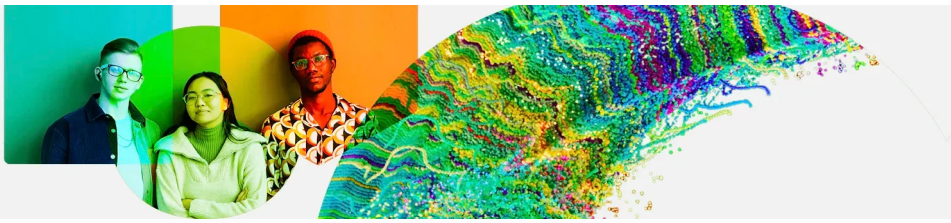
Global Innovation Index 2024



Panama ranking in the Global Innovation Index 2024

Panama ranks 82nd among the 133 economies featured in the GII 2024.

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 ranks 49th among the 51 high-income group economies.

Panama ranks 11th among the 20 economies in Latin America and the Caribbean.

Panama GII Ranking (2020-2024)

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 2024 is between ranks 80 and 88.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	73rd	82nd	70th
2021	83rd	83rd	79th
2022	81st	83rd	80th
2023	84th	93rd	75th
2024	82nd	83rd	78th

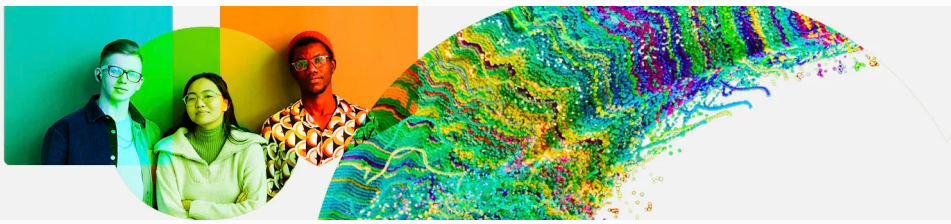
Panama performs better in innovation outputs than innovation inputs in 2024.

This year **Panama ranks 83rd in innovation inputs.** This position is higher than last year.

Panama ranks 78th in innovation outputs. This position is lower than last year.

Panama has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Panama, how rapidly is technology being embraced and what are the resulting societal impacts.

For Panama, 4 indicators have improved in the short-term and 3 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -4.2% 2022 - 2023	▲ 14.3% 2021 - 2022	0% 2022 - 2023	▲ 43.3% 2022 - 2023	▼ -22.2% 2022 - 2023
▲ 4.2% 2013 - 2023	▲ 13.7% 2012 - 2022	n/a	n/a	▼ -5.2% 2013 - 2023

Technology adoption

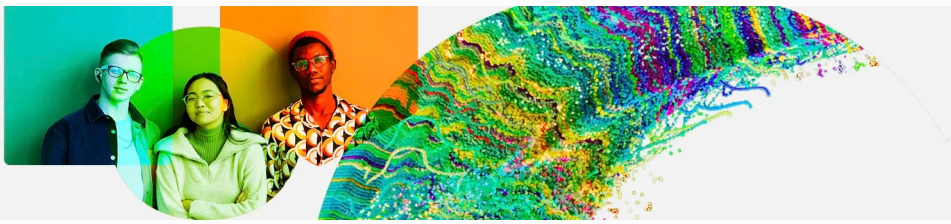
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
n/a	▲ 4.5% 2021 - 2022	n/a	n/a	n/a
n/a	▲ 7% 2012 - 2022		n/a	n/a
n/a	15.5 per 100 inhabitants in 2022	n/a		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
n/a	▲ 0.8% 2021 - 2022	▲ 1.1°C 2023
n/a	0% 2012 - 2022	n/a
	76.8 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024



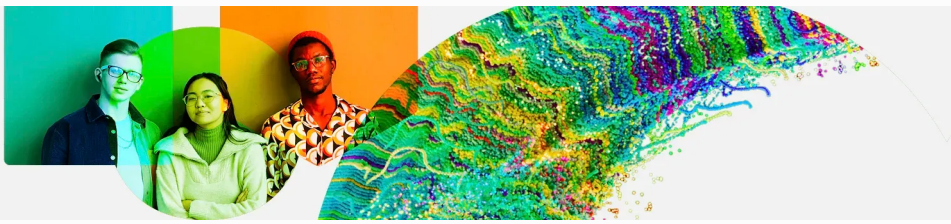
Expected vs. observed innovation performance

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

Global Innovation Index 2024



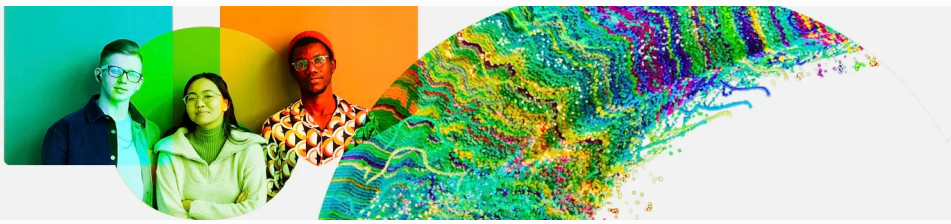
Effectively translating innovation investments into innovation outputs

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.

