Global Innovation Index 2021

UNITED REPUBLIC OF TANZANIA

90th Tanzania ranks 90th 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 Tanzania 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 Tanzania in the GII 2021 is between ranks 89 and 112.

Rankings for Tanzania (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	90	120	65
2020	88	112	67
2019	97	115	73

- Tanzania performs better in innovation outputs than innovation inputs in 2021.
- This year Tanzania ranks 120th in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Tanzania ranks 65th. This position is higher than both 2020 and 2019.

12th Tanzania ranks 12th among the 34 lower middle-income group economies.

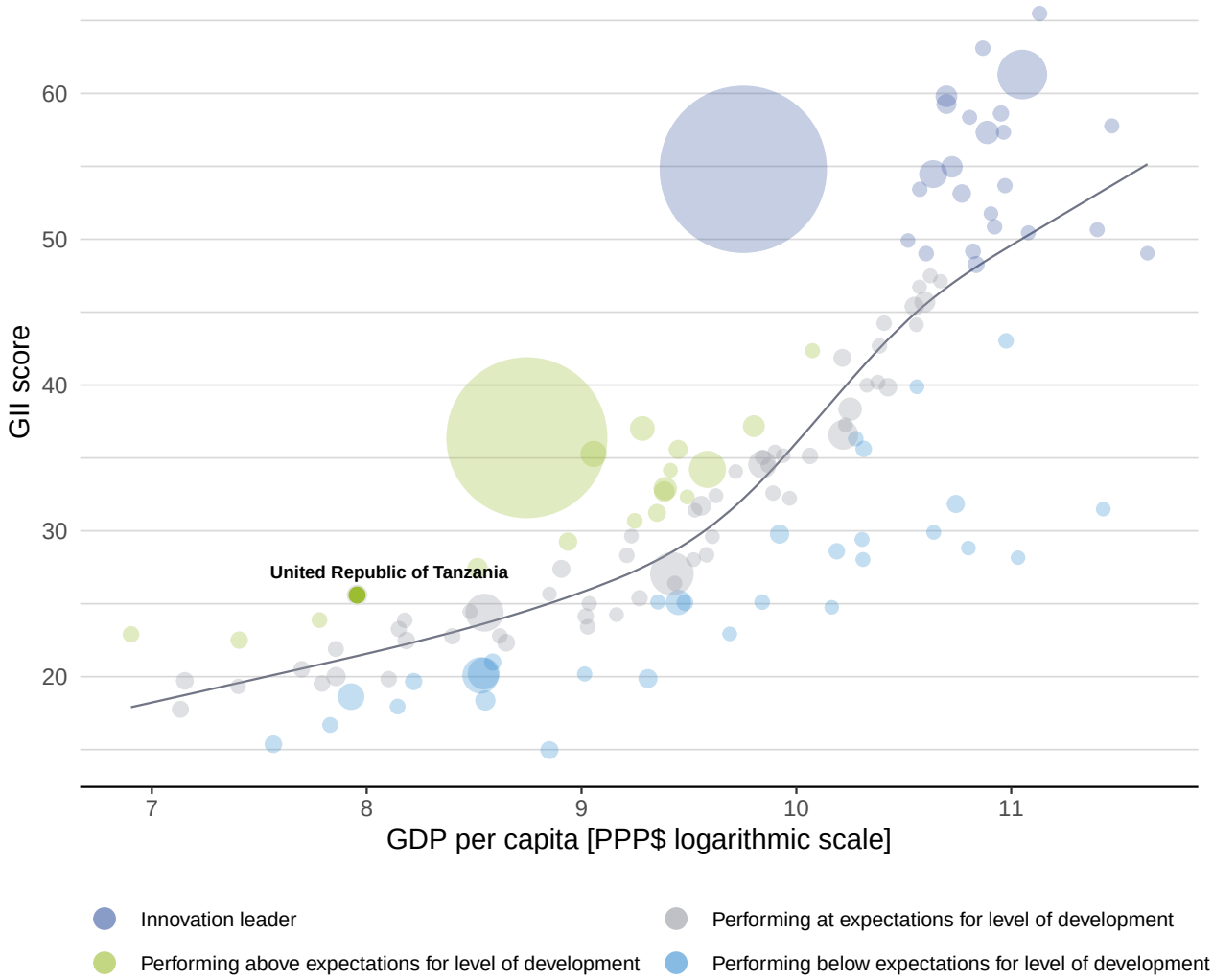
5th Tanzania ranks 5th among the 27 economies in Sub-Saharan Africa.

