

## UNITED REPUBLIC OF TANZANIA

### 88th

The United Republic of Tanzania ranks 88th among the 131 economies featured in the GI 2020.

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 GI aims to capture the multi-dimensional facets of innovation.

The following table shows the rankings of the United Republic of Tanzania over the past three years, noting that data availability and changes to the GI model framework influence year-on-year comparisons of the GI rankings.

The statistical confidence interval for the ranking of the United Republic of Tanzania in the GI 2020 is between ranks 86 and 110.

Rankings of the United Republic of Tanzania (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	88	112	67
2019	97	115	73
2018	92	106	71

- The United Republic of Tanzania performs better in innovation outputs than innovation inputs in 2020.
- This year the United Republic of Tanzania ranks 112th in innovation inputs, higher than last year, but lower than in 2018.
- As for innovation outputs, the United Republic of Tanzania ranks 67th. This position is higher than last year and also compared to 2018.

### 1st

The United Republic of Tanzania ranks 1st among the 16 low-income group economies.

### 4th

The United Republic of Tanzania ranks 4th among the 26 economies in Sub-Saharan Africa.

Ranked 88th this year, the United Republic of Tanzania tops the low-income group, gaining nine positions since last year, and rising two positions among the low-income group. Tanzania also re-joins the group of innovation achievers this year as part of a select group of economies whose innovation performance is above expectations for its level of development.

Tanzania benefits from a relatively closely interlinked innovation system and good international connectivity, with strong university–industry research collaboration and cluster development. It is characterized by the high productivity growth of its workforce, the importance of its R&D expenditures financed by abroad and its strong gross capital formation. Tanzania also ranks among the top 25 globally for the indicators Printing and other media (23) and Creative goods exports (24).

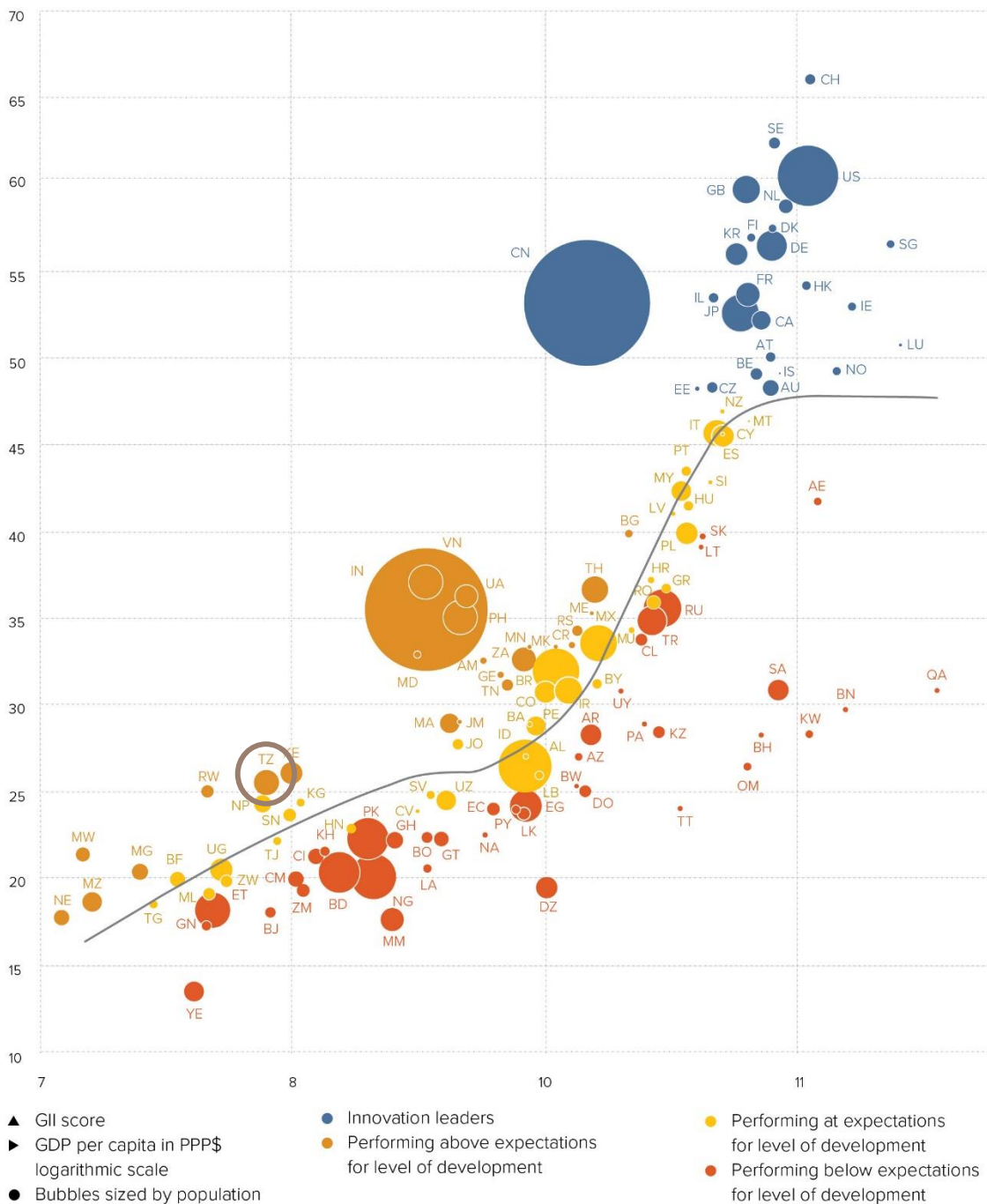
It is worth noting that, although its data coverage in the GII is satisfactory, Tanzania would benefit greatly from updating its innovation metrics more systematically.