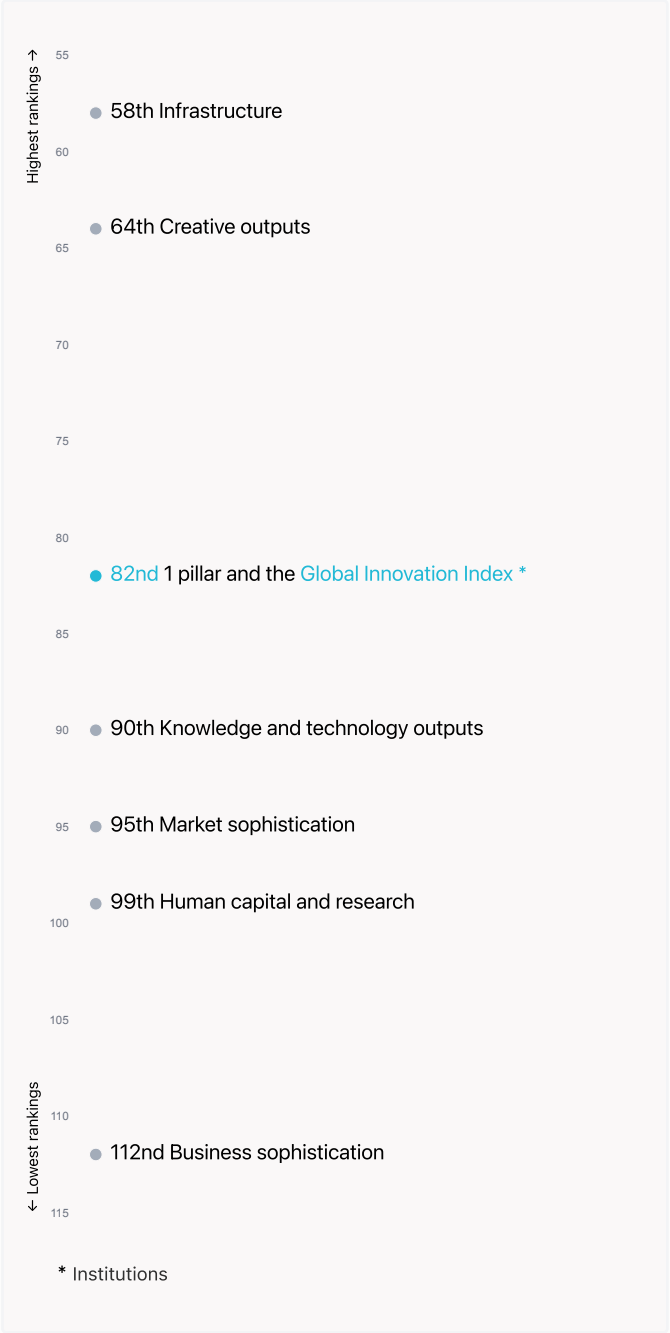
> Relationship between innovation inputs and outputs

Global Innovation Index 2024



Overview of Panama's rankings in the seven areas of the GII in 2024

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.



Highest rankings

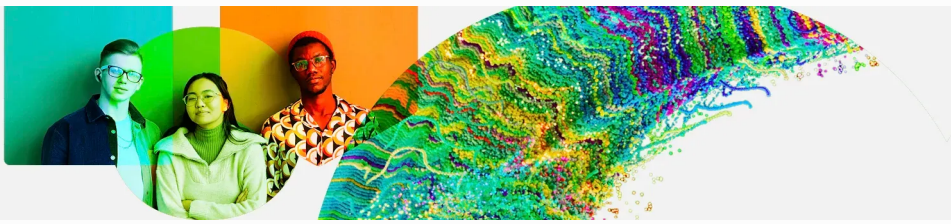
Panama ranks highest in Infrastructure (58th), Creative outputs (64th) and Institutions (82nd).

Lowest rankings

Panama ranks lowest in Business sophistication (112nd), Human capital and research (99th) and Market sophistication (95th).

