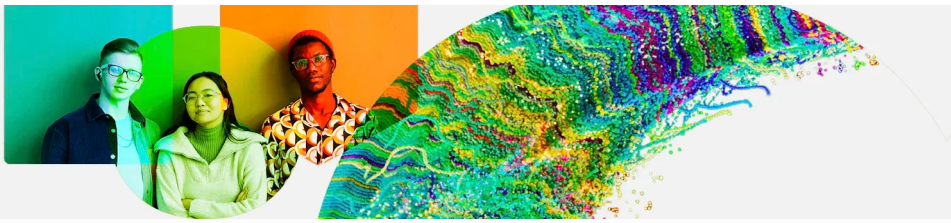
Global Innovation Index 2024



Switzerland ranking in the Global Innovation Index 2024

Switzerland ranks 1st among the 133 economies featured in the GII 2024.

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 ranks 1st among the 51 high-income group economies.

Switzerland ranks 1st among the 39 economies in Europe.

Switzerland GII Ranking (2020-2024)

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 2024 is between ranks 1 and 1.

Year	GII Position	Innovation Inputs	Innovation Outputs
2020	1st	2nd	1st
2021	1st	4th	1st
2022	1st	3rd	1st
2023	1st	3rd	1st
2024	1st	2nd	1st

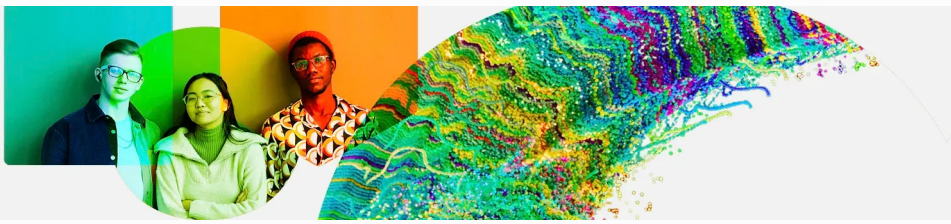
Switzerland performs better in innovation outputs than innovation inputs in 2024.

This year **Switzerland ranks 2nd in innovation inputs.** This position is higher than last year.

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

Switzerland has 2 clusters in the top 100 S&T clusters of the Global Innovation Index.

Global Innovation Index 2024



> Global Innovation Tracker

The Global Innovation Tracker 2024 shows what is the current state of innovation in Switzerland, how rapidly is technology being embraced and what are the resulting societal impacts.

For Switzerland, 3 indicators have improved in the short-term and 8 indicators have worsened.

Science and innovation investment

Scientific publications	R&D investments	Venture capital		International patent filings
		Deal numbers	Deal values	
▼ -4.9% 2022 - 2023	▲ 3.3% 2019 - 2021	▼ -19.2% 2022 - 2023	▼ -43.7% 2022 - 2023	▼ -1.2% 2022 - 2023
▲ 2.5% 2013 - 2023	▲ 3.4% 2012 - 2021	▲ 12.6% 2013 - 2023	▲ 17.6% 2013 - 2023	▲ 2.1% 2013 - 2023

Technology adoption

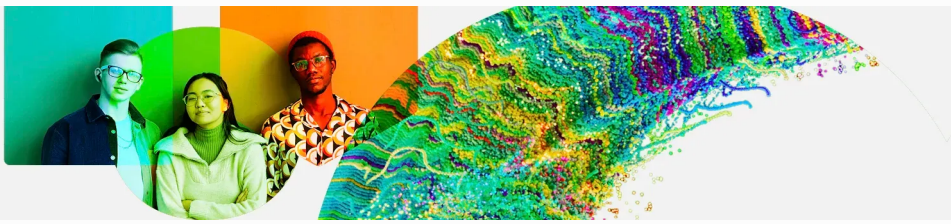
Safe sanitation	Connectivity		Robots	Electric vehicles
	Fixed broadband	5G		
0% 2021 - 2022	▼ -1.8% 2021 - 2022	0% 2021 - 2022	▲ 16.4% 2021 - 2022	▲ 37.3% 2022 - 2023
▲ 0.1% 2012 - 2022	▲ 1.6% 2012 - 2022		▲ 10.8% 2012 - 2022	▲ 60.1% 2013 - 2023
99.8 per 100 inhabitants in 2022	47.1 per 100 inhabitants in 2022	100 per 100 inhabitants in 2022		5.8 per 100 inhabitants in 2023

Socioeconomic impact

Labor productivity	Life expectancy	Temperature change
▼ -1.5% 2022 - 2023	▼ -0.4% 2021 - 2022	▲ 2.7°C 2023
▲ 0.9% 2013 - 2023	▲ 0.1% 2012 - 2022	n/a
148,136 USD in 2023	83.5 years in 2022	

Notes: Not all indicators of the Global Innovation Tracker are used to calculate the Global Innovation Index. Long-term annual growth refers to the compound annual growth rate (CAGR) over the indicated period. For each variable, a one-year growth rate is set for the short run, and ten-year CAGR is set for the long run; time windows might differ when gaps exist in data availability. The end period corresponds to the most recent available observation, which may differ among countries. Temperature change is an exception: it indicates the change in degrees Celsius with respect to the average temperature in the country from 1951–1980. Figures are rounded.

