GLOBAL INNOVATION INDEX 2020

PANAMA

73rd Panama ranks 73rd among the 131 economies featured in the GII 2020.

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 2020 is between ranks 69 and 77.

Rankings of Panama (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	73	82	70
2019	75	79	72
2018	70	78	66

- Panama performs better in innovation outputs than innovation inputs in 2020.
- This year Panama ranks 82nd in innovation inputs, lower than last year and lower compared to 2018.
- As for innovation outputs, Panama ranks 70th. This position is higher than last year and lower compared to 2018.

45th Panama ranks 45th among the 49 high-income group economies.

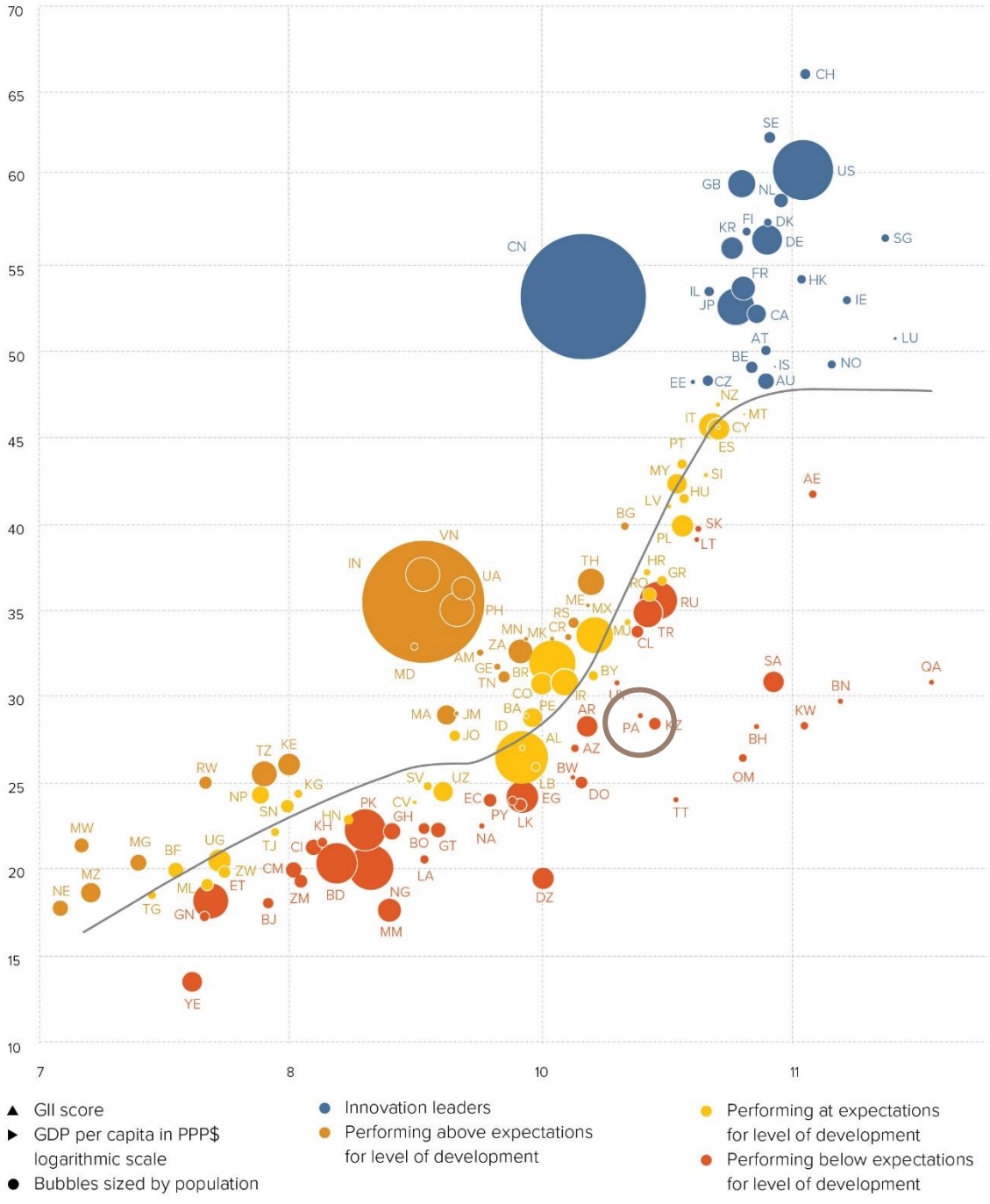
8th Panama ranks 8th among the 18 economies in Latin America and the Caribbean.