The full WIPO Intellectual Property Statistics profile for Panama can be found on this link.

Global Innovation Index 2024



Benchmark of Panama against other economy groupings for each of the seven areas of the GII Index

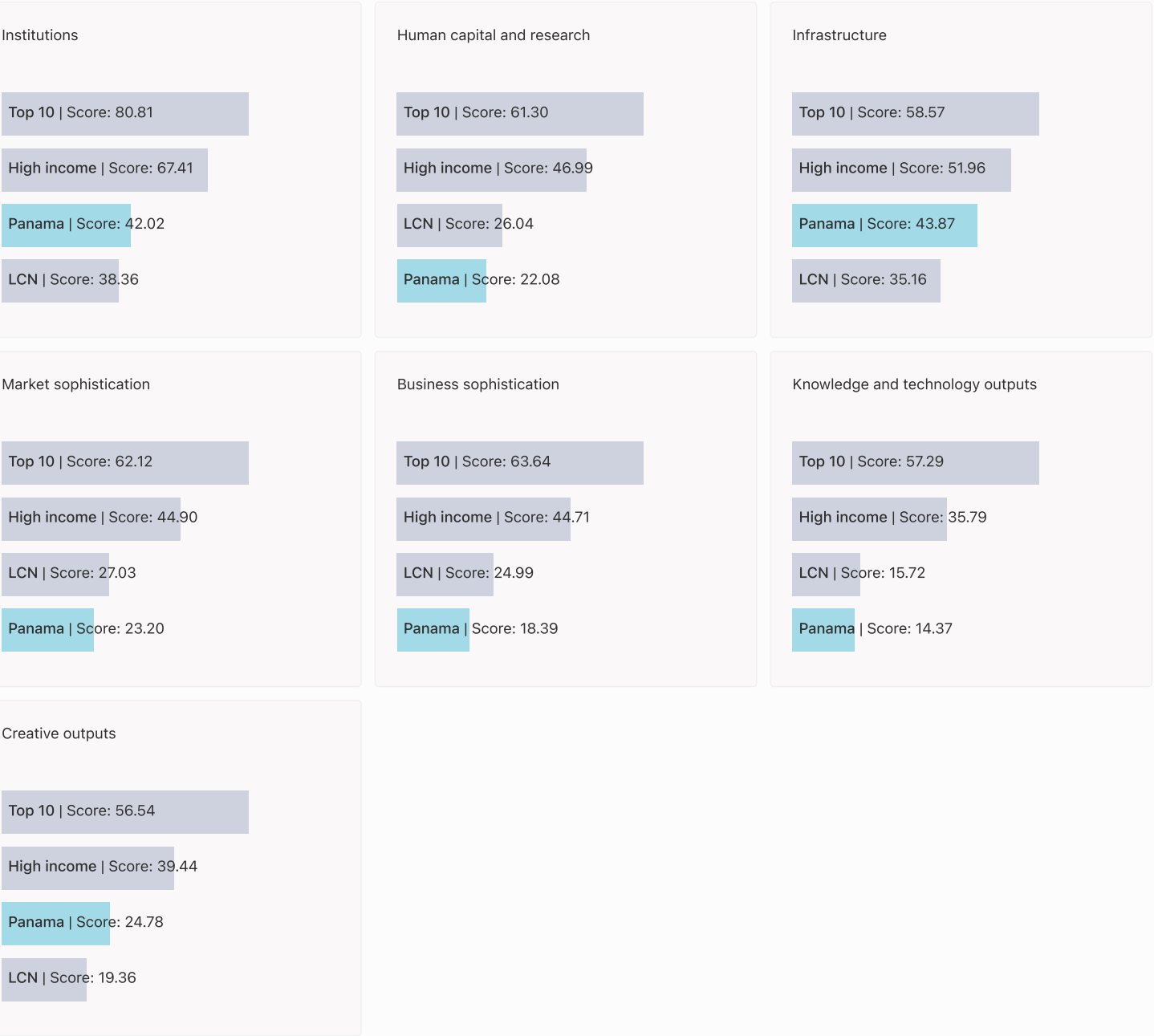
The charts shows the relative position of Panama (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.

