GLOBAL INNOVATION INDEX 2020

COLOMBIA

68th Colombia ranks 68th 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 Colombia 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 Colombia in the GII 2020 is between ranks 63 and 70.

Rankings of Colombia (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	68	56	74
2019	67	58	76
2018	63	50	72

- Colombia performs better in innovation inputs than innovation outputs in 2020.
- This year Colombia ranks 56th in innovation inputs, higher than last year and lower compared to 2018.
- As for innovation outputs, Colombia ranks 74th. This position is higher than last year and lower compared to 2018.

20th Colombia ranks 20th among the 37 upper middle-income group economies.

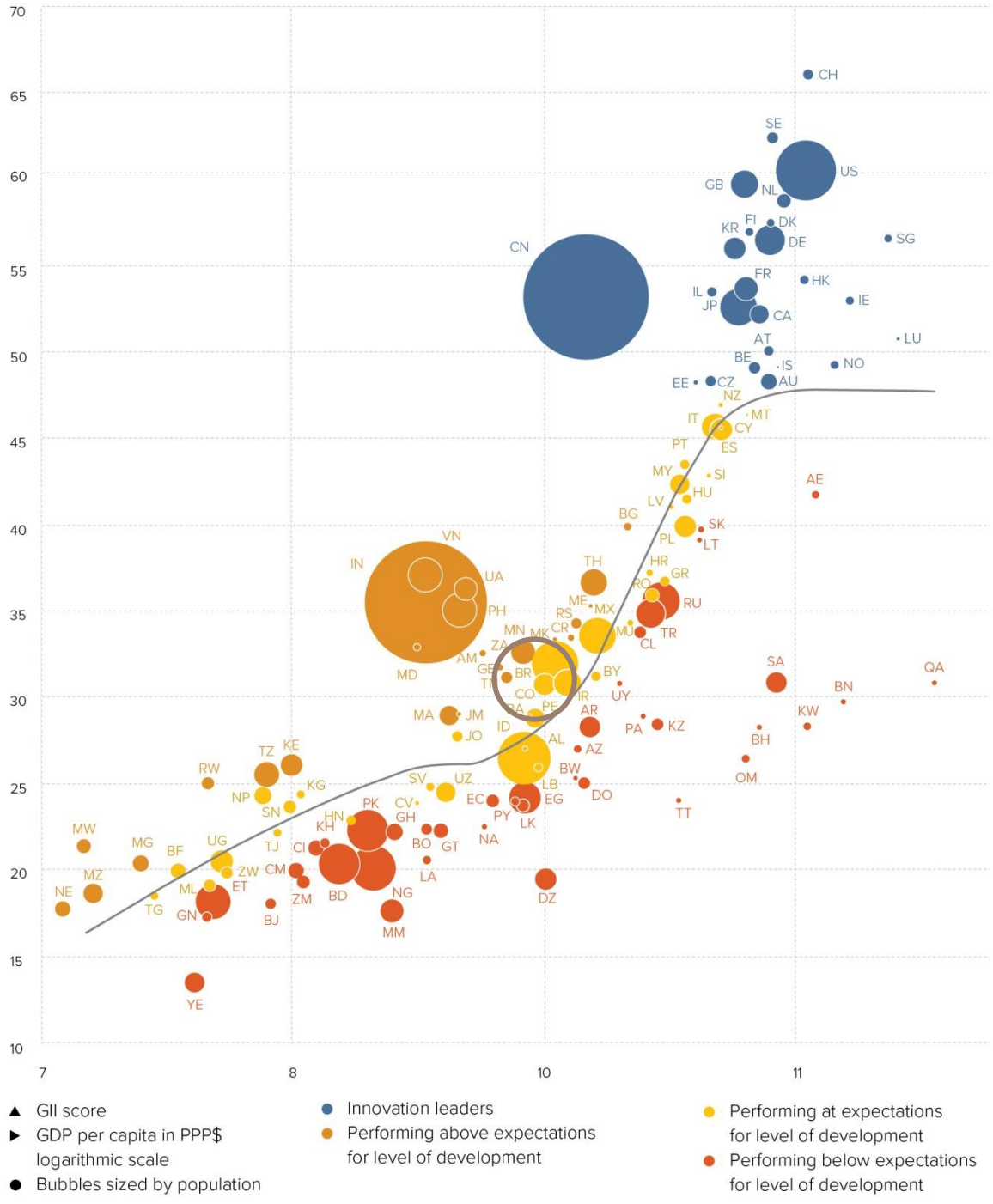
5th Colombia ranks 5th among the 18 economies in Latin America and the Caribbean.

