

# GLOBAL INNOVATION INDEX 2018

## United Republic of Tanzania

**92<sup>nd</sup>** The United Republic of Tanzania is ranked 92nd in the GII 2018, moving up 4 positions from last year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects the United Republic of Tanzania's rankings over time<sup>1</sup>.

United Republic of Tanzania's ranking over time

	GII	Input	Output	Efficiency
2018	92	106	71	31
2017	96	109	76	29
2016	105	117	80	22

- The United Republic of Tanzania performs better in innovation outputs than in innovation inputs.
- Over the last three years, the United Republic of Tanzania has markedly improved in innovation inputs, taking the 106th position this year, up from the 109th in 2017 and 117th in 2016.
- The country also shows an upward trend in innovation outputs, reaching the 71st spot this year and moving up 5 positions from 2017 and 9 from 2016.
- Relative to its GII position (92nd), the Innovation Efficiency Ratio (31st) for the United Republic of Tanzania is very strong, showing that the country is quite efficient in translating its innovation inputs into outputs. This rank is partly influenced by a higher rank in innovation outputs (71st) compared to inputs (106th).

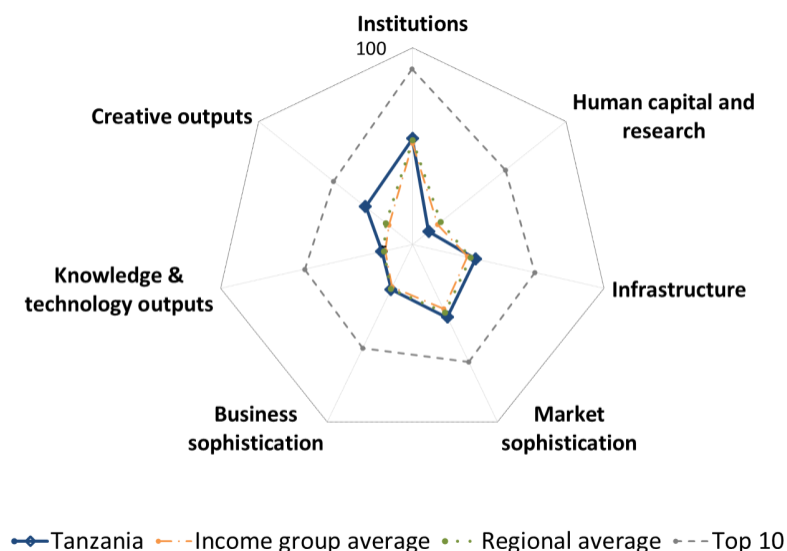
**1<sup>st</sup>** The United Republic of Tanzania is ranked 1st among the 15 low-income countries in the GII 2018.

**5<sup>th</sup>** The United Republic of Tanzania is ranked 5th among the 24 countries in Sub-Saharan Africa.

<sup>1</sup> Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

## Benchmarking the United Republic of Tanzania to other low-income countries and the Sub-Saharan Africa region

United Republic of Tanzania's scores by area



### Low-income countries

The United Republic of Tanzania has high scores in 6 out of the 7 GII areas – **Institutions, Infrastructure, Market Sophistication, Business Sophistication, Knowledge & Technology Outputs, and Creative Outputs**, in which it scores above the average of the low-income group.

Top scores in areas such as *Regulatory environment, Information & Communication Technologies (ICTs), Trade, competition & market scale, Innovation linkages, Knowledge impact, and Intangible assets* are behind these high rankings.

### Sub-Saharan Africa region

Compared to other countries in the Sub-Saharan Africa region, the United Republic of Tanzania performs above-average in 6 out of the 7 GII areas: **Institutions, Infrastructure, Market Sophistication, Business Sophistication, Knowledge & Technology Outputs, and Creative Outputs**.

## Innovation profile of the United Republic of Tanzania

### Strengths

- The most important GII strength for the United Republic of Tanzania is the **Innovation Efficiency Ratio** which positions 31st globally.
- On the **innovation input** side, comparative GII strengths for the country are found across four GII areas.
- In **Business Sophistication** (94th), the United Republic of Tanzania has particularly strong performance in one of its three components – *Innovation linkages* (27th) – and two of its five indicators – *State of cluster development* (55th) and *R&D financed by abroad* – which positions 7th globally. In this area, another GII strength is found in the indicator *FDI inflows* (47th).
- The United Republic of Tanzania also exhibits a number of comparative GII strengths in **Market Sophistication** (98th). These are highlighted in the area *Credit* (57th) as well as two of its indicators, *Ease of getting credit* (49th) and *Microfinance gross loans* (14th).
- In **Institutions** (90th), the indicator *Cost of redundancy dismissal* (26th) presents particularly strong performance.