Global Innovation Index 2024



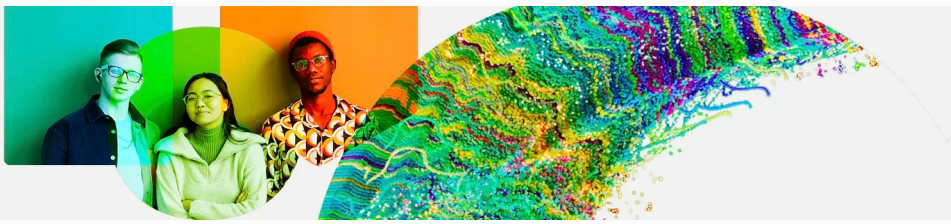
Expected vs. observed innovation performance

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 2024

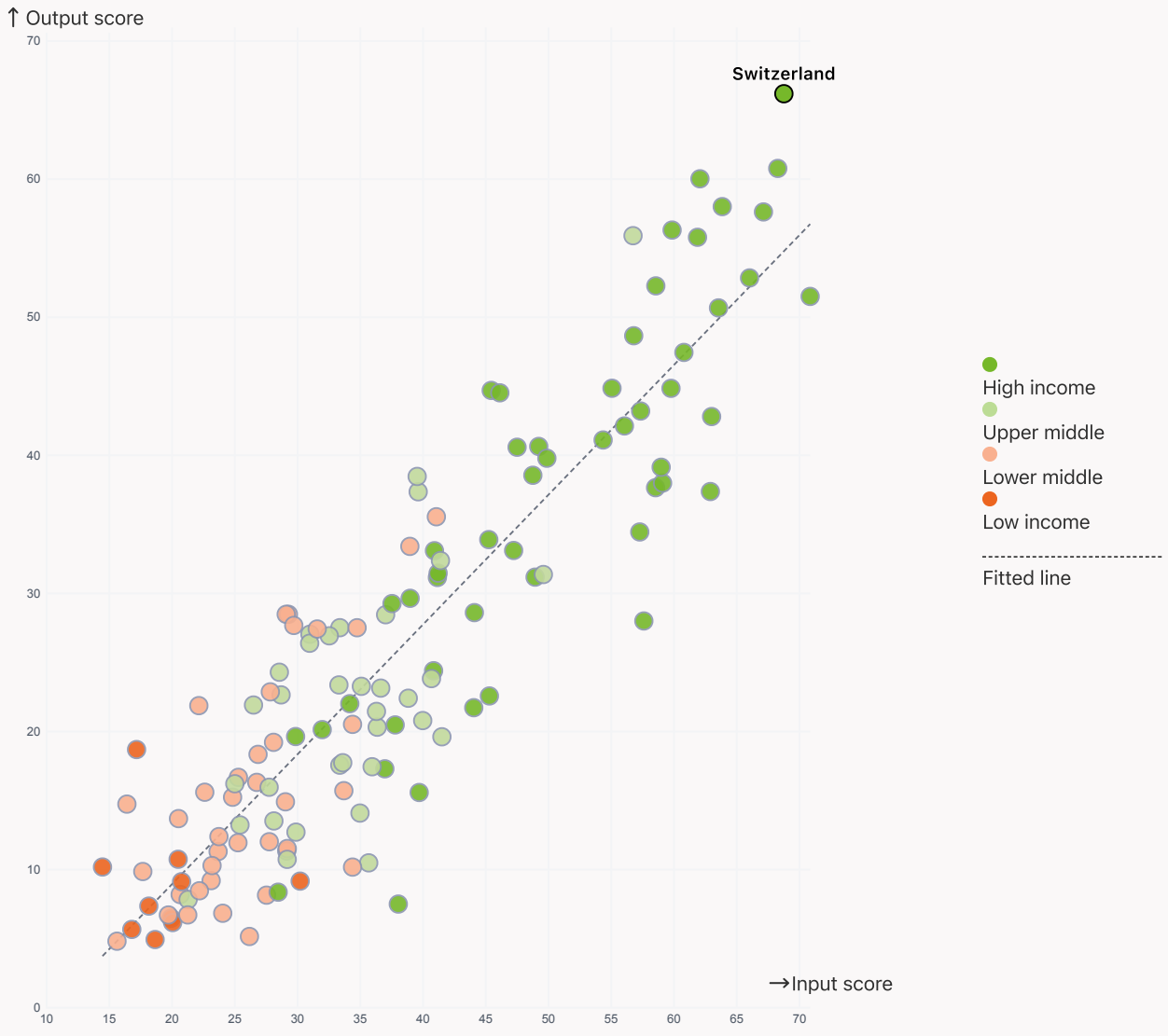


Effectively translating innovation investments into innovation outputs

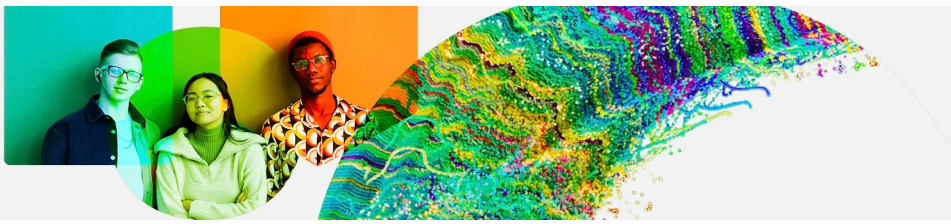
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

