

# Global Innovation Index 2023

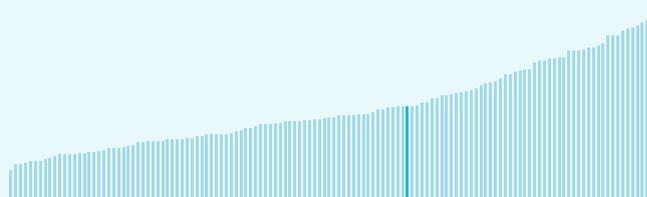


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

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

## Russian Federation ranking in the Global Innovation Index 2023

> Russian Federation ranks **51st** among the 132 economies featured in the GII 2023.



> Russian Federation ranks **7th** among the 33 upper-middle-income group economies.



> Russian Federation ranks **31st** among the 39 economies in Europe.



### > Russian Federation GII Ranking (2020-2023)

The table shows the rankings of Russian Federation 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 Russian Federation in the GII 2023 is between ranks 48 and 55.

	GII Position	Innovation Inputs	Innovation Outputs
2020	47th	42nd	58th
2021	45th	43rd	52nd
2022	47th	46th	50th
2023	51st	58th	53rd

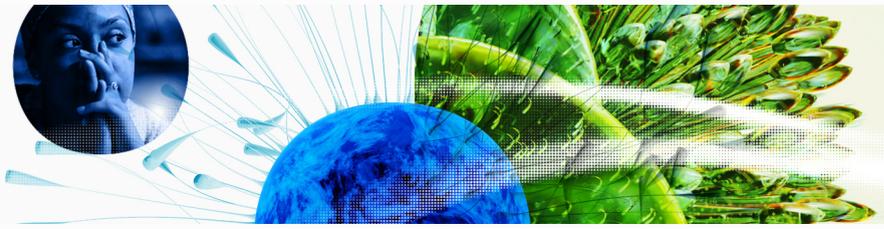
Russian Federation performs better in innovation outputs than innovation inputs in 2023.

This year Russian Federation ranks 58th in innovation inputs. This position is lower than last year.

Russian Federation ranks 53rd in innovation outputs. This position is lower than last year.



# Global Innovation Index 2023



## → Effectively translating innovation investments into innovation outputs

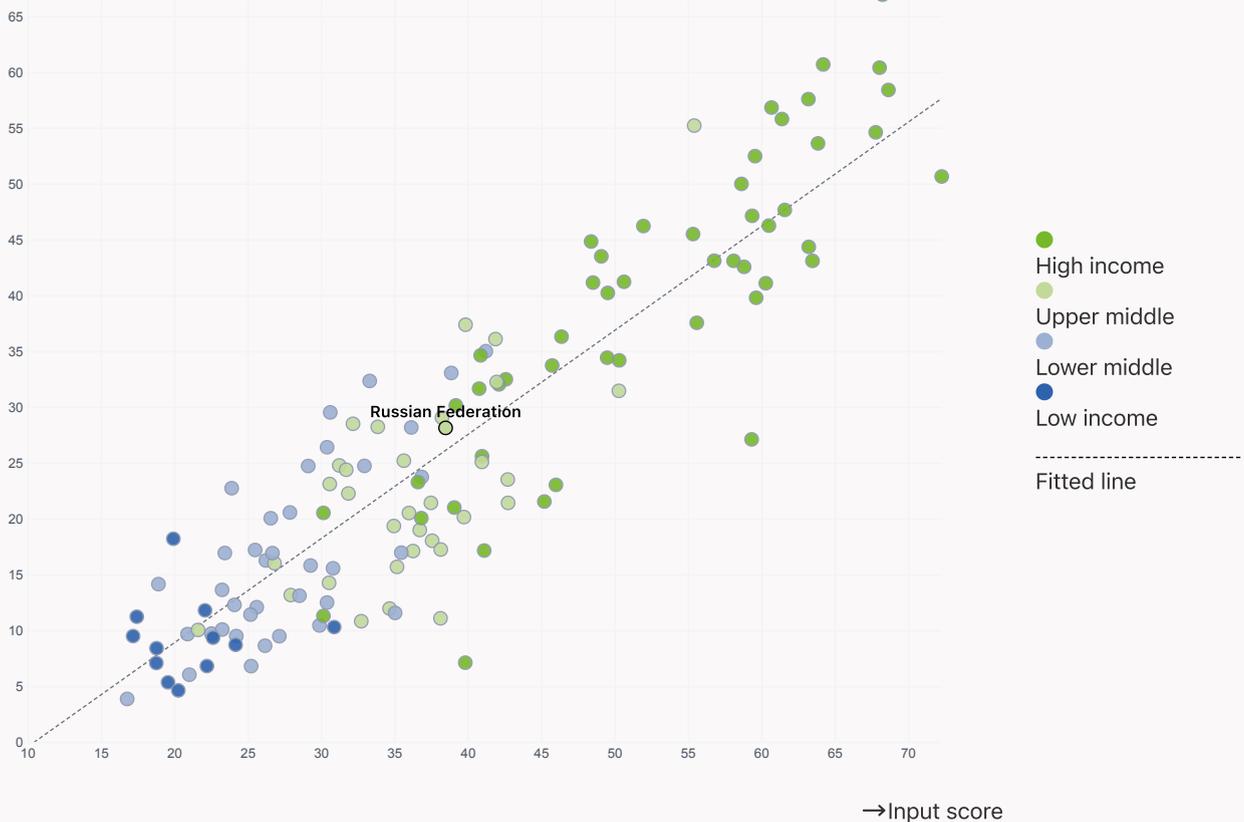
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.