- On the innovation input side, GII strengths also appear in **Infrastructure** (104th), where the United Republic of Tanzania performs strongly in two indicators: *Logistics performance* (60th) and *Gross capital formation* (40th).
- On the **innovation output** side, the United Republic of Tanzania shows strengths in both of the GII output areas.
- **Creative Outputs** (54th), the top-ranked GII area for the United Republic of Tanzania, is highlighted as a strength. Here the country also exhibits strong performance in the area *Intangible assets* (37th) and in the indicator *Printing & other media* (21st).
- The indicator *Productivity growth* places 12th globally and is signaled as a strength in **Knowledge & Technology Outputs** (98th).

## Weaknesses

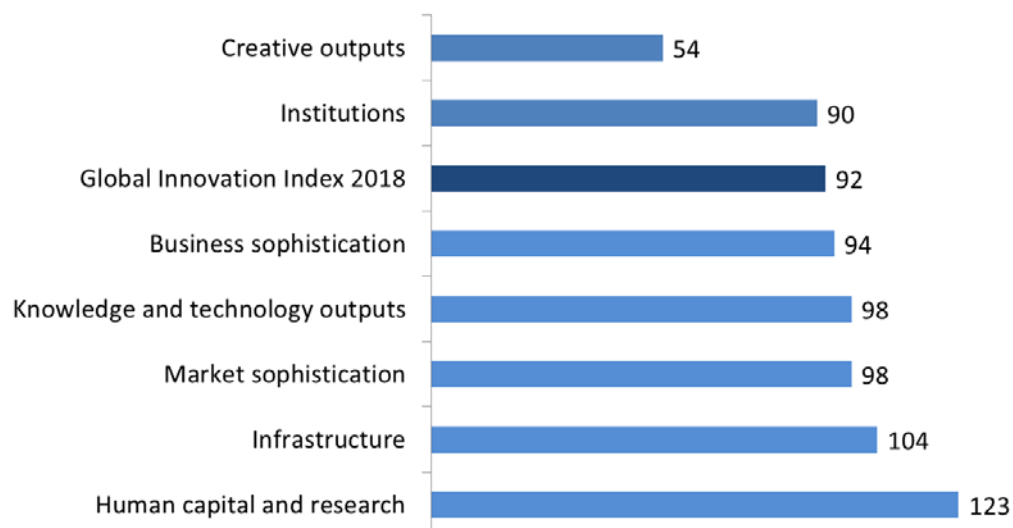
- Most of the weaknesses for the United Republic of Tanzania are in **Human Capital & Research** (123rd), the lowest-ranked GII area for the country. Here it performs weakly in the indicators *School life expectancy* (111th), *Tertiary enrolment* (116th), *Researchers* (103rd), *Global R&D companies' expenditure* (40th), and *Quality of universities* (78th).
- Other relative weaknesses on the innovation input side appear in **Business Sophistication** (94th) in three indicators: *Knowledge-intensive employment* (113th), *R&D financed by business* (96th), and *Females employed with advanced degrees* (105th).
- On the **innovation output** side, the United Republic of Tanzania performs relatively weakly in two indicators in the area **Knowledge & Technology Outputs** (98th): *Patents by origin* (123rd) and *Computer software spending* (124th).

The following figure presents a summary of the United Republic of Tanzania's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

