

# Global Innovation Index 2023

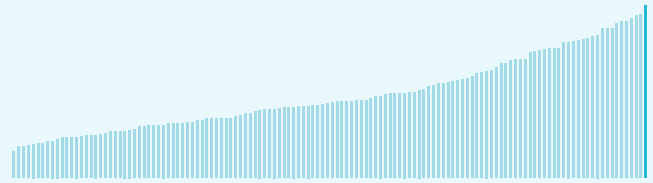


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

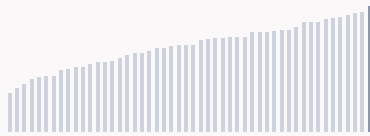
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

## Switzerland ranking in the Global Innovation Index 2023

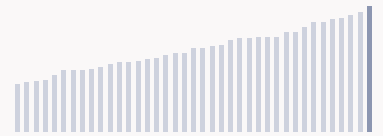
> Switzerland ranks **1st** among the 132 economies featured in the GII 2023.



> Switzerland ranks **1st** among the 50 high-income group economies.



> Switzerland ranks **1st** among the 39 economies in Europe.



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

The table shows the rankings of Switzerland 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 Switzerland in the GII 2023 is between ranks 1 and 1.

	GII Position	Innovation Inputs	Innovation Outputs
2020	1st	2nd	1st
2021	1st	4th	1st
2022	1st	3rd	1st
2023	1st	3rd	1st

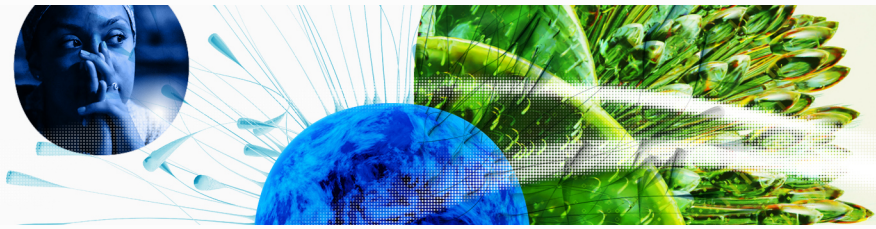
Switzerland performs better in innovation outputs than innovation inputs in 2023.

This year Switzerland ranks 3rd in innovation inputs. This position is the same as last year.

Switzerland ranks 1st in innovation outputs. This position is the same as last year.



# Global Innovation Index 2023



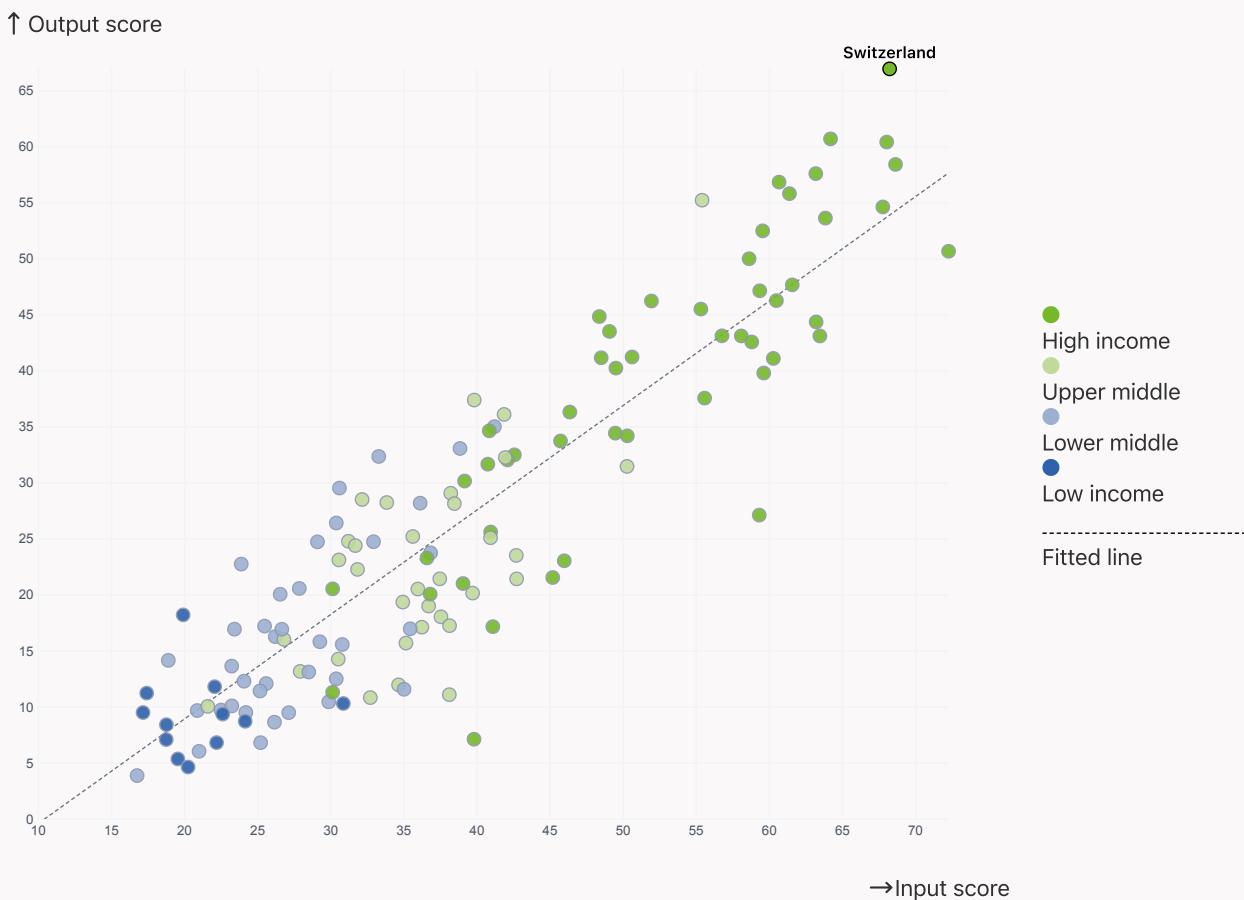
## → Effectively translating innovation investments into innovation outputs

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.

