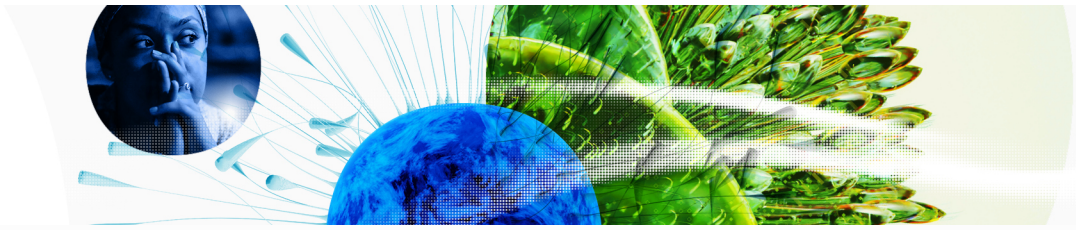
Global Innovation Index 2023



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.

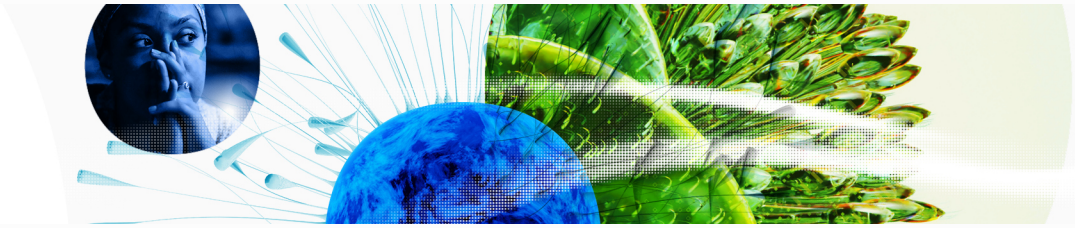
	GII Position	Innovation Inputs	Innovation Outputs
2020	1st	2nd	1st
2021	1st	4th	1st
2022	1st	3rd	1st
2023	1st	3rd	1st

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



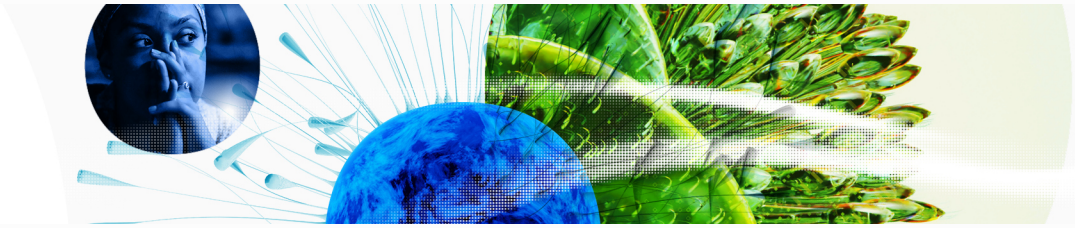
→ Expected vs. observed innovation performance

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.

> Switzerland is an innovation leader, ranking in the top 25 of the GII.