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

## > Relationship between innovation inputs and outputs

↑ Output score



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



### > Highest rankings

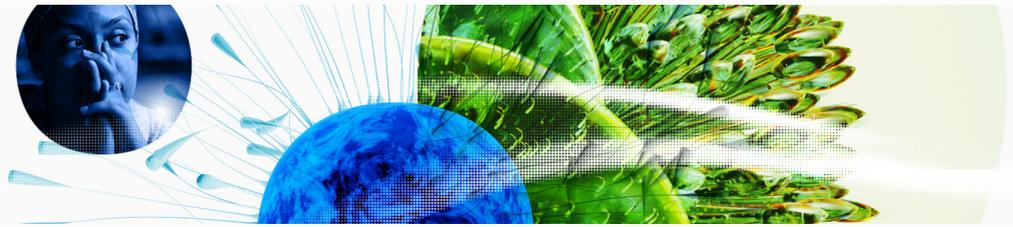
Russian Federation ranks highest in Human capital and research (26th) and Business sophistication (44th).

### > Lowest rankings

Russian Federation ranks lowest in Institutions (110th), Infrastructure (72nd) and Market sophistication (56th).

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

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

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

### > Upper-Middle-Income economies

Russian Federation performs above the upper-middle-income group average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research.

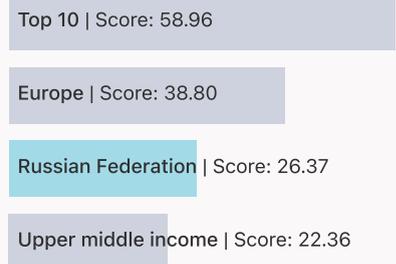


### > Europe

Russian Federation performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Infrastructure, Institutions.



### Knowledge and technology outputs



### Creative outputs



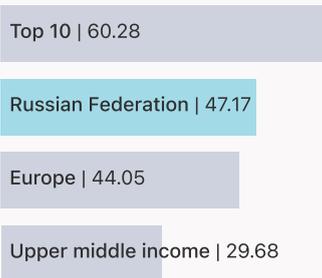
### Business sophistication



### Market sophistication



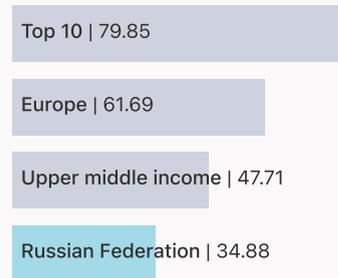
### Human capital and research



### Infrastructure



### Institutions





## → Innovation strengths and weaknesses in Russian Federation

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



> Russian Federation's main innovation strengths are **Domestic market scale, bn PPP\$ (rank 1)**, **Utility models by origin/bn PPP\$ GDP (rank 8)** and **Graduates in science and engineering, % (rank 13)**.

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	4.3.3	Domestic market scale, bn PPP\$	124	1.1.1	Operational stability for businesses
8	6.1.3	Utility models by origin/bn PPP\$ GDP	120	3.3.1	GDP/unit of energy use
13	2.2.2	Graduates in science and engineering, %	114	1.2.2	Rule of law
16	5.1.5	Females employed w/advanced degrees, %	110	3.3.3	ISO 14001 environment/bn PPP\$ GDP
16	2.2.1	Tertiary enrolment, % gross	109	6.3.5	ISO 9001 quality/bn PPP\$ GDP
18	5.3.1	Intellectual property payments, % total trade	100	4.2.3	VC recipients, deals/bn PPP\$ GDP
18	6.1.1	Patents by origin/bn PPP\$ GDP	94	5.1.2	Firms offering formal training, %
19	3.2.1	Electricity output, GWh/mn pop.	82	4.2.2	Venture capital (VC) investors, deals/bn PPP\$ GDP
21	2.3.4	QS university ranking, top 3	71	1.3.2	Entrepreneurship policies and culture
22	5.1.1	Knowledge-intensive employment, %	48	6.2.2	Unicorn valuation, % GDP

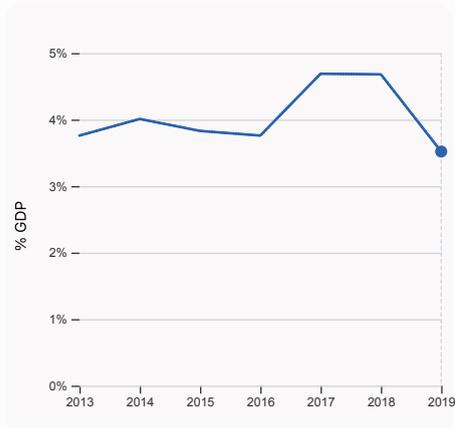
# Global Innovation Index 2023



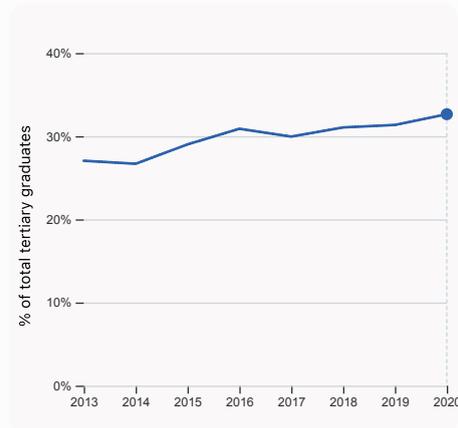
## → Russian Federation's innovation system

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

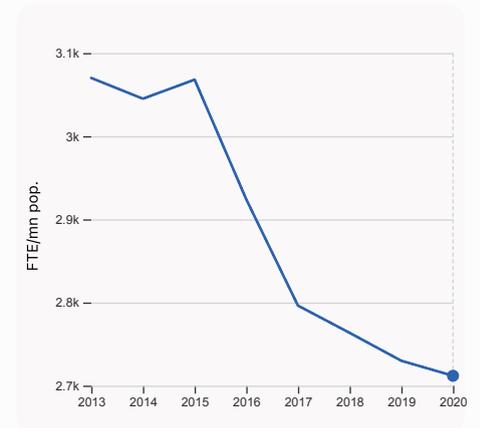
### > Innovation inputs in Russian Federation



