

GLOBAL INNOVATION INDEX 2018

United Arab Emirates

38th The United Arab Emirates is ranked 38th in the GII 2018, dropping 3 positions from last year.

The United Arab Emirates (the U.A.E.) ranks 38th this year. Despite dropping three positions from last year, it remains the third most innovative economy in the Northern Africa and Western Asia region.

The country shows a much stronger performance in the input side than in the output side of the innovation process. Indeed, the country stands out as one of the high-income economies that—assuming that both inputs and outputs are properly measured—tend to get less ‘bang for their buck’.

Comparative strengths for the U.A.E. include tertiary inbound mobility, where it ranks first in the world, R&D expenditures financed by business, and state of cluster development (for a complete list of the comparative strength of the U.A.E., see page 3 of this brief).

However, several indicators on the output side of innovation are identified as comparative weaknesses for the U.A.E. These areas of opportunity include patents by origin, scientific and technical publications, high-tech exports, and trademarks and industrial designs by origin (for a complete list of the comparative weaknesses of the U.A.E., see page 4 of this brief).

Due to this, the U.A.E. still performs below its expected level of development (see also page 5 of this brief).

The GII indicators are grouped into innovation inputs and outputs. Innovation inputs capture the efforts made by the country to boost innovation. Innovation outputs measure the results of these efforts in terms of scientific publications, patents, trademarks, production, exports and other outputs.

The table below presents the country rankings over time in the overall GII, the Innovation Input and Output Sub-Indices – which summarize the performance of the U.A.E. in innovation input and output indicators–, and in the Efficiency Ratio – which captures how well the economy

translates innovation inputs into more outputs.¹

United Arab Emirates ranking over time

	GII	Input	Output	Efficiency
2018	38	24	54	95
2017	35	23	56	104
2016	41	25	75	117

- Over the last three years, the U.A.E. improved significantly in innovation outputs, reaching the 54th global position this year, up from the 56th position in 2017 and the 75th in 2016.
- Innovation inputs drop one position this year, ranking 24th.
- Despite improvements over the last years, the U.A.E. is still rather inefficient in translating its innovation inputs into more outputs. This is demonstrated by the Innovation Efficiency Ratio, which, on the one hand, shows a positive trend in the last year but on the other, it is still rather low (95th). This is negatively influenced by a much lower ranking in outputs (54th) than in inputs (24th).

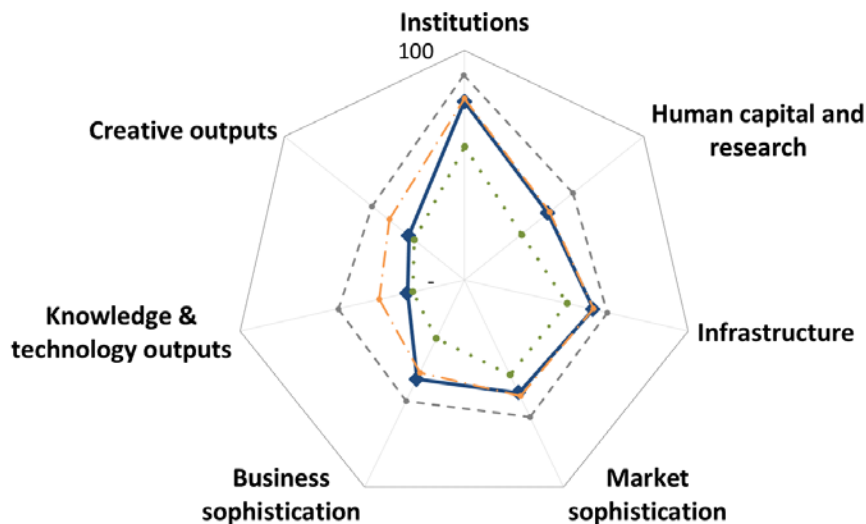
35th The U.A.E. is ranked 35th among the 47 high-income countries in the GII 2018.

3rd The U.A.E. is ranked 3rd among the 19 countries in Northern Africa and Western Asia in the GII 2018.