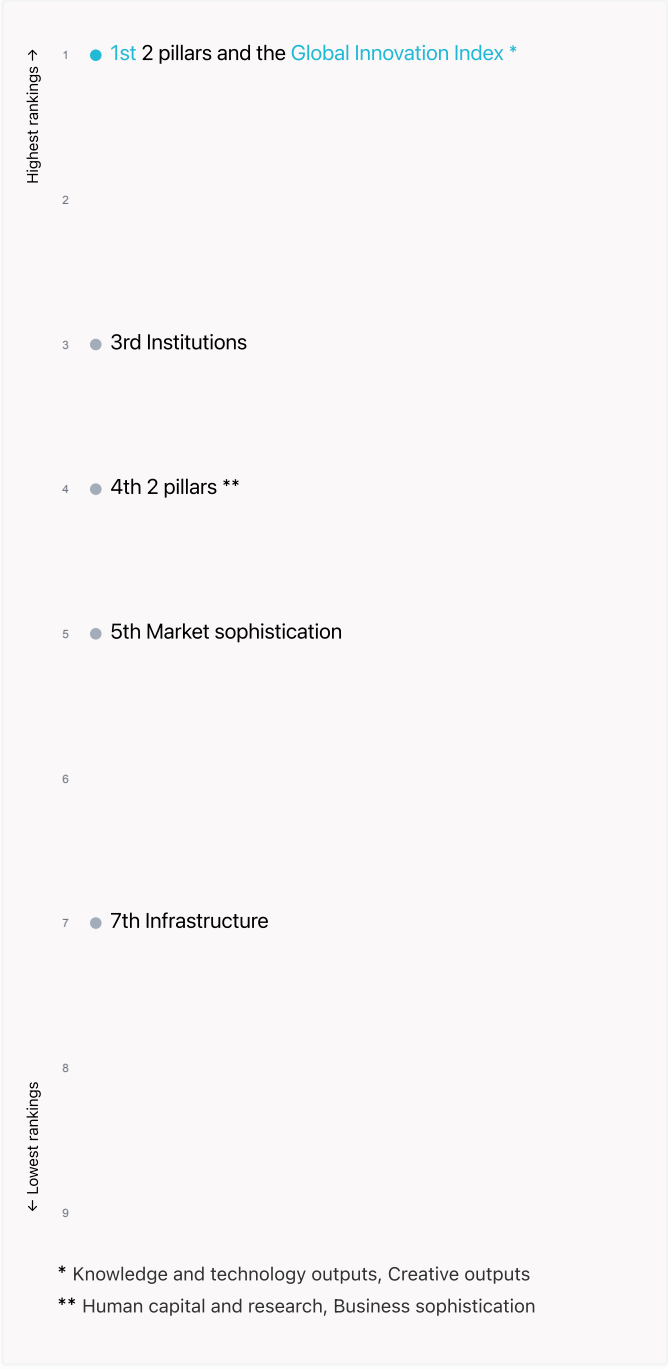


Global Innovation Index 2024



Overview of Switzerland's rankings in the seven areas of the GII in 2024

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

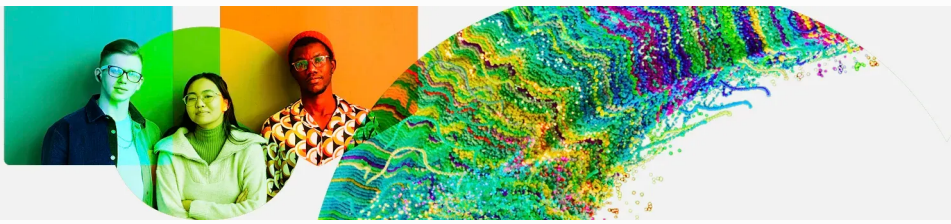
Switzerland ranks highest in Knowledge and technology outputs, Creative outputs (1st).

Lowest rankings

Switzerland ranks lowest in Infrastructure (7th), Market sophistication (5th) and Human capital and research, Business sophistication (4th).

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

Global Innovation Index 2024



Benchmark of Switzerland against other economy groupings for each of the seven areas of the GII Index

The charts shows the relative position of Switzerland (blue bar) against other economy 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 pillars.

Europe

Switzerland performs above the regional average in all pillars.

Institutions

- Switzerland | Score: 87.71
- Top 10 | Score: 80.81
- High income | Score: 67.41
- Europe | Score: 59.14

Human capital and research

- Switzerland | Score: 61.84
- Top 10 | Score: 61.30
- High income | Score: 46.99
- Europe | Score: 44.92

Infrastructure

- Switzerland | Score: 60.82
- Top 10 | Score: 58.57
- High income | Score: 51.96
- Europe | Score: 51.74

Market sophistication

- Switzerland | Score: 66.53
- Top 10 | Score: 62.12
- High income | Score: 44.90
- Europe | Score: 42.79

Business sophistication

- Switzerland | Score: 67.23
- Top 10 | Score: 63.64
- High income | Score: 44.71
- Europe | Score: 42.68

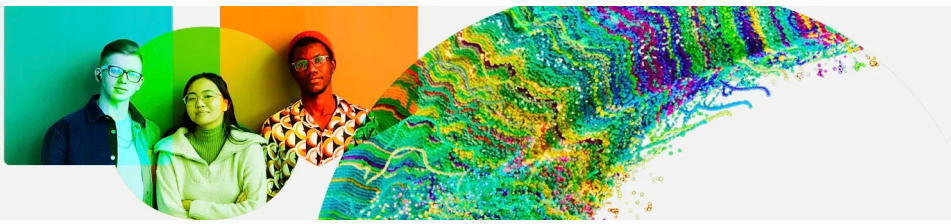
Knowledge and technology outputs

- Switzerland | Score: 65.11
- Top 10 | Score: 57.29
- Europe | Score: 36.30
- High income | Score: 35.79

Creative outputs

- Switzerland | Score: 67.13
- Top 10 | Score: 56.54
- High income | Score: 39.44
- Europe | Score: 39.15

Global Innovation Index 2024



Innovation strengths and weaknesses in Switzerland

The table below gives an overview of the indicator strengths and weaknesses of Switzerland in the GII 2024.

