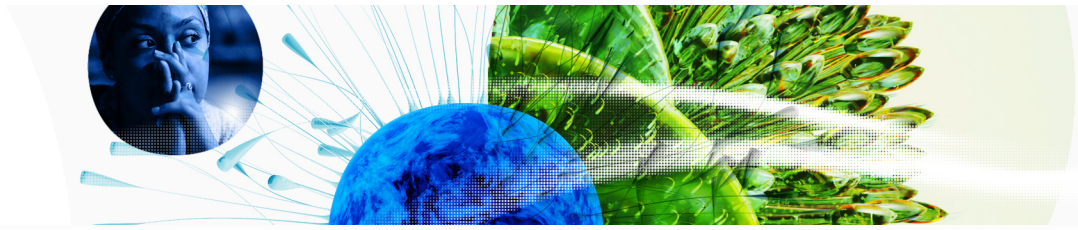
Global Innovation Index 2023



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**.

United Republic of Tanzania ranking in the Global Innovation Index 2023

> United Republic of Tanzania ranks 113rd among the 132 economies featured in the GII 2023.

> United Republic of Tanzania ranks 29th among the 37 lower-middle-income group economies.

> United Republic of Tanzania ranks 13th among the 28 economies in Sub-Saharan Africa.

> United Republic of Tanzania GII Ranking (2020-2023)

The table shows the rankings of United Republic of Tanzania 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 United Republic of Tanzania in the GII 2023 is between ranks 110 and 120.

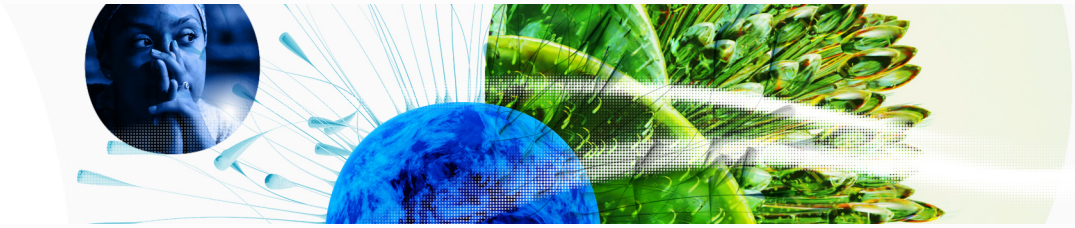
	GII Position	Innovation Inputs	Innovation Outputs
2020	88th	112nd	67th
2021	90th	120th	65th
2022	103rd	100th	99th
2023	113rd	105th	123rd

United Republic of Tanzania performs worse in innovation outputs than innovation inputs in 2023.

This year United Republic of Tanzania ranks 105th in innovation inputs. This position is lower than last year.

United Republic of Tanzania ranks 123rd in innovation outputs. This position is lower than last year.