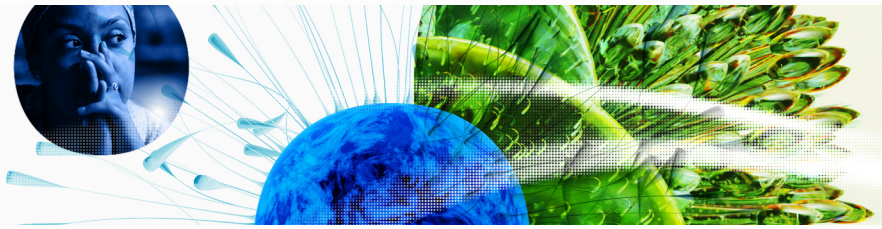


> Switzerland produces more innovation outputs relative to its level of innovation investments.

### > Relationship between innovation inputs and outputs

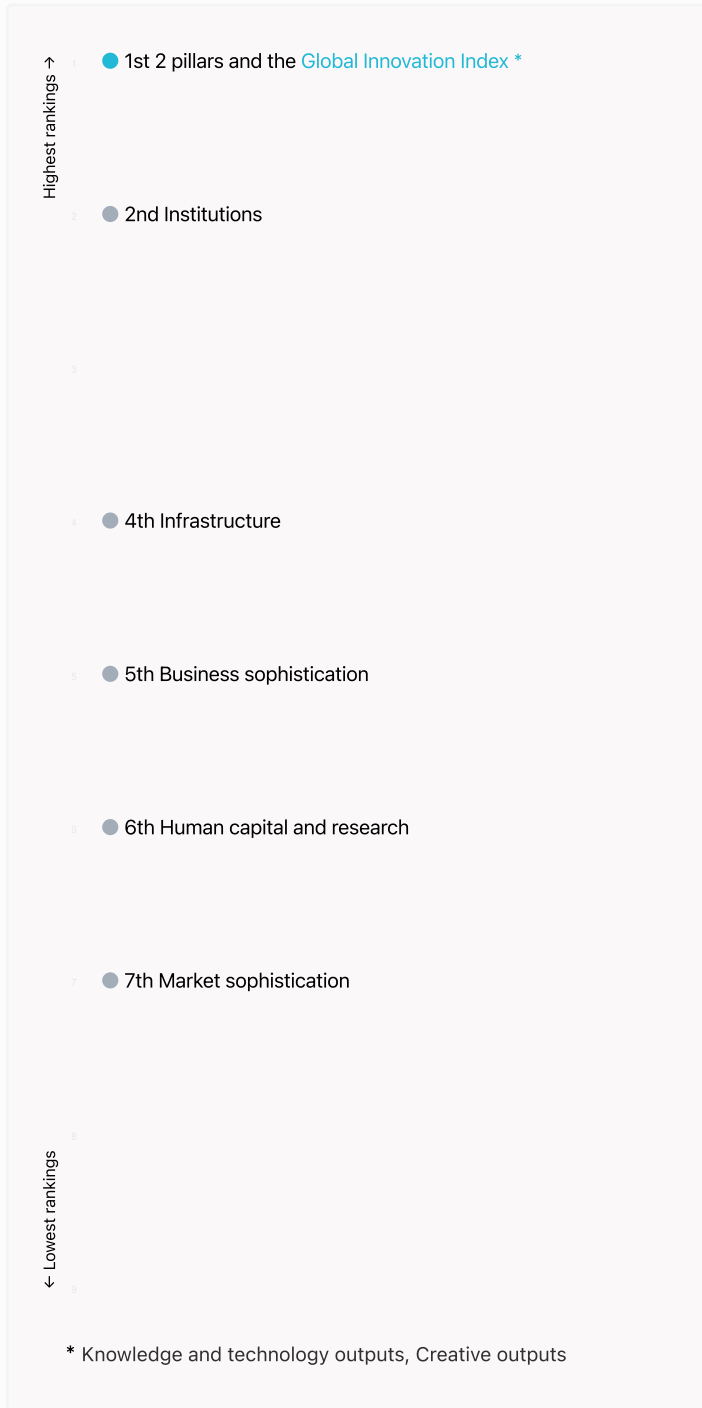


# Global Innovation Index 2023



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



### > Highest rankings



Switzerland ranks highest in Knowledge and technology outputs, Creative outputs (1st).

### > Lowest rankings



Switzerland ranks lowest in Market sophistication (7th), Human capital and research (6th) and Business sophistication (5th).



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

# Global Innovation Index 2023



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

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

### > High-Income economies

Switzerland performs above the high-income group average in all the pillars.



### > Europe

Switzerland performs above the regional average in all the pillars.



### Knowledge and technology outputs

Switzerland | Score: 65.30

Top 10 | Score: 58.96

Europe | Score: 38.80

High income | Score: 38.62

### Creative outputs

Switzerland | 68.52

Top 10 | 56.09

High income | 40.27

Europe | 39.87

### Business sophistication

Switzerland | 65.50

Top 10 | 64.39

High income | 46.38

Europe | 44.61

### Market sophistication

Switzerland | 64.42

Top 10 | 61.93

High income | 46.42

Europe | 43.65

### Human capital and research

Top 10 | 60.28

Switzerland | 59.76

High income | 46.30

Europe | 44.05

### Infrastructure

Switzerland | 64.33

Top 10 | 62.83

High income | 55.85

Europe | 54.69

### Institutions

Switzerland | 87.33

Top 10 | 79.85

High income | 68.16

Europe | 61.69

# Global Innovation Index 2023



## → Innovation strengths and weaknesses in Switzerland

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



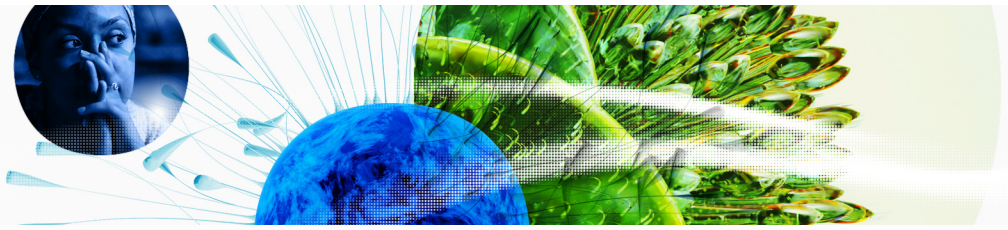
> Switzerland's main innovation strengths are **Country-code TLDs/th pop. 15-69 (rank 1)**, **GitHub commits/mn pop. 15-69 (rank 1)** and **ICT use (rank 1)**.

