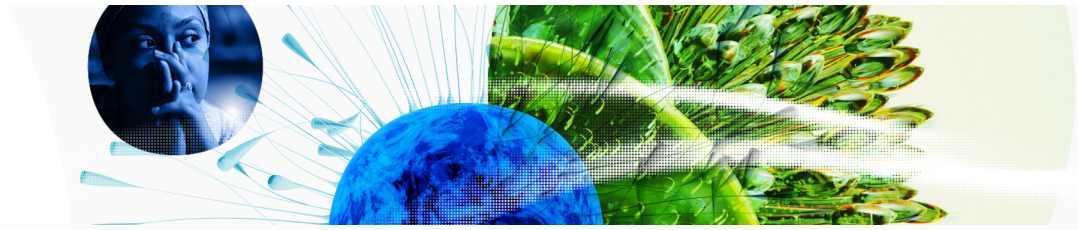
Global Innovation Index 2023



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**.

Costa Rica ranking in the Global Innovation Index 2023

> Costa Rica ranks 74th among the 132 economies featured in the GII 2023.

> Costa Rica ranks 19th among the 33 upper-middle-income group economies.

> Costa Rica ranks 7th among the 19 economies in Latin America and the Caribbean.

> Costa Rica GII Ranking (2020-2023)

The table shows the rankings of Costa Rica 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 Costa Rica in the GII 2023 is between ranks 65 and 78.

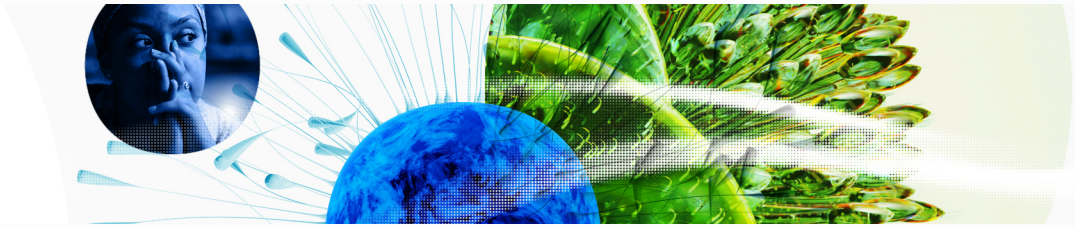
	GII Position	Innovation Inputs	Innovation Outputs
2020	56th	66th	51st
2021	56th	66th	49th
2022	68th	67th	71st
2023	74th	66th	81st

Costa Rica performs worse in innovation outputs than innovation inputs in 2023.

This year Costa Rica ranks 66th in innovation inputs. This position is higher than last year.

Costa Rica ranks 81st in innovation outputs. This position is lower than last year.

Global Innovation Index 2023



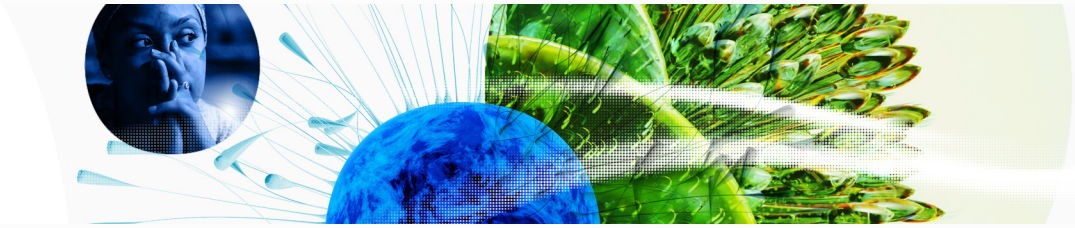
→ Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development