High-Income economies

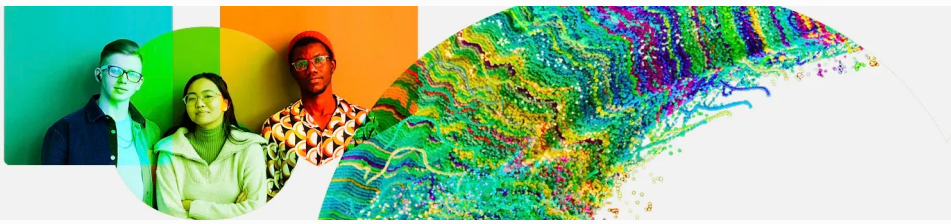
Panama performs below the high-income group average in all pillars.

Latin America And The Caribbean

Panama performs above the regional average in Institutions, Infrastructure, Creative outputs.



Global Innovation Index 2024



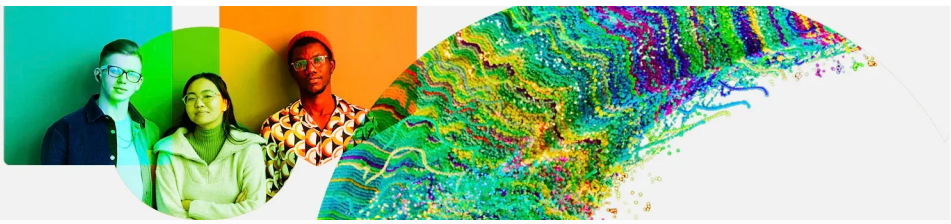
Innovation strengths and weaknesses in Panama

The table below gives an overview of the indicator strengths and weaknesses of Panama in the GII 2024.

Panama's main innovation strengths are **GDP/unit of energy use** (rank 5), **Creative goods exports, % total trade** (rank 12) and **Gross capital formation, % GDP** (rank 13).

Strengths			Weaknesses		
Rank	Code	Indicator name	Rank	Code	Indicator name
5	3.3.1	GDP/unit of energy use	130	5.3.2	High-tech imports, % total trade
12	7.2.4	Creative goods exports, % total trade	120	7.1.4	Industrial designs by origin/bn PPP$ GDP
13	3.2.3	Gross capital formation, % GDP	117	6.1.4	Scientific and technical articles/bn PPP$ GDP
17	6.2.1	Labor productivity growth, %	107	4.3.2	Domestic industry diversification
19	6.3.3	High-tech exports, % total trade	101	2.2.2	Graduates in science and engineering, %
23	4.1.2	Domestic credit to private sector, % GDP	97	6.2.4	High-tech manufacturing, %
37	7.3.1	Top-level domains (TLDs)/th pop. 15–69	93	5.1.3	GERD performed by business, % GDP
40	5.2.1	Public Research-Industry co-publications, %	77	4.1.1	Finance for startups and scaleups[†]
46	5.3.1	Intellectual property payments, % total trade	49	6.2.2	Unicorn valuation, % GDP
56	5.2.5	Patent families/bn PPP$ GDP	41	2.3.3	Global corporate R&D investors, top 3, mn USD

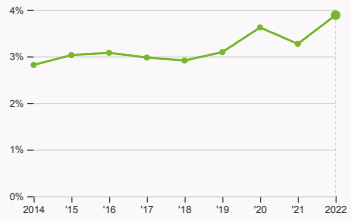
Global Innovation Index 2024



Panama's innovation system

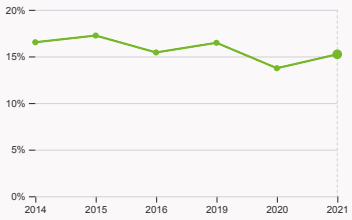
As far as practicable, the plots below present unscaled indicator data.

Innovation inputs in Panama



2.1.1 **Expenditure on education**

was equal to 3.89 % GDP in 2022, up by 0.62 percentage points from the year prior – and equivalent to an indicator rank of 79.



2.2.2 **Graduates in science and engineering**

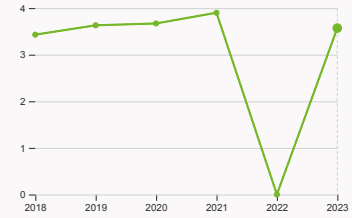
was equal to 15.23 % of total graduates in 2021, up by 1.49 percentage points from the year prior – and equivalent to an indicator rank of 101.

2.3.1 **Researchers**

was equal to 142.03 FTE per million population in 2022, up by 5.51% from the year prior – and equivalent to an indicator rank of 90.

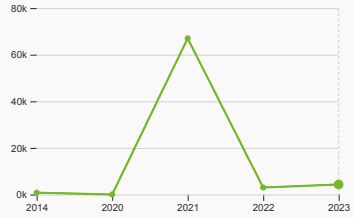
2.3.2 **Gross expenditure on R&D**

was equal to 0.18 % GDP in 2022, up by 0.005 percentage points from the year prior – and equivalent to an indicator rank of 89.