Global Innovation Index 2023

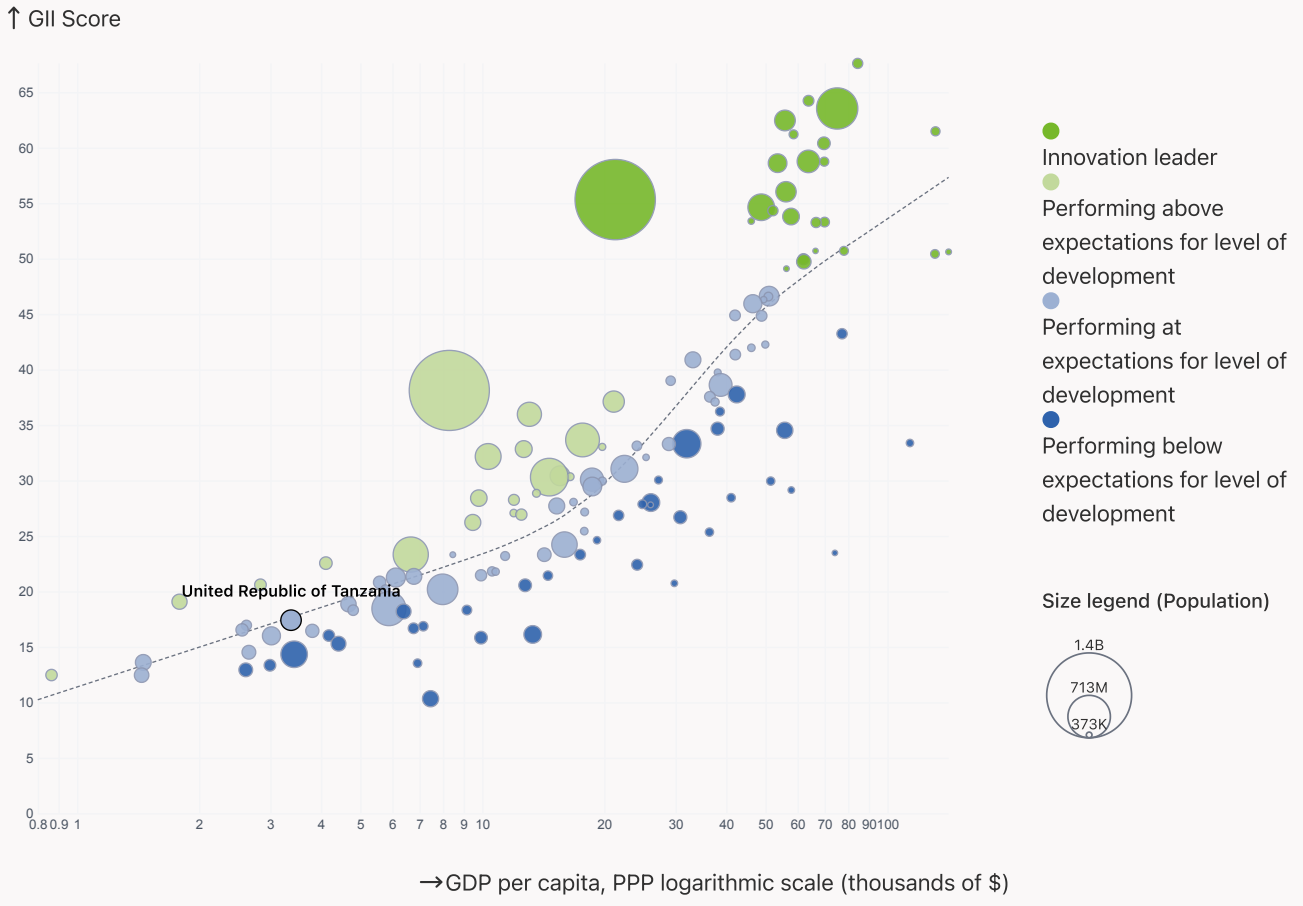


→ Expected vs. observed innovation performance

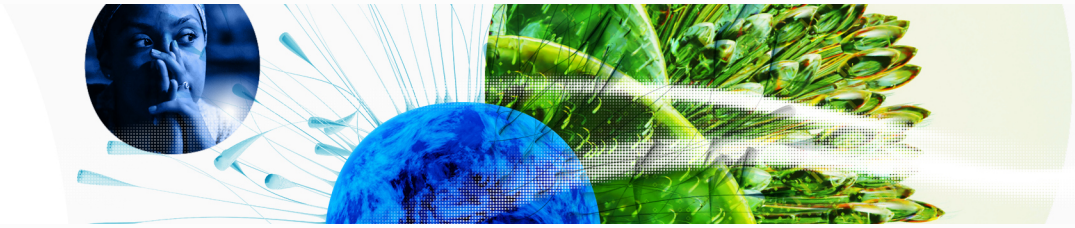
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

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

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

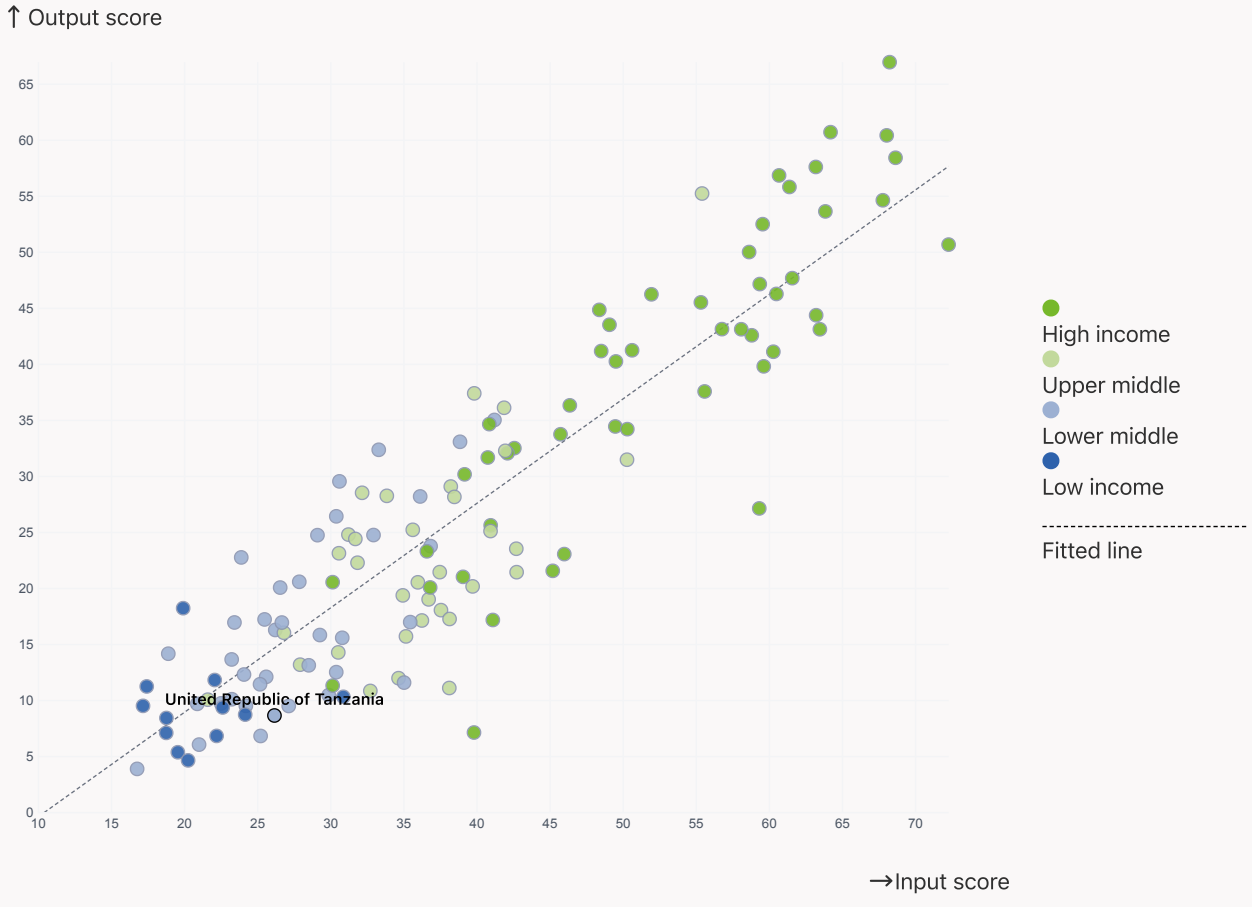


→ Effectively translating innovation investments into innovation outputs

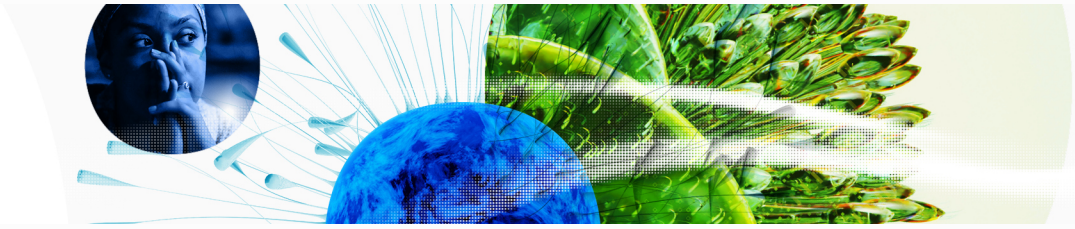
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> United Republic of Tanzania produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

