The GII indicators are grouped into innovation inputs and outputs. The following table reflects Viet Nam's rankings over time:

<table>
<thead>
<tr>
<th>Year</th>
<th>GII</th>
<th>Input</th>
<th>Output</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>45</td>
<td>65</td>
<td>41</td>
<td>16</td>
</tr>
<tr>
<td>2017</td>
<td>47</td>
<td>71</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>2016</td>
<td>59</td>
<td>79</td>
<td>42</td>
<td>11</td>
</tr>
</tbody>
</table>

- Viet Nam notably improves its GII ranking, gaining 14 spots from 2016 and taking the 45th position this year.
- It also improves in innovation inputs, reaching the 65th position, up from the 71st in 2017 and 79th in 2016.
- Viet Nam slightly deteriorates its ranking in innovation outputs (41st), down 3 from 2017.
- Viet Nam is highly efficient in translating its innovation inputs into outputs, ranking 16th in the Innovation Efficiency Ratio. Despite leaving the top 10 this year, Viet Nam’s position in the Innovation Efficiency Ratio is stronger than its overall GII position, thanks to its much higher ranking in innovation outputs (41st) compared to inputs (65th).

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 Viet Nam to other lower-middle-income countries and the South East Asia and Oceania region

Viet Nam’s scores by area

Lower-middle-income countries

Viet Nam has high scores in all 7 GII areas – Institutions, Human Capital & Research, Infrastructure, Market Sophistication, Business Sophistication, Knowledge & Technology Outputs, and Creative Outputs, in which it scores above the average of the lower-middle-income group.

Top scores in areas such as Business environment, Education, Information & Communication Technologies (ICTs), Trade, competition & market scale, Knowledge absorption, Knowledge impact, and Intangible assets are behind these high rankings.

South East Asia and Oceania region

Compared to other countries in the South East Asia and Oceania region, Viet Nam performs below-average in all 7 GII areas.

Viet Nam’s innovation profile

Strengths

- The most important strength for Viet Nam is the Innovation Efficiency Ratio, in which it positions 16th globally.
- Most other relative strengths are concentrated on the innovation output side of the GII, and especially in the area Knowledge & Technology Outputs (35th), where it performs strongly in two of its three components – Knowledge impact (19th) and Knowledge diffusion (21st). Viet Nam also demonstrates strengths in indicators Productivity growth (6th) and High-tech exports, where it achieves great results and ranks 1st in the world.
- On the innovation output side, other strengths are found in Creative Outputs (46th) in indicators Trademarks by origin (18th), Creative goods exports (7th), and Mobile app creation (16th).
- In innovation inputs, Viet Nam’s strengths lie in two areas. In Business Sophistication (66th), it has strong performance in the area Knowledge absorption (25th) as well as in indicators R&D financed by business (13th), FDI inflows (25th), and High-tech imports, where it ranks 4th globally.
- In Market Sophistication (33rd), Viet Nam exhibits strength in the area Credit (15th) and in indicators Domestic credit to private sector (19th) and Microfinance gross loans (11th).
Weaknesses

- Viet Nam’s relative weaknesses are mainly accrued in innovation inputs, and in particular in four of the five GII areas capturing inputs.

- In Institutions (78th), Viet Nam performs relatively weakly in indicator Ease of resolving insolvency (107th).

- In Human Capital & Research (66th), GII weaknesses are found in indicators Tertiary inbound mobility (99th), Global R&D companies expenditures (40th), and Quality of universities (78th).

- The area Investment (109th) and the indicator Intensity of local competition (101st) are signaled as GII weaknesses within the area Market Sophistication (33rd).

- Indicators Patent families in 2 or more offices (98th) and ICT services imports (122nd) present relatively weak performance in Business Sophistication (66th).

- On the innovation output side, Viet Nam exhibits relative weaknesses in the following three indicators: ICT services exports (120th) in Knowledge & Technology Outputs (35th) and National feature films (98th) and Entertainment & Media market (56th) in Creative Outputs (46th).

The following figure presents a summary of Viet Nam’s ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

<table>
<thead>
<tr>
<th>Viet Nam's rank in the GII 2018 and the 7 GII areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank 1 is the highest possible in each pillar</td>
</tr>
<tr>
<td>Total number of countries: 126</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Market sophistication</td>
</tr>
<tr>
<td>Knowledge and technology outputs</td>
</tr>
<tr>
<td>Global Innovation Index 2018</td>
</tr>
<tr>
<td>Creative outputs</td>
</tr>
<tr>
<td>Business sophistication</td>
</tr>
<tr>
<td>Human capital and research</td>
</tr>
<tr>
<td>Infrastructure</td>
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<tr>
<td>Institutions</td>
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</tbody>
</table>
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 that what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, Viet Nam performs well above its expected level of development.
Missing and Outdated Data