Switzerland's main innovation strengths are **National feature films/mn pop. 15–69** (rank 1), **GitHub commits/mn pop. 15–69** (rank 1) and **ICT access*** (rank 1).

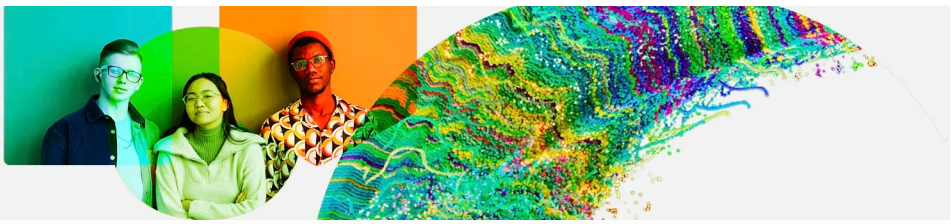
Strengths

Rank	Code	Indicator name
1	7.2.2	National feature films/mn pop. 15–69
1	7.3.2	GitHub commits/mn pop. 15–69
1	3.1.1	ICT access*
1	5.3.1	Intellectual property payments, % total trade
1	6.3.1	Intellectual property receipts, % total trade
1	6.1.2	PCT patents by origin/bn PPP$ GDP
1	5.2.2	University-industry R&D collaboration†
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, %
2	1.3.1	Policy stability for doing business†
2	5.2.1	Public Research-Industry co-publications, %
3	3.2.2	Logistics performance*
3	6.1.4	Scientific and technical articles/bn PPP$ GDP

Weaknesses

Rank	Code	Indicator name
131	5.3.4	FDI net inflows, % GDP
72	5.3.2	High-tech imports, % total trade
69	6.2.1	Labor productivity growth, %
59	4.3.2	Domestic industry diversification
51	3.2.3	Gross capital formation, % GDP
49	3.1.3	Government's online service*
48	7.2.1	Cultural and creative services exports, % total trade
47	6.3.4	ICT services exports, % total trade
44	2.2.2	Graduates in science and engineering, %
28	5.3.5	Research talent, % in businesses

Global Innovation Index 2024



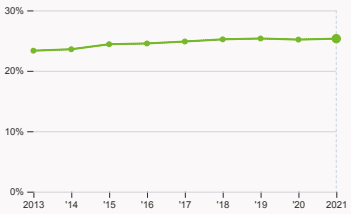
Switzerland's innovation system

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

Innovation inputs in Switzerland

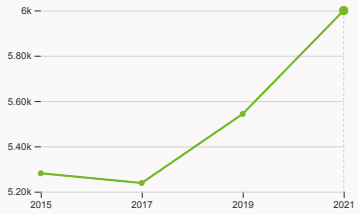
2.1.1 **Expenditure on education**

was equal to 5.61 % GDP in 2021, up by 0.32 percentage points from the year prior – and equivalent to an indicator rank of 26.



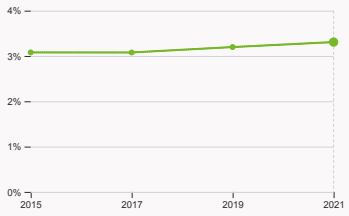
2.2.2 **Graduates in science and engineering**

was equal to 25.33 % of total graduates in 2021, up by 0.16 percentage points from the year prior – and equivalent to an indicator rank of 44.



2.3.1 **Researchers**

was equal to 5999.39 FTE per million population in 2021, up by 8.23% from the year prior – and equivalent to an indicator rank of 11.



2.3.2 **Gross expenditure on R&D**

was equal to 3.31 % GDP in 2021, up by 0.11 percentage points from the year prior – and equivalent to an indicator rank of 7.

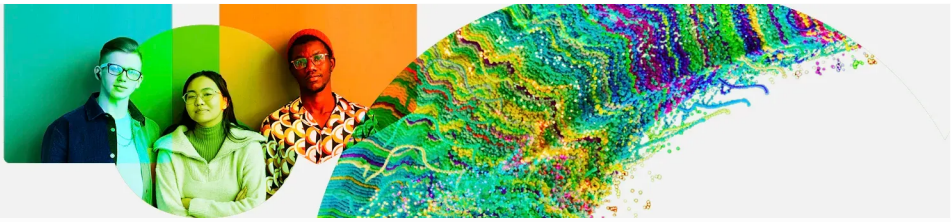
2.3.4 **QS university ranking**

was equal to an average score of 78.43 for the top three universities in 2023, down by 4.55% from the year prior – and equivalent to an indicator rank of 7.