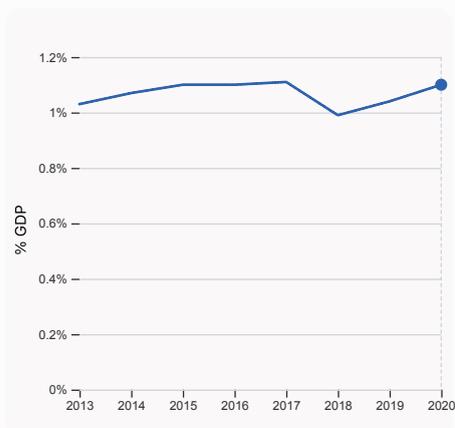
**2.1.1 Expenditure on education, % GDP**  
was equal to 3.52% GDP in 2019, down by 1.16 percentage points from the year prior – and equivalent to an indicator rank of 90.



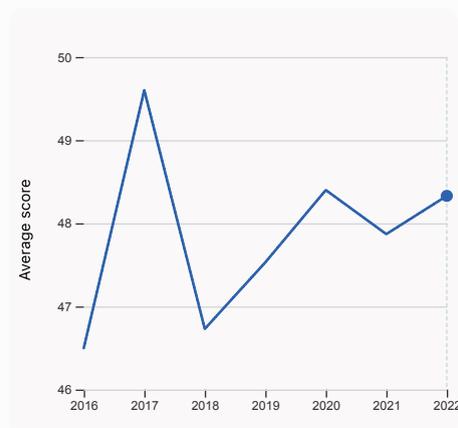
**2.2.2 Graduates in science and engineering, %**  
was equal to 32.65% of total tertiary graduates in 2020, up by 1.29 percentage points from the year prior – and equivalent to an indicator rank of 13.



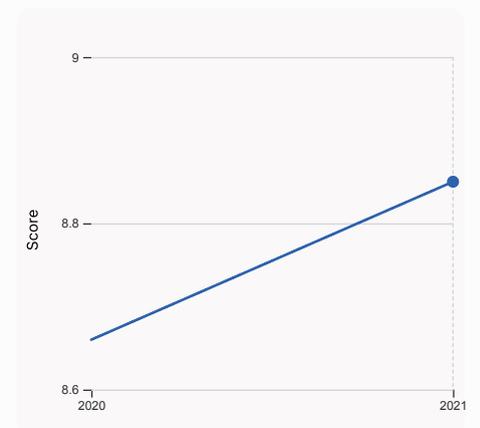
**2.3.1 Researchers, FTE/mn pop.**  
was equal to 2,711.92 FTE/mn pop. in 2020, down by 0.66% from the year prior – and equivalent to an indicator rank of 33.



**2.3.2 Gross expenditure on R&D, % GDP**  
was equal to 1.1% GDP in 2020, up by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 37.

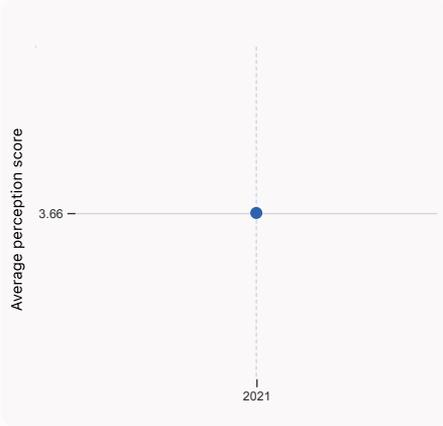


**2.3.4 QS university ranking, top 3**  
was equal to an average score of 48.33 for the top 3 universities in 2022, up by 0.96% from the year prior – and equivalent to an indicator rank of 21.

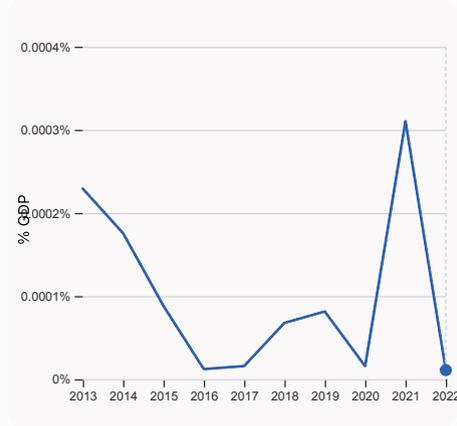


**3.1.1 ICT access**  
was equal to a score of 8.85 in 2021, up by 2.19% from the year prior – and equivalent to an indicator rank of 63.

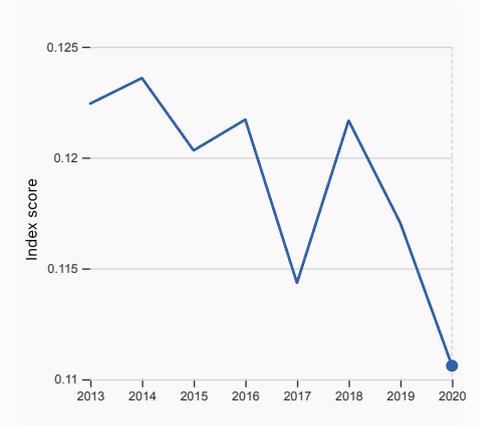
# Global Innovation Index 2023



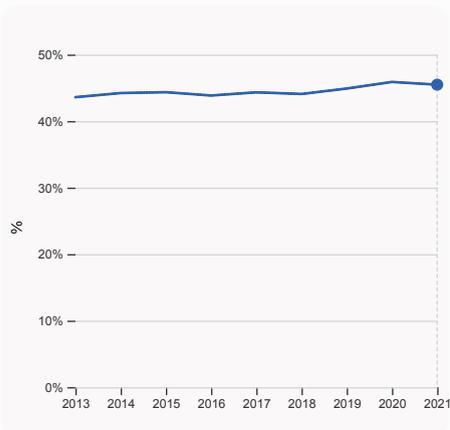
**4.1.1 Finance for startups and scaleups** was equal to an average perception score of 3.66 in 2021, equivalent to an indicator rank of 70.