> Innovation overperformers relative to their economic development

Global Innovation Index 2023

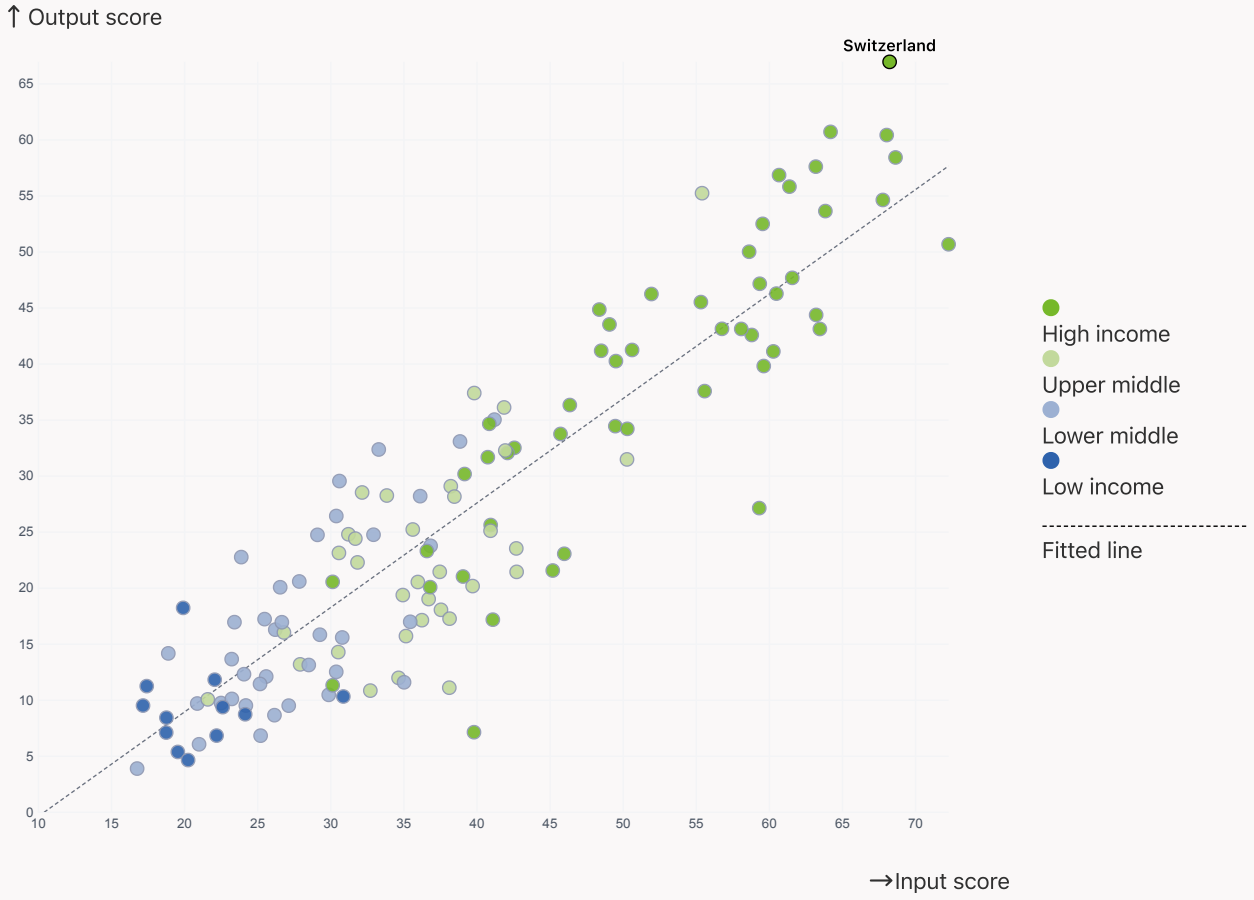


→ Effectively translating innovation investments into innovation outputs

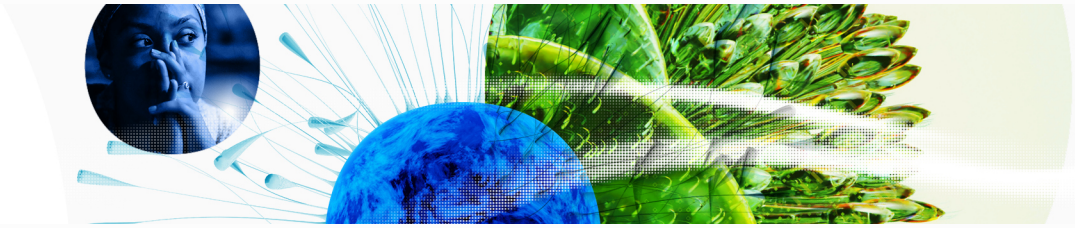
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> 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

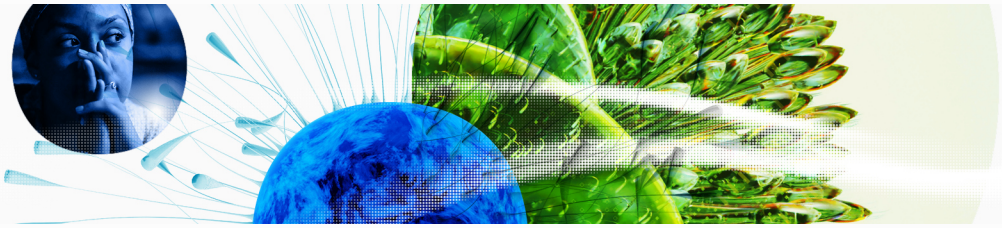
Switzerland ranks highest in Knowledge and technology outputs, Creative outputs (1st).

> 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 shows 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

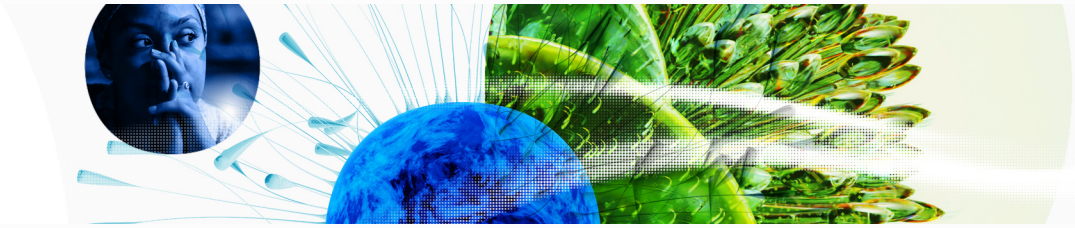
Infrastructure

- 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).

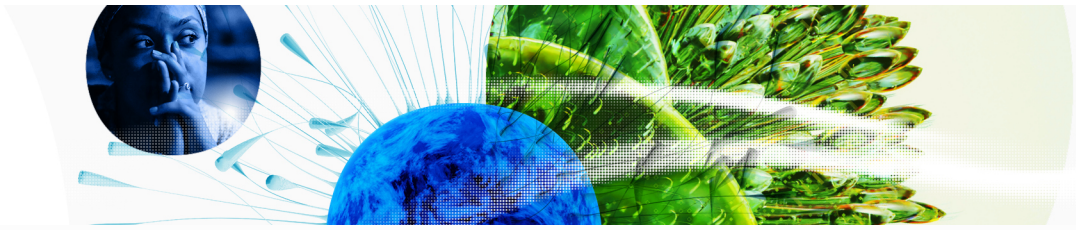
Strengths

Rank	Code	Indicator name
1	7.3.2	Country-code TLDs/th pop. 15-69
1	7.3.3	GitHub commits/mn pop. 15-69
1	3.1.2	ICT use
1	5.3.1	Intellectual property payments, % total trade
1	6.3.1	Intellectual property receipts, % total trade
1	5.2.5	Patent families/bn PPP$ GDP
1	6.1.2	PCT patents by origin/bn PPP$ GDP
1	1.3.1	Policies for doing business
2	7.1.3	Global brand value, top 5,000
2	6.3.2	Production and export complexity
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

