/mn pop. in 2014, equivalent to an indicator rank of 101.



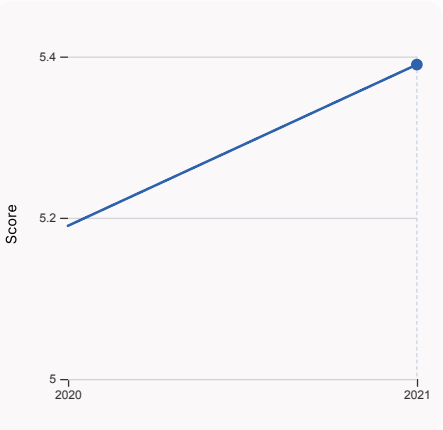
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.143 % GDP in 2014, equivalent to an indicator rank of 97.



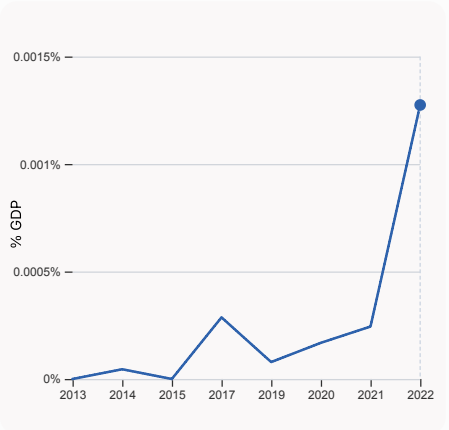
2.3.4 QS university ranking, top 3

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

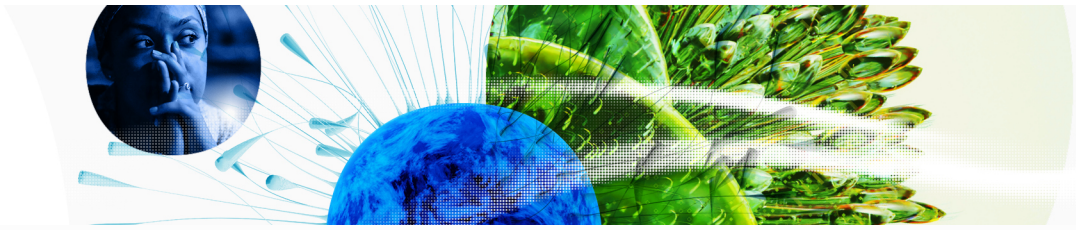
was equal to a score of 5.39 in 2021, up by 3.85% from the year prior – and equivalent to an indicator rank of 123.

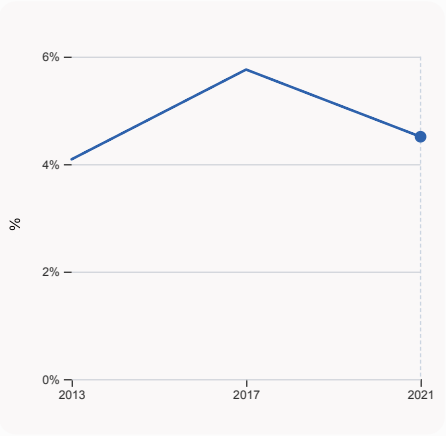


4.2.4 VC received, value, % GDP

was equal to 0.00127% GDP in 2022, up by 0.001 percentage points from the year prior – and equivalent to an indicator rank of 62.