Global Innovation Index 2023

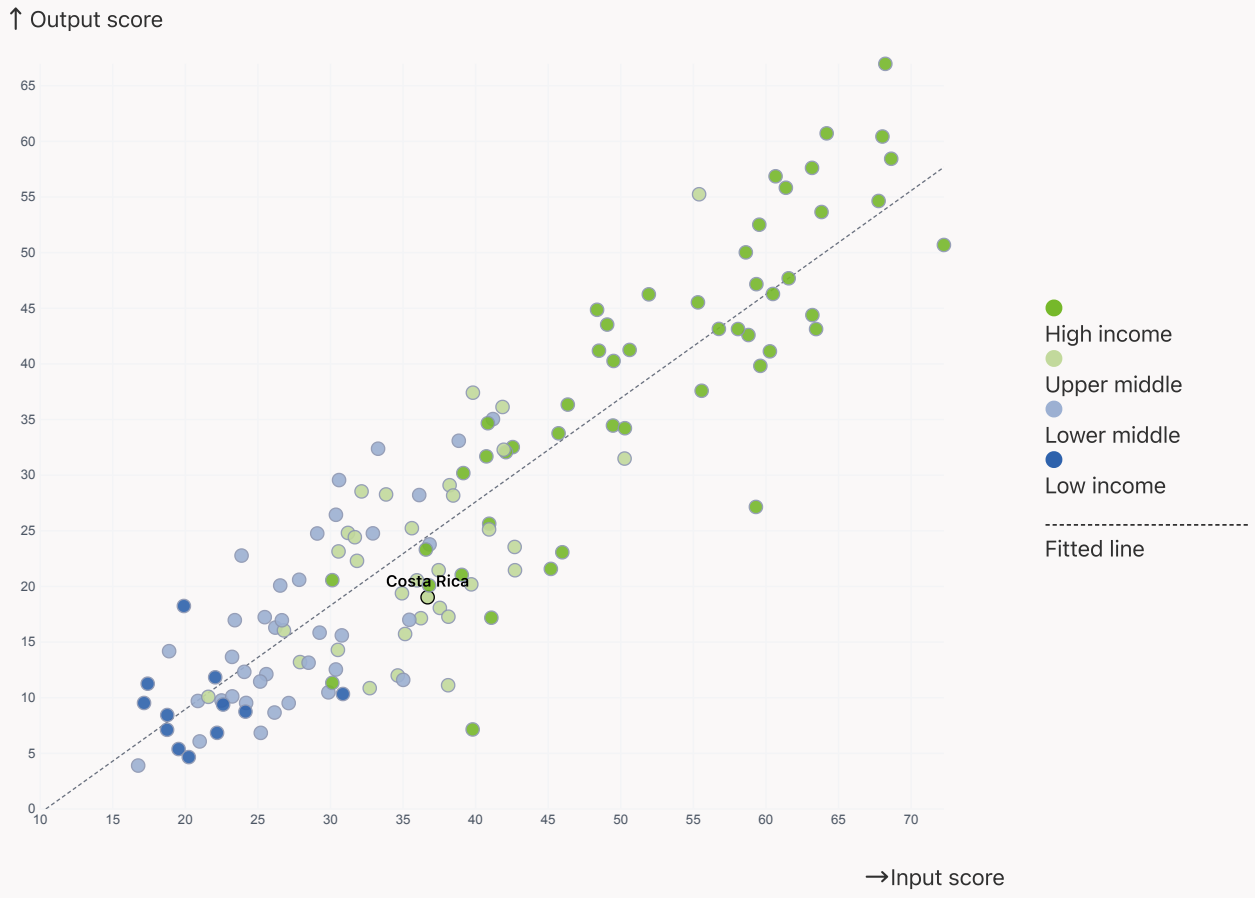


→ Effectively translating innovation investments into innovation outputs

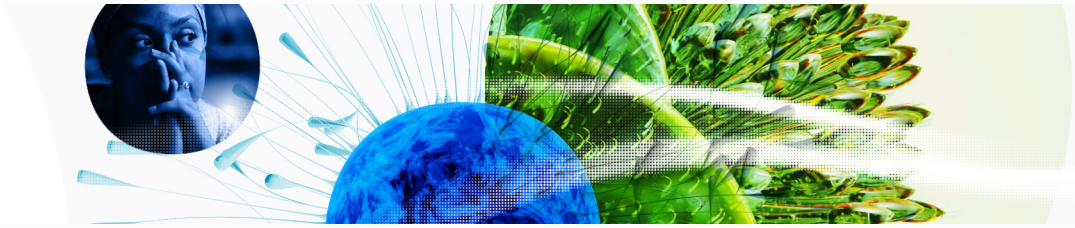
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs



Global Innovation Index 2023



→ Overview of Costa Rica'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 Costa Rica are those that rank above the GII (shown in blue) and the weakest are those that rank below.

> Highest rankings

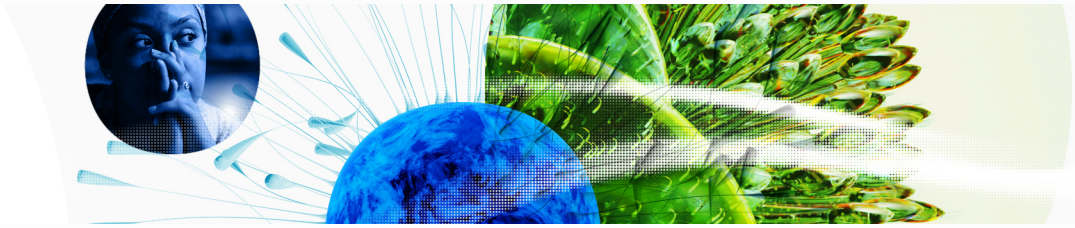
Costa Rica ranks highest in Institutions (48th), Infrastructure (62nd), Business sophistication (63rd) and Knowledge and technology outputs (70th).

> Lowest rankings

Costa Rica ranks lowest in Market sophistication (90th), Creative outputs (89th) and Human capital and research (79th).

The full WIPO Intellectual Property Statistics profile for Costa Rica can be found on this link.

Global Innovation Index 2023



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

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

> Upper-Middle-Income economies

Costa Rica performs below the upper-middle-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research.

> Latin America And The Caribbean

Costa Rica performs above the regional average in Knowledge and technology outputs, Business sophistication, Human capital and research, Infrastructure, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Upper middle income | Score: 22.36
- Costa Rica | Score: 21.69
- LCN | Score: 17.14

Creative outputs

- Top 10 | 56.09
- Upper middle income | 23.16
- LCN | 18.91
- Costa Rica | 16.25

Business sophistication

- Top 10 | 64.39
- Upper middle income | 29.27
- Costa Rica | 28.67
- LCN | 26.15

Market sophistication

- Top 10 | 61.93
- Upper middle income | 35.45
- LCN | 29.74
- Costa Rica | 27.19

Human capital and research

- Top 10 | 60.28
- Upper middle income | 29.68
- Costa Rica | 27.88
- LCN | 24.92

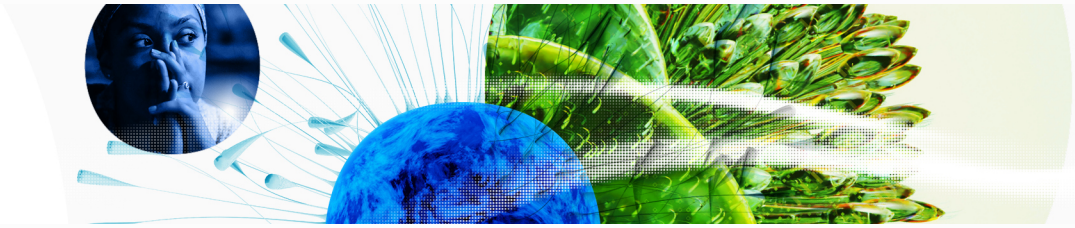
Infrastructure

- Top 10 | 62.83
- Costa Rica | 42.01
- Upper middle income | 40.40
- LCN | 35.88

Institutions

- Top 10 | 79.85
- Costa Rica | 57.94
- Upper middle income | 47.71
- LCN | 41.12

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Costa Rica

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

> Costa Rica's main innovation strengths are **Intellectual property payments, % total trade** (rank 8), **Expenditure on education, % GDP** (rank 9) and **GDP/unit of energy use** (rank 9).

