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.

Republic of Korea ranking in the Global Innovation Index 2023

> Republic of Korea ranks 10th among the 132 economies featured in the GII 2023.

> Republic of Korea ranks 10th among the 50 high-income group economies.

> Republic of Korea ranks 2nd among the 16 economies in South East Asia, East Asia, and Oceania.

> Republic of Korea GII Ranking (2020-2023)

The table shows the rankings of Republic of Korea over the past four years. 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 Republic of Korea in the GII 2023 is between ranks 7 and 10.

<table>
<thead>
<tr>
<th>Year</th>
<th>GII Position</th>
<th>Innovation Inputs</th>
<th>Innovation Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>10th</td>
<td>10th</td>
<td>10th</td>
</tr>
<tr>
<td>2021</td>
<td>5th</td>
<td>9th</td>
<td>5th</td>
</tr>
<tr>
<td>2022</td>
<td>6th</td>
<td>16th</td>
<td>4th</td>
</tr>
<tr>
<td>2023</td>
<td>10th</td>
<td>12th</td>
<td>7th</td>
</tr>
</tbody>
</table>

Republic of Korea performs better in innovation outputs than innovation inputs in 2023.

This year Republic of Korea ranks 12th in innovation inputs. This position is higher than last year.

Republic of Korea ranks 7th in innovation outputs. This position is lower than last year.
Expected vs. observed innovation performance

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.

> Republic of Korea is an innovation leader, ranking in the top 25 of the GII.

Innovation overperformers relative to their economic development

↑ GII Score

- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)

GDP per capita, PPP logarithmic scale (thousands of $)
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.

Republic of Korea produces more innovation outputs relative to its level of innovation investments.

Relationship between innovation inputs and outputs
Overview of Republic of Korea’s rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Republic of Korea are those that rank above the GII (shown in blue) and the weakest are those that rank below.

- **Highest rankings**
  - Republic of Korea ranks highest in Human capital and research (1st), Creative outputs (5th) and Business sophistication (9th).

- **Lowest rankings**
  - Republic of Korea ranks lowest in Institutions (32nd), Market sophistication (23rd) and Infrastructure, Knowledge and technology outputs (11th).

*Infrastructure, Knowledge and technology outputs*
Benchmark of Republic of Korea against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Republic of Korea (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

High-Income economies
Republic of Korea performs above the high-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

South East Asia, East Asia, And Oceania
Republic of Korea performs above the regional average in all the pillars.

Knowledge and technology outputs
- Top 10 | Score: 58.96
- Republic of Korea | Score: 53.32
- High income | Score: 38.62
- SEAO | Score: 32.16
- * South East Asia, East Asia, and Oceania

Creative outputs
- Republic of Korea | 58.23
- Top 10 | 56.09
- High income | 40.27
- SEAO | 34.40

Business sophistication
- Top 10 | 64.39
- Republic of Korea | 60.88
- High income | 46.38
- SEAO | 40.54

Market sophistication
- Top 10 | 61.93
- Republic of Korea | 52.01
- SEAO | 47.18
- High income | 46.42

Human capital and research
- Republic of Korea | 66.89
- Top 10 | 60.28
- High income | 46.30
- SEAO | 40.81

Infrastructure
- Top 10 | 62.83
- Republic of Korea | 60.62
- High income | 55.85
- SEAO | 47.13

Institutions
- Top 10 | 79.85
- Republic of Korea | 68.16
- High income | 68.88
- SEAO | 62.54
Global Innovation Index 2023

Innovation strengths and weaknesses in Republic of Korea

The table below gives an overview of the indicator strengths and weaknesses of Republic of Korea in the GII 2023.

> Republic of Korea’s main innovation strengths are Patent families/bn PPP$ GDP (rank 1), Patents by origin/bn PPP$ GDP (rank 1) and PCT patents by origin/bn PPP$ GDP (rank 1).