Global Innovation Index 2023

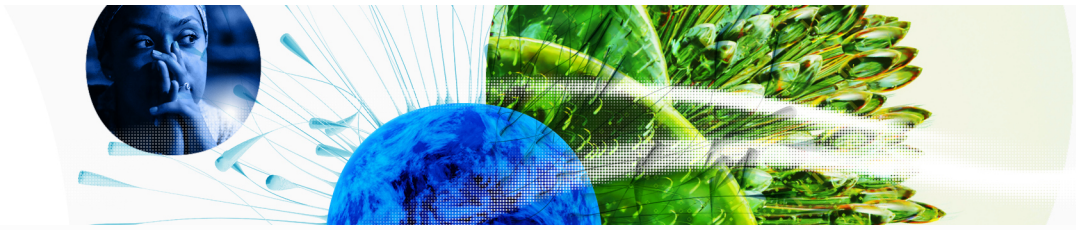




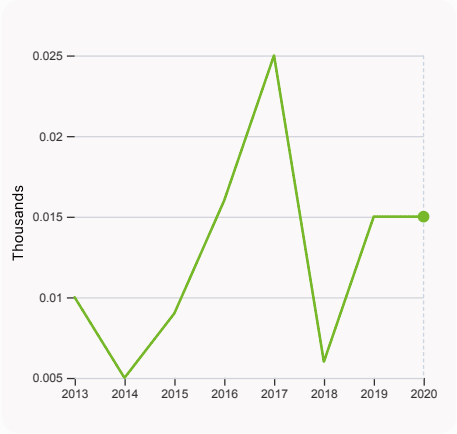
5.1.1 **Knowledge-intensive employment, %**

was equal to 4.51% in 2021, down by 1.25 percentage points from the year prior – and equivalent to an indicator rank of 120.

Global Innovation Index 2023

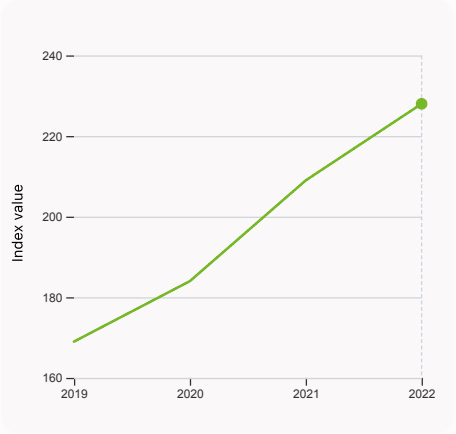


> Innovation outputs in Uganda



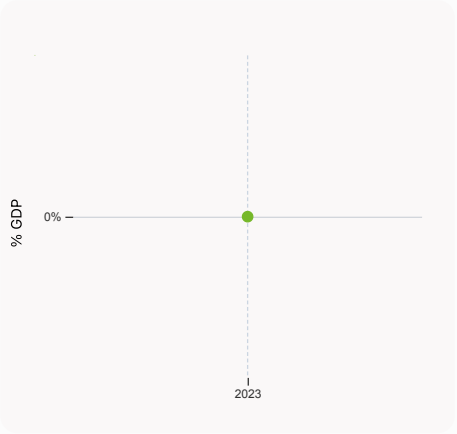
6.1.1 Patents by origin

was equal to 0.015 Thousands in 2020, up by with no change from the year prior – and equivalent to an indicator rank of 106.



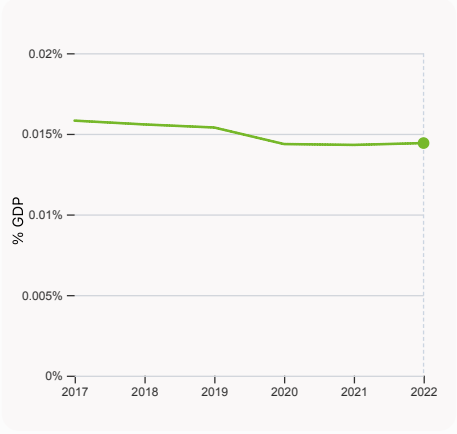
6.1.5 Citable documents H-index

was equal to an index value of 228 in 2022, up by 9.091% from the year prior – and equivalent to an indicator rank of 76.



