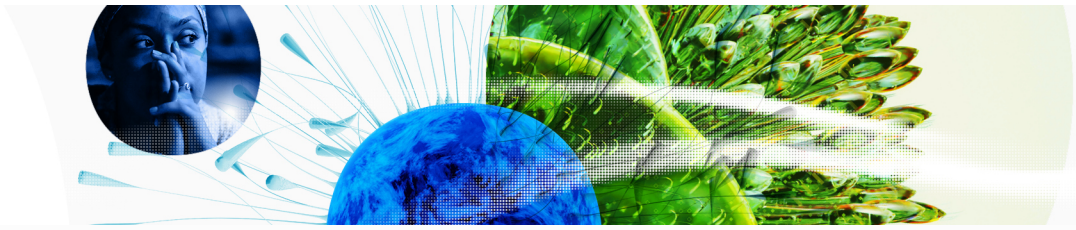
Global Innovation Index 2023



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**.

Nicaragua ranking in the Global Innovation Index 2023

> Nicaragua ranks 115th among the 132 economies featured in the GII 2023.

> Nicaragua ranks 30th among the 37 lower-middle-income group economies.

> Nicaragua ranks 17th among the 19 economies in Latin America and the Caribbean.

> Nicaragua GII Ranking (2020-2023)

The table shows the rankings of Nicaragua 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 Nicaragua in the GII 2023 is between ranks 112 and 121.

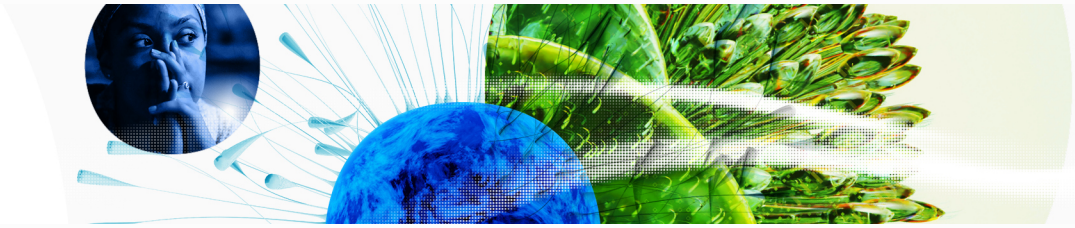
	GII Position	Innovation Inputs	Innovation Outputs
2020	n/a	n/a	n/a
2021	n/a	n/a	n/a
2022	108th	99th	112nd
2023	115th	110th	118th

Nicaragua performs worse in **innovation outputs** than innovation inputs in 2023.

This year **Nicaragua ranks 110th in innovation inputs.** This position is lower than last year.

Nicaragua ranks 118th in innovation outputs. This position is lower than last year.

Global Innovation Index 2023



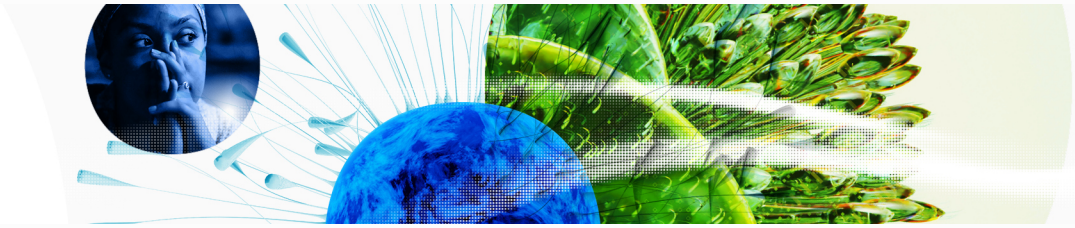
→ Expected vs. observed innovation performance

