

# Global Innovation Index 2023

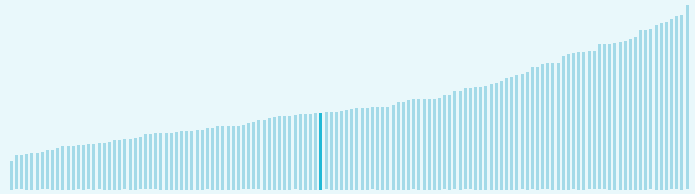


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

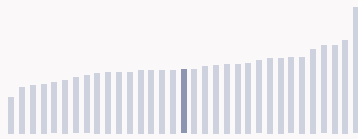
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

## Armenia ranking in the Global Innovation Index 2023

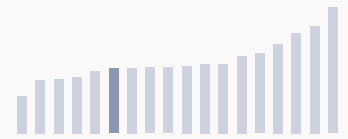
> Armenia ranks **72nd** among the 132 economies featured in the GII 2023.



> Armenia ranks **17th** among the 33 upper-middle-income group economies.



> Armenia ranks **13th** among the 18 economies in Northern Africa and Western Asia.



### > Armenia GII Ranking (2020-2023)

The table shows the rankings of Armenia 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 Armenia in the GII 2023 is between ranks 63 and 75.

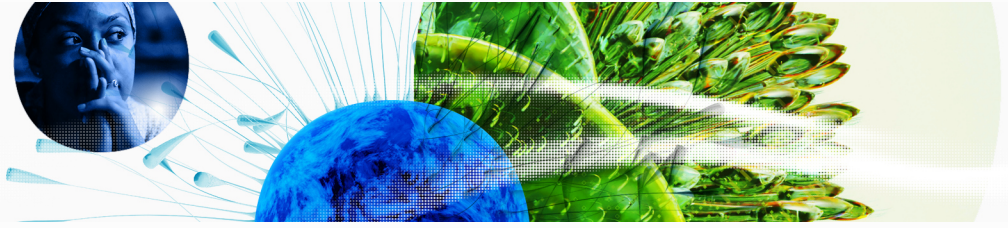
	GII Position	Innovation Inputs	Innovation Outputs
2020	61st	83rd	47th
2021	69th	85th	56th
2022	80th	82nd	73rd
2023	72nd	83rd	62nd

Armenia performs better in innovation outputs than innovation inputs in 2023.

This year Armenia ranks 83rd in innovation inputs. This position is lower than last year.

Armenia ranks 62nd in innovation outputs. This position is higher than last year.

# Global Innovation Index 2023



## → Expected vs. observed innovation performance

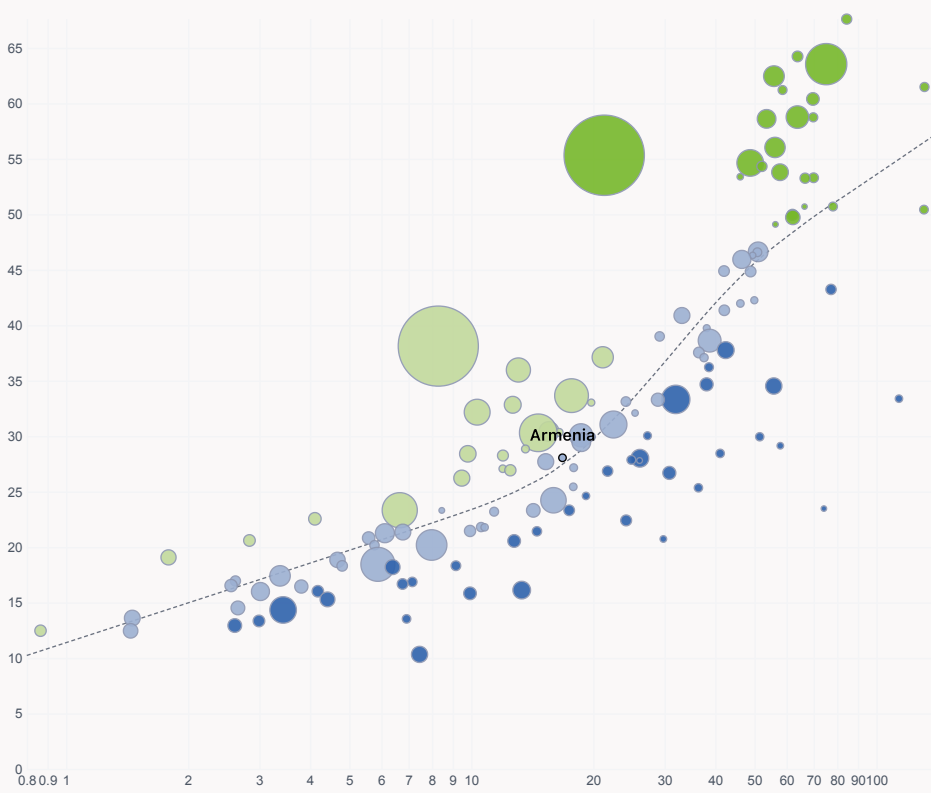
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