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, Colombia's performance matches expectations for its level of development.

The positive relationship between innovation and development

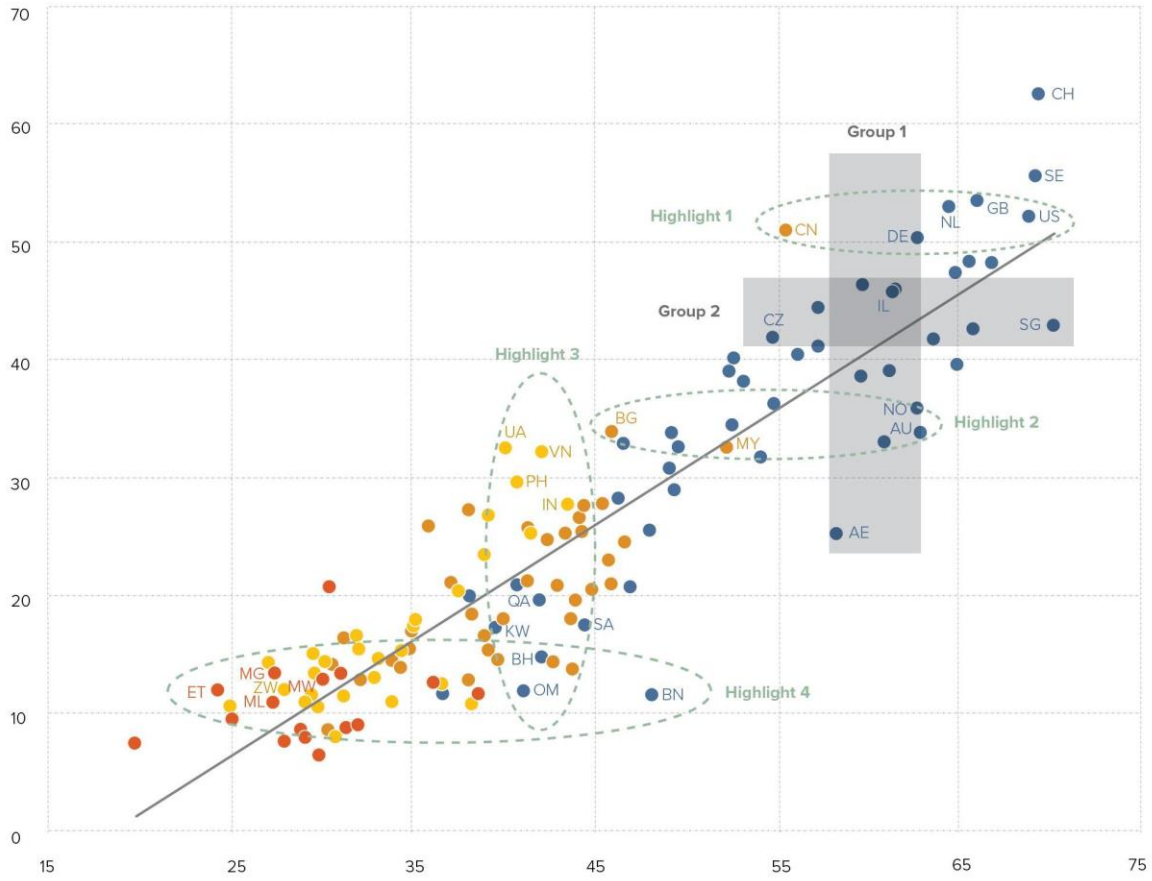


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance, 2020



▲ Output score
► Input score

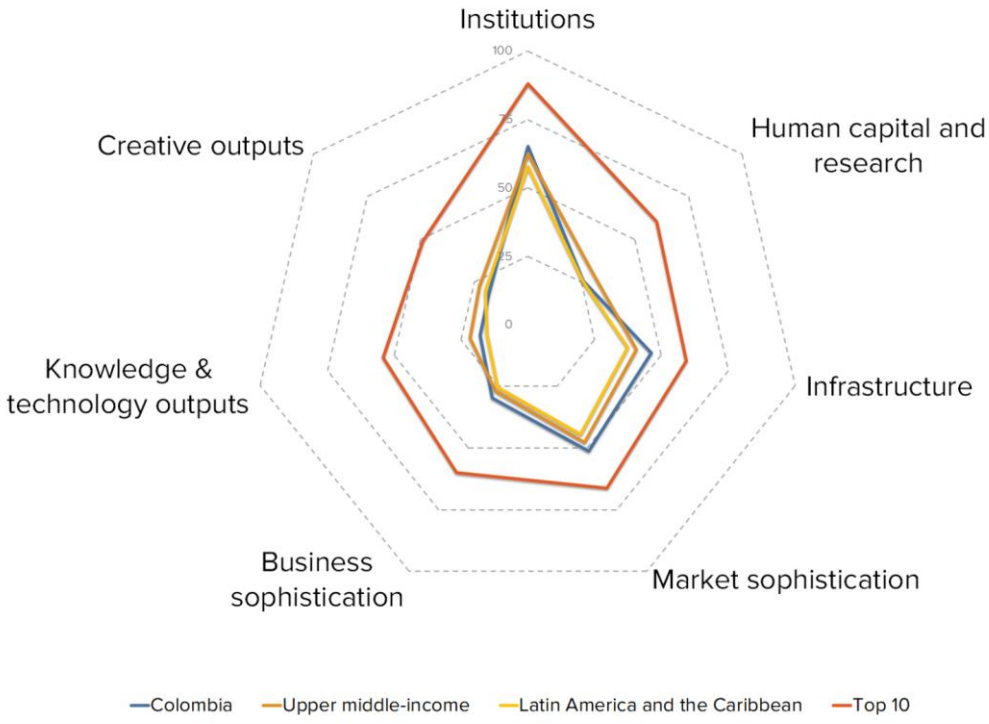
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— 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 COLOMBIA AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND LATIN AMERICA AND THE CARIBBEAN

Colombia's scores in the seven GII pillars