### Strengths

### Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	7.3.2	Country-code TLDs/th pop. 15-69	131	5.3.4	FDI net inflows, % GDP
1	7.3.3	GitHub commits/mn pop. 15-69	112	5.3.2	High-tech imports, % total trade
1	3.1.2	ICT use	68	6.2.1	Labor productivity growth, %
1	5.3.1	Intellectual property payments, % total trade	66	4.3.2	Domestic industry diversification
1	6.3.1	Intellectual property receipts, % total trade	49	3.1.3	Government's online service
1	5.2.5	Patent families/bn PPP\$ GDP	49	6.3.4	ICT services exports, % total trade
1	6.1.2	PCT patents by origin/bn PPP\$ GDP	47	2.2.1	Tertiary enrolment, % gross
1	1.3.1	Policies for doing business	44	7.2.1	Cultural and creative services exports, % total trade
2	7.1.3	Global brand value, top 5,000	44	2.2.2	Graduates in science and engineering, %
2	6.3.2	Production and export complexity	34	2.1.2	Government funding/pupil, secondary, % GDP/cap
2	7.2.3	Entertainment and media market/th pop. 15-69			
2	1.1.2	Government effectiveness			
2	6.2.4	High-tech manufacturing, %			
3	3.2.2	Logistics performance			
3	4.2.1	Market capitalization, % GDP			
3	6.1.4	Scientific and technical articles/bn PPP\$ GDP			
3	5.2.2	State of cluster development			
3	5.2.1	University-industry R&D collaboration			

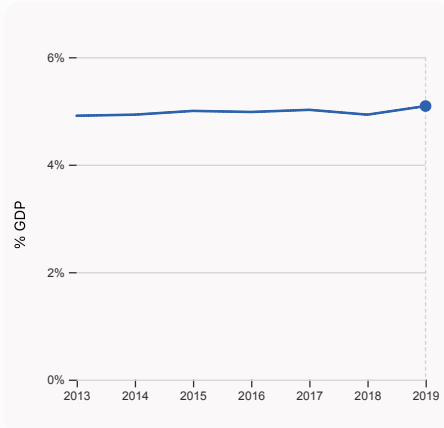
# Global Innovation Index 2023



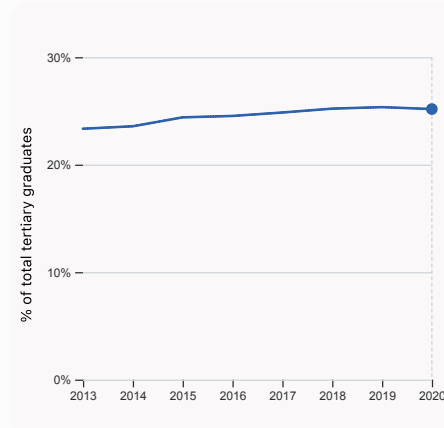
## → Switzerland's innovation system

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

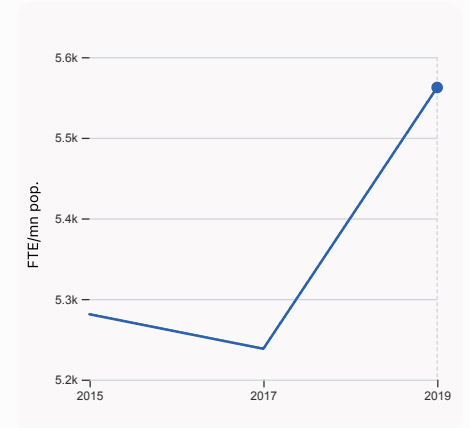
### > Innovation inputs in Switzerland



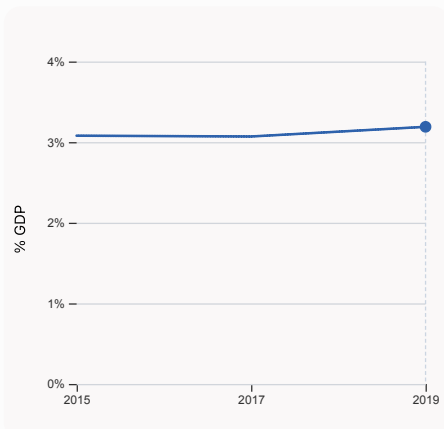
**2.1.1 Expenditure on education, % GDP**  
was equal to 5.09% GDP in 2019, up by 0.16 percentage points from the year prior – and equivalent to an indicator rank of 38.



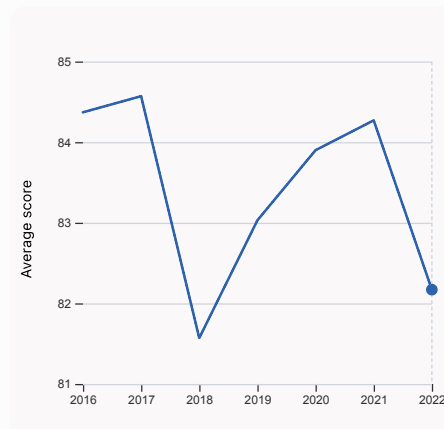
**2.2.2 Graduates in science and engineering, %**  
was equal to 25.17% of total tertiary graduates in 2020, down by 0.18 percentage points from the year prior – and equivalent to an indicator rank of 44.



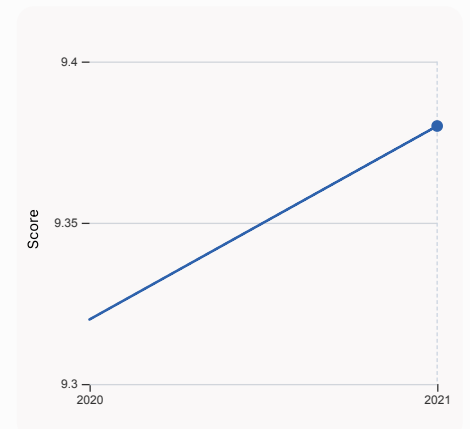
**2.3.1 Researchers, FTE/mn pop.**  
was equal to 5,562.38 FTE/mn pop. in 2019, up by 6.19% from the year prior – and equivalent to an indicator rank of 13.



**2.3.2 Gross expenditure on R&D, % GDP**  
was equal to 3.19% GDP in 2019, up by 0.12 percentage points from the year prior – and equivalent to an indicator rank of 7.