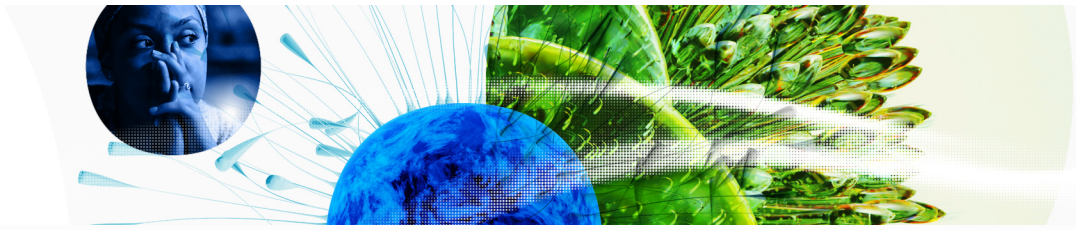
Strengths

Rank	Code	Indicator name
8	5.3.1	Intellectual property payments, % total trade
9	2.1.1	Expenditure on education, % GDP
9	3.3.1	GDP/unit of energy use
15	6.3.4	ICT services exports, % total trade
21	2.1.2	Government funding/pupil, secondary, % GDP/cap
21	7.1.2	Trademarks by origin/bn PPP$ GDP
26	5.3.4	FDI net inflows, % GDP
27	2.1.3	School life expectancy, years
30	6.3.3	High-tech exports, % total trade
32	6.2.3	Software spending, % GDP

Weaknesses

Rank	Code	Indicator name
116	7.1.4	Industrial designs by origin/bn PPP$ GDP
108	6.1.1	Patents by origin/bn PPP$ GDP
95	2.2.2	Graduates in science and engineering, %
86	5.1.4	GERD financed by business, %
84	4.2.4	VC received, value, % GDP
81	4.2.3	VC recipients, deals/bn PPP$ GDP
76	4.2.1	Market capitalization, % GDP
74	7.1.3	Global brand value, top 5,000
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

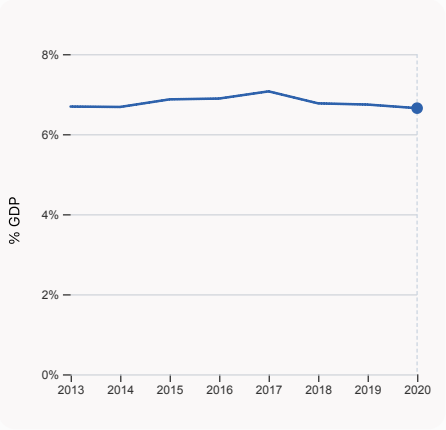
Global Innovation Index 2023



→ Costa Rica's innovation system

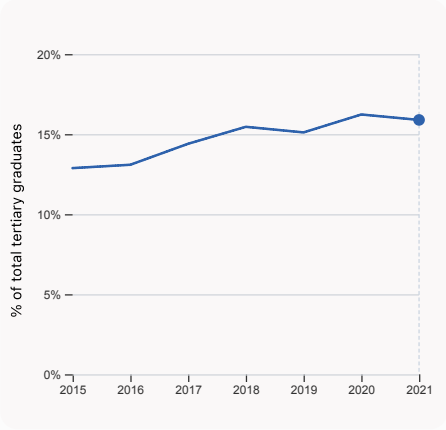
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Costa Rica



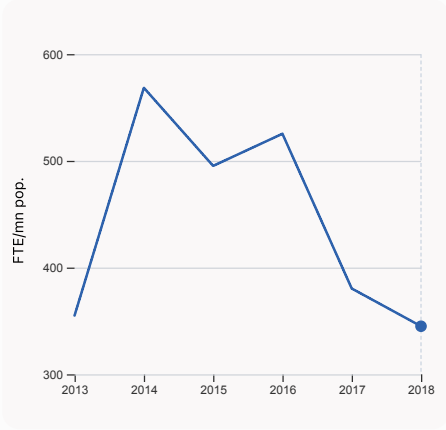
2.1.1 Expenditure on education, % GDP

was equal to 6.65% GDP in 2020, down by 0.09 percentage points from the year prior – and equivalent to an indicator rank of 9.



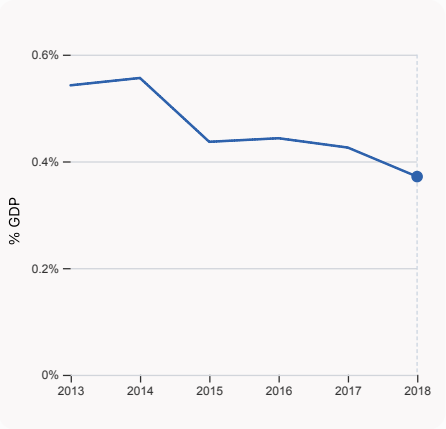
2.2.2 Graduates in science and engineering, %

was equal to 15.89% of total tertiary graduates in 2021, down by 0.34 percentage points from the year prior – and equivalent to an indicator rank of 95.



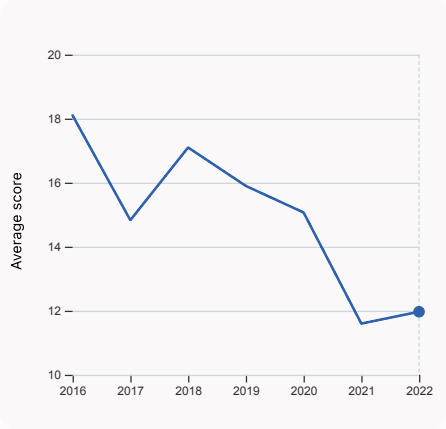
2.3.1 Researchers, FTE/mn pop.

was equal to 345.04 FTE/mn pop. in 2018, down by 9.3% from the year prior – and equivalent to an indicator rank of 78.



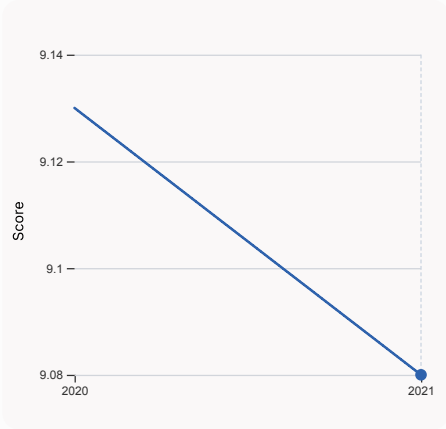
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.371% GDP in 2018, down by 0.054 percentage points from the year prior – and equivalent to an indicator rank of 68.