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

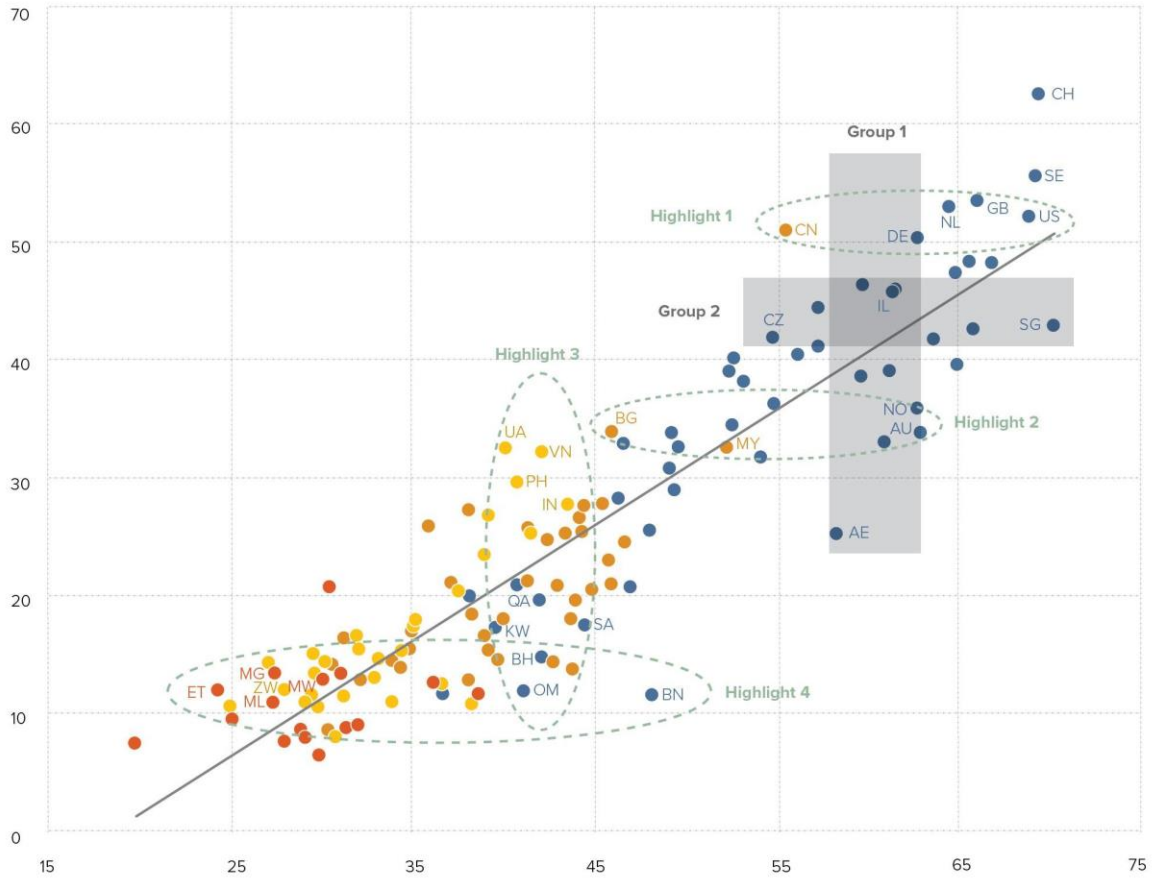


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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 more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

