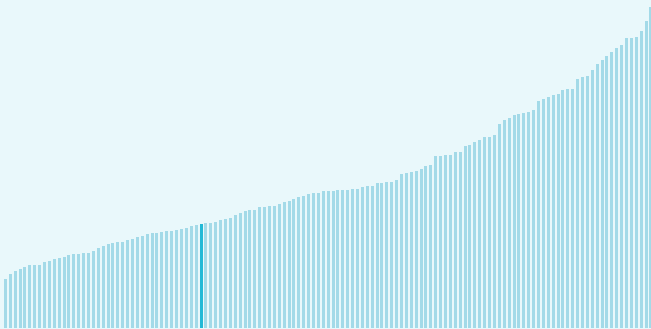




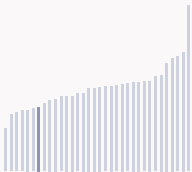
Paraguay ranking in the Global Innovation Index 2024

Paraguay ranks **93rd** among the 133 economies featured in the GII 2024.

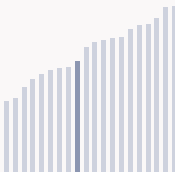
The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.



Paraguay ranks **28th** among the 34 upper-middle-income group economies.



Paraguay ranks **12th** among the 20 economies in Latin America and the Caribbean.



> Paraguay GII Ranking (2020-2024)

The table shows the rankings of Paraguay 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 Paraguay in the GII 2024 is between ranks 88 and 101.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	97th	98th	92nd
2021	88th	90th	87th
2022	91st	94th	84th
2023	98th	101st	92nd
2024	93rd	98th	90th

Paraguay performs better in innovation outputs than innovation inputs in 2024.

This year Paraguay ranks **98th** in innovation inputs. This position is higher than last year.

Paraguay ranks **90th** in innovation outputs. This position is higher than last year.

Paraguay has no clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Paraguay, how rapidly is technology being embraced and what are the resulting societal impacts.



For Paraguay, 3 indicators have improved in the short-term and 4 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -6.9% 2022 - 2023	▼ -4.6% 2020 - 2021	n/a	n/a	n/a
▲ 13.1% 2013 - 2023	▲ 16.5% 2011 - 2021	n/a	n/a	n/a

Technology adoption

Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
▲ 0.8% 2021 - 2022	▲ 1% 2021 - 2022	n/a	n/a	n/a
▲ 1% 2012 - 2022	▲ 16.8% 2012 - 2022		n/a	n/a
55.2 per 100 inhabitants in 2022	10.9 per 100 inhabitants in 2022	n/a		n/a

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -2.1% 2022 - 2023	▲ 0.3% 2021 - 2022	▲ 2°C 2023
▲ 1.5% 2013 - 2023	▼ -0.3% 2012 - 2022	n/a
35,806 USD in 2023	70.5 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.



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, Paraguay's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development





