Global Innovation Index 2021

PANAMA

83rd Panama ranks 83rd 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 Panama 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 Panama in the GII 2021 is between ranks 76 and 85.

Rankings for Panama (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	83	83	79
2020	73	82	70
2019	75	79	72

- Panama performs better in innovation outputs than innovation inputs in 2021.
- This year Panama ranks 83rd in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Panama ranks 79th. This position is lower than both 2020 and 2019.

50th Panama ranks 50th among the 51 high-income group economies.

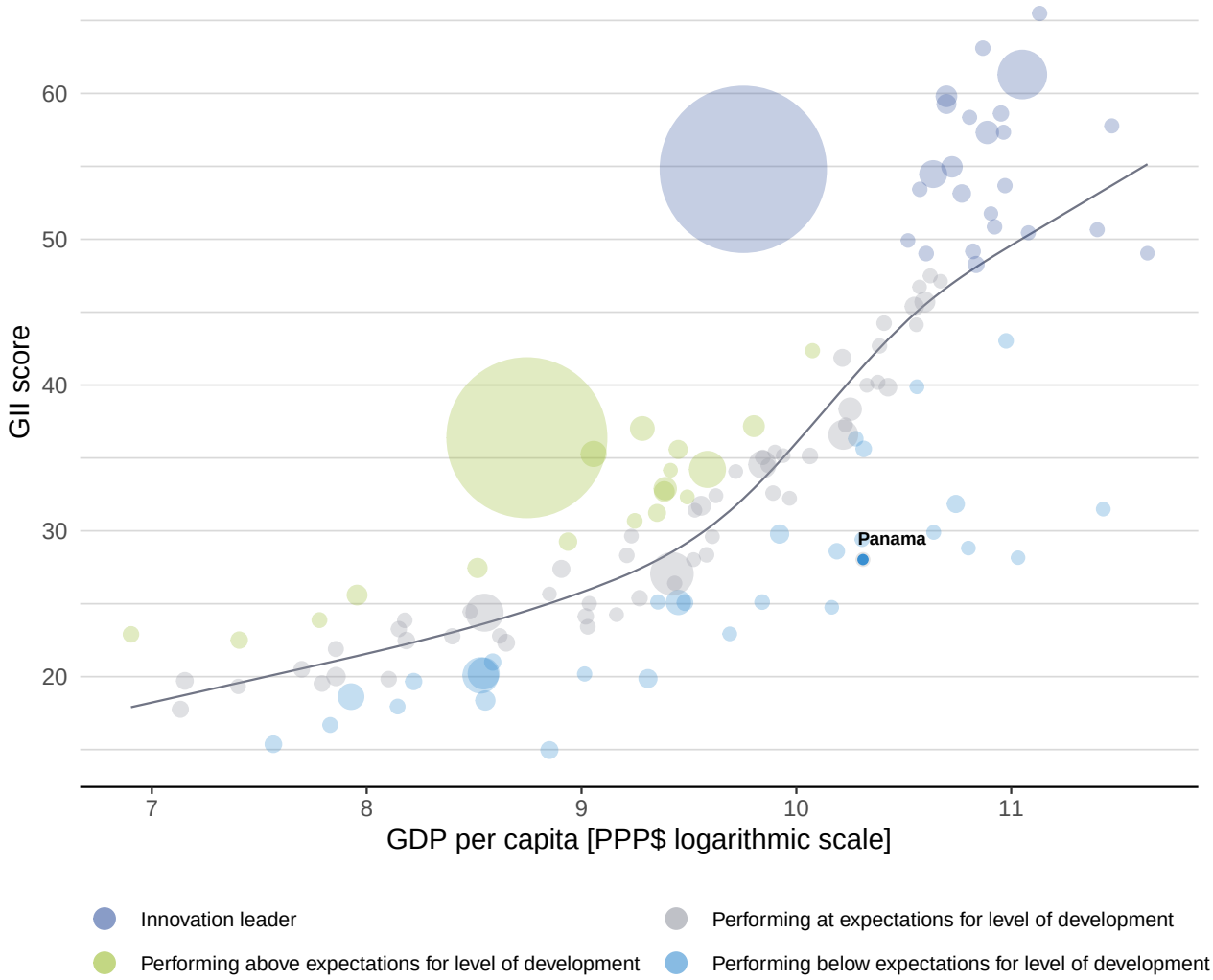
10th Panama ranks 10th among the 18 economies in Latin America and the Caribbean.