### United Republic of Tanzania's rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

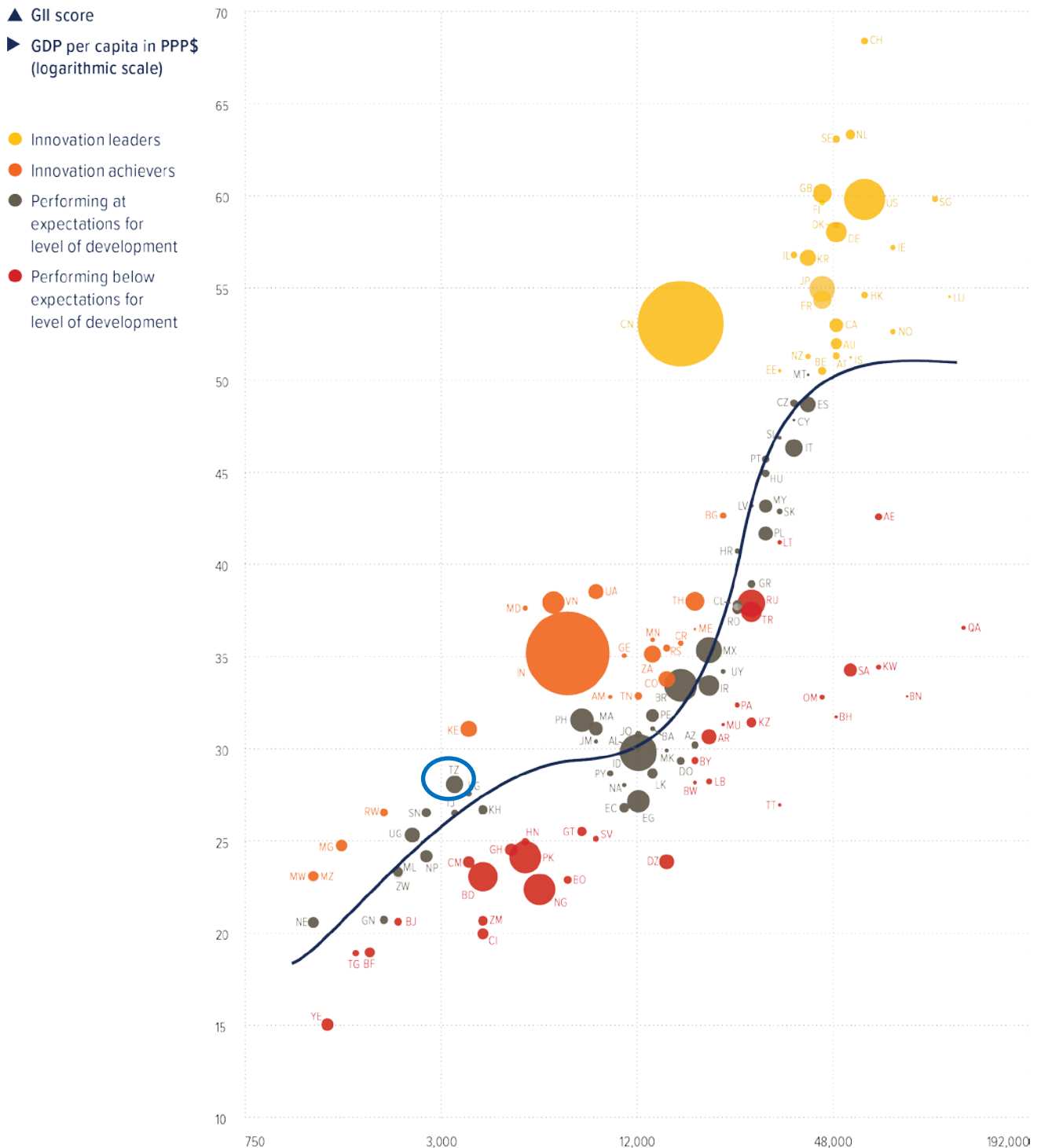
Total number of countries: 126



## Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better than what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, the United Republic of Tanzania performs at its expected level of development.



## Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for the United Republic of Tanzania that is not available or that is outdated.

### Missing Data

Code	Indicator	Country Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2014	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths & science	n/a	2015	OECD PISA
2.2.2	Graduates in science & engineering, %	n/a	2016	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2016	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	n/a	2016	World Bank, World Development Indicators
5.1.3	GERD performed by business, % GDP	n/a	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	n/a	2016	UNESCO Institute for Statistics
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
6.2.2	New businesses/th pop. 15–64	n/a	2016	World Bank, Doing Business
7.1.1	Trademarks by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
7.1.2	Industrial designs by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
7.2.1	Cultural & creative services exports, % total trade	n/a	2016	WTO, Trade in Commercial Services
7.2.2	National feature films/mn pop. 15–69	n/a	2015	UNESCO Institute for Statistics
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2016	PwC's Global Entertainment and Media Outlook, 2017–2021
7.3.4	Mobile app creation/bn PPP\$ GDP	n/a	2017	App Annie Intelligence

## Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.1.3	School life expectancy, years	2013	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2012	2016	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2016	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2013	2016	UNESCO Institute for Statistics
5.1.1	Knowledge-intensive employment, %	2014	2016	ILO, ILOSTAT
5.1.4	GERD financed by business, %	2010	2015	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2014	2016	ILO, ILOSTAT
5.2.3	GERD financed by abroad, %	2010	2015	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2015	2016	WTO, Trade in Commercial Services
5.3.3	ICT services imports, % total trade	2015	2016	WTO, Trade in Commercial Services
6.1.1	Patents by origin/bn PPP\$ GDP	2015	2016	WIPO, Intellectual Property Statistics
6.1.2	PCT patents by origin/bn PPP\$ GDP	2015	2017	WIPO, Intellectual Property Statistics
6.2.5	High- & medium-high-tech manufactures, %	2013	2015	UNIDO, Industrial Statistics
6.3.1	Intellectual property receipts, % total trade	2015	2016	WTO, Trade in Commercial Services
6.3.3	ICT services exports, % total trade	2015	2016	WTO, Trade in Commercial Services
7.2.4	Printing & other media, % manufacturing	2013	2015	UNIDO, Industrial Statistics
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation



# TANZANIA, UNITED REPUBLIC OF

GII 2018 rank

**92**

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
71	106	Low	SSF	31 ●	57.3	162.8	3,240.4	96

	Score/Value	Rank
<b>Institutions</b> .....	<b>53.7</b>	<b>90</b>
1.1 Political environment.....	39.4	98
1.1.1 Political stability & safety*.....	55.2	88
1.1.2 Government effectiveness*.....	31.5	98
1.2 Regulatory environment.....	65.5	67
1.2.1 Regulatory quality*.....	32.9	98
1.2.2 Rule of law*.....	33.3	87
1.2.3 Cost of redundancy dismissal, salary weeks.....	9.3	26 ●
1.3 Business environment.....	56.3	109
1.3.1 Ease of starting a business*.....	73.0	116 ◇
1.3.2 Ease of resolving insolvency*.....	39.5	95

	Score/Value	Rank
<b>Human capital &amp; research</b> .....	<b>10.5</b>	<b>123</b> ◇
2.1 Education.....	25.9	118
2.1.1 Expenditure on education, % GDP.....	3.5	94
2.1.2 Government funding/pupil, secondary, % GDP/cap.....	n/a	n/a
2.1.3 School life expectancy, years <sup>②</sup> .....	8.2	111 ○
2.1.4 PISA scales in reading, maths & science.....	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary <sup>②</sup> .....	26.4	97
2.2 Tertiary education.....	2.6	[122]
2.2.1 Tertiary enrolment, % gross <sup>②</sup> .....	3.9	116 ○
2.2.2 Graduates in science & engineering, %.....	n/a	n/a
2.2.3 Tertiary inbound mobility, %.....	n/a	n/a
2.3 Research & development (R&D).....	3.1	86 ◆
2.3.1 Researchers, FTE/mn pop. <sup>②</sup> .....	18.3	103 ○
2.3.2 Gross expenditure on R&D, % GDP <sup>②</sup> .....	0.5	57 ◆
2.3.3 Global R&D companies, top 3, mn US\$.....	0.0	40 ○◇
2.3.4 QS university ranking, average score top 3*.....	0.0	78 ○◇

	Score/Value	Rank
<b>Infrastructure</b> .....	<b>32.8</b>	<b>104</b>
3.1 Information & communication technologies (ICTs).....	37.3	100 ◆
3.1.1 ICT access*.....	25.2	120
3.1.2 ICT use*.....	7.5	122
3.1.3 Government's online service*.....	57.2	72 ◆
3.1.4 E-participation*.....	59.3	65 ◆
3.2 General infrastructure.....	36.0	69
3.2.1 Electricity output, kWh/cap.....	117.7	116
3.2.2 Logistics performance*.....	42.9	60 ●◆
3.2.3 Gross capital formation, % GDP.....	25.3	40 ●
3.3 Ecological sustainability.....	25.2	114
3.3.1 GDP/unit of energy use.....	4.9	105
3.3.2 Environmental performance*.....	50.8	95 ◆
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP.....	0.3	103

	Score/Value	Rank
<b>Market sophistication</b> .....	<b>41.1</b>	<b>98</b>
4.1 Credit.....	39.2	57 ●
4.1.1 Ease of getting credit*.....	65.0	49 ●
4.1.2 Domestic credit to private sector, % GDP.....	14.3	118
4.1.3 Microfinance gross loans, % GDP.....	3.0	14 ●
4.2 Investment.....	30.5	112
4.2.1 Ease of protecting minority investors*.....	45.0	103
4.2.2 Market capitalization, % GDP.....	n/a	n/a
4.2.3 Venture capital deals/bn PPP\$ GDP.....	0.0	65 ◇
4.3 Trade, competition, & market scale.....	53.5	91 ◆
4.3.1 Applied tariff rate, weighted mean, %.....	7.1	100
4.3.2 Intensity of local competition <sup>†</sup> .....	60.4	103
4.3.3 Domestic market scale, bn PPP\$.....	162.8	67 ◆