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>Code</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>5.2.5</td>
</tr>
<tr>
<td>1</td>
<td>6.1.1</td>
</tr>
<tr>
<td>1</td>
<td>6.1.2</td>
</tr>
<tr>
<td>1</td>
<td>5.3.5</td>
</tr>
<tr>
<td>2</td>
<td>5.1.3</td>
</tr>
<tr>
<td>2</td>
<td>2.3.2</td>
</tr>
<tr>
<td>2</td>
<td>2.3.1</td>
</tr>
<tr>
<td>3</td>
<td>2.1.2</td>
</tr>
<tr>
<td>3</td>
<td>3.1.3</td>
</tr>
<tr>
<td>3</td>
<td>7.1.4</td>
</tr>
<tr>
<td>4</td>
<td>3.1.2</td>
</tr>
<tr>
<td>4</td>
<td>2.2.1</td>
</tr>
</tbody>
</table>
Global Innovation Index 2023

▶ Republic of Korea's innovation system

As far as practicable, the plots below present unscaled indicator data.

▶ Innovation inputs in Republic of Korea

2.1.1 Expenditure on education, % GDP was equal to 4.68% GDP in 2019, up by 0.22 percentage points from the year prior – and equivalent to an indicator rank of 4.6.

2.1.2 Graduates in science and engineering, %

was equal to 30.18% of total tertiary graduates in 2020, up by 0.57 percentage points from the year prior – and equivalent to an indicator rank of 18.

2.1.3 Researchers, FTE/mn pop.

was equal to 9,097.07 FTE/mn pop. in 2021, up by 5.56% from the year prior – and equivalent to an indicator rank of 2.

2.1.4 Gross expenditure on R&D, % GDP

was equal to 4.93% GDP in 2021, up by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 2.

2.3.2 QS university ranking, top 3

was equal to an average score of 76.4 for the top 3 universities in 2022, up by 0.92% from the year prior – and equivalent to an indicator rank of 10.

2.3.1 ICT access

was equal to a score of 9.48 in 2021, down by 0.21% from the year prior – and equivalent to an indicator rank of 14.
4.1.1 Finance for startups and scaleups was equal to an average perception score of 5.34 in 2022, equivalent to an indicator rank of 23.

4.2.4 VC received, value, % GDP was equal to 0.00212% GDP in 2022, up by 0.00068 percentage points from the year prior – and equivalent to an indicator rank of 41.

4.3.2 Domestic industry diversification was equal to an index score of 0.096 in 2019, down by 2.27% from the year prior – and equivalent to an indicator rank of 12.

5.1.1 Knowledge-intensive employment, % was equal to 39.59% in 2022, up by 0.43 percentage points from the year prior – and equivalent to an indicator rank of 31.
6.1.1 Patents by origin
was equal to 186.25 Thousands in 2021, up by 3.2% from the year prior – and equivalent to an indicator rank of 1.

6.1.5 Citable documents H-index
was equal to an index value of 879 in 2022, up by 8.52% from the year prior – and equivalent to an indicator rank of 17.

6.2.2 Unicorn valuation, % GDP
was equal to 1.82 % GDP in 2023 – and equivalent to an indicator rank of 24.

6.2.3 Software spending, % GDP
was equal to 0.231% GDP in 2022, up by 0.0099 percentage points from the year prior – and equivalent to an indicator rank of 65.

6.2.4 High-tech manufacturing, %
was equal to 56.16% of total manufacturing output in 2019, down by 0.25 percentage points from the year prior – and equivalent to an indicator rank of 7.

6.3.1 Intellectual property receipts, % total trade
was equal to 1.09% total trade in 2021, down by 0.1 percentage points from the year prior – and equivalent to an indicator rank of 20.
6.3.2 Production and export complexity
was equal to a score of 1.95 in 2020, down by
5.34% from the year prior – and equivalent to
an indicator rank of 4.

7.1.3 Global brand value, top 5,000
was equal to 301.295 bn USD in 2023, down
by 18.79% from the year prior – and equivalent
to an indicator rank of 6.

6.3.3 High-tech exports
was equal to 204,992,223,633 USD in 2021,
up by 25.0051% from the year prior – and
equivalent to an indicator rank of 6.

6.2.1 Cultural and creative services exports
was equal to 5,386,393,000 USD in 2021, up
by 18.52% from the year prior – and equivalent
to an indicator rank of 42.

7.1.1 Intangible asset intensity, top 15, %
was equal to 63.36% in 2022, down by 0.43
percentage points from the year prior – and
equivalent to an indicator rank of 32.