Upper middle-income group economies

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

Conversely, Colombia scores below average for its income group in three pillars: Human capital & research, Knowledge & technology outputs and Creative outputs.

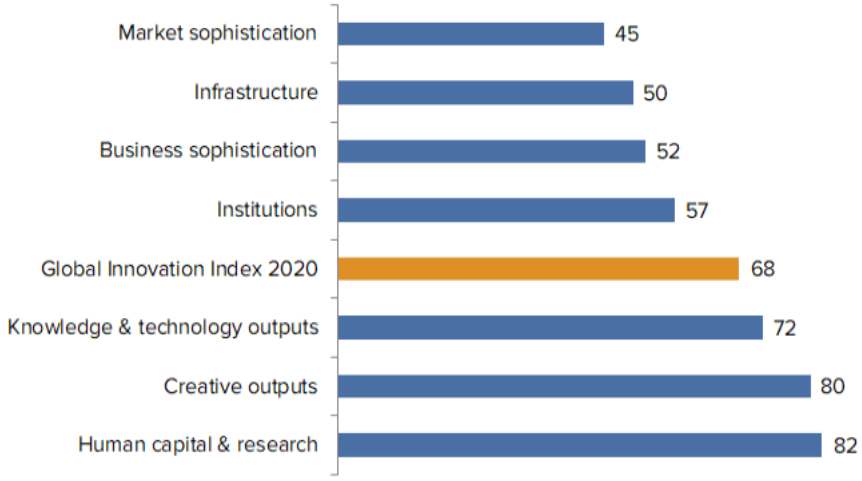
Latin America and the Caribbean

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

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

OVERVIEW OF COLOMBIA RANKINGS IN THE SEVEN GII AREAS

Colombia performs best in Market sophistication and its weakest performance is in Human capital & research.