> Relative to GDP, Armenia'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



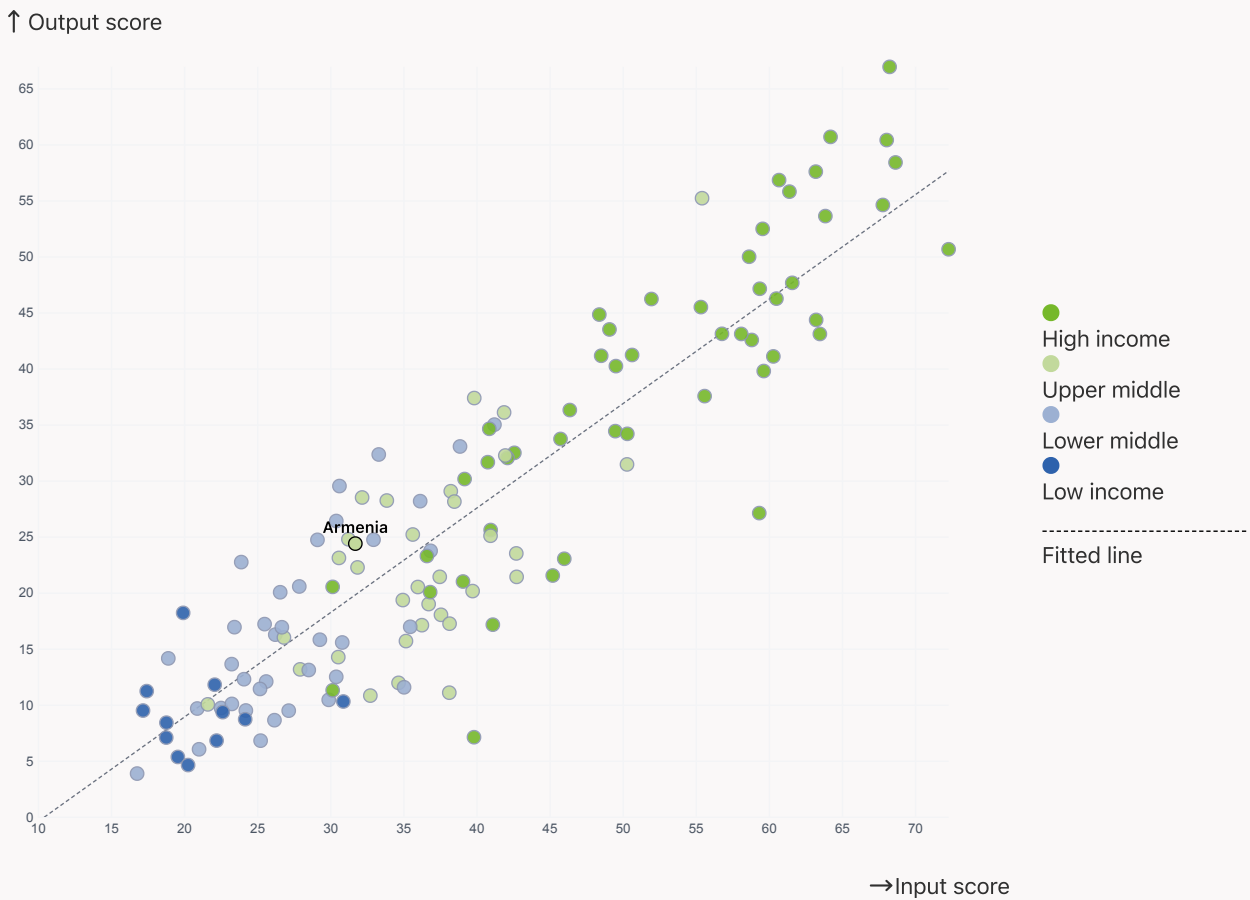
## → Effectively translating innovation investments into innovation outputs

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.

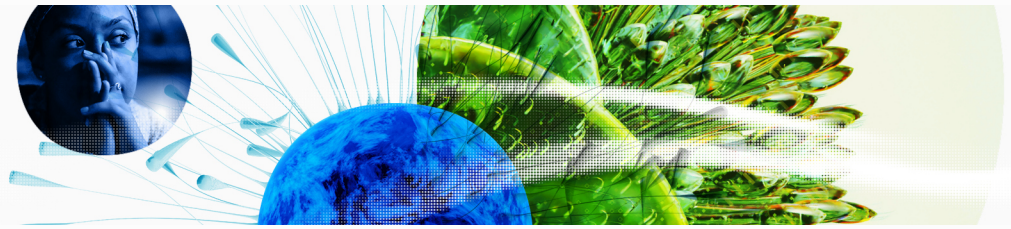


> Armenia produces more innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs

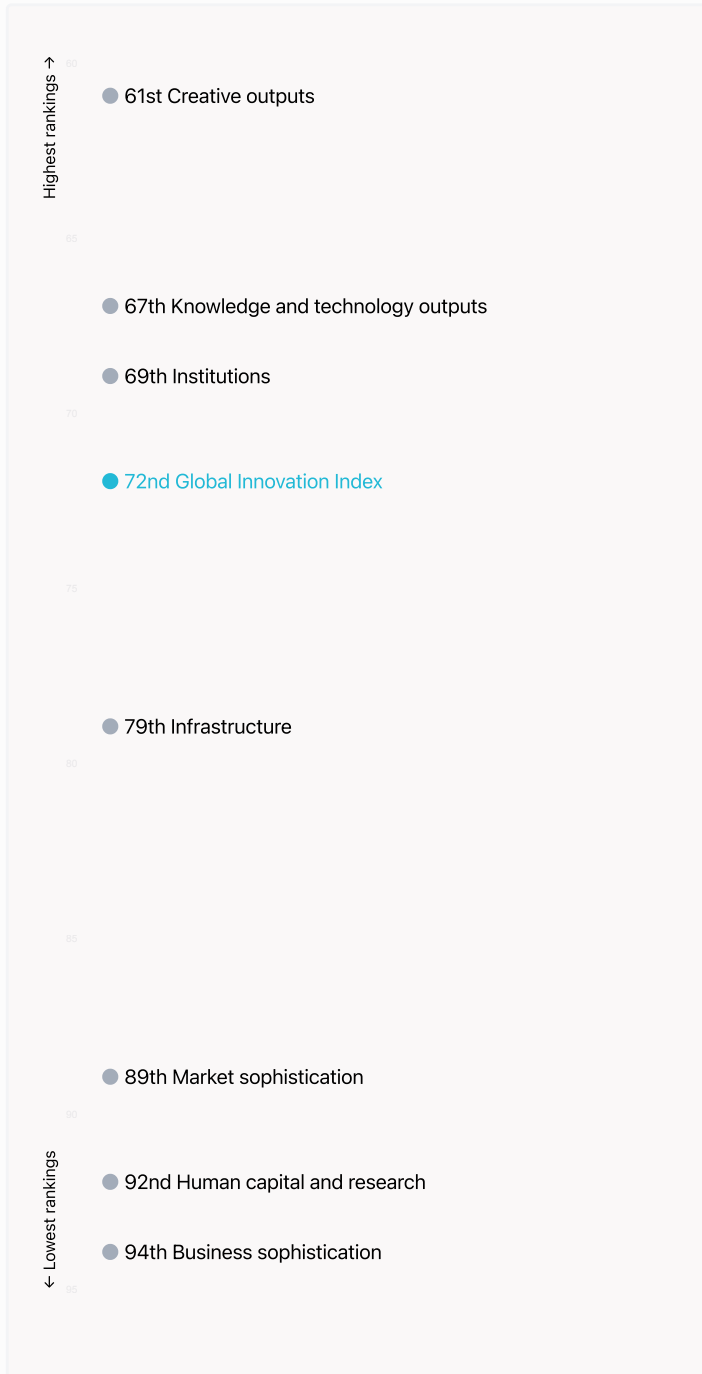


# Global Innovation Index 2023



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



### > Highest rankings



Armenia ranks highest in Creative outputs (61st), Knowledge and technology outputs (67th) and Institutions (69th).