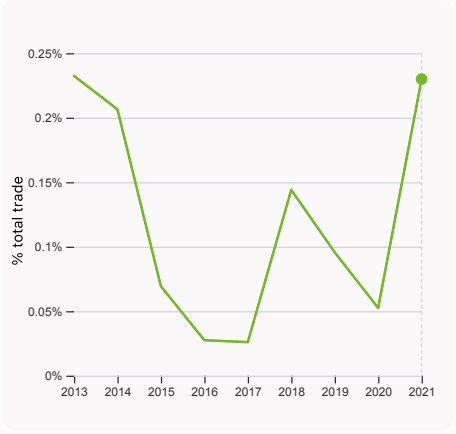
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



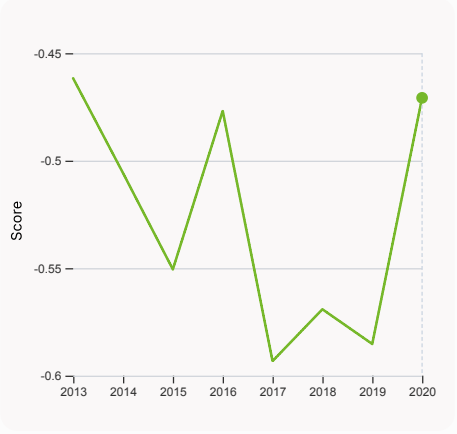
6.2.3 Software spending, % GDP

was equal to 0.014% GDP in 2022, up by 0.00011 percentage points from the year prior – and equivalent to an indicator rank of 126.



6.3.1 Intellectual property receipts, % total trade

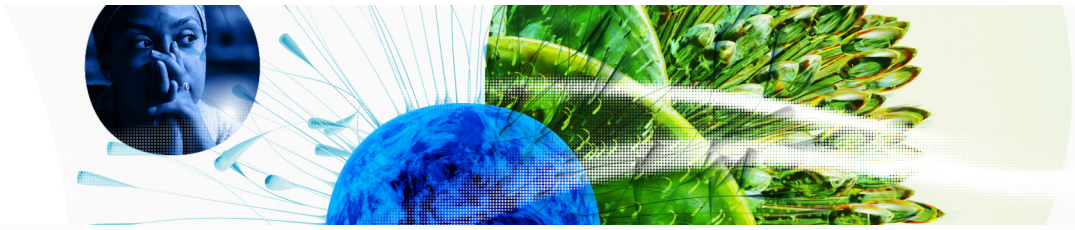
was equal to 0.23% total trade in 2021, up by 0.18 percentage points from the year prior – and equivalent to an indicator rank of 52.

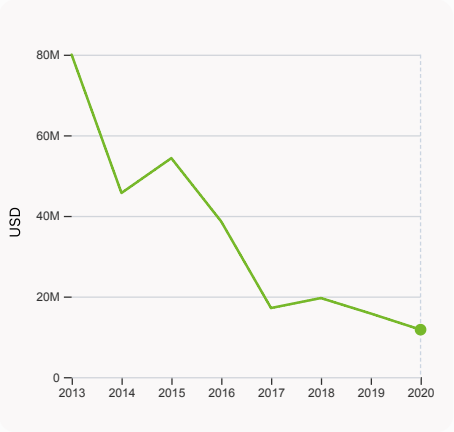


6.3.2 Production and export complexity

was equal to a score of -0.471 in 2020, up by 19.56% from the year prior – and equivalent to an indicator rank of 86.

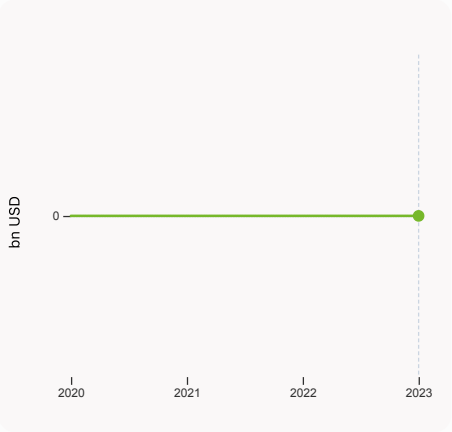
Global Innovation Index 2023





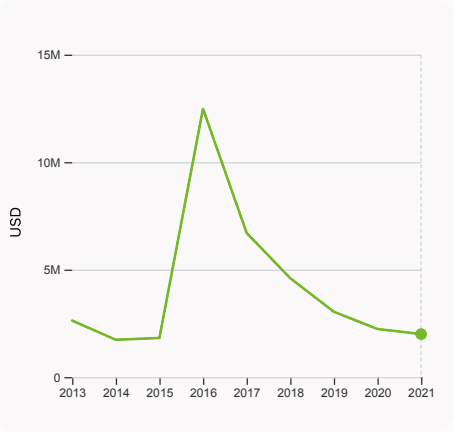
6.3.3 High-tech exports

was equal to 11,771,659 USD in 2020, down by 25.41% from the year prior – and equivalent to an indicator rank of 113.