## 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, the United Republic of Tanzania's performance is above expectations for its level of development.

### The positive relationship between innovation and development

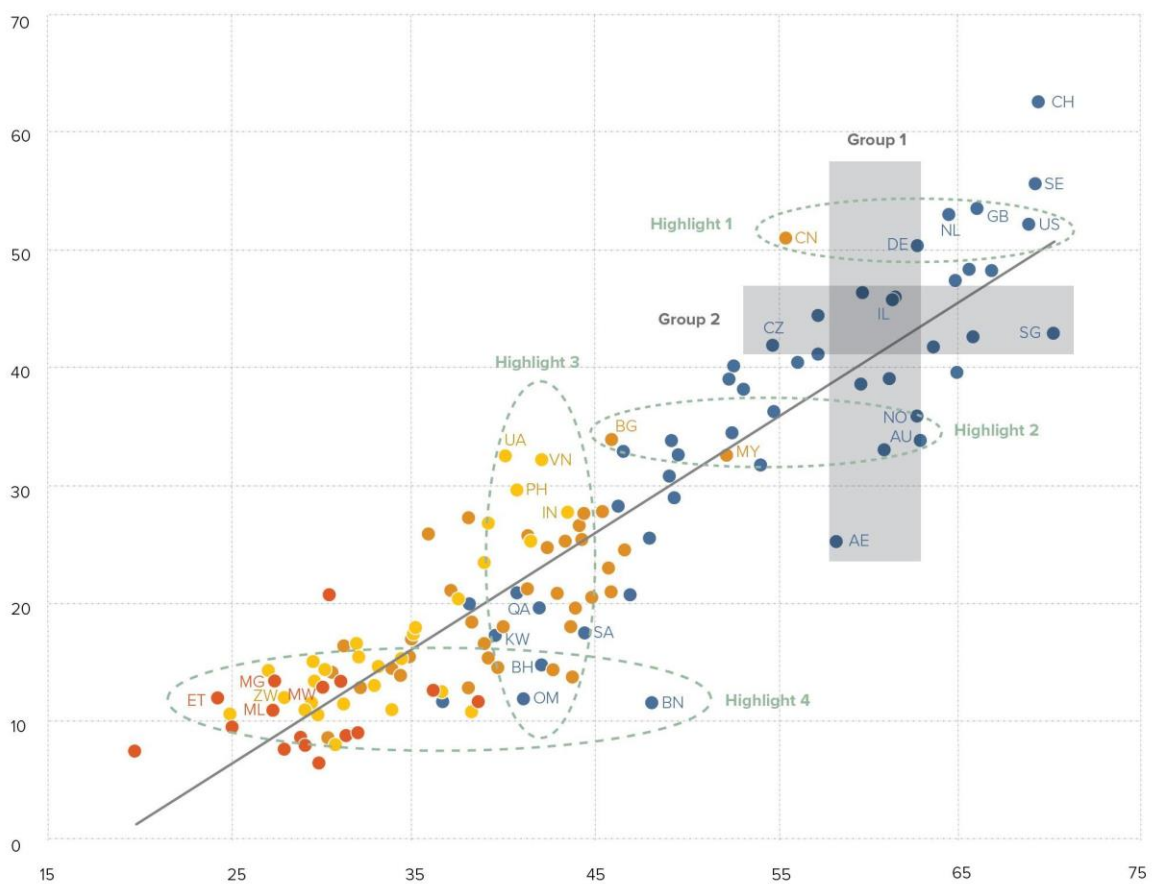


## EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

The United Republic of Tanzania produces more innovation outputs relative to its level of innovation investments.