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

> Innovation overperformers relative to their economic development

Global Innovation Index 2023

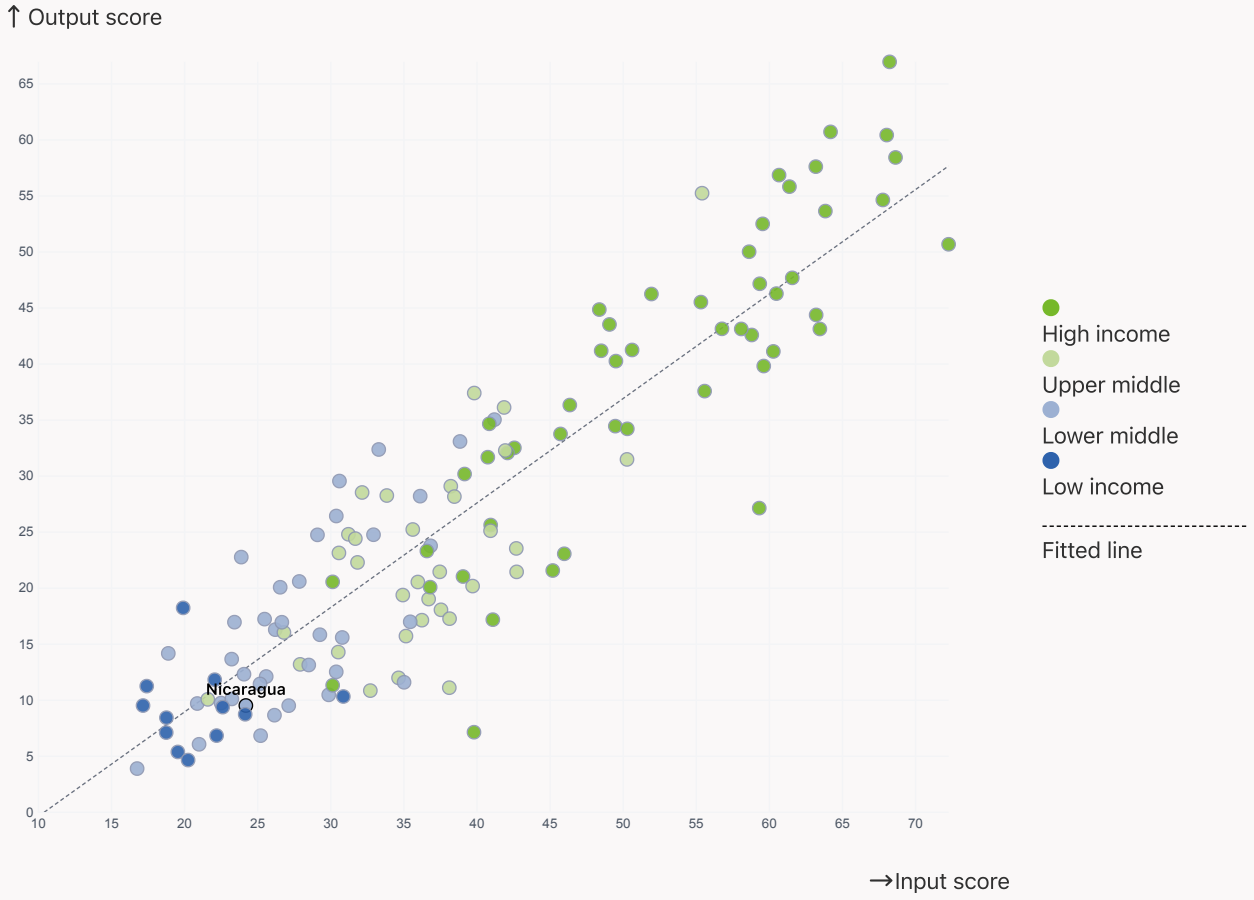


→ Effectively translating innovation investments into innovation outputs

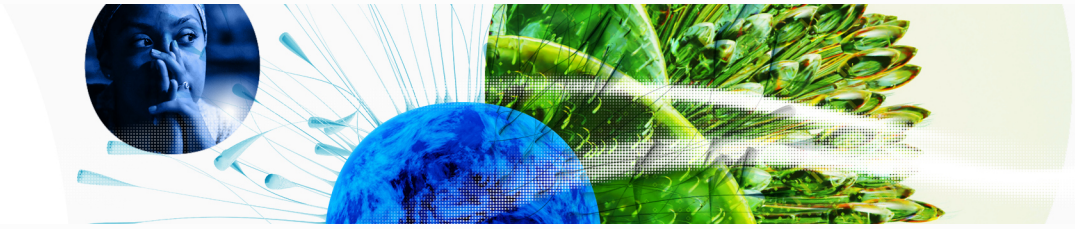
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

