

GLOBAL INNOVATION INDEX 2019

COLOMBIA

67th

Colombia ranks 67th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Colombia over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Colombia's ranking in the GII 2019 is between 64 and 70.

Colombia's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	67	58	76
2018	63	50	72
2017	65	52	75

- Colombia performs better in Innovation Inputs than Outputs.
- This year Colombia ranks 58th in Innovation Inputs, worse than last year and compared to 2017.
- As for Innovation Outputs, Colombia ranks 76th. This position is worse than last year and compared to 2017.

17th

Colombia ranks 17th among the 34 upper middle-income economies.

6th

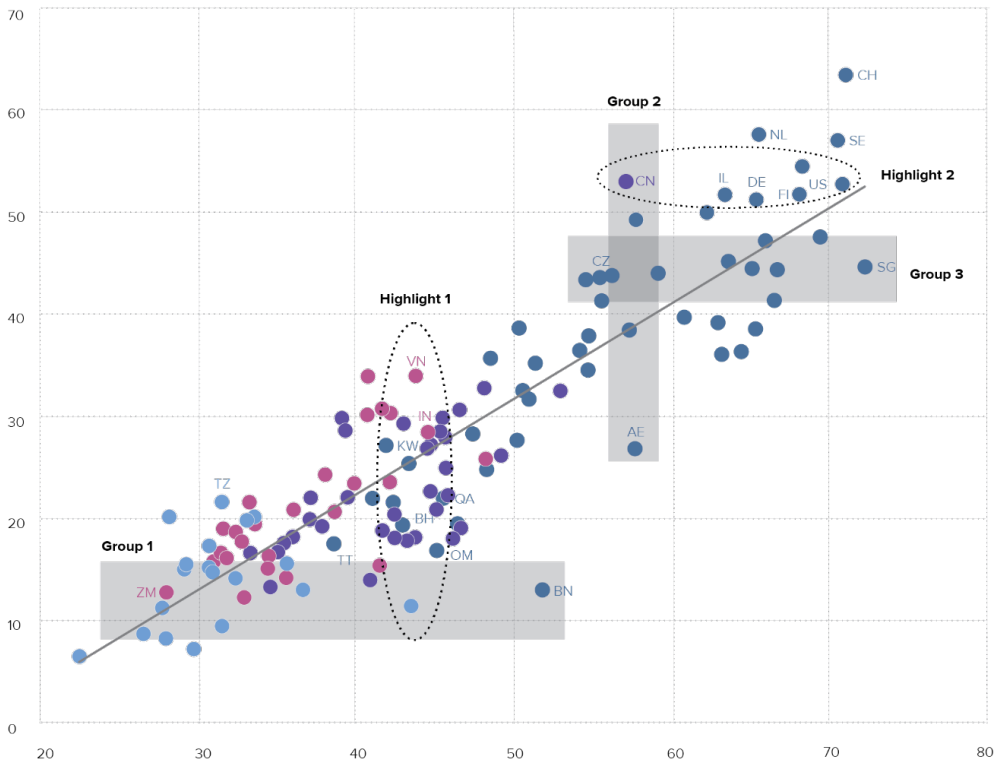
Colombia ranks 6th among the 19 economies in Latin America and the Caribbean.

EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

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

Innovation input/output performance by income group, 2019

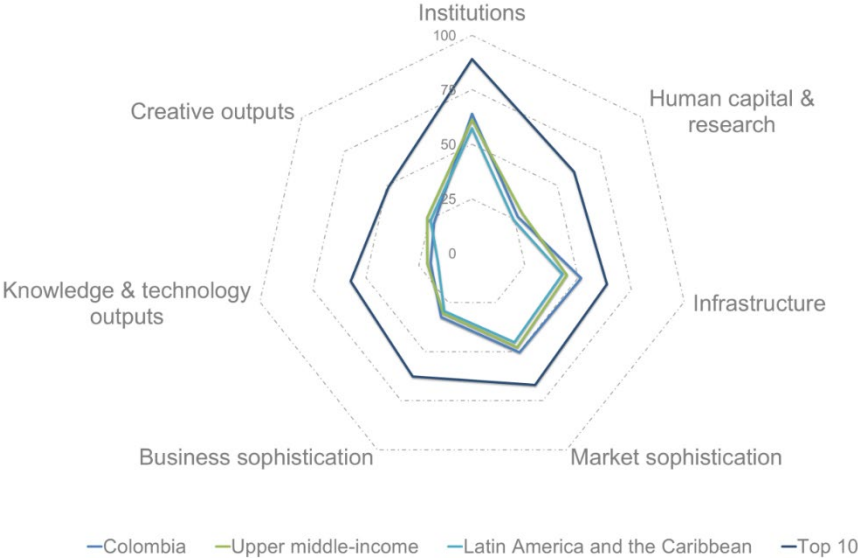


▲ Output score
 ► Input score
 ● High income
 ● Upper-middle income
 ● Lower-middle income
 ● Low income
 — Fitted values

- | | | | |
|-------------------------|-------------------|------------------------|--------------------------------|
| AE United Arab Emirates | CZ Czech Republic | NL Netherlands | TZ United Republic of Tanzania |
| BH Bahrain | DE Germany | OM Oman | US United States of America |
| BN Brunei Darussalam | FI Finland | QA Qatar | VN Viet Nam |
| CH Switzerland | IL Israel | SE Sweden | ZM Zambia |
| CN China | IN India | SG Singapore | |
| | KW Kuwait | TT Trinidad and Tobago | |

BENCHMARKING COLOMBIA TO OTHER UPPER MIDDLE-INCOME ECONOMIES AND THE LATIN AMERICA AND THE CARIBBEAN REGION

Colombia's scores in the seven GII pillars



Upper middle-income economies

Colombia has high scores in 4 out of the 7 GII pillars: Institutions, Infrastructure, Market sophistication, and Business sophistication, which are above the average of the upper middle-income group.

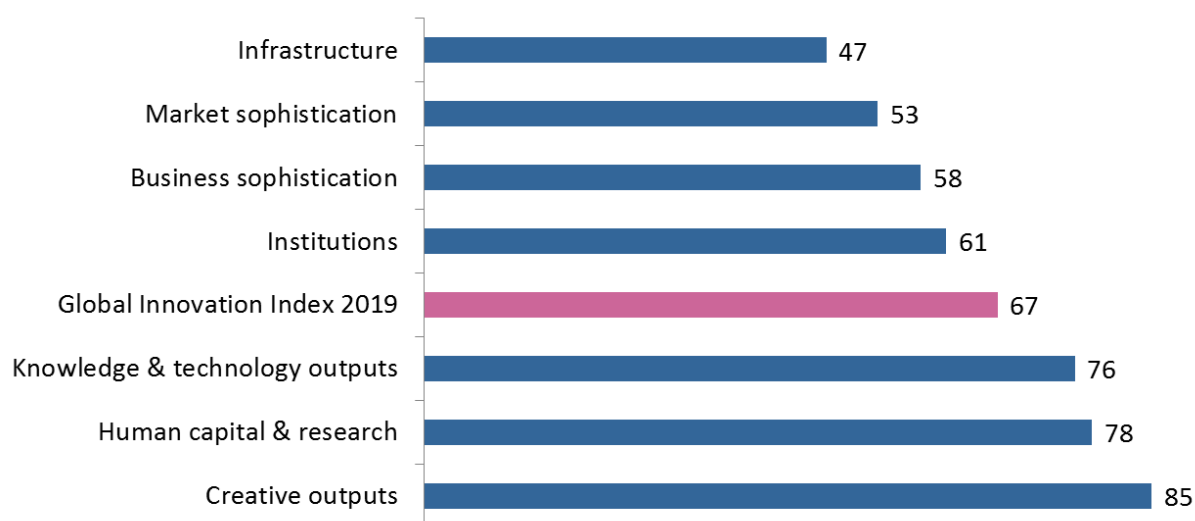
Latin America and the Caribbean Region

Compared to other economies in Latin America and the Caribbean, Colombia performs above average in 6 out of the 7 GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, Business sophistication, and Knowledge & technology outputs.

Top ranks are found in sub-pillars Business environment, Ecological sustainability, Trade, competition, & market scale, and Knowledge workers where the country ranks in the top 50 worldwide.

OVERVIEW OF COLOMBIA'S RANKINGS IN THE 7 GII AREAS

Colombia performs the best in Infrastructure and its weakest performance is in Creative outputs.



