Global Innovation Index 2021

COLOMBIA

67th Colombia ranks 67th 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 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 2021 is between ranks 62 and 69.

Rankings for Colombia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	67	58	75
2020	68	56	74
2019	67	58	76

- Colombia performs better in innovation inputs than innovation outputs in 2021.
- This year Colombia ranks 58th in innovation inputs, lower than last year but the same as 2019.
- As for innovation outputs, Colombia ranks 75th. This position is lower than last year but higher than 2019.

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

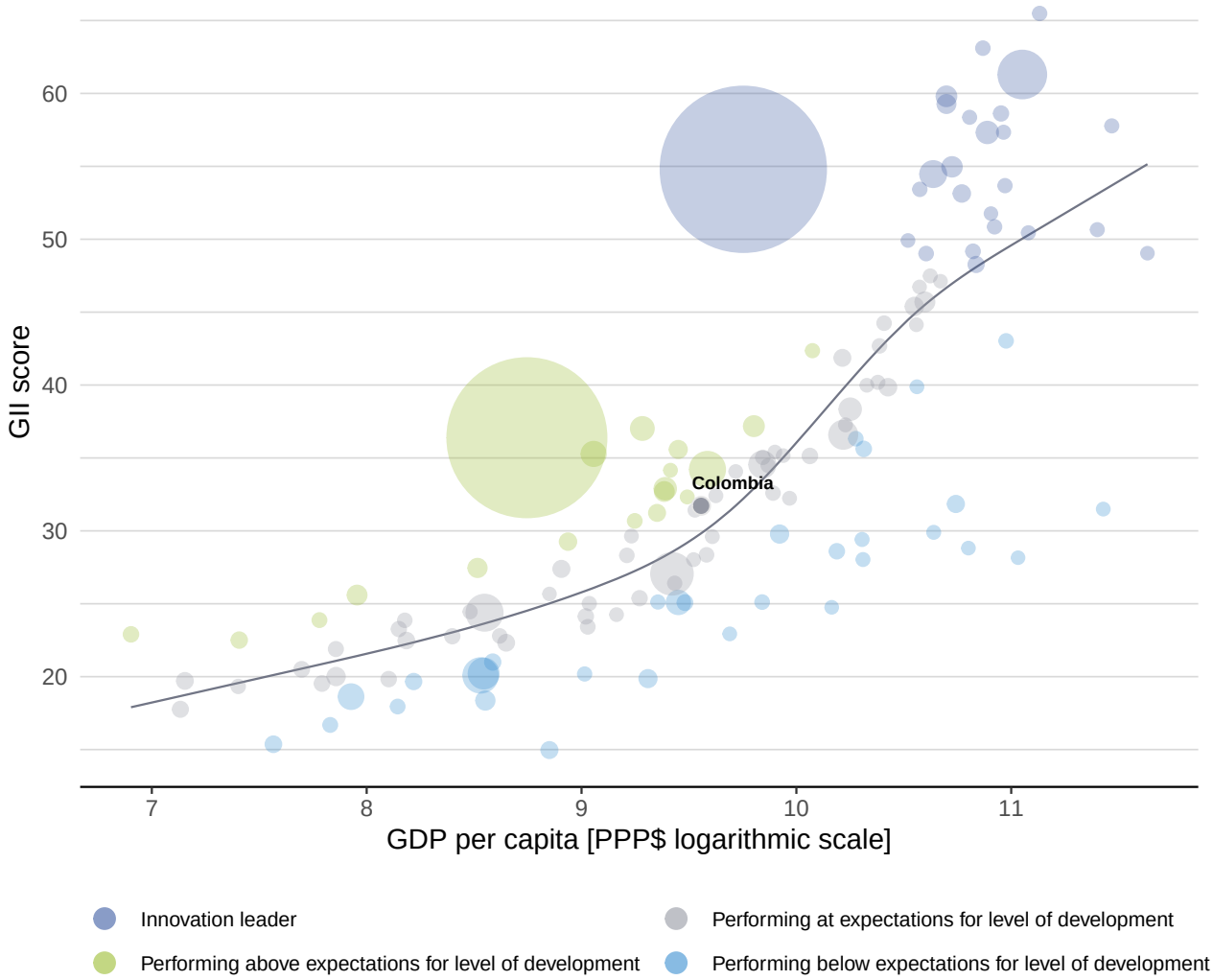
6th Colombia ranks 6th among the 18 economies in Latin America and the Caribbean.