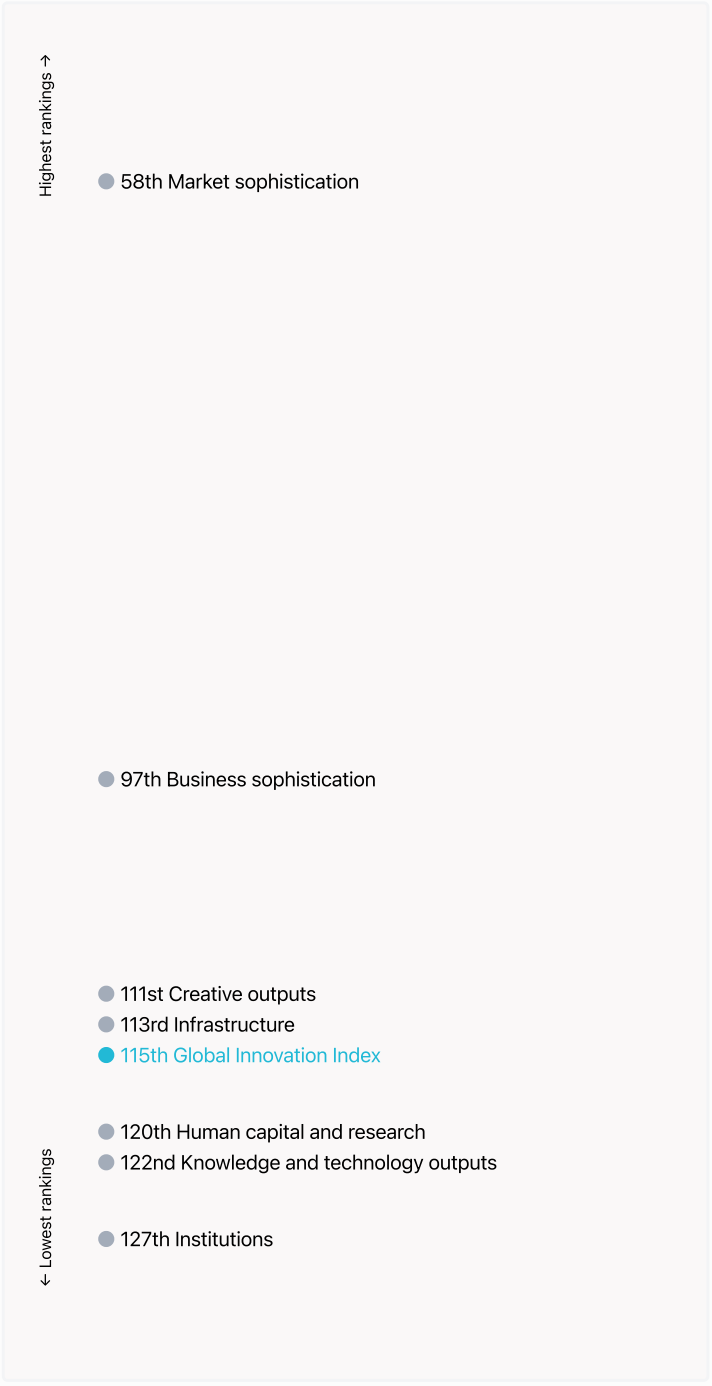


Global Innovation Index 2023



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



> Highest rankings

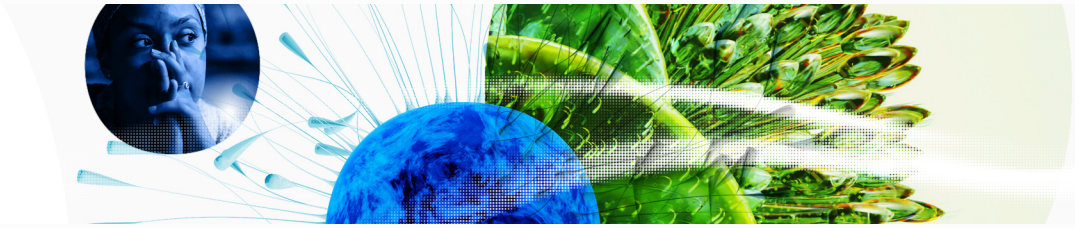
Nicaragua ranks highest in Market sophistication (58th), Business sophistication (97th), Creative outputs (111st) and Infrastructure (113rd).

> Lowest rankings

Nicaragua ranks lowest in Institutions (127th), Knowledge and technology outputs (122nd) and Human capital and research (120th).

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

Global Innovation Index 2023



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

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

> Lower-Middle-Income economies

Nicaragua performs below the lower-middle-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Human capital and research, Infrastructure, Institutions.

> Latin America And The Caribbean

Nicaragua performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Human capital and research, Infrastructure, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Lower middle income | Score: 17.21
- LCN | Score: 17.14
- Nicaragua | Score: 10.21

Creative outputs

- Top 10 | 56.09
- LCN | 18.91
- Lower middle income | 16.35
- Nicaragua | 8.74

Business sophistication

- Top 10 | 64.39
- LCN | 26.15
- Lower middle income | 22.71
- Nicaragua | 21.75

Market sophistication

- Top 10 | 61.93
- Nicaragua | 37.03
- LCN | 29.74
- Lower middle income | 28.01

Human capital and research

- Top 10 | 60.28
- LCN | 24.92
- Lower middle income | 21.73
- Nicaragua | 13.96

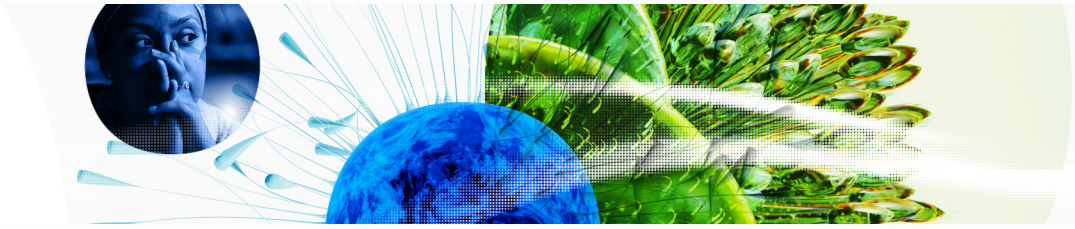
Infrastructure

- Top 10 | 62.83
- LCN | 35.88
- Lower middle income | 27.83
- Nicaragua | 23.18

Institutions

- Top 10 | 79.85
- LCN | 41.12
- Lower middle income | 39.43
- Nicaragua | 25.24

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Nicaragua

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

> Nicaragua's main innovation strengths are **Firms offering formal training, %** (rank 11), **Loans from microfinance institutions, % GDP** (rank 13) and **FDI net inflows, % GDP** (rank 14).