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, Tanzania's performance is above expectations for its level of development.

The positive relationship between innovation and development

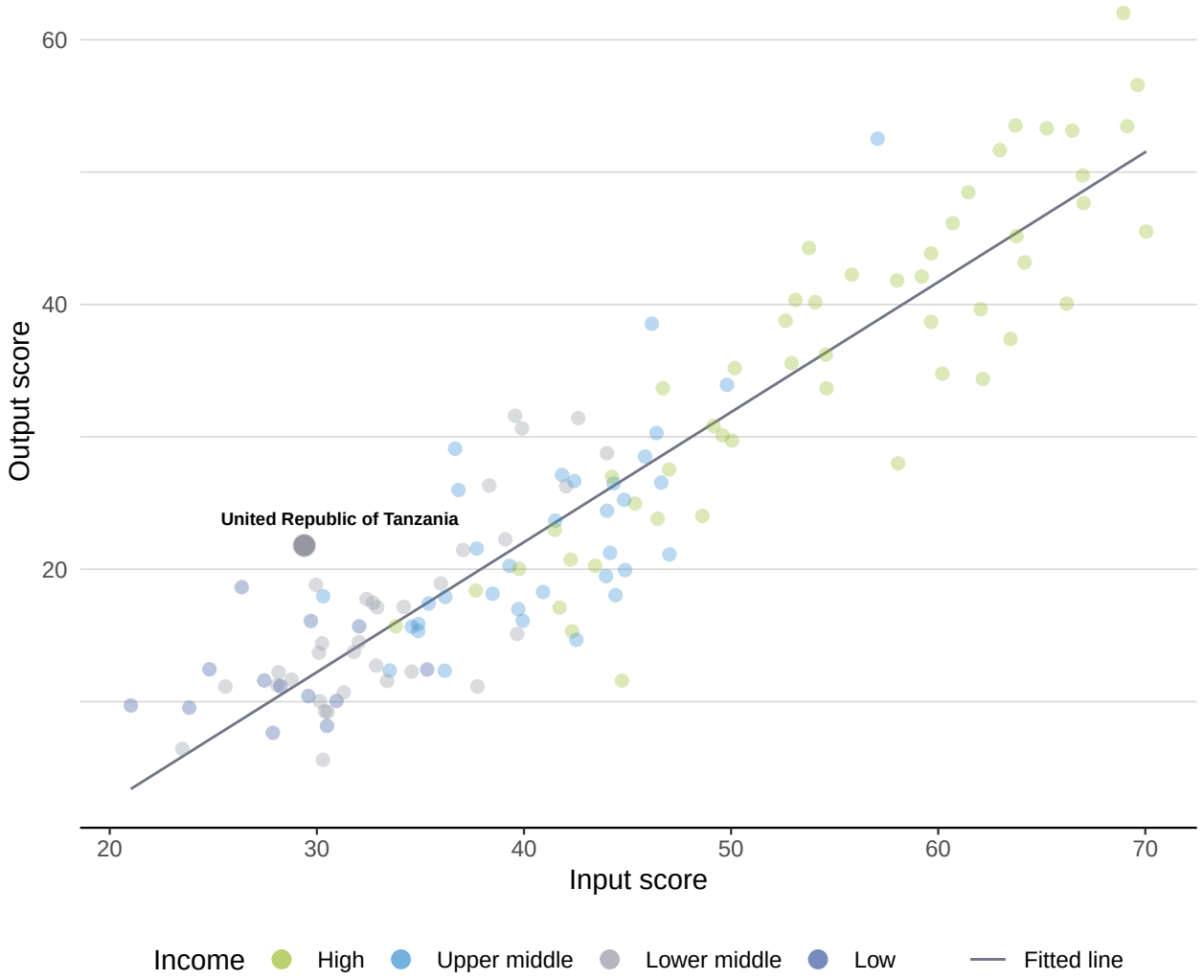


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Tanzania produces more 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 Tanzania

Lower middle-income group economies

Tanzania performs above the lower middle-income group average in two pillars, namely: Institutions; and, Creative outputs.