**Innovation input to output performance, 2020**

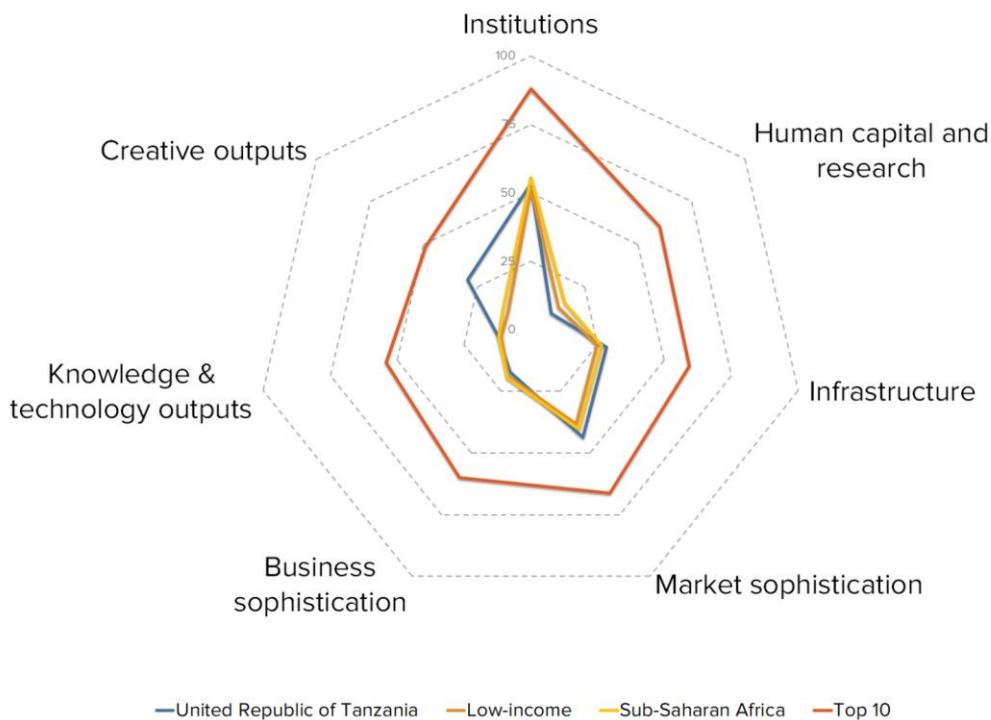


- ▲ Output score
- ▶ Input score
- High income group
- Upper middle-income group
- Lower middle-income group
- Low income group
- Fitted values

AU Australia	IN India	NL Netherlands	CH Switzerland
BH Bahrain	IL Israel	NO Norway	UA Ukraine
BN Brunei Darussalam	KW Kuwait	OM Oman	AE United Arab Emirates
BG Bulgaria	MG Madagascar	PH Philippines	GB United Kingdom
CN China	MW Malawi	QA Qatar	US United States of America
CZ Czech Republic	ML Mali	SA Saudi Arabia	VN Viet Nam
ET Ethiopia	MY Malaysia	SG Singapore	ZW Zimbabwe
DE Germany		SE Sweden	

## BENCHMARKING THE UNITED REPUBLIC OF TANZANIA AGAINST OTHER LOW-INCOME ECONOMIES AND SUB-SAHARAN AFRICA

### The United Republic of Tanzania's scores in the seven GII pillars



### Low-income group

The United Republic of Tanzania has high scores in five of the seven GII pillars: Institutions, Infrastructure, Market sophistication, Knowledge & technology outputs and Creative outputs, which are above average for the low-income group.

Conversely, the United Republic of Tanzania scores below average for its income group in Human capital & research and Business sophistication.