Weaknesses

Rank	Code	Indicator name
131	5.3.4	FDI net inflows, % GDP
112	5.3.2	High-tech imports, % total trade
68	6.2.1	Labor productivity growth, %
66	4.3.2	Domestic industry diversification
49	3.1.3	Government's online service
49	6.3.4	ICT services exports, % total trade
47	2.2.1	Tertiary enrolment, % gross
44	7.2.1	Cultural and creative services exports, % total trade
44	2.2.2	Graduates in science and engineering, %
34	2.1.2	Government funding/pupil, secondary, % GDP/cap

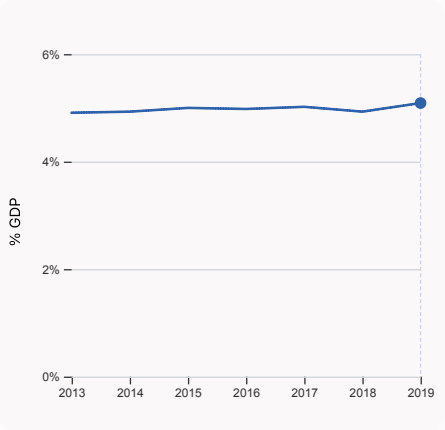
Global Innovation Index 2023



→ Switzerland's innovation system

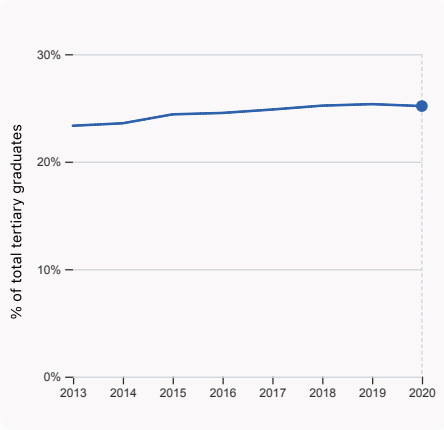
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Switzerland



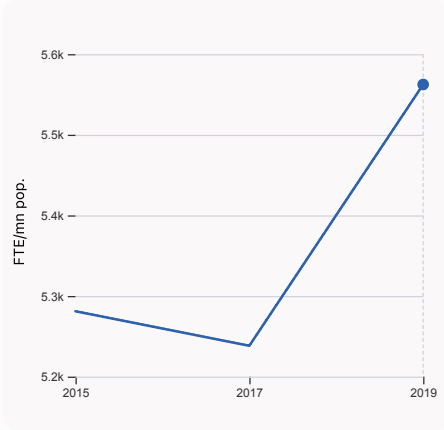
2.1.1 Expenditure on education, % GDP

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.



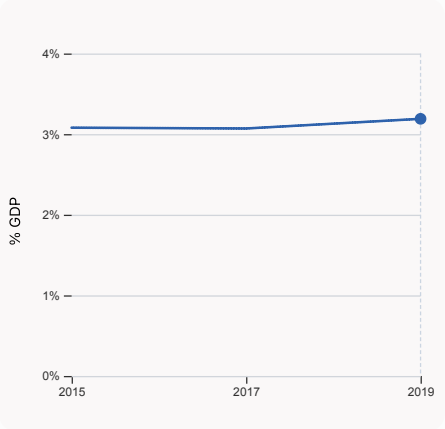
2.2.2 Graduates in science and engineering, %

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.



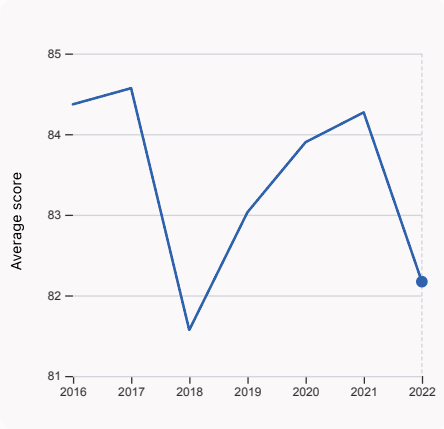
2.3.1 Researchers, FTE/mn pop.

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.



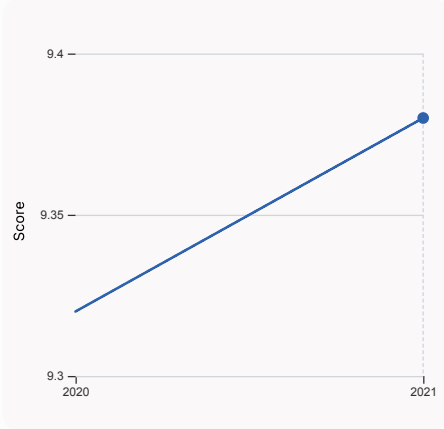
2.3.2 Gross expenditure on R&D, % GDP

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

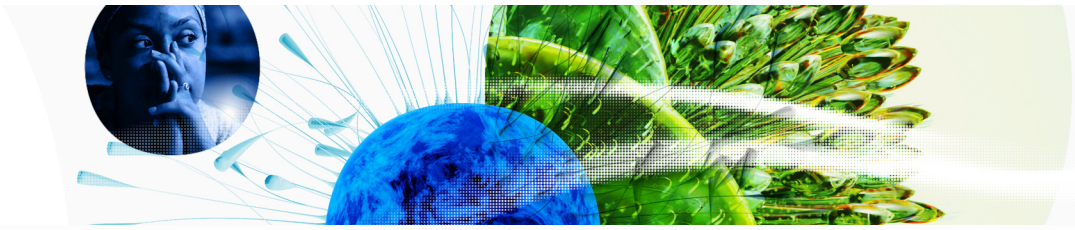
was equal to an average score of 82.17 for the top 3 universities in 2022, down by 2.49% from the year prior – and equivalent to an indicator rank of 5.

