The United Kingdom ranks 5th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 the United Kingdom (U.K.) over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for the U.K.’s ranking in the GII 2019 is between 3 and 5.

<table>
<thead>
<tr>
<th>The U.K.’s Rankings (2017 - 2019)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GII</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>2019</td>
</tr>
<tr>
<td>2018</td>
</tr>
<tr>
<td>2017</td>
</tr>
</tbody>
</table>

- The U.K. performs better in Innovation Outputs than Inputs in 2019.
- This year the U.K. ranks 6th in Innovation Inputs, worse than last year and better compared to 2017.
- As for Innovation Outputs, the U.K. ranks 4th, better from last year and compared to 2017.

The United Kingdom ranks 5th among the 50 high-income economies.

The United Kingdom ranks 4th among the 39 economies in Europe.
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 considered Innovation under-performers relative to GDP.

Relative to GDP, the U.K. performs well above its expected level of development.
INNOVATION EFFICIENCY—EFFECTIVELY TRANSLATING INNOVATION INPUTS INTO OUTPUTS

The chart below shows the ratio between innovation inputs and innovation outputs, indicating which economies most effectively translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. Those below the line are not effectively translating innovation inputs into outputs.

The U.K. produces more outputs relative to its level of innovation inputs.
High-income economies

The U.K. has high scores in all the seven GII pillars, which are above the average of the high-income group.

Europe Region

Compared to other economies in the Europe region, the U.K. performs above average in all the seven GII pillars.

The U.K. ranks in the top 5 in the following areas: Information & communication technologies (ICTs), Ecological sustainability, Trade, competition, & market scale, and Knowledge creation.
OVERVIEW OF RANKING’S IN THE 7 GII AREAS FOR THE U.K.

The U.K. performs the best in Market sophistication and its weakest performance is in Business sophistication.

*The highest possible ranking in each pillar is 1.

THE U.K.’S INNOVATION STRENGTHS AND WEAKNESSES IN THE GII 2019

The table below gives an overview of the U.K.’s strengths and weaknesses in the GII 2019.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Indicator name</strong></td>
</tr>
<tr>
<td>2.1.3</td>
<td>School life expectancy, years</td>
</tr>
<tr>
<td>2.3.4</td>
<td>QS university ranking, average score top 3*</td>
</tr>
<tr>
<td>3.1</td>
<td>Information &amp; communication technologies (ICTs)</td>
</tr>
<tr>
<td>3.1.1</td>
<td>ICT access*</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Government’s online service*</td>
</tr>
<tr>
<td>3.3</td>
<td>Ecological sustainability</td>
</tr>
<tr>
<td>3.3.2</td>
<td>Environmental performance*</td>
</tr>
<tr>
<td>4</td>
<td>Market sophistication</td>
</tr>
<tr>
<td>4.2</td>
<td>Investment</td>
</tr>
<tr>
<td>4.2.3</td>
<td>Venture capital deals/bn PPP$ GDP</td>
</tr>
<tr>
<td>4.3</td>
<td>Trade, competition, &amp; market scale</td>
</tr>
<tr>
<td>6.1</td>
<td>Knowledge creation</td>
</tr>
</tbody>
</table>
STRENGTHS

- GII strengths for the U.K. are found in 5 of the seven GII pillars.
- In Market sophistication (4), which itself is signaled as a relative strength, the U.K.’s strengths are found in two of its three sub-pillars – Investment (6) and Trade, competition, & market scale (5). Indicator Venture capital deals (4) is also marked as strong.
- Infrastructure (8) is the second pillar in terms of number of strengths. Here, the U.K. performs well in two of its three sub-pillars Information & communication technologies (ICTs) (3) and Ecological sustainability (5). At the variable level, ICT access (3), Government's online service (4), and Environmental performance (6) are highlighted as GII strengths.
- The other relative strengths for the U.K. are scattered in three GII pillars as follows.
  - In Human capital & research (9), the U.K. exhibits strengths in two indicators: School life expectancy (6) and Quality of universities – in which it ranks 2nd in the world.
  - In Knowledge & technology outputs (8), the U.K. has strong performance in sub-pillar Knowledge creation (5) as well as in two indicators: Computer software spending (4) and Quality of scientific publications – where it is the 1st economy worldwide.
  - Indicators ICTs & organizational model creation (6) and Cultural & creative services exports (6) are highlighted as strengths in Creative outputs (6).