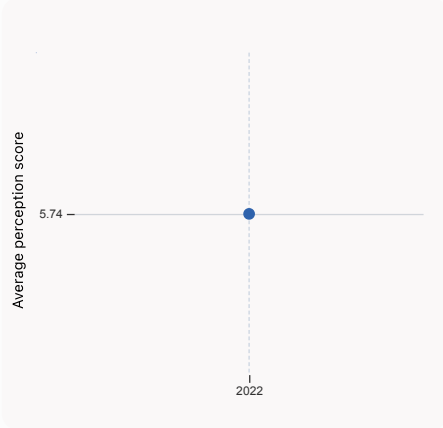
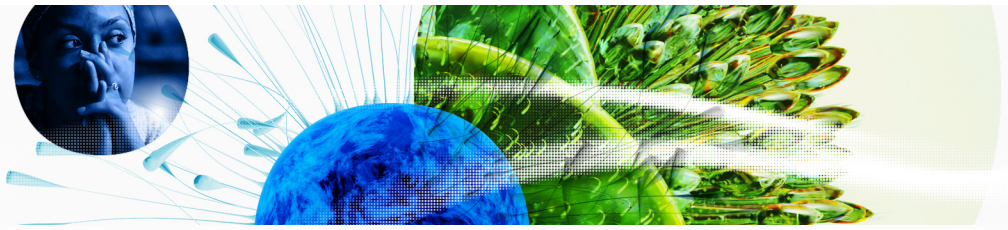


**2.3.4 QS university ranking, top 3**  
was equal to an average score of 82.17 for the top 3 universities in 2022, down by 2.49% from the year prior – and equivalent to an indicator rank of 5.

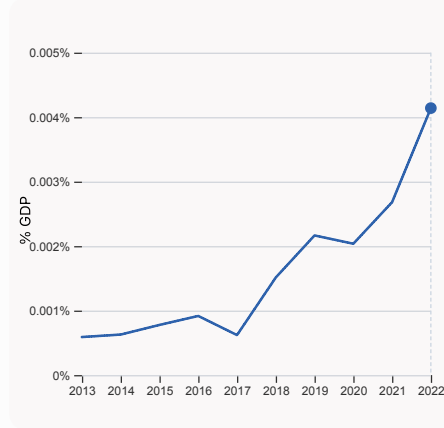


**3.1.1 ICT access**  
was equal to a score of 9.38 in 2021, up by 0.64% from the year prior – and equivalent to an indicator rank of 21.

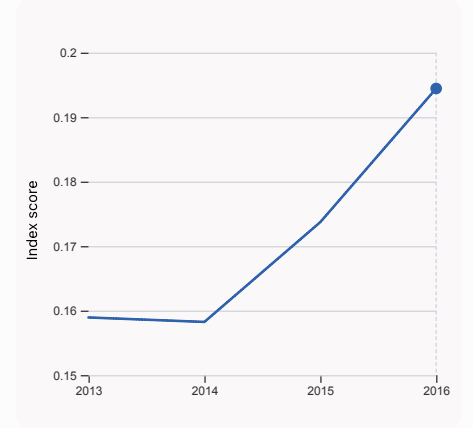
# Global Innovation Index 2023



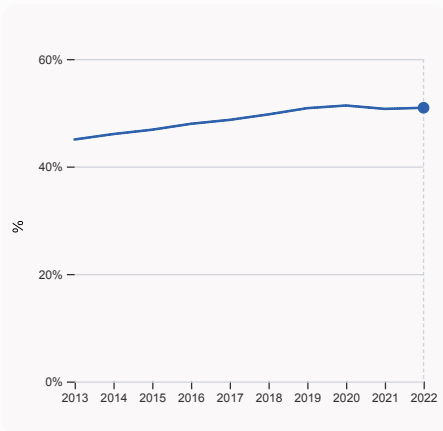
**4.1.1 Finance for startups and scaleups** was equal to an average perception score of 5.74 in 2022, equivalent to an indicator rank of 12.



**4.2.4 VC received, value, % GDP** was equal to 0.00414% GDP in 2022, up by 0.0015 percentage points from the year prior – and equivalent to an indicator rank of 24.



**4.3.2 Domestic industry diversification** was equal to an index score of 0.194 in 2016, up by 11.93% from the year prior – and equivalent to an indicator rank of 66.

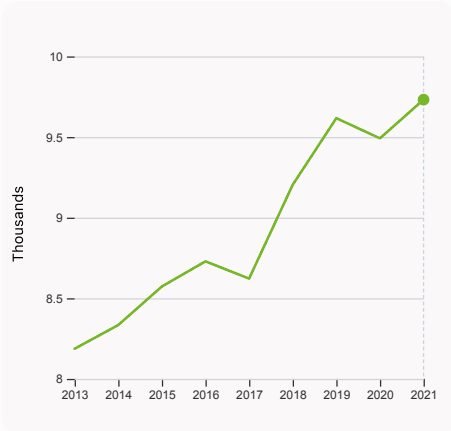


**5.1.1 Knowledge-intensive employment, %** was equal to 50.93% in 2022, up by 0.21 percentage points from the year prior – and equivalent to an indicator rank of 10.

# Global Innovation Index 2023

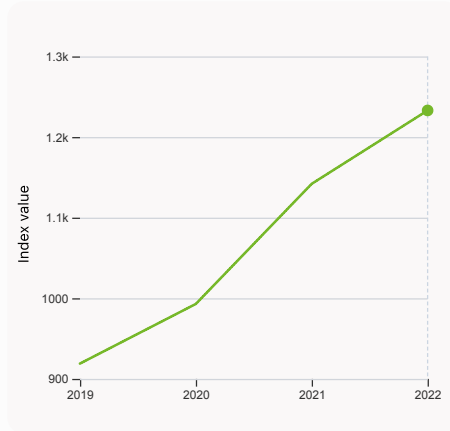


## > Innovation outputs in Switzerland



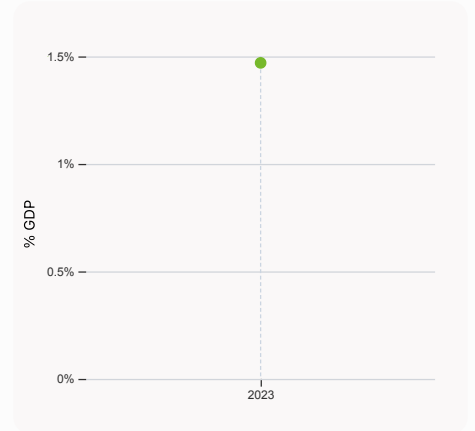
### 6.1.1 Patents by origin

was equal to 9.73 Thousands in 2021, up by 2.53% from the year prior – and equivalent to an indicator rank of 4.