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.

The positive relationship between innovation and development

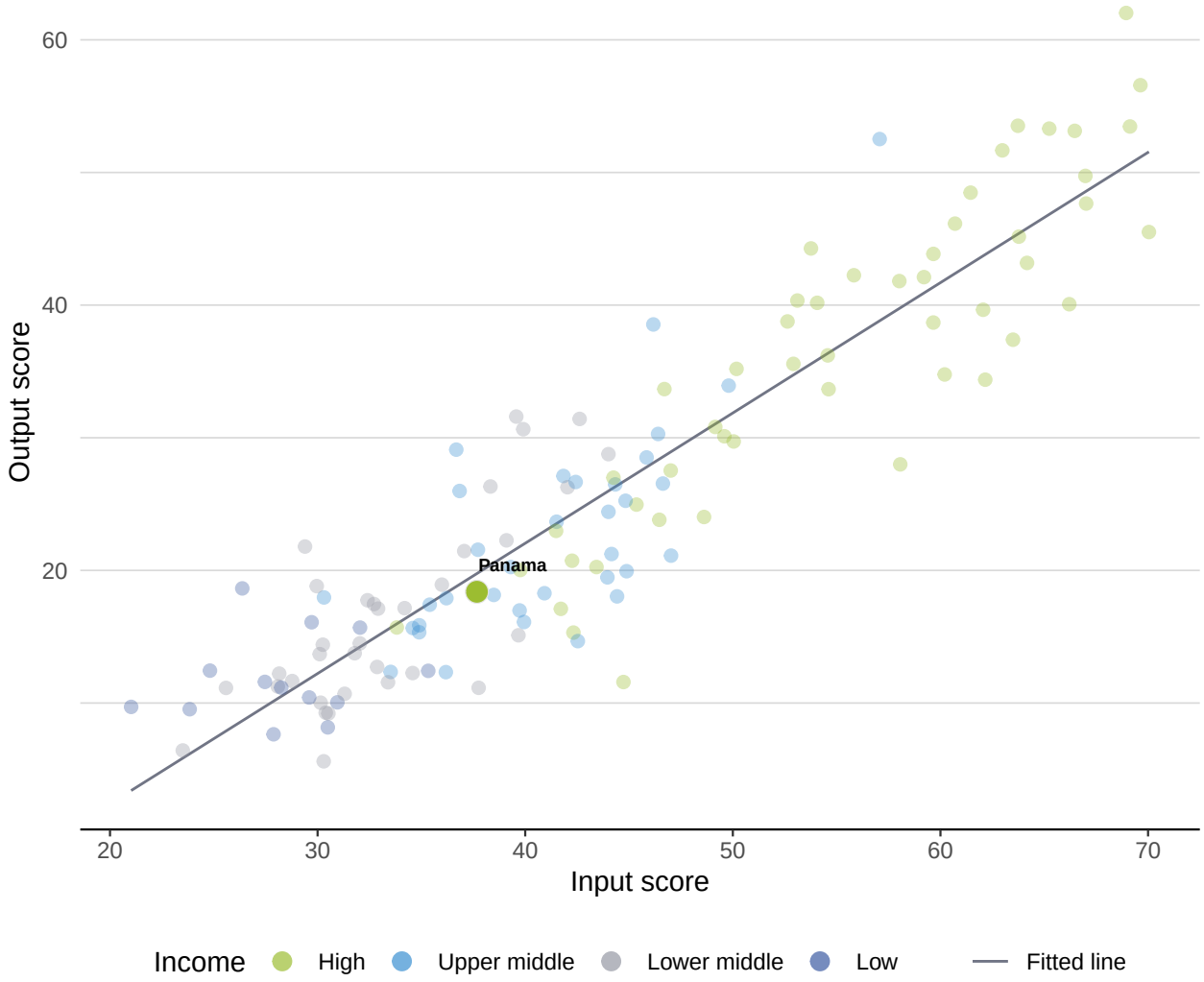


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

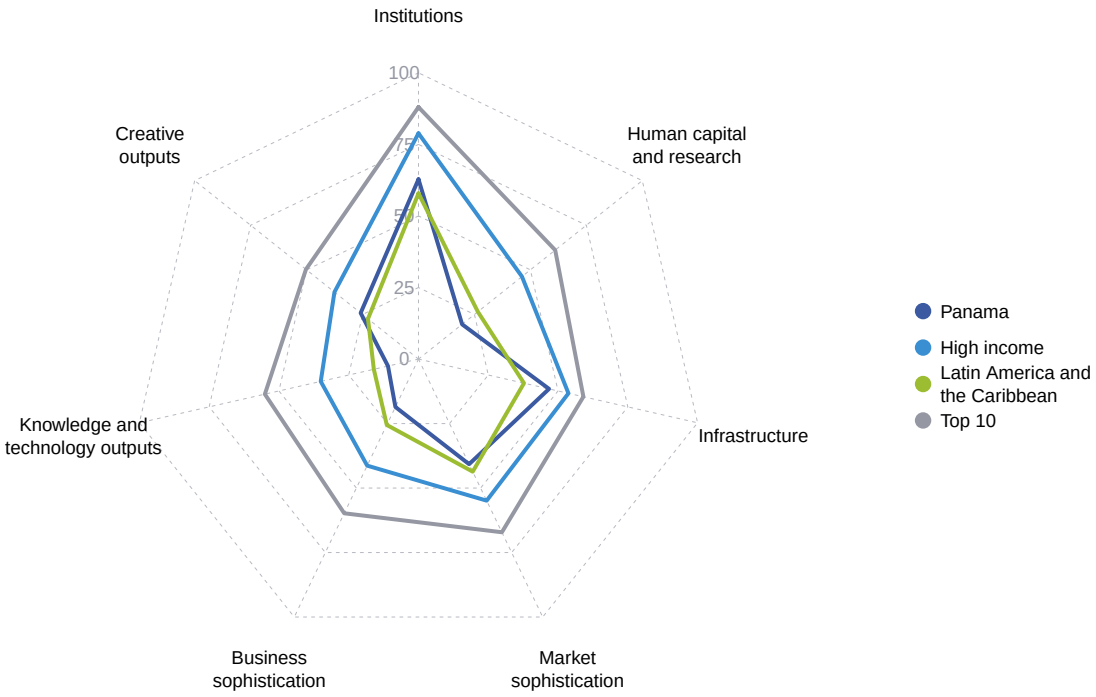
Panama produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND LATIN AMERICA AND THE CARIBBEAN

