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.

Sweden ranking in the Global Innovation Index 2023

> Sweden ranks 2nd among the 132 economies featured in the GII 2023.

> Sweden ranks 2nd among the 50 high-income group economies.

> Sweden ranks 2nd among the 39 economies in Europe.

Swedish GII Ranking (2020-2023)

The table shows the rankings of Sweden 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 Sweden in the GII 2023 is between ranks 2 and 3.

<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>2nd</td>
<td>3rd</td>
<td>2nd</td>
</tr>
<tr>
<td>2021</td>
<td>2nd</td>
<td>2nd</td>
<td>2nd</td>
</tr>
<tr>
<td>2022</td>
<td>3rd</td>
<td>4th</td>
<td>2nd</td>
</tr>
<tr>
<td>2023</td>
<td>2nd</td>
<td>4th</td>
<td>3rd</td>
</tr>
</tbody>
</table>

Sweden performs better in innovation outputs than innovation inputs in 2023.

This year Sweden ranks 4th in innovation inputs. This position is the same as last year.

Sweden ranks 3rd 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.

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

→ Innovation overperformers relative to their economic development

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.

Sweden produces more innovation outputs relative to its level of innovation investments.

Relationship between innovation inputs and outputs

Input score

tOutput score

High income
Upper middle
Lower middle
Low income
Fitted line
Overview of Sweden’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 Sweden are those that rank above the GII (shown in blue) and the weakest are those that rank below.

**Highest rankings**

Sweden ranks highest in Business sophistication (1st) and Infrastructure (2nd).

**Lowest rankings**

Sweden ranks lowest in Institutions (18th), Market sophistication (10th) and Creative outputs (8th).

The full WIPO Intellectual Property Statistics profile for Sweden can be found on this link.
Benchmark of Sweden against other country groupings for each of the seven areas of the GII Index

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

- **High-Income economies**: Sweden performs above the high-income group average in all the pillars.
- **Europe**: Sweden performs above the regional average in all the pillars.

### Knowledge and technology outputs
- **Sweden**: Score: 63.45
- **Top 10**: Score: 58.96
- **Europe**: Score: 38.80
- **High income**: Score: 38.62

### Creative outputs
- **Sweden**: 57.30
- **Top 10**: 56.09
- **High income**: 40.27
- **Europe**: 39.87

### Business sophistication
- **Sweden**: 75.81
- **Top 10**: 64.39
- **High income**: 46.38
- **Europe**: 44.61

### Market sophistication
- **Top 10**: 61.93
- **Sweden**: 59.89
- **High income**: 46.42
- **Europe**: 43.85

### Human capital and research
- **Sweden**: 62.68
- **Top 10**: 60.28
- **High income**: 46.30
- **Europe**: 44.05

### Infrastructure
- **Sweden**: 67.64
- **Top 10**: 62.83
- **High income**: 55.85
- **Europe**: 54.69

### Institutions
- **Top 10**: 79.85
- **Sweden**: 74.33
- **High income**: 68.16
- **Europe**: 61.69
### Innovation strengths and weaknesses in Sweden

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

> Sweden's main innovation strengths are Patent families/bn PPP$ GDP (rank 1), PCT patents by origin/bn PPP$ GDP (rank 1) and Researchers, FTE/mn pop. (rank 1).

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td><strong>Rank</strong></td>
<td><strong>Code</strong></td>
</tr>
<tr>
<td>1</td>
<td>5.2.5</td>
</tr>
<tr>
<td>1</td>
<td>6.1.2</td>
</tr>
<tr>
<td>1</td>
<td>2.3.1</td>
</tr>
<tr>
<td>3</td>
<td>5.1.1</td>
</tr>
<tr>
<td>4</td>
<td>7.2.1</td>
</tr>
<tr>
<td>4</td>
<td>5.2.4</td>
</tr>
<tr>
<td>4</td>
<td>2.3.2</td>
</tr>
<tr>
<td>4</td>
<td>2.1.3</td>
</tr>
<tr>
<td>5</td>
<td>7.1.3</td>
</tr>
<tr>
<td>5</td>
<td>3.3.2</td>
</tr>
<tr>
<td>5</td>
<td>2.1.1</td>
</tr>
<tr>
<td>5</td>
<td>5.1.5</td>
</tr>
</tbody>
</table>
Sweden’s innovation system

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

Innovation inputs in Sweden

2.1.1 Expenditure on education, % GDP
was equal to 7.64% GDP in 2019, with no change from the year prior – and equivalent to an indicator rank of 5.

2.2.2 Graduates in science and engineering, %
was equal to 27.01% of total tertiary graduates in 2020, down by 0.31 percentage points from the year prior – and equivalent to an indicator rank of 33.

2.3.1 Researchers, FTE/mn pop.
was equal to 9,640.25 FTE/mn pop. in 2021, up by 24.31% from the year prior – and equivalent to an indicator rank of 1.