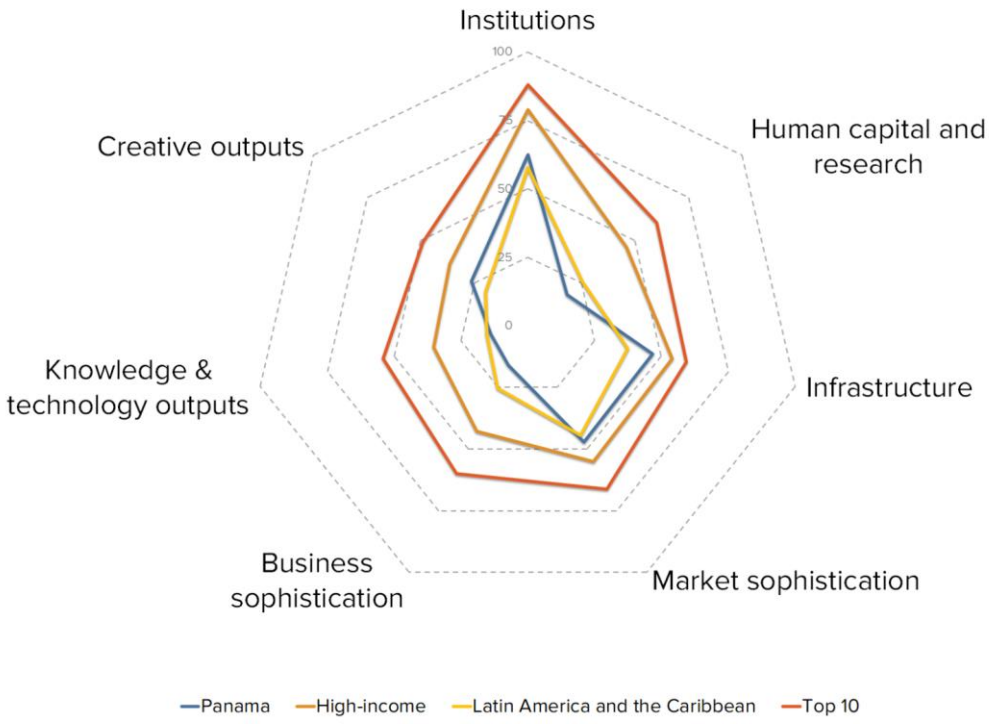
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

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

Panama's scores in the seven GII pillars



High-income group economies

Panama scores below average for its income group in all GII pillars.

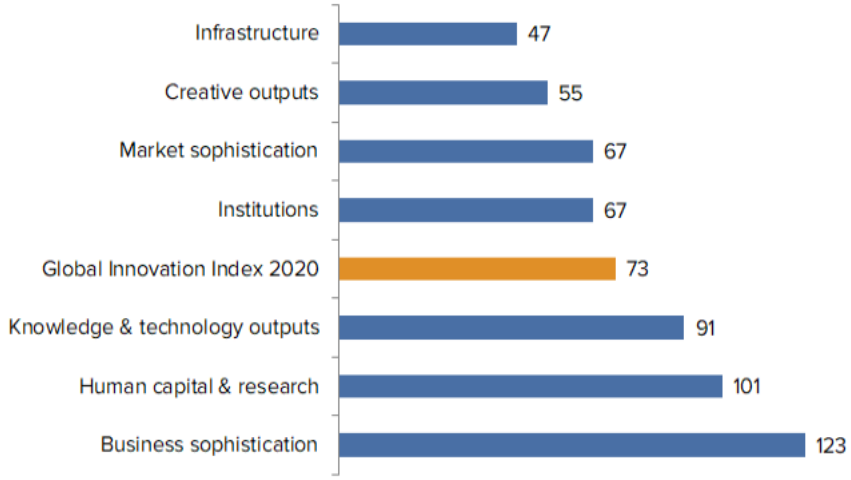
Latin America and the Caribbean

Compared to other economies in Latin America and the Caribbean, Panama performs:

- above average in four out of the seven GII pillars: Institutions, Infrastructure, Market sophistication and Creative outputs; and
- below average in three out of the seven GII pillars: Human capital & research, Business sophistication and Knowledge & technology outputs.

OVERVIEW OF PANAMA RANKINGS IN THE SEVEN GII AREAS

Panama performs best in Infrastructure and its weakest performance is in Business sophistication.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Panama in the GII 2020.

Strengths

Code	Indicator name	Rank
3.2	General infrastructure	26
3.2.2	Logistics performance*	37
3.2.3	Gross capital formation, % GDP	12
3.3.1	GDP/unit of energy use	7
4.1.1	Ease of getting credit*	23
4.1.2	Domestic credit to private sector, % GDP	32
5.3.4	FDI net inflows, % GDP	14
6.2.2	New businesses/th pop. 15–64	32
7.2	Creative goods and services	34
7.2.4	Printing and other media, % manufacturing	5
7.2.5	Creative goods exports, % total trade	22
7.3	Online creativity	36
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	9