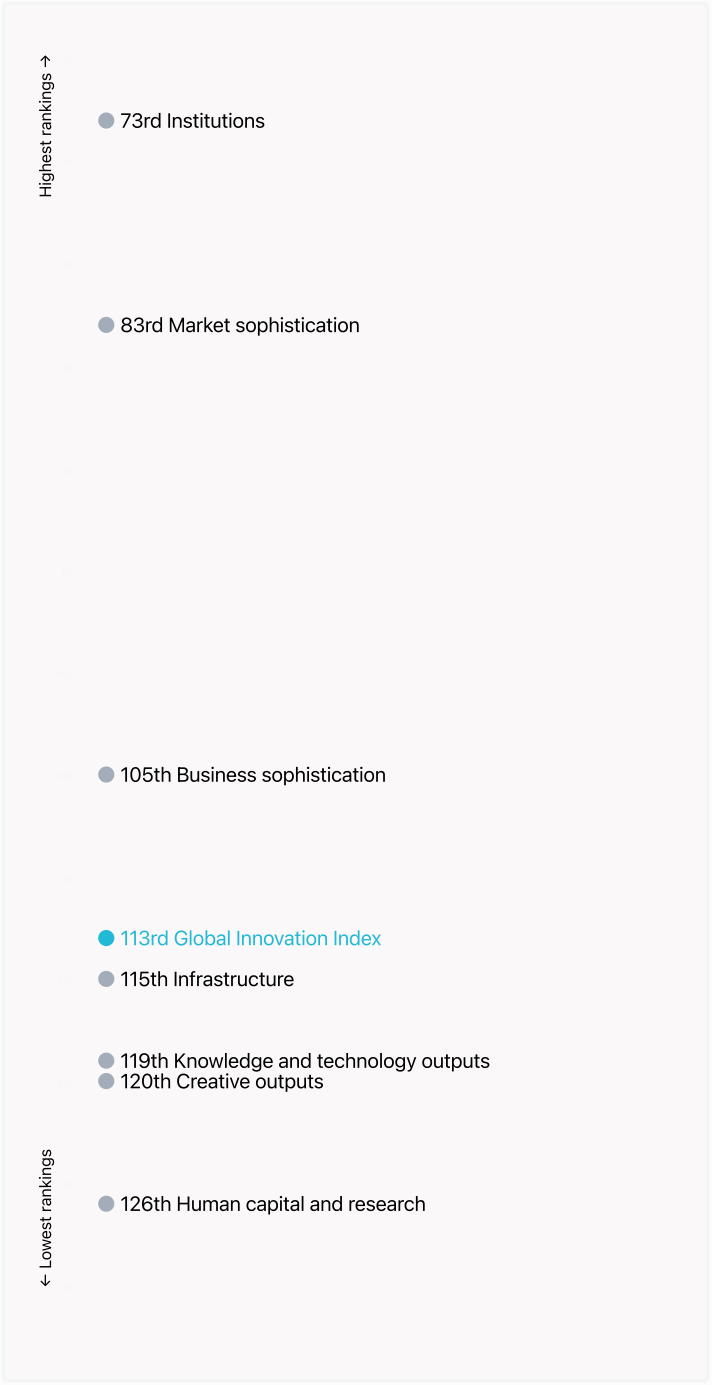


Global Innovation Index 2023



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



> Highest rankings

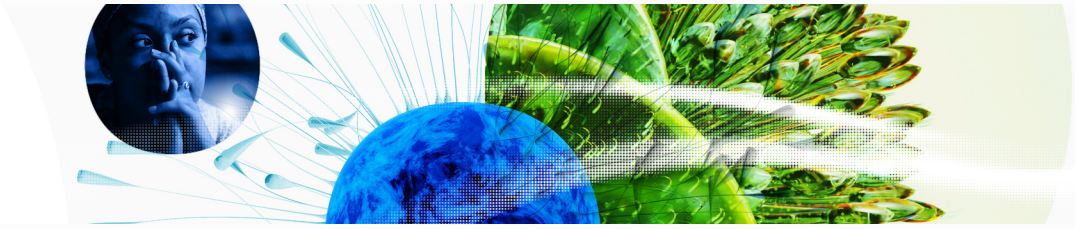
United Republic of Tanzania ranks highest in Institutions (73rd), Market sophistication (83rd) and Business sophistication (105th).

> Lowest rankings

United Republic of Tanzania ranks lowest in Human capital and research (126th), Creative outputs (120th) and Knowledge and technology outputs (119th).

The full WIPO Intellectual Property Statistics profile for United Republic of Tanzania can be found on this link.

Global Innovation Index 2023



Benchmark of United Republic of Tanzania against other country groupings for each of the seven areas of the GII Index

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

> Lower-Middle-Income economies

United Republic of Tanzania performs below the lower-middle-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Human capital and research, Infrastructure.