2.3.4 QS university ranking, top 3

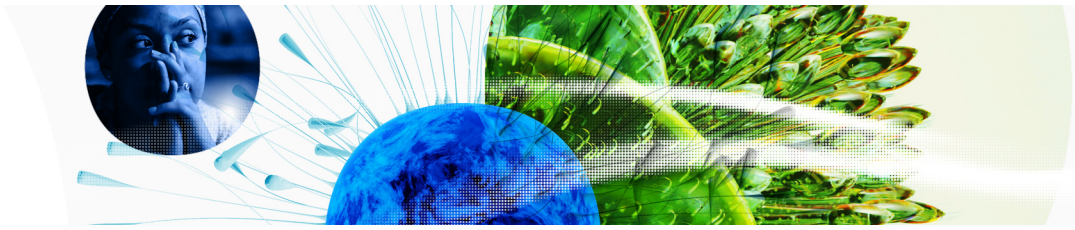
was equal to an average score of 11.97 for the top 3 universities in 2022, up by 3.19% from the year prior – and equivalent to an indicator rank of 62.

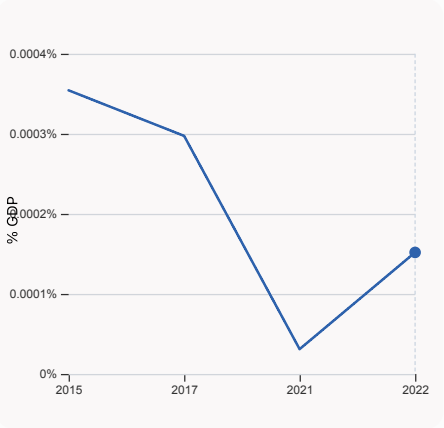


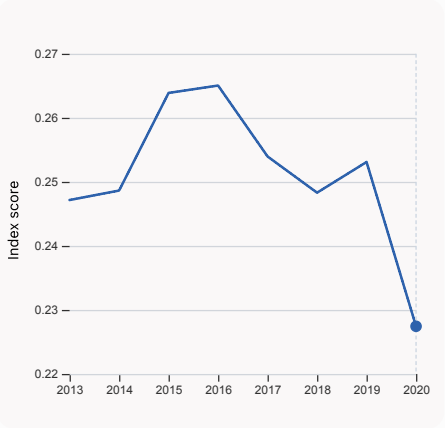
3.1.1 ICT access

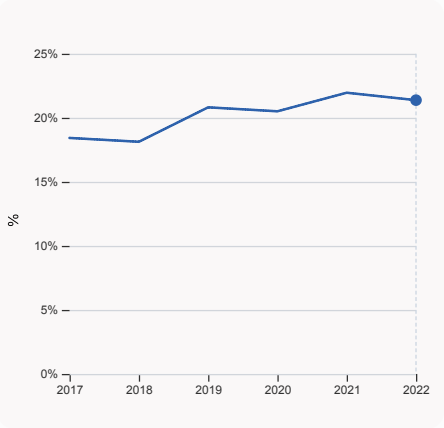
was equal to a score of 9.08 in 2021, down by 0.55% from the year prior – and equivalent to an indicator rank of 44.

Global Innovation Index 2023









4.2.4 VC received, value, % GDP

was equal to 0.00015% GDP in 2022, up by 0.00012 percentage points from the year prior – and equivalent to an indicator rank of 84.

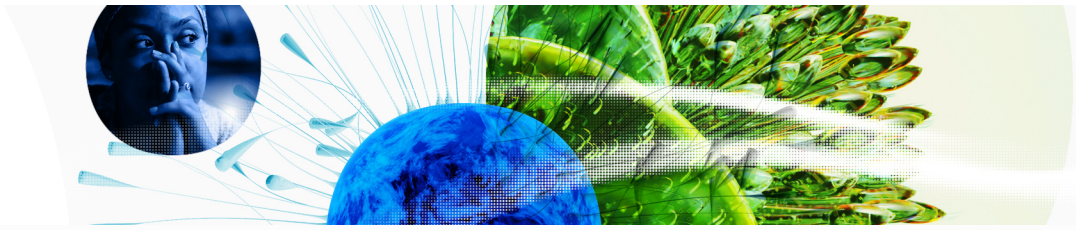
4.3.2 Domestic industry diversification

was equal to an index score of 0.227 in 2020, down by 10.14% from the year prior – and equivalent to an indicator rank of 78.

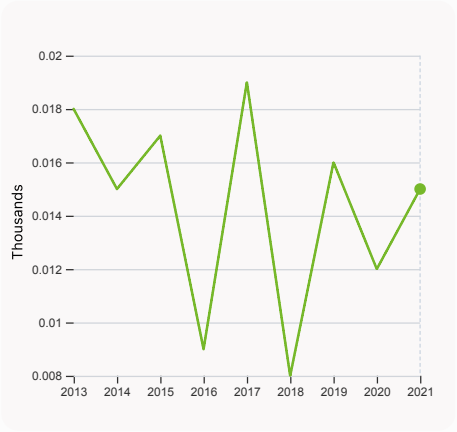
5.1.1 Knowledge-intensive employment, %

was equal to 21.38% in 2022, down by 0.58 percentage points from the year prior – and equivalent to an indicator rank of 72.