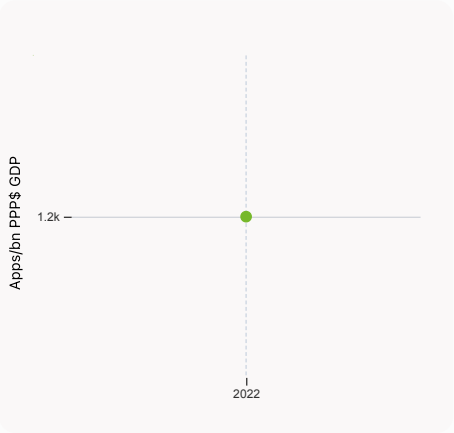
7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



7.2.1 Cultural and creative services exports

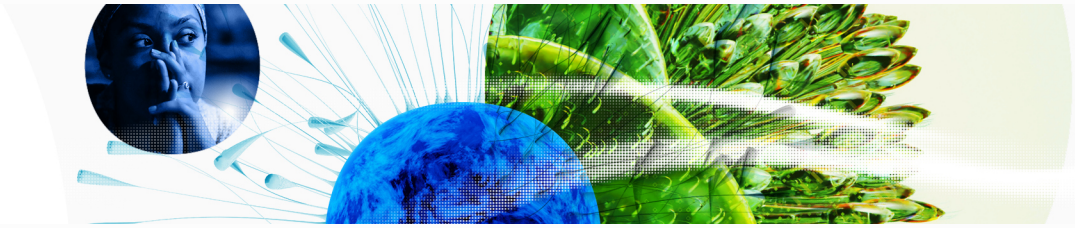
was equal to 2,002,000 USD in 2021, down by 10.55% from the year prior – and equivalent to an indicator rank of 94.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 1,153.87 Apps/bn PPP$ GDP in 2022 – and equivalent to an indicator rank of 114.

Global Innovation Index 2023



Uganda

GII 2023 rank **121**

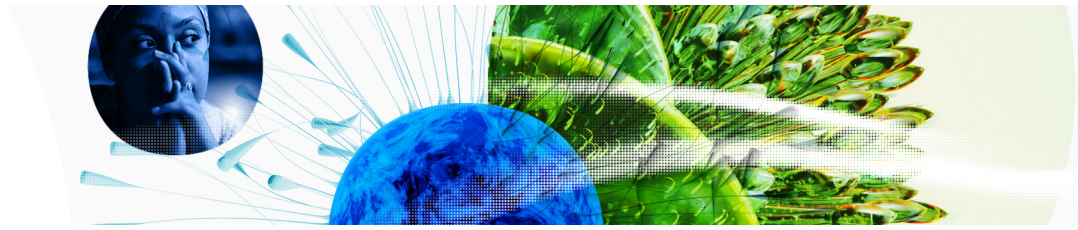
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
121	117	Low	SSA	47.3	132.0	3,018.5