The seven GII pillar scores for Panama



High-income group economies

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

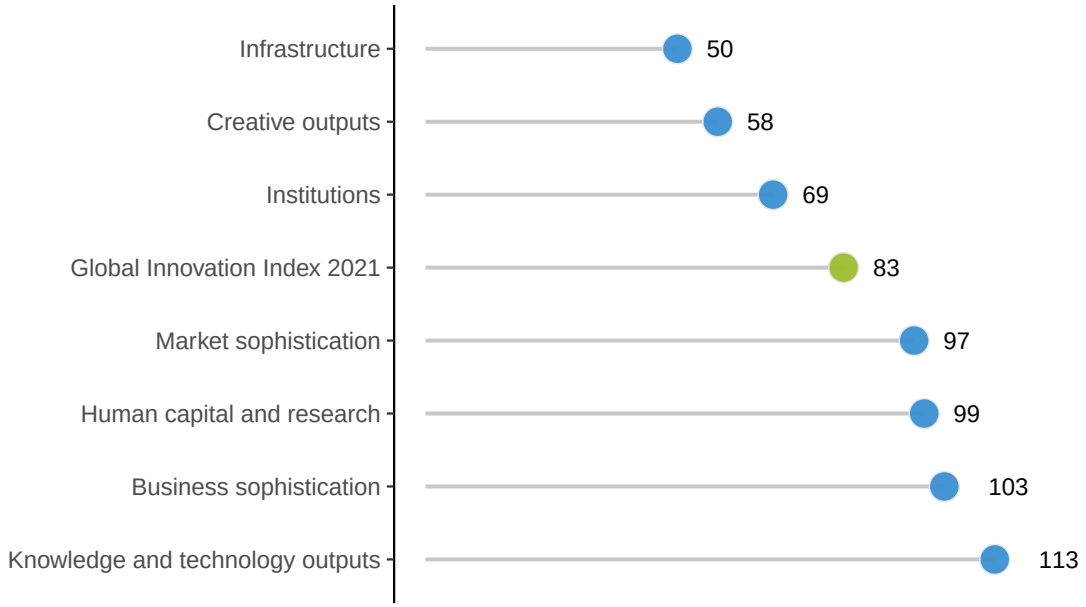
Latin America and the Caribbean

Panama performs above the regional average in three pillars, namely: Institutions; Infrastructure; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

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

The seven GII pillar ranks for Panama



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 Panama in the GII 2021.

Strengths and weaknesses for Panama

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
3.2	General infrastructure	30	2.1.2	Government funding/pupil, secondary, % GDP/cap	93
3.2.3	Gross capital formation, % GDP	13	2.1.4	PISA scales in reading, maths and science	76
3.3	Ecological sustainability	36	2.3.1	Researchers, FTE/mn pop.	97
3.3.1	GDP/unit of energy use	5	2.3.3	Global corporate R&D investors, top 3, mn US$	41
4.1.1	Ease of getting credit	23	4.2	Investment	126
4.1.2	Domestic credit to private sector, % GDP	33	4.3.2	Domestic industry diversification	102
5.3.4	FDI net inflows, % GDP	10	5.1.2	Firms offering formal training, %	95
6.2.2	New businesses/th pop. 15–64	32	5.3.3	ICT services imports, % total trade	118
6.3.3	High-tech exports, % total trade	36	6.1.3	Utility models by origin/bn PPP$ GDP	73
7.2.4	Printing and other media, % manufacturing	6	6.2	Knowledge impact	122
7.2.5	Creative goods exports, % total trade	23	7.1.3	Industrial designs by origin/bn PPP$ GDP	119
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	13	7.2.2	National feature films/mn pop. 15–69	100

Panama

GII 2021 rank
83

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
79	83	High	LCN	4.3	128.5	30,034	73

		Score/ Value	Rank	
Institutions		**62.8**	**69**	◇
1.1	**Political environment**	**58.5**	**63**	◇
1.1.1	Political and operational stability*	71.4	54	◇
1.1.2	Government effectiveness*	52.1	68	◇
1.2	**Regulatory environment**	**64.1**	**68**	◇
1.2.1	Regulatory quality*	53.0	56	◇
1.2.2	Rule of law*	43.6	67	◇
1.2.3	Cost of redundancy dismissal	18.1	76	
1.3	**Business environment**	**65.8**	**82**	◇
1.3.1	Ease of starting a business*	92.0	46	