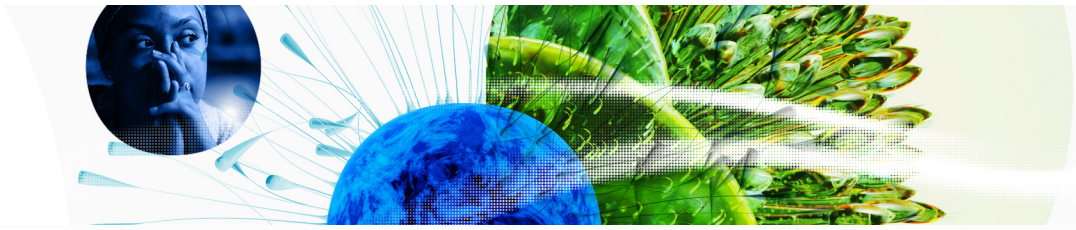
Strengths

Rank	Code	Indicator name
11	5.1.2	Firms offering formal training, %
13	4.1.3	Loans from microfinance institutions, % GDP
14	5.3.4	FDI net inflows, % GDP
41	6.3.4	ICT services exports, % total trade
52	7.2.4	Creative goods exports, % total trade
57	4.3.1	Applied tariff rate, weighted avg., %
60	1.2.3	Cost of redundancy dismissal
67	3.2.3	Gross capital formation, % GDP
67	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP
69	5.3.2	High-tech imports, % total trade

Weaknesses

Rank	Code	Indicator name
132	1.2.2	Rule of law
128	1.3.1	Policies for doing business
128	5.2.1	University-industry R&D collaboration
114	6.3.1	Intellectual property receipts, % total trade
101	6.1.2	PCT patents by origin/bn PPP$ GDP
95	5.2.5	Patent families/bn PPP$ GDP
74	7.1.3	Global brand value, top 5,000
71	2.3.4	QS university ranking, top 3
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

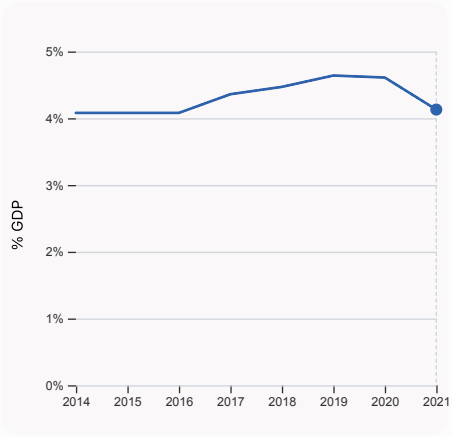
Global Innovation Index 2023



→ Nicaragua's innovation system

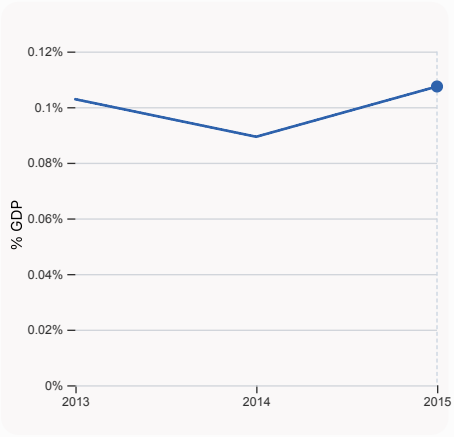
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Nicaragua



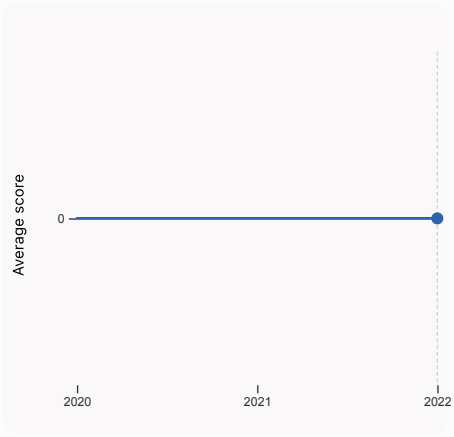
2.1.1 Expenditure on education, % GDP

was equal to 4.13% GDP in 2021, down by 0.48 percentage points from the year prior – and equivalent to an indicator rank of 67.



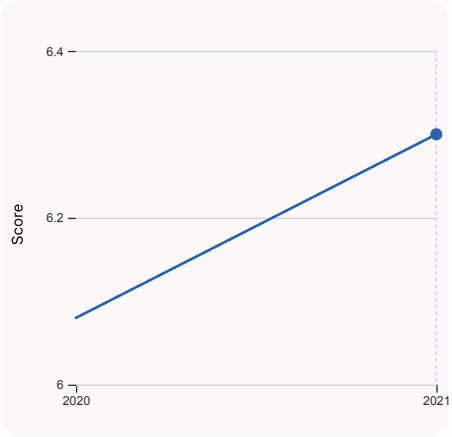
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.107% GDP in 2015, up by 0.018 percentage points from the year prior – and equivalent to an indicator rank of 103.



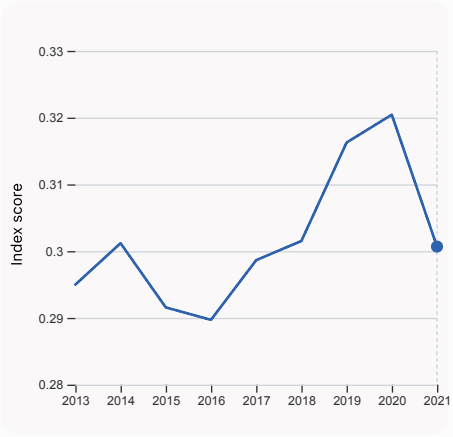
2.3.4 QS university ranking, top 3

was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.