7.2.2 National feature films/mn pop. 15–69
was equal to 5.01 films/mn pop. 15–69 in 2021,
up by 29.12% from the year prior – and
equivalent to an indicator rank of 23.
7.3.4 Mobile app creation/bn PPP$ GDP
was equal to 997,236.42 Apps/bn PPP$ GDP in 2022, down by 16.17% from the year prior – and equivalent to an indicator rank of 15.
Republic of Korea's innovation top performers

2.3.3 Global corporate R&D investors from Republic of Korea

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th>Industry</th>
<th>R&amp;D</th>
<th>R&amp;D Growth</th>
<th>R&amp;D Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>SAMSUNG ELECTRONICS</td>
<td>Electronic &amp; Electrical Equipment</td>
<td>16,813</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>57</td>
<td>SK HYNX</td>
<td>Technology Hardware &amp; Equipment</td>
<td>3,087</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>65</td>
<td>LG ELECTRONICS</td>
<td>Leisure Goods</td>
<td>2,677</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>79</td>
<td>HYUNDAI MOTOR</td>
<td>Automobiles &amp; Parts</td>
<td>2,305</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>


2.3.4 QS university ranking of Republic of Korea's top universities

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>SEOUL NATIONAL UNIVERSITY</td>
<td>82.20</td>
</tr>
<tr>
<td>42</td>
<td>KAIST - KOREA ADVANCED INSTITUTE OF SCIENCE &amp; TECHNOLOGY</td>
<td>79.30</td>
</tr>
<tr>
<td>71</td>
<td>POHANG UNIVERSITY OF SCIENCE AND TECHNOLOGY (POSTECH)</td>
<td>67.70</td>
</tr>
</tbody>
</table>

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023). Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x-x" or a range "x-y".

6.2.2 Top Unicorn Companies in Republic of Korea

<table>
<thead>
<tr>
<th>Rank</th>
<th>Unicorn Company</th>
<th>Industry</th>
<th>City</th>
<th>Valuation, bn USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TOSS</td>
<td>Fintech</td>
<td>Seoul</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>YELLO MOBILE</td>
<td>Mobile &amp; telecommunications</td>
<td>Seoul</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>KURLY</td>
<td>Supply chain, logistics, &amp; delivery</td>
<td>Seoul</td>
<td>3</td>
</tr>
</tbody>
</table>

> 7.1.1 Top 15 intangible-asset intensive companies in Republic of Korea

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th>Intensity, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LG ENERGY SOLUTION LTD</td>
<td>92.77</td>
</tr>
<tr>
<td>2</td>
<td>SAMSUNG BIOLOGICS CO LTD</td>
<td>89.15</td>
</tr>
<tr>
<td>3</td>
<td>COUPANG INC</td>
<td>89.97</td>
</tr>
</tbody>
</table>

Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Republic of Korea with highest global brand value

<table>
<thead>
<tr>
<th>Rank</th>
<th>Brand</th>
<th>Industry</th>
<th>Brand Value, mn USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SAMSUNG GROUP</td>
<td>Tech</td>
<td>99,659.3</td>
</tr>
<tr>
<td>2</td>
<td>HYUNDAI GROUP</td>
<td>Automobiles</td>
<td>27,253.4</td>
</tr>
<tr>
<td>3</td>
<td>SK GROUP</td>
<td>Telecoms</td>
<td>22,538.8</td>
</tr>
</tbody>
</table>

Note: Rank corresponds to within economy ranks.
Global Innovation Index 2023

República de Corea

<table>
<thead>
<tr>
<th>Output rank</th>
<th>Input rank</th>
<th>Income</th>
<th>Region</th>
<th>Population (mn)</th>
<th>GDP, PPP$ (bn)</th>
<th>GDP per capita, PPP$</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>12</td>
<td>High</td>
<td>SEAO</td>
<td>51.8</td>
<td>2,765.8</td>
<td>53,574.2</td>
</tr>
</tbody>
</table>