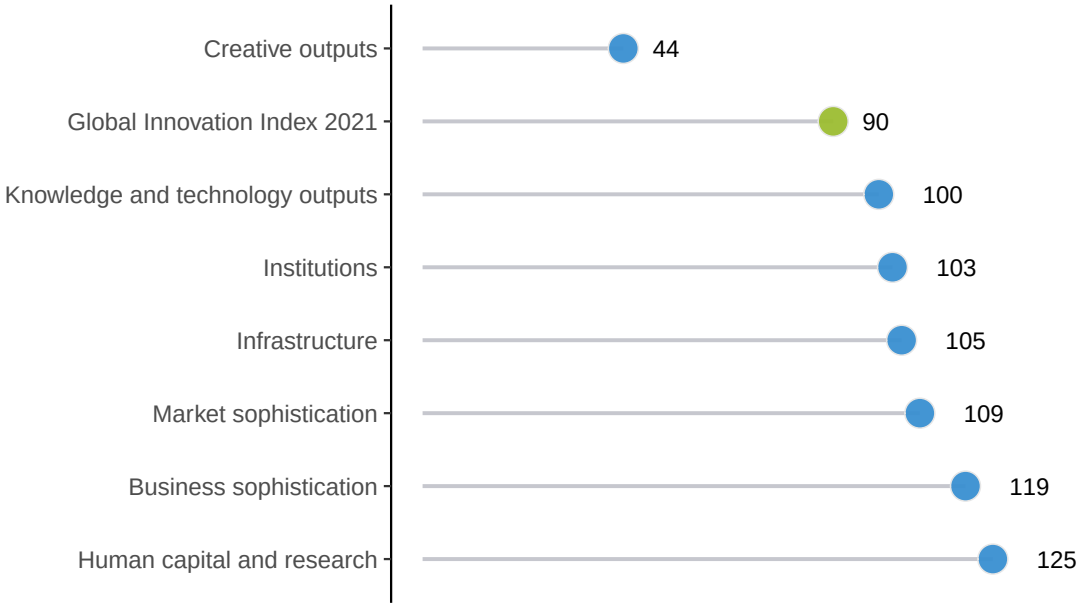
Sub-Saharan Africa

Tanzania performs above the regional average in three pillars, namely: Infrastructure; Knowledge and technology outputs; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Tanzania performs best in Creative outputs and its weakest performance is in Human capital and research.

The seven GII pillar ranks for Tanzania



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 Tanzania in the GII 2021.

Strengths and weaknesses for Tanzania

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.3	Cost of redudancy dismissal	25	2.2	Tertiary education	130
3.2	General infrastructure	38	2.2.1	Tertiary enrolment, % gross	127
3.2.3	Gross capital formation, % GDP	9	2.2.2	Graduates in science and engineering, %	109
5.2	Innovation linkages	59	2.3.3	Global corporate R&D investors, top 3, mn US$	41
5.2.1	University-industry R&D collaboration	46	2.3.4	QS university ranking, top 3	74
5.2.2	State of cluster development and depth	43	3.1.2	ICT use	130
5.2.3	GERD financed by abroad, % GDP	29	5.1.1	Knowledge-intensive employment, %	124
5.3.2	High-tech imports, % total trade	63	5.1.5	Females employed w/advanced degrees, %	122
6.2.1	Labor productivity growth, %	10	6.1.2	PCT patents by origin/bn PPP$ GDP	98
6.3.3	High-tech exports, % total trade	57	6.2.3	Software spending, % GDP	124
7.2.4	Printing and other media, % manufacturing	22	7.3	Online creativity	130
7.2.5	Creative goods exports, % total trade	25	7.3.3	Wikipedia edits/mn pop. 15–69	130

United Republic of Tanzania

GII 2021 rank **90**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
65	120	Lower middle	SSF	59.7	165.3	2,851	88