**4.2.4 VC received, value, % GDP** was equal to 0.00001% GDP in 2022, down by 0.0003 percentage points from the year prior – and equivalent to an indicator rank of 80.

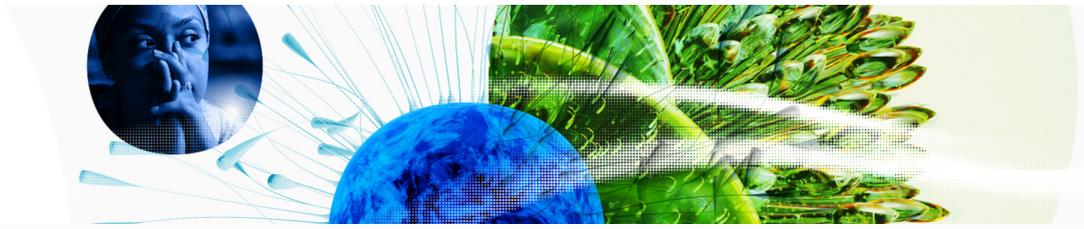


**4.3.2 Domestic industry diversification** was equal to an index score of 0.111 in 2020, down by 5.5% from the year prior – and equivalent to an indicator rank of 26.

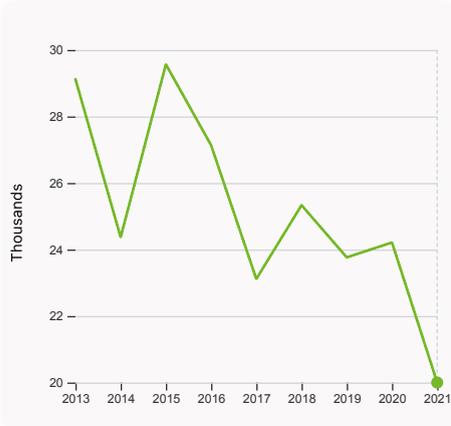


**5.1.1 Knowledge-intensive employment, %** was equal to 45.48% in 2021, down by 0.41 percentage points from the year prior – and equivalent to an indicator rank of 22.

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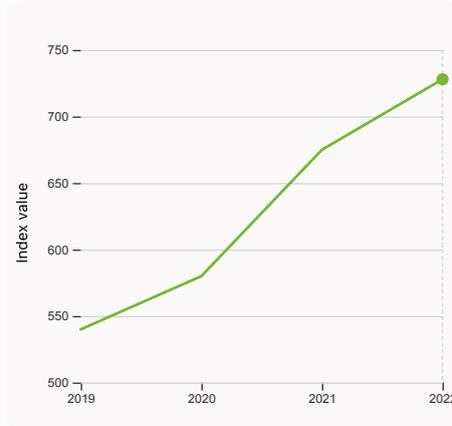


## > Innovation outputs in Russian Federation



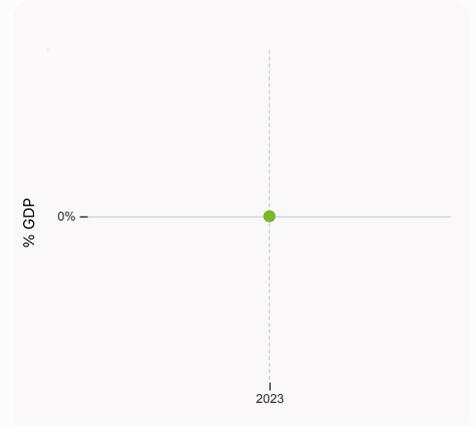
### 6.1.1 Patents by origin

was equal to 20.001 Thousands in 2021, down by 17.39% from the year prior – and equivalent to an indicator rank of 18.



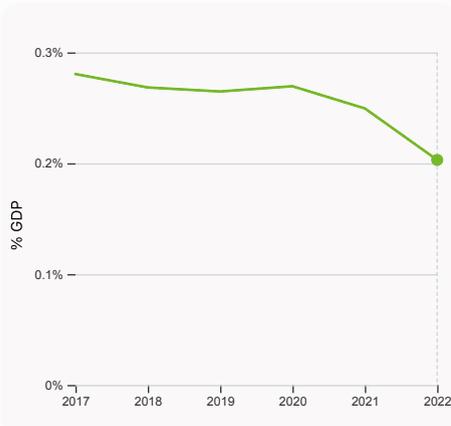
### 6.1.5 Citable documents H-index

was equal to an index value of 728 in 2022, up by 7.85% from the year prior – and equivalent to an indicator rank of 25.