2.3.4 **QS university ranking**

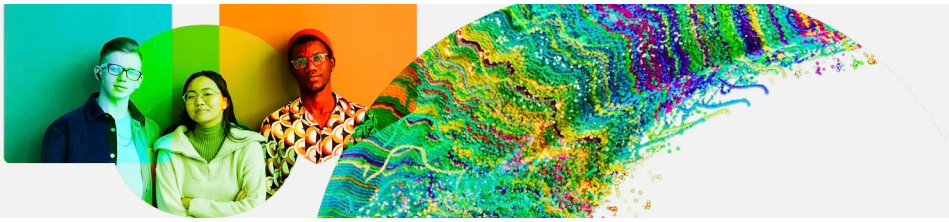
was equal to an average score of 3.57 for the top three universities in 2023, up by 357% from the year prior – and equivalent to an indicator rank of 73.



4.2.4 **VC received, value**

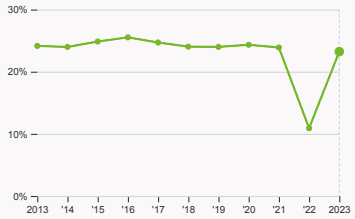
was equal to 4.3 thousand USD in 2023, up by 43.33% from the year prior – and equivalent to an indicator rank of 68.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

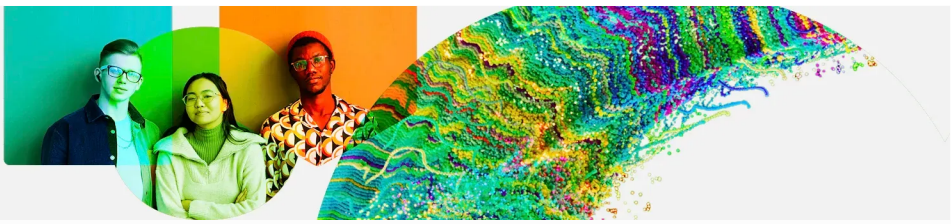
was equal to an index score of 0.42 in 2020, up by 20.7% from the year prior – and equivalent to an indicator rank of 107.



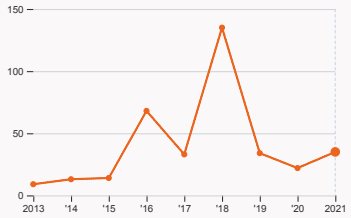
5.1.1 Knowledge-intensive employment

was equal to 23.23 % in 2023, up by 12.33 percentage points from the year prior – and equivalent to an indicator rank of 63.

Global Innovation Index 2024

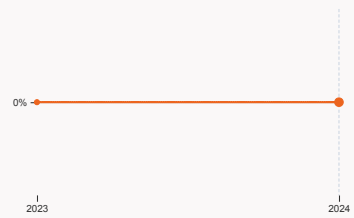


Innovation outputs in Panama



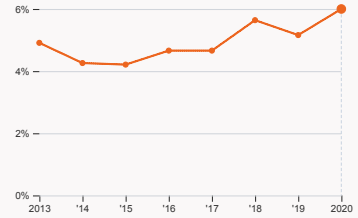
6.1.1 Patents by origin

was equal to 35 patents in 2021, up by 59.09% from the year prior – and equivalent to an indicator rank of 93.



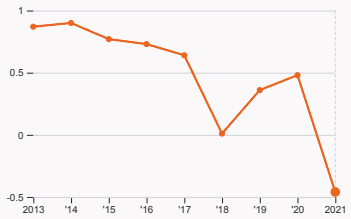
6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.



6.2.4 High-tech manufacturing

was equal to 6 % of total manufacturing output in 2020, up by 0.84 percentage points from the year prior – and equivalent to an indicator rank of 97.

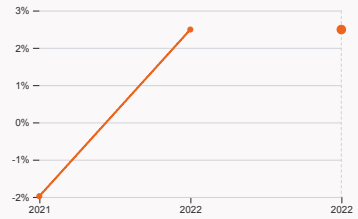


6.3.2 Production and export complexity

was equal to a score of -0.46 in 2021, down by 195.83% from the year prior – and equivalent to an indicator rank of 85.

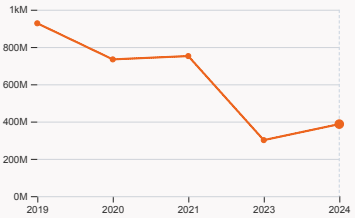
6.3.3 High-tech exports

was equal to 1.79 billion USD in 2020, up by 7.83% from the year prior – and equivalent to an indicator rank of 19.