		Score/ Value	Rank	
Institutions		**52.7**	**103**	
1.1	**Political environment**	**38.0**	**122**	◇
1.1.1	Political and operational stability*	51.8	119	◇
1.1.2	Government effectiveness*	31.1	122	
1.2	**Regulatory environment**	**63.2**	**73**	◆
1.2.1	Regulatory quality*	26.7	108	
1.2.2	Rule of law*	31.5	102	
1.2.3	Cost of redundancy dismissal	9.3	25	● ◆
1.3	**Business environment**	**56.7**	**114**	
1.3.1	Ease of starting a business*	74.4	119	
1.3.2	Ease of resolving insolvency*	39.1	102	
Human capital and research		**10.9**	**125**	◇
2.1	**Education**	**29.1**	**117**	
2.1.1	Expenditure on education, % GDP	3.7	78	
2.1.2	Government funding/pupil, secondary, % GDP/cap ◴	14.9	76	
2.1.3	School life expectancy, years	9.1	111	◇
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	22.1	101	
2.2	**Tertiary education**	**1.0**	**130**	○ ◇
2.2.1	Tertiary enrolment, % gross	3.1	127	○ ◇
2.2.2	Graduates in science and engineering, %	9.5	109	○ ◇
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**2.6**	**90**	
2.3.1	Researchers, FTE/mn pop. ◴	19.2	105	
2.3.2	Gross expenditure on R&D, % GDP ◴	0.5	65	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	0.0	74	○ ◇
Infrastructure		**29.9**	**105**	
3.1	**Information and communication technologies (ICTs)**	**37.1**	**115**	
3.1.1	ICT access*	27.7	124	◇
3.1.2	ICT use*	9.6	130	○ ◇
3.1.3	Government's online service*	55.3	95	
3.1.4	E-participation*	56.0	93	
3.2	**General infrastructure**	**35.6**	**38**	● ◆
3.2.1	Electricity output, GWh/mn pop.	128.4	119	
3.2.2	Logistics performance*	n/a	n/a	
3.2.3	Gross capital formation, % GDP	38.1	9	● ◆
3.3	**Ecological sustainability**	**16.9**	**116**	
3.3.1	GDP/unit of energy use	8.0	91	
3.3.2	Environmental performance*	31.1	116	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	115	
Market sophistication		**37.5**	**109**	
4.1	**Credit**	**27.6**	**114**	
4.1.1	Ease of getting credit*	65.0	61	
4.1.2	Domestic credit to private sector, % GDP	12.1	124	
4.1.3	Microfinance gross loans, % GDP	0.1	55	
4.2	**Investment**	**27.4**	**[74]**	
4.2.1	Ease of protecting minority investors*	50.0	92	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	64	
4.3	**Trade, diversification, and market scale**	**57.6**	**103**	
4.3.1	Applied tariff rate, weighted avg., %	8.4	105	
4.3.2	Domestic industry diversification	67.0	100	
4.3.3	Domestic market scale, bn PPP$	165.3	70	

		Score/ Value	Rank	
Business sophistication		**16.0**	**119**	
5.1	**Knowledge workers**	**9.8**	**124**	◇
5.1.1	Knowledge-intensive employment, % ◴	3.4	124	○ ◇
5.1.2	Firms offering formal training, % ◴	30.7	50	
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, % ◴	0.1	101	◇
5.1.5	Females employed w/advanced degrees, % ◴	0.4	122	○
5.2	**Innovation linkages**	**22.1**	**59**	●
5.2.1	University-industry R&D collaboration†	47.2	46	● ◆
5.2.2	State of cluster development and depth†	50.7	43	●
5.2.3	GERD financed by abroad, % GDP ◴	0.2	29	● ◆
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	104	
5.2.5	Patent families/bn PPP$ GDP	0.0	96	
5.3	**Knowledge absorption**	**16.2**	**111**	
5.3.1	Intellectual property payments, % total trade	0.1	112	
5.3.2	High-tech imports, % total trade ◴	7.8	63	●
5.3.3	ICT services imports, % total trade	0.2	127	◇
5.3.4	FDI net inflows, % GDP	1.8	84	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**12.2**	**100**	
6.1	**Knowledge creation**	**5.5**	**109**	
6.1.1	Patents by origin/bn PPP$ GDP ◴	0.2	99	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	98	○ ◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	74	
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.0	91	
6.1.5	Citable documents H-index	10.0	79	
6.2	**Knowledge impact**	**20.7**	**101**	
6.2.1	Labor productivity growth, %	4.1	10	●
6.2.2	New businesses/th pop. 15–64	0.2	112	
6.2.3	Software spending, % GDP	0.0	124	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.5	121	
6.2.5	High-tech manufacturing, %	8.7	92	
6.3	**Knowledge diffusion**	**10.4**	**94**	
6.3.1	Intellectual property receipts, % total trade	0.0	109	
6.3.2	Production and export complexity	41.7	67	
6.3.3	High-tech exports, % total trade ◴	2.0	57	●
6.3.4	ICT services exports, % total trade	0.2	120	
Creative outputs		**31.4**	**[44]**	
7.1	**Intangible assets**	**47.2**	**[22]**	
7.1.1	Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.2	Global brand value, top 5,000, % GDP	n/a	n/a	
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	n/a	
7.1.4	ICTs and organizational model creation†	47.2	94	
7.2	**Creative goods and services**	**28.7**	**[28]**	
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	Printing and other media, % manufacturing ◴	1.7	22	●
7.2.5	Creative goods exports, % total trade ◴	2.3	25	●
7.3	**Online creativity**	**2.5**	**130**	○ ◇
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	111	
7.3.3	Wikipedia edits/mn pop. 15–69	12.4	130	○ ◇
7.3.4	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. ◴ 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 Tanzania.