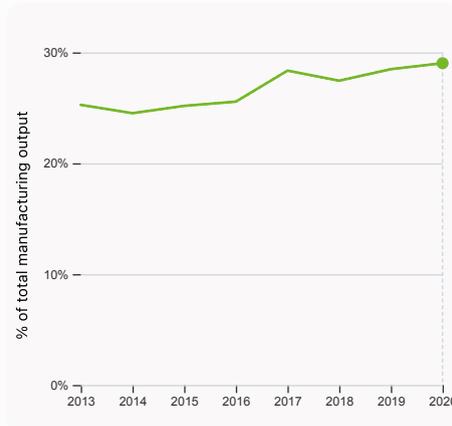
### 6.2.2 Unicorn valuation, % GDP

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



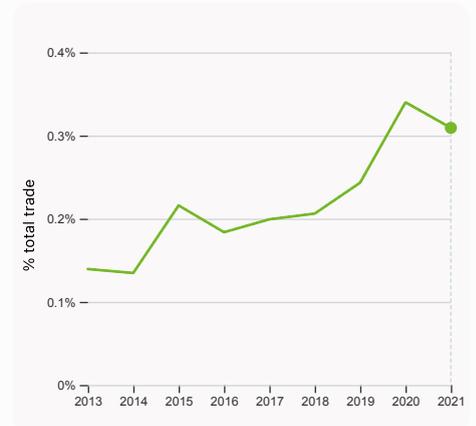
### 6.2.3 Software spending, % GDP

was equal to 0.203% GDP in 2022, down by 0.046 percentage points from the year prior – and equivalent to an indicator rank of 73.



### 6.2.4 High-tech manufacturing, %

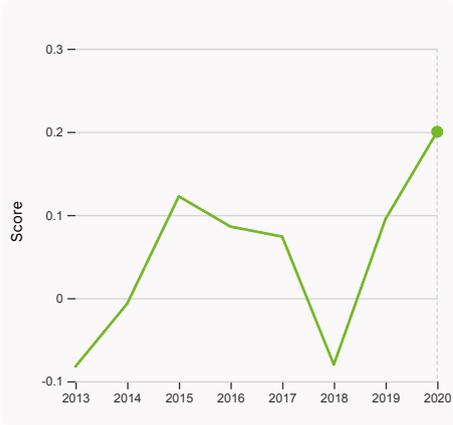
was equal to 29.03% of total manufacturing output in 2020, up by 0.54 percentage points from the year prior – and equivalent to an indicator rank of 43.



### 6.3.1 Intellectual property receipts, % total trade

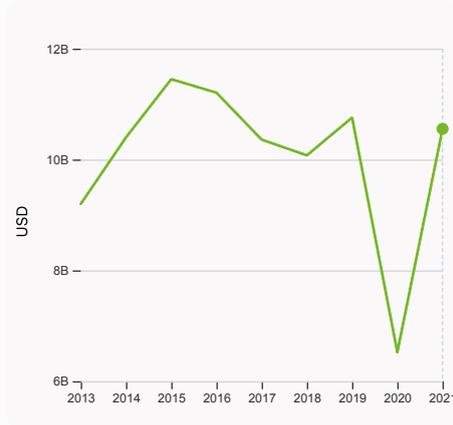
was equal to 0.309% total trade in 2021, down by 0.031 percentage points from the year prior – and equivalent to an indicator rank of 37.

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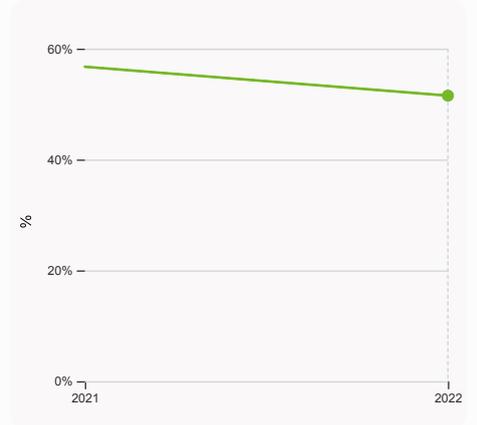
### 6.3.2 Production and export complexity

was equal to a score of 0.2 in 2020, up by 110.28% from the year prior – and equivalent to an indicator rank of 51.



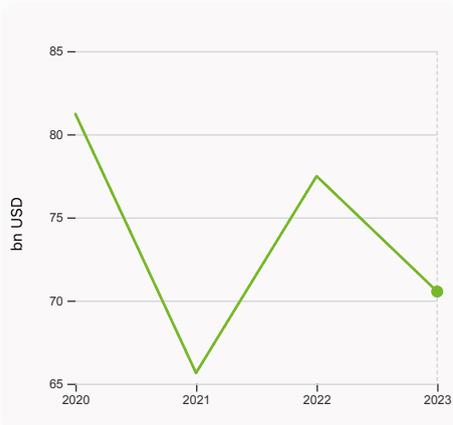
### 6.3.3 High-tech exports

was equal to 10,553,177,535 USD in 2021, up by 61.74% from the year prior – and equivalent to an indicator rank of 55.



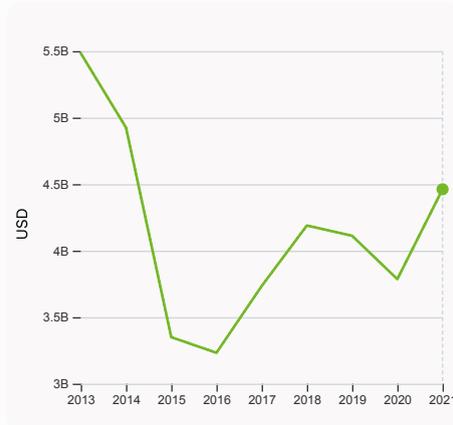
### 7.1.1 Intangible asset intensity, top 15, %

was equal to 51.53% in 2022, down by 5.21 percentage points from the year prior – and equivalent to an indicator rank of 47.