*The highest possible ranking in each pillar is 1.

COLOMBIA'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Colombia's strengths and weaknesses in the GII 2019.

Strengths		
Code	Indicator name	Rank
3.1.4	E-participation*	23
3.3	Ecological sustainability	13
3.3.1	GDP/unit of energy use	10
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	27
4.1.1	Ease of getting credit*	3
4.2.1	Ease of protecting minority investors*	14
4.3.2	Intensity of local competition [†]	28
5.1.2	Firms offering formal training, % firms	4
5.3.2	High-tech imports, % total trade	16
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	21
7.3.2	Country-code TLDs/th pop. 15–69	29

Weaknesses		
Code	Indicator name	Rank
1.1.1	Political & operational stability*	91
2.1.4	PISA scales in reading, maths & science	59
2.1.5	Pupil-teacher ratio, secondary	98
2.2.3	Tertiary inbound mobility, %	106
2.3.1	Researchers, FTE/mn pop.	88
2.3.3	Global R&D companies, top 3, in mn US\$	43
4.2.3	Venture capital deals/bn PPP\$ GDP	66
5.2	Innovation linkages	109
5.2.3	GERD financed by abroad, %	96
5.3.5	Research talent, % in business enterprise	75
7.1.2	Industrial designs by origin/bn PPP\$ GDP	92

STRENGTHS

- GII strengths for Colombia are found in five of the seven GII pillars.
- Several of these strengths are in Infrastructure (47), the best ranked GII pillar for this country. Here Colombia's strengths are sub-pillar Ecological sustainability (13) and indicators E-participation (23), GDP per unit of energy use (10), and ISO 14001 environmental certificate (27).
- In Market sophistication (53), Colombia's GII strengths are indicators Ease of getting credit (3), Ease of protecting minority investors (14), and Intensity of local competition (28).
- In Business sophistication (58), strengths are shown in indicators Firms offering formal training (4) and High-tech imports (16).
- In Knowledge & technology outputs (76), indicator ISO 9001 quality certificates (21) is a relative strength for Colombia.
- In Creative outputs (85), Colombia has strength in indicator Country-code TLDs (29).