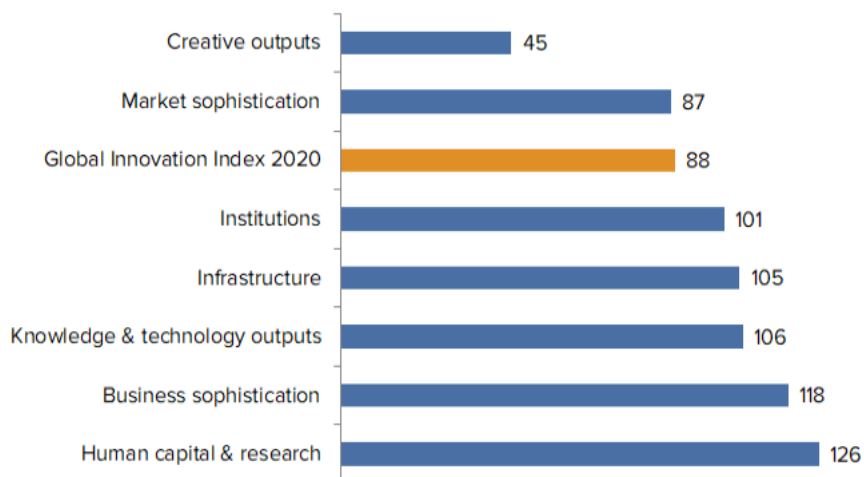
### Sub-Saharan Africa

Compared to other economies in Sub-Saharan Africa, the United Republic of Tanzania performs:

- above average in three of the seven GII pillars: Infrastructure, Market sophistication and Creative outputs; and
- below average in four of the seven GII pillars: Institutions, Human capital & research, Business sophistication and Knowledge & technology outputs.

## OVERVIEW OF THE UNITED REPUBLIC OF TANZANIA RANKINGS IN THE SEVEN GII AREAS

The United Republic of Tanzania performs best in Creative outputs and its weakest performance is in Human capital & research.



\*The highest possible ranking in each pillar is 1.

## INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of the United Republic of Tanzania in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	25	2.2.1	Tertiary enrolment, % gross	123
3.2.3	Gross capital formation, % GDP	13	2.3.3	Global R&D companies, top 3, mn US\$	42
5.2	Innovation linkages	55	2.3.4	QS university ranking, average score top 3*	77
5.2.1	University/industry research collaboration <sup>†</sup>	47	5.1.1	Knowledge-intensive employment, %	120
5.2.2	State of cluster development <sup>†</sup>	51	5.1.4	GERD financed by business, %	102
5.2.3	GERD financed by abroad, % GDP	26	5.2.5	Patent families 2+ offices/bn PPP\$ GDP	101
6.2.1	Growth rate of PPP\$ GDP/worker, %	31	6.1.2	PCT patents by origin/bn PPP\$ GDP	100
6.3.2	High-tech net exports, % total trade	55	6.2.3	Computer software spending, % GDP	124
6.3.4	FDI net outflows, % GDP	39	7.2.1	Cultural & creative services exports, % total trade	115
7.2.4	Printing & other media, % manufacturing	23	7.3.3	Wikipedia edits/mn pop. 15–69	122
7.2.5	Creative goods exports, % total trade	24			

NOTES: \* indicates an index; † indicates a survey question. Strengths and weaknesses are listed for pillars and/or sub-pillars where the data minimum coverage (DMC) requirements were not met. For the sake of caution, these ranks are shown in square brackets [ ] in the country profile. This is to ensure that incomplete data coverage does not lead to erroneous conclusions being made about strengths or weaknesses, in particular about strong or weak sub-pillar rankings.

## STRENGTHS

GII strengths for United Republic of Tanzania are found in five of the seven GII pillars.

- Institutions (101): the indicator Cost of redundancy dismissal (25) is a strength.
- Infrastructure (105): the indicator Gross capital formation (13) is a strength.
- Business sophistication (118): displays strengths in the sub-pillar Innovation linkages (55) and in the indicators University–industry research collaboration (47), State of cluster development (51) and GERD financed by abroad (26).
- Knowledge & technology outputs (106): reveals strengths in the indicators productivity growth (31), High-tech net exports (55) and FDI net outflows (39).
- Creative outputs (45): has strengths in the indicators Printing and other media (23) and Creative goods exports (24).

## WEAKNESSES

GII weaknesses for the United Republic of Tanzania are found in four of the seven GII pillars.