¹ 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 U.A.E. to other high-income countries and the Northern Africa and Western Asia region

United Arab Emirates' scores by area



◆ UAE - - - Income group average ··· Regional average - - - Top 10

High-income countries

The U.A.E. has high scores in the GII area **Business Sophistication**, in which it scores above the average of the high-income group.

Top scores in the area *Knowledge workers* are behind this high ranking.

Northern Africa and Western Asia region

Compared to other countries in the Northern Africa and Western Asia region, the U.A.E. performs above-average in all 7 GII areas.

The innovation profile of the U.A.E.

Strengths

- In **Institutions** (29th), the U.A.E. demonstrates strength in the indicator *Cost of redundancy dismissal*, ranking 1st in the world.
- In **Human capital and Research** (29th), the U.A.E. has strengths in the areas *Education* (15th) and *Tertiary education* (9th) and in indicator *Tertiary inbound mobility*, where it is number 1 in the world.
- In **Infrastructure** (28th), strengths lie in the area *General infrastructure* (12th) and in indicators *Government's online service* (13th), *Electricity output* (8th), and *Logistics performance* (13th).
- In **Market Sophistication** (31st), indicator *Ease of protecting minority investors* (10th) is highlighted as a comparative strength.
- In **Business sophistication** (23rd) strengths are exhibited in the area *Innovation linkages* (11th) and in indicators *R&D financed by business* (4th), *State of cluster development* (2nd), *Joint ventures—strategic alliance deals* (14th), and *Research talent in business enterprise* (8th).
- On the **innovation output** side, only one indicator in **Creative Outputs** (53rd) is marked as a strength: *ICTs & business model creation* (11th).

Weaknesses

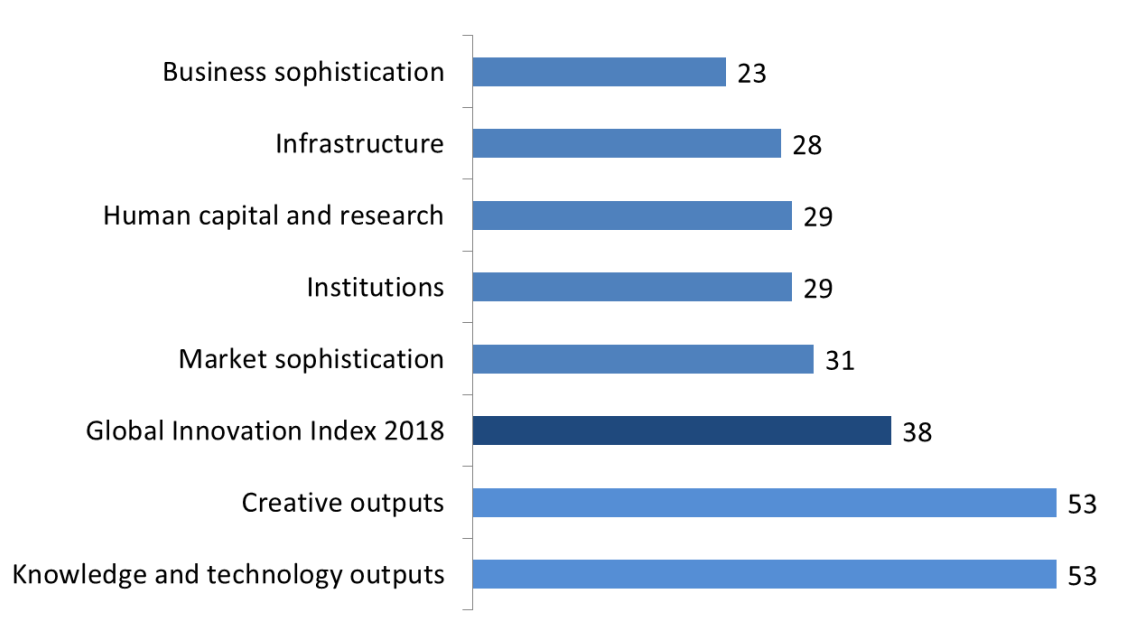
- The main weakness for the U.A.E. is the **Innovation Efficiency Ratio**, where it ranks 95th in the world. Consistently, most other relative weaknesses are concentrated on the **output side** of the GII.
- In **Knowledge and Technology Outputs** (53rd), the U.A.E demonstrates relative weaknesses in the area *Knowledge creation* (93rd), as well as in indicators *Patents by origin* (117th), *Scientific and technical articles* (100th), and *High-tech exports* (108th).
- In **Creative Outputs** (53rd), relative weaknesses are found in indicators *Trademarks by origin* (108th), *Industrial designs by origin* (109th), *Cultural and creative services exports* (72nd), and *National feature films* (71st).
- Moving on to the **innovation input side**, in **Human Capital and Research** (29th), the indicator *Global R&D companies expenditure* (40th) is a relative weakness.
- In **Infrastructure** (28th), the indicator *GDP per unit of energy use* (73rd) is identified as a weakness.
- In **Market Sophistication** (31st), the U.A.E ranks relatively weakly in the indicator *Ease of getting credit* (79th).