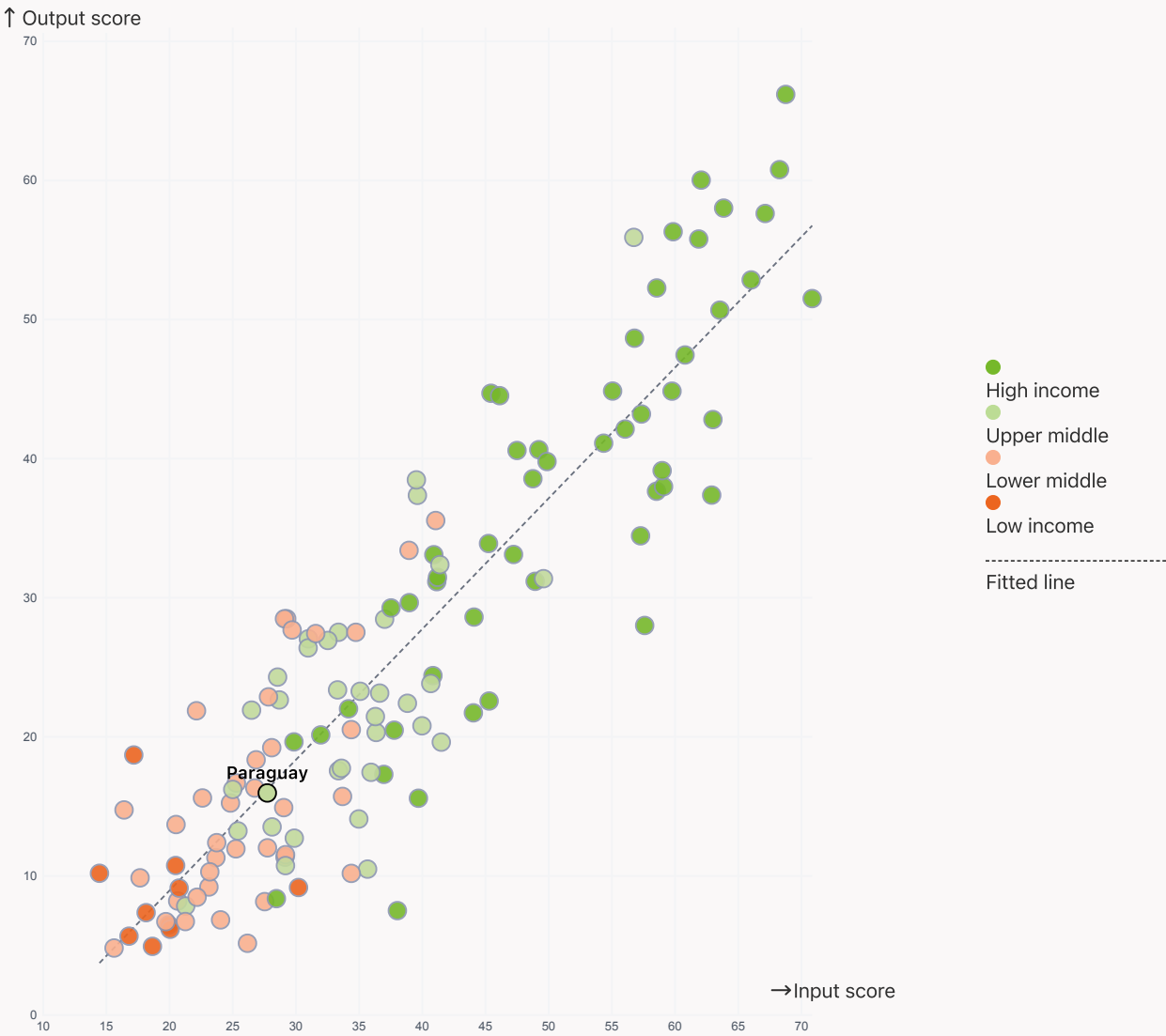
Effectively translating innovation investments into innovation outputs

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.



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

> Relationship between innovation inputs and outputs





Overview of Paraguay's rankings in the seven areas of the GII in 2024

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



Highest rankings

Paraguay ranks highest in Infrastructure (61st), Creative outputs (75th) and Market sophistication (88th).

Lowest rankings

Paraguay ranks lowest in Human capital and research (115th), Knowledge and technology outputs (113rd) and Business sophistication (102nd).

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



Benchmark of Paraguay against other economy groupings for each of the seven areas of the GII Index

The charts shows the relative position of Paraguay (blue bar) against other economy groupings (grey bars), for each of the seven areas of the GII Index.



Upper-Middle-Income economies

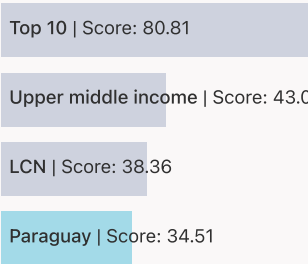
Paraguay performs above the upper-middle-income group average in Infrastructure.



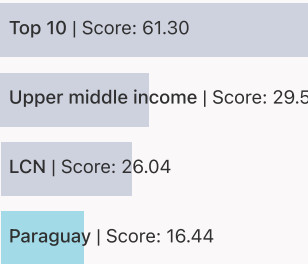
Latin America And The Caribbean

Paraguay performs above the regional average in Infrastructure, Creative outputs.

