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.

Panama ranking in the Global Innovation Index 2023

> Panama ranks 84th among the 132 economies featured in the GII 2023.

> Panama ranks 48th among the 50 high-income group economies.

> Panama ranks 10th among the 19 economies in Latin America and the Caribbean.

Panama GII Ranking (2020–2023)

The table shows the rankings of Panama 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 Panama in the GII 2023 is between ranks 82 and 88.

<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>73rd</td>
<td>82nd</td>
<td>70th</td>
</tr>
<tr>
<td>2021</td>
<td>83rd</td>
<td>83rd</td>
<td>79th</td>
</tr>
<tr>
<td>2022</td>
<td>81st</td>
<td>83rd</td>
<td>80th</td>
</tr>
<tr>
<td>2023</td>
<td>84th</td>
<td>93rd</td>
<td>75th</td>
</tr>
</tbody>
</table>

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

This year Panama ranks 93rd in innovation inputs. This position is lower than last year.

Panama ranks 75th in innovation outputs. This position is higher 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.

→ Relative to GDP, Panama's performance is below expectations for its level of development.

→ 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.

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

Relationship between innovation inputs and outputs
Overview of Panama’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 Panama are those that rank above the GII (shown in blue) and the weakest are those that rank below.

- **55th Infrastructure**
- **67th Creative outputs**
- **77th Institutions**
- **84th Global Innovation Index**
- **87th Knowledge and technology outputs**
- **102nd Market sophistication**
- **103rd Human capital and research**
- **124th Business sophistication**

**Highest rankings**
Panama ranks highest in Infrastructure (55th), Creative outputs (67th) and Institutions (77th).

**Lowest rankings**
Panama ranks lowest in Business sophistication (124th), Human capital and research (103rd) and Market sophistication (102nd).

The full WIPO Intellectual Property Statistics profile for Panama can be found on [this link](#).
Benchmark of Panama against other country groupings for each of the seven areas of the GII Index

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

> High-Income economies
Panama performs below the high-income group average in all the pillars.

> Latin America And The Caribbean
Panama performs below the regional average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research.

Knowledge and technology outputs
- Top 10 | Score: 58.96
- High income | Score: 38.62
- LCN | Score: 17.14
- Panama | Score: 17.11

Creative outputs
- Top 10 | 56.09
- High income | 40.27
- Panama | 23.90
- LCN | 18.91

Business sophistication
- Top 10 | 64.39
- High income | 46.38
- LCN | 26.15
- Panama | 16.21

Market sophistication
- Top 10 | 61.93
- High income | 46.42
- LCN | 29.74
- Panama | 23.54

Human capital and research
- Top 10 | 60.28
- High income | 46.30
- LCN | 24.92
- Panama | 19.11

Infrastructure
- Top 10 | 62.83
- High income | 55.85
- Panama | 45.02
- LCN | 35.88

Institutions
- Top 10 | 79.85
- High income | 68.16
- Panama | 46.96
- LCN | 41.12
Innovation strengths and weaknesses in Panama

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

> Panama’s main innovation strengths are GDP/unit of energy use (rank 5), Creative goods exports, % total trade (rank 14) and Gross capital formation, % GDP (rank 14).

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rank</strong></td>
<td><strong>Code</strong></td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>5</td>
<td>3.3.1</td>
</tr>
<tr>
<td>14</td>
<td>7.2.4</td>
</tr>
<tr>
<td>14</td>
<td>3.2.3</td>
</tr>
<tr>
<td>19</td>
<td>7.3.1</td>
</tr>
<tr>
<td>19</td>
<td>6.3.3</td>
</tr>
<tr>
<td>26</td>
<td>4.1.2</td>
</tr>
<tr>
<td>40</td>
<td>6.3.2</td>
</tr>
<tr>
<td>40</td>
<td>3.3.2</td>
</tr>
<tr>
<td>44</td>
<td>5.2.3</td>
</tr>
<tr>
<td>58</td>
<td>5.2.5</td>
</tr>
</tbody>
</table>
Panama’s innovation system

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

Innovation inputs in Panama

2.1.1 Expenditure on education, % GDP
was equal to 3.46% GDP in 2021, down by 0.37 percentage points from the year prior – and equivalent to an indicator rank of 91.

2.2.2 Graduates in science and engineering, %
was equal to 13.74% of total tertiary graduates in 2020, down by 1.69 percentage points from the year prior – and equivalent to an indicator rank of 102.

2.3.1 Researchers, FTE/mn pop.
was equal to 39.11 FTE/mn pop. in 2013, equivalent to an indicator rank of 97.

2.3.2 Gross expenditure on R&D, % GDP
was equal to 0.165% GDP in 2021, down by 0.057 percentage points from the year prior – and equivalent to an indicator rank of 93.