The following figure presents a summary of the ranks of the U.A.E. in the 7 GII areas, as well as the overall rank in the GII 2018.

United Arab Emirates' rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

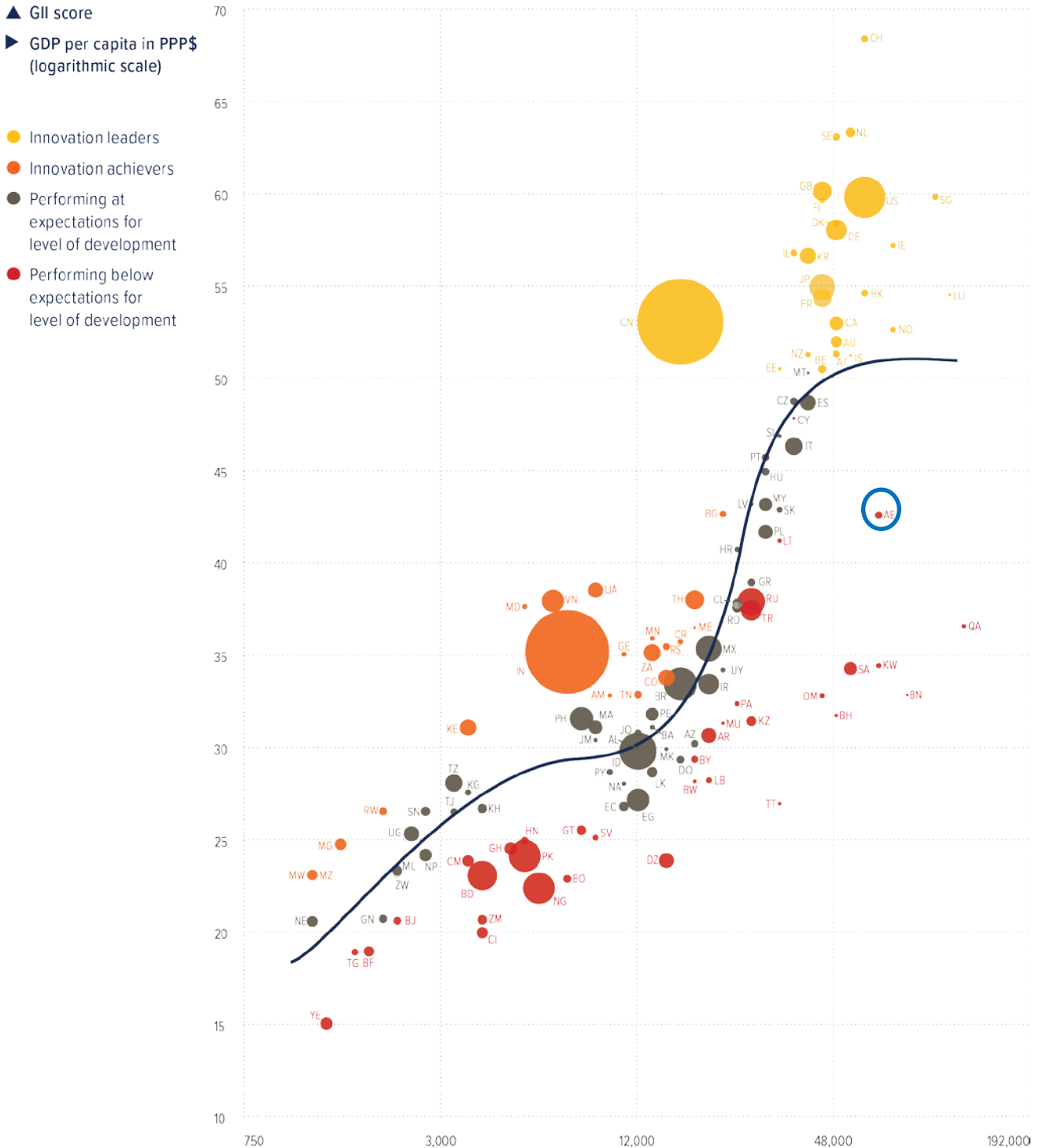
Total number of countries: 126



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 U.A.E. performs below 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 U.A.E. that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	n/a	2014	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2014	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	n/a	2016	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2016	Microfinance Information Exchange, Mix Market
5.1.2	Firms offering formal training, % firms	n/a	2013	World Bank, Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	n/a	2016	ILO, ILOSTAT
5.2.3	GERD financed by abroad, %	n/a	2015	UNESCO Institute for Statistics
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
6.2.5	High- & medium-high-tech manufactures, %	n/a	2015	UNIDO, Industrial Statistics

Outdated Data

Code	Indicator	Country Year	Model Year	Source
5.1.4	GERD financed by business, %	2014	2015	UNESCO Institute for Statistics
6.1.1	Patents by origin/bn PPP\$ GDP	2015	2016	WIPO, Intellectual Property Statistics
7.1.2	Industrial designs by origin/bn PPP\$ GDP	2014	2016	WIPO, Intellectual Property Statistics
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation



Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
54	24	High	NAWA	95 ○	9.4	691.9	67,740.9	35

	Score/Value	Rank
Institutions	77.8	29
1.1 Political environment	78.5	22
1.1.1 Political stability & safety*	74.8	41
1.1.2 Government effectiveness*	80.3	18
1.2 Regulatory environment	84.3	23
1.2.1 Regulatory quality*	69.0	34
1.2.2 Rule of law*	68.3	33
1.2.3 Cost of redundancy dismissal, salary weeks	8.0	1 ●
1.3 Business environment	70.5	60