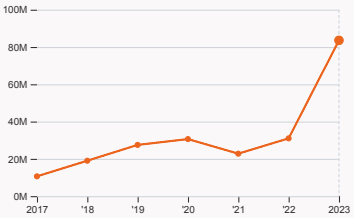
7.1.1 Intangible asset intensity

was equal to 2.49 % for the top 15 companies in 2022 with no change from the year prior – and equivalent to an indicator rank of 69.



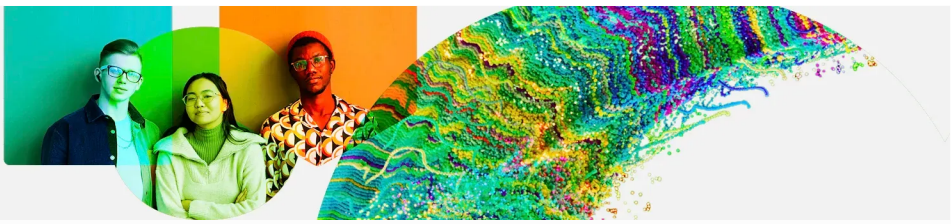
7.1.3 Global brand value

was equal to 386.43 million USD for the brands in the top 5,000 in 2024, up by 28.57% from the year prior – and equivalent to an indicator rank of 64.



7.3.3 Mobile app creation

was equal to 83.57 million global downloads of mobile apps in 2023, up by 169.58% from the year prior – and equivalent to an indicator rank of 57.



Panama's innovation top performers

2.3.4 QS university ranking of Panama's top universities

Rank	University	Score
951-1000	UNIVERSIDAD TECNOLOGICA DE PANAMA (UTP)	10.70
1201-1400	UNIVERSIDAD DE PANAMA	4.50

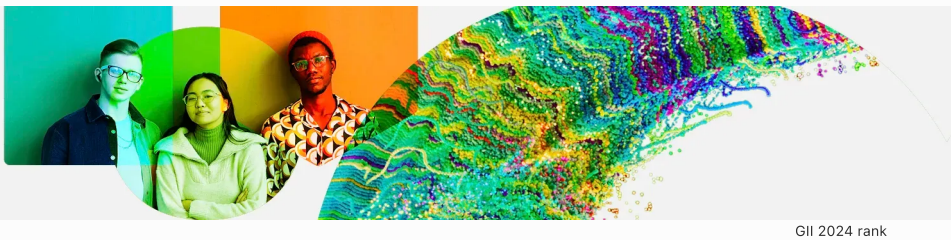
Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100].
Ranks can represent a single value "x", a tie "x=" or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

7.1.3 Top 5,000 companies in Panama with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	COPA AIRLINES	Airlines	386.4

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

Global Innovation Index 2024



Panama

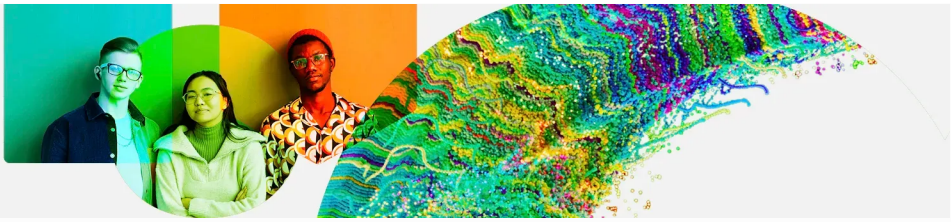
GII 2024 rank **82**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
78	83	High	LCN	4.5	190.3	42,738.2

