

# GLOBAL INNOVATION INDEX 2018

## Colombia

**63<sup>rd</sup>** Colombia is ranked 63rd in the GII 2018, moving up 2 positions from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects Colombia's rankings over time<sup>1</sup>.

Colombia's ranking over time

	GII	Input	Output	Efficiency
2018	63	50	72	94
2017	65	52	75	100
2016	63	53	74	96

- Colombia ranks better in innovation inputs than outputs.
- It positions 50th globally in innovation inputs, moving up 2 spots from 2017 and 3 from 2016.
- Innovation outputs also improve this year, placing 72nd globally, up from the 75th-74th rank over 2017 and 2016.
- Its Innovation Efficiency Ratio advances too, gaining 6 positions and ranking 94th. Despite this advancement, relative to its overall GII position (63rd), Colombia's Innovation Efficiency Ratio ranks rather low, showing that the country could strengthen its efficiency in translating innovation inputs into outputs. This rank is partly influenced by a higher ranking in innovation inputs (50th) compared to outputs (72nd).

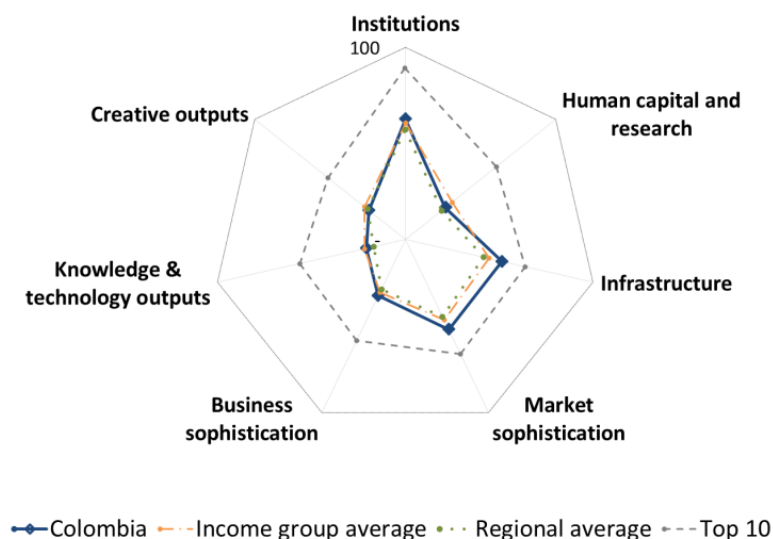
**14<sup>th</sup>** Colombia is ranked 14th among the 34 upper-middle-income countries in the GII 2018.

**5<sup>th</sup>** Colombia is ranked 5th among the 18 countries in Latin America and the Caribbean.

<sup>1</sup> Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

## Benchmarking Colombia to other upper-middle income countries and the Latin America and the Caribbean region

Colombia's scores by area



### Upper-middle income countries

Colombia has high scores in 4 of the 7 GII areas – **Institutions**, **Infrastructure**, **Market Sophistication**, and **Business Sophistication**, in which it scores above the average of the upper-middle-income group.

Top scores in areas such as *Business environment*, *Information & Communication Technologies (ICTs)*, *Trade, competition & market scale*, and *Knowledge workers* are behind these high rankings.

### Latin America and the Caribbean region

Compared to other countries in the Latin America and the Caribbean region, Colombia performs above average in 6 of the 7 GII areas: **Institutions**, **Human Capital & Research**, **Infrastructure**, **Market Sophistication**, **Business Sophistication**, and **Knowledge & Technology Outputs**.