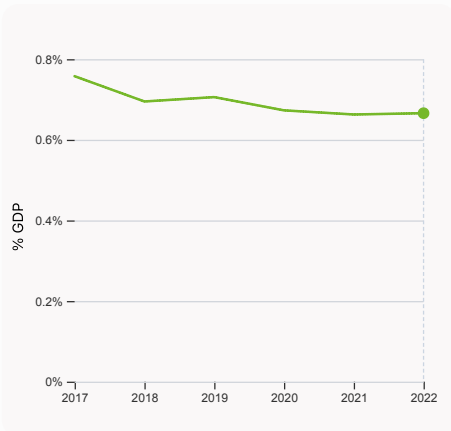
### 6.1.5 Citable documents H-index

was equal to an index value of 1,233 in 2022, up by 7.97% from the year prior – and equivalent to an indicator rank of 10.



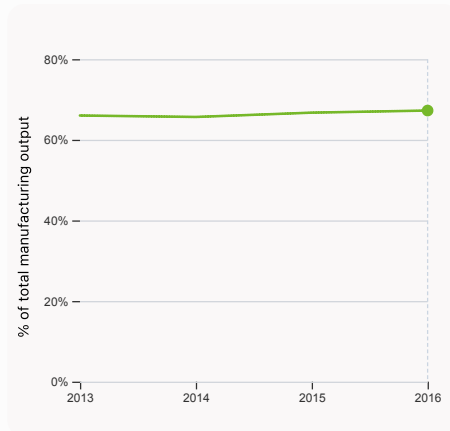
### 6.2.2 Unicorn valuation, % GDP

was equal to 1.47 % GDP in 2023 – and equivalent to an indicator rank of 28.



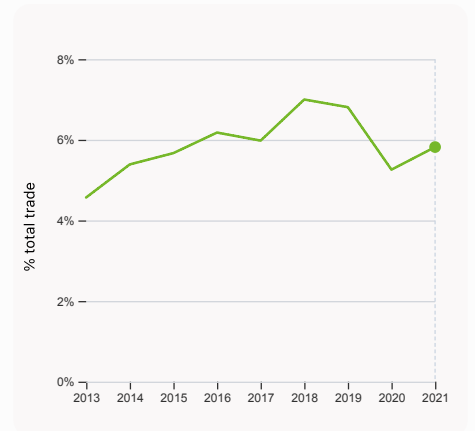
### 6.2.3 Software spending, % GDP

was equal to 0.666% GDP in 2022, up by 0.0032 percentage points from the year prior – and equivalent to an indicator rank of 9.



### 6.2.4 High-tech manufacturing, %

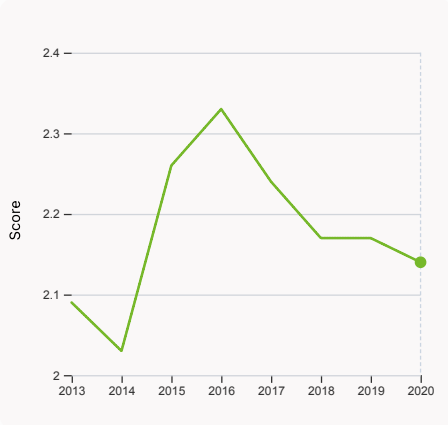
was equal to 67.26% of total manufacturing output in 2016, up by 0.52 percentage points from the year prior – and equivalent to an indicator rank of 2.



### 6.3.1 Intellectual property receipts, % total trade

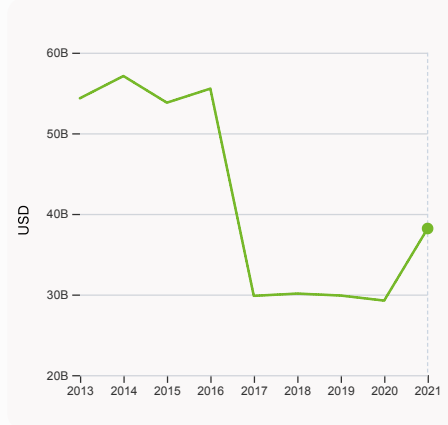
was equal to 5.82% total trade in 2021, up by 0.56 percentage points from the year prior – and equivalent to an indicator rank of 1.

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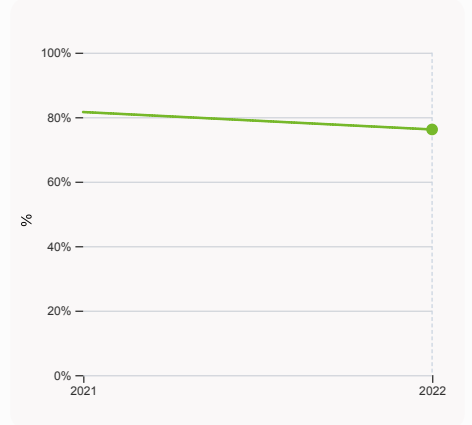
## 6.3.2 Production and export complexity

was equal to a score of 2.14 in 2020, down by 1.38% from the year prior – and equivalent to an indicator rank of 2.



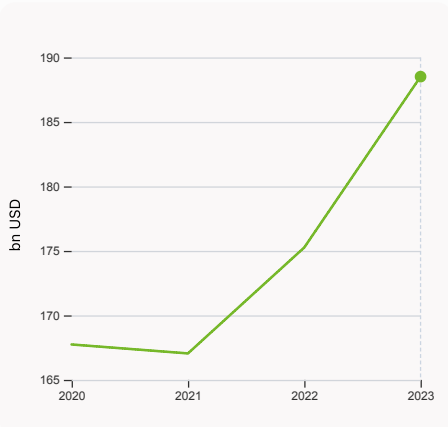
## 6.3.3 High-tech exports

was equal to 38,184,113,082 USD in 2021, up by 30.57% from the year prior – and equivalent to an indicator rank of 26.



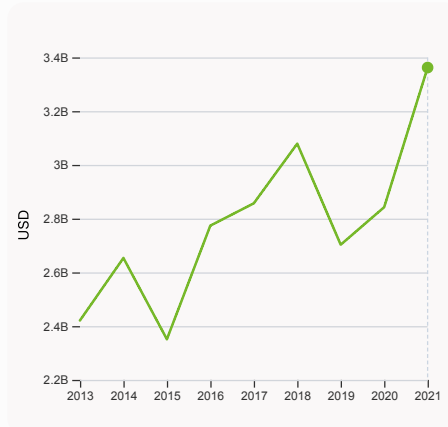
## 7.1.1 Intangible asset intensity, top 15, %

was equal to 76.18% in 2022, down by 5.4 percentage points from the year prior – and equivalent to an indicator rank of 10.