2.3.2 Gross expenditure on R&D, % GDP
was equal to 3.35% GDP in 2021, down by 0.14 percentage points from the year prior – and equivalent to an indicator rank of 4.

2.3.4 QS university ranking, top 3
was equal to an average score of 58.9 for the top 3 universities in 2022, down by 3.4% from the year prior – and equivalent to an indicator rank of 15.

3.1.1 ICT access
was equal to a score of 9.27 in 2021, down by 0.96% from the year prior – and equivalent to an indicator rank of 27.
4.1.1 Finance for startups and scaleups was equal to an average perception score of 5.6 in 2022, equivalent to an indicator rank of 15.

4.2.4 VC received, value, % GDP was equal to 0.0058% GDP in 2022, down by 0.0043 percentage points from the year prior – and equivalent to an indicator rank of 7.

4.3.2 Domestic industry diversification was equal to an index score of 0.09 in 2020, down by 14.19% from the year prior – and equivalent to an indicator rank of 8.

5.1.1 Knowledge-intensive employment, % was equal to 57.14% in 2022, up by 0.48 percentage points from the year prior – and equivalent to an indicator rank of 3.
> Innovation outputs in Sweden

6.1.1 Patents by origin
was equal to 6.72 Thousands in 2021, up by 8.7% from the year prior – and equivalent to an indicator rank of 8.

6.1.5 Citable documents H-index
was equal to an index value of 1,109 in 2022, up by 7.046% from the year prior – and equivalent to an indicator rank of 13.

6.2.2 Unicorn valuation, % GDP
was equal to 3.46 % GDP in 2023 – and equivalent to an indicator rank of 13.

6.2.3 Software spending, % GDP
was equal to 0.575% GDP in 2022, up by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 19.

6.2.4 High-tech manufacturing, %
was equal to 47.43% of total manufacturing output in 2020, up by 9.76 percentage points from the year prior – and equivalent to an indicator rank of 14.

6.3.1 Intellectual property receipts, % total trade
was equal to 3.06% total trade in 2021, down by 0.57 percentage points from the year prior – and equivalent to an indicator rank of 7.
6.3.2 Production and export complexity
was equal to a score of 1.59 in 2020, down by 7.56% from the year prior – and equivalent to an indicator rank of 8.

6.3.3 High-tech exports
was equal to 18,966,628,284 USD in 2021, up by 7.0052% from the year prior – and equivalent to an indicator rank of 27.

7.1.1 Intangible asset intensity, top 15, %
was equal to 79.41% in 2022, down by 6.69 percentage points from the year prior – and equivalent to an indicator rank of 7.

7.1.3 Global brand value, top 5,000
was equal to 116.119 bn USD in 2023, down by 9.21% from the year prior – and equivalent to an indicator rank of 5.

7.2.1 Cultural and creative services exports
was equal to 9,198,252,000 USD in 2021, up by 17.85% from the year prior – and equivalent to an indicator rank of 4.

7.2.2 National feature films/mn pop. 15-69
was equal to 6.95 films/mn pop. 15–69 in 2021, up by 15.64% from the year prior – and equivalent to an indicator rank of 12.
7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 2,253,905.44 Apps/bn PPP$ GDP in 2022, up by 7.86% from the year prior – and equivalent to an indicator rank of 10.
Global Innovation Index 2023

→ Sweden's innovation top performers

2.3.3 Global corporate R&D investors from Sweden

<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>47</td>
<td>ERICSSON</td>
<td>Technology Hardware &amp; Equipment</td>
<td>4,046</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>104</td>
<td>VOLVO</td>
<td>Industrial Engineering</td>
<td>1,802</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>135</td>
<td>GEELY SWEDEN HOLDINGS</td>
<td>Construction &amp; Materials</td>
<td>1,390</td>
<td>-3</td>
<td>n/a</td>
</tr>
<tr>
<td>325</td>
<td>HEXAGON</td>
<td>Industrial Engineering</td>
<td>566</td>
<td>10</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

→ 2.3.4 QS university ranking of Sweden’s top universities

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>89</td>
<td>KTH, ROYAL INSTITUTE OF TECHNOLOGY</td>
<td>62.10</td>
</tr>
<tr>
<td>95</td>
<td>LUND UNIVERSITY</td>
<td>60.10</td>
</tr>
<tr>
<td>125</td>
<td>CHALMERS UNIVERSITY OF TECHNOLOGY</td>
<td>54.50</td>
</tr>
</tbody>
</table>

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 Sweden

<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>NORTHVOLT</td>
<td>Other</td>
<td>Stockholm</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>KLARNA</td>
<td>Fintech</td>
<td>Stockholm</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>KRY</td>
<td>Health</td>
<td>Stockholm</td>
<td>2</td>
</tr>
</tbody>
</table>

## 7.1.1 Top 15 intangible-asset intensive companies in Sweden

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th>Intensity, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ATLAS COPCO AB</td>
<td>92.52</td>
</tr>
<tr>
<td>2</td>
<td>HEXAGON AB</td>
<td>96.76</td>
</tr>
<tr>
<td>3</td>
<td>ASSA ABLOY AB</td>
<td>92.76</td>
</tr>
</tbody>
</table>

Note: Brand Finance only provides within economy ranks.