More and better data improve 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 Viet Nam 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>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>n/a</td>
<td>2014</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.1.3</td>
<td>School life expectancy, years</td>
<td>n/a</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>n/a</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Intellectual property payments, % total trade</td>
<td>n/a</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
<tr>
<td>6.2.2</td>
<td>New businesses/th pop. 15–64</td>
<td>n/a</td>
<td>2016</td>
<td>World Bank, Doing Business</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Intellectual property receipts, % total trade</td>
<td>n/a</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
<tr>
<td>7.2.1</td>
<td>Cultural &amp; creative services exports, % total trade</td>
<td>n/a</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
</tbody>
</table>

# Outdated 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>2013</td>
<td>2014</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Gross expenditure on R&amp;D, % GDP</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>5.3.3</td>
<td>ICT services imports, % total trade</td>
<td>2015</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in business enterprise</td>
<td>2015</td>
<td>2016</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
<tr>
<td>6.2.5</td>
<td>High- &amp; medium-high-tech manufactures, %</td>
<td>2012</td>
<td>2015</td>
<td>UNIDO, Industrial Statistics</td>
</tr>
<tr>
<td>6.3.3</td>
<td>ICT services exports, % total trade</td>
<td>2015</td>
<td>2016</td>
<td>WTO, Trade in Commercial Services</td>
</tr>
<tr>
<td>7.2.2</td>
<td>National feature films/mn pop. 15–69</td>
<td>2009</td>
<td>2015</td>
<td>UNESCO Institute for Statistics (UIS)</td>
</tr>
</tbody>
</table>
## VIET NAM

### Output rank | Input rank | Income | Region | Efficiency ratio | Population (mn) | GDP, PPP$ | GDP per capita, PPP$ | GII 2017 rank | GII 2018 rank |
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>65</td>
<td>Lower-middle</td>
<td>SEAO</td>
<td>16</td>
<td>95.5</td>
<td>643.9</td>
<td>6,913.1</td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>

### Institutions .......................... 56.2 78

1. Political environment ....................... 53.1 62
   1.1 Political stability & safety* ................ 68.5 57
   1.2 Government effectiveness .................... 45.4 71

2. Regulatory environment .................. 56.8 89
   2.1 Regulatory quality* ......................... 32.5 99
   2.2 Rule of law* ................................ 45.2 57
   2.3 Cost of redundancy dismissal, salary weeks .... 24.6 97

3. Business environment .................... 58.6 103
   3.1 Ease of starting a business* ............... 82.0 95
   3.2 Ease of resolving insolvency* .......... 35.2 107

### Human capital & research .............. 30.0 66

2.1 Education .......................... 61.2 [18]
   2.1.1 Expenditure on education, % GDP........ 5.7 29
   2.1.2 Government funding/pupil, secondary, % GDP/cap .......................... n/a n/a
   2.1.3 School life expectancy, years ................ 7.3 56
   2.1.4 PISA scales in reading, maths & science .... 502.0 20
   2.1.5 Pupil-teacher ratio, secondary .......... n/a n/a

2.2 Tertiary education .................... 24.4 84
   2.2.1 Tertiary enrolment, % ..................... 28.3 80
   2.2.2 Graduates in science & engineering, % .... 22.7 44
   2.2.3 Tertiary inbound mobility, % ............. 0.2 99

2.3 Research & development (R&D) ........ 4.5 81
   2.3.1 Researchers, FTE/mn pop.* ............... 672.1 58
   2.3.2 Gross expenditure on R&D, % GDP ........ 0.4 66
   2.3.3 Global R&D companies, top 3, mn US$ .... 0.0 40
   2.3.4 QS university ranking, average score top 3* .... 0.0 78

### Infrastructure ......................... 40.4 78

3.1 Information & communication technologies (ICTs) .... 52.7 76
   3.1.1 ICT access* ................................ 475 89
   3.1.2 ICT use* ................................ 167.4 84
   3.1.3 Government’s online service* ............. 572 72
   3.1.4 E-participation* ............................ 695.4 43

3.2 General infrastructure ................... 38.8 57
   3.2.1 Electricity output, kWh/cap ................. 1,671.4 84
   3.2.2 Logistics performance* ..................... 42.2 63
   3.2.3 Gross capital formation, % GDP ........... 267.8

3.3 Ecological sustainability .............. 29.6 94
   3.3.1 GDP/unit of energy use .................... 6.9 85
   3.3.2 Environmental performance* .............. 470 103
   3.3.3 ISO 14001 environmental certificates/bn PPP$ GDP .......... 2.3 46