1.3.2	Ease of resolving insolvency*	39.5	99	◇
Human capital and research		**19.5**	**99**	◇
2.1	**Education**	**31.6**	**111**	◇
2.1.1	Expenditure on education, % GDP	3.2	92	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	9.2	93 ○	◇
2.1.3	School life expectancy, years	12.9	83	◇
2.1.4	PISA scales in reading, maths and science	364.8	76 ○	◇
2.1.5	Pupil-teacher ratio, secondary	13.6	62	
2.2	**Tertiary education**	**25.1**	**84**	◇
2.2.1	Tertiary enrolment, % gross	47.8	65	◇
2.2.2	Graduates in science and engineering, %	15.4	97	◇
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research and development (R&D)**	**1.7**	**98**	◇
2.3.1	Researchers, FTE/mn pop.	39.1	97 ○	◇
2.3.2	Gross expenditure on R&D, % GDP	0.1	96	◇
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41 ○	◇
2.3.4	QS university ranking, top 3*	3.7	72	◇
Infrastructure		**46.8**	**50**	◇
3.1	**Information and communication technologies (ICTs)**	**60.8**	**81**	◇
3.1.1	ICT access*	64.9	70	◇
3.1.2	ICT use*	57.7	66	◇
3.1.3	Government's online service*	62.4	83	◇
3.1.4	E-participation*	58.3	89	◇
3.2	**General infrastructure**	**39.7**	**30** ●	
3.2.1	Electricity output, GWh/mn pop.	2,740.2	68	◇
3.2.2	Logistics performance*	57.1	37	
3.2.3	Gross capital formation, % GDP	33.8	13 ● ◆	
3.3	**Ecological sustainability**	**39.8**	**36** ●	
3.3.1	GDP/unit of energy use	23.5	5 ● ◆	
3.3.2	Environmental performance*	47.3	64	◇
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	105	◇
Market sophistication		**40.7**	**97**	◇
4.1	**Credit**	**47.6**	**40**	
4.1.1	Ease of getting credit*	80.0	23 ●	
4.1.2	Domestic credit to private sector, % GDP	86.8	33 ●	
4.1.3	Microfinance gross loans, % GDP	0.4	39	
4.2	**Investment**	**16.9**	**126** ○	◇
4.2.1	Ease of protecting minority investors*	56.0	82	
4.2.2	Market capitalization, % GDP	24.5	53	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	79	◇
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	77	
4.3	**Trade, diversification, and market scale**	**57.7**	**101**	◇
4.3.1	Applied tariff rate, weighted avg., %	5.4	93	◇
4.3.2	Domestic industry diversification	61.5	102 ○	◇
4.3.3	Domestic market scale, bn PPP$	128.5	77	

