

Global Innovation Index 2023

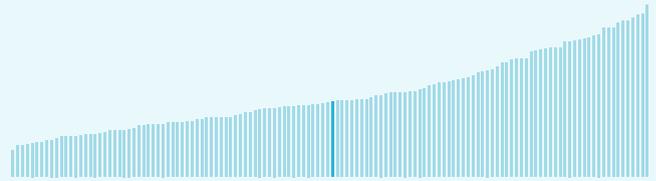


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Colombia ranking in the Global Innovation Index 2023

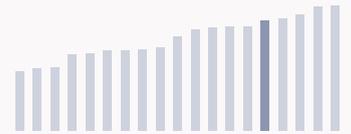
> Colombia ranks **66th** among the 132 economies featured in the GII 2023.



> Colombia ranks **15th** among the 33 upper-middle-income group economies.



> Colombia ranks **5th** among the 19 economies in Latin America and the Caribbean.



> Colombia GII Ranking (2020-2023)

The table shows the rankings of Colombia over the past four years. 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 2023 is between ranks 62 and 72.

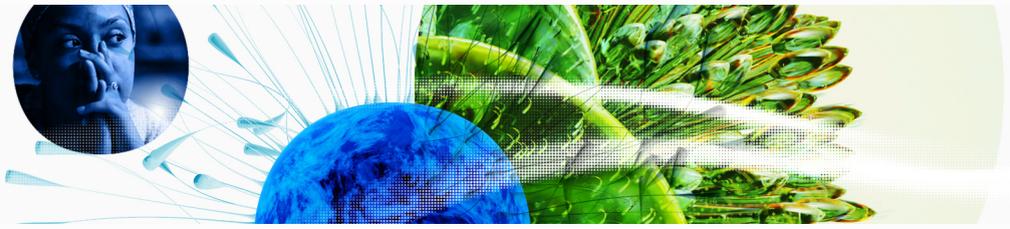
	GII Position	Innovation Inputs	Innovation Outputs
2020	68th	56th	74th
2021	67th	58th	75th
2022	63rd	63rd	70th
2023	66th	63rd	71st

Colombia performs worse in innovation outputs than innovation inputs in 2023.

This year Colombia ranks 63rd in innovation inputs. This position is the same as last year.

Colombia ranks 71st in innovation outputs. This position is lower than last year.

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→ Expected vs. observed innovation performance

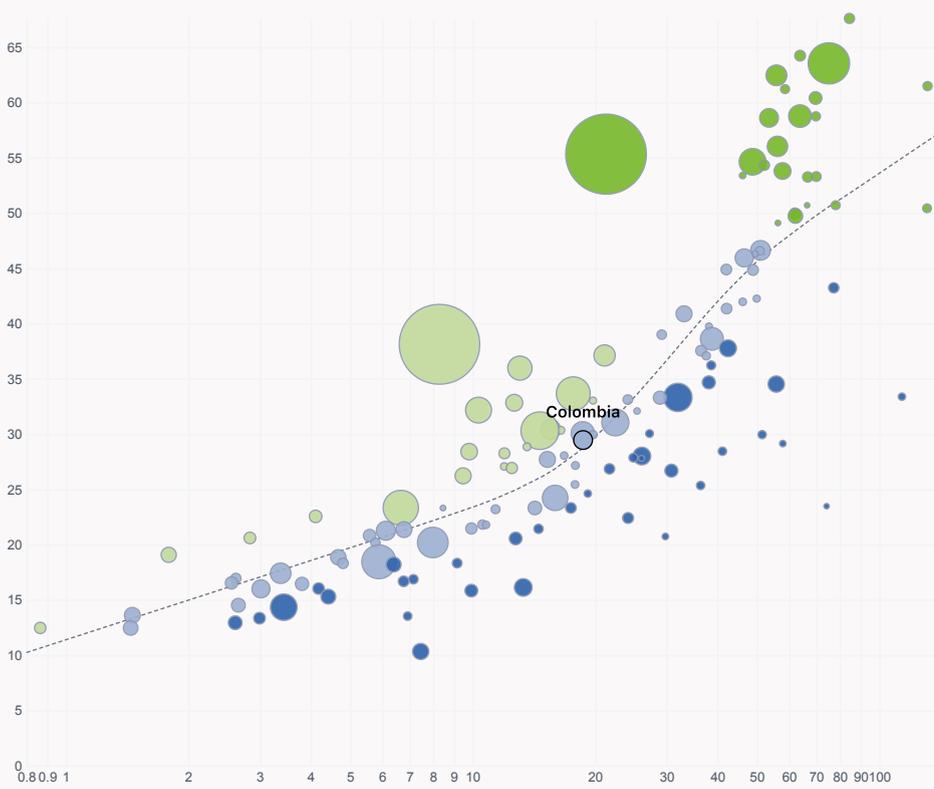
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.



> Relative to GDP, Colombia's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ **GII Score**



- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ **GDP per capita, PPP logarithmic scale (thousands of \$)**