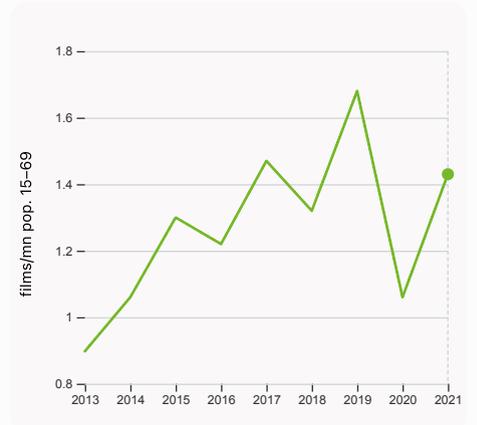
### 7.1.3 Global brand value, top 5,000

was equal to 70.543 bn USD in 2023, down by 8.96% from the year prior – and equivalent to an indicator rank of 42.



### 7.2.1 Cultural and creative services exports

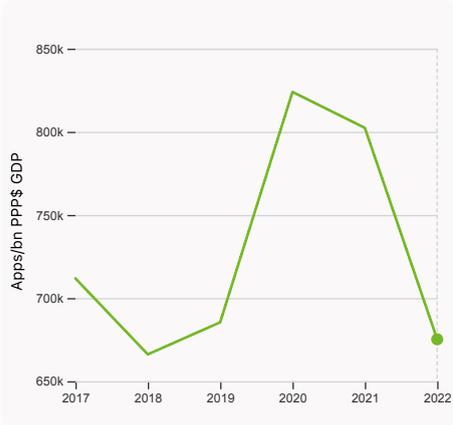
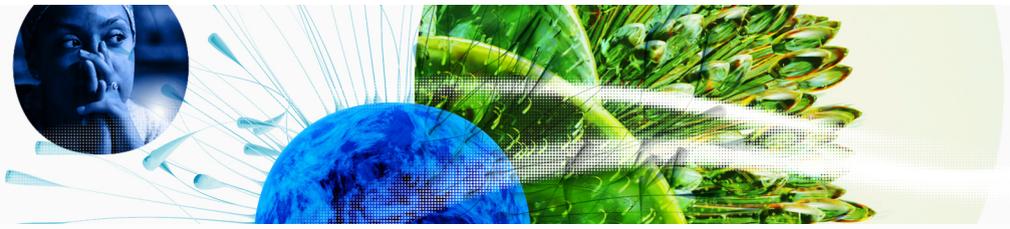
was equal to 4,461,793,000 USD in 2021, up by 17.84% from the year prior – and equivalent to an indicator rank of 30.



### 7.2.2 National feature films/mn pop. 15-69

was equal to 1.43 films/mn pop. 15-69 in 2021, up by 34.91% from the year prior – and equivalent to an indicator rank of 53.

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

was equal to 675,225.24 Apps/bn PPP\$ GDP in 2022, down by 15.85% from the year prior – and equivalent to an indicator rank of 30.



## → Russian Federation's innovation top performers

### > 2.3.4 QS university ranking of Russian Federation's top universities

Rank	University	Score
75	LOMONOSOV MOSCOW STATE UNIVERSITY	66.80
230	BAUMAN MOSCOW STATE TECHNICAL UNIVERSITY	40.30
260	NOVOSIBIRSK STATE UNIVERSITY	37.90

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".

### > 7.1.1 Top 15 intangible-asset intensive companies in Russian Federation

Rank	Firm	Intensity, %
1	MMC NORILSK NICKEL PJSC	66.65
2	NOVATEK PJSC	52.17
3	PHOSAGRO PJSC	70.47

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

Note: Brand Finance only provides within economy ranks.

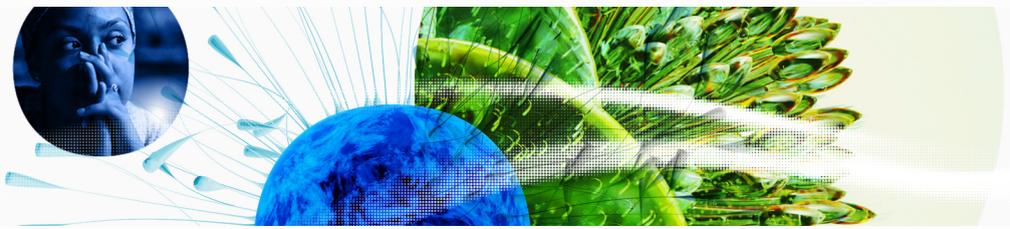
### > 7.1.3 Top 5,000 companies in Russian Federation with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	SBER	Banking	11,950.1
2	GAZPROM	Oil & Gas	5,537.8
3	LUKOIL	Oil & Gas	5,149.4

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

Note: Rank corresponds to within economy ranks.

