UKRAINE

49th  Ukraine ranks 49th among the 132 economies featured in the GII 2021.

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 Ukraine 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 Ukraine in the GII 2021 is between ranks 43 and 53.

### Rankings for Ukraine (2019–2021)

<table>
<thead>
<tr>
<th></th>
<th>GII</th>
<th>Innovation inputs</th>
<th>Innovation outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>49</td>
<td>76</td>
<td>37</td>
</tr>
<tr>
<td>2020</td>
<td>45</td>
<td>71</td>
<td>37</td>
</tr>
<tr>
<td>2019</td>
<td>47</td>
<td>82</td>
<td>36</td>
</tr>
</tbody>
</table>

- Ukraine performs better in innovation outputs than innovation inputs in 2021.
- This year Ukraine ranks 76th in innovation inputs, lower than last year but higher than 2019.
- As for innovation outputs, Ukraine ranks 37th. This position is the same as last year but lower than 2019.

3rd  Ukraine ranks 3rd among the 34 lower middle-income group economies.

32nd  Ukraine ranks 32nd among the 39 economies in Europe.
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.

Relative to GDP, Ukraine’s performance is above expectations for its level of development.

The positive relationship between innovation and 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.

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

Innovation input to output performance

![Graph showing innovation input to output performance]
BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Ukraine

Lower middle-income group economies

Ukraine performs above the lower middle-income group average in all GII pillars.

Europe

Ukraine performs below the regional average in all GII pillars.
OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Ukraine performs best in Knowledge and technology outputs and its weakest performance is in Infrastructure.

The seven GII pillar ranks for Ukraine

Knowledge and technology outputs - 33
Human capital and research - 44
Creative outputs - 48
Global Innovation Index 2021 - 49
Business sophistication - 53
Market sophistication - 88
Institutions - 91
Infrastructure - 94

Note: The highest possible ranking in each pillar is one.
INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Ukraine in the GII 2021.

### Strengths and weaknesses for Ukraine

<table>
<thead>
<tr>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
<th>Code</th>
<th>Indicator name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>7</td>
<td>1.1.1</td>
<td>Political and operational stability</td>
<td>123</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>7</td>
<td>1.3.2</td>
<td>Ease of resolving insolvency</td>
<td>117</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
<td>18</td>
<td>2.3.3</td>
<td>Global corporate R&amp;D investors, top 3, mn US$</td>
<td>41</td>
</tr>
<tr>
<td>5.1.5</td>
<td>Females employed w/advanced degrees, %</td>
<td>2</td>
<td>3.2</td>
<td>General infrastructure</td>
<td>124</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Utility models by origin/bn PPP$ GDP</td>
<td>1</td>
<td>3.2.3</td>
<td>Gross capital formation, % GDP</td>
<td>125</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Software spending, % GDP</td>
<td>17</td>
<td>3.3.1</td>
<td>GDP/unit of energy use</td>
<td>120</td>
</tr>
<tr>
<td>6.3.4</td>
<td>ICT services exports, % total trade</td>
<td>9</td>
<td>4.1.3</td>
<td>Microfinance gross loans, % GDP</td>
<td>79</td>
</tr>
<tr>
<td>7.1.1</td>
<td>Trademarks by origin/bn PPP$ GDP</td>
<td>10</td>
<td>4.2</td>
<td>Investment</td>
<td>120</td>
</tr>
<tr>
<td>7.1.3</td>
<td>Industrial designs by origin/bn PPP$ GDP</td>
<td>15</td>
<td>4.2.2</td>
<td>Market capitalization, % GDP</td>
<td>73</td>
</tr>
<tr>
<td>7.3.4</td>
<td>Mobile app creation/bn PPP$ GDP</td>
<td>17</td>
<td>4.2.4</td>
<td>Venture capital recipients, deals/bn PPP$ GDP</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.2.4</td>
<td>Joint venture/strategic alliance deals/bn PPP$ GDP</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7.2.2</td>
<td>National feature films/mn pop. 15–69</td>
<td>97</td>
</tr>
</tbody>
</table>
UKRAINE

<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>37</td>
<td>76</td>
<td>Lower middle</td>
<td>EUR</td>
<td>43.7</td>
<td>527.9</td>
<td>12,710</td>
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</table>

**Institutions**

<table>
<thead>
<tr>
<th>Score</th>
<th>Value Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>56.2</td>
<td>91</td>
</tr>
</tbody>
</table>

1.1 Political environment
- 46.0 101
  - Political and operational stability
  - 50.0 123
  - Government effectiveness
  - 44.1 90

1.2 Regulatory environment
- 61.3 78
  - Regulatory quality
  - 36.7 92
  - Rule of law
  - 28.3 108
  - Cost of redundant dismissal
  - 13.0 40

1.3 Business environment
- 61.2 104
  - Ease of starting a business
  - 91.1 52
  - Ease of resolving insolvency
  - 31.4 117

**Human capital and research**

<table>
<thead>
<tr>
<th>Score</th>
<th>Value Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.2</td>
<td>44</td>
</tr>
</tbody>
</table>

2.1 Education
- 61.3 23
  - Expenditure on education, % GDP
  - 5.4 23
  - Government funding/pupil, secondary, % GDP/cap
  - 30.3 7