Global Innovation Index 2023



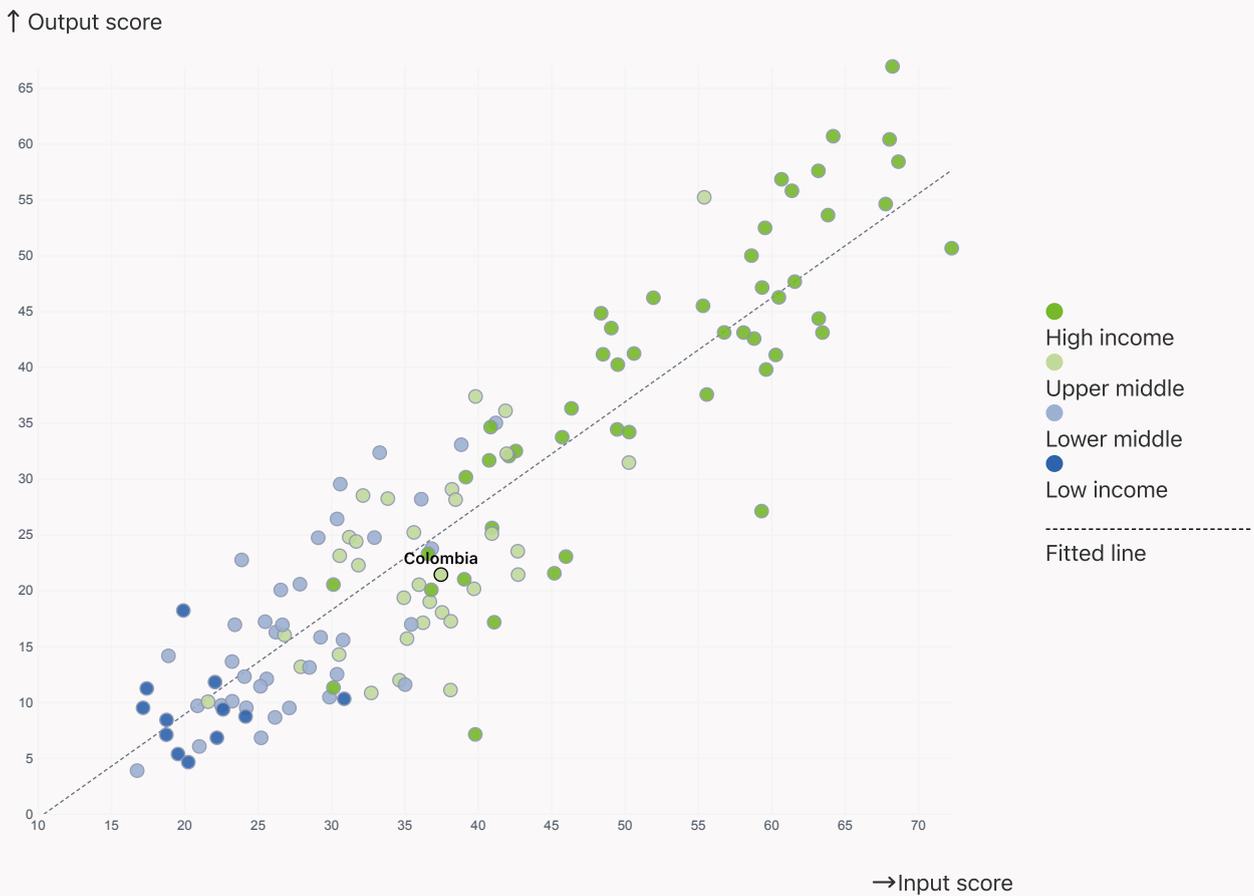
→ Effectively translating innovation investments into innovation outputs

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.

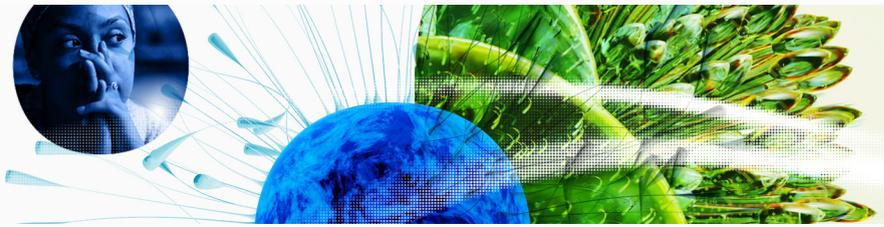


> Colombia produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

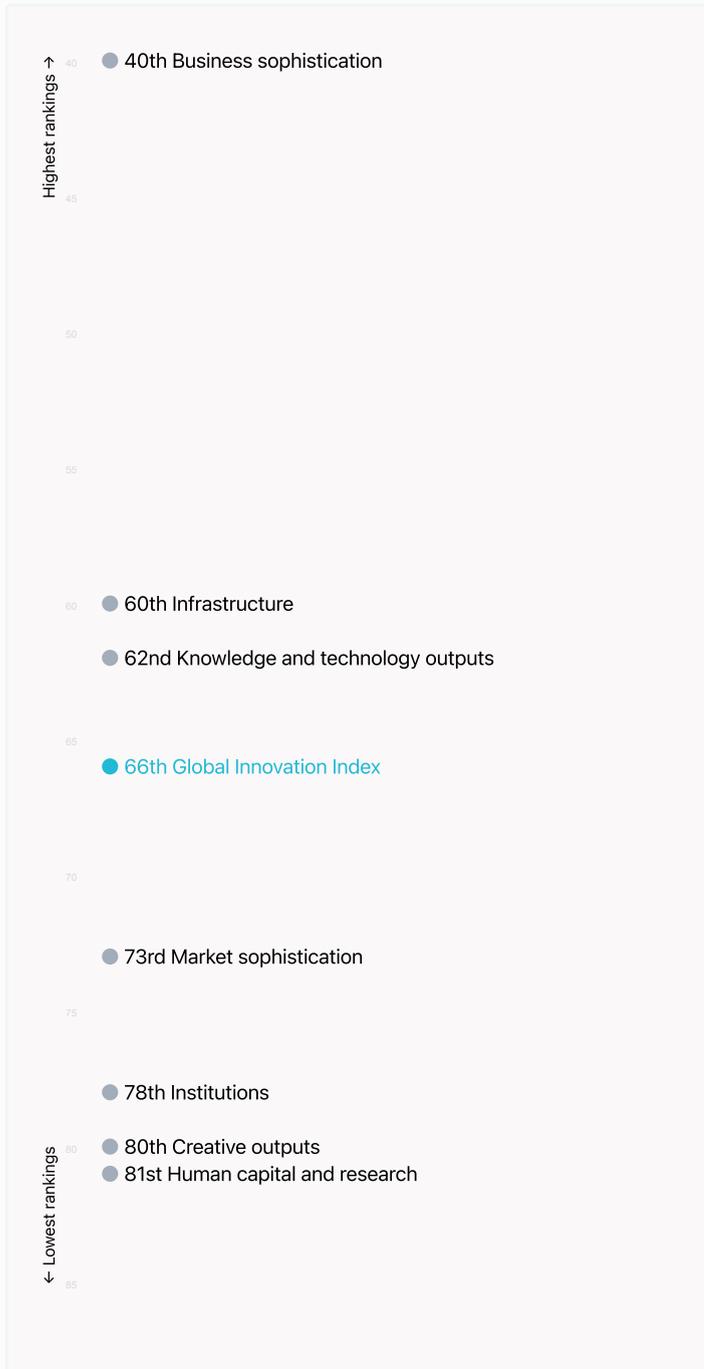


Global Innovation Index 2023



→ Overview of Colombia's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Colombia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings



Colombia ranks highest in Business sophistication (40th), Infrastructure (60th) and Knowledge and technology outputs (62nd).