> Sub-Saharan Africa

United Republic of Tanzania performs above the regional average in Business sophistication, Market sophistication, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Lower middle income | Score: 17.21
- Sub-Saharan Africa | Score: 12.16
- United Republic of Tanzania | Score: 10.9(

Creative outputs

- Top 10 | 56.09
- Lower middle income | 16.35
- Sub-Saharan Africa | 10.36
- United Republic of Tanzania | 6.32

Business sophistication

- Top 10 | 64.39
- Lower middle income | 22.71
- United Republic of Tanzania | 20.5
- Sub-Saharan Africa | 19.85

Market sophistication

- Top 10 | 61.93
- United Republic of Tanzania | 30.3
- Lower middle income | 28.01
- Sub-Saharan Africa | 20.00

Human capital and research

- Top 10 | 60.28
- Lower middle income | 21.73
- Sub-Saharan Africa | 17.80
- United Republic of Tanzania | 11.0(

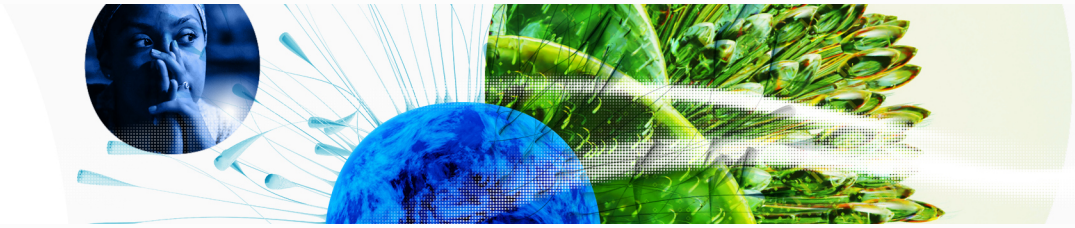
Infrastructure

- Top 10 | 62.83
- Lower middle income | 27.83
- Sub-Saharan Africa | 23.36
- United Republic of Tanzania | 21.3

Institutions

- Top 10 | 79.85
- United Republic of Tanzania | 47.7
- Sub-Saharan Africa | 43.27
- Lower middle income | 39.43

Global Innovation Index 2023



→ Innovation strengths and weaknesses in United Republic of Tanzania

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

> United Republic of Tanzania's main innovation strengths are **Gross capital formation, % GDP** (rank 10), **Labor productivity growth, %** (rank 17) and **Cost of redundancy dismissal** (rank 25).

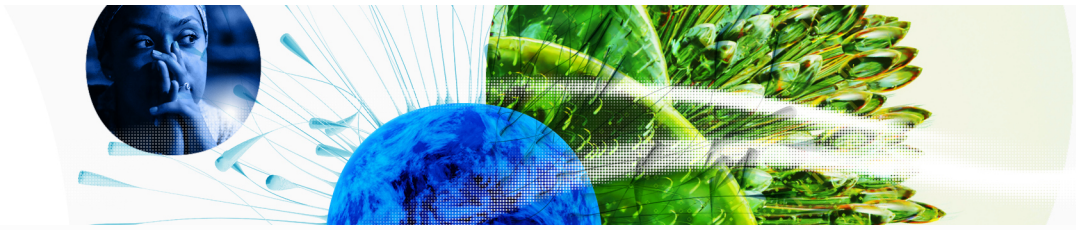
Strengths

Rank	Code	Indicator name
10	3.2.3	Gross capital formation, % GDP
17	6.2.1	Labor productivity growth, %
25	1.2.3	Cost of redundancy dismissal
37	5.2.1	University-industry R&D collaboration
44	5.2.2	State of cluster development
54	1.3.1	Policies for doing business
68	4.3.3	Domestic market scale, bn PPP$

Weaknesses

Rank	Code	Indicator name
129	6.2.3	Software spending, % GDP
127	5.1.5	Females employed w/advanced degrees, %
125	5.1.1	Knowledge-intensive employment, %
111	2.2.2	Graduates in science and engineering, %
101	6.1.2	PCT patents by origin/bn PPP$ GDP
95	5.2.5	Patent families/bn PPP$ GDP
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$

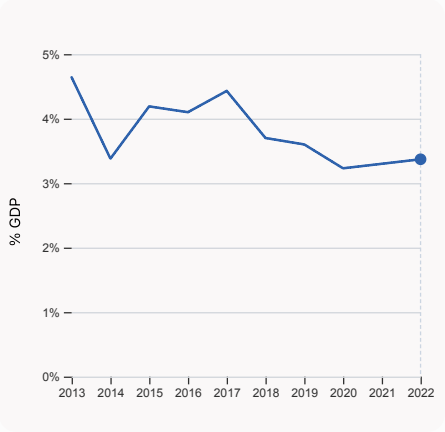
Global Innovation Index 2023



→ United Republic of Tanzania's innovation system

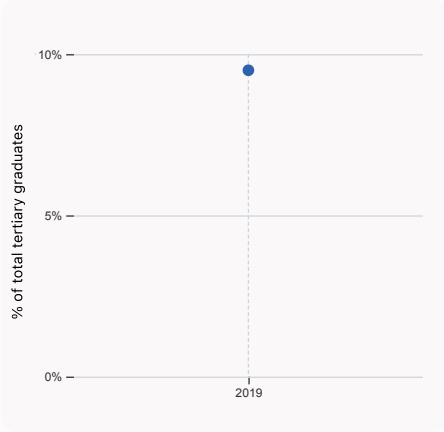
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in United Republic of Tanzania



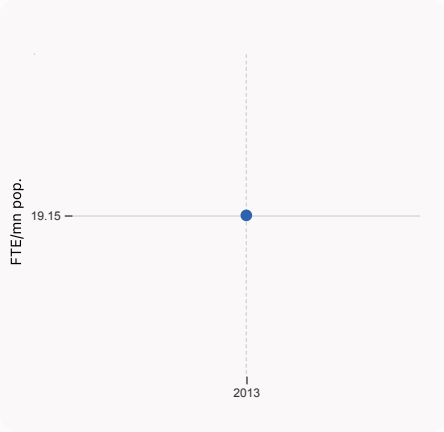
2.1.1 Expenditure on education, % GDP

was equal to 3.37% GDP in 2022, up by 0.07 percentage points from the year prior – and equivalent to an indicator rank of 95.



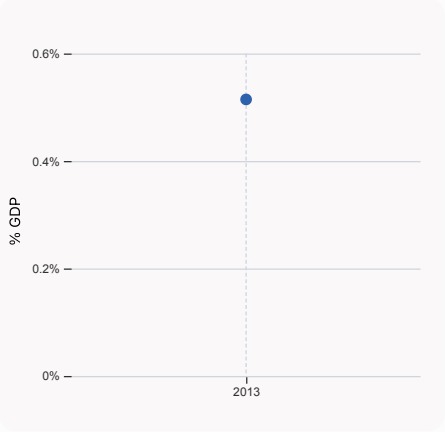
2.2.2 Graduates in science and engineering, %

was equal to 9.5 % of total tertiary graduates in 2019, equivalent to an indicator rank of 111.