2.2 Tertiary education
- 42.9 33
  - Tertiary enrollment, % gross
  - 82.7 19

2.3 Research and development (R&D)
- 10.4 58
  - Researchers, FTE/mn pop.
  - 988.1 51

3.2 General infrastructure
- 12.8 124
  - Electricity output, GWh/mn pop.
  - 3,546.9 58

5.1 Knowledge workers
- 5.1 27

5.1.1 Knowledge-intensive employment, %
- 3.7 32

5.1.2 Firms offering formal training, %
- 2.4 33

5.1.3 GERD performed by business, % GDP
- 0.3 49

5.1.4 GERD financed by abroad, % GDP
- 30.5 54

5.1.5 Females employed w/advanced degrees, %
- 30.2 2

5.2 Innovation linkages
- 8.0 84

5.2.1 University-industry R&D collaboration
- 42.3 67

5.2.2 State of cluster development and depth
- 40.3 100

5.2.3 GERD financed by abroad, % GDP
- 0.1 38

5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP
- 0.0 116

5.2.5 Patent families/bn PPP$ GDP
- 0.2 47

5.3 Knowledge absorption
- 29.7 59

5.3.1 Intellectual property payments, % total trade
- 0.8 46

5.3.2 High-tech imports, % total trade
- 9.9 36

5.3.3 ICT services imports, % total trade
- 1.0 78

5.3.4 FDI net inflows, % GDP
- 3.6 36

5.3.5 Research talent, % in businesses
- 27.3 45

**Knowledge and technology outputs**

<table>
<thead>
<tr>
<th>Score</th>
<th>Value Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.3</td>
<td>33</td>
</tr>
</tbody>
</table>

6.1 Knowledge creation
- 35.7 27

6.1.1 Patents by origin/bn PPP$ GDP
- 3.7 22

6.1.2 PCT patents by origin/bn PPP$ GDP
- 0.3 46

6.1.3 Utility models by origin/bn PPP$ GDP
- 14.9 1

6.1.4 Scientific and technical articles/bn PPP$ GDP
- 9.1 90

6.1.5 Citable documents H-index
- 17.0 51

6.2 Knowledge impact
- 31.4 61

6.2.1 Labor productivity growth, %
- 0.7 54

6.2.2 New businesses/th pop. 15–64
- 1.7 61

6.2.3 Software spending, % GDP
- 0.5 17

6.2.4 ISO 9001 quality certificates/bn PPP$ GDP
- 3.3 72

6.2.5 High-tech manufacturing, %
- 18.4 65

6.3 Knowledge diffusion
- 29.6 35

6.3.1Intellectual property receipts, % total trade
- 0.1 48

6.3.2 Production and export complexity
- 52.4 44

6.3.3 High-tech exports, % total trade
- 1.9 60

6.3.4 ICT services exports, % total trade
- 6.3 9

**Creative outputs**

<table>
<thead>
<tr>
<th>Score</th>
<th>Value Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.9</td>
<td>48</td>
</tr>
</tbody>
</table>

7.1 Intangible assets
- 45.0 29

7.1.1 Trademarks by origin/bn PPP$ GDP
- 96.8 10

7.1.2 Global brand value, top 5,000, % GDP
- 3.1 74

7.1.3 Industrial designs by origin/bn PPP$ GDP
- 8.3 15

7.1.4 ICTs and organizational model creation
- 55.6 58

7.2 Creative goods and services
- 7.0 93

7.2.1 Creative goods and services exports, % total trade
- 0.5 47

7.2.2 National feature films/mn pop. 15–69
- 0.6 97

7.2.3 Entertainment and media market/th pop. 15–69
- n/a

7.2.4 Printing and other media, % manufacturing
- 0.8 88

7.2.5 Creative goods exports, % total trade
- 0.2 78

7.3 Online creativity
- 26.4 45

7.3.1 Generic top-level domains (TLD)/th pop. 15–69
- 4.5 55

7.3.2 Country-code TLDs/th pop. 15–69
- 5.1 55

7.3.3 Wikipedia edits/mn pop. 15–69
- 65.0 44

7.3.4 Mobile app creation/bn PPP$ GDP
- 29.1 17

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 Appendix IV 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 Ukraine.

## Missing data for Ukraine

<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>7.2.3</td>
<td>Entertainment and media market/th pop. 15–69</td>
<td>n/a</td>
<td>2020</td>
<td>PwC</td>
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</tbody>
</table>

## Outdated data for Ukraine

<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>2.1.3</td>
<td>School life expectancy, years</td>
<td>2014</td>
<td>2018</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tertiary enrolment, % gross</td>
<td>2014</td>
<td>2018</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>2018</td>
<td>2019</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Gross expenditure on R&amp;D, % GDP</td>
<td>2018</td>
<td>2019</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>2015</td>
<td>2018</td>
<td>Microfinance Information Exchange</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Market capitalization, % GDP</td>
<td>2018</td>
<td>2019</td>
<td>World Federation of Exchanges</td>
</tr>
<tr>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>2018</td>
<td>2019</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators</td>
</tr>
<tr>
<td>5.3.2</td>
<td>High-tech imports, % total trade</td>
<td>2018</td>
<td>2019</td>
<td>United Nations, COMTRADE</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in businesses</td>
<td>2018</td>
<td>2019</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators</td>
</tr>
<tr>
<td>6.2.2</td>
<td>New businesses/th pop. 15–64</td>
<td>2017</td>
<td>2018</td>
<td>World Bank</td>
</tr>
<tr>
<td>6.3.3</td>
<td>High-tech exports, % total trade</td>
<td>2018</td>
<td>2019</td>
<td>United Nations, COMTRADE</td>
</tr>
<tr>
<td>7.2.5</td>
<td>Creative goods exports, % total trade</td>
<td>2018</td>
<td>2019</td>
<td>United Nations, COMTRADE</td>
</tr>
</tbody>
</table>
ABOUT THE GLOBAL INNOVATION INDEX

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.