## Colombia's innovation profile

### Strengths

- Most of Colombia's GII strengths are exhibited on the **innovation input** side, and in particular across three areas: **Infrastructure** (40th), **Market Sophistication** (40th), and **Business Sophistication** (56th).
- In **Infrastructure** (40th), the area *Ecological sustainability* (11th) and two of its three indicators – *GDP per unit of energy use* (8th) and *ISO 14001 environmental certificates* (24th) – are highlighted as GII strengths. An additional indicator, *Government's online service* (27th), is also marked as a strength within Infrastructure.
- Several other GII strengths are accrued within **Market Sophistication** (40th) in four indicators: *Microfinance gross loans* (15th), *Ease of protecting minority investors* (16th), *Intensity of local competition* (21st), and *Ease of getting credit* – which ranks 2nd globally.
- Colombia also performs strongly in two indicators in **Business Sophistication** (56th): *High-tech imports* (14th) and *Firms offering formal training* – in which Colombia positions 4th worldwide.

- On the **innovation output** side, Colombia presents strong performance in the indicator *ISO 9001 quality certificates* (19th) in **Knowledge & Technology Outputs** (68th).

## Weaknesses

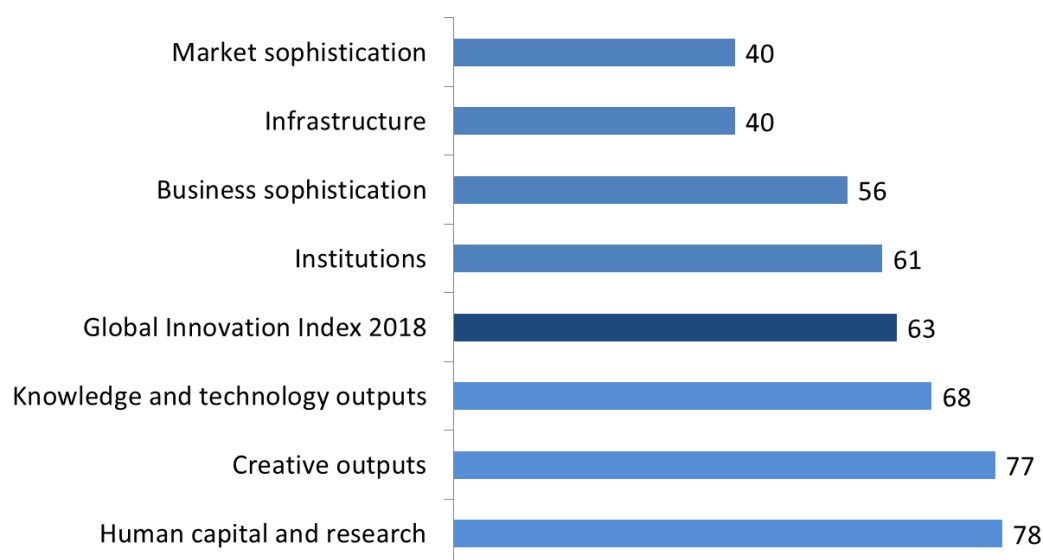
- Most relative weaknesses for Colombia are found on the **innovation input** side of the GII.
- In particular, Colombia exhibits most of its relative GII weaknesses in **Human Capital & Research** (78th), its lowest-ranked GII area. Here five of its 12 indicators are marked as weak: *PISA results* (59th), *Pupil-teacher ratio* (94th), *Tertiary inbound mobility* (101st), *Researchers* (83rd), and *Global R&D companies expenditures* (40th).
- Other important weaknesses are found in the area **Business Sophistication** (56th), where Colombia performs relatively weakly in one of its components, *Innovation linkages* (103rd), as well as in two indicators, *Joint venture –strategic alliance deals* (102nd) and *Research talent in business enterprise* (76th).
- On the innovation input side, other two relative weaknesses are found in **Market Sophistication** (27th), where the country performs relatively weakly in the indicator *Applied tariff rate* (99th) and in **Institutions** (61st), where one indicator *Political stability & safety* (111th) is signaled as a relative weakness for Colombia.
- On the **innovation output** side, Colombia shows only one GII weakness within **Creative Outputs** (77th) in the indicator *Industrial designs by origin* (96th).