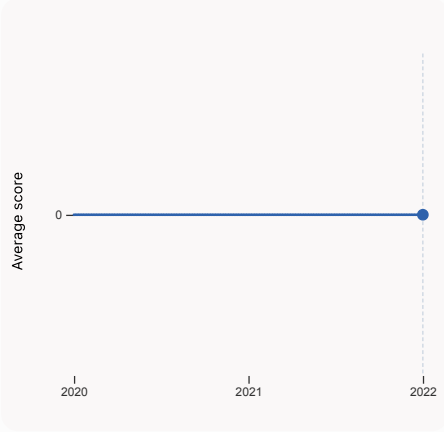
2.3.1 Researchers, FTE/mn pop.

was equal to 19.15 FTE/mn pop. in 2013, equivalent to an indicator rank of 104.



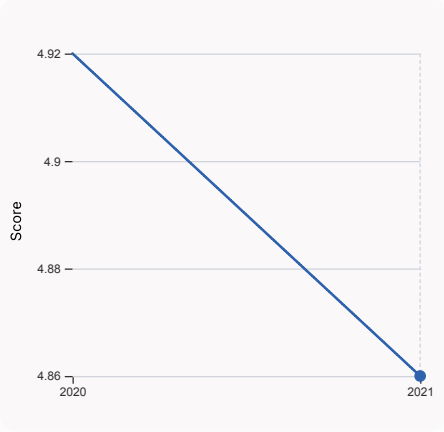
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.515 % GDP in 2013, equivalent to an indicator rank of 60.



2.3.4 QS university ranking, top 3

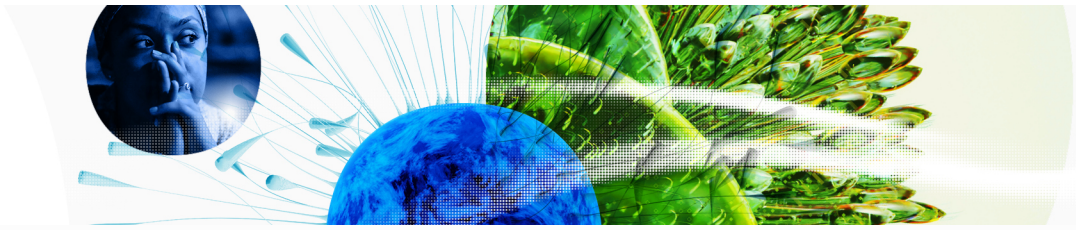
was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.

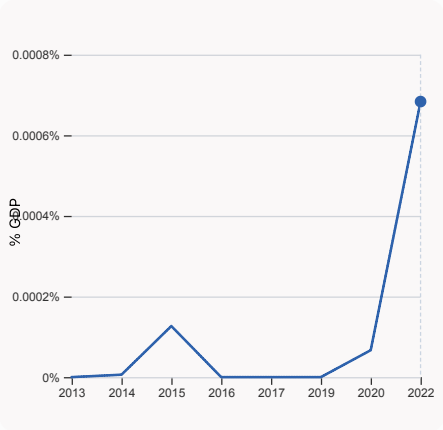


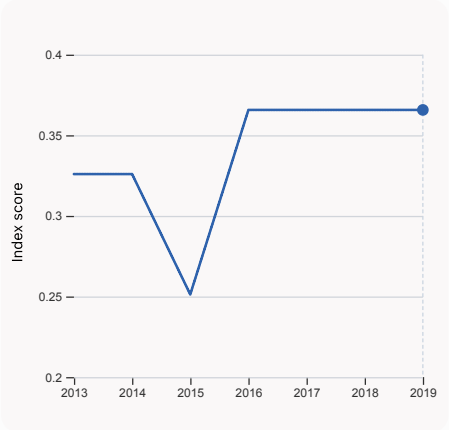
3.1.1 ICT access

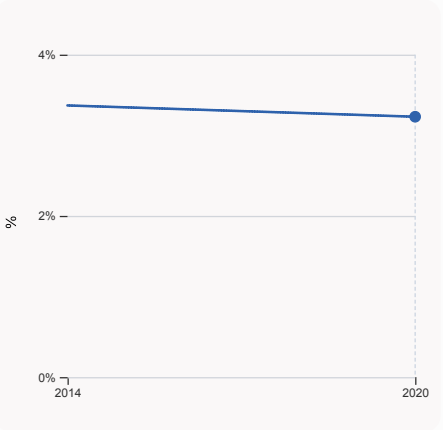
was equal to a score of 4.86 in 2021, down by 1.22% from the year prior – and equivalent to an indicator rank of 125.

Global Innovation Index 2023









4.2.4 VC received, value, % GDP

was equal to 0.00068% GDP in 2022, up by 0.00062 percentage points from the year prior – and equivalent to an indicator rank of 67.

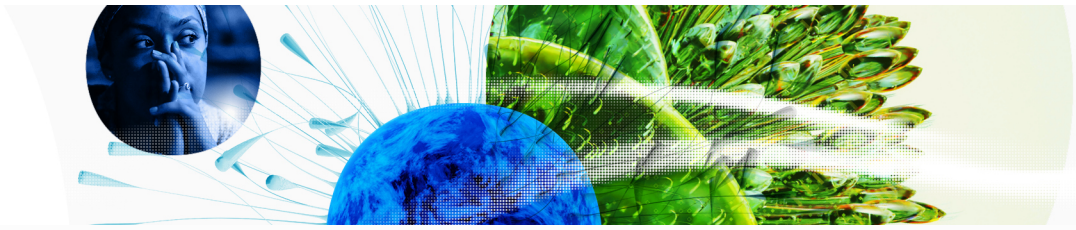
4.3.2 Domestic industry diversification

was equal to an index score of 0.366 in 2019, down by 0.000017% from the year prior – and equivalent to an indicator rank of 101.