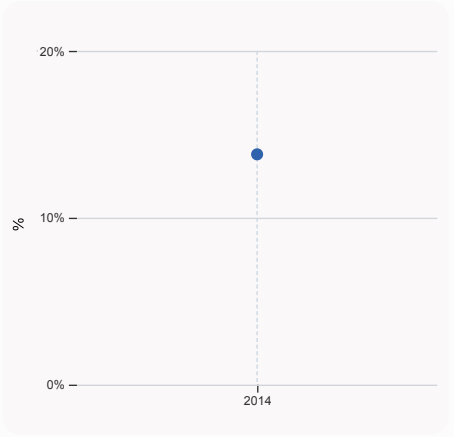
3.1.1 ICT access

was equal to a score of 6.3 in 2021, up by 3.62% from the year prior – and equivalent to an indicator rank of 114.



4.3.2 Domestic industry diversification

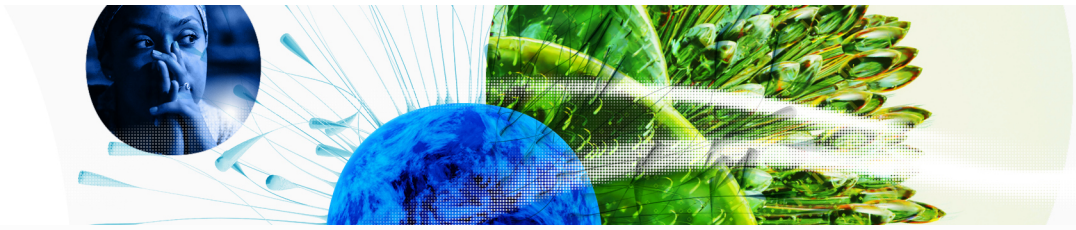
was equal to an index score of 0.301 in 2021, down by 6.17% from the year prior – and equivalent to an indicator rank of 96.



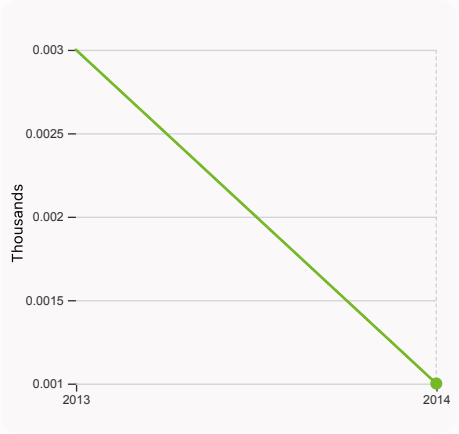
5.1.1 Knowledge-intensive employment, %

was equal to 13.8 % in 2014, equivalent to an indicator rank of 94.

Global Innovation Index 2023

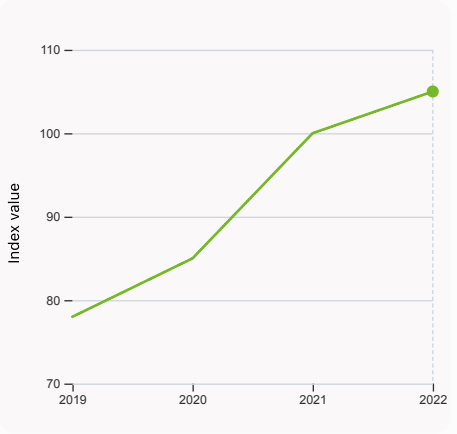


> Innovation outputs in Nicaragua



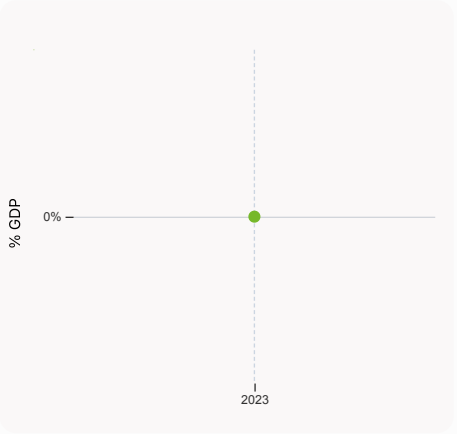
6.1.1 Patents by origin

was equal to 0.001 Thousands in 2014, down by 66.67% from the year prior – and equivalent to an indicator rank of 124.



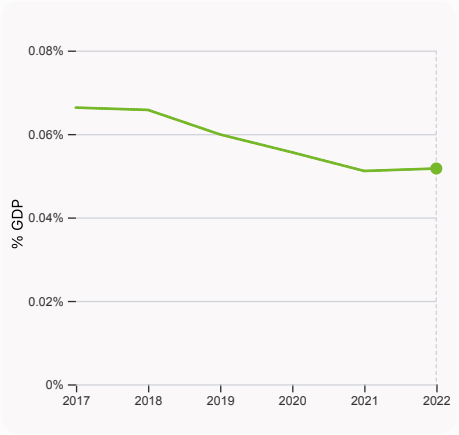
6.1.5 Citable documents H-index

was equal to an index value of 105 in 2022, up by 5% from the year prior – and equivalent to an indicator rank of 119.