	Score / Value	Rank	
Institutions	**42**	**82**	◇
1.1 Institutional environment	**52**	**71**	◇
1.1.1 Operational stability for businesses*	63.3	64	◇
1.1.2 Government effectiveness*	40.7	78	◇
1.2 Regulatory environment	**39.3**	**74**	◇
1.2.1 Regulatory quality*	45.2	68	◇
1.2.2 Rule of law*	33.5	85	◇
1.3 Business environment	**34.7**	**91**	◇
1.3.1 Policy stability for doing business†	41.6	84	
1.3.2 Entrepreneurship policies and culture†	27.9	55	
Human capital and research	**22.1**	**99**	◇
2.1 Education	**44.2**	**84**	◇
2.1.1 Expenditure on education, % GDP	3.9	79	
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a	
2.1.3 School life expectancy, years	13	80	
2.1.4 PISA scales in reading, maths and science	378.8	71	◇
2.1.5 Pupil–teacher ratio, secondary	13.6	66	
2.2 Tertiary education	**20.1**	**95**	◇
2.2.1 Tertiary enrolment, % gross	53	68	◇
2.2.2 Graduates in science and engineering, %	15.2	101	○ ◇
2.2.3 Tertiary inbound mobility, %	2.7	72	
2.3 Research and development (R&D)	**1.9**	**92**	◇
2.3.1 Researchers, FTE/mn pop.	142	90	◇
2.3.2 Gross expenditure on R&D, % GDP	0.2	89	◇
2.3.3 Global corporate R&D investors, top 3, mn USD	0	41	○ ◇
2.3.4 QS university ranking, top 3*	3.6	73	◇
Infrastructure	**43.9**	**58**	◇
3.1 Information and communication technologies (ICTs)	**65.1**	**80**	◇
3.1.1 ICT access*	81.2	84	◇
3.1.2 ICT use*	n/a	n/a	
3.1.3 Government's online service*	64	71	◇
3.1.4 E-participation*	50	75	◇
3.2 General infrastructure	**39.1**	**38**	● ◆
3.2.1 Electricity output, GWh/mn pop.	2,783.3	68	◇
3.2.2 Logistics performance*	45.5	56	◇
3.2.3 Gross capital formation, % GDP	33.8	13	● ◆
3.3 Ecological sustainability	**27.4**	**45**	● ◆
3.3.1 GDP/unit of energy use	25.2	5	● ◆
3.3.2 Low-carbon energy use, %	18.5	62	
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.3	111	◇
Market sophistication	**23.2**	**95**	◇
4.1 Credit	**28.6**	**61**	
4.1.1 Finance for startups and scaleups†	21.2	77	○ ◇
4.1.2 Domestic credit to private sector, % GDP	100.1	23	● ◆
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**4.2**	**90**	◇
4.2.1 Market capitalization, % GDP	22.6	57	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.04	76	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.01	96	◇
4.2.4 VC received, value, % GDP	0.0004	68	
4.3 Trade, diversification and market scale	**36.9**	**106**	◇
4.3.1 Applied tariff rate, weighted avg., %	2.4	71	
4.3.2 Domestic industry diversification	25.9	107	○ ◇
4.3.3 Domestic market scale, bn PPP$	190.3	76	

	Score / Value	Rank	
Business sophistication	**18.4**	**112**	◇
5.1 Knowledge workers	**24.1**	**92**	◇
5.1.1 Knowledge-intensive employment, %	23.2	63	◇
5.1.2 Firms offering formal training, %	n/a	n/a	
5.1.3 GERD performed by business, % GDP	0.0009	93	○ ◇
5.1.4 GERD financed by business, %	21.9	66	◇
5.1.5 Females employed w/advanced degrees, %	11	69	◇
5.2 Innovation linkages	**16.3**	**101**	◇
5.2.1 Public Research-Industry co-publications, %	2.2	40	● ◆
5.2.2 University-industry R&D collaboration†	23.5	111	◇
5.2.3 State of cluster development†	31.1	105	◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.004	109	◇
5.2.5 Patent families/bn PPP$ GDP	0.08	56	● ◆
5.3 Knowledge absorption	**14.8**	**127**	○ ◇
5.3.1 Intellectual property payments, % total trade	0.8	46	● ◆
5.3.2 High-tech imports, % total trade	2.8	130	○ ◇
5.3.3 ICT services imports, % total trade	0.4	114	◇
5.3.4 FDI net inflows, % GDP	0.6	105	
5.3.5 Research talent, % in businesses	7.4	65	◇
Knowledge and technology outputs	**14.4**	**90**	◇
6.1 Knowledge creation	**4.5**	**114**	◇
6.1.1 Patents by origin/bn PPP$ GDP	0.2	93	◇
6.1.2 PCT patents by origin/bn PPP$ GDP	0.04	79	
6.1.3 Utility models by origin/bn PPP$ GDP	0.02	67	
6.1.4 Scientific and technical articles/bn PPP$ GDP	2.9	117	○ ◇
6.1.5 Citable documents H-index	11.3	69	
6.2 Knowledge impact	**21.7**	**88**	◇
6.2.1 Labor productivity growth, %	2.5	17	● ◆
6.2.2 Unicorn valuation, % GDP	0	49	○ ◇
6.2.3 Software spending, % GDP	0.2	79	
6.2.4 High-tech manufacturing, %	6	97	○ ◇
6.3 Knowledge diffusion	**16.8**	**69**	◇
6.3.1 Intellectual property receipts, % total trade	0.007	99	
6.3.2 Production and export complexity	31.6	85	◇
6.3.3 High-tech exports, % total trade	9.6	19	● ◆
6.3.4 ICT services exports, % total trade	1.3	71	
6.3.5 ISO 9001 quality/bn PPP$ GDP	2	92	◇
Creative outputs	**24.8**	**64**	◇
7.1 Intangible assets	**19.6**	**81**	◇
7.1.1 Intangible asset intensity, top 15, %	2.5	69	◇
7.1.2 Trademarks by origin/bn PPP$ GDP	32.7	61	
7.1.3 Global brand value, top 5,000, % GDP	0.4	64	◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.03	120	○
7.2 Creative goods and services	**31**	**[36]**	
7.2.1 Cultural and creative services exports, % total trade	0.2	75	
7.2.2 National feature films/mn pop. 15–69	n/a	n/a	
7.2.3 Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	4.5	12	● ◆
7.3 Online creativity	**28.9**	**56**	● ◆ ◇
7.3.1 Top-level domains (TLDs)/th pop. 15–69	14.1	37	● ◆
7.3.2 GitHub commits/mn pop. 15–69	3.5	93	◇
7.3.3 Mobile app creation/bn PPP$ GDP	69	57	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕒 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.