1.3.1 Ease of starting a business*	91.2	44
1.3.2 Ease of resolving insolvency*	49.8	63
Human capital & research	46.5	29
2.1 Education	62.5	15 ●
2.1.1 Expenditure on education, % GDP	n/a	n/a
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a
2.1.3 School life expectancy, years	13.6	69 ◇
2.1.4 PISA scales in reading, maths & science	474.3	37
2.1.5 Pupil-teacher ratio, secondary	9.5	24
2.2 Tertiary education	56.6	9 ●
2.2.1 Tertiary enrolment, % gross	n/a	n/a
2.2.2 Graduates in science & engineering, %	22.0	48
2.2.3 Tertiary inbound mobility, %	48.6	1 ●◆
2.3 Research & development (R&D)	20.3	42
2.3.1 Researchers, FTE/mn pop.	2,406.6	34
2.3.2 Gross expenditure on R&D, % GDP	1.0	36
2.3.3 Global R&D companies, top 3, mn US\$	0.0	40 ○◇
2.3.4 QS university ranking, average score top 3*	29.3	40
Infrastructure	57.4	28
3.1 Information & communication technologies (ICTs)	78.9	23
3.1.1 ICT access*	81.1	23
3.1.2 ICT use*	70.9	29
3.1.3 Government's online service*	89.1	13 ●
3.1.4 E-participation*	74.6	32
3.2 General infrastructure	56.2	12 ●
3.2.1 Electricity output, kWh/cap	13,904.6	8 ●
3.2.2 Logistics performance*	86.9	13 ●
3.2.3 Gross capital formation, % GDP	22.7	64
3.3 Ecological sustainability	37.0	66
3.3.1 GDP/unit of energy use	8.1	73 ○
3.3.2 Environmental performance*	58.9	67 ◇
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	2.9	35
Market sophistication	54.4	31
4.1 Credit	43.1	47
4.1.1 Ease of getting credit*	50.0	79 ○
4.1.2 Domestic credit to private sector, % GDP	85.9	34
4.1.3 Microfinance gross loans, % GDP	n/a	n/a
4.2 Investment	48.0	40
4.2.1 Ease of protecting minority investors*	75.0	10 ●◆
4.2.2 Market capitalization, % GDP	55.3	29
4.2.3 Venture capital deals/bn PPP\$ GDP	0.1	26
4.3 Trade, competition, & market scale	72.1	25
4.3.1 Applied tariff rate, weighted mean, %	2.7	59
4.3.2 Intensity of local competition†	76.2	18
4.3.3 Domestic market scale, bn PPP\$	691.9	31

