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

The following table shows the rankings of Saudi Arabia over the past three years, noting that data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Saudi Arabia in the GII 2020 is between ranks 64 and 75.

**Rankings of Saudi Arabia (2018–2020)**

<table>
<thead>
<tr>
<th>Year</th>
<th>GII</th>
<th>Innovation inputs</th>
<th>Innovation outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>66</td>
<td>50</td>
<td>77</td>
</tr>
<tr>
<td>2019</td>
<td>68</td>
<td>49</td>
<td>85</td>
</tr>
<tr>
<td>2018</td>
<td>61</td>
<td>46</td>
<td>78</td>
</tr>
</tbody>
</table>

- Saudi Arabia performs better in innovation inputs than innovation outputs in 2020.
- This year Saudi Arabia ranks 50th in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Saudi Arabia ranks 77th. This position is higher than last year and higher compared to 2018.

Saudi Arabia ranks 66th among the 131 economies featured in the GII 2020.

Saudi Arabia ranks 41st among the 49 high-income group economies.

Saudi Arabia ranks 8th among the 19 economies in Northern Africa and Western Asia.
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, Saudi Arabia’s performance is below expectations for its level of 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.

Saudi Arabia produces less innovation outputs relative to its level of innovation investments.
BENCHMARKING SAUDI ARABIA AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

Saudi Arabia’s scores in the seven GII pillars

High-income group economies

Saudi Arabia scores below average for its income group in all pillars.

Northern Africa and Western Asia

Compared to other economies in Northern Africa and Western Asia, Saudi Arabia performs:

- above average in four out of the seven GII pillars: Human capital & research, Infrastructure, Market sophistication and Business sophistication; and
- below average in three out of the seven GII pillars: Institutions, Knowledge & technology outputs and Creative outputs.
OVERVIEW OF SAUDI ARABIA RANKINGS IN THE SEVEN GII AREAS

Saudi Arabia performs best in Human capital & research and its weakest performance is in Institutions.

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 Saudi Arabia in the GII 2020.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Human capital &amp; research</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Research &amp; development (R&amp;D)</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>2.3.3</td>
<td>Global R&amp;D companies, top 3, mn US$</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>2.3.4</td>
<td>QS university ranking, average score top 3*</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>3.1.1</td>
<td>ICT access*</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>3.1.2</td>
<td>ICT use*</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Electricity output, GWh/mn pop</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>4.2.1</td>
<td>Ease of protecting minority investors*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td>Trade, competition, and market scale</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>4.3.2</td>
<td>Intensity of local competition*</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>4.3.3</td>
<td>Domestic market scale, bn PPP$</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>5.2.2</td>
<td>State of cluster development*</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>6.2.3</td>
<td>Computer software spending, % GDP</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>7.1.2</td>
<td>Global brand value, top 5000, % GDP</td>
<td>18</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>Political and operational stability*</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Business environment</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>1.3.2</td>
<td>Ease of resolving insolvency*</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>2.1.4</td>
<td>PISA scales in reading, maths, &amp; science</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>3.3.3</td>
<td>ISO 14001 environmental certificates/bn PPP$ GDP</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>5.3.4</td>
<td>FDI net inflows, % GDP</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>6.2.1</td>
<td>Growth rate of PPP$ GDP/worker, %</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>Knowledge diffusion</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>6.3.3</td>
<td>ICT services exports, % total trade</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>7.1.1</td>
<td>Trademarks by origin/bn PPP$ GDP</td>
<td>111</td>
<td></td>
</tr>
<tr>
<td>7.1.3</td>
<td>Industrial designs by origin/bn PPP$ GDP</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>7.2.1</td>
<td>Cultural &amp; creative services exports, % total trade</td>
<td>106</td>
<td></td>
</tr>
</tbody>
</table>
STRENGTHS

GII strengths for Saudi Arabia are found in six of the seven GII pillars.

- Human capital & research (31): shows strengths in the sub-pillar Research & development (27) and in the indicators Global R&D companies (22) and QS university ranking (31).
- Infrastructure (57): demonstrates strengths in the indicators ICT access (31), ICT use (29) and Electricity output (12).
- Market sophistication (44): displays strengths in the sub-pillar Trade, competition, and market scale (26) and in the indicators Ease of protecting minority investors (3), Intensity of local competition (29) and Domestic market scale (17).
- Business sophistication (51): exhibits strengths in the indicator State of cluster development (13).
- Knowledge & technology outputs (88): reveals strengths in the indicator Computer software spending (29).
- Creative outputs (69): shows strengths in the indicator Global brand value (18).