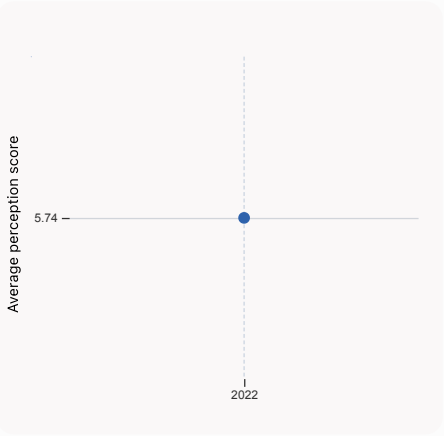


3.1.1 ICT access

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.

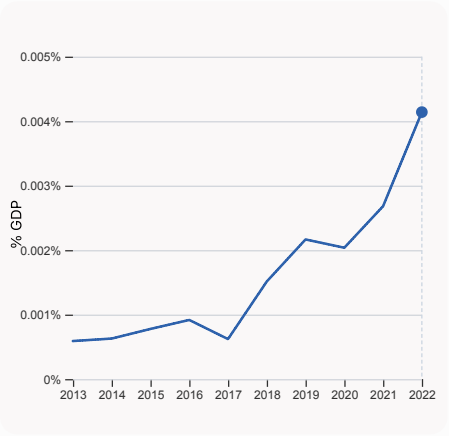
Global Innovation Index 2023





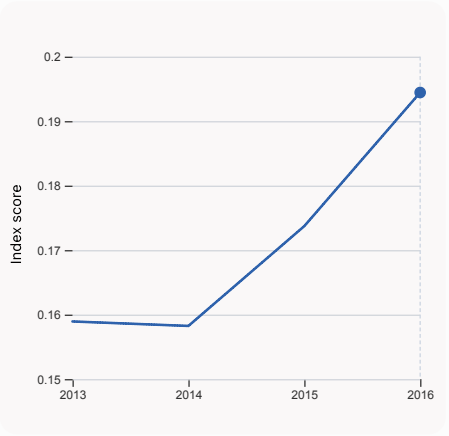
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 5.74 in 2022, equivalent to an indicator rank of 12.



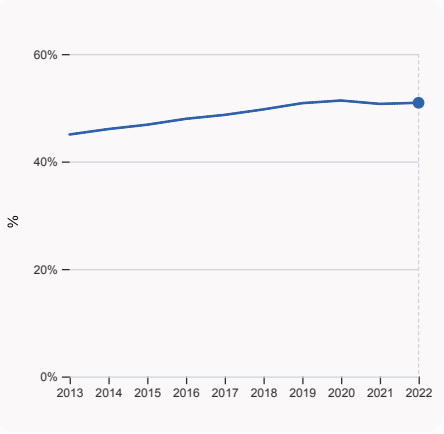
4.2.4 VC received, value, % GDP

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

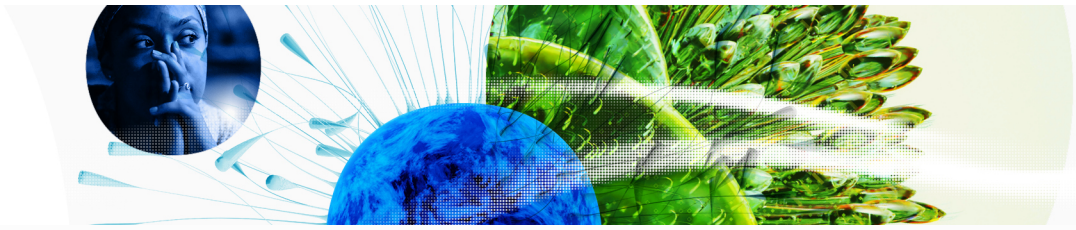
was equal to an index score of 0.194 in 2016, up by 11.93% from the year prior – and equivalent to an indicator rank of 66.