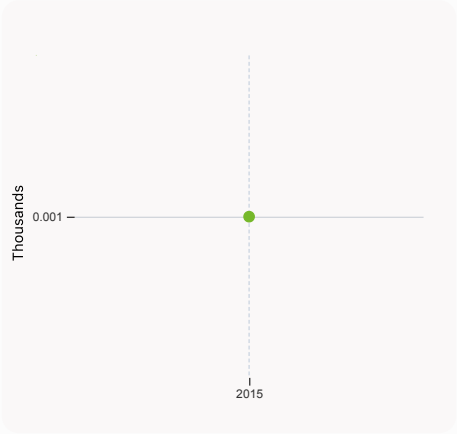
5.1.1 Knowledge-intensive employment, %

was equal to 3.23% in 2020, down by 0.14 percentage points from the year prior – and equivalent to an indicator rank of 125.

Global Innovation Index 2023

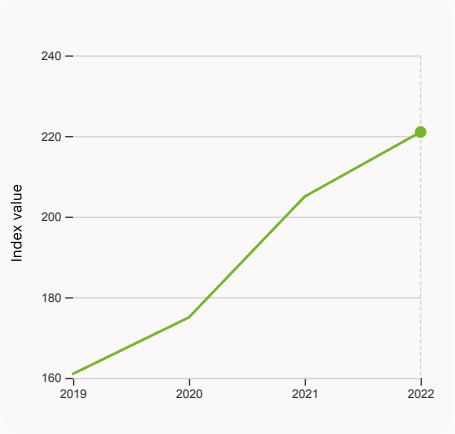


> Innovation outputs in United Republic of Tanzania



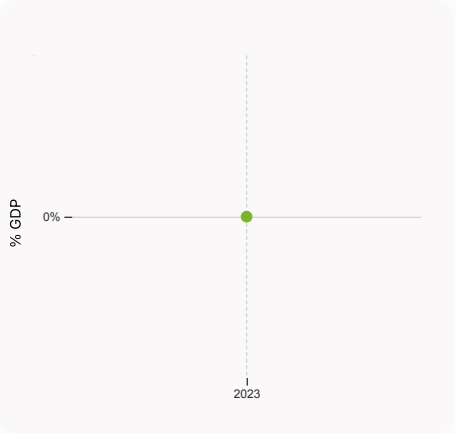
6.1.1 Patents by origin

was equal to 0.001 Thousands in 2015 – and equivalent to an indicator rank of 131.



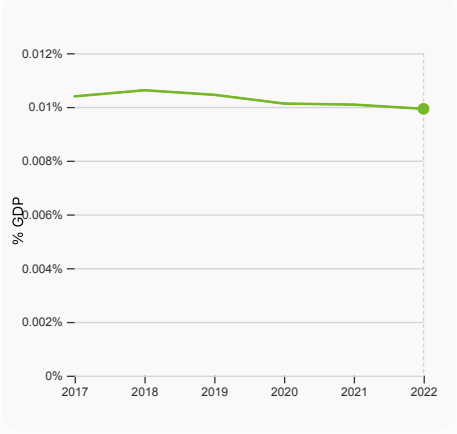
6.1.5 Citable documents H-index

was equal to an index value of 221 in 2022, up by 7.8% from the year prior – and equivalent to an indicator rank of 79.



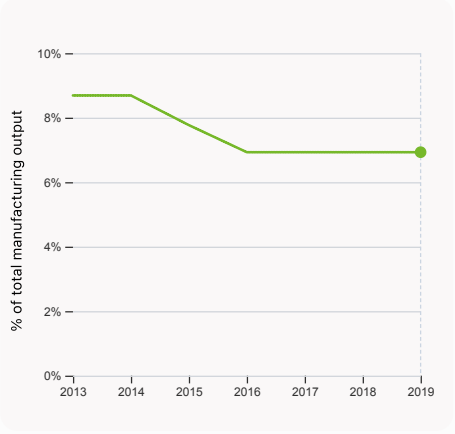
6.2.2 Unicorn valuation, % GDP

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



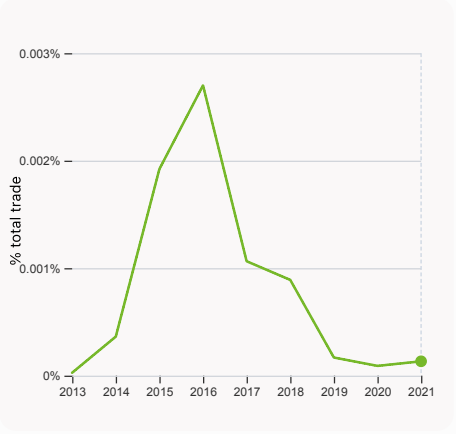
6.2.3 Software spending, % GDP

was equal to 0.01% GDP in 2022, down by 0.00016 percentage points from the year prior – and equivalent to an indicator rank of 129.



6.2.4 High-tech manufacturing, %

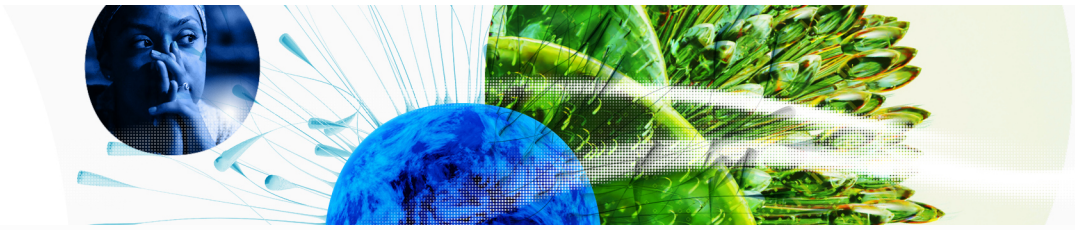
was equal to 6.93% of total manufacturing output in 2019, up by with no change from the year prior – and equivalent to an indicator rank of 98.