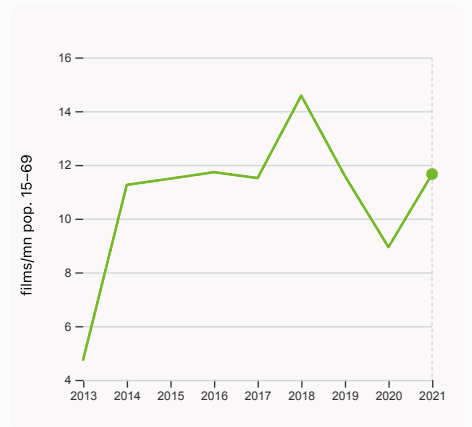
## 7.1.3 Global brand value, top 5,000

was equal to 188.51 bn USD in 2023, up by 7.56% from the year prior – and equivalent to an indicator rank of 2.



## 7.2.1 Cultural and creative services exports

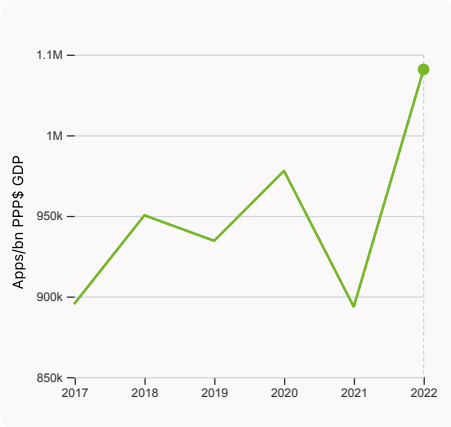
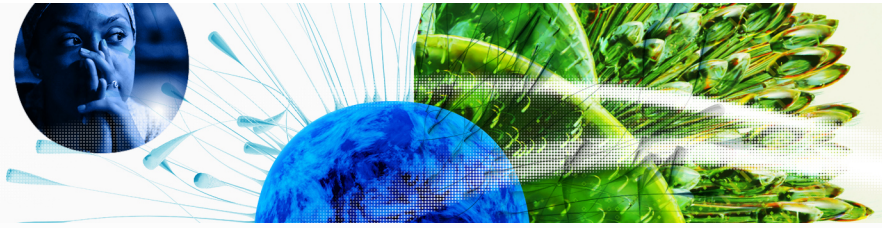
was equal to 3,362,247,000 USD in 2021, up by 18.28% from the year prior – and equivalent to an indicator rank of 44.



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

was equal to 11.66 films/mn pop. 15-69 in 2021, up by 30.43% from the year prior – and equivalent to an indicator rank of 4.

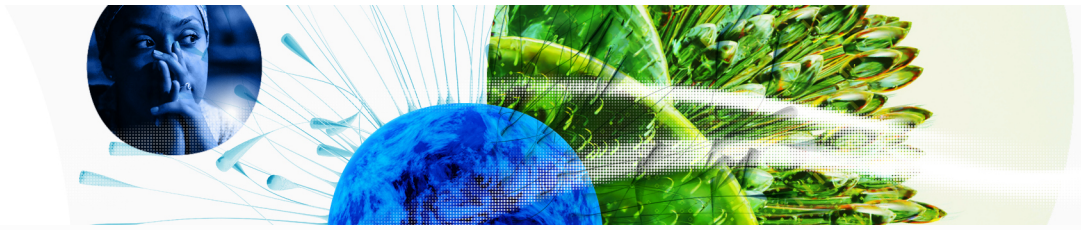
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## 7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 1,040,825.42 Apps/bn PPP\$ GDP in 2022, up by 16.47% from the year prior – and equivalent to an indicator rank of 20.

# Global Innovation Index 2023



## → Switzerland's innovation top performers

### > 2.3.3 Global corporate R&D investors from Switzerland

Rank	Firm	Industry	R&D [mn EUR]	R&D Growth [%]	R&D Intensity [%]
9	ROCHE	Pharmaceuticals & Biotechnology	13,261	13	22
16	NOVARTIS	Pharmaceuticals & Biotechnology	7,983	8	17
101	NESTLE	Food Producers	1,840	8	2
139	SYNGENTA	Chemicals	1,346	15	9

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).

Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

### > 2.3.4 QS university ranking of Switzerland's top universities

Rank	University	Score
9	ETH ZURICH (SWISS FEDERAL INSTITUTE OF TECHNOLOGY)	93.60
16	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL)	89.20
83	UNIVERSITY OF ZURICH	63.70

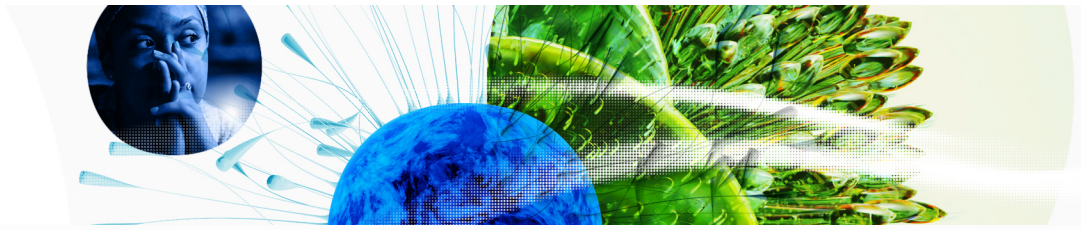
Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).

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".

### > 6.2.2 Top Unicorn Companies in Switzerland

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	SONARSOURCE	Internet software & services	Geneva	5
2	ACRONIS	Cybersecurity	Schaffhausen	4
3	NEXTHINK	Data management & analytics	Prilly	1

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: <https://www.cbinsights.com/research-unicorn-companies>



## > 7.1.1 Top 15 intangible-asset intensive companies in Switzerland

Rank	Firm	Intensity, %
1	NESTLE SA	86.03
2	ROCHE HOLDING AG	91.18
3	NOVARTIS AG	93.52

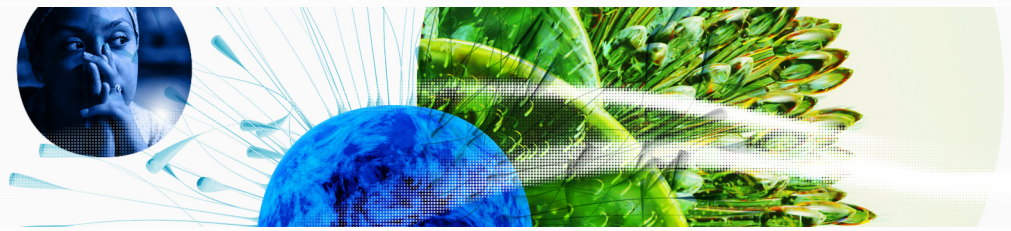
Source: Brand Finance (<https://brandirectory.com/reports/gif-2022>).  
Note: Brand Finance only provides within economy ranks.