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GII 2023 rank

51

## Russian Federation

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
53	58	Upper middle	EUR	144.7	4,649.7	31,967.0
Score / Value Rank				Score / Value Rank		
<b>Institutions</b> 34.9 110 ○ ◇				<b>Business sophistication</b> 34.7 44		
<b>1.1 Institutional environment</b> 25.3 111 ○ ◇				<b>5.1 Knowledge workers</b> 41.8 44		
1.1.1 Operational stability for businesses* 18.8 124 ○ ◇				5.1.1 Knowledge-intensive employment, % ● 45.5 22 ● ◆		
1.1.2 Government effectiveness* 31.9 83				5.1.2 Firms offering formal training, % 11.8 94 ○ ◇		
<b>1.2 Regulatory environment</b> 51.4 95				5.1.3 GERD performed by business, % GDP ● 0.6 35		
1.2.1 Regulatory quality* 28.4 101 ◇				5.1.4 GERD financed by business, % 29.2 60		
1.2.2 Rule of law* 14.2 114 ○ ◇				5.1.5 Females employed w/advanced degrees, % ● 26.1 16 ● ◆		
1.2.3 Cost of redundancy dismissal 17.3 73				<b>5.2 Innovation linkages</b> 19.7 76		
<b>1.3 Business environment</b> 27.9 105				5.2.1 University-industry R&D collaboration+ ● 45.7 60		
1.3.1 Policies for doing business+ ● 39.1 87				5.2.2 State of cluster development+ ● 43.1 60		
1.3.2 Entrepreneurship policies and culture+ ● 16.8 71 ○ ◇				5.2.3 GERD financed by abroad, % GDP 0.0 63		
<b>Human capital and research</b> 47.2 26 ◆				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.0 94		
<b>2.1 Education</b> 57.0 50				5.2.5 Patent families/bn PPP\$ GDP 0.2 45		
2.1.1 Expenditure on education, % GDP ● 3.5 90				<b>5.3 Knowledge absorption</b> 42.7 36		
2.1.2 Government funding/pupil, secondary, % GDP/cap n/a n/a				5.3.1 Intellectual property payments, % total trade 1.7 18 ● ◆		
2.1.3 School life expectancy, years ● 15.8 43				5.3.2 High-tech imports, % total trade 8.6 56		
2.1.4 PISA scales in reading, maths and science 481.3 31 ◆				5.3.3 ICT services imports, % total trade 1.4 61		
2.1.5 Pupil-teacher ratio, secondary ● 13.7 68				5.3.4 FDI net inflows, % GDP 1.6 84		
<b>2.2 Tertiary education</b> 45.9 20 ● ◆				5.3.5 Research talent, % in businesses ● 46.5 30 ◆		
2.2.1 Tertiary enrolment, % gross ● 86.4 16 ● ◆				<b>Knowledge and technology outputs</b> 26.4 54		
2.2.2 Graduates in science and engineering, % 32.6 13 ● ◆				<b>6.1 Knowledge creation</b> 29.5 32 ◆		
2.2.3 Tertiary inbound mobility, % ● 5.0 49				6.1.1 Patents by origin/bn PPP\$ GDP 4.5 18 ● ◆		
<b>2.3 Research and development (R&amp;D)</b> 38.7 27 ◆				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.2 48		
2.3.1 Researchers, FTE/mn pop. ● 2,711.9 33 ◆				6.1.3 Utility models by origin/bn PPP\$ GDP 2.0 8 ● ◆		
2.3.2 Gross expenditure on R&D, % GDP ● 1.1 37 ◆				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\$ 58.0 26 ◆				6.1.5 Citable documents H-index 38.1 25 ◆		
2.3.4 QS university ranking, top 3* 49.0 21 ● ◆				<b>6.2 Knowledge impact</b> 27.7 60		
<b>Infrastructure</b> 38.0 72				6.2.1 Labor productivity growth, % 1.3 56		
<b>3.1 Information and communication technologies (ICTs)</b> 74.8 49				6.2.2 Unicorn valuation, % GDP 0.0 48 ○ ◇		
3.1.1 ICT access* 82.8 63				6.2.3 Software spending, % GDP 0.2 73		
3.1.2 ICT use* 86.3 32 ◆				6.2.4 High-tech manufacturing, % 29.0 43		
3.1.3 Government's online service* 70.9 61				<b>6.3 Knowledge diffusion</b> 22.0 65		
3.1.4 E-participation* 59.3 57				6.3.1 Intellectual property receipts, % total trade 0.3 37 ◆		
<b>3.2 General infrastructure</b> 25.8 69				6.3.2 Production and export complexity 56.7 51		
3.2.1 Electricity output, GWh/mn pop. 8,060.6 19 ● ◆				6.3.3 High-tech exports, % total trade 2.3 55		
3.2.2 Logistics performance* 22.7 82				6.3.4 ICT services exports, % total trade 1.6 69		
3.2.3 Gross capital formation, % GDP 20.1 97				6.3.5 ISO 9001 quality/bn PPP\$ GDP 1.0 109 ○		
<b>3.3 Ecological sustainability</b> 13.4 111 ○ ◇				<b>Creative outputs</b> 29.9 53		
3.3.1 GDP/unit of energy use 4.7 120 ○ ◇				<b>7.1 Intangible assets</b> 41.0 40		
3.3.2 Environmental performance* 31.5 84				7.1.1 Intangible asset intensity, top 15, % 51.5 47		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 0.2 110 ○				7.1.2 Trademarks by origin/bn PPP\$ GDP 72.9 23		
<b>Market sophistication</b> 37.7 56				7.1.3 Global brand value, top 5,000 3.3 42		
<b>4.1 Credit</b> 18.6 97				7.1.4 Industrial designs by origin/bn PPP\$ GDP 1.4 56		
4.1.1 Finance for startups and scaleups+ ● 30.6 70				<b>7.2 Creative goods and services</b> 10.9 64		
4.1.2 Domestic credit to private sector, % GDP 59.7 61				7.2.1 Cultural and creative services exports, % total trade 1.0 30		
4.1.3 Loans from microfinance institutions, % GDP ● 0.3 45				7.2.2 National feature films/mn pop. 15-69 1.4 53		
<b>4.2 Investment</b> 4.7 80				7.2.3 Entertainment and media market/th pop. 15-69 n/a n/a		
4.2.1 Market capitalization, % GDP 42.7 40				7.2.4 Creative goods exports, % total trade 0.4 67		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.0 82 ○				<b>7.3 Online creativity</b> 26.4 48		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.0 100 ○ ◇				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 3.8 62		
4.2.4 VC received, value, % GDP 0.0 80				7.3.2 Country-code TLDs/th pop. 15-69 13.9 35		
<b>4.3 Trade, diversification, and market scale</b> 89.8 7 ● ◆				7.3.3 GitHub commits/mn pop. 15-69 13.7 50		
4.3.1 Applied tariff rate, weighted avg., % 4.1 85				7.3.4 Mobile app creation/bn PPP\$ GDP 74.4 30		
4.3.2 Domestic industry diversification 95.7 26						
4.3.3 Domestic market scale, bn PPP\$ 4,649.7 1 ● ◆						

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 Russian Federation.