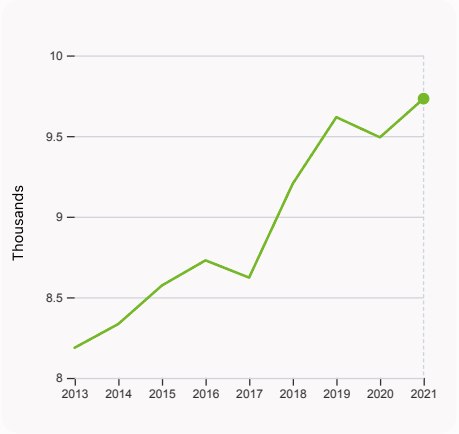
5.1.1 Knowledge-intensive employment, %

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

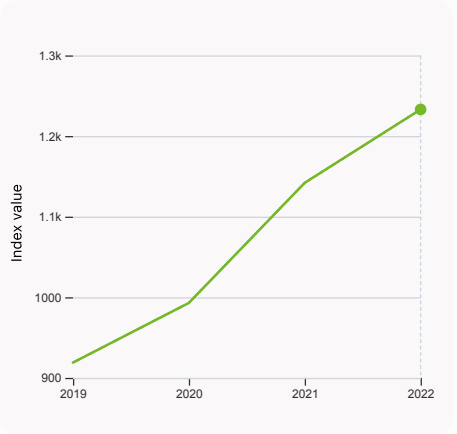


> Innovation outputs in Switzerland



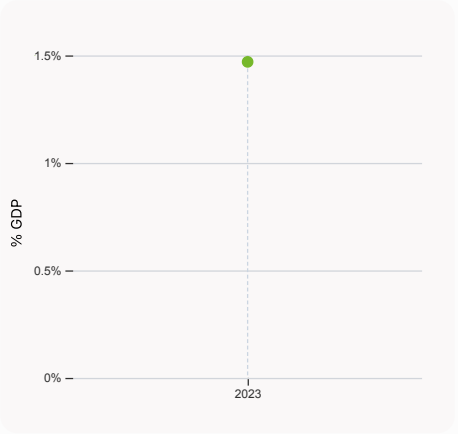
6.1.1 Patents by origin

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



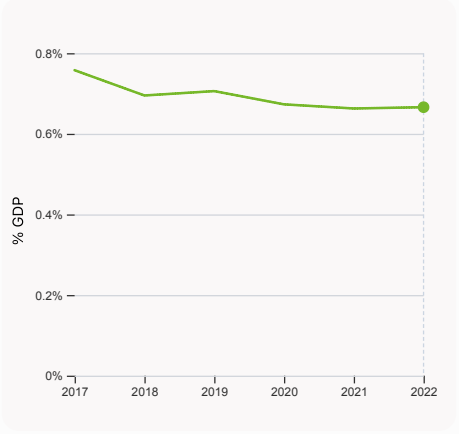
6.1.5 Citable documents H-index

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.



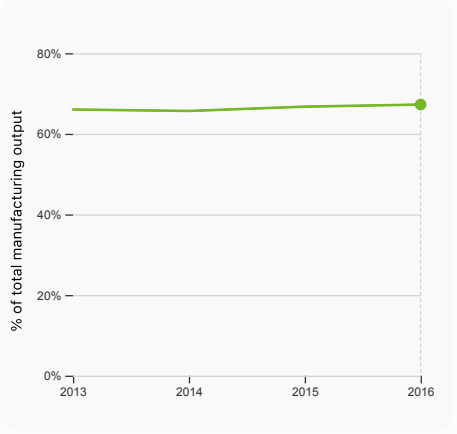
6.2.2 Unicorn valuation, % GDP

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



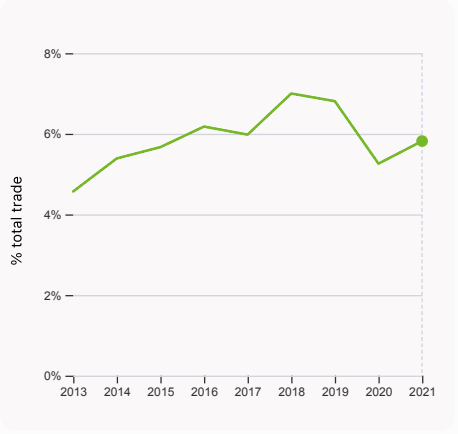
6.2.3 Software spending, % GDP

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, %

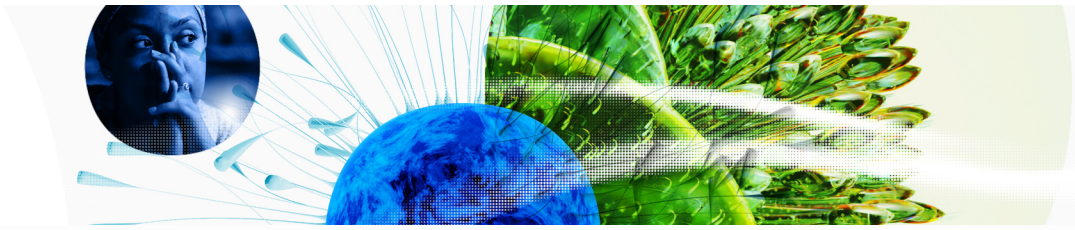
was equal to 67.26% of total manufacturing output in 2016, up by 0.52 percentage points from the year prior – and equivalent to an indicator rank of 2.



6.3.1 Intellectual property receipts, % total trade

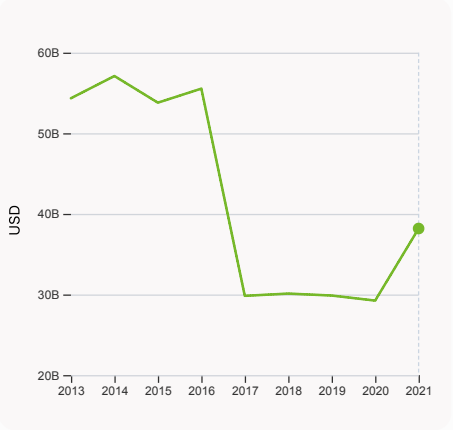
was equal to 5.82% total trade in 2021, up by 0.56 percentage points from the year prior – and equivalent to an indicator rank of 1.

Global Innovation Index 2023



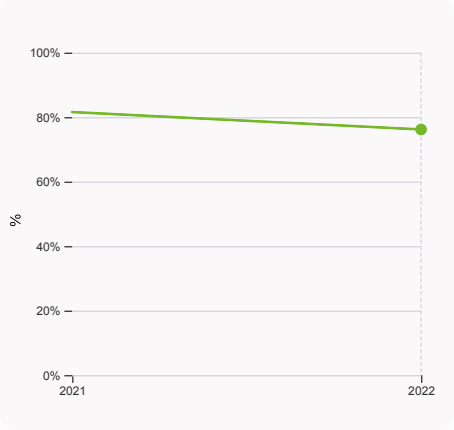
6.3.2 Production and export complexity

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.