	Score/Value	Rank
Business sophistication	47.9	23
5.1 Knowledge workers	55.2	29
5.1.1 Knowledge-intensive employment, %	31.4	44
5.1.2 Firms offering formal training, % firms	n/a	n/a
5.1.3 GERD performed by business, % GDP	0.8	25
5.1.4 GERD financed by business, % [Ⓞ]	74.3	4 ●◆
5.1.5 Females employed w/advanced degrees, %	n/a	n/a
5.2 Innovation linkages	50.4	11 ●
5.2.1 University/industry research collaboration†	57.9	24
5.2.2 State of cluster development†	74.0	2 ●◆
5.2.3 GERD financed by abroad, %	n/a	n/a
5.2.4 JV-strategic alliance deals/bn PPP\$ GDP	0.1	14 ●
5.2.5 Patent families 2+ offices/bn PPP\$ GDP	0.1	63
5.3 Knowledge absorption	38.2	34
5.3.1 Intellectual property payments, % total trade	0.7	48
5.3.2 High-tech net imports, % total trade	9.5	44
5.3.3 ICT services imports, % total trade	0.9	74
5.3.4 FDI net inflows, % GDP	2.6	67
5.3.5 Research talent, % in business enterprise	62.2	8 ●
Knowledge & technology outputs	25.7	53
6.1 Knowledge creation	4.8	93 ○◇
6.1.1 Patents by origin/bn PPP\$ GDP [Ⓞ]	0.1	117 ○◇
6.1.2 PCT patents by origin/bn PPP\$ GDP	0.1	59
6.1.3 Utility models by origin/bn PPP\$ GDP	n/a	n/a
6.1.4 Scientific & technical articles/bn PPP\$ GDP	2.9	100 ○◇
6.1.5 Citable documents H index	10.1	62
6.2 Knowledge impact	39.5	50
6.2.1 Growth rate of PPP\$ GDP/worker, %	2.6	26 ◆
6.2.2 New businesses/th pop. 15-64	2.6	42
6.2.3 Computer software spending, % GDP	0.3	52
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	7.0	48
6.2.5 High- & medium-high-tech manufactures, %	n/a	n/a
6.3 Knowledge diffusion	32.6	27
6.3.1 Intellectual property receipts, % total trade	1.0	18
6.3.2 High-tech net exports, % total trade	0.1	108 ○◇
6.3.3 ICT services exports, % total trade	1.8	57
6.3.4 FDI net outflows, % GDP	4.0	16
Creative outputs	31.1	53
7.1 Intangible assets	44.2	56
7.1.1 Trademarks by origin/bn PPP\$ GDP	7.7	108 ○◇
7.1.2 Industrial designs by origin/bn PPP\$ GDP [Ⓞ]	0.1	109 ○◇
7.1.3 ICTs & business model creation†	78.8	11 ●
7.1.4 ICTs & organizational model creation†	73.1	16
7.2 Creative goods & services	24.8	57
7.2.1 Cultural & creative services exports, % total trade	0.0	72 ○◇
7.2.2 National feature films/mn pop. 15-69	1.4	71 ○◇
7.2.3 Entertainment & Media market/th pop. 15-69	19.3	27
7.2.4 Printing & other media, % manufacturing	1.6	26
7.2.5 Creative goods exports, % total trade	1.6	36
7.3 Online creativity	11.1	55 ◇
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	11.0	38
7.3.2 Country-code TLDs/th pop. 15-69	7.5	42
7.3.3 Wikipedia edits/mn pop. 15-69 [Ⓞ]	9.9	63 ◇
7.3.4 Mobile app creation/bn PPP\$ GDP	19.2	45

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question.

Ⓞ 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.