Global Innovation Index 2023

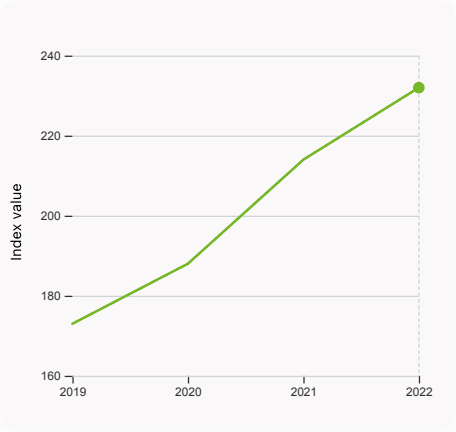


> Innovation outputs in Costa Rica



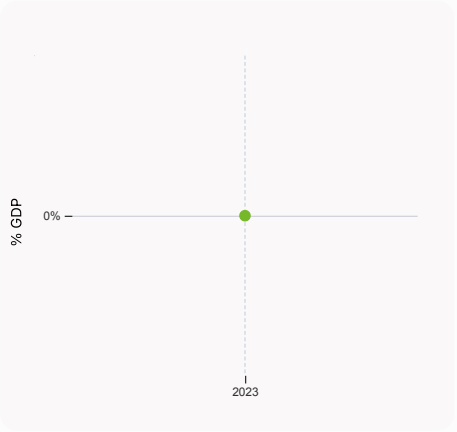
6.1.1 Patents by origin

was equal to 0.015 Thousands in 2021, up by 25% from the year prior – and equivalent to an indicator rank of 108.



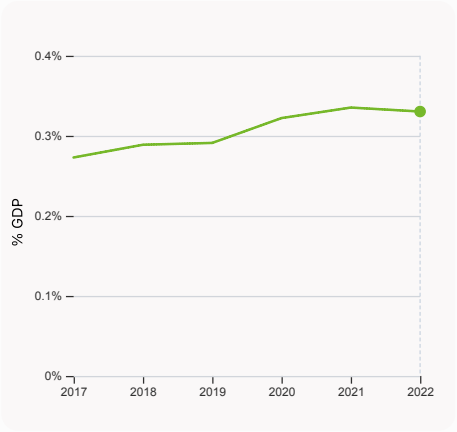
6.1.5 Citable documents H-index

was equal to an index value of 232 in 2022, up by 8.41% from the year prior – and equivalent to an indicator rank of 75.



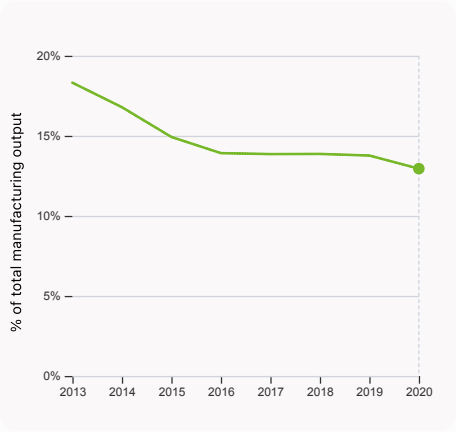
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



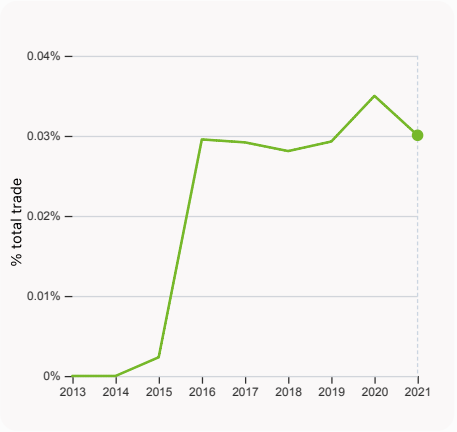
6.2.3 Software spending, % GDP

was equal to 0.33% GDP in 2022, down by 0.005 percentage points from the year prior – and equivalent to an indicator rank of 32.



6.2.4 High-tech manufacturing, %

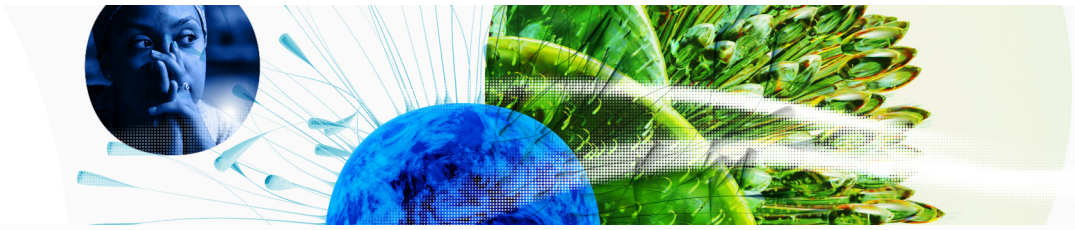
was equal to 12.95% of total manufacturing output in 2020, down by 0.82 percentage points from the year prior – and equivalent to an indicator rank of 83.

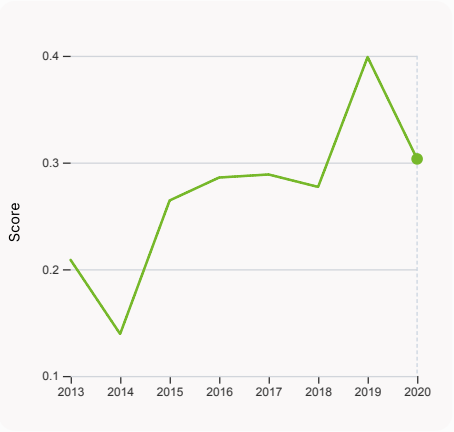


6.3.1 Intellectual property receipts, % total trade

was equal to 0.03% total trade in 2021, down by 0.0049 percentage points from the year prior – and equivalent to an indicator rank of 80.