Weaknesses

Code	Indicator name	Rank
2.1.2	Government funding/pupil, secondary, % GDP/cap	97
2.1.4	PISA scales in reading, maths, & science	76
2.3.3	Global R&D companies, top 3, mn US$	42
5	Business sophistication	123
5.1.2	Firms offering formal training, %	92
5.1.3	GERD performed by business, % GDP	88
5.1.4	GERD financed by business, %	94
5.3	Knowledge absorption	127
5.3.2	High-tech imports, % total trade	126
6.1.3	Utility models by origin/bn PPP$ GDP	64
6.2	Knowledge impact	120
7.1.3	Industrial designs by origin/bn PPP$ GDP	115
7.2.2	National feature films/mn pop. 15–69	102

STRENGTHS

GII strengths for Panama are found in five of the seven GII pillars.

- Infrastructure (47): demonstrates strengths in the sub-pillar General infrastructure (26) and in the indicators Logistics performance (37), Gross capital formation (12) and GDP/unit of energy use (7).
- Market sophistication (67): exhibits strengths in the indicators Ease of getting credit (23) and Domestic credit to private sector (32).
- Business sophistication (123): displays strengths in the indicator FDI net inflows (14).
- Knowledge & technology outputs (91): reveals strengths in the indicator New businesses (32).
- Creative outputs (55): shows strengths in the sub-pillars Creative goods and services (34) and Online creativity (36) and in the indicators Printing and other media (5), Creative goods exports (22) and Generic top-level domains (9).

WEAKNESSES

GII weaknesses for Panama are found in four of the seven GII pillars.

- Human capital & research (101): exhibits weaknesses in the indicators Government funding/pupil (97), PISA scales in reading, maths, & science (76) and Global R&D companies (42).
- Business sophistication (123): demonstrates weaknesses in the sub-pillar Knowledge absorption (127) and in the indicators Firms offering formal training (92), GERD performed by business (88), GERD financed by business (94) and High-tech imports (126).
- Knowledge & technology outputs (91): displays weaknesses in the sub-pillar Knowledge impact (120) and in the indicator Utility models by origin (64).
- Creative outputs (55): shows weaknesses in the indicators Industrial designs by origin (115) and National feature films (102).

PANAMA

GII 2020 rank

73

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
70	82	High	LCN	4.2	113.2	23,416.2	75

		Score/Value	Rank	
	INSTITUTIONS	**62.6**	**67**	◇
1.1	**Political environment**	**57.5**	**67**	◇
1.1.1	Political and operational stability*	73.2	49	◇
1.1.2	Government effectiveness*	49.7	73	◇
1.2	**Regulatory environment**	**64.3**	**65**	◇
1.2.1	Regulatory quality*	52.4	53	◇
1.2.2	Rule of law*	45.1	66	◇
1.2.3	Cost of redundancy dismissal, salary weeks	18.1	75	
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 & RESEARCH	**18.3**	**101**	◇
2.1	**Education**	**27.9**	**111**	◇
2.1.1	Expenditure on education, % GDP	3.2	94	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	9.2	97	○ ◇
2.1.3	School life expectancy, years	12.9	82	◇
2.1.4	PISA scales in reading, maths, & science	364.8	76	○
2.1.5	Pupil-teacher ratio, secondary	13.6	66	◇
2.2	**Tertiary education**	**25.3**	**81**	◇
2.2.1	Tertiary enrolment, % gross	47.8	63	◇
2.2.2	Graduates in science & engineering, %	15.4	94	◇
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research & development (R&D)**	**1.7**	**100**	◇
2.3.1	Researchers, FTE/mn pop.	39.1	96	◇
2.3.2	Gross expenditure on R&D, % GDP	0.1	98	◇
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	3.6	72	◇
	INFRASTRUCTURE	**46.8**	**47**	◇
3.1	**Information & communication technologies (ICTs)**	**63.6**	**73**	◇
3.1.1	ICT access*	63.8	69	◇
3.1.2	ICT use*	52.9	72	◇
3.1.3	Government's online service*	66.0	80	◇
3.1.4	E-participation*	71.9	65	◇
3.2	**General infrastructure**	**38.7**	**26**	●
3.2.1	Electricity output, kWh/mn pop	2,695.5	68	◇
3.2.2	Logistics performance*	56.6	37	●
3.2.3	Gross capital formation, % GDP	38.5	12	● ◆
3.3	**Ecological sustainability**	**37.9**	**42**	
3.3.1	GDP/unit of energy use	19.2	7	● ◆
3.3.2	Environmental performance*	47.3	64	◇
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	99	◇
	MARKET SOPHISTICATION	**47.1**	**67**	
4.1	**Credit**	**48.4**	**40**	
4.1.1	Ease of getting credit*	80.0	23	●
4.1.2	Domestic credit to private sector, % GDP	86.7	32	●
4.1.3	Microfinance gross loans, % GDP	0.4	39	
4.2	**Investment**	**33.4**	**82**	
4.2.1	Ease of protecting minority investors*	56.0	82	
4.2.2	Market capitalization, % GDP	23.9	53	
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, competition, and market scale**	**59.6**	**74**	◇
4.3.1	Applied tariff rate, weighted avg., %	5.4	98	◇
4.3.2	Intensity of local competition+	70.7	53	
4.3.3	Domestic market scale, bn PPP$	113.2	77	