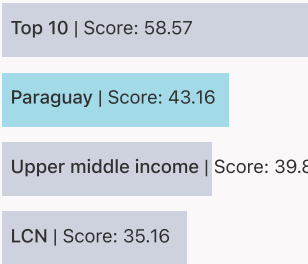
Institutions



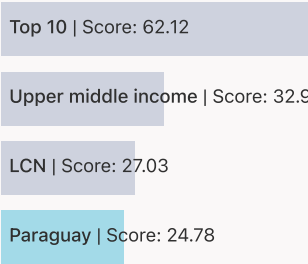
Human capital and research



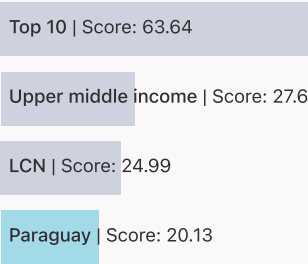
Infrastructure



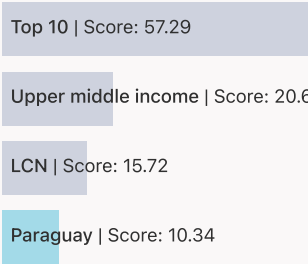
Market sophistication



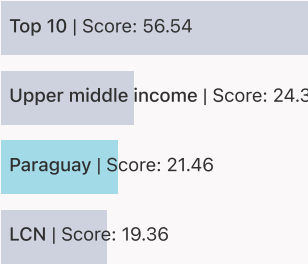
Business sophistication



Knowledge and technology outputs



Creative outputs





Innovation strengths and weaknesses in Paraguay

The table below gives an overview of the indicator strengths and weaknesses of Paraguay in the GII 2024.



Paraguay's main innovation strengths are **Low-carbon energy use, %** (rank 2), **Trademarks by origin/bn PPP\$ GDP** (rank 5) and **High-tech imports, % total trade** (rank 9).

Strengths

Rank	Code	Indicator name
2	3.3.2	Low-carbon energy use, %
5	7.1.2	Trademarks by origin/bn PPP\$ GDP
9	5.3.2	High-tech imports, % total trade
30	3.2.1	Electricity output, GWh/mn pop.
46	3.2.3	Gross capital formation, % GDP
47	5.1.2	Firms offering formal training, %
51	3.3.1	GDP/unit of energy use
65	4.1.2	Domestic credit to private sector, % GDP
66	6.3.5	ISO 9001 quality/bn PPP\$ GDP
74	6.3.3	High-tech exports, % total trade

Weaknesses

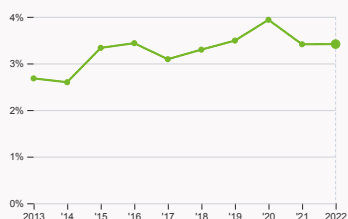
Rank	Code	Indicator name
133	5.3.3	ICT services imports, % total trade
126	5.2.2	University-industry R&D collaboration [†]
125	7.1.4	Industrial designs by origin/bn PPP\$ GDP
111	7.2.1	Cultural and creative services exports, % total trade
102	5.2.5	Patent families/bn PPP\$ GDP
97	5.1.4	GERD financed by business, %
84	4.1.1	Finance for startups and scaleups [‡]
75	7.1.3	Global brand value, top 5,000, % GDP
75	2.3.4	QS university ranking, top 3*
49	6.2.2	Unicorn valuation, % GDP
41	2.3.3	Global corporate R&D investors, top 3, mn USD



Paraguay's innovation system

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

> Innovation inputs in Paraguay



2.1.1 Expenditure on education

was equal to 3.41 % GDP in 2022, up by 0.004 percentage points from the year prior – and equivalent to an indicator rank of 93.



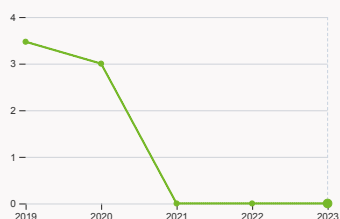
2.3.1 Researchers

was equal to 142.4 FTE per million population in 2021, up by 1.08% from the year prior – and equivalent to an indicator rank of 89.



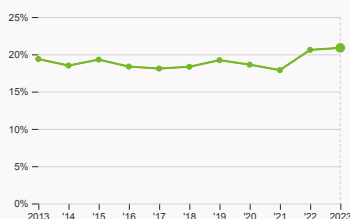
2.3.2 Gross expenditure on R&D

was equal to 0.14 % GDP in 2021, down by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 96.



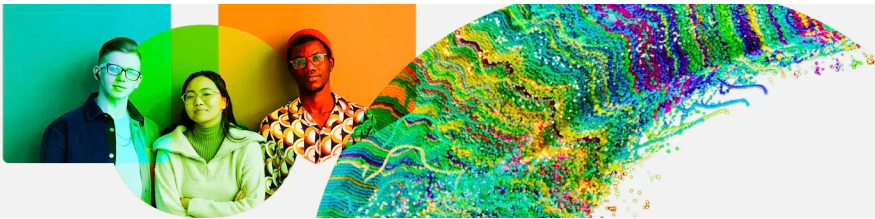
2.3.4 QS university ranking

was equal to an average score of 0 for the top three universities in 2023 with no change from the year prior – and equivalent to an indicator rank of 75.