*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 Colombia in the GII 2020.

Strengths

Code	Indicator name	Rank
3.1.4	E-participation*	23
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*	10
4.1.3	Microfinance gross loans, % GDP	16
4.2.1	Ease of protecting minority investors*	13
4.3.2	Intensity of local competition†	28
5.1.2	Firms offering formal training, %	6
5.3.2	High-tech imports, % total trade	17
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	21

Weaknesses

Code	Indicator name	Rank
1.1.1	Political & operational stability*	92
2.1.4	PISA scales in reading, maths & science	62
2.1.5	Pupil-teacher ratio, secondary	107
2.2.3	Tertiary inbound mobility, %	107
2.3.1	Researchers, FTE/mn pop.	90
2.3.2	Gross expenditure on R&D, % GDP	87
2.3.3	Global R&D companies, top 3, mn US$	42
4.2.3	Venture capital deals/bn PPP$ GDP	72
5.2	Innovation linkages	108
5.2.3	GERD financed by abroad, % GDP	95
5.3.5	Research talent, % in business enterprise	75

STRENGTHS

GII strengths for Colombia are found in four of the seven GII pillars.

- Infrastructure (50): demonstrates strengths in the indicators E-participation (23), GDP/unit of energy use (10) and ISO 14001 environmental certificates (27).
- Market sophistication (45): shows strengths in the indicators Ease of getting credit (10), Microfinance gross loans (16), Ease of protecting minority investors (13) and Intensity of local competition (28).
- Business sophistication (52): displays strengths in the indicators Firms offering formal training (6) and High-tech imports (17).
- Knowledge & technology outputs (72): the indicator ISO 9001 quality certificates (21) reveals a strength.

WEAKNESSES

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

- Institutions (57): the indicator Political & operational stability (92) demonstrates a weakness.
- Human capital & research (82): shows weaknesses in several indicators: namely, PISA scales in reading, maths & science (62), Pupil–teacher ratio (107), Tertiary inbound mobility (107), Researchers (90), Gross expenditure on R&D (87) and Global R&D companies (42).
- Market sophistication (45): the indicator Venture capital deals (72) reveals a weakness.
- Business sophistication (52): displays weaknesses in the sub-pillar Innovation linkages (108) and in the indicators GERD financed by abroad (95) and Research talent (75).

COLOMBIA

GII 2020 rank

68

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
74	56	Upper middle	LCN	50.3	783.0	13,567.9	67