> Lowest rankings



Colombia ranks lowest in Human capital and research (81st), Creative outputs (80th) and Institutions (78th).



The full WIPO Intellectual Property Statistics profile for Colombia can be found on [this link](#).

Global Innovation Index 2023



→ Benchmark of Colombia against other country groupings for each of the seven areas of the GII Index

The charts show the relative position of Colombia (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Upper-Middle-Income economies

Colombia performs above the upper-middle-income group average in Knowledge and technology outputs, Business sophistication, Infrastructure.



> Latin America And The Caribbean

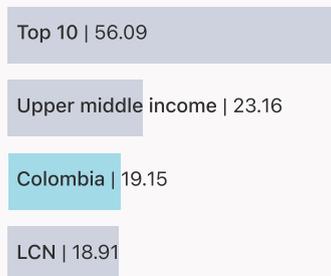
Colombia performs above the regional average in all the pillars.



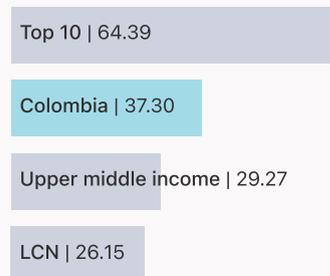
Knowledge and technology outputs



Creative outputs



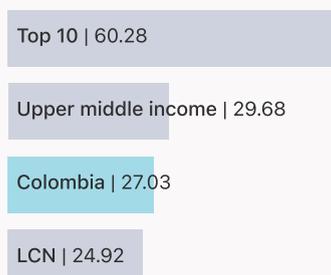
Business sophistication



Market sophistication



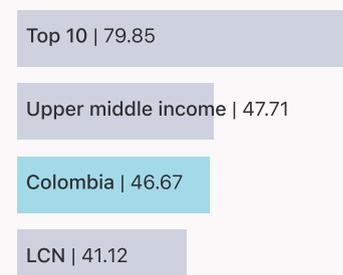
Human capital and research



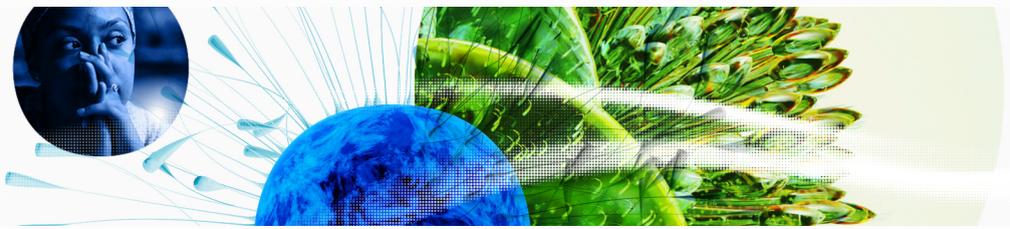
Infrastructure



Institutions



Global Innovation Index 2023



→ Innovation strengths and weaknesses in Colombia

The table below gives an overview of the indicator strengths and weaknesses of Colombia in the GII 2023.



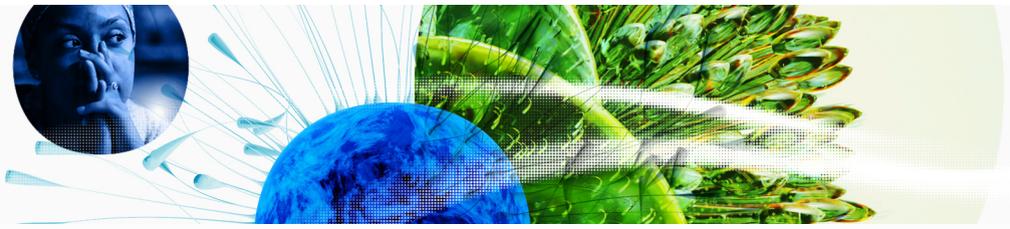
> Colombia's main innovation strengths are **Firms offering formal training, %** (rank 6), **Intellectual property payments, % total trade** (rank 11) and **High-tech imports, % total trade** (rank 12).

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
6	5.1.2	Firms offering formal training, %	113	2.1.5	Pupil-teacher ratio, secondary
11	5.3.1	Intellectual property payments, % total trade	109	2.2.3	Tertiary inbound mobility, %
12	5.3.2	High-tech imports, % total trade	92	2.3.1	Researchers, FTE/mn pop.
13	3.3.1	GDP/unit of energy use	84	4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP
15	6.2.1	Labor productivity growth, %	75	5.3.5	Research talent, % in businesses
20	6.2.2	Unicorn valuation, % GDP	74	7.1.1	Intangible asset intensity, top 15, %
21	6.3.5	ISO 9001 quality/bn PPP\$ GDP	73	4.1.1	Finance for startups and scaleups
22	5.1.4	GERD financed by business, %	64	7.2.2	National feature films/mn pop. 15-69
25	3.3.3	ISO 14001 environment/bn PPP\$ GDP	62	2.1.4	PISA scales in reading, maths and science
28	7.3.2	Country-code TLDs/th pop. 15-69	40	2.3.3	Global corporate R&D investors, top 3, mn US\$

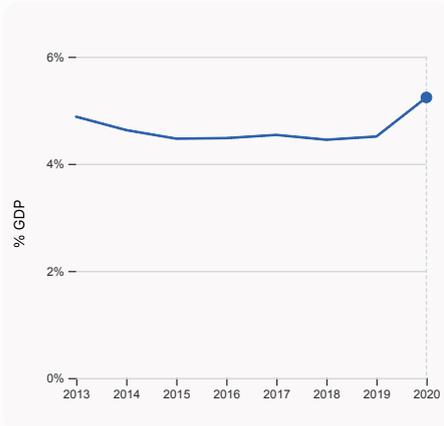
Global Innovation Index 2023



→ Colombia's innovation system

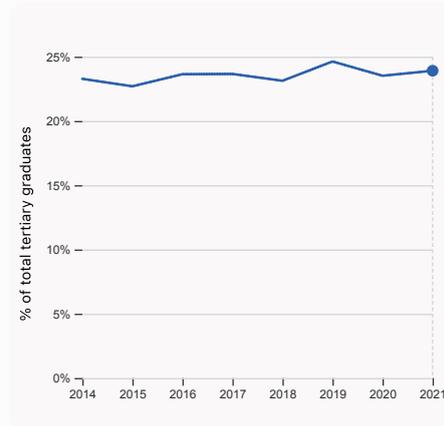
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Colombia