### > Lowest rankings



Armenia ranks lowest in Business sophistication (94th), Human capital and research (92nd) and Market sophistication (89th).

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

# Global Innovation Index 2023



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

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

### > Upper-Middle-Income economies

Armenia performs below the upper-middle-income group average in Business sophistication, Market sophistication, Human capital and research, Infrastructure.

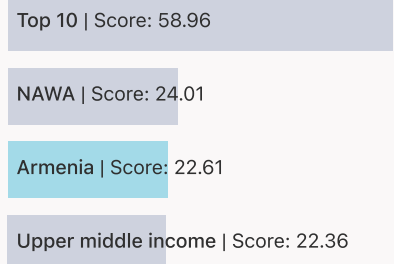


### > Northern Africa And Western Asia

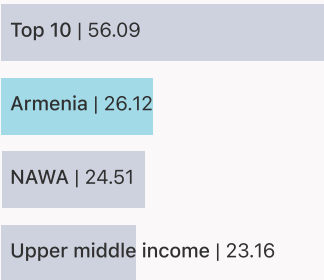
Armenia performs below the regional average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.



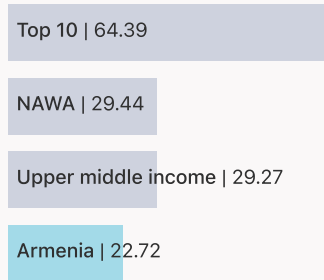
### Knowledge and technology outputs



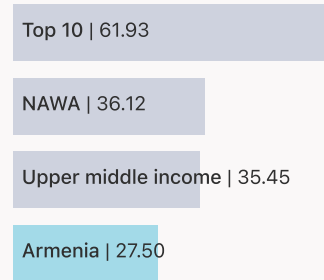
### Creative outputs



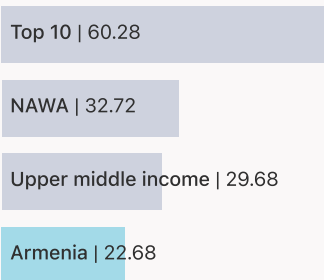
### Business sophistication



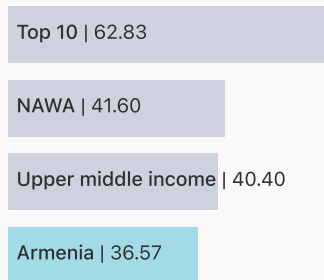
### Market sophistication



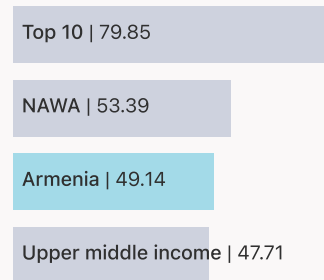
### Human capital and research



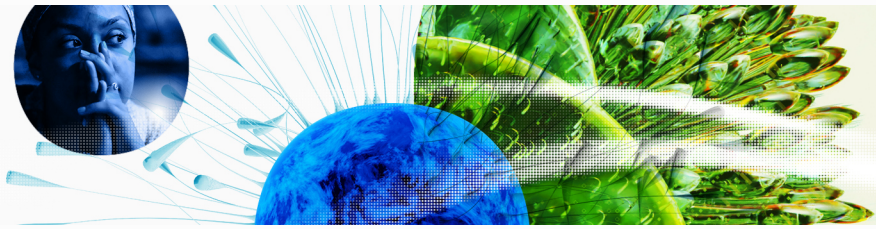
### Infrastructure



### Institutions



# Global Innovation Index 2023



## → Innovation strengths and weaknesses in Armenia

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



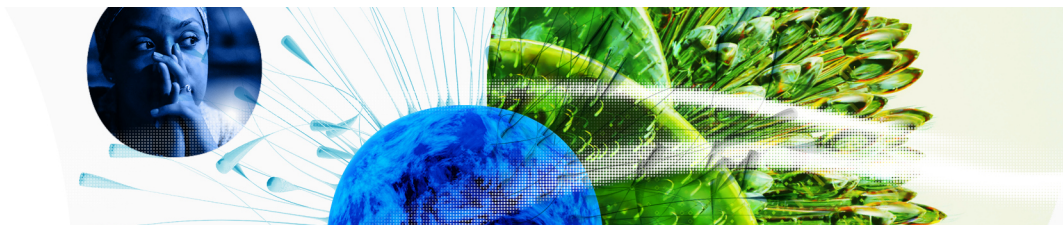
> Armenia's main innovation strengths are **ICT services exports, % total trade (rank 9)**, **Labor productivity growth, % (rank 13)** and **Trademarks by origin/bn PPP\$ GDP (rank 16)**.