		Score/Value	Rank	
	BUSINESS SOPHISTICATION	**15.9**	**123**	○ ◇
5.1	**Knowledge workers**	**13.7**	**113**	◇
5.1.1	Knowledge-intensive employment, %	24.0	63	◇
5.1.2	Firms offering formal training, %	11.0	92	○ ◇
5.1.3	GERD performed by business, % GDP	0.0	88	○ ◇
5.1.4	GERD financed by business, %	1.5	94	○ ◇
5.1.5	Females employed w/advanced degrees, %	10.6	63	◇
5.2	**Innovation linkages**	**18.3**	**84**	◇
5.2.1	University/industry research collaboration+	36.6	92	◇
5.2.2	State of cluster development+	45.8	74	
5.2.3	GERD financed by abroad, % GDP	0.1	50	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	79	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.2	39	
5.3	**Knowledge absorption**	**15.8**	**127**	○ ◇
5.3.1	Intellectual property payments, % total trade	0.2	93	◇
5.3.2	High-tech imports, % total trade	2.9	126	○ ◇
5.3.3	ICT services imports, % total trade	0.3	114	◇
5.3.4	FDI net inflows, % GDP	8.2	14	●
5.3.5	Research talent, % in business enterprise	n/a	n/a	
	KNOWLEDGE & TECHNOLOGY OUTPUTS	**13.7**	**91**	◇
6.1	**Knowledge creation**	**7.3**	**85**	◇
6.1.1	Patents by origin/bn PPP$ GDP	1.3	58	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	54	◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.0	64	○
6.1.4	Scientific & technical articles/bn PPP$ GDP	3.5	101	◇
6.1.5	Citable documents H-index	12.0	63	
6.2	**Knowledge impact**	**9.3**	**120**	○ ◇
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	n/a	
6.2.2	New businesses/th pop. 15-64	4.8	32	●
6.2.3	Computer software spending, % GDP	0.0	71	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.7	86	◇
6.2.5	High- and medium-high-tech manufacturing, %	4.7	96	◇
6.3	**Knowledge diffusion**	**24.4**	**63**	
6.3.1	Intellectual property receipts, % total trade	0.0	73	
6.3.2	High-tech net exports, % total trade	3.6	40	
6.3.3	ICT services exports, % total trade	1.1	81	
6.3.4	FDI net outflows, % GDP	0.6	69	
	CREATIVE OUTPUTS	**26.2**	**55**	
7.1	**Intangible assets**	**23.8**	**79**	◇
7.1.1	Trademarks by origin/bn PPP$ GDP	48.8	51	
7.1.2	Global brand value, top 5,000, % GDP	13.5	52	
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.0	115	○
7.1.4	ICTs & organizational model creation+	57.4	55	
7.2	**Creative goods and services**	**27.2**	**34**	●
7.2.1	Cultural & creative services exports, % total trade	0.5	49	
7.2.2	National feature films/mn pop. 15-69	0.4	102	○ ◇
7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	3.0	5	● ◆
7.2.5	Creative goods exports, % total trade	2.5	22	●
7.3	**Online creativity**	**30.1**	**36**	●
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	66.7	9	● ◆
7.3.2	Country-code TLDs/th pop. 15-69	1.3	81	◇
7.3.3	Wikipedia edits/mn pop. 15-69	49.5	61	◇
7.3.4	Mobile app creation/bn PPP$ GDP	5.6	53	