2.3.4 QS university ranking, top 3
was equal to an average score of 0 for the top 3 universities in 2022, down by 100% from the year prior – and equivalent to an indicator rank of 71.

3.1.1 ICT access
was equal to a score of 8.53 in 2021, up by 2.65% from the year prior – and equivalent to an indicator rank of 79.
4.1.1 Finance for startups and scaleups was equal to an average perception score of 3.32 in 2022, equivalent to an indicator rank of 77.

4.2.4 VC received, value, % GDP was equal to 0.00004% GDP in 2022, down by 0.001 percentage points from the year prior – and equivalent to an indicator rank of 68.

4.3.2 Domestic industry diversification was equal to an index score of 0.52 in 2020, up by 17.37% from the year prior – and equivalent to an indicator rank of 108.

5.1.1 Knowledge-intensive employment, % was equal to 10.9% in 2022, down by 12.99 percentage points from the year prior – and equivalent to an indicator rank of 103.
6.1.1 Patents by origin
was equal to 0.035 Thousands in 2021, up by 59.091% from the year prior – and equivalent to an indicator rank of 92.

6.1.5 Citable documents H-index
was equal to an index value of 259 in 2022, up by 7.025% from the year prior – and equivalent to an indicator rank of 67.

6.2.2 Unicorn valuation, % GDP
was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.

6.2.3 Software spending, % GDP
was equal to 0.181% GDP in 2022, down by 0.0098 percentage points from the year prior – and equivalent to an indicator rank of 77.

6.2.4 High-tech manufacturing, %
was equal to 7.61% of total manufacturing output in 2020, up by 0.98 percentage points from the year prior – and equivalent to an indicator rank of 96.

6.3.1 Intellectual property receipts, % total trade
was equal to 0.002% total trade in 2021, down by 0.013 percentage points from the year prior – and equivalent to an indicator rank of 76.
6.3.2 Production and export complexity
was equal to a score of 0.628 in 2020, up by 249.96% from the year prior – and equivalent to an indicator rank of 40.

7.1.3 Global brand value, top 5,000
was equal to 0.301 bn USD in 2023, down by 60.00076% from the year prior – and equivalent to an indicator rank of 67.

6.3.3 High-tech exports
was equal to 1,754,733,818 USD in 2020, up by 8.24% from the year prior – and equivalent to an indicator rank of 19.

7.2.1 Cultural and creative services exports
was equal to 56,343,000 USD in 2021, down by 20.44% from the year prior – and equivalent to an indicator rank of 69.

7.1.1 Intangible asset intensity, top 15%, %
was equal to 2.49% in 2022, up by 4.47 percentage points from the year prior – and equivalent to an indicator rank of 69.

7.3.4 Mobile app creation/bn PPP$ GDP
was equal to 193,906.88 Apps/bn PPP$ GDP in 2022, up by 18.11% from the year prior – and equivalent to an indicator rank of 62.
Panama's innovation top performers

2.3.4 QS university ranking of Panama’s top universities

<table>
<thead>
<tr>
<th>Rank</th>
<th>University</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001-1200</td>
<td>UNIVERSIDAD TECNOLOGICA DE PANAMA (UTP)</td>
<td>10.60</td>
</tr>
<tr>
<td>1201-1400</td>
<td>UNIVERSIDAD DE PANAMA</td>
<td>5.20</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+" or a range "x-y".

7.1.1 Top 15 intangible-asset intensive companies in Panama

<table>
<thead>
<tr>
<th>Rank</th>
<th>Firm</th>
<th>Intensity, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BANESCO SA</td>
<td>95.56</td>
</tr>
<tr>
<td>2</td>
<td>COPA HOLDINGS SA</td>
<td>50.63</td>
</tr>
<tr>
<td>3</td>
<td>EMPRESA GENERAL DE INVERSIONES SA</td>
<td>37.71</td>
</tr>
</tbody>
</table>


7.1.3 Top 5,000 companies in Panama 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>COPA AIRLINES</td>
<td>Airlines</td>
<td>300.6</td>
</tr>
</tbody>
</table>

Source: Brand Finance (https://brandirectory.com). Note: Rank corresponds to within economy ranks.
# Global Innovation Index 2023

## Panama

### Output rank 75  
Input rank 93  
Income High  
Region LCN  
Population (mm) 4.4  
GDP, PPP$ (bn) 159.9  
GDP per capita, PPP$ 36,370.4

### Institutions  
4.1 Credit  
4.1.1 Finance for startups and scaleups*  
4.1.2 Domestic credit to private sector, % GDP  
4.1.3 Loans from microfinance institutions, % GDP  
4.2 Investment  
4.2.1 Market capitalization, % GDP  
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP  
4.2.3 VC recipients, deals/bn PPP$ GDP  
4.2.4 VC received, value, % GDP  
4.3 Trade, diversification, and market scale  
4.3.1 Applied tariff rate, weighted avg, %  
4.3.2 Domestic industry diversification  
4.3.3 Domestic market scale, bn PPP$  