**Score / Value Rank**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>66.7</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Institutional environment</td>
<td>73.9</td>
<td>19</td>
</tr>
<tr>
<td>1.1.1 Operational stability for businesses*</td>
<td>72.2</td>
<td>22</td>
</tr>
<tr>
<td>1.1.2 Government effectiveness*</td>
<td>75.8</td>
<td>16</td>
</tr>
<tr>
<td>1.2 Regulatory environment</td>
<td>66.6</td>
<td>53</td>
</tr>
<tr>
<td>1.2.1 Regulatory quality*</td>
<td>70.6</td>
<td>28</td>
</tr>
<tr>
<td>1.2.2 Rule of law*</td>
<td>72.7</td>
<td>24</td>
</tr>
<tr>
<td>1.2.3 Cost of redundancy dismissal</td>
<td>274</td>
<td>111</td>
</tr>
<tr>
<td>1.3 Business environment</td>
<td>59.5</td>
<td>34</td>
</tr>
<tr>
<td>1.3.1 Policies for doing business*</td>
<td>52.0</td>
<td>58</td>
</tr>
<tr>
<td>1.3.2 Entrepreneurship policies and culture*</td>
<td>67.1</td>
<td>17</td>
</tr>
</tbody>
</table>

**Human capital and research**

| 66.9 | 1 |

**Business sophistication**

| 60.9 | 9 |

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 R&D collaboration* |
5.2.2 State of cluster development* |
5.2.3 GERD financed by abroad, % GDP
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP
5.2.5 Patent families/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 FD net inflows, % GDP
5.3.5 Research talent, % in businesses

5.4 Knowledge and technology outputs

| 53.3 | 11 |

6.1 Knowledge creation
6.1.1 Patents by origin/bn PPP$ GDP |
6.1.2 ICT patents by origin/bn PPP$ GDP |
6.1.3 Utility models by origin/bn PPP$ GDP |
6.1.4 Scientific and technical articles/bn PPP$ GDP |
6.1.5 Oeblate documents H-index |
6.2 Knowledge impact
6.2.1 Labor productivity growth, %
6.2.2 Unemployment, %
6.2.3 Software spending, % GDP
6.2.4 High-tech manufacturing, % |
6.3 Knowledge diffusion
6.3.1 Intellectual property receipts, % total trade
6.3.2 Production and export complexity |
6.3.3 High-tech exports, % total trade
6.3.4 ICT services exports, % total trade |
6.3.5 ISO 9001 quality/bn PPP$ GDP |

6.4 Creative outputs

| 58.2 | 5 |

7.1 Intangible assets
7.1.1 Intangible asset intensity, top 15, %
7.1.2 Trademarks by origin/bn PPP$ GDP |
7.1.3 Global brand value, top 5,000 |
7.1.4 Industrial designs by origin/bn PPP$ GDP |
7.2 Creative goods and services
7.2.1 Cultural and creative services exports, % total trade |
7.2.2 National feature films/mn pop. 15-69 |
7.2.3 Entertainment and media market/mn pop. 15-69 |
7.2.4 Creative goods exports, % total trade |
7.3 Online creativity
7.3.1 Creative top-level domains (TLDs)/mn pop. 15-69 |
7.3.2 Country-code TLDs/mn pop. 15-69 |
7.3.3 GitHub commits/mn pop. 15-69 |
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; † a survey question; ● indicates that the economy’s data are older than the base year; see appendices for details, including the year of the data, at https://www.wipo.int/gii-ranking. 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 indicators that are either missing or outdated for Republic of Korea.

> Republic of Korea has missing data for two indicators and outdated data for three indicators.

### Missing data for Republic of Korea

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</th>
<th>Economy Year</th>
<th>Model Year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.3</td>
<td>Loans from microfinance institutions, % GDP</td>
<td>n/a</td>
<td>2021</td>
<td>International Monetary Fund, Financial Access Survey (FAS)</td>
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<tr>
<td>5.12</td>
<td>Firms offering formal training, %</td>
<td>n/a</td>
<td>2019</td>
<td>World Bank Enterprise Surveys</td>
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</table>

### Outdated data for Republic of Korea

<table>
<thead>
<tr>
<th>Code</th>
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<th>Economy 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>2019</td>
<td>2021</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>4.3.2</td>
<td>Domestic industry diversification</td>
<td>2019</td>
<td>2020</td>
<td>United Nations Industrial Development Organization</td>
</tr>
<tr>
<td>6.2.4</td>
<td>High-tech manufacturing, %</td>
<td>2019</td>
<td>2020</td>
<td>United Nations Industrial Development Organization</td>
</tr>
</tbody>
</table>
The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

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.