		Score/ Value	Rank	
Business sophistication		**18.6**	**103**	◇
5.1	**Knowledge workers**	**17.4**	**106**	◇
5.1.1	Knowledge-intensive employment, %	24.0	66	◇
5.1.2	Firms offering formal training, %	11.0	95 ○	◇
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	1.5	91	◇
5.1.5	Females employed w/advanced degrees, %	10.5	67	◇
5.2	**Innovation linkages**	**18.6**	**75**	◇
5.2.1	University-industry R&D collaboration†	37.1	94	◇
5.2.2	State of cluster development and depth†	47.5	58	
5.2.3	GERD financed by abroad, % GDP	0.1	53	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	78	
5.2.5	Patent families/bn PPP$ GDP	0.3	37	
5.3	**Knowledge absorption**	**19.7**	**94**	◇
5.3.1	Intellectual property payments, % total trade	0.2	94	
5.3.2	High-tech imports, % total trade	7.7	66	
5.3.3	ICT services imports, % total trade	0.3	118 ○	◇
5.3.4	FDI net inflows, % GDP	8.2	10 ●	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**10.9**	**113**	◇
6.1	**Knowledge creation**	**5.0**	**112**	◇
6.1.1	Patents by origin/bn PPP$ GDP	0.2	91	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	55	
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	73 ○	
6.1.4	Scientific and technical articles/bn PPP$ GDP	4.8	110	◇
6.1.5	Citable documents H-index	12.2	63	
6.2	**Knowledge impact**	**11.1**	**122** ○	◇
6.2.1	Labor productivity growth, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	4.8	32 ●	
6.2.3	Software spending, % GDP	0.2	67	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.6	93	◇
6.2.5	High-tech manufacturing, %	7.3	96	◇
6.3	**Knowledge diffusion**	**16.7**	**66**	
6.3.1	Intellectual property receipts, % total trade	0.0	74	
6.3.2	Production and export complexity	38.3	73	◇
6.3.3	High-tech exports, % total trade	5.1	36 ●	
6.3.4	ICT services exports, % total trade	1.1	81	
Creative outputs		**25.8**	**58**	
7.1	**Intangible assets**	**25.0**	**87**	◇
7.1.1	Trademarks by origin/bn PPP$ GDP	33.0	70	
7.1.2	Global brand value, top 5,000, % GDP	12.2	57	
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.0	119 ○	◇
7.1.4	ICTs and organizational model creation†	57.4	55	
7.2	**Creative goods and services**	**25.3**	**37**	
7.2.1	Cultural and creative services exports, % total trade	0.4	53	
7.2.2	National feature films/mn pop. 15–69	0.4	100 ○	◇
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	2.5	6 ● ◆	
7.2.5	Creative goods exports, % total trade	2.9	23 ●	
7.3	**Online creativity**	**28.0**	**38**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	56.4	13 ●	
7.3.2	Country-code TLDs/th pop. 15–69	1.3	79	◇
7.3.3	Wikipedia edits/mn pop. 15–69	48.6	68	◇
7.3.4	Mobile app creation/bn PPP$ GDP	6.0	54	

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 Panama.