WEAKNESSES

GII weaknesses for Saudi Arabia are found in six of the seven GII pillars.

- Institutions (102): exhibits weaknesses in the sub-pillar Business environment (129) and in the indicators Political and operational stability (120) and Ease of resolving insolvency (129).
- Human capital & research (31): shows weaknesses in the indicator PISA scales in reading, maths, & science (71).
- Infrastructure (57): displays weaknesses in the indicator ISO 14001 environmental certificates (113).
- Business sophistication (51): demonstrates weaknesses in the indicator FDI net inflows (120).
- Knowledge & technology outputs (88): reveals weaknesses in the sub-pillar Knowledge diffusion (119) and in the indicators Growth rate of PPP$ GDP/worker (117) and ICT services exports (119).
- Creative outputs (69): shows weaknesses in the indicators Trademarks by origin (111), Industrial designs by origin (102) and Cultural & creative services exports (106).
SAUDI ARABIA

GII 2020 rank
66

Output rank: 77
Input rank: 50
Income: High
Region: NAWA
Population (mn): 34.3
GDP, PPP$: 1,898.5
GDP per capita, PPP$: 48,631.5

GII 2019 rank: 68

INSTITUTIONS

1.1 Political environment
1.1.1 Political and operational stability
1.1.2 Government effectiveness
1.2 Regulatory environment
1.2.1 Regulatory quality
1.2.2 Rule of law
1.2.3 Cost of redundancy dismissal, salary weeks
1.3 Business environment
1.3.1 Ease of starting a business
1.3.2 Ease of resolving insolvency

HUMAN CAPITAL & RESEARCH

2.1 Education
2.1.1 Expenditure on education, % GDP
2.1.2 Government funding/ pupil, secondary, % GDP per capita
2.1.3 School life expectancy, years
2.1.4 PISA scales in reading, maths, & science
2.1.5 Tutor-pupil ratio, secondary

2.2 Tertiary education
2.2.1 Tertiary enrolment, % gross
2.2.2 Graduates in science & engineering, %
2.2.3 Tertiary inbound mobility

2.3 Research & development (R&D)
2.3.1 Researchers, FTE equivalent
2.3.2 Gross expenditure on R&D, % GDP
2.3.3 Global R&D companies, avg. exp. top 50, mn $US
2.3.4 QS university ranking, average score top 50

2.4 General infrastructure
2.4.1 Electric output, kWh/mn pop.
2.4.2 Logistics performance
2.4.3 Gross capital formation, % GDP

3.1 Information & communication technologies (ICTs)
3.1.1 ICT access
3.1.2 ICT use
3.1.3 Government’s online service
3.1.4 E-participation

3.2 General infrastructure
3.2.1 Electric output, kWh/mn pop.
3.2.2 Logistics performance
3.2.3 Gross capital formation, % GDP

3.3 Ecological sustainability
3.3.1 GDP per unit of energy use
3.3.2 Environmental performance
3.3.3 ISO 14001 environmental certificates/ bn PPP$: GDP

MARKET SOPHISTICATION

4.1 Credit
4.1.1 Ease of getting credit
4.1.2 Domestic credit to private sector, % GDP
4.1.3 Microfinance gross loans, % GDP

4.2 Investment
4.2.1 Ease of protecting minority investors
4.2.2 Market capitalization, % GDP
4.2.3 Venture capital deals/ bn PPP$: GDP

4.3 Trade, competition, and market scale
4.3.1 Applied tariff rate, weighted avg.
4.3.2 Intensity of local competition
4.3.3 Domestic market scale, bn PPP$: GDP

BUSINESS SOPHISTICATION

5.1 Knowledge workers
5.1.1 Knowledge-intensive employment, %
5.1.2 Firms offering formal training, %
5.1.3 GERD performed by business, % GDP
5.1.4 GERD financed by business, %
5.1.5 Females employed w/advanced degrees, %

5.2 Innovation linkages
5.2.1 University-industry research collaboration
5.2.2 State of cluster development
5.2.3 GERD financed by abroad, % GDP
5.2.4 JV-strategic alliance deals/ bn PPP$: GDP
5.2.5 Patent families/2x offices/ bn PPP$: GDP