		Score/Value	Rank	
INSTITUTIONS		**65.1**	**57**	
1.1	**Political environment**	**53.0**	**81**	
1.1.1	Political and operational stability*	62.5	92	○
1.1.2	Government effectiveness*	48.2	76	
1.2	**Regulatory environment**	**63.0**	**73**	
1.2.1	Regulatory quality*	50.4	55	
1.2.2	Rule of law*	36.0	87	
1.2.3	Cost of redundancy dismissal, salary weeks	16.7	66	
1.3	**Business environment**	**79.2**	**36**	
1.3.1	Ease of starting a business*	87.0	74	
1.3.2	Ease of resolving insolvency*	71.4	30	◆
HUMAN CAPITAL & RESEARCH		**25.9**	**82**	
2.1	**Education**	**36.7**	**89**	
2.1.1	Expenditure on education, % GDP	4.5	63	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.6	64	
2.1.3	School life expectancy, years	14.4	63	
2.1.4	PISA scales in reading, maths, & science	405.5	62	○
2.1.5	Pupil-teacher ratio, secondary	25.9	107	○ ◇
2.2	**Tertiary education**	**31.0**	**72**	
2.2.1	Tertiary enrolment, % gross	55.3	50	
2.2.2	Graduates in science & engineering, %	23.1	51	
2.2.3	Tertiary inbound mobility, %	0.2	107	○ ◇
2.3	**Research & development (R&D)**	**9.9**	**59**	
2.3.1	Researchers, FTE/mn pop. ⏲	88.0	90	○ ◇
2.3.2	Gross expenditure on R&D, % GDP	0.2	87	○
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	34.1	33	
INFRASTRUCTURE		**46.4**	**50**	
3.1	**Information & communication technologies (ICTs)**	**71.9**	**53**	
3.1.1	ICT access*	60.9	73	
3.1.2	ICT use*	46.3	81	
3.1.3	Government's online service*	88.2	30	◆
3.1.4	E-participation*	92.1	23	● ◆
3.2	**General infrastructure**	**21.7**	**88**	
3.2.1	Electricity output, kWh/mn pop	1,609.4	86	
3.2.2	Logistics performance*	40.9	57	
3.2.3	Gross capital formation, % GDP	21.8	80	
3.3	**Ecological sustainability**	**45.5**	**29**	◆
3.3.1	GDP/unit of energy use	16.4	10	● ◆
3.3.2	Environmental performance*	52.9	48	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.8	27	●
MARKET SOPHISTICATION		**51.2**	**45**	
4.1	**Credit**	**49.7**	**35**	◆
4.1.1	Ease of getting credit*	90.0	10	● ◆
4.1.2	Domestic credit to private sector, % GDP	50.2	69	
4.1.3	Microfinance gross loans, % GDP	1.8	16	●
4.2	**Investment**	**32.2**	**87**	
4.2.1	Ease of protecting minority investors*	80.0	13	● ◆
4.2.2	Market capitalization, % GDP	35.7	41	
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	72	○
4.3	**Trade, competition, and market scale**	**71.8**	**32**	
4.3.1	Applied tariff rate, weighted avg., %	3.3	67	
4.3.2	Intensity of local competition+	75.0	28	● ◆
4.3.3	Domestic market scale, bn PPP$	783.0	31	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**29.8**	**52**	
5.1	**Knowledge workers**	**46.0**	**33**	◆
5.1.1	Knowledge-intensive employment, %	n/a	n/a	
5.1.2	Firms offering formal training, % ⏲	63.0	6	● ◆
5.1.3	GERD performed by business, % GDP	0.1	61	
5.1.4	GERD financed by business, %	49.1	30	
5.1.5	Females employed w/advanced degrees, %	14.1	49	
5.2	**Innovation linkages**	**15.5**	**108**	○
5.2.1	University/industry research collaboration+	42.6	61	
5.2.2	State of cluster development+	43.2	83	
5.2.3	GERD financed by abroad, % GDP	0.0	95	○
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	85	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	73	
5.3	**Knowledge absorption**	**27.8**	**68**	
5.3.1	Intellectual property payments, % total trade	0.9	43	
5.3.2	High-tech imports, % total trade	13.4	17	●
5.3.3	ICT services imports, % total trade	1.4	51	
5.3.4	FDI net inflows, % GDP	4.3	35	
5.3.5	Research talent, % in business enterprise ⏲	2.4	75	○ ◇
KNOWLEDGE & TECHNOLOGY OUTPUTS		**17.9**	**72**	
6.1	**Knowledge creation**	**9.4**	**78**	
6.1.1	Patents by origin/bn PPP$ GDP	0.6	80	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	52	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	45	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.4	83	
6.1.5	Citable documents H-index	17.4	46	
6.2	**Knowledge impact**	**27.8**	**50**	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.2	44	
6.2.2	New businesses/th pop. 15-64	2.0	55	
6.2.3	Computer software spending, % GDP	0.0	74	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	13.5	21	●
6.2.5	High- and medium-high-tech manufacturing, %	20.2	56	
6.3	**Knowledge diffusion**	**16.5**	**88**	
6.3.1	Intellectual property receipts, % total trade	0.1	51	
6.3.2	High-tech net exports, % total trade	1.0	68	
6.3.3	ICT services exports, % total trade	0.7	90	
6.3.4	FDI net outflows, % GDP	1.4	45	
CREATIVE OUTPUTS		**18.2**	**80**	
7.1	**Intangible assets**	**23.9**	**78**	
7.1.1	Trademarks by origin/bn PPP$ GDP	34.8	70	
7.1.2	Global brand value, top 5,000, % GDP	37.9	40	
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.4	88	
7.1.4	ICTs & organizational model creation+	54.5	62	
7.2	**Creative goods and services**	**7.8**	**90**	
7.2.1	Cultural & creative services exports, % total trade	0.2	67	
7.2.2	National feature films/mn pop. 15-69	1.4	77	
7.2.3	Entertainment & Media market/th pop. 15-69	7.2	44	
7.2.4	Printing and other media, % manufacturing	1.3	33	
7.2.5	Creative goods exports, % total trade	0.2	76	
7.3	**Online creativity**	**16.9**	**63**	
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	20.0	29	
7.3.3	Wikipedia edits/mn pop. 15-69	46.3	69	
7.3.4	Mobile app creation/bn PPP$ GDP	1.6	65	