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
9	6.3.4	ICT services exports, % total trade	125	3.3.3	ISO 14001 environment/bn PPP\$ GDP
13	6.2.1	Labor productivity growth, %	118	5.3.1	Intellectual property payments, % total trade
16	7.1.2	Trademarks by origin/bn PPP\$ GDP	115	3.2.3	Gross capital formation, % GDP
16	6.1.3	Utility models by origin/bn PPP\$ GDP	114	6.3.1	Intellectual property receipts, % total trade
18	3.1.1	ICT access	100	6.2.4	High-tech manufacturing, %
35	7.2.4	Creative goods exports, % total trade	89	3.2.2	Logistics performance
35	7.3.3	GitHub commits/mn pop. 15-69	74	7.1.3	Global brand value, top 5,000
43	7.3.4	Mobile app creation/bn PPP\$ GDP	71	2.3.4	QS university ranking, top 3
43	2.1.5	Pupil-teacher ratio, secondary	48	6.2.2	Unicorn valuation, % GDP
44	5.1.5	Females employed w/advanced degrees, %	40	2.3.3	Global corporate R&D investors, top 3, mn US\$
45	3.3.2	Environmental performance			

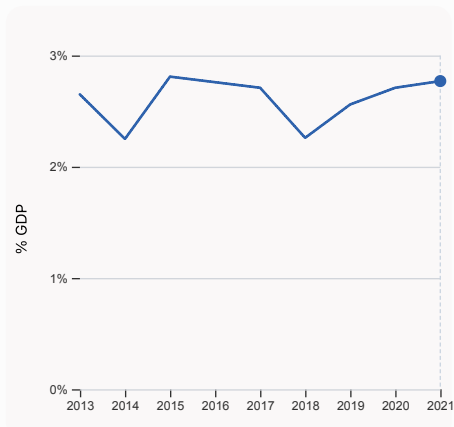
# Global Innovation Index 2023



## → Armenia's innovation system

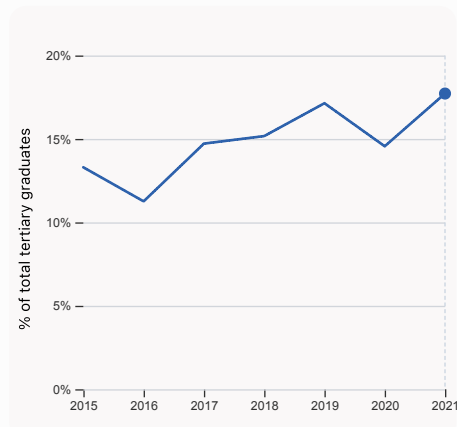
As far as practicable, the plots below present unscaled indicator data.

### > Innovation inputs in Armenia



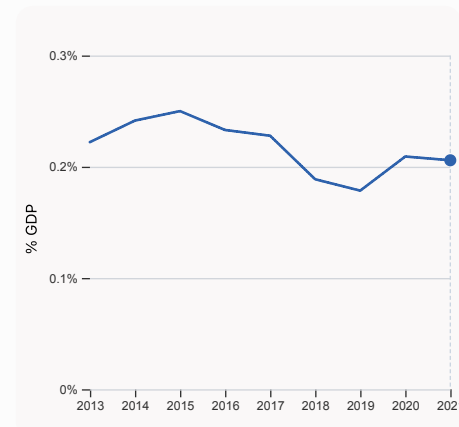
#### 2.1.1 Expenditure on education, % GDP

was equal to 2.77% GDP in 2021, up by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 111.



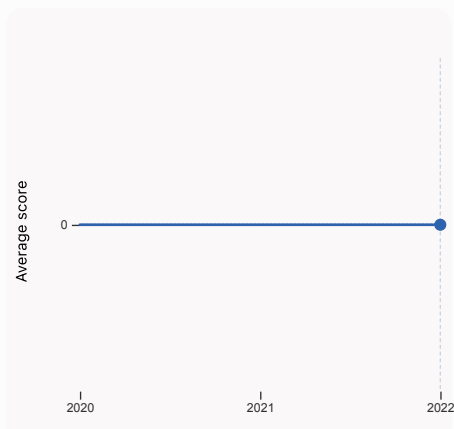
#### 2.2.2 Graduates in science and engineering, %

was equal to 17.72% of total tertiary graduates in 2021, up by 3.16 percentage points from the year prior – and equivalent to an indicator rank of 88.



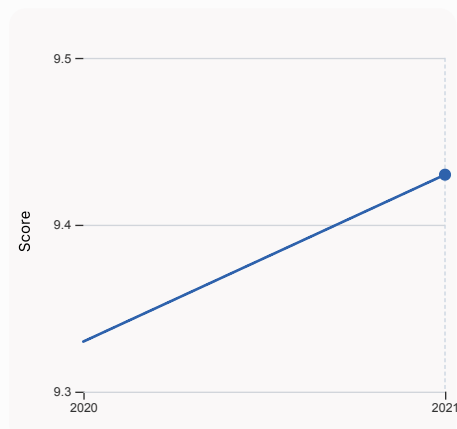
#### 2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.206% GDP in 2021, down by 0.0034 percentage points from the year prior – and equivalent to an indicator rank of 88.



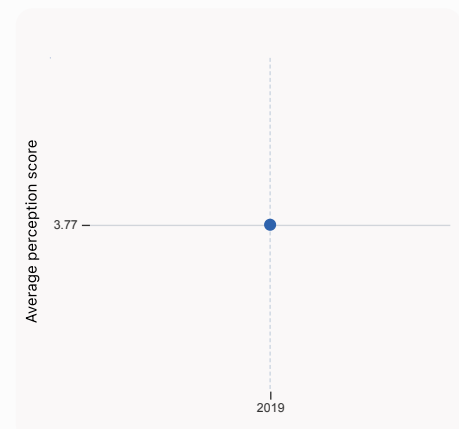
#### 2.3.4 QS university ranking, top 3

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

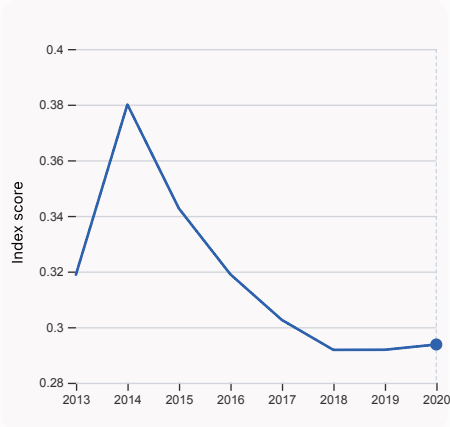
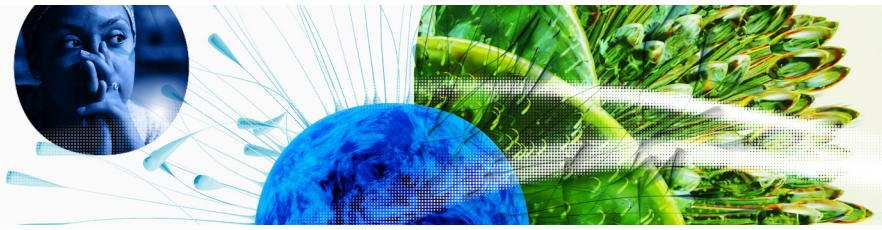
was equal to a score of 9.43 in 2021, up by 1.072% from the year prior – and equivalent to an indicator rank of 18.