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

Rank	Brand	Industry	Brand Value, mn USD
1	NESTLE	Food	22,426.9
2	ROLEX	Apparel	10,711.0
3	UBS	Banking	9,768.6

Source: Brand Finance (<https://brandirectory.com>).  
Note: Rank corresponds to within economy ranks.

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GII 2023 rank

1

## Switzerland

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
1	3	High	EUR	8.7	737.8	84,468.9
Score / Value Rank				Score / Value Rank		
<b>Institutions</b>				<b>Business sophistication</b>		
87.3 2 ●●				65.5 5		
<b>1.1 Institutional environment</b>				<b>5.1 Knowledge workers</b>		
85.3 4				67.1 9		
1.1.1 Operational stability for businesses*				50.9 10		
1.1.2 Government effectiveness*				n/a n/a		
1.2 Regulatory environment				5.1.3 GERD performed by business, % GDP		
92.8 5 ●●				2.2 8		
1.2.1 Regulatory quality*				5.1.4 GERD financed by business, %		
87.1 9				64.7 7		
1.2.2 Rule of law*				5.1.5 Females employed w/advanced degrees, %		
92.7 6				20.7 31		
1.2.3 Cost of redundancy dismissal				<b>5.2 Innovation linkages</b>		
10.1 31				76.8 3 ●●		
<b>1.3 Business environment</b>				5.2.1 University-industry R&D collaboration+		
83.8 3 ●●				99.4 3 ●●		
1.3.1 Policies for doing business*				5.2.2 State of cluster development*		
100.0 1 ●●				91.3 3 ●●		
1.3.2 Entrepreneurship policies and culture*				5.2.3 GERD financed by abroad, % GDP		
67.7 15				0.2 21		
<b>Human capital and research</b>				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP		
59.8 6				0.2 9		
<b>2.1 Education</b>				5.2.5 Patent families/bn PPP\$ GDP		
61.9 25				8.6 1 ●●		
2.1.1 Expenditure on education, % GDP				<b>5.3 Knowledge absorption</b>		
5.1 38				52.6 13		
2.1.2 Government funding/pupil, secondary, % GDP/cap				5.3.1 Intellectual property payments, % total trade		
22.9 34 ○				5.5 1 ●●		
2.1.3 School life expectancy, years				5.3.2 High-tech imports, % total trade		
16.6 23				5.2 112 ○		
2.1.4 PISA scales in reading, maths and science				5.3.3 ICT services imports, % total trade		
498.2 21				3.3 13		
2.1.5 Pupil-teacher ratio, secondary				5.3.4 FDI net inflows, % GDP		
9.7 27				-10.8 131 ○◇		
<b>2.2 Tertiary education</b>				5.3.5 Research talent, % in businesses		
45.6 21				48.3 27		
2.2.1 Tertiary enrolment, % gross				<b>Knowledge and technology outputs</b>		
65.3 47 ○				65.3 1 ●●		
2.2.2 Graduates in science and engineering, %				<b>6.1 Knowledge creation</b>		
25.2 44 ○				78.7 1 ●●		
2.2.3 Tertiary inbound mobility, %				6.1.1 Patents by origin/bn PPP\$ GDP		
18.1 9				14.4 4		
<b>2.3 Research and development (R&amp;D)</b>				6.1.2 PCT patents by origin/bn PPP\$ GDP		
71.8 4				7.3 1 ●●		
2.3.1 Researchers, FTE/mn pop.				6.1.3 Utility models by origin/bn PPP\$ GDP		
5,562.4 13				n/a n/a		
2.3.2 Gross expenditure on R&D, % GDP				6.1.4 Scientific and technical articles/bn PPP\$ GDP		
3.2 7				n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$				6.1.5 Citable documents H-index		
89.0 4				66.2 10		
2.3.4 QS university ranking, top 3*				<b>6.2 Knowledge impact</b>		
83.2 5				56.9 7		
<b>Infrastructure</b>				6.2.1 Labor productivity growth, %		
64.3 4				0.9 68 ○		
<b>3.1 Information and communication technologies (ICTs)</b>				6.2.2 Unicorn valuation, % GDP		
83.7 25				1.5 28		
3.1.1 ICT access*				6.2.3 Software spending, % GDP		
90.9 21				0.7 9		
3.1.2 ICT use*				6.2.4 High-tech manufacturing, %		
100.0 1 ●●				67.3 2 ●●		
3.1.3 Government's online service*				<b>6.3 Knowledge diffusion</b>		
74.3 49 ○◇				60.4 4		
3.1.4 E-participation*				6.3.1 Intellectual property receipts, % total trade		
69.8 41				6.0 1 ●●		
<b>3.2 General infrastructure</b>				6.3.2 Production and export complexity		
50.5 16				97.4 2 ●●		
3.2.1 Electricity output, GWh/mn pop.				6.3.3 High-tech exports, % total trade		
7,196.8 26				7.4 26		
3.2.2 Logistics performance*				6.3.4 ICT services exports, % total trade		
90.9 3 ●●				2.6 49 ○		
3.2.3 Gross capital formation, % GDP				6.3.5 ISO 9001 quality/bn PPP\$ GDP		
26.5 42				11.0 25		
<b>3.3 Ecological sustainability</b>				<b>Creative outputs</b>		
58.7 7 ◆				68.5 1 ●●		
3.3.1 GDP/unit of energy use				<b>7.1 Intangible assets</b>		
26.5 4 ◆				67.5 6 ◆		
3.3.2 Environmental performance*				7.1.1 Intangible asset intensity, top 15, %		
79.7 9				76.2 10		
3.3.3 ISO 14001 environment/bn PPP\$ GDP				7.1.2 Trademarks by origin/bn PPP\$ GDP		
3.3 29				68.9 25		
<b>Market sophistication</b>				7.1.3 Global brand value, top 5,000		
64.4 7				22.6 2 ●●		
<b>4.1 Credit</b>				7.1.4 Industrial designs by origin/bn PPP\$ GDP		
70.1 5				5.0 21		
4.1.1 Finance for startups and scaleups*				<b>7.2 Creative goods and services</b>		
75.1 12				53.0 2 ●●		
4.1.2 Domestic credit to private sector, % GDP				7.2.1 Cultural and creative services exports, % total trade		
170.4 5				0.7 44 ○		
4.1.3 Loans from microfinance institutions, % GDP				7.2.2 National feature films/mn pop. 15-69		
n/a n/a				11.7 4 ◆		
<b>4.2 Investment</b>				7.2.3 Entertainment and media market/th pop. 15-69		
59.5 10				91.0 2 ●●		
4.2.1 Market capitalization, % GDP				7.2.4 Creative goods exports, % total trade		
241.1 3 ●●				2.8 19		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP				<b>7.3 Online creativity</b>		
0.7 9				86.1 2 ●●		
4.2.3 VC recipients, deals/bn PPP\$ GDP				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69		
0.3 8				68.4 10		
4.2.4 VC received, value, % GDP				7.3.2 Country-code TLDs/th pop. 15-69		
0.0 24				100.0 1 ●●		
<b>4.3 Trade, diversification, and market scale</b>				7.3.3 GitHub commits/mn pop. 15-69		
63.7 36				100.0 1 ●●		
4.3.1 Applied tariff rate, weighted avg., %				7.3.4 Mobile app creation/bn PPP\$ GDP		
1.4 18				75.9 20		
4.3.2 Domestic industry diversification						
84.1 66 ○						
4.3.3 Domestic market scale, bn PPP\$						
737.8 34						