- Human capital & research (126): has weaknesses in the indicators Tertiary enrolment (123), Global R&D companies (42) and QS university ranking (77).
- Business sophistication (118): demonstrates weaknesses in the indicators Knowledge-intensive employment (120), GERD financed by business (102) and Patent families in two or more offices (101).
- Knowledge & technology outputs (106): displays weaknesses in the indicators PCT patents by origin (100) and Computer software spending (124).
- Creative outputs (45): has weaknesses in the indicators Cultural & creative services exports (115) and Wikipedia edits (122).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GI 2019 rank
67	112	Low	SSF	58.0	191.6	2,970.4	97
		Score/Value	Rank			Score/Value	Rank
<b>INSTITUTIONS</b> ..... 53.3 101				<b>BUSINESS SOPHISTICATION</b> ..... 17.3 118			
<b>1.1</b>	<b>Political environment</b> .....	<b>40.0</b>	<b>120</b>	<b>5.1</b>	<b>Knowledge workers</b> .....	<b>9.8</b>	<b>124</b>
1.1.1	Political and operational stability*.....	53.6	120	5.1.1	Knowledge-intensive employment, %.....	3.4	120 ○ ◇
1.1.2	Government effectiveness*.....	33.2	118	5.1.2	Firms offering formal training, %.....	30.7	48
<b>1.2</b>	<b>Regulatory environment</b> .....	<b>63.1</b>	<b>72</b>	5.1.3	GERD performed by business, % GDP.....	n/a	n/a
1.2.1	Regulatory quality*.....	25.6	107	5.1.4	GERD financed by business, %.....	0.1	102 ○
1.2.2	Rule of law*.....	32.2	98	5.1.5	Females employed w/advanced degrees, %.....	0.4	118
1.2.3	Cost of redundancy dismissal, salary weeks.....	9.3	25 ● ◆	<b>5.2</b>	<b>Innovation linkages</b> .....	<b>22.7</b>	<b>55</b> ●
<b>1.3</b>	<b>Business environment</b> .....	<b>56.7</b>	<b>114</b>	5.2.1	University/industry research collaboration*.....	47.7	47 ●
1.3.1	Ease of starting a business*.....	74.4	118 ○	5.2.2	State of cluster development.....	49.4	51 ● ◆
1.3.2	Ease of resolving insolvency*.....	39.1	102	5.2.3	GERD financed by abroad, % GDP.....	0.2	26 ● ◆
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	97
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.0	101 ○ ◇
<b>HUMAN CAPITAL &amp; RESEARCH</b> ..... 9.5 126				<b>KNOWLEDGE &amp; TECHNOLOGY OUTPUTS</b> ..... 12.1 106			
<b>2.1</b>	<b>Education</b> .....	<b>23.7</b>	<b>120</b>	<b>5.3</b>	<b>Knowledge absorption</b> .....	<b>19.3</b>	<b>105</b>
2.1.1	Expenditure on education, % GDP.....	3.7	86	5.3.1	Intellectual property payments, % total trade.....	0.0	114
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	14.9	80	5.3.2	High-tech imports, % total trade.....	7.7	63
2.1.3	School life expectancy, years.....	8.1	118	5.3.3	ICT services imports, % total trade.....	0.3	117
2.1.4	PISA scales in reading, maths, & science.....	n/a	n/a	5.3.4	FDI net inflows, % GDP.....	1.8	88
2.1.5	Pupil-teacher ratio, secondary.....	20.9	100	5.3.5	Research talent, % in business enterprise.....	n/a	n/a
<b>2.2</b>	<b>Tertiary education</b> .....	<b>2.3</b>	<b>[127]</b>	<b>5.3.1</b>	<b>Knowledge creation</b> .....	<b>4.4</b>	<b>113</b>
2.2.1	Tertiary enrolment, % gross.....	4.0	123 ○	6.1.1	Patents by origin/bn PPP\$ GDP.....	0.1	110
2.2.2	Graduates in science & engineering, %.....	n/a	n/a	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	0.0	100 ○ ◇