#### 4.1.1 Finance for startups and scaleups

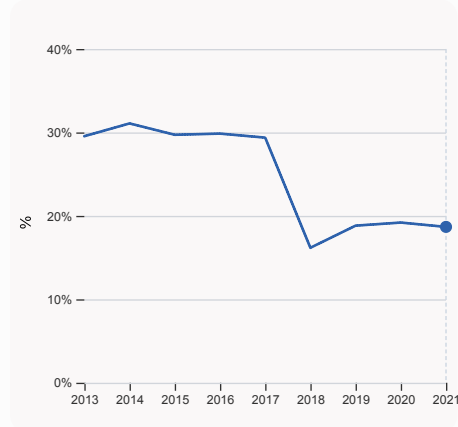
was equal to an average perception score of 3.77 in 2019, equivalent to an indicator rank of 65.

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## 4.3.2 Domestic industry diversification

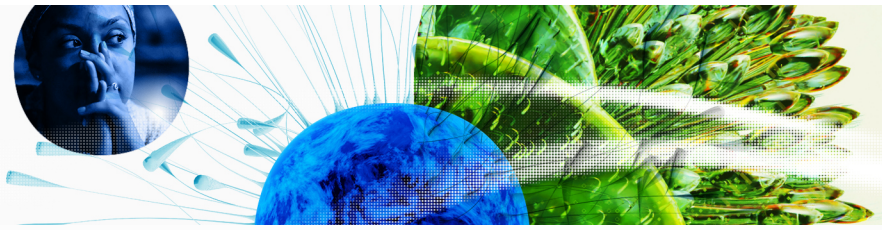
was equal to an index score of 0.294 in 2020, up by 0.65% from the year prior – and equivalent to an indicator rank of 93.



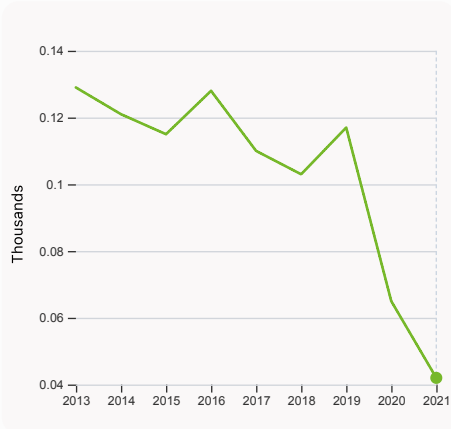
## 5.1.1 Knowledge-intensive employment, %

was equal to 18.68% in 2021, down by 0.52 percentage points from the year prior – and equivalent to an indicator rank of 77.

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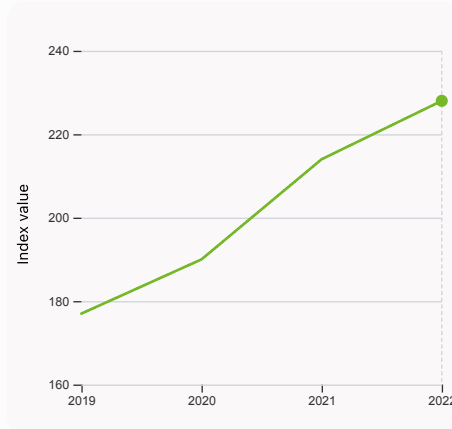


## > Innovation outputs in Armenia



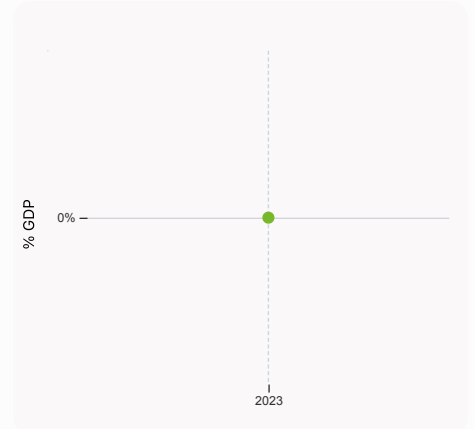
### 6.1.1 Patents by origin

was equal to 0.042 Thousands in 2021, down by 35.38% from the year prior – and equivalent to an indicator rank of 59.



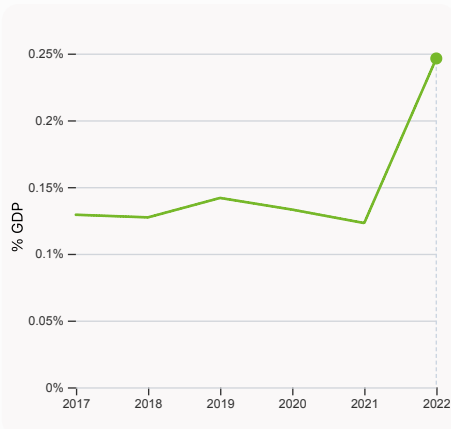
### 6.1.5 Citable documents H-index

was equal to an index value of 228 in 2022, up by 6.54% from the year prior – and equivalent to an indicator rank of 76.