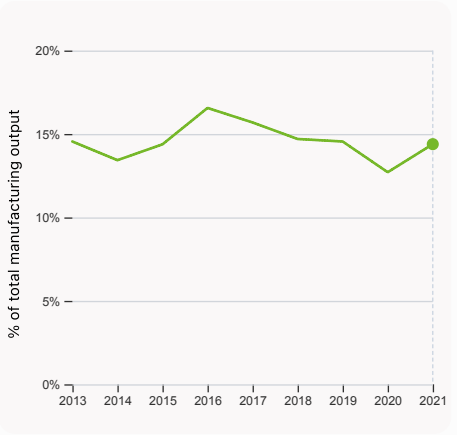
6.2.2 Unicorn valuation, % GDP

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



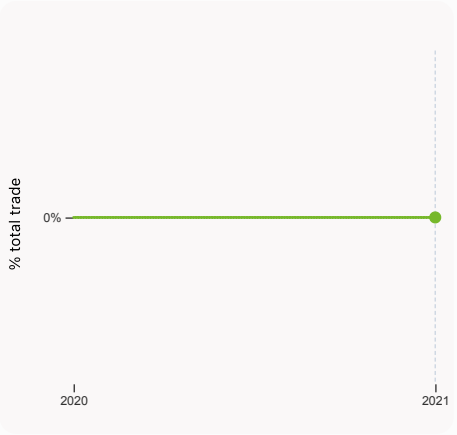
6.2.3 Software spending, % GDP

was equal to 0.052% GDP in 2022, up by 0.00059 percentage points from the year prior – and equivalent to an indicator rank of 103.



6.2.4 High-tech manufacturing, %

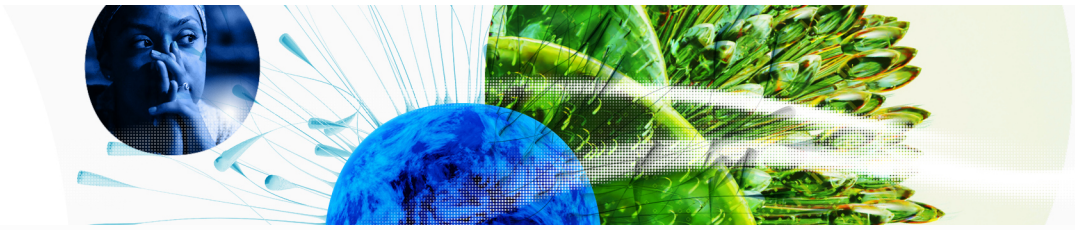
was equal to 14.39% of total manufacturing output in 2021, up by 1.68 percentage points from the year prior – and equivalent to an indicator rank of 79.



6.3.1 Intellectual property receipts, % total trade

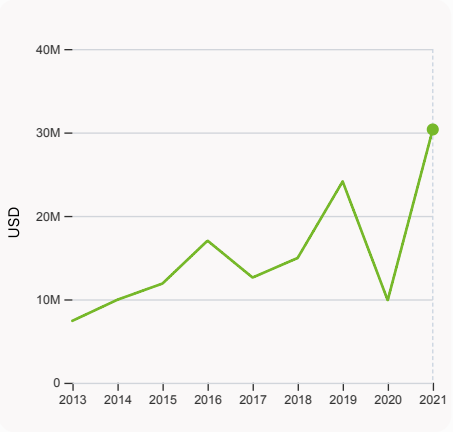
was equal to 0% total trade in 2021 – and equivalent to an indicator rank of 114.

Global Innovation Index 2023



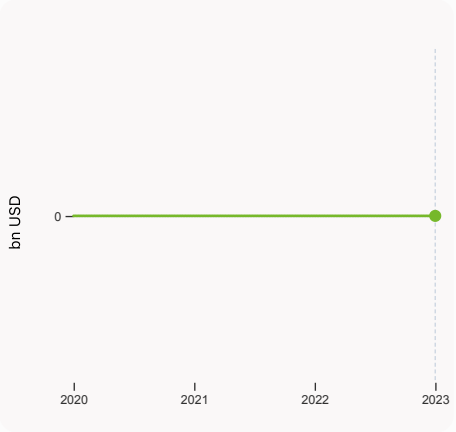
6.3.2 **Production and export complexity**

was equal to a score of -0.805 in 2020, up by 9.85% from the year prior – and equivalent to an indicator rank of 100.



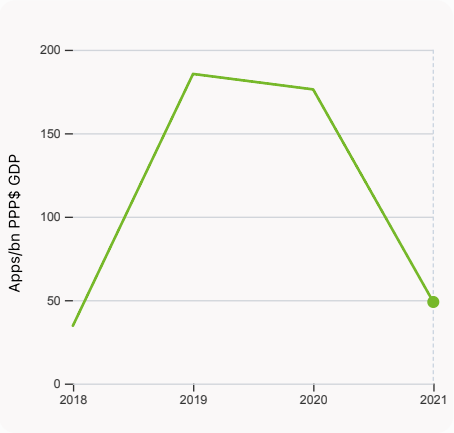
6.3.3 **High-tech exports**

was equal to 30,355,906 USD in 2021, up by 206.93% from the year prior – and equivalent to an indicator rank of 93.



7.1.3 **Global brand value, top 5,000**

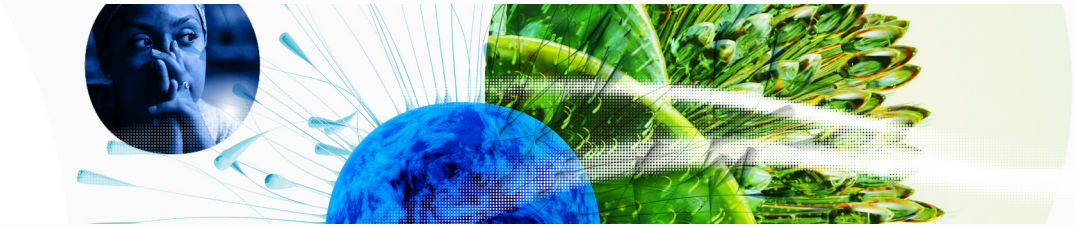
was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



7.3.4 **Mobile app creation/bn PPP$ GDP**

was equal to 48.87 Apps/bn PPP$ GDP in 2021, down by 72.27% from the year prior – and equivalent to an indicator rank of 120.