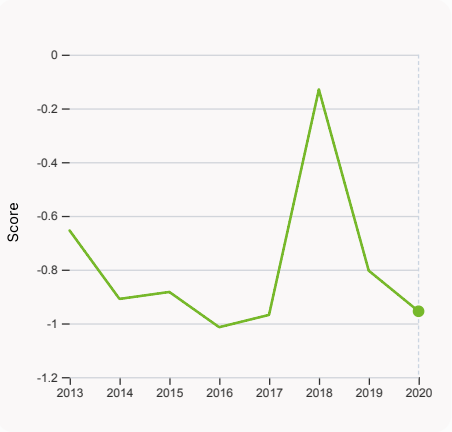


6.3.1 Intellectual property receipts, % total trade

was equal to 0% total trade in 2021, up by 0.000043 percentage points from the year prior – and equivalent to an indicator rank of 110.

Global Innovation Index 2023



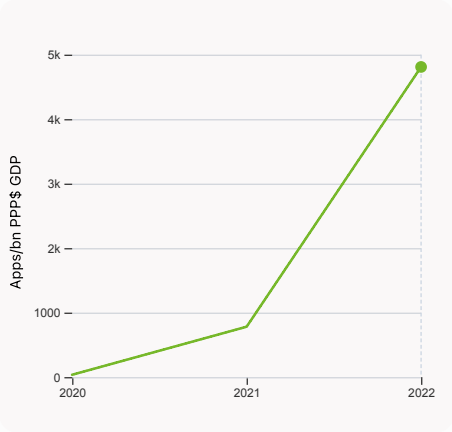


6.3.2 Production and export complexity

was equal to a score of -0.955 in 2020, down by 18.82% from the year prior – and equivalent to an indicator rank of 107.

6.3.3 High-tech exports

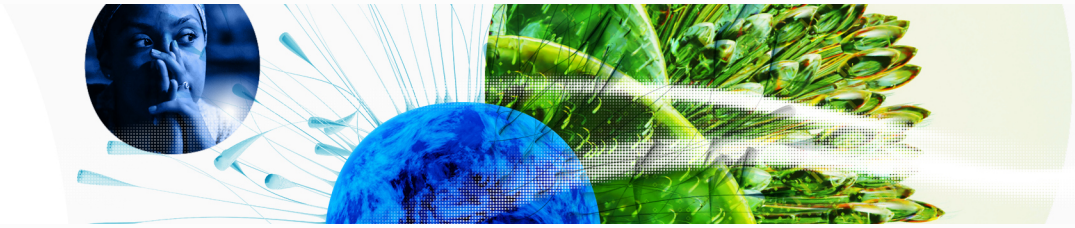
was equal to 24,767,800 USD in 2021, up by 13.33% from the year prior – and equivalent to an indicator rank of 105.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 4,809.35 Apps/bn PPP$ GDP in 2022, up by 515.46% from the year prior – and equivalent to an indicator rank of 110.

Global Innovation Index 2023



United Republic of Tanzania

GII 2023 rank **113**

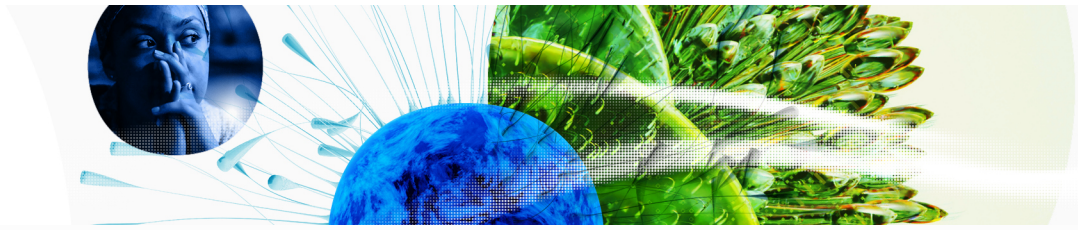
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
123	105	Lower middle	SSA	65.5	207.6	3,374.3

	Score / Value	Rank
Institutions	**47.8**	**73**
1.1 Institutional environment	**28.4**	**103**
1.1.1 Operational stability for businesses*	37.5	101
1.1.2 Government effectiveness*	19.3	109
1.2 Regulatory environment	**61.2**	**69**
1.2.1 Regulatory quality*	25.8	108
1.2.2 Rule of law*	24.4	95
1.2.3 Cost of redundancy dismissal	9.3	25 ●
1.3 Business environment	**53.7**	**50**
1.3.1 Policies for doing business†	53.7	54 ●
1.3.2 Entrepreneurship policies and culture†	n/a	n/a
Human capital and research	**11.0**	**126** ◇
2.1 Education	**28.7**	**123**
2.1.1 Expenditure on education, % GDP	3.4	95
2.1.2 Government funding/pupil, secondary, % GDP/cap	15.2	74
2.1.3 School life expectancy, years	8.7	109 ◇
2.1.4 PISA scales in reading, maths and science	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	23.3	107
2.2 Tertiary education	**2.0**	**125** ◇
2.2.1 Tertiary enrolment, % gross	7.8	118 ◇
2.2.2 Graduates in science and engineering, %	9.5	111 ○ ◇
2.2.3 Tertiary inbound mobility, %	n/a	n/a
2.3 Research and development (R&D)	**2.3**	**89**
2.3.1 Researchers, FTE/mn pop.	19.2	104
2.3.2 Gross expenditure on R&D, % GDP	0.5	60
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	**21.4**	**115**
3.1 Information and communication technologies (ICTs)	**29.2**	**121** ◇
3.1.1 ICT access*	22.2	125 ◇
3.1.2 ICT use*	27.6	119 ◇
3.1.3 Government's online service*	41.4	107
3.1.4 E-participation*	25.6	111
3.2 General infrastructure	**21.3**	**85**
3.2.1 Electricity output, GWh/mn pop.	133.1	120
3.2.2 Logistics performance*	n/a	n/a
3.2.3 Gross capital formation, % GDP	37.6	10 ●
3.3 Ecological sustainability	**13.6**	**109**
3.3.1 GDP/unit of energy use	6.7	101
3.3.2 Environmental performance*	25.9	96
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.3	105
Market sophistication	**30.3**	**83**
4.1 Credit	**51.5**	**26**
4.1.1 Finance for startups and scaleups†	n/a	n/a
4.1.2 Domestic credit to private sector, % GDP	13.2	123
4.1.3 Loans from microfinance institutions, % GDP	14.5	1
4.2 Investment	**3.8**	**87**
4.2.1 Market capitalization, % GDP	10.4	71
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	91 ◇
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	69
4.2.4 VC received, value, % GDP	0.0	67
4.3 Trade, diversification, and market scale	**35.6**	**112**
4.3.1 Applied tariff rate, weighted avg., %	8.9	111
4.3.2 Domestic industry diversification	60.2	101
4.3.3 Domestic market scale, bn PPP$	207.6	68 ●