Missing data for Panama

Code	Indicator name	Economy year	Model year	Source
2.2.3	Tertiary inbound mobility, %	n/a	2018	UNESCO Institute for Statistics
5.1.3	GERD performed by business, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.3.5	Research talent, % in businesses	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.1	Labor productivity growth, %	n/a	2020	The Conference Board
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

Outdated data for Panama

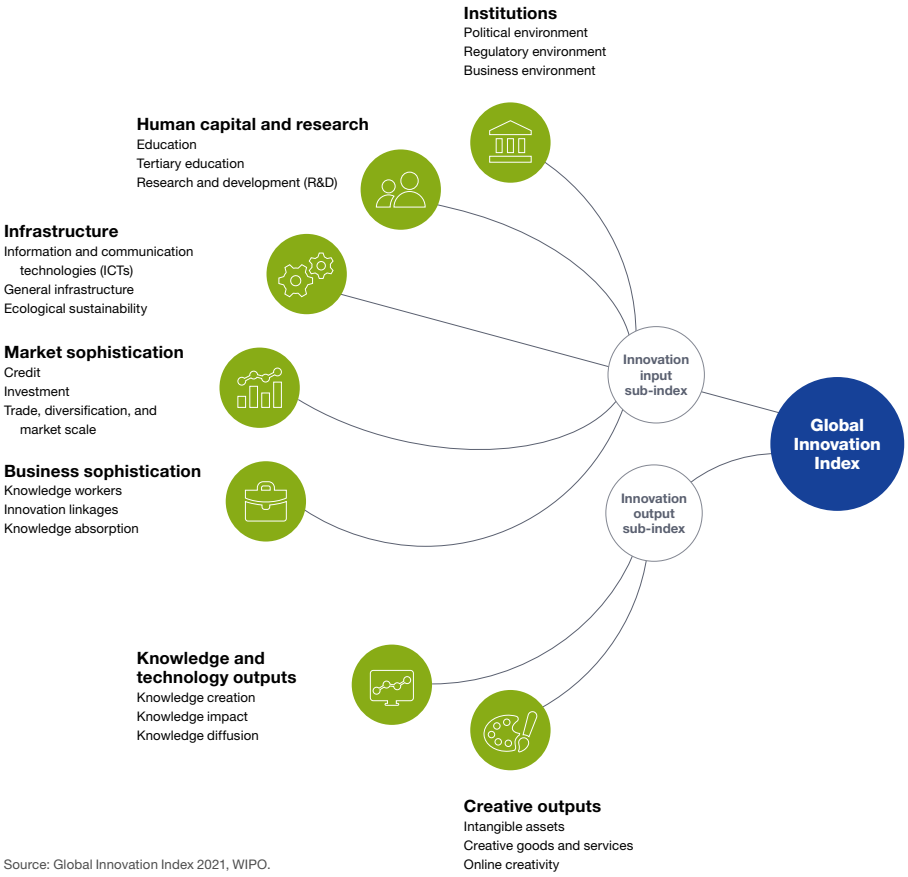
Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	2011	2017	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2011	2017	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2016	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.1	Researchers, FTE/mn pop.	2013	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

Code	Indicator name	Economy year	Model year	Source
2.3.2	Gross expenditure on R&D, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.1	Applied tariff rate, weighted avg., %	2015	2019	World Bank
5.1.2	Firms offering formal training, %	2010	2019	World Bank
5.1.4	GERD financed by business, %	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	2017	2018	UNESCO Institute for Statistics
5.3.2	High-tech imports, % total trade	2017	2019	United Nations, COMTRADE
6.3.3	High-tech exports, % total trade	2017	2019	United Nations, COMTRADE
7.2.2	National feature films/mn pop. 15–69	2010	2017	UNESCO Institute for Statistics
7.2.5	Creative goods exports, % total trade	2017	2019	United Nations, COMTRADE

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 2021, WIPO.

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.