Global Innovation Index 2023



Nicaragua

GII 2023 rank **115**

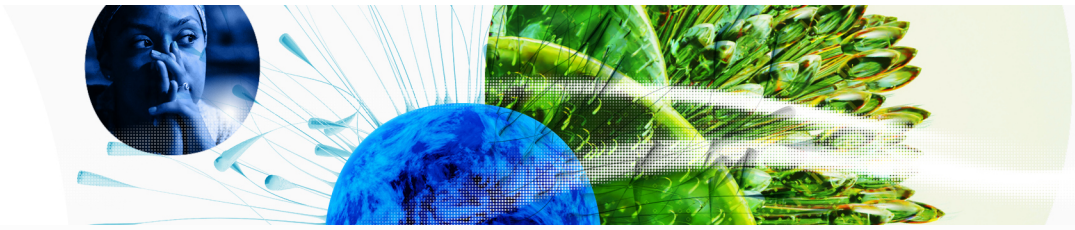
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
118	110	Lower middle	LCN	6.9	47.3	7,154.4

	Score / Value	Rank
Institutions	**25.2**	**127** ◇
1.1 Institutional environment	**23.3**	**117**
1.1.1 Operational stability for businesses*	33.3	114
1.1.2 Government effectiveness*	13.2	120
1.2 Regulatory environment	**48.2**	**105**
1.2.1 Regulatory quality*	20.4	117
1.2.2 Rule of law*	0.0	132 ○ ◇
1.2.3 Cost of redundancy dismissal	14.9	60 ●
1.3 Business environment	**4.2**	**131**
1.3.1 Policies for doing business†	4.2	128 ○ ◇
1.3.2 Entrepreneurship policies and culture†	n/a	n/a
Human capital and research	**14.0**	**120**
2.1 Education	**31.3**	**117**
2.1.1 Expenditure on education, % GDP	4.1	67
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a
2.1.3 School life expectancy, years	n/a	n/a
2.1.4 PISA scales in reading, maths and science	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	n/a	n/a
2.2 Tertiary education	**10.0**	**112**
2.2.1 Tertiary enrolment, % gross	19.1	102
2.2.2 Graduates in science and engineering, %	n/a	n/a
2.2.3 Tertiary inbound mobility, %	n/a	n/a
2.3 Research and development (R&D)	**0.6**	**108**
2.3.1 Researchers, FTE/mn pop.	n/a	n/a
2.3.2 Gross expenditure on R&D, % GDP	0.1	103
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40 ○ ◇
2.3.4 QS university ranking, top 3*	0.0	71 ○ ◇
Infrastructure	**23.2**	**113**
3.1 Information and communication technologies (ICTs)	**38.8**	**109**
3.1.1 ICT access*	44.2	114
3.1.2 ICT use*	44.9	108
3.1.3 Government's online service*	42.6	104
3.1.4 E-participation*	23.3	115
3.2 General infrastructure	**13.6**	**110**
3.2.1 Electricity output, GWh/mn pop.	572.1	108
3.2.2 Logistics performance*	18.2	89
3.2.3 Gross capital formation, % GDP	24.1	67 ●
3.3 Ecological sustainability	**17.1**	**97**
3.3.1 GDP/unit of energy use	8.5	85
3.3.2 Environmental performance*	31.9	82
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.2	117
Market sophistication	**37.0**	**58**
4.1 Credit	**21.3**	**89**
4.1.1 Finance for startups and scaleups†	n/a	n/a
4.1.2 Domestic credit to private sector, % GDP	30.1	96
4.1.3 Loans from microfinance institutions, % GDP	2.8	13 ●
4.2 Investment	**n/a**	**n/a**
4.2.1 Market capitalization, % GDP	n/a	n/a
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a
4.2.3 VC recipients, deals/bn PPP$ GDP	n/a	n/a
4.2.4 VC received, value, % GDP	n/a	n/a
4.3 Trade, diversification, and market scale	**52.8**	**82**
4.3.1 Applied tariff rate, weighted avg., %	1.8	57 ●
4.3.2 Domestic industry diversification	69.3	96
4.3.3 Domestic market scale, bn PPP$	47.3	109