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 is at expectations for its level of development.

The positive relationship between innovation and development

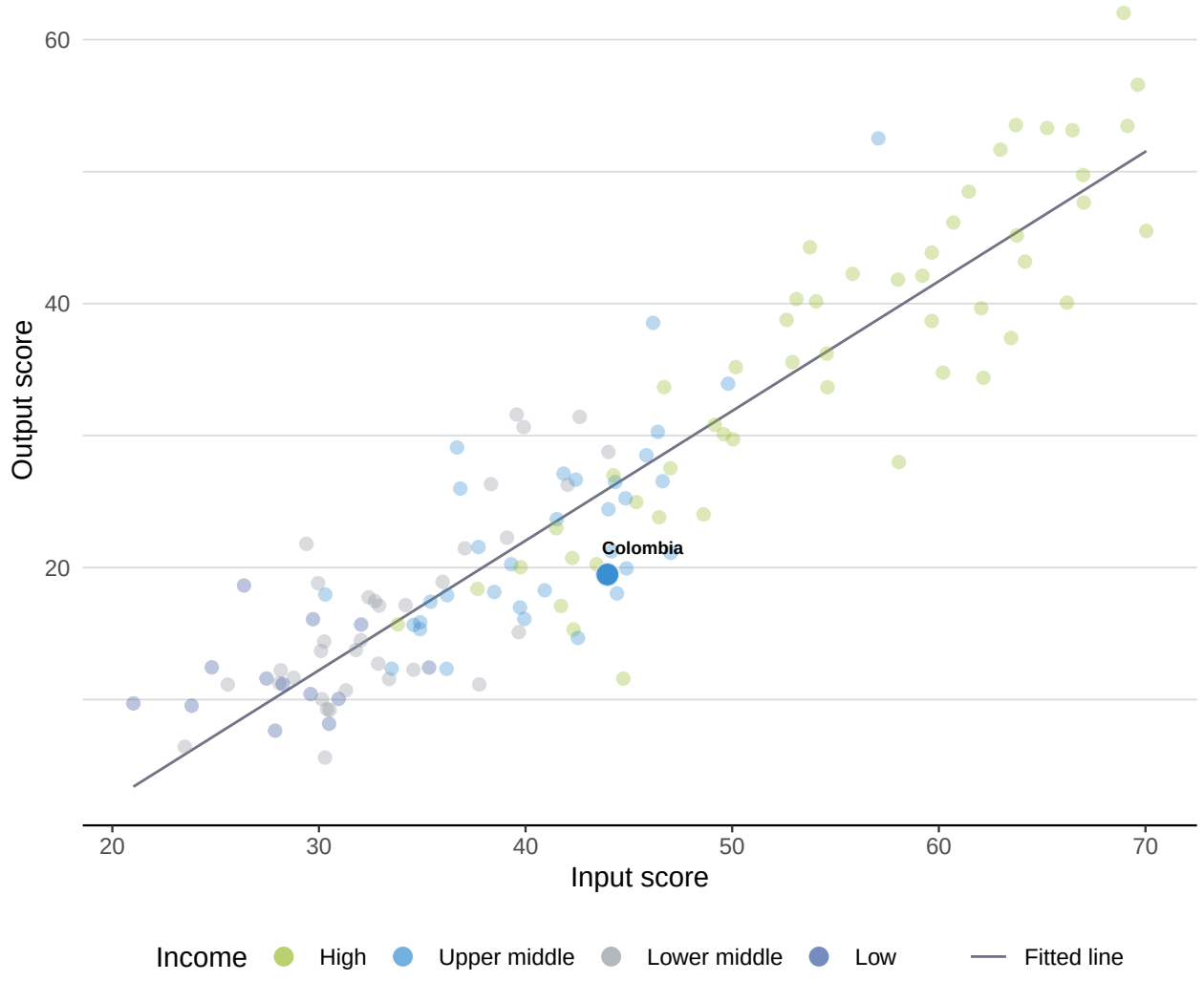


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

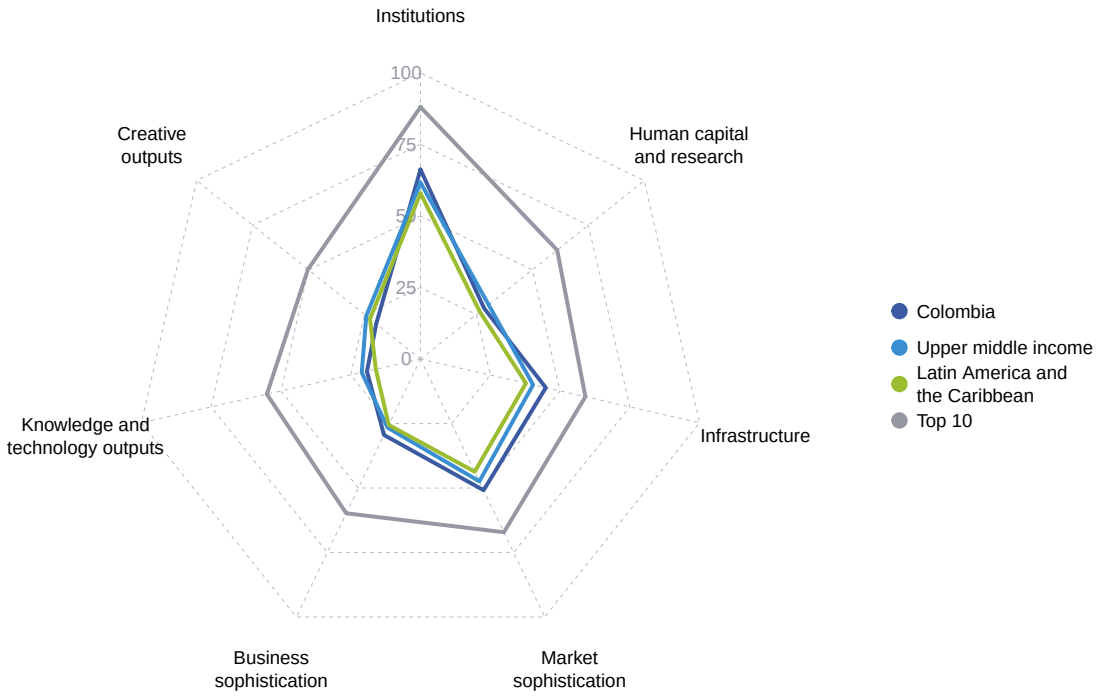
Colombia produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



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

The seven GII pillar scores for Colombia



Upper middle-income group economies

Colombia performs above the upper middle-income group average in four pillars, namely: Institutions; Infrastructure; Market sophistication; and, Business sophistication.