	Score / Value	Rank	
Institutions	**50.5**	**64**	●◆
1.1 Institutional environment	**29.9**	**101**	
1.1.1 Operational stability for businesses*	38.9	96	
1.1.2 Government effectiveness*	21.0	101	
1.2 Regulatory environment	**64.1**	**63**	●◆
1.2.1 Regulatory quality*	29.7	98	
1.2.2 Rule of law*	29.4	84	
1.2.3 Cost of redundancy dismissal	8.7	20	●◆
1.3 Business environment	**57.4**	**[41]**	
1.3.1 Policies for doing business†	57.4	43	●◆
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**12.8**	**[124]**	
2.1 Education	**37.3**	**[107]**	
2.1.1 Expenditure on education, % GDP	2.6	112	◇
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	20.5	98	
2.2 Tertiary education	**0.5**	**[129]**	
2.2.1 Tertiary enrolment, % gross	5.1	125	○
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)	**0.6**	**107**	
2.3.1 Researchers, FTE/mn pop.	27.8	101	
2.3.2 Gross expenditure on R&D, % GDP	0.1	97	
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	**21.0**	**116**	
3.1 Information and communication technologies (ICTs)	**35.4**	**116**	
3.1.1 ICT access*	30.4	123	
3.1.2 ICT use*	25.2	120	
3.1.3 Government's online service*	46.6	98	
3.1.4 E-participation*	39.5	89	
3.2 General infrastructure	**13.4**	**113**	
3.2.1 Electricity output, GWh/mn pop.	97.3	121	○
3.2.2 Logistics performance*	n/a	n/a	
3.2.3 Gross capital formation, % GDP	28.0	31	●◆
3.3 Ecological sustainability	**14.2**	**106**	
3.3.1 GDP/unit of energy use	5.8	109	
3.3.2 Environmental performance*	28.6	89	
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.5	87	◆
Market sophistication	**11.9**	**128**	○
4.1 Credit	**3.4**	**126**	○
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	14.2	121	
4.1.3 Loans from microfinance institutions, % GDP	0.3	46	
4.2 Investment	**7.2**	**65**	
4.2.1 Market capitalization, % GDP	n/a	n/a	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	89	◆
4.2.3 VC recipients, deals/bn PPP$ GDP	0.1	42	●◆
4.2.4 VC received, value, % GDP	0.0	62	◆
4.3 Trade, diversification, and market scale	**25.2**	**121**	
4.3.1 Applied tariff rate, weighted avg., %	8.1	106	
4.3.2 Domestic industry diversification	n/a	n/a	
4.3.3 Domestic market scale, bn PPP$	132.0	80	

	Score / Value	Rank	
Business sophistication	**17.0**	**118**	
5.1 Knowledge workers	**11.7**	**117**	
5.1.1 Knowledge-intensive employment, %	4.5	120	○
5.1.2 Firms offering formal training, %	34.7	47	
5.1.3 GERD performed by business, % GDP	0.0	87	
5.1.4 GERD financed by business, %	3.4	85	
5.1.5 Females employed w/advanced degrees, %	3.3	101	◆
5.2 Innovation linkages	**17.0**	**90**	
5.2.1 University-industry R&D collaboration†	39.6	74	
5.2.2 State of cluster development†	30.9	92	
5.2.3 GERD financed by abroad, % GDP	0.1	43	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	113	◇
5.2.5 Patent families/bn PPP$ GDP	0.0	95	○◇
5.3 Knowledge absorption	**22.5**	**117**	
5.3.1 Intellectual property payments, % total trade	0.1	100	
5.3.2 High-tech imports, % total trade	6.6	95	
5.3.3 ICT services imports, % total trade	1.2	73	
5.3.4 FDI net inflows, % GDP	2.9	50	●◆
5.3.5 Research talent, % in businesses	4.0	72	
Knowledge and technology outputs	**12.8**	**105**	
6.1 Knowledge creation	**8.8**	**87**	
6.1.1 Patents by origin/bn PPP$ GDP	0.1	106	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	93	◆
6.1.3 Utility models by origin/bn PPP$ GDP	0.2	44	●◆
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	10.3	76	◆
6.2 Knowledge impact	**17.0**	**117**	
6.2.1 Labor productivity growth, %	0.6	77	
6.2.2 Unicorn valuation, % GDP	0.0	48	○◇
6.2.3 Software spending, % GDP	0.0	126	○
6.2.4 High-tech manufacturing, %	n/a	n/a	
6.3 Knowledge diffusion	**12.6**	**96**	◆
6.3.1 Intellectual property receipts, % total trade	0.1	52	●◆
6.3.2 Production and export complexity	42.7	86	◆
6.3.3 High-tech exports, % total trade	0.2	113	
6.3.4 ICT services exports, % total trade	1.3	77	
6.3.5 ISO 9001 quality/bn PPP$ GDP	1.4	96	◆
Creative outputs	**5.8**	**122**	
7.1 Intangible assets	**6.4**	**116**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	14.7	100	
7.1.3 Global brand value, top 5,000	0.0	74	○◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.4	86	
7.2 Creative goods and services	**0.6**	**[120]**	
7.2.1 Cultural and creative services exports, % total trade	0.0	94	
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	0.1	105	
7.3 Online creativity	**10.1**	**114**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.2	117	
7.3.2 Country-code TLDs/th pop. 15-69	0.1	122	
7.3.3 GitHub commits/mn pop. 15-69	1.3	110	
7.3.4 Mobile app creation/bn PPP$ GDP	38.8	114	