WEAKNESSES

- The U.K.’s relative weaknesses are found in all the seven GII pillars.
- Three of them are found in Human capital & research (9). These are indicators Government funding per pupil (55), Pupil-teacher ratio (87), and Tertiary enrolment (47).
- In Infrastructure (8), the U.K. performs weakly in sub-pillar General infrastructure (44) and in two of its three indicators - Electricity output (44) and Gross capital formation (109).
- In Institutions (14), the U.K. exhibits weakness in a single indicator - Political & operational stability (42).
- In Market sophistication (4), indicator Applied tariff rate (23) presents a weak rank.
- Indicator Research talent in business enterprise (33) is found to be a weakness in Business sophistication (16).
- In Knowledge & technology outputs (8), the only relative weakness for the U.K. is indicator Labor productivity growth (75).
- In Creative outputs (6), indicator Trademarks by origin (40) presents a relatively weak rank.
UNIVERSITY/INSTITUTIONS

1. Political environment
   - Political and administrative stability
   - Government effectiveness

2. Regulatory environment
   - Rule of law
   - Cost of redundancy dismissal, salary weeks

3. Business environment
   - Ease of starting a business
   - Ease of resolving insolvency

HUMAN CAPITAL & RESEARCH

1. Education
   - Expenditure on education, % GDP
   - Government funding/pupil, secondary, % GDP/cap.
   - School life expectancy, years
   - Pupil-teacher ratio, secondary

2. Tertiary education
   - Graduates in science & engineering, % participation

3. Research & development (R&D)
   - Researchers, FTE/mn pop
   - Gross expenditure on R&D, % GDP
   - Global R&D companies, avg. exp. top 3 mn US$.
   - QS university ranking, average score top 3

INFRASTRUCTURE

1. Information & communication technologies (ICTs)
   - ICT access
   - ICT use
   - Government's online service
   - E-participation

2. General infrastructure
   - Electric output, kWh/mn pop
   - Logistics performance
   - Gross capital formation, % GDP

3. Ecological sustainability
   - GDP/Unit of energy
   - Environmental performance
   - ISO 14001 environmental certificates/bn PPP$ GDP

MARKET SOPHISTICATION

1. Credit
   - Ease of getting credit
   - Domestic credit to private sector, % GDP
   - Microfinance gross loans, % GDP

2. Investment
   - Ease of protecting minority investors
   - Market capitalization, % GDP
   - Venture capital deals/bn PPP$ GDP

3. Trade, competition, & market scale
   - Applied tariff rate, weighted avg.
   - Intensity of local competition
   - Domestic market scale, bn PPP$ GDP

BUSINESS SOPHISTICATION

1. Knowledge workers
   - Knowledge-intensive employment
   - Firms offering formal training, % firms
   - GERD performed by business, % GDP
   - GERD financed by business, % GDP
   - Females employed w/advanced degrees, %

2. Innovation linkages
   - State of cluster development
   - GERD financed by abroad, %
   - Strategic alliance deals/bn PPP$ GDP
   - Patent families + offices/bn PPP$ GDP

3. Knowledge absorption
   - Intellectual property payments, % total trade
   - ICT services imports, % total trade
   - FDI net inflows, % GDP
   - Research talent, % in business enterprise

INNOVATION & TECHNOLOGY OUTPUTS...56.6

1. Knowledge creation
   - Patents by origin/bn PPP$ GDP
   - PCT patents by origin/bn PPP$ GDP
   - Utility models by origin/bn PPP$ GDP
   - Scientific & technical articles/bn PPP$ GDP
   - Citable documents H-index

2. Knowledge impact
   - Growth rate of PPP$ GDP/work
   - New businesses/th pop. 15
   - Creative goods exports, % total trade
   - ICT services exports, % total trade
   - FDI net outflows, % GDP

CREATIVE OUTPUTS...52.2

1. Intangible assets
2. Creative goods & services

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25 ranked GII economies; † 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.
The following tables list data that are missing or are outdated for the U.K..

### Missing data

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</th>
<th>Country year</th>
<th>Model year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>Microfinance Information Exchange</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Market capitalization, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>World Federation of Exchanges</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, % firms</td>
<td>n/a</td>
<td>2013</td>
<td>World Bank</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP $ GDP</td>
<td>n/a</td>
<td>2017</td>
<td>World Intellectual Property Organization</td>
</tr>
</tbody>
</table>

### Outdated data

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</th>
<th>Country year</th>
<th>Model year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2016</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
<td>2016</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
</tr>
</tbody>
</table>
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 2019, the GII presents its 12th edition devoted to the theme Creating Healthy Lives—The Future of Medical Innovation.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.