	Score/Value	Rank
<b>Business sophistication</b> .....	<b>25.2</b>	<b>94</b>
5.1 Knowledge workers.....	12.1	120
5.1.1 Knowledge-intensive employment, % <sup>②</sup> .....	3.4	113 ○
5.1.2 Firms offering formal training, % firms.....	30.7	49
5.1.3 GERD performed by business, % GDP.....	n/a	n/a
5.1.4 GERD financed by business, % <sup>②</sup> .....	0.1	96 ○◇
5.1.5 Females employed w/advanced degrees, % <sup>②</sup> .....	0.4	105 ○
5.2 Innovation linkages.....	43.4	27 ●
5.2.1 University/industry research collaboration <sup>†</sup> .....	41.7	58
5.2.2 State of cluster development <sup>†</sup> .....	47.3	55 ●
5.2.3 GERD financed by abroad, % <sup>②</sup> .....	42.0	7 ●
5.2.4 JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	75
5.2.5 Patent families 2+ offices/bn PPP\$ GDP.....	0.0	104 ◇
5.3 Knowledge absorption.....	20.3	103
5.3.1 Intellectual property payments, % total trade <sup>②</sup> .....	0.0	111
5.3.2 High-tech net imports, % total trade.....	6.6	88
5.3.3 ICT services imports, % total trade <sup>②</sup> .....	0.5	100 ◇
5.3.4 FDI net inflows, % GDP.....	3.3	47 ●
5.3.5 Research talent, % in business enterprise.....	n/a	n/a

	Score/Value	Rank
<b>Knowledge &amp; technology outputs</b> .....	<b>16.2</b>	<b>98</b>
6.1 Knowledge creation.....	4.1	101
6.1.1 Patents by origin/bn PPP\$ GDP <sup>②</sup> .....	0.0	123 ○◇
6.1.2 PCT patents by origin/bn PPP\$ GDP <sup>②</sup> .....	0.0	102
6.1.3 Utility models by origin/bn PPP\$ GDP.....	n/a	n/a
6.1.4 Scientific & technical articles/bn PPP\$ GDP.....	3.2	98
6.1.5 Citable documents H index.....	8.7	73 ◆
6.2 Knowledge impact.....	34.3	70
6.2.1 Growth rate of PPP\$ GDP/worker, %.....	3.8	12 ●◆
6.2.2 New businesses/th pop. 15-64.....	n/a	n/a
6.2.3 Computer software spending, % GDP.....	0.0	124 ○◇
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....	1.1	107
6.2.5 High- & medium-high-tech manufactures, % <sup>②</sup> .....	0.1	83
6.3 Knowledge diffusion.....	10.2	122
6.3.1 Intellectual property receipts, % total trade <sup>②</sup> .....	0.0	98
6.3.2 High-tech net exports, % total trade.....	0.2	102
6.3.3 ICT services exports, % total trade <sup>②</sup> .....	0.5	101
6.3.4 FDI net outflows, % GDP.....	0.0	115

	Score/Value	Rank
<b>Creative outputs</b> .....	<b>30.7</b>	<b>54</b> ●◆
7.1 Intangible assets.....	50.1	37 ●◆
7.1.1 Trademarks by origin/bn PPP\$ GDP.....	n/a	n/a
7.1.2 Industrial designs by origin/bn PPP\$ GDP.....	n/a	n/a
7.1.3 ICTs & business model creation <sup>†</sup> .....	51.9	97
7.1.4 ICTs & organizational model creation <sup>†</sup> .....	48.2	84
7.2 Creative goods & services.....	22.7	[62]
7.2.1 Cultural & 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 & Media market/th pop. 15-69.....	n/a	n/a
7.2.4 Printing & other media, % manufacturing <sup>②</sup> .....	1.7	21 ●
7.2.5 Creative goods exports, % total trade.....	0.1	92
7.3 Online creativity.....	0.1	121
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69.....	0.1	118
7.3.2 Country-code TLDs/th pop. 15-69.....	0.1	108
7.3.3 Wikipedia edits/mn pop. 15-69 <sup>②</sup> .....	0.2	115
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.

② indicates that the country'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; see page 75 of this appendix for details.