5.3 Knowledge absorption
5.3.1 Intellectual property payments, % total trade
5.3.2 High tech imports, % total trade
5.3.3 ICT services imports, % total trade
5.3.4 FDI net inflows, % GDP
5.3.5 Research talent, % in business enterprise

KNOWLEDGE & TECHNOLOGY OUTPUTS

6.1 Knowledge creation
6.1.1 Patents by origin/ bn PPP$: GDP
6.1.2 PCT patents by origin/ bn PPP$: GDP
6.1.3 Utility models by origin/ bn PPP$: GDP
6.1.4 Scientific & technical articles/ bn PPP$: GDP
6.1.5 Citable documents, H-index

6.2 Knowledge impact
6.2.1 Growth rate of PPP$: GDP/ worker
6.2.2 New businesses/1k pop, 15-64
6.2.3 Computer software spending, % GDP
6.2.4 ISO 9001 quality certificates/ bn PPP$: GDP
6.2.5 High- and medium-high-tech manufacturing, % GDP

6.3 Knowledge diffusion
6.3.1 Intellectual property receipts, % total trade
6.3.2 High tech net exports, % total trade
6.3.3 ICT services exports, % total trade
6.3.4 FDI net outflows, % GDP

CREATIVE OUTPUTS

7.1 Intangible assets
7.1.1 Trademarks by origin/ bn PPP$: GDP
7.1.2 Grobal brand value, top 2000, % GDP
7.1.3 Industrial designs by origin/ bn PPP$: GDP
7.1.4 ICTs & organizational model creation

7.2 Creative goods and services
7.2.1 Cultural & creative services exports, % total trade
7.2.2 National feature films/ mn pop, 15-65
7.2.3 Entertainment & Media market/1k pop, 15-65
7.2.4 Printing and other media, % manufacturing
7.2.5 Creative goods exports, % total trade

7.3 Online creativity
7.3.1 Generic top-level domains (TLDs)/1k pop, 15-65
7.3.2 Country-code TLDs/1k pop, 15-65
7.3.3 Wikipedia edition/ mn pop, 15-65
7.3.4 Mobile app creation/ bn PPP$: GDP

NOTES: ☑ indicates a strength; ○ a weakness; ▲ an income group strength; ▼ an income group weakness; ✴ an index; ✴ an survey question; ☩ indicates that the economy's data are older than the base year; see Appendix I 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 Saudi Arabia.

## 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>2.1.1</td>
<td>Expenditure on education, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>n/a</td>
<td>2016</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>Microfinance Information Exchange</td>
</tr>
<tr>
<td>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>n/a</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
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<tr>
<td>5.1.4</td>
<td>GERD financed by business, %</td>
<td>n/a</td>
<td>2017</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>5.2.3</td>
<td>GERD financed by abroad, % GDP</td>
<td>n/a</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Intellectual property payments, % total trade</td>
<td>n/a</td>
<td>2018</td>
<td>World Trade Organization</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in business enterprise</td>
<td>n/a</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
<td>n/a</td>
<td>2018</td>
<td>World Intellectual Property Organization</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Intellectual property receipts, % total trade</td>
<td>n/a</td>
<td>2018</td>
<td>World Trade Organization</td>
</tr>
<tr>
<td>7.2.2</td>
<td>National feature films/mn pop. 15–69</td>
<td>n/a</td>
<td>2017</td>
<td>UNESCO Institute for Statistics</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>2.3.2</td>
<td>Gross expenditure on R&amp;D, % GDP</td>
<td>2013</td>
<td>2018</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators</td>
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<tr>
<td>4.1.2</td>
<td>Domestic credit to private sector, % GDP</td>
<td>2017</td>
<td>2018</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>4.3.1</td>
<td>Applied tariff rate, weighted avg., %</td>
<td>2017</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>5.1.1</td>
<td>Knowledge-intensive employment, %</td>
<td>2015</td>
<td>2018</td>
<td>International Labour Organization</td>
</tr>
<tr>
<td>5.1.5</td>
<td>Females employed w/advanced degrees, %</td>
<td>2016</td>
<td>2018</td>
<td>International Labour Organization</td>
</tr>
</tbody>
</table>
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 13th 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.

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.