4.2.4 **VC received, value**

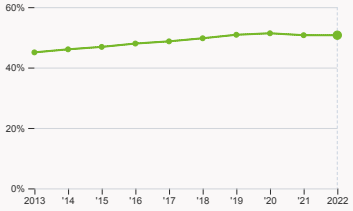
was equal to 2.1 million USD in 2023, down by 43.85% from the year prior – and equivalent to an indicator rank of 19.

Global Innovation Index 2024



4.3.2 Domestic industry diversification

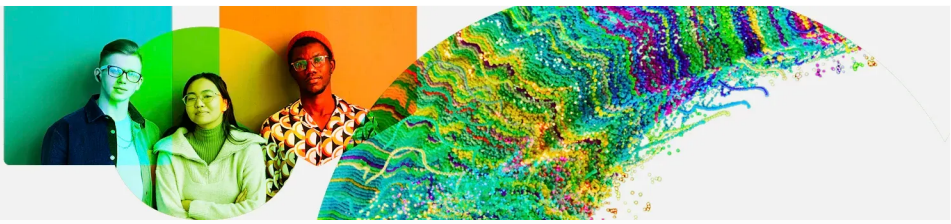
was equal to an index score of 0.15 in 2021, down by 6.39% from the year prior – and equivalent to an indicator rank of 59.



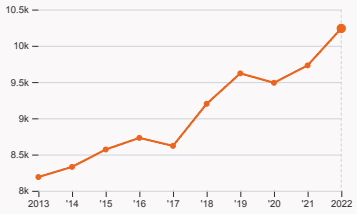
5.1.1 Knowledge-intensive employment

was equal to 50.71 % in 2022, down by 0.004 percentage points from the year prior – and equivalent to an indicator rank of 10.

Global Innovation Index 2024

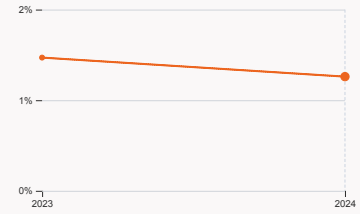


Innovation outputs in Switzerland



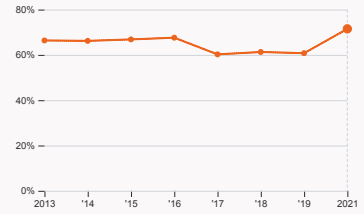
6.1.1 Patents by origin

was equal to 10.24 thousand patents in 2022, up by 5.24% from the year prior – and equivalent to an indicator rank of 5.



6.2.2 Unicorn valuation

was equal to 1.26 % GDP in 2024, down by 0.21 percentage points from the year prior – and equivalent to an indicator rank of 29.

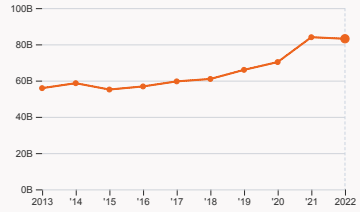


6.2.4 High-tech manufacturing

was equal to 71.49 % of total manufacturing output in 2021, up by 10.74 percentage points from the year prior – and equivalent to an indicator rank of 2.

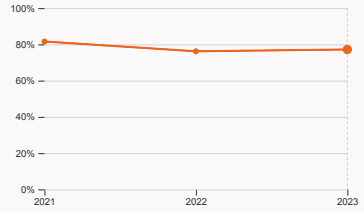
6.3.2 Production and export complexity

was equal to a score of 2.14 in 2021, down by 4.89% from the year prior – and equivalent to an indicator rank of 2.



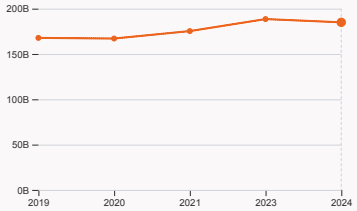
6.3.3 High-tech exports

was equal to 83.1 billion USD in 2022, down by 1.01% from the year prior – and equivalent to an indicator rank of 10.



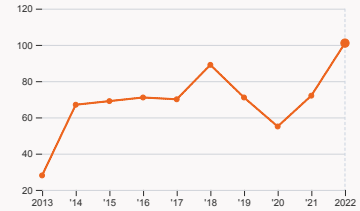
7.1.1 Intangible asset intensity

was equal to 77.18 % for the top 15 companies in 2023, up by 1 percentage points from the year prior – and equivalent to an indicator rank of 8.



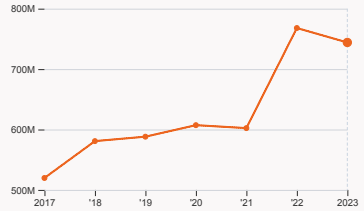
7.1.3 Global brand value

was equal to 184.93 billion USD for the brands in the top 5,000 in 2024, down by 1.9% from the year prior – and equivalent to an indicator rank of 4.



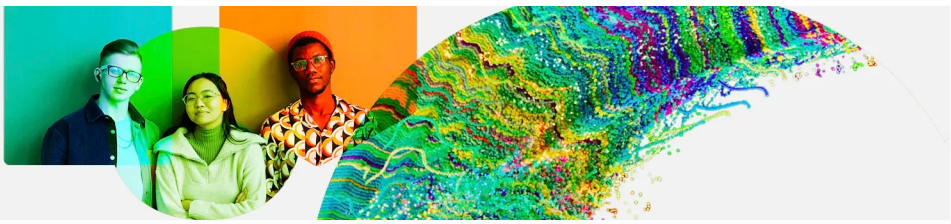
7.2.2 National feature films

was equal to 101 films in 2022, up by 40.28% from the year prior – and equivalent to an indicator rank of 1.