### Market sophistication .................. 54.3 33

4.1 Credit ................................ 641 15
   4.1.1 Ease of getting credit* .................... 75.0 26
   4.1.2 Domestic credit to private sector, % GDP ........ 123.8 19
   4.1.3 Microfinance gross loans, % GDP ........ 3.9 11

4.2 Investment .......................... 311 109
   4.2.1 Ease of protecting minority investors* .... 55.0 78
   4.2.2 Market capitalization, % GDP ............ 28.0 50
   4.2.3 Venture capital deals/bn PPP$ GDP .......... 0.0 62

4.3 Trade, competition, & market scale .... 677 40
   4.3.1 Applied tariff rate, weighted mean, % .......................... 2.9 62
   4.3.2 Intensity of local competition* .......... 0.1 101
   4.3.3 Domestic market scale, bn PPP$ ............ 643.9 33

### Business sophistication ............... 30.0 66

5.1 Knowledge workers .................... 25.3 91
   5.1.1 Knowledge-intensive employment, % .... 11.0 95
   5.1.2 Firms offering formal training, % firms ........ 22.2 69
   5.1.3 GERD performed by business, % GDP ........ 0.3 48
   5.1.4 GERD financed by business, % ............ 58.1 13
   5.1.5 Females employed w/advanced degrees, % .... 5.8 78

5.2 Innovation linkages .................... 22.6 88
   5.2.1 University/industry research collaboration .......................... 417 59
   5.2.2 State of cluster development* ............. 46.2 64
   5.2.3 GERD financed by abroad, % .............. 2.9 68
   5.2.4 JV–strategic alliance deals/bn PPP$ GDP .......... 0.0 83
   5.2.5 Patent families & offices/bn PPP$ GDP .......... 0.0 98

5.3 Knowledge absorption .................. 42.0 25
   5.3.1 Intellectual property payments, % total trade .......... n/a n/a
   5.3.2 High-tech net imports, % total trade .......... 23.8 4
   5.3.3 ICT services imports, % total trade* .......... 0.0 122
   5.3.4 FDI net inflows, % GDP ...................... 5.7 25
   5.3.5 Research talent, % in business enterprise* .......... 217 51

### Knowledge & technology outputs ....... 32.4 35

6.1 Knowledge creation ..................... 81 76
   6.1.1 Patents by origin/bn PPP$ GDP ............ 0.9 67
   6.1.2 PCT patents by origin/bn PPP$ GDP ........ 0.0 88
   6.1.3 Utility models by origin/bn PPP$ GDP ........ 0.5 35
   6.1.4 Scientific & technical articles/bn PPP$ GDP .......... 4.9 79
   6.1.5 Citable documents H index .................. 11.3 57

6.2 Knowledge impact ...................... 49.9 19
   6.2.1 Growth rate of PPP$ GDP/worker, % .... 5.3 6
   6.2.2 New businesses/1000 pop. .................. 15–64 n/a n/a
   6.2.3 Computer software spending, % GDP .......... 0.3 45
   6.2.4 ISO 9001 quality certificates/bn PPP$ GDP .......... 8.7 40

6.3 Knowledge diffusion .................... 39.1 21
   6.3.1 Intellectual property receipts, % total trade .... n/a n/a
   6.3.2 High-tech net exports, % total trade .......... 29.9 1
   6.3.3 ICT services exports, % total trade ............ 0.0 120
   6.3.4 FDI net outflows, % GDP .................... 0.6 64

### Creative outputs ....................... 35.0 46

7.1 Intangible assets ....................... 46.5 49
   7.1.1 Trademarks by origin/bn PPP$ GDP .......... 92.3 18
   7.1.2 Industrial designs by origin/bn PPP$ GDP .......... 3.5 37
   7.1.3 ICTs & business model creation* .......... 56.6 80
   7.1.4 ICTs & organizational model creation* .......... 53.3 66

7.2 Creative goods & services ............. 351 29
   7.2.1 Cultural & creative services exports, % total trade .......... n/a n/a
   7.2.2 National feature films/mn pop. .............. 15–60 0.2 98
   7.2.3 Entertainment & Media market/th pop. .......... 15–69 11 56
   7.2.4 Printing & other media, % manufacturing .......... 1.0 59
   7.2.5 Creative goods exports, % total trade ........ 72 7

7.3 Online creativity ..................... 121 54
   7.3.1 Generic top-level domains (TLDs)/th pop. ........ 15–69 2.4 73
   7.3.2 Country-code TLDs/th pop. .............. 15–69 1.8 70
   7.3.3 Wikipedia edits/th pop. 15–69 .................. 71 70
   7.3.4 Mobile app creation/bn PPP$ GDP .......... 39.4 16

### 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 date, 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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The Global Innovation Index 2018