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 eighteen indicators.

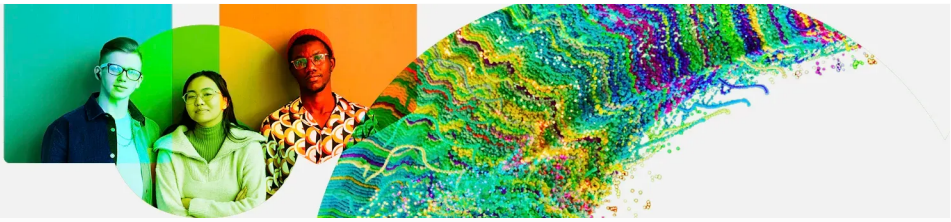
Missing data for Panama

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2020	UNESCO Institute for Statistics
3.1.2	ICT use*	n/a	2022	World Intellectual Property Organization; International Telecommunication Union ITU DataHub (accessed May 1st, 2024)
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2023	World Bank Enterprise Surveys
7.2.2	National feature films/mn pop. 15–69	n/a	2022	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

Outdated data for Panama

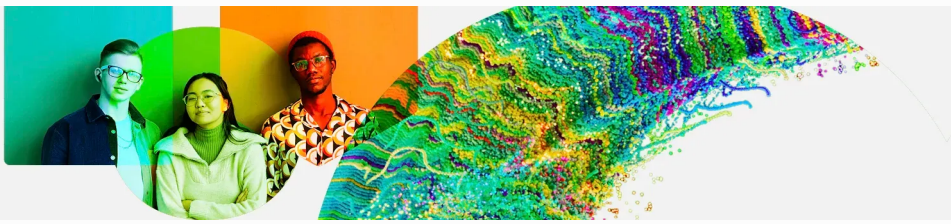
Code	Indicator name	Economy Year	Model Year	Source
2.1.3	School life expectancy, years	2016	2022	UNESCO Institute for Statistics
2.1.5	Pupil–teacher ratio, secondary	2017	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2021	2022	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2021	2022	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2021	2022	International Energy Agency
4.1.2	Domestic credit to private sector, % GDP	2020	2022	International Monetary Fund; World Bank and OECD GDP estimates.
4.3.2	Domestic industry diversification	2020	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.3	GERD performed by business, % GDP	2017	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2024



Code	Indicator name	Economy Year	Model Year	Source
5.3.5	Research talent, % in businesses	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.1	Patents by origin/bn PPP$ GDP	2021	2022	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	2021	2022	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	2020	2021	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2020	2022	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development; Trade Data Monitor.
7.1.1	Intangible asset intensity, top 15, %	2022	2023	Brand Finance
7.1.2	Trademarks by origin/bn PPP$ GDP	2021	2022	World Intellectual Property Organization; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	2021	2022	World Intellectual Property Organization; International Monetary Fund
7.2.4	Creative goods exports, % total trade	2020	2022	United Nations Comtrade Database; World Trade Organization and United Nations Conference on Trade and Development
7.3.1	Top-level domains (TLDs)/th pop. 15–69	2022	2023	ZookNIC Inc.; United Nations Department of Economic and Social Affairs, Population Division, World Population Prospects 2024

Global Innovation Index 2024



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.

Source: Global Innovation Index Database, WIPO, 2024.

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.