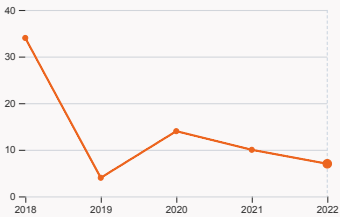


5.1.1 Knowledge-intensive employment

was equal to 20.86 % in 2023, up by 0.27 percentage points from the year prior – and equivalent to an indicator rank of 75.

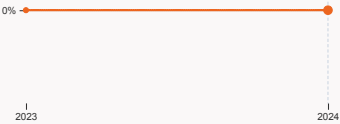


> Innovation outputs in Paraguay



6.1.1 Patents by origin

was equal to 7 patents in 2022, down by 30% from the year prior – and equivalent to an indicator rank of 115.



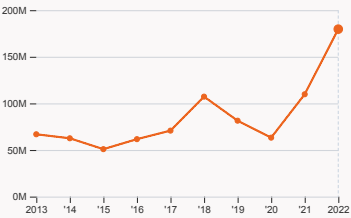
6.2.2 Unicorn valuation

was equal to 0 % GDP in 2024 with no change from the year prior – and equivalent to an indicator rank of 49.



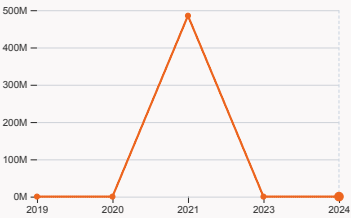
6.3.2 Production and export complexity

was equal to a score of -0.44 in 2021, up by 2.22% from the year prior – and equivalent to an indicator rank of 84.



6.3.3 High-tech exports

was equal to 179.66 million USD in 2022, up by 63.64% from the year prior – and equivalent to an indicator rank of 74.



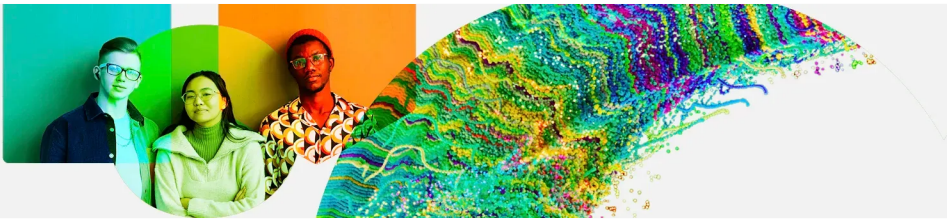
7.1.3 Global brand value

was equal to 0 million USD for the brands in the top 5,000 in 2024 with no change from the year prior – and equivalent to an indicator rank of 75.



7.3.3 Mobile app creation

was equal to 4.23 million global downloads of mobile apps in 2023, up by 145.93% from the year prior – and equivalent to an indicator rank of 96.



Paraguay's innovation top performers

2.3.4 QS university ranking of Paraguay's top universities

Rank	University	Score
1001-1200	UNIVERSIDAD NACIONAL DE ASUNCION	7.40

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".

Paraguay

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NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, ● that the economy's data is outdated. Square brackets [] indicate the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.



Data availability

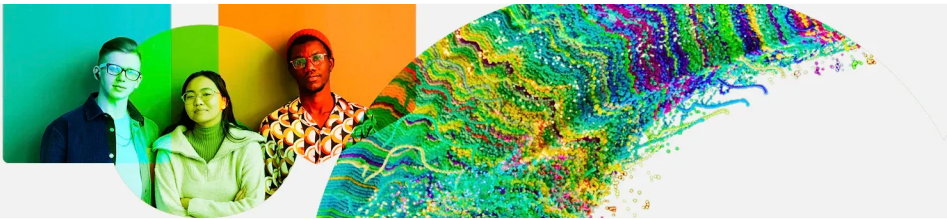
The following tables list indicators that are either missing or outdated for Paraguay.



Paraguay has missing data for eighteen indicators and outdated data for six indicators.