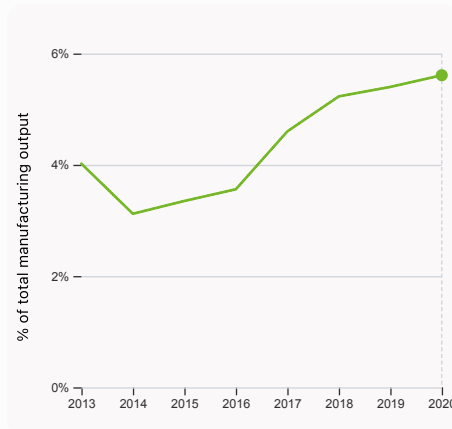
### 6.2.2 Unicorn valuation, % GDP

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



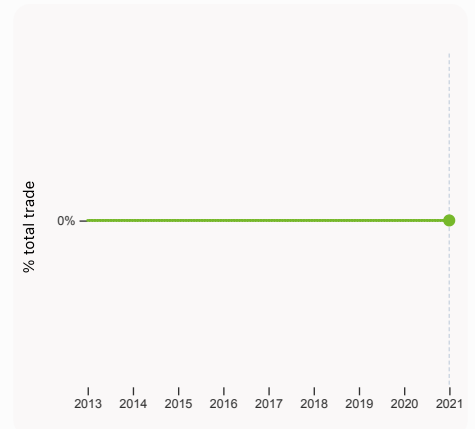
### 6.2.3 Software spending, % GDP

was equal to 0.246% GDP in 2022, up by 0.12 percentage points from the year prior – and equivalent to an indicator rank of 58.



### 6.2.4 High-tech manufacturing, %

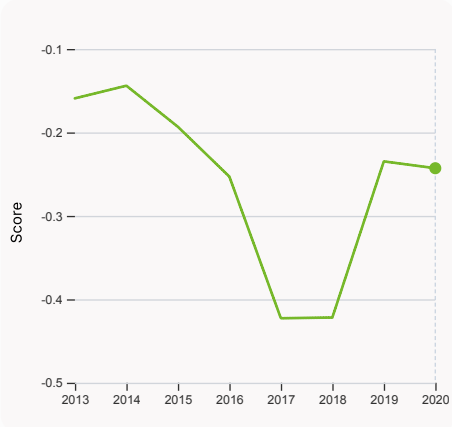
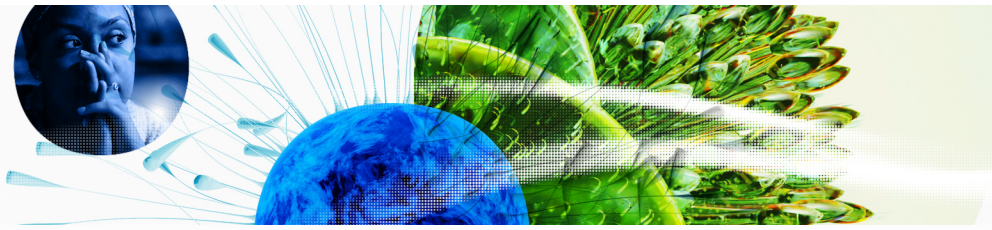
was equal to 5.61% of total manufacturing output in 2020, up by 0.21 percentage points from the year prior – and equivalent to an indicator rank of 100.



### 6.3.1 Intellectual property receipts, % total trade

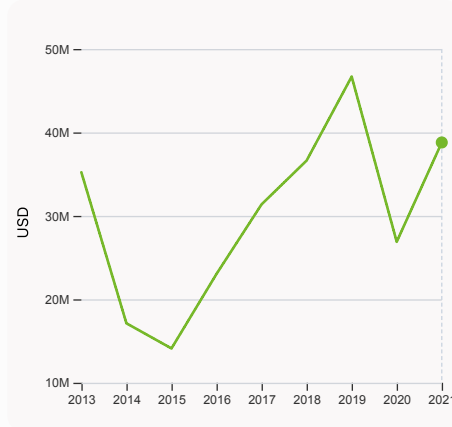
was equal to 0% total trade in 2021 – and equivalent to an indicator rank of 114.

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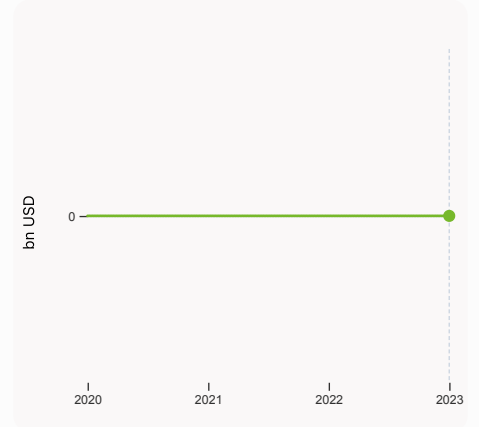
### 6.3.2 Production and export complexity

was equal to a score of -0.243 in 2020, down by 3.49% from the year prior – and equivalent to an indicator rank of 76.



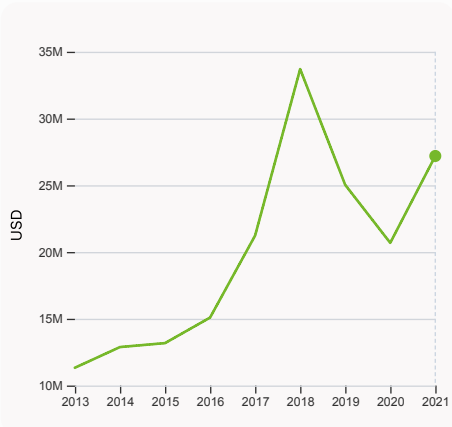
### 6.3.3 High-tech exports

was equal to 38,797,164 USD in 2021, up by 44.24% from the year prior – and equivalent to an indicator rank of 79.