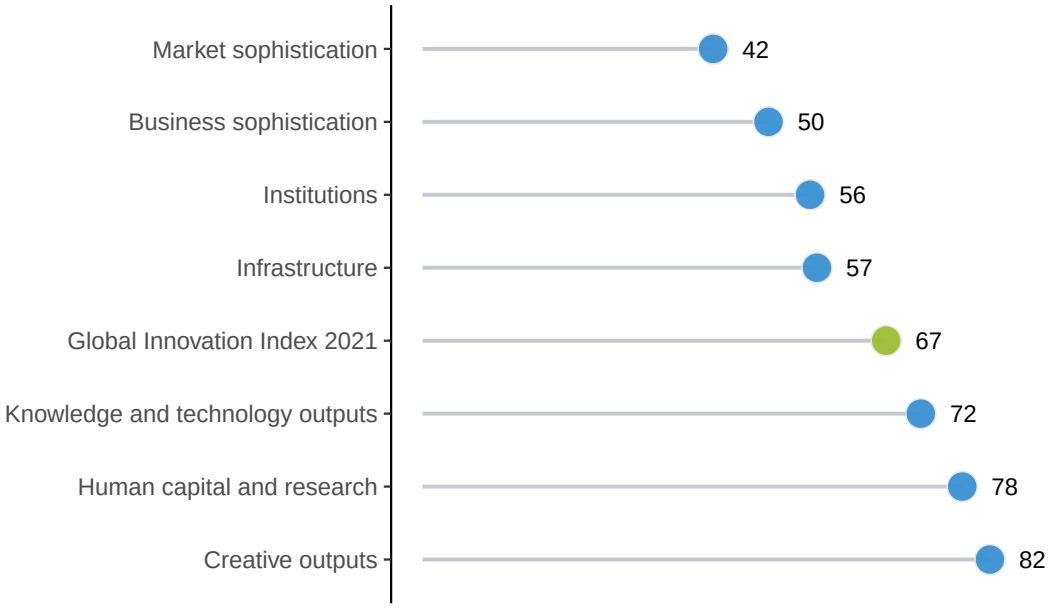
Latin America and the Caribbean

Colombia performs above the regional average in six pillars, namely: Institutions; Human capital and research; Infrastructure; Market sophistication; Business sophistication; and, Knowledge and technology outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Colombia performs best in Market sophistication and its weakest performance is in Creative outputs.

The seven GII pillar ranks for Colombia



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 Colombia in the GII 2021.

Strengths and weaknesses for Colombia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
3.3	Ecological sustainability	27	1.1.1	Political and operational stability	89
3.3.1	GDP/unit of energy use	11	2.1.4	PISA scales in reading, maths and science	62
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	23	2.1.5	Pupil-teacher ratio, secondary	107
4.1.1	Ease of getting credit	10	2.2.3	Tertiary inbound mobility, %	106
4.1.3	Microfinance gross loans, % GDP	15	2.3.1	Researchers, FTE/mn pop.	91
4.2.1	Ease of protecting minority investors	13	2.3.3	Global corporate R&D investors, top 3, mn US$	41
5.1.2	Firms offering formal training, %	7	4.2.3	Venture capital investors, deals/bn PPP$ GDP	84
5.3.2	High-tech imports, % total trade	15	4.2.4	Venture capital recipients, deals/bn PPP$ GDP	72
5.3.4	FDI net inflows, % GDP	27	5.2	Innovation linkages	98
6.2.1	Labor productivity growth, %	13	5.3.5	Research talent, % in businesses	75
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	21	7.1.3	Industrial designs by origin/bn PPP$ GDP	89

Colombia

GII 2021 rank
67

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
75	58	Upper middle	LCN	50.9	719.3	14,137	68