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

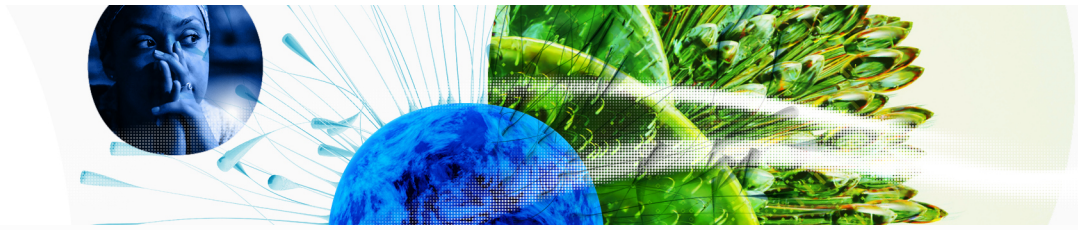
The following tables list indicators that are either missing or outdated for Uganda.

> Uganda has missing data for fourteen indicators and outdated data for twenty four indicators.

> Missing data for Uganda

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
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
2.2.2	Graduates in science and engineering, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	n/a	2020	UNESCO Institute for Statistics
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 ÔÇô The Logistics Performance Index and its Indicators.
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
4.3.2	Domestic industry diversification	n/a	2020	United Nations Industrial Development Organization
6.2.4	High-tech manufacturing, %	n/a	2020	United Nations Industrial Development Organization
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
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

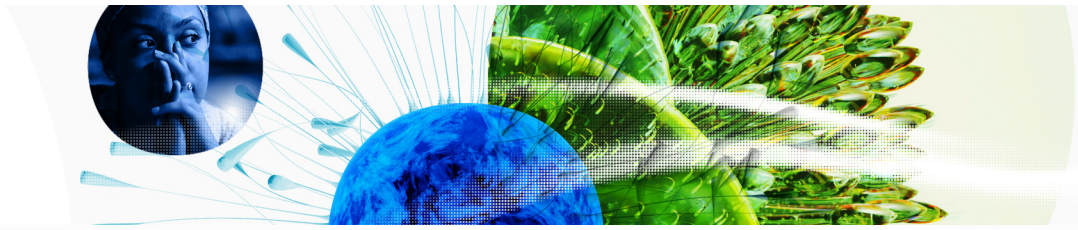
Global Innovation Index 2023



> Outdated data for Uganda

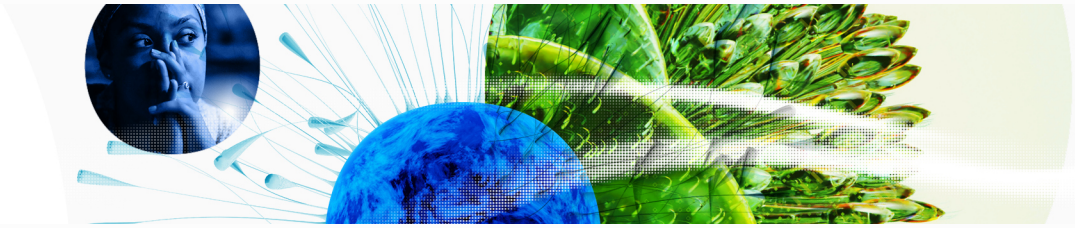
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2020	2022	World Economic Forum, Executive Opinion Survey (EOS)
2.1.5	Pupil-teacher ratio, secondary	2017	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour Organization
5.2.1	University-industry R&D collaboration	2020	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2020	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	GERD financed by abroad, % GDP	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund
5.3.2	High-tech imports, % total trade	2020	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
5.3.5	Research talent, % in businesses	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.1	Patents by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund