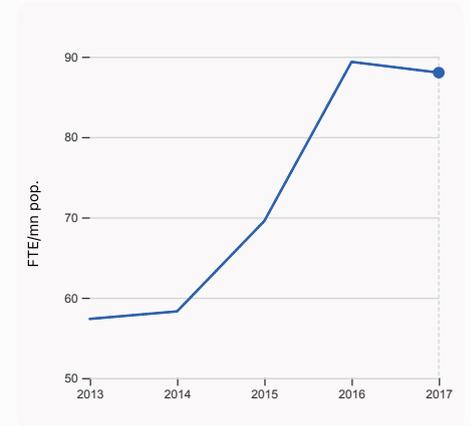
2.1.1 Expenditure on education, % GDP

was equal to 5.24% GDP in 2020, up by 0.73 percentage points from the year prior – and equivalent to an indicator rank of 28.



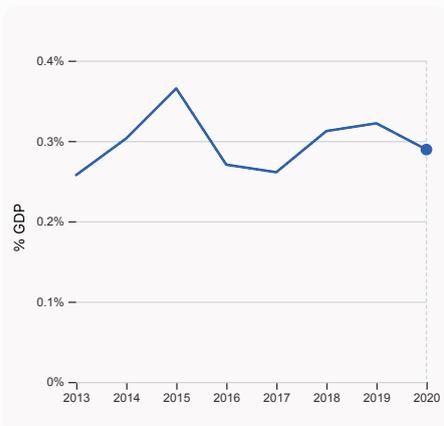
2.2.2 Graduates in science and engineering, %

was equal to 23.91% of total tertiary graduates in 2021, up by 0.39 percentage points from the year prior – and equivalent to an indicator rank of 51.



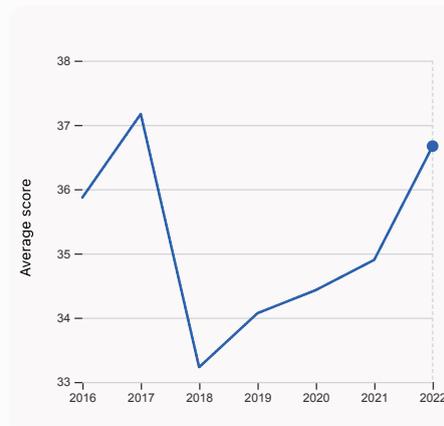
2.3.1 Researchers, FTE/mn pop.

was equal to 88.02 FTE/mn pop. in 2017, down by 1.5% from the year prior – and equivalent to an indicator rank of 92.



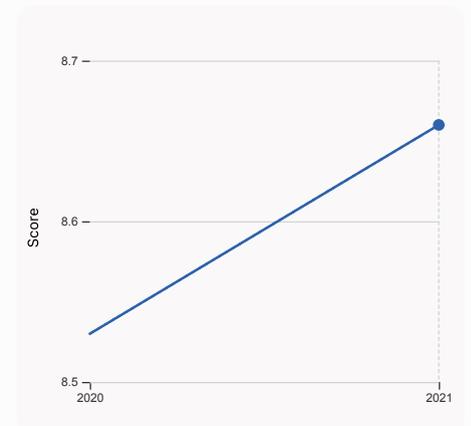
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.289% GDP in 2020, down by 0.033 percentage points from the year prior – and equivalent to an indicator rank of 78.



2.3.4 QS university ranking, top 3

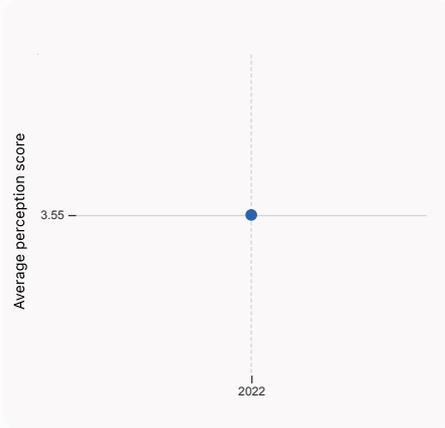
was equal to an average score of 36.67 for the top 3 universities in 2022, up by 5.072% from the year prior – and equivalent to an indicator rank of 35.



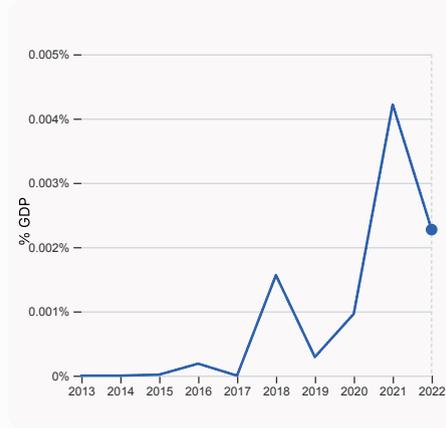
3.1.1 ICT access

was equal to a score of 8.66 in 2021, up by 1.52% from the year prior – and equivalent to an indicator rank of 72.