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 II 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

Code	Indicator name	Country year	Model year	Source
2.2.3	Tertiary inbound mobility, %	n/a	2017	UNESCO Institute for Statistics
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	2019	Thomson Reuters
5.3.5	Research talent, % in business enterprise	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.2.1	Growth rate of PPP$ GDP/worker, %	n/a	2019	The Conference Board
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC

Outdated data

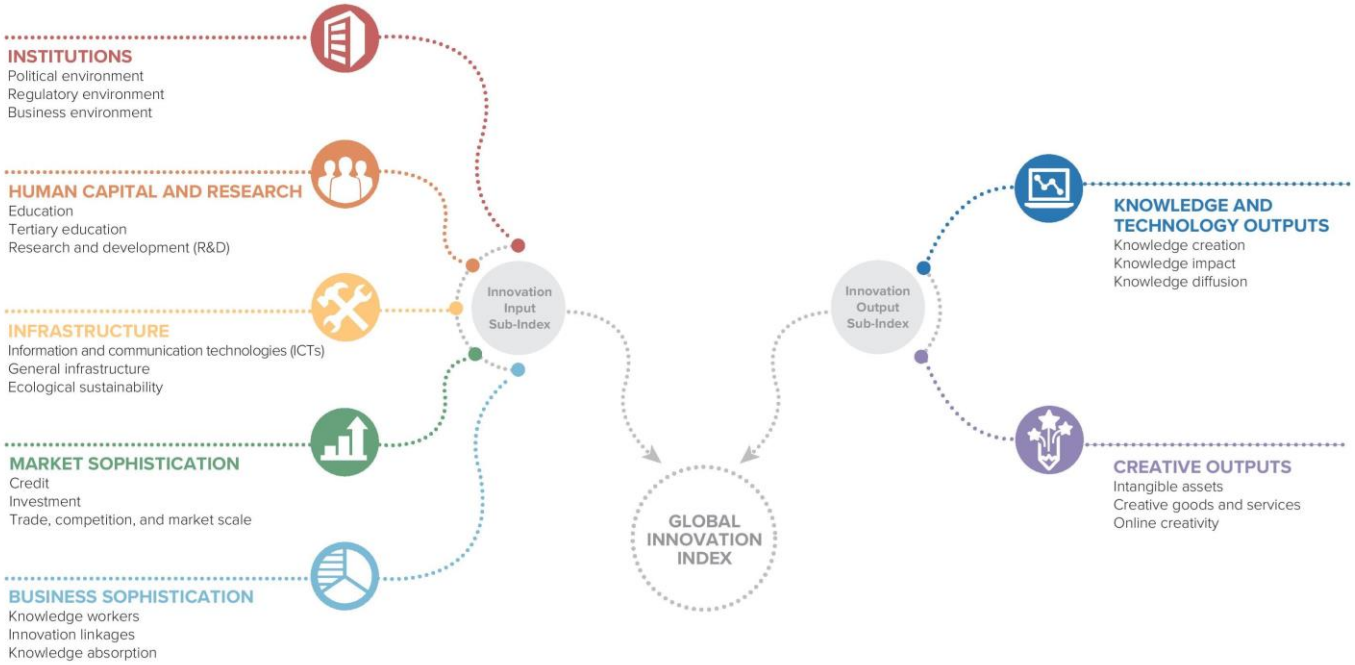
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2011	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2011	2016	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2017	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2016	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2013	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
4.3.1	Applied tariff rate, weighted avg., %	2015	2018	World Bank
5.1.2	Firms offering formal training, %	2009	2018	World Bank
5.1.3	GERD performed by business, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.3.2	High-tech imports, % total trade	2016	2018	United Nations, COMTRADE
6.2.5	High- and medium-high-tech manufacturing, %	2016	2017	United Nations Industrial Development Organization
6.3.2	High-tech net exports, % total trade	2016	2018	United Nations, COMTRADE
7.1.3	Industrial designs by origin/bn PPP$ GDP	2017	2018	World Intellectual Property Organization
7.2.1	Cultural & creative services exports, % total trade	2017	2018	World Trade Organization
7.2.2	National feature films/mn pop. 15–69	2010	2017	UNESCO Institute for Statistics
7.2.4	Printing and other media, % manufacturing	2016	2017	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2016	2018	United Nations, COMTRADE

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

Framework of the Global Innovation Index 2020



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.