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

<table>
<thead>
<tr>
<th>United Arab Emirates ranking over time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>2018</td>
</tr>
<tr>
<td>2017</td>
</tr>
<tr>
<td>2016</td>
</tr>
</tbody>
</table>

- 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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator</th>
<th>Country Year</th>
<th>Model Year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>n/a</td>
<td>2014</td>
<td>UNESCO Institute for Statistics</td>
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<td>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
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<td>2014</td>
<td>UNESCO Institute for Statistics</td>
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<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
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<td>2016</td>
<td>UNESCO Institute for Statistics</td>
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<td>Microfinance gross loans, % GDP</td>
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<td>Microfinance Information Exchange, Mix Market</td>
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<tr>
<td>5.1.2</td>
<td>Firms offering formal training, % firms</td>
<td>n/a</td>
<td>2013</td>
<td>World Bank, Enterprise Surveys</td>
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<tr>
<td>5.1.5</td>
<td>Females employed w/advanced degrees, %</td>
<td>n/a</td>
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<td>ILO, ILOSTAT</td>
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<tr>
<td>5.2.3</td>
<td>GERD financed by abroad, %</td>
<td>n/a</td>
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<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
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<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufactures, %</td>
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### Outdated Data

<table>
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<tr>
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<tr>
<td>5.1.4</td>
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<td>Industrial designs by origin/bn PPP$ GDP</td>
<td>2014</td>
<td>2016</td>
<td>WIPO, Intellectual Property Statistics</td>
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<tr>
<td>7.3.3</td>
<td>Wikipedia edits/mn pop. 15–69</td>
<td>2014</td>
<td>2017</td>
<td>Wikimedia Foundation</td>
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</table>
## UNITED ARAB EMIRATES

### Output rank

<table>
<thead>
<tr>
<th>Output rank</th>
<th>Input rank</th>
<th>Income</th>
<th>Region</th>
<th>Efficiency ratio</th>
<th>Population (mn)</th>
<th>GDP, PPP$</th>
<th>GDP per capita, PPP$</th>
<th>Gil 2018 rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>24</td>
<td>High</td>
<td>NAWA</td>
<td>95</td>
<td>9.4</td>
<td>691.9</td>
<td>67,740.9</td>
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### Institutions

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</thead>
<tbody>
<tr>
<td>77.8</td>
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</tbody>
</table>

#### Indicators

- **1.1 Political environment**
  - Political stability & safety* 
  - Government effectiveness* 
- **1.2 Regulatory environment**
  - Rule of law* 
  - Cost of redundancy dismissal, salary weeks 
- **1.3 Business environment**
  - Ease of starting a business* 
  - Ease of resolving insolvency* 

### Human capital & research

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>46.5</td>
<td>29</td>
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</table>

#### Indicators

- **2.1 Education**
  - Expenditure on education, % GDP 
  - Government funding/pupil, secondary, % GDP/cap 
  - School life expectancy, years 
  - PISA scales in reading, maths & science 
  - Pupil-teacher ratio, secondary 
- **2.2 Tertiary education**
  - Tertiary enrolment, % gross 
  - Graduates in science & engineering, % 
  - Tertiary inbound mobility, % 
- **2.3 Research & development (R&D)***
  - Researchers, FTE/million pop 
  - Gross expenditure on R&D, % GDP 
  - Global R&D companies, top 3, mn US$ 
  - QS university ranking, average score top 3*

### Infrastructure

<table>
<thead>
<tr>
<th>Score/Value</th>
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</thead>
<tbody>
<tr>
<td>57.4</td>
<td>28</td>
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</tbody>
</table>

#### Indicators

- **3.1 Information & communication technologies (ICTs)**
  - ICT access* 
  - ICT use* 
  - Government’s online service* 
  - E-participation* 
- **3.2 General infrastructure**
  - Electricity output, kWh/cap 
  - Logistics performance* 
  - Gross capital formation, % GDP 
- **3.3 Ecological sustainability**
  - GDP/unit of energy use 
  - Environmental performance* 
  - ISO 14001 environmental certificates/bn PPP$ GDP 

### Market sophistication

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>54.4</td>
<td>31</td>
</tr>
</tbody>
</table>

#### Indicators

- **4.1 Credit**
  - Ease of getting credit* 
  - Domestic credit to private sector, % GDP 
  - Microfinance gross loans, % GDP 
- **4.2 Investment**
  - Ease of protecting minority investors* 
  - Market capitalization, % GDP 
  - Venture capital deals/bn PPP$ GDP 
- **4.3 Trade, competition, & market scale**
  - Trade barriers, % GDP 
  - Applied tariff rate, weighted mean, % 
  - Intensity of local competition* 
  - Domestic market scale, bn PPP$ 

### Business sophistication

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>47.9</td>
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</tbody>
</table>

#### Indicators

- **5.1 Knowledge workers**
- **5.11 Knowledge-intensive employment, %**
- **5.12 Firms offering formal training, % firms**
- **5.13 GERD performed by business, % GDP**
- **5.14 GERD financed by business, %**
- **5.15 Females employed w/advanced degrees, %**
- **5.2 Innovation linkages**
- **5.21 University-industry research collaboration**
- **5.22 State of cluster development**
- **5.23 GERD financed by abroad, %**
- **5.24 JV-strategic alliance deals/bn PPP$ GDP**
- **5.25 Patent families × offices/bn PPP$ GDP**
- **5.3 Knowledge absorption**
- **5.3.1 Intellectual property payments, % total trade**
- **5.3.2 High-tech imports, % total trade**
- **5.3.4 ICT services imports, % total trade**
- **5.3.5 Research talent, % in business enterprise**

### Knowledge & technology outputs

<table>
<thead>
<tr>
<th>Score/Value</th>
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</thead>
<tbody>
<tr>
<td>25.7</td>
<td>53</td>
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</tbody>
</table>

#### Indicators

- **6.1 Knowledge creation**
  - Patents by origin/bn PPP$ GDP
  - PCT patents by origin/bn PPP$ GDP
  - Utility models by origin/bn PPP$ GDP
  - Citable documents H index
  - Knowledge impact
  - Growth rate of PPP$ GDP/worker
  - New businesses/th pop. 15–64
  - Computer software spending, % GDP
  - ISO 9001 quality certificates/bn PPP$ GDP
  - High- & medium-high-tech manufactures, %
  - Knowledge diffusion
  - Intellectual property receipts, % total trade
  - High-tech exports, % total trade
  - ICT services exports, % total trade
  - FDI net inflows, % GDP

### Creative outputs

<table>
<thead>
<tr>
<th>Score/Value</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.1</td>
<td>53</td>
</tr>
</tbody>
</table>

#### Indicators

- **7.1 Intangible assets**
  - Trademarks by origin/bn PPP$ GDP
  - Industrial designs by origin/bn PPP$ GDP
  - ICTs & business model creation
  - ICTs & organizational model creation
- **7.2 Creative goods & services**
- **7.2.1 Cultural & creative services exports, % total trade**
  - National feature films/million pop. 15–69
  - Entertainment & Media market/th pop. 15–69
  - Printing & other media, % manufacturing
- **7.2.5 Creative goods exports, % total trade**
- **7.3 Online creativity**
  - Generic top-level domains (TLDs)/th pop. 15–69
  - Country-code TLDs/th pop. 15–69
  - Wikipedia edits/million pop. 15–69
  - Mobile app creation/bn PPP$ GDP

### 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.

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*Gil 2018 rank*