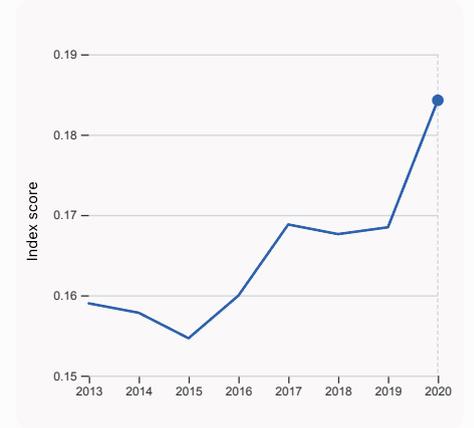
Global Innovation Index 2023



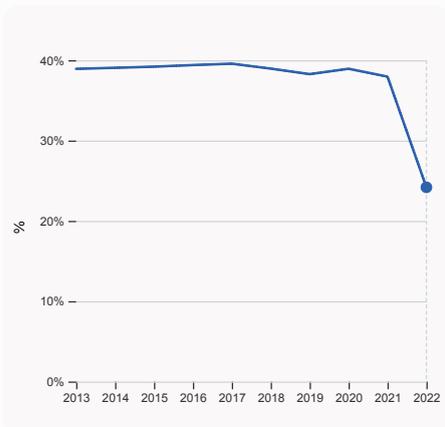
4.1.1 Finance for startups and scaleups was equal to an average perception score of 3.55 in 2022, equivalent to an indicator rank of 73.



4.2.4 VC received, value, % GDP was equal to 0.00227% GDP in 2022, down by 0.0019 percentage points from the year prior – and equivalent to an indicator rank of 28.



4.3.2 Domestic industry diversification was equal to an index score of 0.184 in 2020, up by 9.38% from the year prior – and equivalent to an indicator rank of 63.

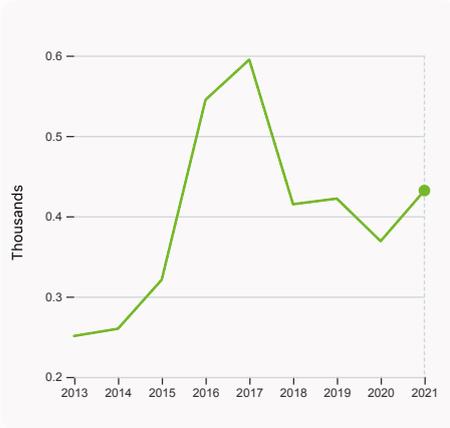


5.1.1 Knowledge-intensive employment, % was equal to 24.18% in 2022, down by 13.78 percentage points from the year prior – and equivalent to an indicator rank of 58.

Global Innovation Index 2023

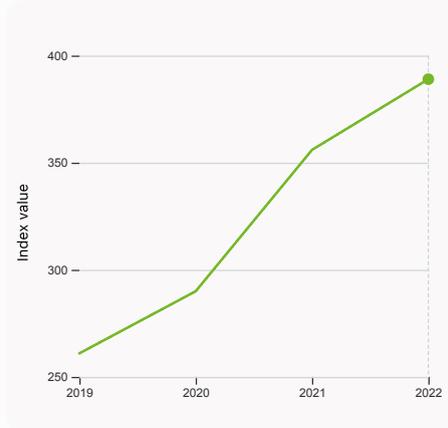


> Innovation outputs in Colombia



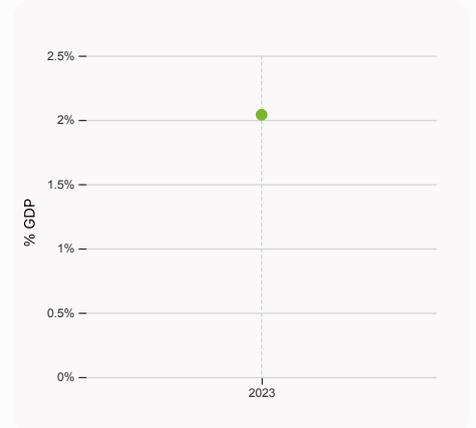
6.1.1 Patents by origin

was equal to 0.43 Thousands in 2021, up by 17.073% from the year prior – and equivalent to an indicator rank of 79.



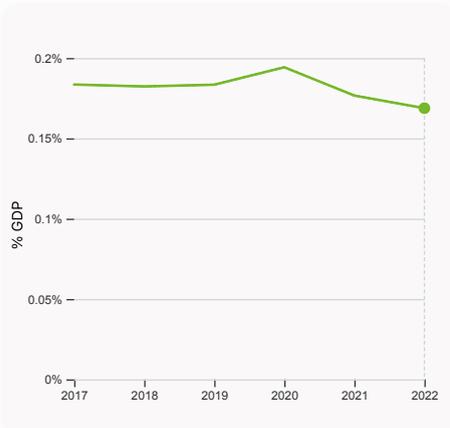
6.1.5 Citable documents H-index

was equal to an index value of 389 in 2022, up by 9.27% from the year prior – and equivalent to an indicator rank of 46.



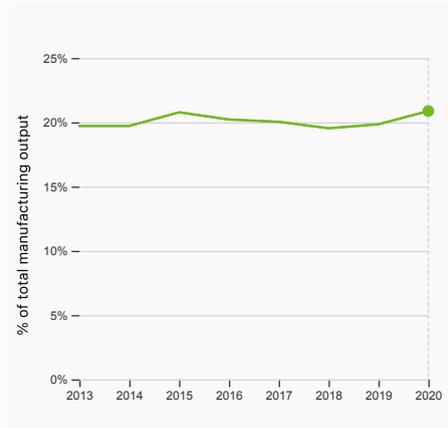
6.2.2 Unicorn valuation, % GDP

was equal to 2.04 % GDP in 2023 – and equivalent to an indicator rank of 20.



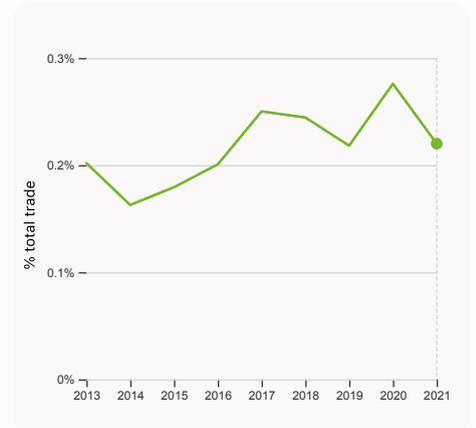
6.2.3 Software spending, % GDP

was equal to 0.169% GDP in 2022, down by 0.0079 percentage points from the year prior – and equivalent to an indicator rank of 79.