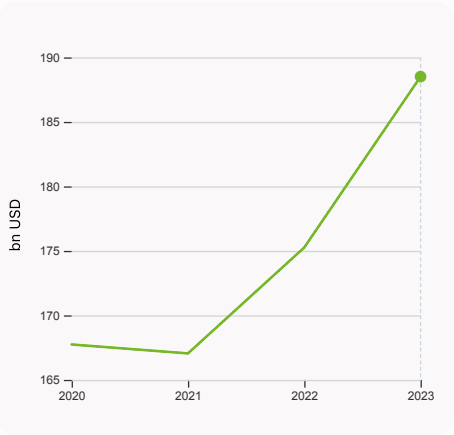
6.3.3 High-tech exports

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.



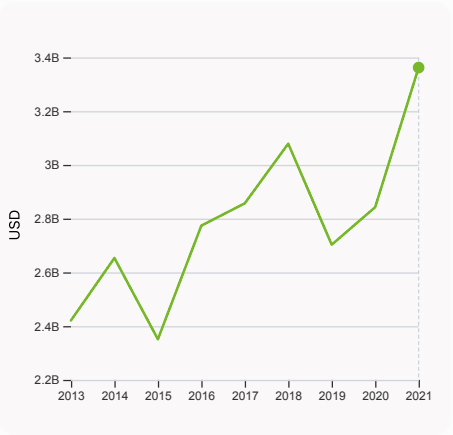
7.1.1 Intangible asset intensity, top 15, %

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.



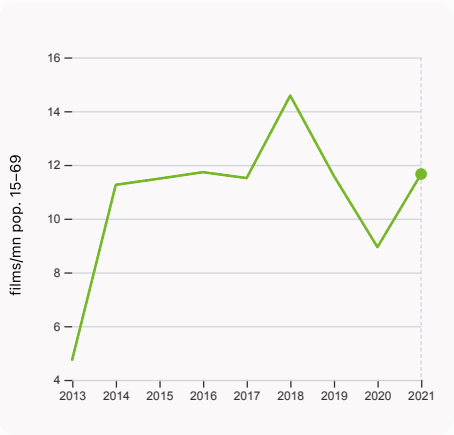
7.1.3 Global brand value, top 5,000

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

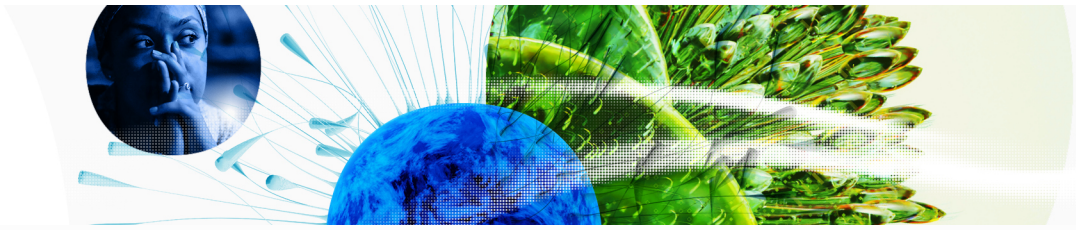
was equal to 3,362,247,000 USD in 2021, up by 18.28% from the year prior – and equivalent to an indicator rank of 44.

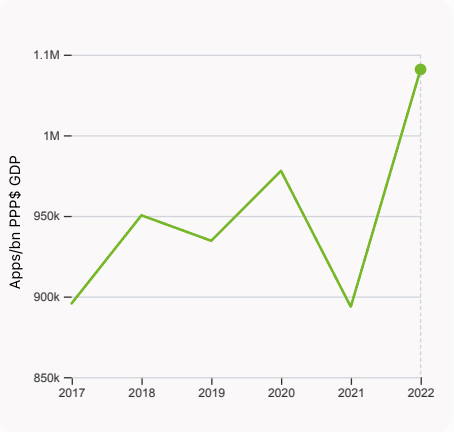


7.2.2 National feature films/mn pop. 15-69

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.

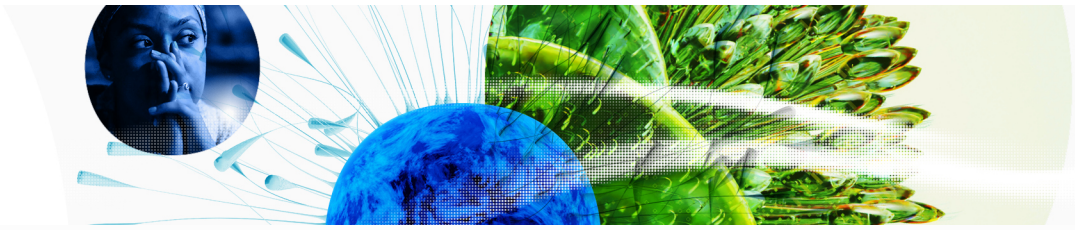
Global Innovation Index 2023





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.