Missing data for Tanzania

Code	Indicator name	Economy year	Model year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
3.2.2	Logistics performance	n/a	2018	World Bank
4.2.2	Market capitalization, % GDP	n/a	2019	World Federation of Exchanges
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
5.3.5	Research talent, % in businesses	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
7.1.1	Trademarks by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization
7.1.2	Global brand value, top 5,000, % GDP	n/a	2020	Brand Finance
7.1.3	Industrial designs by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization
7.2.1	Cultural and creative services exports, % 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
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC
7.3.4	Mobile app creation/bn PPP$ GDP	n/a	2020	App Annie

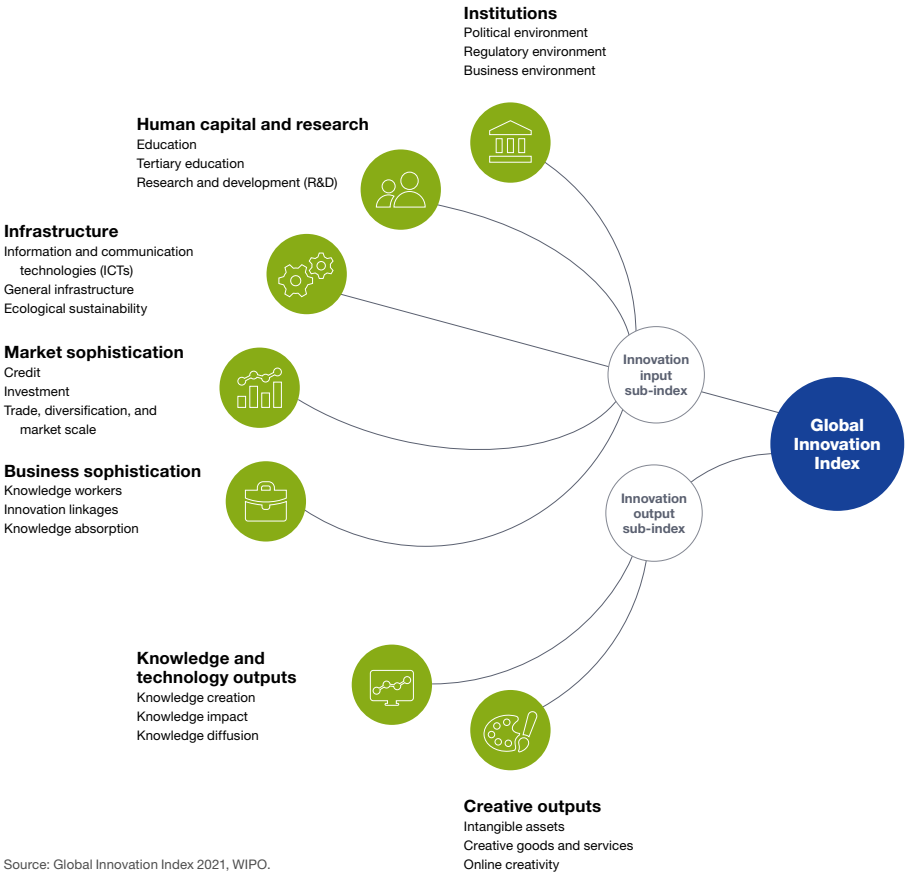
Outdated data for Tanzania

Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2014	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2013	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.1	Knowledge-intensive employment, %	2014	2019	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank
5.1.4	GERD financed by business, %	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2014	2019	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2010	2018	UNESCO Institute for Statistics
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
6.1.1	Patents by origin/bn PPP$ GDP	2018	2019	World Intellectual Property Organization
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.2.4	Printing and other media, % manufacturing	2016	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	2019	United Nations, COMTRADE

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 2021, WIPO.

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.