Missing data for Paraguay

Code	Indicator name	Economy Year	Model Year	Source
2.1.3	School life expectancy, years	n/a	2022	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	n/a	2022	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	n/a	2022	UNESCO Institute for Statistics
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2022	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP\$ GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2023	LSEG Data & Analytics; International Monetary Fund
4.3.2	Domestic industry diversification	n/a	2021	United Nations Industrial Development Organization (UNIDO), Industrial Statistics Database (INDSTAT) Rev.3 and 4
5.1.3	GERD performed by business, % GDP	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.2	PCT patents by origin/bn PPP\$ GDP	n/a	2023	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	n/a	2021	United Nations Industrial Development Organization
6.3.1	Intellectual property receipts, % total trade	n/a	2022	World Trade Organization Global Services Trade Data Hub
7.1.1	Intangible asset intensity, top 15, %	n/a	2023	Brand Finance
7.2.2	National feature films/mn pop. 15–69	n/a	2022	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2023	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund



Outdated data for Paraguay

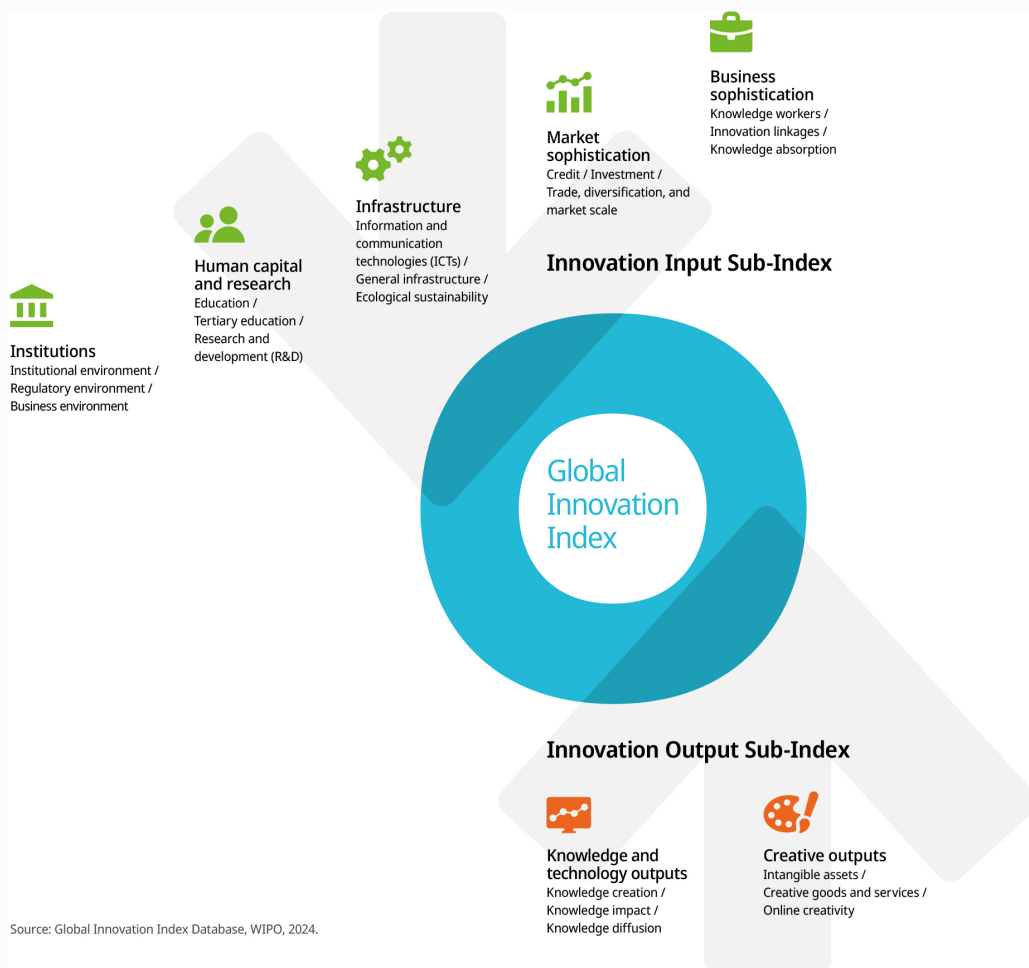
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture ⁺	2019	2023	Global Entrepreneurship Monitor
2.1.5	Pupil–teacher ratio, secondary	2018	2022	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups ⁺	2019	2023	Global Entrepreneurship Monitor
5.1.5	Females employed w/advanced degrees, %	2017	2023	International Labour Organization

Global Innovation Index 2024



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.