6.2.4 High-tech manufacturing, %

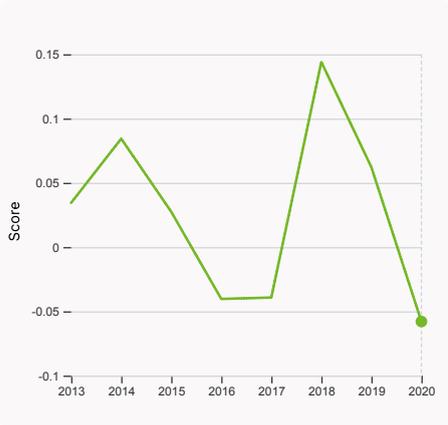
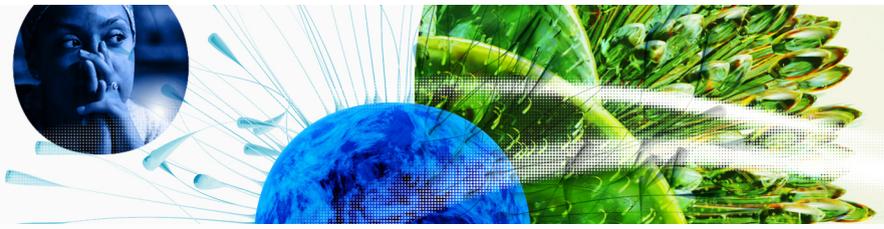
was equal to 20.88% of total manufacturing output in 2020, up by 1.03 percentage points from the year prior – and equivalent to an indicator rank of 61.



6.3.1 Intellectual property receipts, % total trade

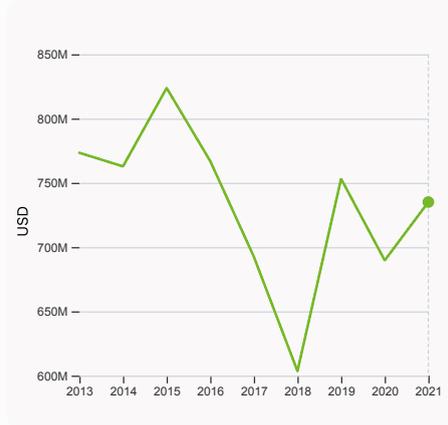
was equal to 0.22% total trade in 2021, down by 0.056 percentage points from the year prior – and equivalent to an indicator rank of 43.

Global Innovation Index 2023



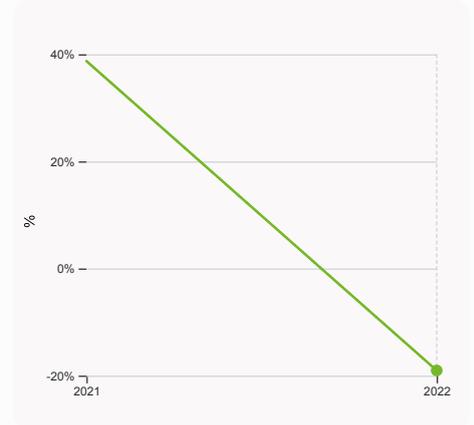
6.3.2 Production and export complexity

was equal to a score of -0.058 in 2020, down by 193.16% from the year prior – and equivalent to an indicator rank of 63.



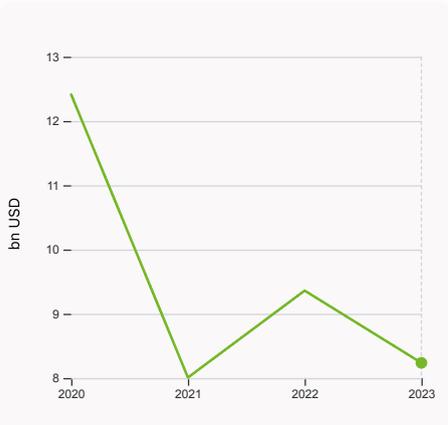
6.3.3 High-tech exports

was equal to 735,048,057 USD in 2021, up by 6.58% from the year prior – and equivalent to an indicator rank of 69.



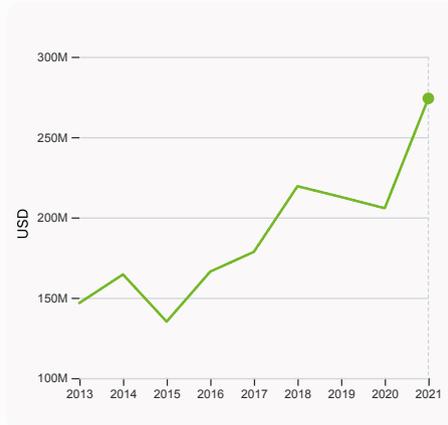
7.1.1 Intangible asset intensity, top 15, %

was equal to -19.033% in 2022, down by 57.77 percentage points from the year prior – and equivalent to an indicator rank of 74.



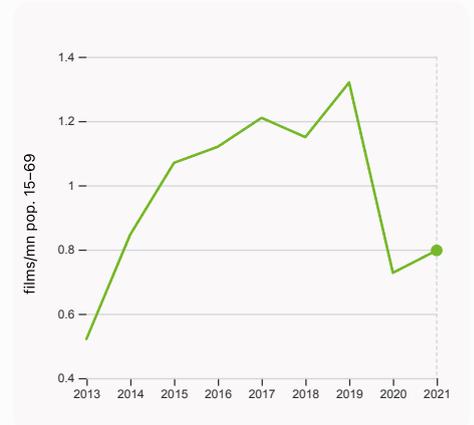
7.1.3 Global brand value, top 5,000

was equal to 8.237 bn USD in 2023, down by 12.0099% from the year prior – and equivalent to an indicator rank of 45.