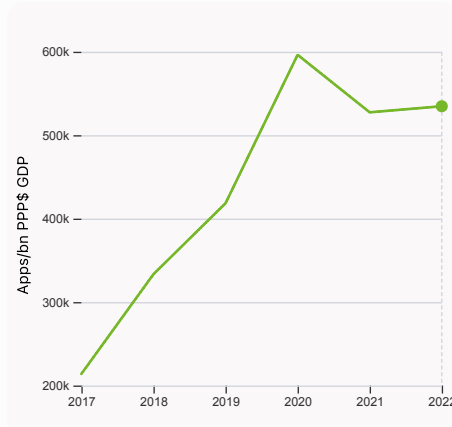
### 7.1.3 Global brand value, top 5,000

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



### 7.2.1 Cultural and creative services exports

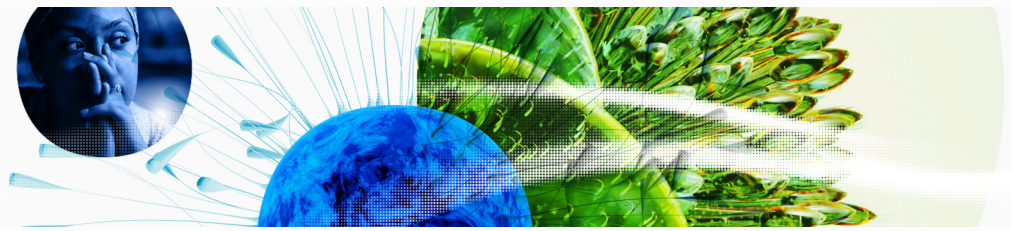
was equal to 27,194,000 USD in 2021, up by 31.46% from the year prior – and equivalent to an indicator rank of 52.



### 7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 534,715.09 Apps/bn PPP\$ GDP in 2022, up by 1.38% from the year prior – and equivalent to an indicator rank of 43.

# Global Innovation Index 2023



GII 2023 rank

72

## Armenia

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
62	83	Upper middle	NAWA	2.8	49.8	16,798.0
Score / Value Rank				Score / Value Rank		
<b>Institutions</b> 49.1 69				<b>Business sophistication</b> 22.7 94		
<b>1.1 Institutional environment</b> 35.8 90				<b>5.1 Knowledge workers</b> 32.4 65		
1.1.1 Operational stability for businesses* 41.7 87				5.1.1 Knowledge-intensive employment, % 18.7 77		
1.1.2 Government effectiveness* 29.9 87				5.1.2 Firms offering formal training, % 27.5 60		
<b>1.2 Regulatory environment</b> 65.7 59				5.1.3 GERD performed by business, % GDP n/a n/a		
1.2.1 Regulatory quality* 45.9 64				5.1.4 GERD financed by business, % 16.7 71		
1.2.2 Rule of law* 36.9 69				5.1.5 Females employed w/advanced degrees, % 16.4 44		
1.2.3 Cost of redundancy dismissal 13.0 41				<b>5.2 Innovation linkages</b> 11.2 115		
<b>1.3 Business environment</b> 45.9 65				5.2.1 University-industry R&D collaboration+ 28.6 100		
1.3.1 Policies for doing business+ 40.3 83				5.2.2 State of cluster development+ 21.2 111		
1.3.2 Entrepreneurship policies and culture+ 51.6 34				5.2.3 GERD financed by abroad, % GDP 0.0 73		
<b>Human capital and research</b> 22.7 92				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.0 107		
<b>2.1 Education</b> 41.6 93				5.2.5 Patent families/bn PPP\$ GDP 0.1 57		
2.1.1 Expenditure on education, % GDP 2.8 111				<b>5.3 Knowledge absorption</b> 24.6 107		
2.1.2 Government funding/pupil, secondary, % GDP/cap 13.2 81				5.3.1 Intellectual property payments, % total trade 0.0 118		
2.1.3 School life expectancy, years 13.5 78				5.3.2 High-tech imports, % total trade 7.9 73		
2.1.4 PISA scales in reading, maths and science n/a n/a				5.3.3 ICT services imports, % total trade 0.8 94		
2.1.5 Pupil-teacher ratio, secondary 11.1 43				5.3.4 FDI net inflows, % GDP 1.3 95		
<b>2.2 Tertiary education</b> 25.3 79				5.3.5 Research talent, % in businesses n/a n/a		
2.2.1 Tertiary enrolment, % gross 55.4 60				<b>Knowledge and technology outputs</b> 22.6 67		
2.2.2 Graduates in science and engineering, % 17.7 88				<b>6.1 Knowledge creation</b> 18.7 59		
2.2.3 Tertiary inbound mobility, % 5.9 43				6.1.1 Patents by origin/bn PPP\$ GDP 1.0 59		
<b>2.3 Research and development (R&amp;D)</b> 1.2 99				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.1 53		
2.3.1 Researchers, FTE/mn pop. n/a n/a				6.1.3 Utility models by origin/bn PPP\$ GDP 1.4 16		
2.3.2 Gross expenditure on R&D, % GDP 0.2 88				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 10.3 76		
2.3.4 QS university ranking, top 3* 0.0 71				<b>6.2 Knowledge impact</b> 25.5 70		
<b>Infrastructure</b> 36.6 79				6.2.1 Labor productivity growth, % 3.2 13		
<b>3.1 Information and communication technologies (ICTs)</b> 72.8 58				6.2.2 Unicorn valuation, % GDP 0.0 48		
3.1.1 ICT access* 91.6 18				6.2.3 Software spending, % GDP 0.2 58		
3.1.2 ICT use* 73.4 65				6.2.4 High-tech manufacturing, % 5.6 100		
3.1.3 Government's online service* 69.3 63				<b>6.3 Knowledge diffusion</b> 23.6 61		
3.1.4 E-participation* 57.0 64				6.3.1 Intellectual property receipts, % total trade 0.0 114		
<b>3.2 General infrastructure</b> 13.3 114				6.3.2 Production and export complexity 47.4 76		
3.2.1 Electricity output, GWh/mn pop. 2,584.2 72				6.3.3 High-tech exports, % total trade 0.7 79		
3.2.2 Logistics performance* 18.2 89				6.3.4 ICT services exports, % total trade 7.0 9		
3.2.3 Gross capital formation, % GDP 17.1 115				6.3.5 ISO 9001 quality/bn PPP\$ GDP 1.1 105		
<b>3.3 Ecological sustainability</b> 23.6 68				<b>Creative outputs</b> 26.1 61		
3.3.1 GDP/unit of energy use 9.2 79				<b>7.1 Intangible assets</b> 31.3 68		
3.3.2 Environmental performance* 49.8 45				7.1.1 Intangible asset intensity, top 15, % n/a n/a		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 0.1 125				7.1.2 Trademarks by origin/bn PPP\$ GDP 97.5 16		
<b>Market sophistication</b> 27.5 89				7.1.3 Global brand value, top 5,000 0.0 74		
<b>4.1 Credit</b> 29.6 67				7.1.4 Industrial designs by origin/bn PPP\$ GDP 1.8 45		
4.1.1 Finance for startups and scaleups+ 32.9 65				<b>7.2 Creative goods and services</b> 14.0 [60]		
4.1.2 Domestic credit to private sector, % GDP 72.2 50				7.2.1 Cultural and creative services exports, % total trade 0.5 52		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 n/a n/a		
<b>4.2 Investment</b> 2.5 [97]				7.2.3 Entertainment and media market/th pop. 15-69 n/a n/a		
4.2.1 Market capitalization, % GDP n/a n/a				7.2.4 Creative goods exports, % total trade 1.5 35		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.0 63				<b>7.3 Online creativity</b> 28.0 42		
4.2.3 VC recipients, deals/bn PPP\$ GDP n/a n/a				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 3.8 61		
4.2.4 VC received, value, % GDP n/a n/a				7.3.2 Country-code TLDs/th pop. 15-69 6.1 52		
<b>4.3 Trade, diversification, and market scale</b> 50.4 85				7.3.3 GitHub commits/mn pop. 15-69 29.4 35		
4.3.1 Applied tariff rate, weighted avg., % 3.1 74				7.3.4 Mobile app creation/bn PPP\$ GDP 72.6 43		
4.3.2 Domestic industry diversification 70.2 93						
4.3.3 Domestic market scale, bn PPP\$ 49.8 107						