	Score / Value	Rank
Business sophistication	**20.5**	**105**
5.1 Knowledge workers	**11.9**	**116**
5.1.1 Knowledge-intensive employment, %	3.2	125 ○ ◇
5.1.2 Firms offering formal training, %	30.7	55
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, %	0.2	127 ○ ◇
5.2 Innovation linkages	**28.6**	**44**
5.2.1 University-industry R&D collaboration†	58.6	37 ●
5.2.2 State of cluster development†	52.4	44 ●
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	95
5.2.5 Patent families/bn PPP$ GDP	0.0	95 ○ ◇
5.3 Knowledge absorption	**21.1**	**126**
5.3.1 Intellectual property payments, % total trade	0.0	107
5.3.2 High-tech imports, % total trade	6.8	92
5.3.3 ICT services imports, % total trade	0.2	126 ◇
5.3.4 FDI net inflows, % GDP	1.5	90
5.3.5 Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs	**10.9**	**119**
6.1 Knowledge creation	**4.9**	**115**
6.1.1 Patents by origin/bn PPP$ GDP	0.0	131
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	101 ○ ◇
6.1.3 Utility models by origin/bn PPP$ GDP	0.0	73
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	9.9	79
6.2 Knowledge impact	**19.7**	**106**
6.2.1 Labor productivity growth, %	2.9	17 ●
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.0	129 ○ ◇
6.2.4 High-tech manufacturing, %	6.9	98
6.3 Knowledge diffusion	**8.2**	**117**
6.3.1 Intellectual property receipts, % total trade	0.0	110
6.3.2 Production and export complexity	32.5	107
6.3.3 High-tech exports, % total trade	0.2	105
6.3.4 ICT services exports, % total trade	0.2	117
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.6	116
Creative outputs	**6.3**	**120**
7.1 Intangible assets	**6.8**	**115**
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
7.1.2 Trademarks by origin/bn PPP$ GDP	11.5	108
7.1.3 Global brand value, top 5,000	n/a	n/a
7.1.4 Industrial designs by origin/bn PPP$ GDP	n/a	n/a
7.2 Creative goods and services	**0.6**	**118**
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	0.1	107
7.3 Online creativity	**11.1**	**112**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.2	120
7.3.2 Country-code TLDs/th pop. 15-69	0.2	114
7.3.3 GitHub commits/mn pop. 15-69	0.3	124
7.3.4 Mobile app creation/bn PPP$ GDP	43.7	110

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

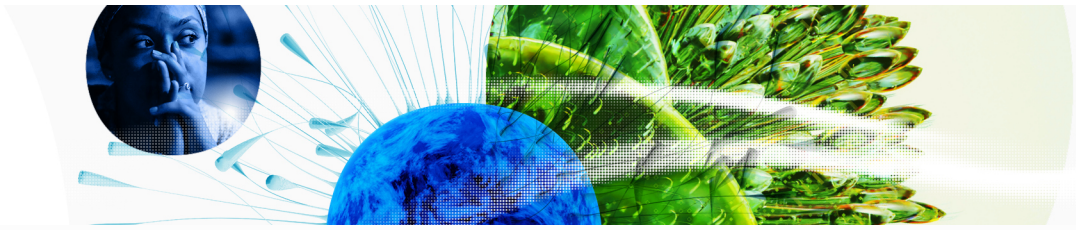
The following tables list indicators that are either missing or outdated for United Republic of Tanzania.

> United Republic of Tanzania has missing data for fifteen indicators and outdated data for fourteen indicators.

> Missing data for United Republic of Tanzania

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
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
5.1.3	GERD performed by business, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.1.3	Global brand value, top 5,000	n/a	2023	Brand Finance; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.2.1	Cultural and creative services exports, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development
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

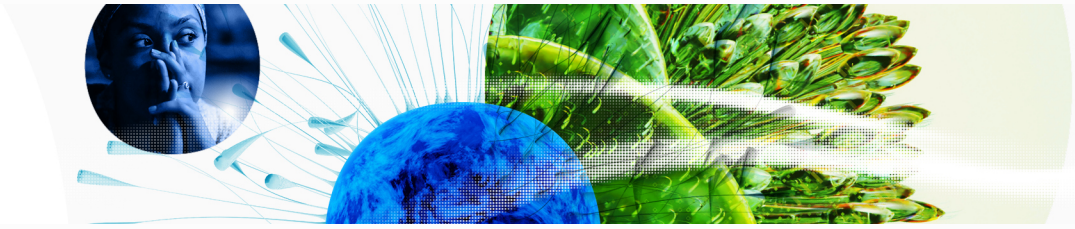
Global Innovation Index 2023



> Outdated data for United Republic of Tanzania

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2014	2019	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.3.1	Researchers, FTE/mn pop.	2013	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2013	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.3	Loans from microfinance institutions, % GDP	2014	2021	International Monetary Fund, Financial Access Survey (FAS)
4.3.2	Domestic industry diversification	2019	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2020	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2020	2022	International Labour Organization
6.1.1	Patents by origin/bn PPP$ GDP	2015	2021	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	2019	2020	United Nations Industrial Development Organization
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund

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.