7.2.1 Cultural and creative services exports

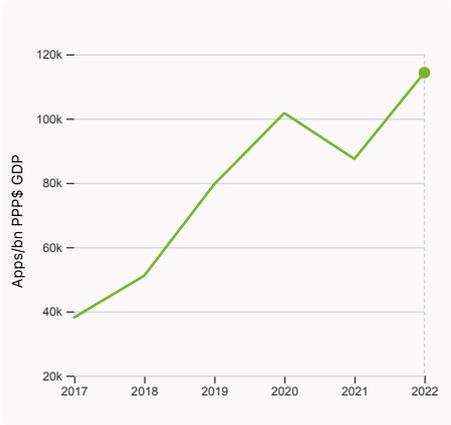
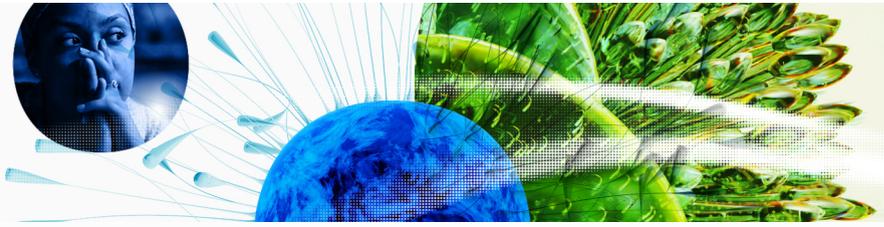
was equal to 274,103,000 USD in 2021, up by 33.23% from the year prior – and equivalent to an indicator rank of 55.



7.2.2 National feature films/mn pop. 15-69

was equal to 0.797 films/mn pop. 15-69 in 2021, up by 9.59% from the year prior – and equivalent to an indicator rank of 64.

Global Innovation Index 2023



7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 114,294.45 Apps/bn PPP\$ GDP in 2022, up by 30.7% from the year prior – and equivalent to an indicator rank of 72.



→ Colombia's innovation top performers

> 2.3.4 QS university ranking of Colombia's top universities

Rank	University	Score
220	UNIVERSIDAD DE LOS ANDES	41.60
243	UNIVERSIDAD NACIONAL DE COLOMBIA	38.90
382	PONTIFICIA UNIVERSIDAD JAVERIANA	29.50

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).

Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 6.2.2 Top Unicorn Companies in Colombia

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	RAPPI	Supply chain, logistics, & delivery	Bogota	5
2	LIFEMILES	Other	Bogota	1
3	HABI	Fintech	Bogota	1

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: <https://www.cbinsights.com/research-unicorn-companies>

> 7.1.1 Top 15 intangible-asset intensive companies in Colombia

Rank	Firm	Intensity, %
1	ECOPETROL SA	18.70
2	GRUPO NUTRESA SA	63.14
3	INTERCONEXION ELECTRICA SA ESP	27.65

Source: Brand Finance (<https://brandirectory.com/reports/gifit-2022>).

Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Colombia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	ECOPETROL	Oil & Gas	3,639.3
2	BANCOLOMBIA	Banking	1,394.3
3	AGUILA	Beers	645.9

Source: Brand Finance (<https://brandirectory.com>).

Note: Rank corresponds to within economy ranks.

Global Innovation Index 2023



GII 2023 rank

66

Colombia

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
71	63	Upper middle	LCN	51.9	964.7	18,693.1
Score / Value Rank				Score / Value Rank		
Institutions 46.7 78				Business sophistication 37.3 40 ◆		
1.1 Institutional environment 39.0 81				5.1 Knowledge workers 48.1 34 ◆		
1.1.1 Operational stability for businesses* 41.7 87				5.1.1 Knowledge-intensive employment, % 24.2 58		
1.1.2 Government effectiveness* 36.3 71				5.1.2 Firms offering formal training, % 63.0 6 ◆◆		
1.2 Regulatory environment 60.0 72				5.1.3 GERD performed by business, % GDP 0.1 57		
1.2.1 Regulatory quality* 47.8 58				5.1.4 GERD financed by business, % 53.4 22 ◆◆		
1.2.2 Rule of law* 26.5 90				5.1.5 Females employed w/advanced degrees, % 16.3 46		
1.2.3 Cost of redundancy dismissal 16.7 68				5.2 Innovation linkages 19.9 72		
1.3 Business environment 41.0 83				5.2.1 University-industry R&D collaboration+ 47.7 55		
1.3.1 Policies for doing business+ 40.1 84				5.2.2 State of cluster development+ 44.2 58		
1.3.2 Entrepreneurship policies and culture+ 41.9 47				5.2.3 GERD financed by abroad, % GDP 0.0 66		
Human capital and research 27.0 81				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.0 89		
2.1 Education 43.8 83				5.2.5 Patent families/bn PPP\$ GDP 0.1 59		
2.1.1 Expenditure on education, % GDP 5.2 28				5.3 Knowledge absorption 43.9 33 ◆		
2.1.2 Government funding/pupil, secondary, % GDP/cap 23.1 33				5.3.1 Intellectual property payments, % total trade 2.4 11 ◆◆		
2.1.3 School life expectancy, years 14.8 58				5.3.2 High-tech imports, % total trade 17.5 12 ◆◆		
2.1.4 PISA scales in reading, maths and science 405.5 62 ○				5.3.3 ICT services imports, % total trade 1.9 39		
2.1.5 Pupil-teacher ratio, secondary 26.2 113 ○◇				5.3.4 FDI net inflows, % GDP 3.4 40		
2.2 Tertiary education 26.5 76				5.3.5 Research talent, % in businesses 2.5 75 ○		
2.2.1 Tertiary enrolment, % gross 57.1 57				Knowledge and technology outputs 23.7 62		
2.2.2 Graduates in science and engineering, % 23.9 51				6.1 Knowledge creation 9.7 81		
2.2.3 Tertiary inbound mobility, % 0.2 109 ○◇				6.1.1 Patents by origin/bn PPP\$ GDP 0.5 79		
2.3 Research and development (R&D) 10.7 58				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.1 56		
2.3.1 Researchers, FTE/mn pop. 88.0 92 ○◇				6.1.3 Utility models by origin/bn PPP\$ GDP 0.2 46		
2.3.2 Gross expenditure on R&D, % GDP 0.3 78				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 0.0 40 ○◇				6.1.5 Citable documents H-index 19.3 46		
2.3.4 QS university ranking, top 3* 37.1 35				6.2 Knowledge impact 37.3 38 ◆		
Infrastructure 43.1 60				6.2.1 Labor productivity growth, % 3.1 15 ◆◆		
3.1 Information and communication technologies (ICTs) 71.5 62				6.2.2 Unicorn valuation, % GDP 2.0 20 ◆◆		
3.1.1 ICT access* 79.9 72				6.2.3 Software spending, % GDP 0.2 79		
3.1.2 ICT use* 63.8 86				6.2.4 High-tech manufacturing, % 20.9 61		
3.1.3 Government's online service* 71.5 59				6.3 Knowledge diffusion 24.0 60		
3.1.4 E-participation* 70.9 37				6.3.1 Intellectual property receipts, % total trade 0.2 43		
3.2 General infrastructure 19.3 92				6.3.2 Production and export complexity 51.3 63		
3.2.1 Electricity output, GWh/mn pop. 1,642.1 89				6.3.3 High-tech exports, % total trade 1.3 69		
3.2.2 Logistics performance* 36.4 65				6.3.4 ICT services exports, % total trade 1.1 85		
3.2.3 Gross capital formation, % GDP 20.0 98				6.3.5 ISO 9001 quality/bn PPP\$ GDP 12.3 21 ◆◆		
3.3 Ecological sustainability 38.5 36				Creative outputs 19.1 80		
3.3.1 GDP/unit of energy use 17.9 13 ◆◆				7.1 Intangible assets 23.0 80		
3.3.2 Environmental performance* 39.8 63				7.1.1 Intangible asset intensity, top 15, % -19.0 74 ○		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 3.8 25 ◆◆				7.1.2 Trademarks by origin/bn PPP\$ GDP 40.1 57		
Market sophistication 33.4 73				7.1.3 Global brand value, top 5,000 2.3 45		
4.1 Credit 23.8 81				7.1.4 Industrial designs by origin/bn PPP\$ GDP 0.6 80		
4.1.1 Finance for startups and scaleups+ 28.3 73 ○				7.2 Creative goods and services 5.8 83		
4.1.2 Domestic credit to private sector, % GDP 54.3 68				7.2.1 Cultural and creative services exports, % total trade 0.5 55		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 0.8 64 ○		
4.2 Investment 12.8 49				7.2.3 Entertainment and media market/th pop. 15-69 5.8 40		
4.2.1 Market capitalization, % GDP 37.1 42				7.2.4 Creative goods exports, % total trade 0.3 72		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.0 84 ○				7.3 Online creativity 24.7 51		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.0 60				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 3.1 67		
4.2.4 VC received, value, % GDP 0.0 28				7.3.2 Country-code TLDs/th pop. 15-69 25.3 28 ◆◆		
4.3 Trade, diversification, and market scale 63.5 39				7.3.3 GitHub commits/mn pop. 15-69 7.1 60		
4.3.1 Applied tariff rate, weighted avg., % 2.4 65				7.3.4 Mobile app creation/bn PPP\$ GDP 63.4 72		
4.3.2 Domestic industry diversification 85.5 63						
4.3.3 Domestic market scale, bn PPP\$ 964.7 31						