2.2.3	Tertiary inbound mobility, %.....	n/a	n/a	6.1.3	Utility models by origin/bn PPP\$ GDP.....	0.0	68
<b>2.3</b>	<b>Research &amp; development (R&amp;D)</b> .....	<b>2.6</b>	<b>89</b> ◆	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	3.6	100
2.3.1	Researchers, FTE/mn pop.....	19.2	105 ○	6.1.5	Citable documents H-index.....	10.0	76 ◆
2.3.2	Gross expenditure on R&D, % GDP.....	0.5	66	<b>6.2</b>	<b>Knowledge impact</b> .....	<b>13.8</b>	<b>105</b>
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....	0.0	42 ○ ◇	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	2.9	31 ●
2.3.4	QS university ranking, average score top 3*.....	0.0	77 ○ ◇	6.2.2	New businesses/th pop. 15-64.....	0.2	112
				6.2.3	Computer software spending, % GDP.....	0.0	124 ○ ◇
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	0.7	115
				6.2.5	High- and medium-high-tech manufacturing, %.....	8.4	89
<b>INFRASTRUCTURE</b> ..... 28.4 105				<b>CREATIVE OUTPUTS</b> ..... 29.4 [45]			
<b>3.1</b>	<b>Information &amp; communication technologies (ICTs)</b> .....	<b>39.2</b>	<b>110</b>	<b>7.1</b>	<b>Intangible assets</b> .....	<b>47.2</b>	<b>[18]</b>
3.1.1	ICT access*.....	26.6	125	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	n/a	n/a
3.1.2	ICT use*.....	12.2	126	7.1.2	Global brand value, top 5,000, % GDP.....	n/a	n/a
3.1.3	Government's online service*.....	56.3	96	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....	n/a	n/a
3.1.4	E-participation*.....	61.8	89	7.1.4	ICTs & organizational model creation*.....	47.2	94
<b>3.2</b>	<b>General infrastructure</b> .....	<b>28.8</b>	<b>58</b>	<b>7.2</b>	<b>Creative goods and services</b> .....	<b>23.0</b>	<b>[45]</b>
3.2.1	Electricity output, kWh/mn pop.....	139.2	118	7.2.1	Cultural & creative services exports, % total trade.....	0.0	115 ○ ◇
3.2.2	Logistics performance*.....	n/a	n/a	7.2.2	National feature films/mn pop. 15-69.....	n/a	n/a
3.2.3	Gross capital formation, % GDP.....	37.5	13 ●	7.2.3	Entertainment & Media market/th pop. 15-69.....	n/a	n/a
<b>3.3</b>	<b>Ecological sustainability</b> .....	<b>17.1</b>	<b>115</b>	7.2.4	Printing and other media, % manufacturing.....	1.7	23 ●
3.3.1	GDP/unit of energy use.....	7.1	87	7.2.5	Creative goods exports, % total trade.....	2.3	24 ● ◆
3.3.2	Environmental performance*.....	31.1	116	<b>7.3</b>	<b>Online creativity</b> .....	<b>0.1</b>	<b>128</b> ○
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.2	102	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	112
				7.3.3	Wikipedia edits/mn pop. 15-69.....	5.1	122 ○ ◇
				7.3.4	Mobile app creation/bn PPP\$ GDP.....	n/a	n/a
<b>MARKET SOPHISTICATION</b> ..... 43.6 87							
<b>4.1</b>	<b>Credit</b> .....	<b>27.8</b>	<b>113</b>				
4.1.1	Ease of getting credit*.....	65.0	61				
4.1.2	Domestic credit to private sector, % GDP.....	13.1	122				
4.1.3	Microfinance gross loans, % GDP.....	0.1	56				
<b>4.2</b>	<b>Investment</b> .....	<b>50.0</b>	<b>[23]</b>				
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 deals/bn PPP\$ GDP.....	n/a	n/a				
<b>4.3</b>	<b>Trade, competition, and market scale</b> .....	<b>53.0</b>	<b>103</b>				
4.3.1	Applied tariff rate, weighted avg., %.....	8.6	107				
4.3.2	Intensity of local competition*.....	59.4	109				
4.3.3	Domestic market scale, bn PPP\$.....	191.6	69 ◆				