WEAKNESSES

- Colombia's weaknesses in the GII are found in five of the seven GII pillars.
- Several of these relative weaknesses are in Human capital & research (78), where Colombia presents five GII weaknesses in indicators PISA results (59), Pupil-teacher ratio (98), Tertiary inbound mobility (106), Researchers (88), and Global R&D companies (43).
- Three GII weaknesses are in Business sophistication (58), and in particular in sub-pillar Innovation linkages (109) and indicators R&D financed by abroad (96) and Research talent (75).
- The last three GII weaknesses of Colombia are indicators:
 - Political & operational stability (91) in Institutions (61);
 - Venture capital deals (66) in Market sophistication (53); and
 - Industrial designs by origin (92) in Creative outputs (85).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
76	58	Upper middle	LCN	49.5	748.6	14,943.5	63
				Score/Value	Rank		
INSTITUTIONS				64.0	61		
1.1	Political environment		50.4	82			
1.1.1	Political and operational stability*		61.4	91	○		
1.1.2	Government effectiveness*		44.9	74			
1.2	Regulatory environment		65.4	66			
1.2.1	Regulatory quality*		51.1	55			
1.2.2	Rule of law*		36.9	83			
1.2.3	Cost of redundancy dismissal, salary weeks		16.7	69			
1.3	Business environment		76.4	41			
1.3.1	Ease of starting a business*		85.3	77			
1.3.2	Ease of resolving insolvency*		67.4	37			
HUMAN CAPITAL & RESEARCH				27.0	78		
2.1	Education		38.8	87			
2.1.1	Expenditure on education, % GDP		4.4	64			
2.1.2	Government funding/pupil, secondary, % GDP/cap...		17.5	67			
2.1.3	School life expectancy, years		14.6	59			
2.1.4	PISA scales in reading, maths, & science		410.1	59	○		
2.1.5	Pupil-teacher ratio, secondary		26.0	98	○ ◇		
2.2	Tertiary education		32.5	60			
2.2.1	Tertiary enrolment, % gross		60.4	44			
2.2.2	Graduates in science & engineering, %		23.7	37			
2.2.3	Tertiary inbound mobility, %		0.2	106	○ ◇		
2.3	Research & development (R&D)		9.8	58			
2.3.1	Researchers, FTE/mn pop.		88.5	88	○		
2.3.2	Gross expenditure on R&D, % GDP		0.2	85			
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$		0.0	43	○ ◇		
2.3.4	QS university ranking, average score top 3*		33.2	34			
INFRASTRUCTURE				51.3	47	◇	
3.1	Information & communication technologies (ICTs)		71.4	55			
3.1.1	ICT access*		61.3	74			
3.1.2	ICT use*		44.2	79			
3.1.3	Government's online service*		88.2	30	◆		
3.1.4	E-participation*		92.1	23	◆ ◆		
3.2	General infrastructure		28.7	88			
3.2.1	Electricity output, kWh/mn pop.		1,580.8	87			
3.2.2	Logistics performance*		41.1	57			
3.2.3	Gross capital formation, % GDP		21.5	79			
3.3	Ecological sustainability		53.8	13	◆ ◆		
3.3.1	GDP/unit of energy use		15.6	10	◆ ◆		
3.3.2	Environmental performance*		65.2	38	◆		
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP..		4.2	27	●		
MARKET SOPHISTICATION				50.4	53		
4.1	Credit		39.7	55			
4.1.1	Ease of getting credit*		95.0	3	◆ ◆		
4.1.2	Domestic credit to private sector, % GDP		49.4	70			
4.1.3	Microfinance gross loans, % GDP		0.1	53			
4.2	Investment		41.2	70			
4.2.1	Ease of protecting minority investors*		75.0	14	◆ ◆		
4.2.2	Market capitalization, % GDP		34.9	42			
4.2.3	Venture capital deals/bn PPP\$ GDP		0.0	66	○		
4.3	Trade, competition, & market scale		70.2	32			
4.3.1	Applied tariff rate, weighted avg., %		4.4	78			
4.3.2	Intensity of local competition*		75.0	28	◆ ◆		
4.3.3	Domestic market scale, bn PPP\$		748.6	31			
BUSINESS SOPHISTICATION				32.6	58		
5.1	Knowledge workers		46.8	41			
5.1.1	Knowledge-intensive employment, %		16.7	86			
5.1.2	Firms offering formal training, % firms		65.1	4	◆ ◆		
5.1.3	GERD performed by business, % GDP		0.1	60			
5.1.4	GERD financed by business, %		49.3	29			
5.1.5	Females employed w/advanced degrees, %		13.7	49			
5.2	Innovation linkages		17.7	109	○		
5.2.1	University/industry research collaboration*		41.9	60			
5.2.2	State of cluster development*		45.1	75			
5.2.3	GERD financed by abroad, %		0.5	96	○		
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP		0.0	75			
5.2.5	Patent families 2+ offices/bn PPP\$ GDP		0.1	59			
5.3	Knowledge absorption		33.1	64			
5.3.1	Intellectual property payments, % total trade		0.9	44			
5.3.2	High-tech imports, % total trade		13.2	16	●		
5.3.3	ICT services imports, % total trade		1.4	51			
5.3.4	FDI net inflows, % GDP		4.4	37			
5.3.5	Research talent, % in business enterprise		2.4	75	○ ◇		
KNOWLEDGE & TECHNOLOGY OUTPUTS				19.5	76		
6.1	Knowledge creation		8.6	75			
6.1.1	Patents by origin/bn PPP\$ GDP		0.8	66			
6.1.2	PCT patents by origin/bn PPP\$ GDP		0.2	48			
6.1.3	Utility models by origin/bn PPP\$ GDP		0.3	39			
6.1.4	Scientific & technical articles/bn PPP\$ GDP		4.5	85			
6.1.5	Citable documents H-index		15.8	46			
6.2	Knowledge impact		37.5	60			
6.2.1	Growth rate of PPP\$ GDP/worker, %		1.5	51			
6.2.2	New businesses/th pop. 15-64		2.3	45			
6.2.3	Computer software spending, % GDP		0.2	73			
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP		16.1	21	●		
6.2.5	High- & medium-high-tech manufactures, %		0.2	53			
6.3	Knowledge diffusion		12.5	90			
6.3.1	Intellectual property receipts, % total trade		0.1	55			
6.3.2	High-tech net exports, % total trade		1.3	64			
6.3.3	ICT services exports, % total trade		0.7	92			
6.3.4	FDI net outflows, % GDP		1.4	44			
CREATIVE OUTPUTS				22.3	85		
7.1	Intangible assets		36.8	86			
7.1.1	Trademarks by origin/bn PPP\$ GDP		33.4	73			
7.1.2	Industrial designs by origin/bn PPP\$ GDP		0.4	92	○		
7.1.3	ICTs & business model creation*		60.3	65			
7.1.4	ICTs & organizational model creation*		54.5	62			
7.2	Creative goods & services		9.9	87			
7.2.1	Cultural & creative services exports, % total trade		0.3	68			
7.2.2	National feature films/mn pop. 15-69		1.4	73			
7.2.3	Entertainment & Media market/th pop. 15-69		5.5	47			
7.2.4	Printing & other media, % manufacturing		1.3	43			
7.2.5	Creative goods exports, % total trade		0.2	79			
7.3	Online creativity		6.0	62			
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69		2.8	66			
7.3.2	Country-code TLDs/th pop. 15-69		17.4	29	●		
7.3.3	Wikipedia edits/mn pop. 15-69		4.7	84			
7.3.4	Mobile app creation/bn PPP\$ GDP		0.4	72			