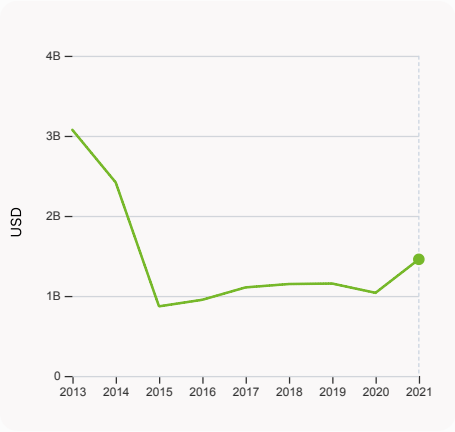
Global Innovation Index 2023





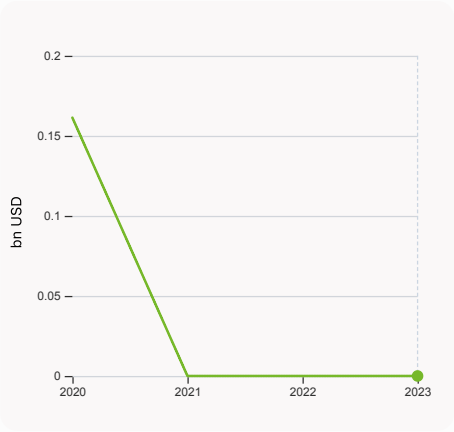
6.3.2 Production and export complexity

was equal to a score of 0.303 in 2020, down by 23.92% from the year prior – and equivalent to an indicator rank of 48.



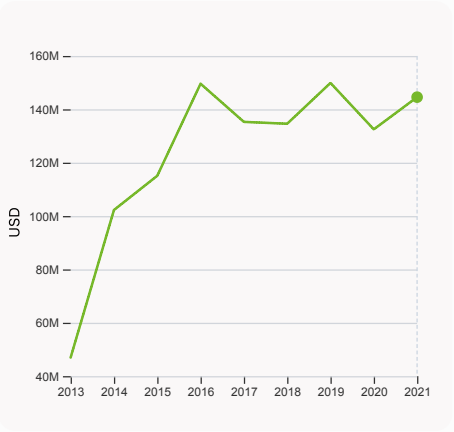
6.3.3 High-tech exports

was equal to 1,457,227,943 USD in 2021, up by 40.3% from the year prior – and equivalent to an indicator rank of 30.



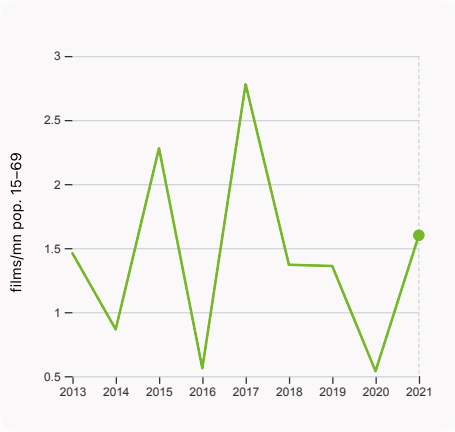
7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



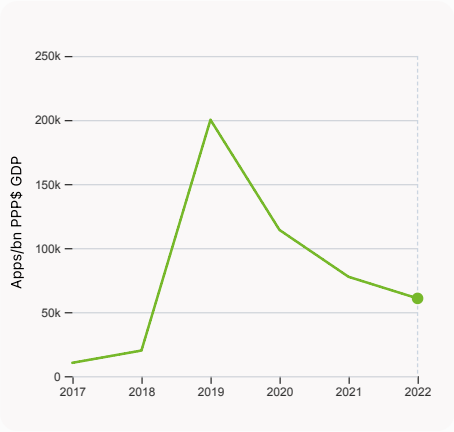
7.2.1 Cultural and creative services exports

was equal to 144,568,000 USD in 2021, up by 9.11% from the year prior – and equivalent to an indicator rank of 47.



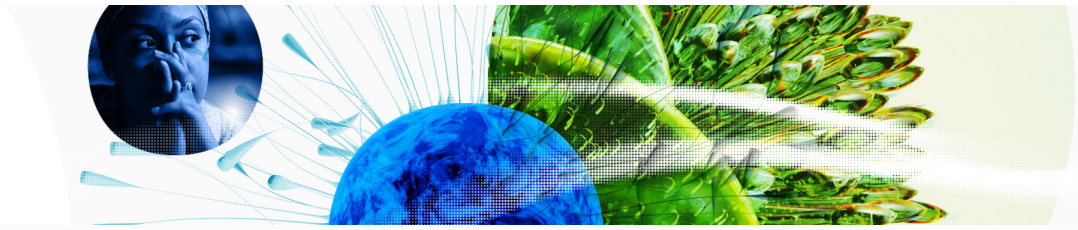
7.2.2 National feature films/mn pop. 15-69

was equal to 1.6 films/mn pop. 15–69 in 2021, up by 196.95% from the year prior – and equivalent to an indicator rank of 51.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 60,717 Apps/bn PPP$ GDP in 2022, down by 21.74% from the year prior – and equivalent to an indicator rank of 77.



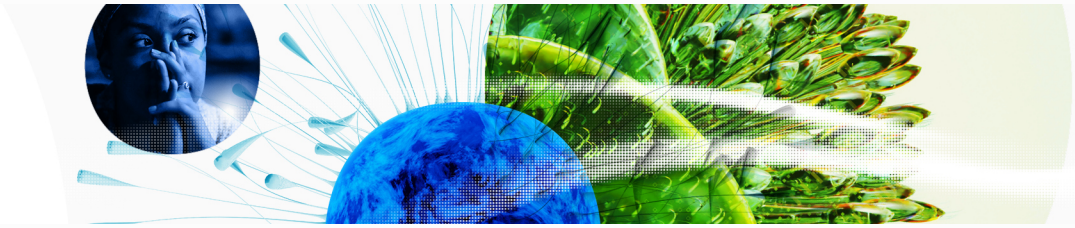
→ Costa Rica's innovation top performers

> 2.3.4 QS university ranking of Costa Rica's top universities

Rank	University	Score
511-520	UNIVERSIDAD DE COSTA RICA	23.90
801-1000	TECNOLOGICO DE COSTA RICA -TEC	12.00
1001-1200	UNIVERSIDAD NACIONAL, COSTA RICA, UNIVERSIDAD LATINOAMERICANA DE CIENCIA Y TECNOLOGIA COSTA RICA (ULACIT)	9.90

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".