		Score/ Value	Rank
Institutions		**66.2**	**56**
1.1	**Political environment**	**55.7**	**72**
1.1.1	Political and operational stability*	62.5	89 ○
1.1.2	Government effectiveness*	52.2	67
1.2	**Regulatory environment**	**63.8**	**70**
1.2.1	Regulatory quality*	53.9	53
1.2.2	Rule of law*	35.7	86
1.2.3	Cost of redundancy dismissal	16.7	65
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 and research		**28.4**	**78**
2.1	**Education**	**42.4**	**87**
2.1.1	Expenditure on education, % GDP	4.5	58
2.1.2	Government funding/pupil, secondary, % GDP/cap	19.1	56
2.1.3	School life expectancy, years	14.5	62
2.1.4	PISA scales in reading, maths and science	405.5	62 ○
2.1.5	Pupil-teacher ratio, secondary	26.1	107 ○ ◇
2.2	**Tertiary education**	**32.7**	**67**
2.2.1	Tertiary enrolment, % gross	55.0	55
2.2.2	Graduates in science and engineering, %	24.6	41
2.2.3	Tertiary inbound mobility, %	0.2	106 ○ ◇
2.3	**Research and development (R&D)**	**10.2**	**59**
2.3.1	Researchers, FTE/mn pop. ◴	88.0	91 ○ ◇
2.3.2	Gross expenditure on R&D, % GDP	0.3	82
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41 ○ ◇
2.3.4	QS university ranking, top 3*	34.4	35
Infrastructure		**44.9**	**57**
3.1	**Information and communication technologies (ICTs)**	**68.3**	**61**
3.1.1	ICT access*	60.9	74
3.1.2	ICT use*	48.9	82
3.1.3	Government's online service*	76.5	49
3.1.4	E-participation*	86.9	27
3.2	**General infrastructure**	**23.0**	**93**
3.2.1	Electricity output, GWh/mn pop.	1,610.6	89
3.2.2	Logistics performance*	41.5	57
3.2.3	Gross capital formation, % GDP	19.7	90
3.3	**Ecological sustainability**	**43.4**	**27 ● ◆**
3.3.1	GDP/unit of energy use	18.2	11 ● ◆
3.3.2	Environmental performance*	52.9	48
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.0	23 ●
Market sophistication		**50.8**	**42**
4.1	**Credit**	**50.4**	**32 ◆**
4.1.1	Ease of getting credit*	90.0	10 ● ◆
4.1.2	Domestic credit to private sector, % GDP	51.5	66
4.1.3	Microfinance gross loans, % GDP	1.8	15 ●
4.2	**Investment**	**24.1**	**90**
4.2.1	Ease of protecting minority investors*	80.0	13 ● ◆
4.2.2	Market capitalization, % GDP	37.0	41
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.0	84 ○
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	72 ○
4.3	**Trade, diversification, and market scale**	**78.0**	**35**
4.3.1	Applied tariff rate, weighted avg., %	2.9	61
4.3.2	Domestic industry diversification	88.0	60
4.3.3	Domestic market scale, bn PPP$	719.2	31

		Score/ Value	Rank
Business sophistication		**29.4**	**50**
5.1	**Knowledge workers**	**44.4**	**36**
5.1.1	Knowledge-intensive employment, %	n/a	n/a
5.1.2	Firms offering formal training, % ◴	63.0	7 ● ◆
5.1.3	GERD performed by business, % GDP	0.1	61
5.1.4	GERD financed by business, %	43.0	37
5.1.5	Females employed w/advanced degrees, %	14.4	52
5.2	**Innovation linkages**	**16.8**	**98 ○**
5.2.1	University-industry R&D collaboration†	45.2	53
5.2.2	State of cluster development and depth†	45.0	77
5.2.3	GERD financed by abroad, % GDP	0.0	69
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	84
5.2.5	Patent families/bn PPP$ GDP	0.1	61
5.3	**Knowledge absorption**	**27.0**	**64**
5.3.1	Intellectual property payments, % total trade	0.8	55
5.3.2	High-tech imports, % total trade	13.9	15 ●
5.3.3	ICT services imports, % total trade	1.4	54
5.3.4	FDI net inflows, % GDP	4.1	27 ●
5.3.5	Research talent, % in businesses ◴	2.4	75 ○ ◇
Knowledge and technology outputs		**19.2**	**72**
6.1	**Knowledge creation**	**9.6**	**80**
6.1.1	Patents by origin/bn PPP$ GDP	0.5	78
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	53
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	49
6.1.4	Scientific and technical articles/bn PPP$ GDP	9.8	87
6.1.5	Citable documents H-index	17.8	45
6.2	**Knowledge impact**	**35.5**	**39**
6.2.1	Labor productivity growth, %	3.6	13 ● ◆
6.2.2	New businesses/th pop. 15–64	2.0	55
6.2.3	Software spending, % GDP	0.2	70
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	13.5	21 ●
6.2.5	High-tech manufacturing, %	20.0	63
6.3	**Knowledge diffusion**	**12.4**	**82**
6.3.1	Intellectual property receipts, % total trade	0.2	45
6.3.2	Production and export complexity	46.2	56
6.3.3	High-tech exports, % total trade	1.3	69
6.3.4	ICT services exports, % total trade	0.7	90
Creative outputs		**19.8**	**82**
7.1	**Intangible assets**	**27.1**	**78**
7.1.1	Trademarks by origin/bn PPP$ GDP	36.8	64
7.1.2	Global brand value, top 5,000, % GDP	30.2	43
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.4	89 ○
7.1.4	ICTs and organizational model creation†	54.5	62
7.2	**Creative goods and services**	**7.7**	**90**
7.2.1	Cultural and creative services exports, % total trade	0.2	70
7.2.2	National feature films/mn pop. 15–69	1.4	76
7.2.3	Entertainment and media market/th pop. 15–69	7.5	42
7.2.4	Printing and other media, % manufacturing	1.2	35
7.2.5	Creative goods exports, % total trade	0.2	74
7.3	**Online creativity**	**17.2**	**66**
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	21.7	29
7.3.3	Wikipedia edits/mn pop. 15–69	43.1	80
7.3.4	Mobile app creation/bn PPP$ GDP	2.0	70