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 Armenia.



> Armenia has missing data for eleven indicators and outdated data for seven indicators.

## > Missing data for Armenia

Code	Indicator name	Economy Year	Model Year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
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
5.3.5	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
7.2.2	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 Armenia

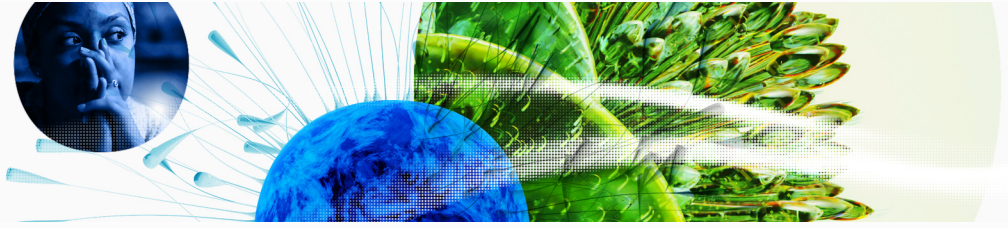
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2019	2022	Global Entrepreneurship Monitor
4.1.1	Finance for startups and scaleups	2019	2022	Global Entrepreneurship Monitor

# Global Innovation Index 2023



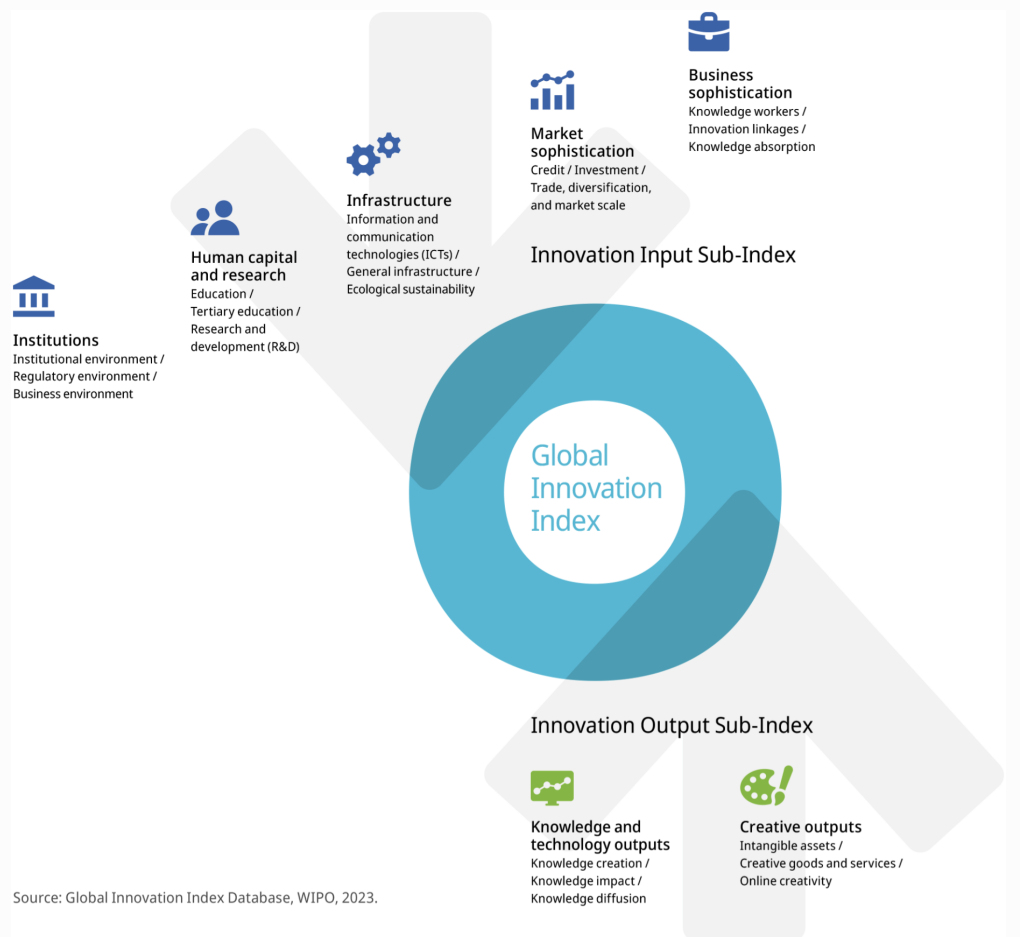
Code	Indicator name	Economy Year	Model Year	Source
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.4	GERD financed by business, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour Organization
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.



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.