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 Switzerland.



> Switzerland has missing data for three indicators and outdated data for eleven indicators.

## > Missing data for Switzerland

Code	Indicator name	Economy Year	Model Year	Source
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
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

## > Outdated data for Switzerland

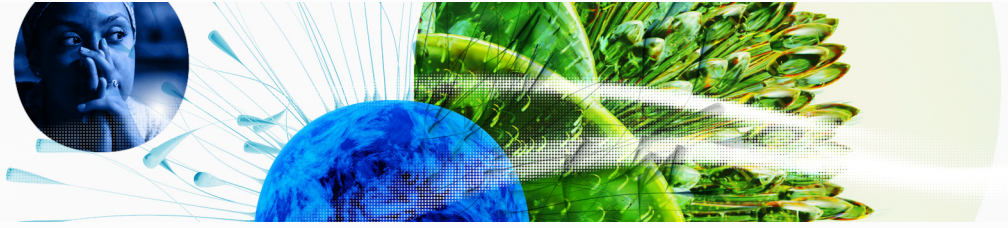
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2018	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.2	Domestic credit to private sector, % GDP	2016	2020	International Monetary Fund; World Bank and OECD GDP estimates.
4.3.2	Domestic industry diversification	2016	2020	United Nations Industrial Development Organization
5.1.3	GERD performed by business, % GDP	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2019	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

# Global Innovation Index 2023



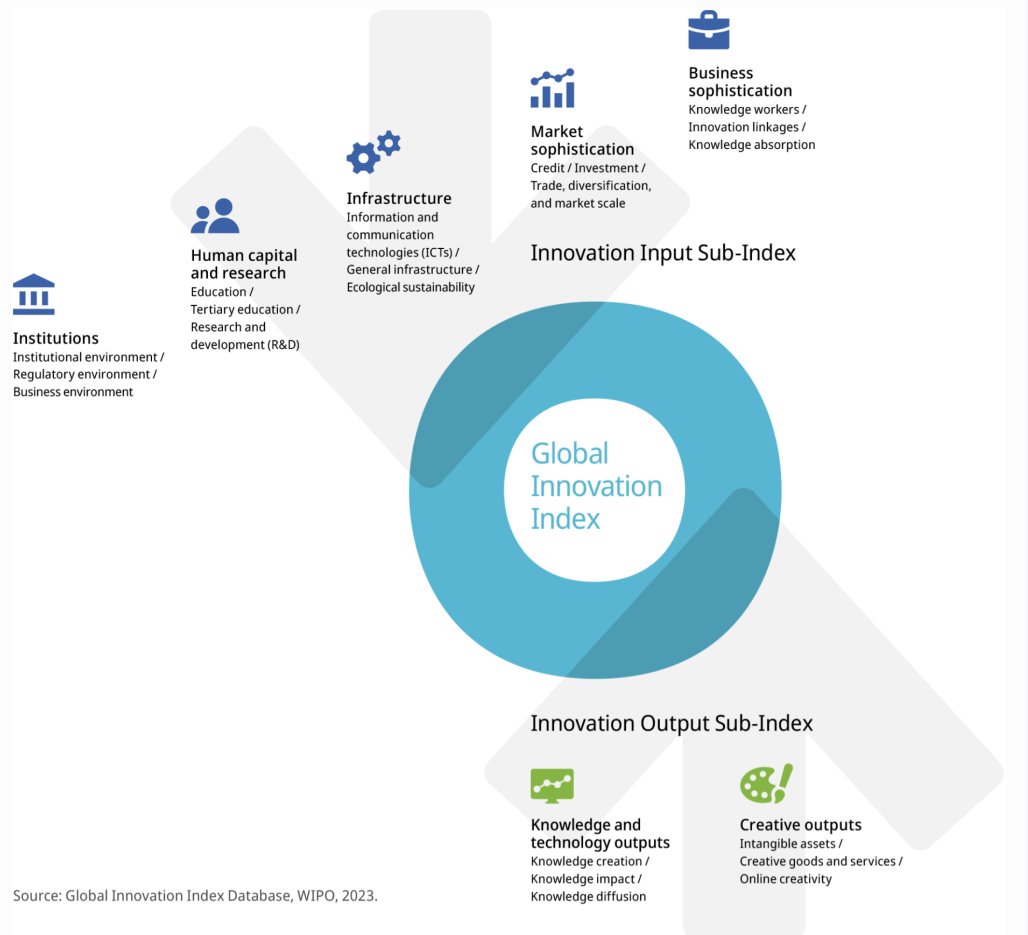
Code	Indicator name	Economy Year	Model Year	Source
5.3.5	Research talent, % in businesses	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2016	2020	United Nations Industrial Development Organization

# 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.