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 appendices for details, including the year of the data, at <https://www.wipo.int/gii-ranking>. 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 indicators that are either missing or outdated for Colombia.



> Colombia has missing data for one indicator and outdated data for six indicators.

> Missing data for Colombia

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)

> Outdated data for Colombia

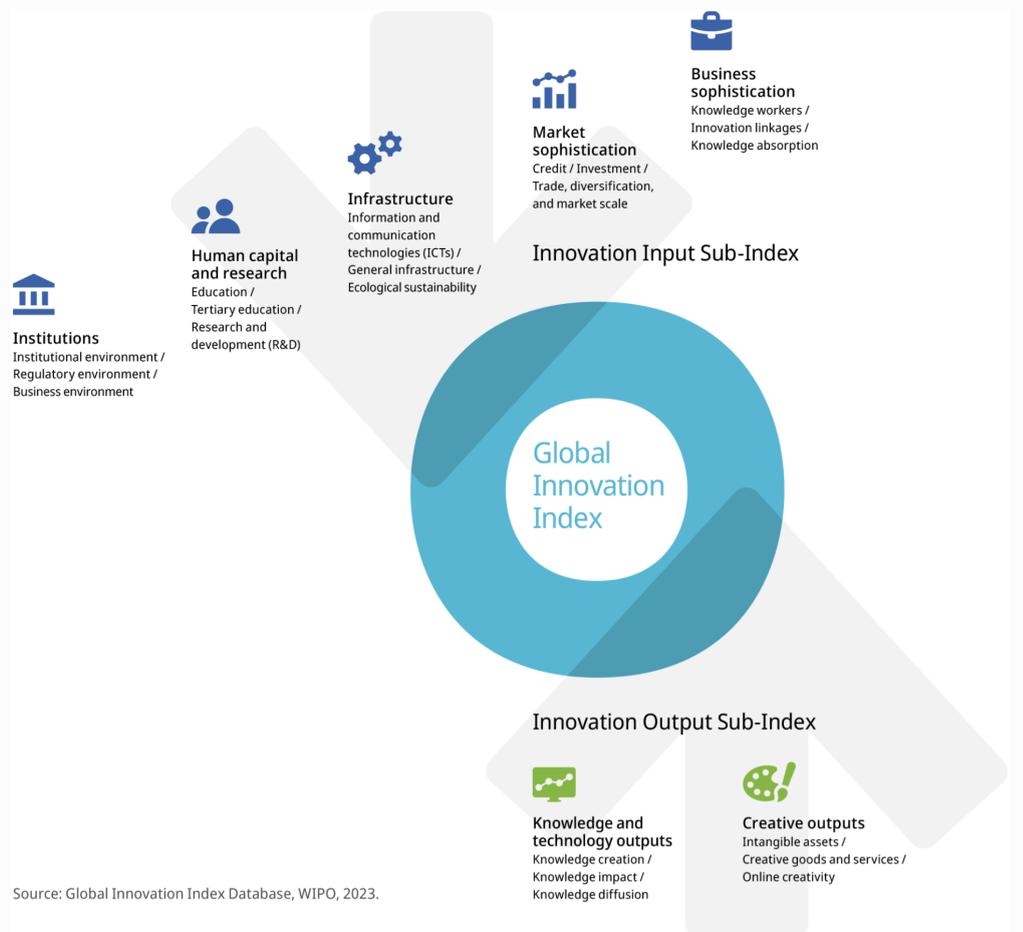
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2020	2021	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2017	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.2	Firms offering formal training, %	2017	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2017	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2023



→ 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.



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.