→ Switzerland's innovation top performers

> 2.3.3 Global corporate R&D investors from Switzerland

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
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

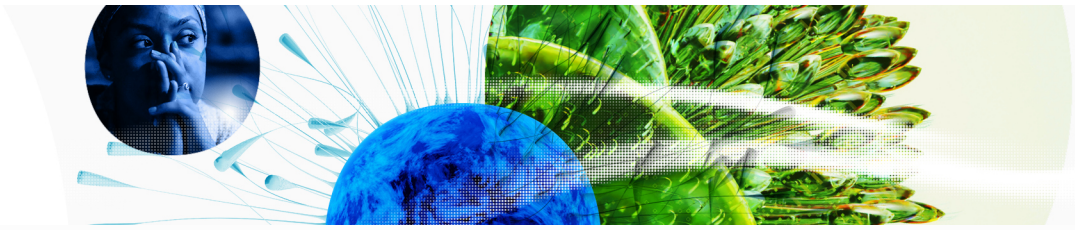
Rank	University	Score
9	ETH ZURICH (SWISS FEDERAL INSTITUTE OF TECHNOLOGY)	93.60
16	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL)	89.20
83	UNIVERSITY OF ZURICH	63.70

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/gift-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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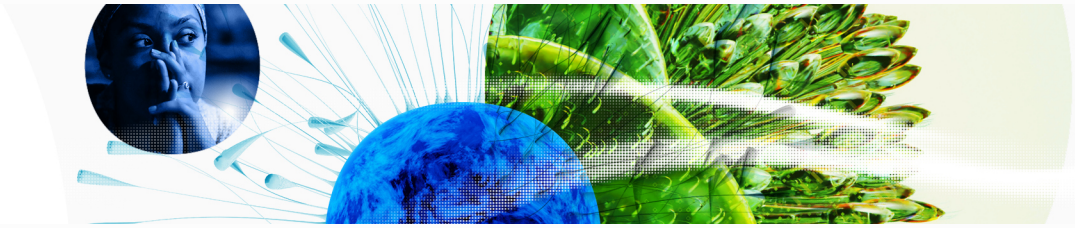

Switzerland

GII 2023 rank **1**

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
Institutions	**87.3**	**2**
1.1 Institutional environment	**85.3**	**4**
1.1.1 Operational stability for businesses*	77.8	10
1.1.2 Government effectiveness*	92.8	2 ●
1.2 Regulatory environment	**92.8**	**5**
1.2.1 Regulatory quality*	87.1	9
1.2.2 Rule of law*	92.7	6
1.2.3 Cost of redundancy dismissal	10.1	31
1.3 Business environment	**83.8**	**3**
1.3.1 Policies for doing business†	100.0	1 ●
1.3.2 Entrepreneurship policies and culture†	67.7	15
Human capital and research	**59.8**	**6**
2.1 Education	**61.9**	**25**
2.1.1 Expenditure on education, % GDP	5.1	38
2.1.2 Government funding/pupil, secondary, % GDP/cap	22.9	34 ○
2.1.3 School life expectancy, years	16.6	23
2.1.4 PISA scales in reading, maths and science	498.2	21
2.1.5 Pupil-teacher ratio, secondary	9.7	27
2.2 Tertiary education	**45.6**	**21**
2.2.1 Tertiary enrolment, % gross	65.3	47 ○
2.2.2 Graduates in science and engineering, %	25.2	44 ○
2.2.3 Tertiary inbound mobility, %	18.1	9
2.3 Research and development (R&D)	**71.8**	**4**
2.3.1 Researchers, FTE/mn pop.	5,562.4	13
2.3.2 Gross expenditure on R&D, % GDP	3.2	7
2.3.3 Global corporate R&D investors, top 3, mn US$	89.0	4
2.3.4 QS university ranking, top 3*	83.2	5
Infrastructure	**64.3**	**4**
3.1 Information and communication technologies (ICTs)	**83.7**	**25**
3.1.1 ICT access*	90.9	21
3.1.2 ICT use*	100.0	1 ●
3.1.3 Government's online service*	74.3	49 ○ ◇
3.1.4 E-participation*	69.8	41
3.2 General infrastructure	**50.5**	**16**
3.2.1 Electricity output, GWh/mn pop.	7,196.8	26
3.2.2 Logistics performance*	90.9	3 ●
3.2.3 Gross capital formation, % GDP	26.5	42
3.3 Ecological sustainability	**58.7**	**7**
3.3.1 GDP/unit of energy use	26.5	4
3.3.2 Environmental performance*	79.7	9
3.3.3 ISO 14001 environment/bn PPP$ GDP	3.3	29
Market sophistication	**64.4**	**7**
4.1 Credit	**70.1**	**5**
4.1.1 Finance for startups and scaleups†	75.1	12
4.1.2 Domestic credit to private sector, % GDP	170.4	5
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**59.5**	**10**
4.2.1 Market capitalization, % GDP	241.1	3 ●
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.7	9
4.2.3 VC recipients, deals/bn PPP$ GDP	0.3	8
4.2.4 VC received, value, % GDP	0.0	24
4.3 Trade, diversification, and market scale	**63.7**	**36**
4.3.1 Applied tariff rate, weighted avg., %	1.4	18
4.3.2 Domestic industry diversification	84.1	66 ○
4.3.3 Domestic market scale, bn PPP$	737.8	34