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 Colombia.

Missing data

Code	Indicator name	Country year	Model year	Source
5.1.1	Knowledge-intensive employment, %	n/a	2018	International Labour Organization

Outdated data

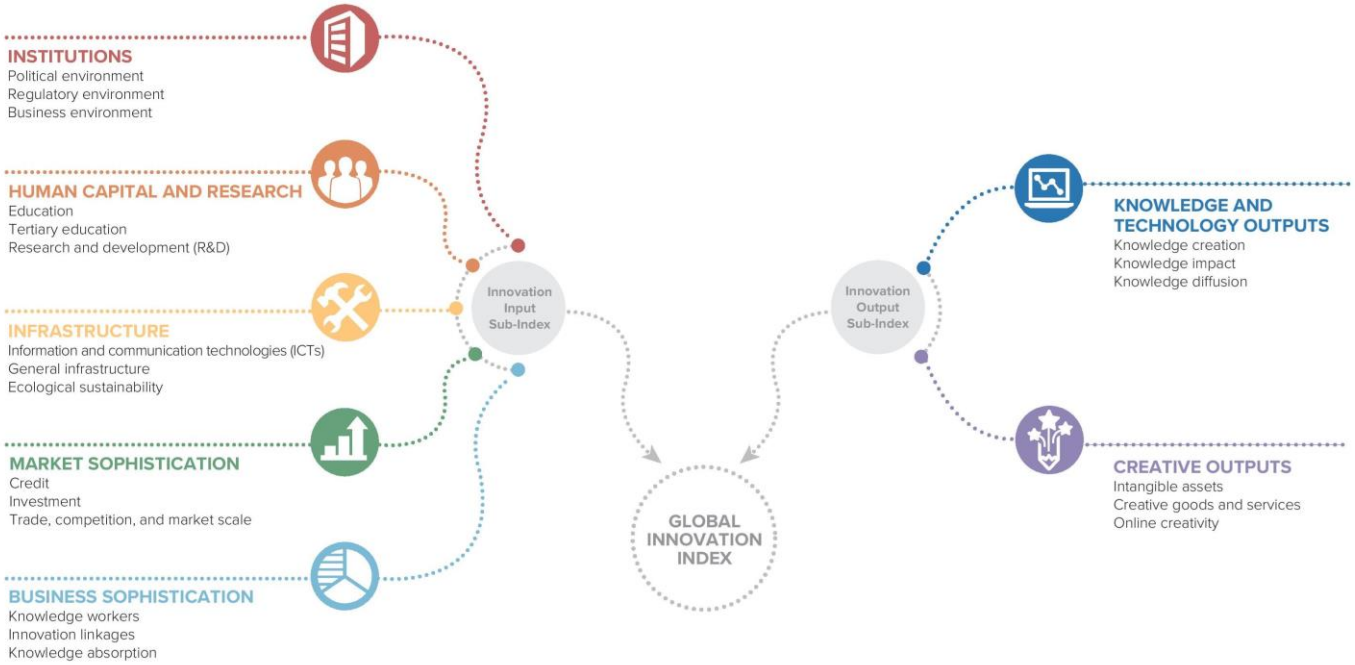
Code	Indicator name	Country year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.2	Firms offering formal training, %	2016	2018	World Bank
5.3.5	Research talent, % in business enterprise	2017	2018	UNESCO 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 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.