7.3.3 Mobile app creation

was equal to 744.06 million global downloads of mobile apps in 2023, down by 3.11% from the year prior – and equivalent to an indicator rank of 21.



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	14,268	2	22
17	NOVARTIS	Pharmaceuticals & Biotechnology	8,521	0.5	18
119	NESTLE	Food Producers	1,937	0.3	2
149	SYNGENTA	Chemicals	1,543	8	8

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

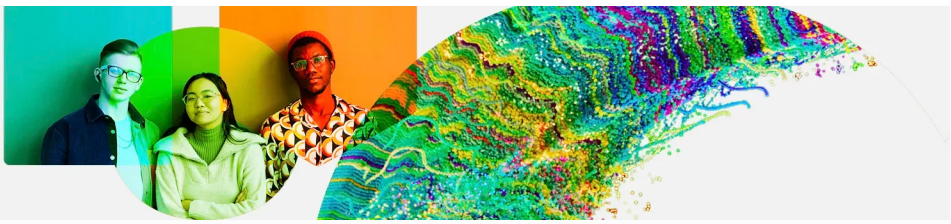
Rank	University	Score
7	ETH ZURICH (SWISS FEDERAL INSTITUTE OF TECHNOLOGY)	93.30
36	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL)	80.40
91	UNIVERSITY OF ZURICH	61.60

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	Enterprise Tech	Geneva	5
2	ACRONIS	Enterprise Tech	Schaffhausen	4
3	NEXTHINK	Enterprise Tech	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 S.A.	85.94
2	ROCHE HOLDING AG	86.68
3	NOVARTIS AG	90.95

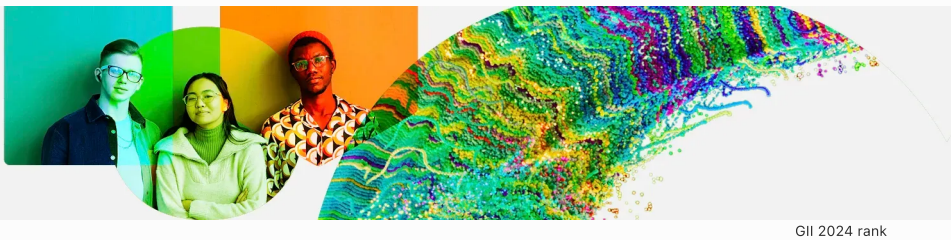
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

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

Rank	Brand	Industry	Brand Value, mn USD
1	NESTLE	Food	20,769.5
2	ROLEX	Apparel	13,805.1
3	UBS	Banking	12,221.8

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

Global Innovation Index 2024



Switzerland

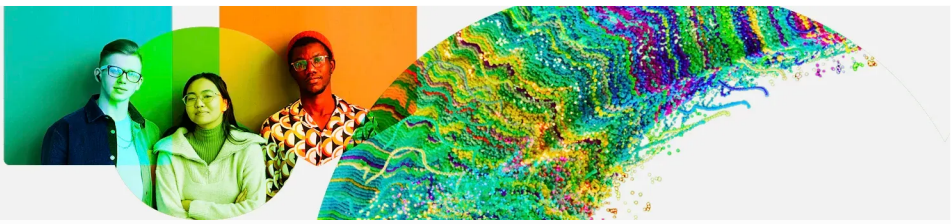
GII 2024 rank **1**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
1	2	High	EUR	8.9	788.3	89,537.3

	Score / Value	Rank
Institutions	**87.7**	**3**
1.1 Institutional environment	**92.4**	**4**
1.1.1 Operational stability for businesses*	87.3	8
1.1.2 Government effectiveness*	97.5	2
1.2 Regulatory environment	**89.2**	**7**
1.2.1 Regulatory quality*	84.4	11
1.2.2 Rule of law*	94.1	6
1.3 Business environment	**81.5**	**3**
1.3.1 Policy stability for doing business†	98.2	2
1.3.2 Entrepreneurship policies and culture†	64.7	16
Human capital and research	**61.8**	**4**
2.1 Education	**65.1**	**14**
2.1.1 Expenditure on education, % GDP	5.6	26
2.1.2 Government funding/pupil, secondary, % GDP/cap	24.2	26
2.1.3 School life expectancy, years	16.7	26
2.1.4 PISA scales in reading, maths and science	497.9	9
2.1.5 Pupil–teacher ratio, secondary	9.5	27
2.2 Tertiary education	**50**	**14**
2.2.1 Tertiary enrolment, % gross	74.2	31
2.2.2 Graduates in science and engineering, %	25.3	44
2.2.3 Tertiary inbound mobility, %	19.1	9
2.3 Research and development (R&D)	**70.4**	**4**
2.3.1 Researchers, FTE/mn pop.	5,999.4	11
2.3.2 Gross expenditure on R&D, % GDP	3.3	7
2.3.3 Global corporate R&D investors, top 3, mn USD	87.2	4
2.3.4 QS university ranking, top 3*	79.4	7
Infrastructure	**60.8**	**7**
3.1 Information and communication technologies (ICTs)	**82.1**	**40**
3.1.1 ICT access*	100	1
3.1.2 ICT use*	84.3	36
3.1.3 Government's online service*	74.3	49
3.1.4 E-participation*	69.8	41
3.2 General infrastructure	**50.4**	**15**
3.2.1 Electricity output, GWh/mn pop.	6,957.4	25
3.2.2 Logistics performance*	90.9	3
3.2.3 Gross capital formation, % GDP	25	51
3.3 Ecological sustainability	**49.9**	**4**
3.3.1 GDP/unit of energy use	26.7	4
3.3.2 Low-carbon energy use, %	52.3	12
3.3.3 ISO 14001 environment/bn PPP$ GDP	3.1	30
Market sophistication	**66.5**	**5**
4.1 Credit	**70.8**	**4**
4.1.1 Finance for startups and scaleups†	78.1	9
4.1.2 Domestic credit to private sector, % GDP	170.4	7
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**64.9**	**8**
4.2.1 Market capitalization, % GDP	259.9	5
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.8	9
4.2.3 VC recipients, deals/bn PPP$ GDP	0.3	8
4.2.4 VC received, value, % GDP	0.003	19
4.3 Trade, diversification and market scale	**63.9**	**33**
4.3.1 Applied tariff rate, weighted avg., %	0.7	10
4.3.2 Domestic industry diversification	82.2	59
4.3.3 Domestic market scale, bn PPP$	788.3	34