	Score / Value	Rank
Business sophistication	**65.5**	**5**
5.1 Knowledge workers	**67.1**	**9**
5.1.1 Knowledge-intensive employment, %	50.9	10
5.1.2 Firms offering formal training, %	n/a	n/a
5.1.3 GERD performed by business, % GDP	2.2	8
5.1.4 GERD financed by business, %	64.7	7
5.1.5 Females employed w/advanced degrees, %	20.7	31
5.2 Innovation linkages	**76.8**	**3**
5.2.1 University-industry R&D collaboration†	99.4	3 ●
5.2.2 State of cluster development†	91.3	3 ●
5.2.3 GERD financed by abroad, % GDP	0.2	21
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.2	9
5.2.5 Patent families/bn PPP$ GDP	8.6	1 ●
5.3 Knowledge absorption	**52.6**	**13**
5.3.1 Intellectual property payments, % total trade	5.5	1 ●
5.3.2 High-tech imports, % total trade	5.2	112 ○
5.3.3 ICT services imports, % total trade	3.3	13
5.3.4 FDI net inflows, % GDP	-10.8	131 ○ ◇
5.3.5 Research talent, % in businesses	48.3	27
Knowledge and technology outputs	**65.3**	**1**
6.1 Knowledge creation	**78.7**	**1**
6.1.1 Patents by origin/bn PPP$ GDP	14.4	4
6.1.2 PCT patents by origin/bn PPP$ GDP	7.3	1 ●
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	66.2	10
6.2 Knowledge impact	**56.9**	**7**
6.2.1 Labor productivity growth, %	0.9	68 ○
6.2.2 Unicorn valuation, % GDP	1.5	28
6.2.3 Software spending, % GDP	0.7	9
6.2.4 High-tech manufacturing, %	67.3	2 ●
6.3 Knowledge diffusion	**60.4**	**4**
6.3.1 Intellectual property receipts, % total trade	6.0	1 ●
6.3.2 Production and export complexity	97.4	2 ●
6.3.3 High-tech exports, % total trade	7.4	26
6.3.4 ICT services exports, % total trade	2.6	49 ○
6.3.5 ISO 9001 quality/bn PPP$ GDP	11.0	25
Creative outputs	**68.5**	**1**
7.1 Intangible assets	**67.5**	**6**
7.1.1 Intangible asset intensity, top 15, %	76.2	10
7.1.2 Trademarks by origin/bn PPP$ GDP	68.9	25
7.1.3 Global brand value, top 5,000	22.6	2 ●
7.1.4 Industrial designs by origin/bn PPP$ GDP	5.0	21
7.2 Creative goods and services	**53.0**	**2**
7.2.1 Cultural and creative services exports, % total trade	0.7	44 ○
7.2.2 National feature films/mn pop. 15-69	11.7	4
7.2.3 Entertainment and media market/th pop. 15-69	91.0	2 ●
7.2.4 Creative goods exports, % total trade	2.8	19
7.3 Online creativity	**86.1**	**2**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	68.4	10
7.3.2 Country-code TLDs/th pop. 15-69	100.0	1 ●
7.3.3 GitHub commits/mn pop. 15-69	100.0	1 ●
7.3.4 Mobile app creation/bn PPP$ GDP	75.9	20

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.

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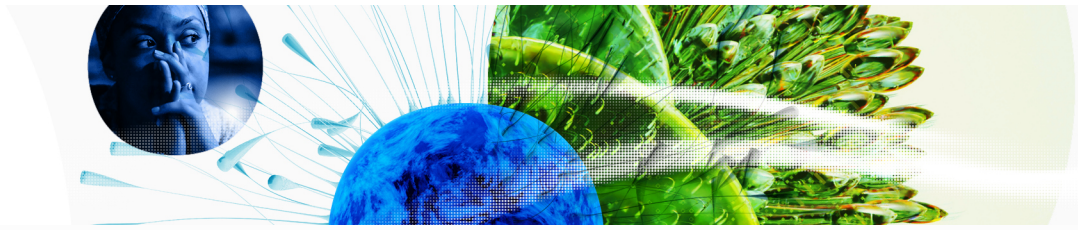

→ Data availability

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
5.3.5	Research talent, % in businesses	2019	2021	UNESCO Institute for Statistics; Eurostat;

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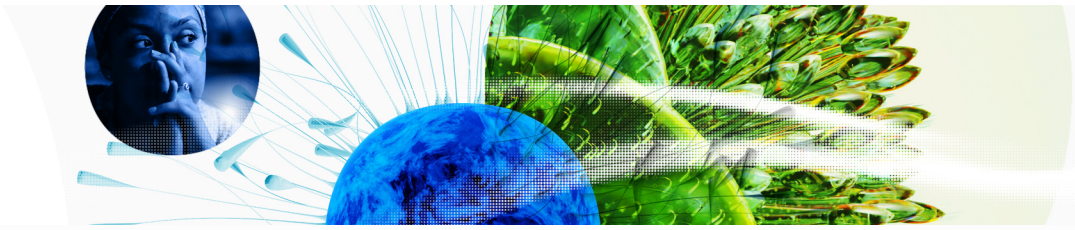

Code	Indicator name	Economy Year	Model Year	Source
				OECD; RICYT
6.2.4	High-tech manufacturing, %	2016	2020	United Nations Industrial Development Organization

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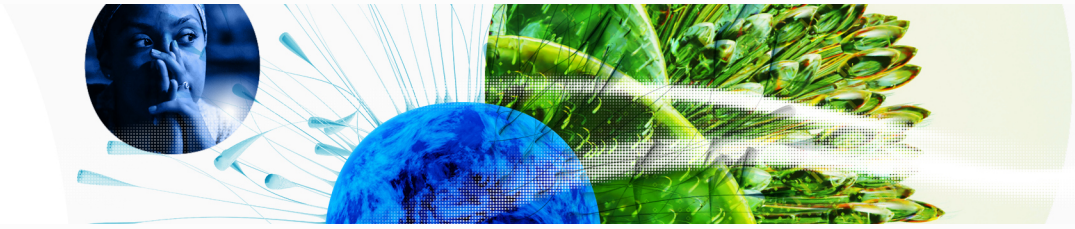

About the Global Innovation Index

- 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.