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 II 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 the United Republic of Tanzania.

### Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
2.2.2	Graduates in science & engineering, %	n/a	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2017	UNESCO Institute for Statistics
3.2.2	Logistics performance*	n/a	2018	World Bank and Turku School of Economics
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP\$ GDP	n/a	2019	Thomson Reuters
5.1.3	GERD performed by business, % GDP	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.3.5	Research talent, % in business enterprise	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
7.1.1	Trademarks by origin/bn PPP\$ GDP	n/a	2018	World Intellectual Property Organization
7.1.2	Global brand value, top 5000, % GDP	n/a	2019	Brand Finance
7.1.3	Industrial designs by origin/bn PPP\$ GDP	n/a	2018	World Intellectual Property Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2019	App Annie

### Outdated data

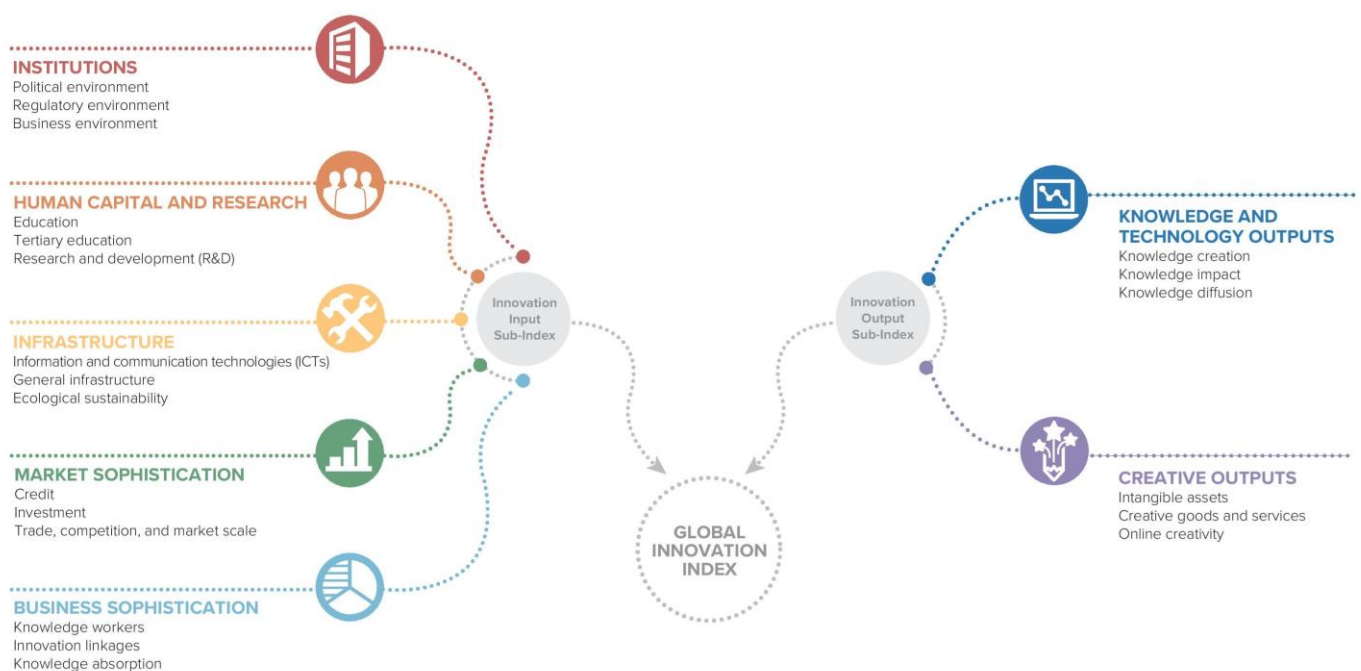
Code	Indicator name	Country year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2014	2016	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
4.1.2	Domestic credit to private sector, % GDP	2017	2018	International Monetary Fund
5.1.1	Knowledge-intensive employment, %	2014	2018	International Labour Organization
5.1.2	Firms offering formal training, %	2012	2018	World Bank
5.1.4	GERD financed by business, %	2010	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2014	2018	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2010	2017	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2017	2018	World Trade Organization
5.3.3	ICT services imports, % total trade	2017	2018	World Trade Organization
6.2.5	High- & medium-high-tech manufacturing, %	2016	2017	United Nations Industrial Development Organization
6.3.1	Intellectual property receipts, % total trade	2017	2018	World Trade Organization
6.3.3	ICT services exports, % total trade	2017	2018	World Trade Organization
6.3.4	FDI net outflows, % GDP	2017	2018	International Monetary Fund
7.2.4	Printing & other media, % manufacturing	2016	2017	United Nations Industrial Development Organization

# ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13<sup>th</sup> edition devoted to the theme *Who Will Finance Innovation?*

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.

## Framework of the Global Innovation Index 2020



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.



[www.globalinnovationindex.org](http://www.globalinnovationindex.org)



GII app for iOS



GII app for android