## 7.1.3 Top 5,000 companies in Sweden 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>IKEA</td>
<td>Retail</td>
<td>15,928.8</td>
</tr>
<tr>
<td>2</td>
<td>H&amp;M</td>
<td>Apparel</td>
<td>9,430.0</td>
</tr>
<tr>
<td>3</td>
<td>VOLVO</td>
<td>Automobiles</td>
<td>8,783.9</td>
</tr>
</tbody>
</table>

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

Sweden

Output rank 3  
Input rank 4  
Income High  
Region EU  

Population (mn) GDP, PPP$ (bn) GDP per capita, PPP$  
10.5 684.5 63,877.4

Business sophistication 75.8 1

5.1 Knowledge workers 77.7 1
5.1.1 Knowledge-intensive employment, % 57.1 3
5.1.2 Firms offering formal training, % 81.9 7
5.1.3 GERD performed by business, % GDP 2.4 6
5.1.4 GERD financed by business, % 62.4 13
5.1.5 Females employed w/advanced degrees, % 28.7 5
5.2 Innovation linkages 77.0 2
5.2.1 University-industry R&D collaboration 82.1 11
5.2.2 State of cluster development 78.5 13
5.2.3 GERD financed by abroad, % GDP 0.3 11
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP 0.4 9
5.2.5 Patent families/bn PPP$ GDP 7.0 1
5.3 Knowledge absorption 72.7 2
5.3.1 Intellectual property payments, % total trade 3.5 6
5.3.2 High-tech imports, % total trade 8.8 54 O
5.3.3 ICT services imports, % total trade 4.5 6
5.3.4 FDI net inflows, % GDP 4.9 21
5.3.5 Research talent, % in businesses 77.6 4

Knowledge and technology outputs 63.4 3

6.1 Knowledge creation 74.3 2
6.1.1 Patents by origin/bn PPP$ GDP 10.8 28
6.1.2 PCT patents by origin/bn PPP$ GDP 6.5 1
6.1.3 Utility models by origin/bn PPP$ GDP n/a n/a
6.1.4 Scientific and technical articles/bn PPP$ GDP n/a n/a
6.1.5 Oetable documents H-index 59.3 13
6.2 Knowledge impact 57.1 6
6.2.1 Labor productivity growth, % 1.0 63 O
6.2.2 Uncorn value, % GDP 3.5 13
6.2.3 Software spending, % GDP 0.6 19
6.2.4 High-tech manufacturing, % 47.4 14
6.3 Knowledge diffusion 58.9 8
6.3.1 Intellectual property receipts, % total trade 3.4 7
6.3.2 Production and export complexity 85.9 8
6.3.3 High-tech exports, % total trade 6.8 27
6.3.4 ICT services exports, % total trade 6.2 16
6.3.5 ISO 9001 quality/bn PPP$ GDP 5.1 53 O

Creative outputs 57.3 8

7.1 Intangible assets 56.9 12
7.1.1 Intangible asset intensity, top 15, % 79.4 7
7.1.2 Trademarks by origin/bn PPP$ GDP 447 52 O
7.1.3 Global brand value, top 5,000 17.9 5
7.1.4 Industrial designs by origin/bn PPP$ GDP 3.3 30
7.2 Creative goods and services 48.6 4
7.2.1 Cultural and creative services exports, % total trade 3.3 4
7.2.2 National feature films/mn pop. 15-69 7.0 12
7.2.3 Entertainment and media market/sh pop. 15-69 815 10
7.2.4 Creative goods exports, % total trade 1.8 29
7.3 Online creativity 66.7 11
7.3.1 Generic top-level domains (TLDs)/sh pop. 15-69 47.6 17
7.3.2 Country-code TLDs/sh pop. 15-69 618.4 14
7.3.3 GitHub commits/mn pop. 15-69 77.2 8
7.3.4 Mobile app creation/bn PPP$ GDP 80.3 10

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 Sweden.

> Sweden has missing data for three indicators and outdated data for three indicators.

Missing data for Sweden

<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>
</tr>
<tr>
<td>4.2.1</td>
<td>Market capitalization, % GDP</td>
<td>n/a</td>
<td>2020</td>
<td>World Federation of Exchanges; World Bank</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
<td>n/a</td>
<td>2021</td>
<td>World Intellectual Property Organization; International Monetary Fund</td>
</tr>
</tbody>
</table>

Outdated data for Sweden

<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>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>5.1.4</td>
<td>GERD financed by business, %</td>
<td>2019</td>
<td>2020</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD; RICYT</td>
</tr>
<tr>
<td>5.2.3</td>
<td>GERD financed by abroad, % GDP</td>
<td>2019</td>
<td>2020</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD; RICYT</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.