	Score / Value	Rank
Business sophistication	**67.2**	**4**
5.1 Knowledge workers	**71.2**	**6**
5.1.1 Knowledge-intensive employment, %	50.7	10
5.1.2 Firms offering formal training, %	n/a	n/a
5.1.3 GERD performed by business, % GDP	2.3	7
5.1.4 GERD financed by business, %	65.9	7
5.1.5 Females employed w/advanced degrees, %	21.6	27
5.2 Innovation linkages	**80.4**	**1**
5.2.1 Public Research-Industry co-publications, %	8	2
5.2.2 University-industry R&D collaboration†	100	1
5.2.3 State of cluster development†	97.3	4
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	10
5.2.5 Patent families/bn PPP$ GDP	9.4	4
5.3 Knowledge absorption	**50.1**	**10**
5.3.1 Intellectual property payments, % total trade	6.3	1
5.3.2 High-tech imports, % total trade	8	72
5.3.3 ICT services imports, % total trade	3.2	11
5.3.4 FDI net inflows, % GDP	-15.3	131
5.3.5 Research talent, % in businesses	48.7	28
Knowledge and technology outputs	**65.1**	**1**
6.1 Knowledge creation	**78.7**	**1**
6.1.1 Patents by origin/bn PPP$ GDP	13.6	5
6.1.2 PCT patents by origin/bn PPP$ GDP	6.8	1
6.1.3 Utility models by origin/bn PPP$ GDP	-	-
6.1.4 Scientific and technical articles/bn PPP$ GDP	40	3
6.1.5 Citable documents H-index	66.1	11
6.2 Knowledge impact	**55.9**	**7**
6.2.1 Labor productivity growth, %	0.6	69
6.2.2 Unicorn valuation, % GDP	1.3	29
6.2.3 Software spending, % GDP	0.6	7
6.2.4 High-tech manufacturing, %	71.5	2
6.3 Knowledge diffusion	**60.7**	**2**
6.3.1 Intellectual property receipts, % total trade	5.5	1
6.3.2 Production and export complexity	96.9	2
6.3.3 High-tech exports, % total trade	14.7	10
6.3.4 ICT services exports, % total trade	2.7	47
6.3.5 ISO 9001 quality/bn PPP$ GDP	9.9	28
Creative outputs	**67.1**	**1**
7.1 Intangible assets	**61.7**	**9**
7.1.1 Intangible asset intensity, top 15, %	77.2	8
7.1.2 Trademarks by origin/bn PPP$ GDP	52.4	31
7.1.3 Global brand value, top 5,000, % GDP	18.9	4
7.1.4 Industrial designs by origin/bn PPP$ GDP	4	21
7.2 Creative goods and services	**59.7**	**1**
7.2.1 Cultural and creative services exports, % total trade	0.6	48
7.2.2 National feature films/mn pop. 15–69	16.2	1
7.2.3 Entertainment and media market/th pop. 15–69	85.6	2
7.2.4 Creative goods exports, % total trade	2.9	18
7.3 Online creativity	**85.4**	**2**
7.3.1 Top-level domains (TLDs)/th pop. 15–69	81	4
7.3.2 GitHub commits/mn pop. 15–69	100	1
7.3.3 Mobile app creation/bn PPP$ GDP	75.3	21

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕓 that the economy's data is outdated. Square brackets [ ] indicate the the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; n/a represents missing values; a dash - indicates an indicator which is not relevant to this economy and thus not considered for DMC thresholds.



Data availability

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

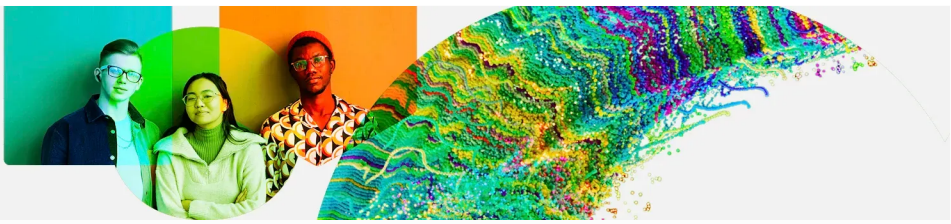
Switzerland has missing data for three indicators and outdated data for seven indicators.