> Russian Federation has missing data for two indicators and outdated data for seventeen indicators.

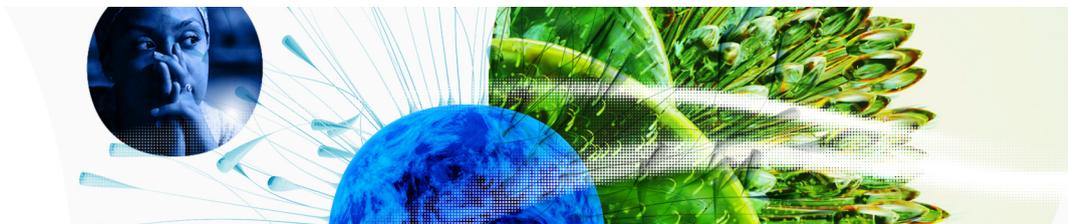
### > Missing data for Russian Federation

Code	Indicator name	Economy Year	Model Year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2019	UNESCO Institute for Statistics
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 Russian Federation

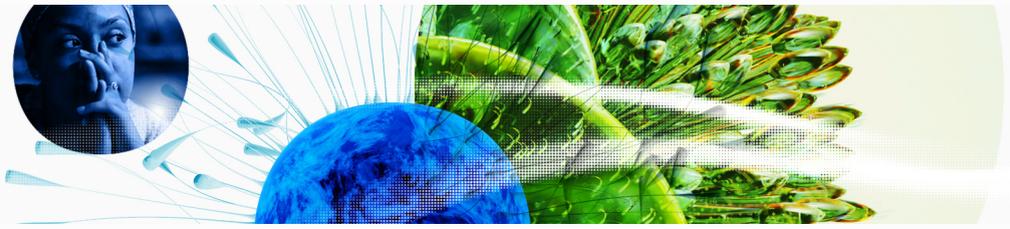
Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
1.3.2	Entrepreneurship policies and culture	2021	2022	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2019	2020	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	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.	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	2021	2022	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	2020	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization

# Global Innovation Index 2023



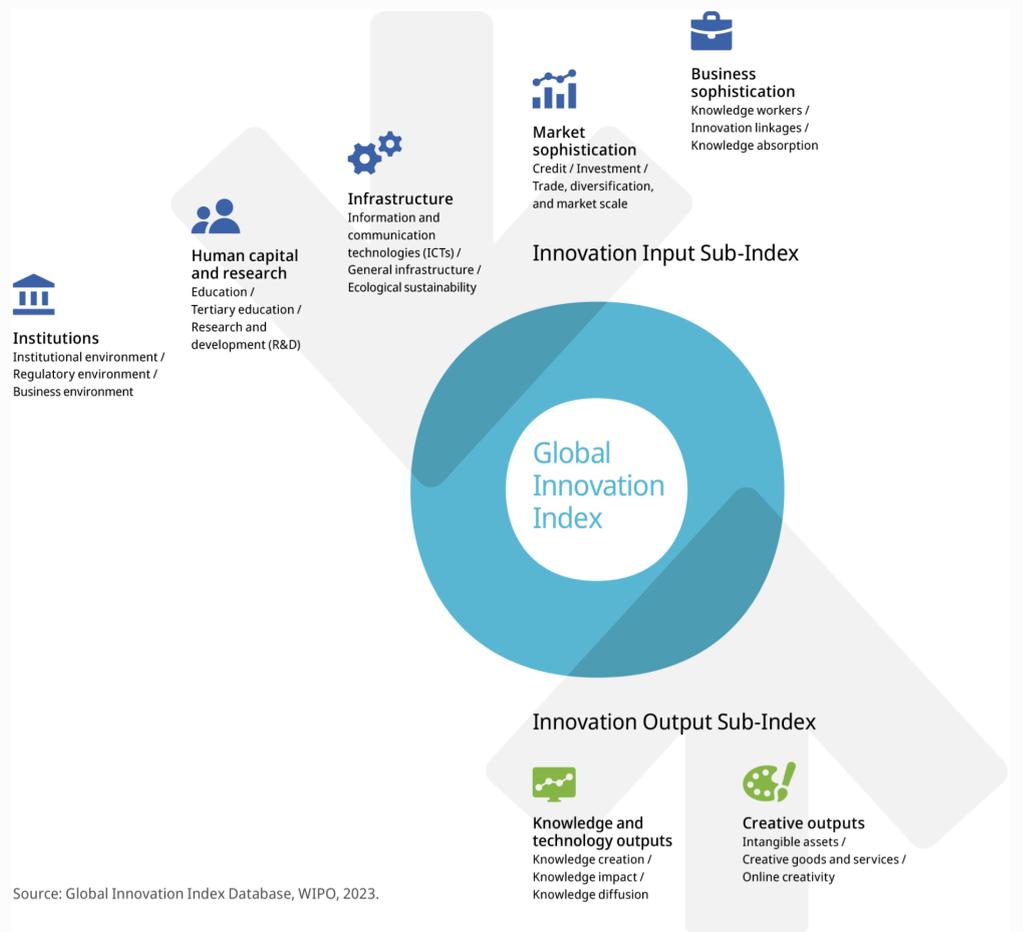
Code	Indicator name	Economy Year	Model Year	Source
5.1.3	GERD performed by business, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour Organization
5.2.1	University-industry R&D collaboration	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.3.5	Research talent, % in businesses	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

# Global Innovation Index 2023



## → About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a “tool for action” for economies that incorporate the GII into their innovation agendas.



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.