Global Innovation Index 2023



Costa Rica

GII 2023 rank **74**

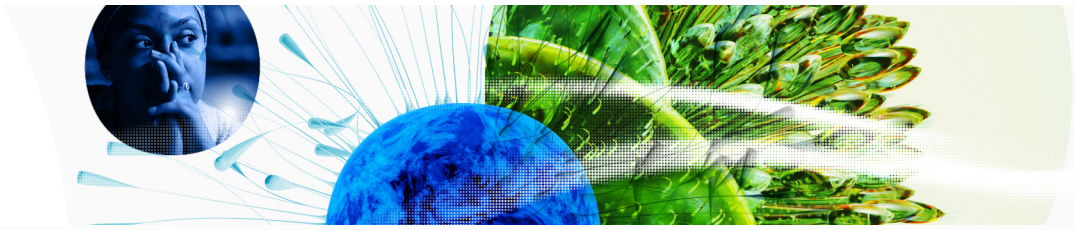
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
81	66	Upper middle	LCN	5.2	129.9	24,836.6

	Score / Value	Rank	
Institutions	**57.9**	**48**	
1.1 Institutional environment	**49.0**	**55**	
1.1.1 Operational stability for businesses*	54.2	62	
1.1.2 Government effectiveness*	43.8	56	
1.2 Regulatory environment	**66.1**	**55**	
1.2.1 Regulatory quality*	53.9	48	
1.2.2 Rule of law*	53.0	44	◆
1.2.3 Cost of redundancy dismissal	18.7	79	
1.3 Business environment	**58.7**	**[36]**	
1.3.1 Policies for doing business†	58.7	42	
1.3.2 Entrepreneurship policies and culture†	n/a	n/a	
Human capital and research	**27.9**	**79**	
2.1 Education	**58.3**	**44**	
2.1.1 Expenditure on education, % GDP	6.7	9	●◆
2.1.2 Government funding/pupil, secondary, % GDP/cap	25.1	21	●◆
2.1.3 School life expectancy, years	16.5	27	●◆
2.1.4 PISA scales in reading, maths and science	414.8	59	
2.1.5 Pupil-teacher ratio, secondary	12.8	59	
2.2 Tertiary education	**19.8**	**91**	
2.2.1 Tertiary enrolment, % gross	57.7	56	
2.2.2 Graduates in science and engineering, %	15.9	95	○
2.2.3 Tertiary inbound mobility, %	1.2	86	
2.3 Research and development (R&D)	**5.5**	**72**	
2.3.1 Researchers, FTE/mn pop.	345.0	78	
2.3.2 Gross expenditure on R&D, % GDP	0.4	68	
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40	○◇
2.3.4 QS university ranking, top 3*	12.1	62	
Infrastructure	**42.0**	**62**	
3.1 Information and communication technologies (ICTs)	**69.9**	**65**	
3.1.1 ICT access*	86.3	44	
3.1.2 ICT use*	73.9	64	
3.1.3 Government's online service*	64.8	70	
3.1.4 E-participation*	54.7	66	
3.2 General infrastructure	**21.1**	**86**	
3.2.1 Electricity output, GWh/mn pop.	2,464.6	76	
3.2.2 Logistics performance*	36.4	65	
3.2.3 Gross capital formation, % GDP	20.8	93	
3.3 Ecological sustainability	**35.0**	**40**	
3.3.1 GDP/unit of energy use	19.3	9	●◆
3.3.2 Environmental performance*	46.4	53	
3.3.3 ISO 14001 environment/bn PPP$ GDP	1.1	63	
Market sophistication	**27.2**	**90**	
4.1 Credit	**21.7**	**[88]**	
4.1.1 Finance for startups and scaleups†	n/a	n/a	
4.1.2 Domestic credit to private sector, % GDP	60.4	58	
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**2.4**	**99**	○
4.2.1 Market capitalization, % GDP	3.4	76	○
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	62	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	81	○
4.2.4 VC received, value, % GDP	0.0	84	○
4.3 Trade, diversification, and market scale	**57.5**	**69**	
4.3.1 Applied tariff rate, weighted avg., %	1.5	48	
4.3.2 Domestic industry diversification	79.5	78	
4.3.3 Domestic market scale, bn PPP$	129.9	82	

	Score / Value	Rank	
Business sophistication	**28.7**	**63**	
5.1 Knowledge workers	**18.5**	**104**	◇
5.1.1 Knowledge-intensive employment, %	21.4	72	
5.1.2 Firms offering formal training, %	n/a	n/a	
5.1.3 GERD performed by business, % GDP	0.1	58	
5.1.4 GERD financed by business, %	2.3	86	○◇
5.1.5 Females employed w/advanced degrees, %	11.8	65	
5.2 Innovation linkages	**19.9**	**73**	
5.2.1 University-industry R&D collaboration†	39.9	73	
5.2.2 State of cluster development†	52.8	43	
5.2.3 GERD financed by abroad, % GDP	0.0	67	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	88	
5.2.5 Patent families/bn PPP$ GDP	0.0	74	
5.3 Knowledge absorption	**47.6**	**28**	●◆
5.3.1 Intellectual property payments, % total trade	3.0	8	●◆
5.3.2 High-tech imports, % total trade	8.3	64	
5.3.3 ICT services imports, % total trade	1.3	65	
5.3.4 FDI net inflows, % GDP	4.4	26	●◆
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**21.7**	**70**	
6.1 Knowledge creation	**5.4**	**110**	○
6.1.1 Patents by origin/bn PPP$ GDP	0.1	108	○
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	85	
6.1.3 Utility models by origin/bn PPP$ GDP	0.1	62	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	10.5	75	
6.2 Knowledge impact	**25.9**	**69**	
6.2.1 Labor productivity growth, %	1.4	47	
6.2.2 Unicorn valuation, % GDP	0.0	48	○◇
6.2.3 Software spending, % GDP	0.3	32	●◆
6.2.4 High-tech manufacturing, %	13.0	83	
6.3 Knowledge diffusion	**33.8**	**44**	
6.3.1 Intellectual property receipts, % total trade	0.0	80	
6.3.2 Production and export complexity	58.9	48	
6.3.3 High-tech exports, % total trade	6.3	30	●◆
6.3.4 ICT services exports, % total trade	6.4	15	●◆
6.3.5 ISO 9001 quality/bn PPP$ GDP	3.1	73	
Creative outputs	**16.2**	**89**	
7.1 Intangible assets	**17.5**	**92**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	76.0	21	●◆
7.1.3 Global brand value, top 5,000	0.0	74	○◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.1	116	○
7.2 Creative goods and services	**8.4**	**74**	
7.2.1 Cultural and creative services exports, % total trade	0.6	47	
7.2.2 National feature films/mn pop. 15-69	1.6	51	
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a	
7.2.4 Creative goods exports, % total trade	0.2	77	
7.3 Online creativity	**21.7**	**60**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	12.8	38	◆
7.3.2 Country-code TLDs/th pop. 15-69	1.4	83	
7.3.3 GitHub commits/mn pop. 15-69	11.2	53	
7.3.4 Mobile app creation/bn PPP$ GDP	61.4	77	

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.