### Human capital and research  
2.1 Education  
2.1.1 Expenditure on education, % GDP  
2.1.2 Government funding/pupil, secondary, % GDP/cap  
2.1.3 School life expectancy, years  
2.1.4 PISA scales in reading, maths and science  
2.1.5 Pupil-teacher ratio, secondary  
2.2 Tertiary education  
2.2.1 Tertiary enrolment, % gross  
2.2.2 Graduates in science and engineering, %  
2.2.3 Tertiary in-mobility, %  
2.3 Research and development (R&D)  
2.3.1 Researchers, FTE/mn pop.  
2.3.2 Gross expenditure on R&D, % GDP  
2.3.3 Global corporate R&D investors, top 3, mn US$  
2.3.4 QS university ranking, top 3*  

### Infrastructure  
3.1 Information and 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 Electricity output, GWh/mn pop.  
3.2.2 Logistics performance*  
3.2.3 Grass capital formation, % GDP  
3.3 Ecological sustainability  
3.3.1 GDP/unit of energy use  
3.3.2 Environmental performance*  
3.3.3 ISO 14001 environment/bn PPP$ GDP  

### Market sophistication  
4.1 Credit  
4.1.1 Finance for startups and scaleups*  
4.1.2 Domestic credit to private sector, % GDP  
4.1.3 Loans from microfinance institutions, % GDP  
4.2 Investment  
4.2.1 Market capitalization, % GDP  
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP  
4.2.3 VC recipients, deals/bn PPP$ GDP  
4.2.4 VC received, value, % GDP  
4.3 Trade, diversification, and market scale  
4.3.1 Applied tariff rate, weighted avg, %  
4.3.2 Domestic industry diversification  
4.3.3 Domestic market scale, bn PPP$  

### 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 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  

### Knowledge and technology outputs  
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 Oable documents H-index  
6.2 Knowledge impact  
6.2.1 Labor productivity growth, %  
6.2.2 Uncorn valuation, % GDP  
6.2.3 Software spending, % GDP  
6.2.4 High-tech manufacturing, %  
6.3 Knowledge diffusion  
6.3.1 Intellectual property rights, % 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  

### Creative outputs  
7.1 Intangible assets  
7.1.1 Intangible asset intensity, total, %  
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/shp. 15-69  
7.2.4 Creative goods exports, % total trade  
7.3 Online creativity  
7.3.1 Generic top-level domains (TLDs)shp. pop. 15-69  
7.3.2 Country-code TLDs/shp. 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 Panama.

Panama has missing data for six indicators and outdated data for seven indicators.

Missing data for Panama

<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>2.1.2</td>
<td>Government funding/pupil, secondary, % GDP/cap</td>
<td>n/a</td>
<td>2019</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<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>5.1.2</td>
<td>Firms offering formal training, %</td>
<td>n/a</td>
<td>2019</td>
<td>World Bank Enterprise Surveys</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Research talent, % in businesses</td>
<td>n/a</td>
<td>2021</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD; RICYT</td>
</tr>
<tr>
<td>7.2.2</td>
<td>National feature films/mn pop. 15-69</td>
<td>n/a</td>
<td>2021</td>
<td>QMDIA; United Nations, World Population Prospects</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Entertainment and media market with pop. 15-69</td>
<td>n/a</td>
<td>2022</td>
<td>PwC; GEMO; United Nations, World Population Prospects; International Monetary Fund</td>
</tr>
</tbody>
</table>

Outdated data for Panama

<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>2016</td>
<td>2020</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Pupil-teacher ratio, secondary</td>
<td>2017</td>
<td>2020</td>
<td>UNESCO Institute for Statistics</td>
</tr>
<tr>
<td>2.3.1</td>
<td>Researchers, FTE/mn pop.</td>
<td>2013</td>
<td>2021</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD; RICYT</td>
</tr>
<tr>
<td>3.2.1</td>
<td>Electricity output, GWh/mn pop.</td>
<td>2020</td>
<td>2021</td>
<td>International Energy Agency</td>
</tr>
<tr>
<td>5.1.3</td>
<td>GERD performed by business, % GDP</td>
<td>2017</td>
<td>2021</td>
<td>UNESCO Institute for Statistics; Eurostat; OECD; RICYT</td>
</tr>
<tr>
<td>6.3.3</td>
<td>High-tech exports, % total trade</td>
<td>2020</td>
<td>2021</td>
<td>United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development; Trade Data Monitor.</td>
</tr>
<tr>
<td>7.2.4</td>
<td>Creative goods exports, % total trade</td>
<td>2020</td>
<td>2021</td>
<td>United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development</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.