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 Colombia.

Missing data for Colombia

Code	Indicator name	Economy year	Model year	Source
5.1.1	Knowledge-intensive employment, %	n/a	2019	International Labour Organization

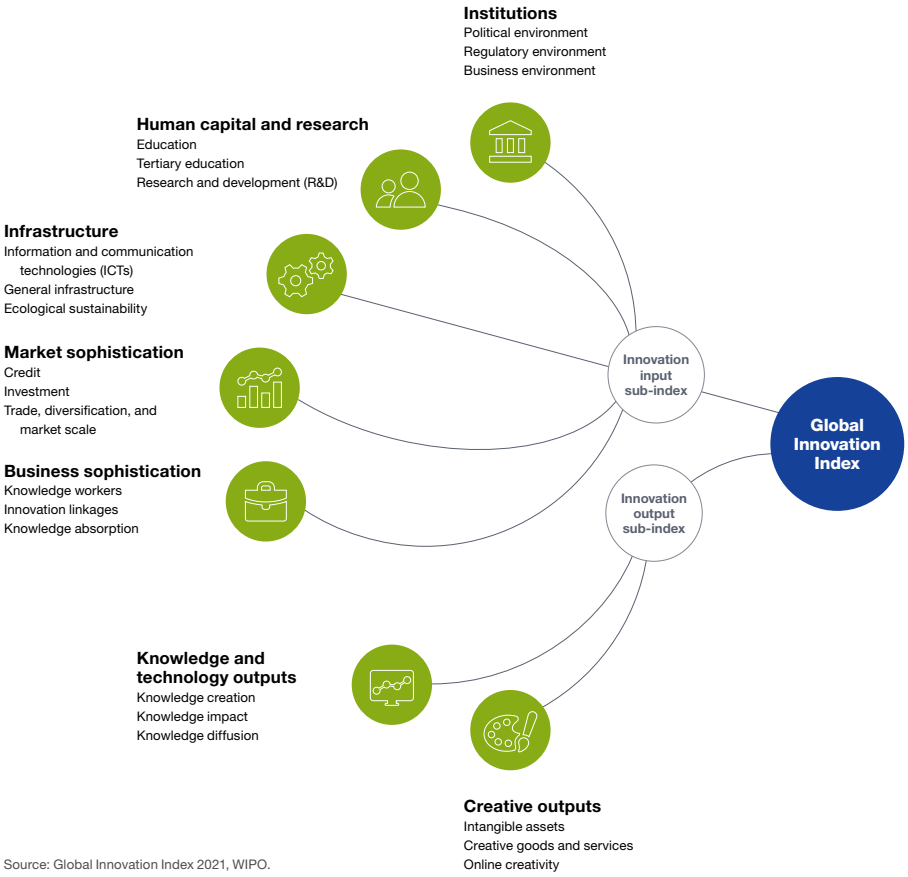
Outdated data for Colombia

Code	Indicator name	Economy year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.2	Firms offering formal training, %	2017	2019	World Bank
5.3.5	Research talent, % in businesses	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

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.