Global Innovation Index 2023



→ Data availability

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

> Costa Rica has missing data for seven indicators and outdated data for ten indicators.

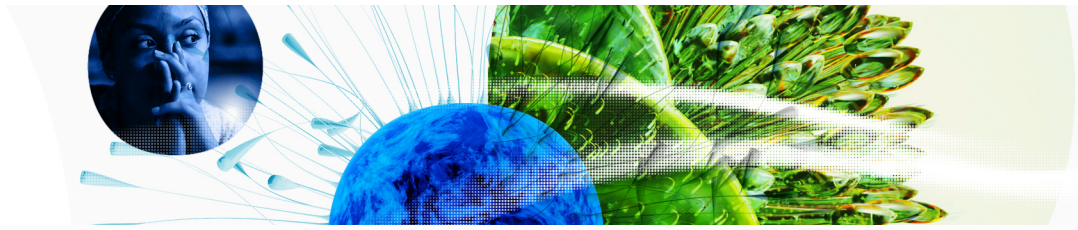
> Missing data for Costa Rica

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

> Outdated data for Costa Rica

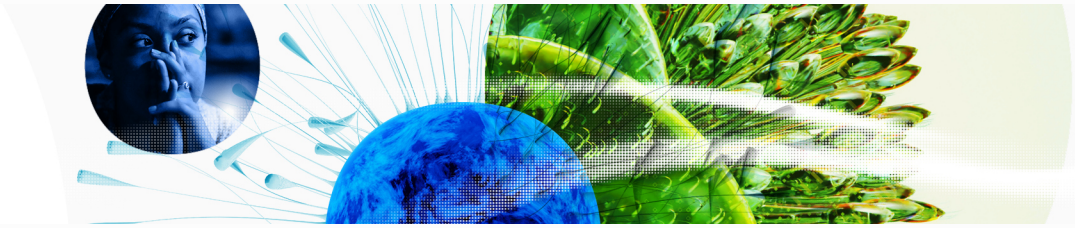
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2020	2021	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2019	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2019	2020	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2019	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.3	GERD performed by business, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2023



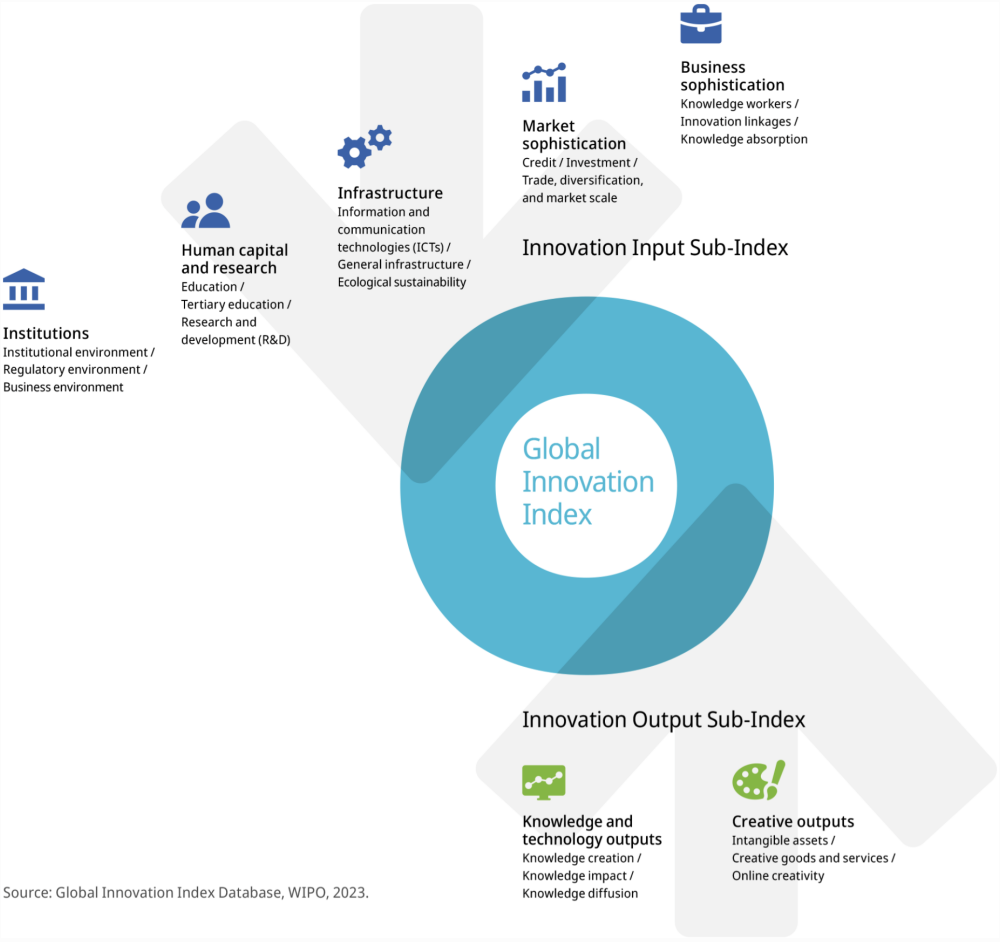
Code	Indicator name	Economy Year	Model Year	Source
5.1.4	GERD financed by business, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund

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.



Source: Global Innovation Index Database, WIPO, 2023.

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.