The following figure presents a summary of Colombia's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

### Colombia's rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

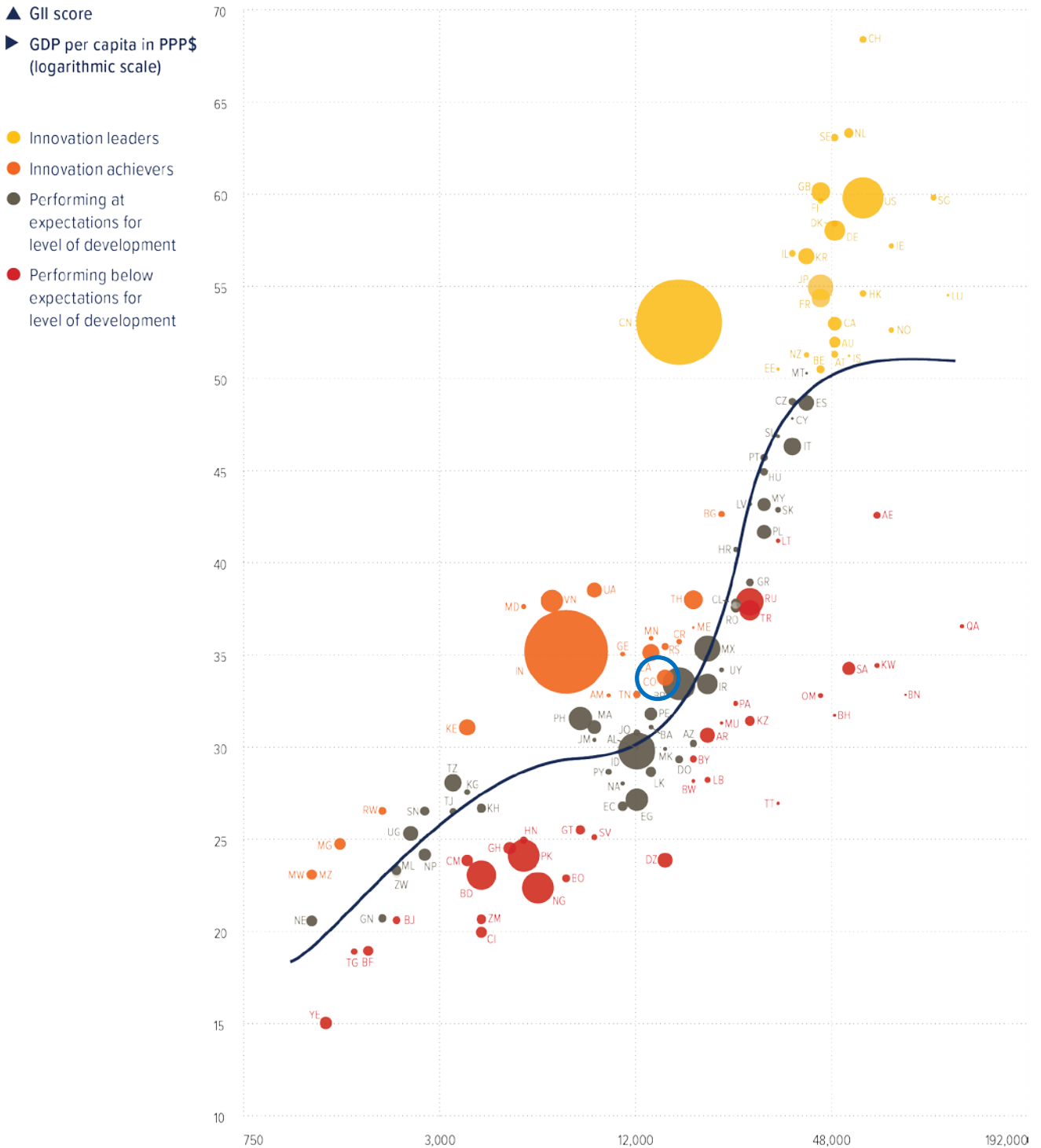
Total number of countries: 126



## Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better than what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, Colombia performs above its expected level of development.



## Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for Colombia that is not available or that is outdated.