Global Innovation Index 2023



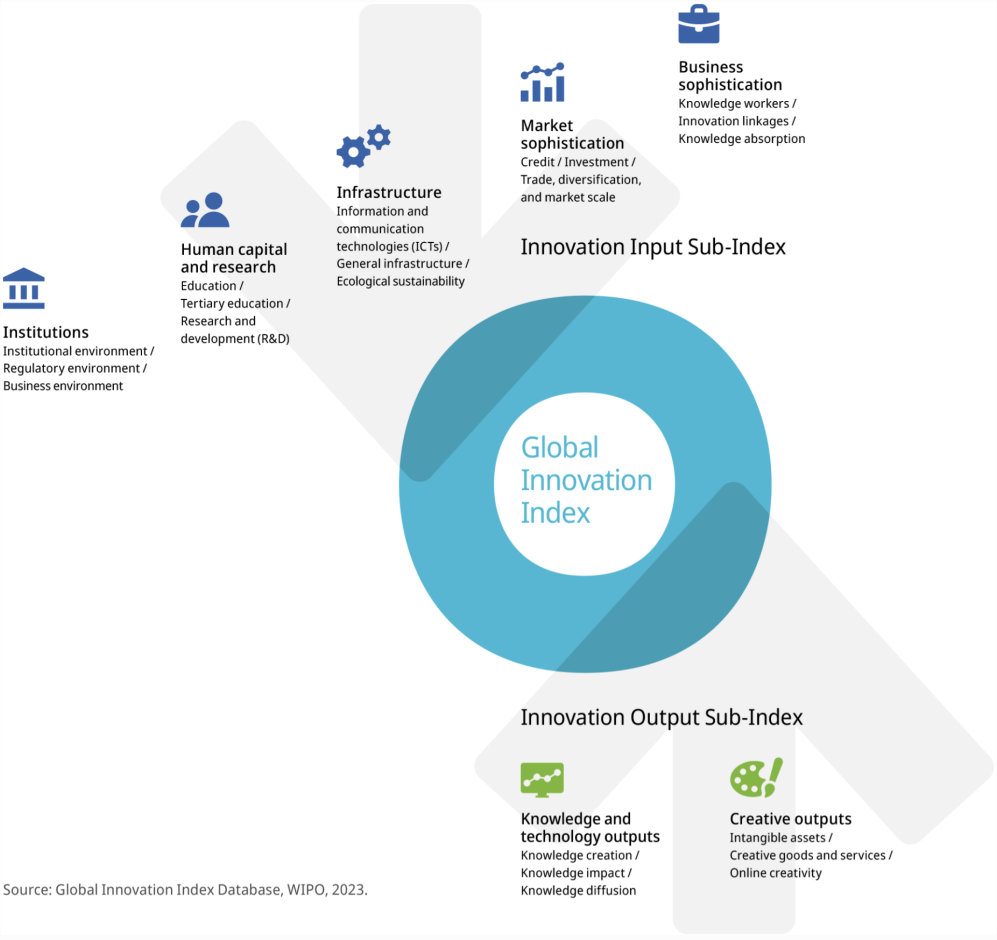
Code	Indicator name	Economy Year	Model Year	Source
6.1.3	Utility models by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
6.3.3	High-tech exports, % total trade	2020	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development; Trade Data Monitor.
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
7.2.4	Creative goods exports, % total trade	2020	2021	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development

Global Innovation Index 2023



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, 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.