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

Colombia has complete data coverage in the GII 2019.

The following table lists data that are outdated for Colombia.

Outdated data

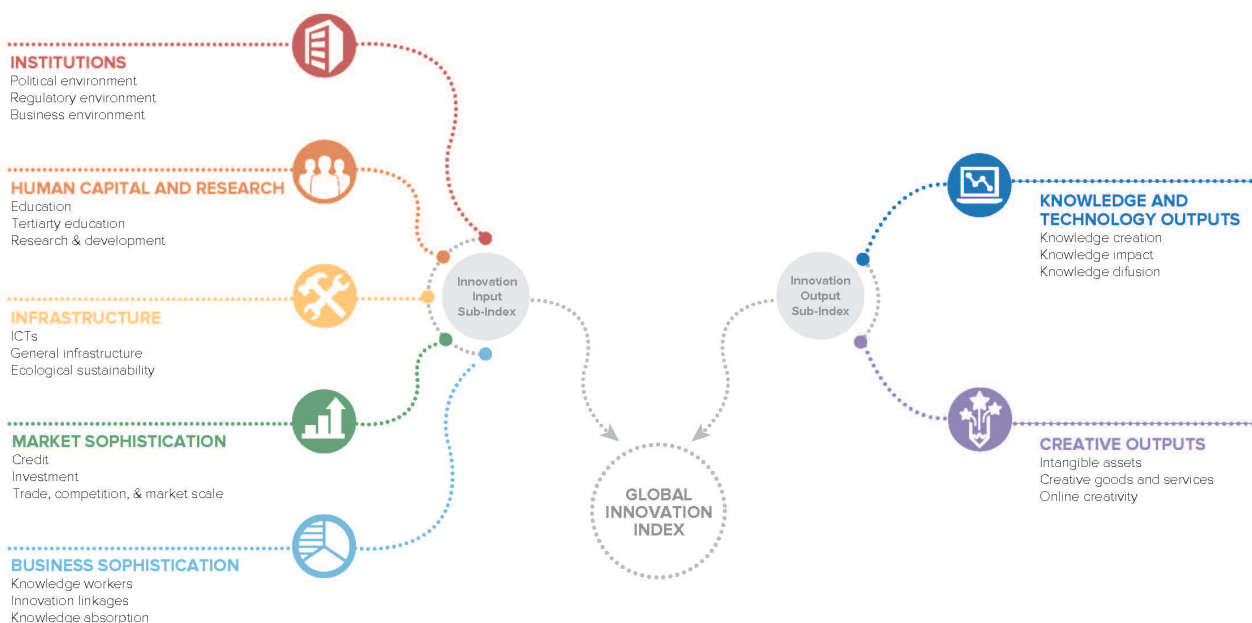
Code	Indicator name	Country year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.1	Knowledge-intensive employment, %	2009	2017	Source: International Labour Organization
5.1.2	Firms offering formal training, % firms	2010	2013	World Bank
5.3.5	Research talent, % in business enterprise	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

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 2019, the GII presents its 12th edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