### Missing Data

There is no data missing for Colombia.

### Outdated Data







Code	Indicator	Country Year	Model Year	Source
2.3.1	Researchers, FTE/mn pop.	2015	2016	UNESCO Institute for Statistics
5.1.1	Knowledge-intensive employment, %	2009	2016	ILO, ILOSTAT
5.1.2	Firms offering formal training, % firms	2010	2013	World Bank, Enterprise Surveys
5.3.5	Research talent, % in business enterprise	2015	2016	UNESCO Institute for Statistics





Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
72	50	Upper-middle	LCN	94	49.1	712.5	14,485.3	65

	Score/Value	Rank		Score/Value	Rank		
	<b>Institutions</b> .....	<b>62.7</b>	<b>61</b>	<b>Business sophistication</b> .....	<b>32.4</b>	<b>56</b>	
1.1	Political environment.....	44.6	82	5.1	Knowledge workers.....	45.9	42
1.1.1	Political stability & safety*.....	42.4	111 ○ ◇	5.1.1	Knowledge-intensive employment, % <sup>Ⓔ</sup> .....	16.7	84
1.1.2	Government effectiveness*.....	45.7	69	5.1.2	Firms offering formal training, % firms <sup>Ⓔ</sup> .....	65.1	4 ● ◆
1.2	Regulatory environment.....	65.8	66	5.1.3	GERD performed by business, % GDP.....	0.1	58
1.2.1	Regulatory quality*.....	54.4	53	5.1.4	GERD financed by business, %.....	50.0	21 ◆
1.2.2	Rule of law*.....	35.2	82	5.1.5	Females employed w/advanced degrees, %.....	13.8	47
1.2.3	Cost of redundancy dismissal, salary weeks.....	16.7	64	5.2	Innovation linkages.....	20.6	103 ○
1.3	Business environment.....	77.7	39	5.2.1	University/industry research collaboration <sup>†</sup> .....	43.2	51
1.3.1	Ease of starting a business*.....	85.3	75	5.2.2	State of cluster development <sup>†</sup> .....	44.2	73
1.3.2	Ease of resolving insolvency*.....	70.0	31 ◆	5.2.3	GERD financed by abroad, %.....	2.5	71
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	102 ○
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.1	72
	<b>Human capital &amp; research</b> .....	<b>26.7</b>	<b>78</b>	5.3	Knowledge absorption.....	30.8	61
2.1	Education.....	37.1	94	5.3.1	Intellectual property payments, % total trade.....	0.9	41
2.1.1	Expenditure on education, % GDP.....	4.5	67	5.3.2	High-tech net imports, % total trade.....	14.6	14 ●
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	15.8	72	5.3.3	ICT services imports, % total trade.....	1.5	45
2.1.3	School life expectancy, years.....	14.6	59	5.3.4	FDI net inflows, % GDP.....	4.4	37
2.1.4	PISA scales in reading, maths & science.....	410.1	59 ○	5.3.5	Research talent, % in business enterprise <sup>Ⓔ</sup> .....	1.2	76 ○ ◇
2.1.5	Pupil-teacher ratio, secondary.....	26.0	94 ○ ◇				
2.2	Tertiary education.....	31.9	64		<b>Knowledge &amp; technology outputs</b> .....	<b>20.9</b>	<b>68</b>
2.2.1	Tertiary enrolment, % gross.....	58.7	42	6.1	Knowledge creation.....	7.7	78
2.2.2	Graduates in science & engineering, %.....	23.6	36	6.1.1	Patents by origin/bn PPP\$ GDP.....	0.8	72
2.2.3	Tertiary inbound mobility, %.....	0.2	101 ○ ◇	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	0.2	49
2.3	Research & development (R&D).....	11.2	56	6.1.3	Utility models by origin/bn PPP\$ GDP.....	0.4	38
2.3.1	Researchers, FTE/mn pop. <sup>Ⓔ</sup> .....	132.0	83 ○	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	4.5	87
2.3.2	Gross expenditure on R&D, % GDP.....	0.3	82	6.1.5	Citable documents H index.....	15.4	46