	Score / Value	Rank
Business sophistication	**21.8**	**97**
5.1 Knowledge workers	**37.5**	**53**
5.1.1 Knowledge-intensive employment, %	13.8	94
5.1.2 Firms offering formal training, %	57.3	11 ●
5.1.3 GERD performed by business, % GDP	n/a	n/a
5.1.4 GERD financed by business, %	n/a	n/a
5.1.5 Females employed w/advanced degrees, %	6.1	90
5.2 Innovation linkages	**3.4**	**129** ◇
5.2.1 University-industry R&D collaboration†	2.9	128 ○ ◇
5.2.2 State of cluster development†	4.5	127 ◇
5.2.3 GERD financed by abroad, % GDP	n/a	n/a
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	67 ●
5.2.5 Patent families/bn PPP$ GDP	0.0	95 ○ ◇
5.3 Knowledge absorption	**24.3**	**109**
5.3.1 Intellectual property payments, % total trade	0.0	112 ◇
5.3.2 High-tech imports, % total trade	8.0	69 ●
5.3.3 ICT services imports, % total trade	0.4	122
5.3.4 FDI net inflows, % GDP	6.2	14 ●
5.3.5 Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs	**10.2**	**122**
6.1 Knowledge creation	**1.7**	**126** ◇
6.1.1 Patents by origin/bn PPP$ GDP	0.0	124
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	101 ○ ◇
6.1.3 Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	3.5	119
6.2 Knowledge impact	**15.0**	**122**
6.2.1 Labor productivity growth, %	-0.6	110
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.1	103
6.2.4 High-tech manufacturing, %	14.4	79
6.3 Knowledge diffusion	**13.9**	**93**
6.3.1 Intellectual property receipts, % total trade	0.0	114 ○ ◇
6.3.2 Production and export complexity	35.7	100
6.3.3 High-tech exports, % total trade	0.4	93
6.3.4 ICT services exports, % total trade	3.1	41 ●
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.7	114
Creative outputs	**8.7**	**111**
7.1 Intangible assets	**8.9**	**109**
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
7.1.2 Trademarks by origin/bn PPP$ GDP	41.0	55
7.1.3 Global brand value, top 5,000	0.0	74 ○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.0	120
7.2 Creative goods and services	**9.4**	**69**
7.2.1 Cultural and creative services exports, % total trade	n/a	n/a
7.2.2 National feature films/mn pop. 15-69	n/a	n/a
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
7.2.4 Creative goods exports, % total trade	0.8	52 ●
7.3 Online creativity	**7.7**	**119** ◇
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	3.0	72
7.3.2 Country-code TLDs/th pop. 15-69	0.3	109
7.3.3 GitHub commits/mn pop. 15-69	1.6	106
7.3.4 Mobile app creation/bn PPP$ GDP	26.1	120 ◇

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

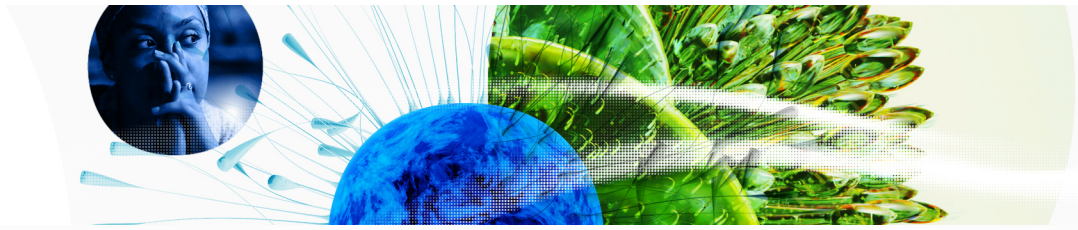
The following tables list indicators that are either missing or outdated for Nicaragua.

> Nicaragua has missing data for twenty two indicators and outdated data for thirteen indicators.

> Missing data for Nicaragua

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	n/a	2020	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.1.5	Pupil-teacher ratio, secondary	n/a	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.3	VC recipients, deals/bn PPP$ GDP	n/a	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	n/a	2022	Refinitiv; International Monetary Fund
5.1.3	GERD performed by business, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

Global Innovation Index 2023

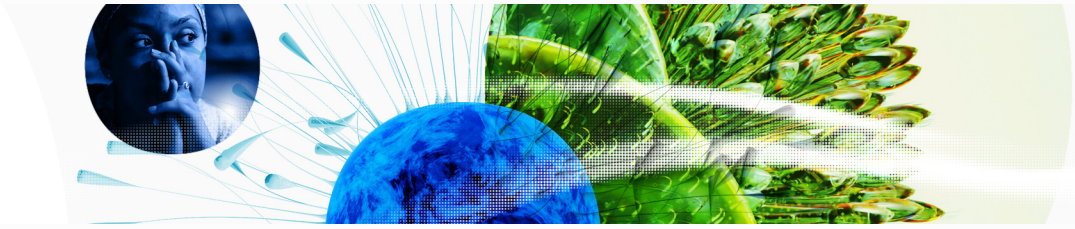


Code	Indicator name	Economy Year	Model Year	Source
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.2.1	Cultural and creative services exports, % total trade	n/a	2021	World Trade Organization and United Nations Conference on Trade and Development
7.2.2	National feature films/mn pop. 15-69	n/a	2021	OMDIA; United Nations, World Population Prospects
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 Nicaragua

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
2.2.1	Tertiary enrolment, % gross	2015	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2015	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
5.1.1	Knowledge-intensive employment, %	2014	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2016	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2014	2022	International Labour Organization
5.2.1	University-industry R&D collaboration	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
6.1.1	Patents by origin/bn PPP$ GDP	2014	2021	World Intellectual Property Organization; International Monetary Fund
7.1.2	Trademarks by origin/bn PPP$ GDP	2013	2021	World Intellectual Property Organization; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	2014	2021	World Intellectual Property Organization; International Monetary Fund
7.3.4	Mobile app creation/bn PPP$ GDP	2021	2022	data.ia; 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.