2.3.3	Global R&D companies, top 3, mn US\$.....	0.0	40 ○ ◇	6.2	Knowledge impact.....	37.7	58
2.3.4	QS university ranking, average score top 3*.....	37.2	34	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	1.0	57
				6.2.2	New businesses/th pop. 15-64.....	2.3	45
				6.2.3	Computer software spending, % GDP.....	0.2	73
	<b>Infrastructure</b> .....	<b>51.4</b>	<b>40</b> ◆	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	17.3	19 ●
3.1	Information & communication technologies (ICTs).....	63.8	51	6.2.5	High- & medium-high-tech manufactures, %.....	0.2	55
3.1.1	ICT access*.....	58.8	73	6.3	Knowledge diffusion.....	17.1	78
3.1.2	ICT use*.....	41.1	74	6.3.1	Intellectual property receipts, % total trade.....	0.1	52
3.1.3	Government's online service*.....	79.0	27 ● ◆	6.3.2	High-tech net exports, % total trade.....	1.6	57
3.1.4	E-participation*.....	76.3	27	6.3.3	ICT services exports, % total trade.....	0.7	93
3.2	General infrastructure.....	33.0	82	6.3.4	FDI net outflows, % GDP.....	1.4	45
3.2.1	Electricity output, kWh/cap.....	1,431.0	89 ○				
3.2.2	Logistics performance*.....	25.4	93		<b>Creative outputs</b> .....	<b>24.2</b>	<b>77</b>
3.2.3	Gross capital formation, % GDP.....	25.5	35	7.1	Intangible assets.....	37.8	81
3.3	Ecological sustainability.....	57.5	11 ● ◆	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	35.3	68
3.3.1	GDP/unit of energy use.....	18.2	8 ● ◆	7.1.2	Industrial designs by origin/bn PPP\$ GDP.....	0.3	96 ○
3.3.2	Environmental performance*.....	65.2	38 ◆	7.1.3	ICTs & business model creation <sup>†</sup> .....	59.6	64
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	4.3	24 ●	7.1.4	ICTs & organizational model creation <sup>†</sup> .....	55.8	55
	<b>Market sophistication</b> .....	<b>51.9</b>	<b>40</b>	7.2	Creative goods & services.....	14.5	78
4.1	Credit.....	49.5	31 ◆	7.2.1	Cultural & creative services exports, % total trade.....	0.2	41
4.1.1	Ease of getting credit*.....	95.0	2 ● ◆	7.2.2	National feature films/mn pop. 15-69.....	1.6	66
4.1.2	Domestic credit to private sector, % GDP.....	47.1	74	7.2.3	Entertainment & Media market/th pop. 15-69.....	5.1	47
4.1.3	Microfinance gross loans, % GDP.....	2.1	15 ●	7.2.4	Printing & other media, % manufacturing.....	1.3	33
4.2	Investment.....	41.1	61	7.2.5	Creative goods exports, % total trade.....	0.3	74
4.2.1	Ease of protecting minority investors*.....	73.3	16 ● ◆	7.3	Online creativity.....	6.7	64
4.2.2	Market capitalization, % GDP.....	35.0	41	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	2.8	67
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.0	59	7.3.2	Country-code TLDs/th pop. 15-69.....	18.4	30
4.3	Trade, competition, & market scale.....	65.1	50	7.3.3	Wikipedia edits/mn pop. 15-69.....	4.7	84
4.3.1	Applied tariff rate, weighted mean, %.....	7.0	99 ○	7.3.4	Mobile app creation/bn PPP\$ GDP.....	2.6	73
4.3.2	Intensity of local competition <sup>†</sup> .....	75.8	21 ● ◆				
4.3.3	Domestic market scale, bn PPP\$.....	712.5	30				

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; \* an index; † a survey question.

Ⓔ indicates that the country'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; see page 75 of this appendix for details.