Missing data for Switzerland

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2022	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2023	World Bank Enterprise Surveys
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2022	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	2021	2022	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.1.1	ICT access*	2021	2022	World Intellectual Property Organization; International Telecommunication Union ITU DataHub (accessed May 1st, 2024)
4.1.2	Domestic credit to private sector, % GDP	2016	2022	International Monetary Fund; World Bank and OECD GDP estimates.
5.1.3	GERD performed by business, % GDP	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2021	2022	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

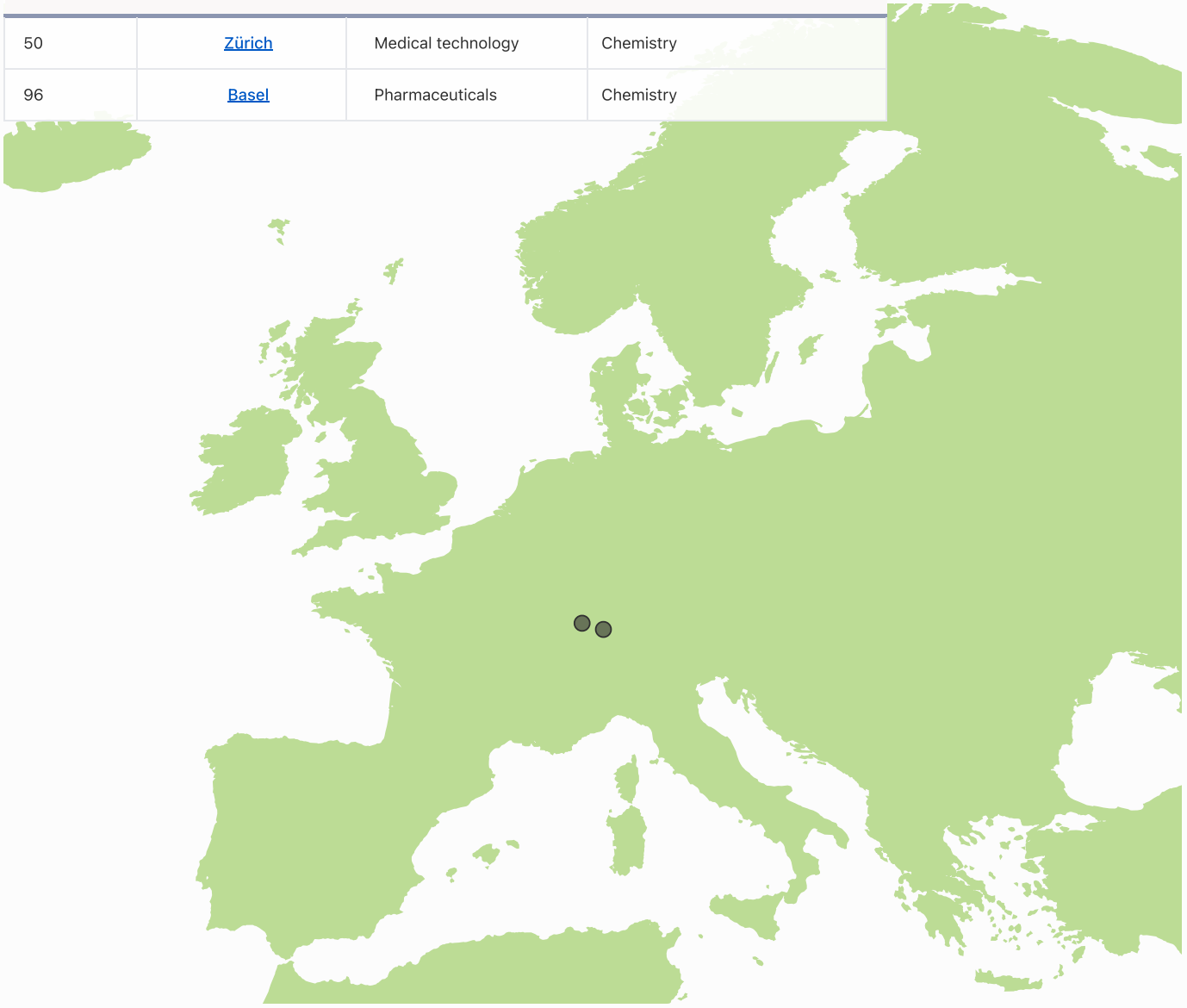


Top science and technology clusters in Switzerland

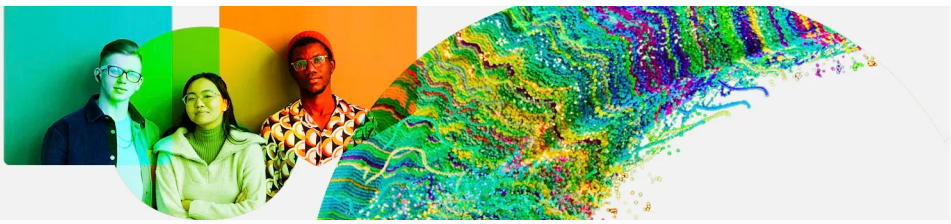
Switzerland has 2 clusters in the top 100 S&T clusters of the Global Innovation Index, the same number as in 2023.

The table and map below give an overview of the top science and technology clusters in Switzerland.

Rank	Cluster name	Top patent field	Top academic subject
50	Zürich	Medical technology	Chemistry
96	Basel	Pharmaceuticals	Chemistry

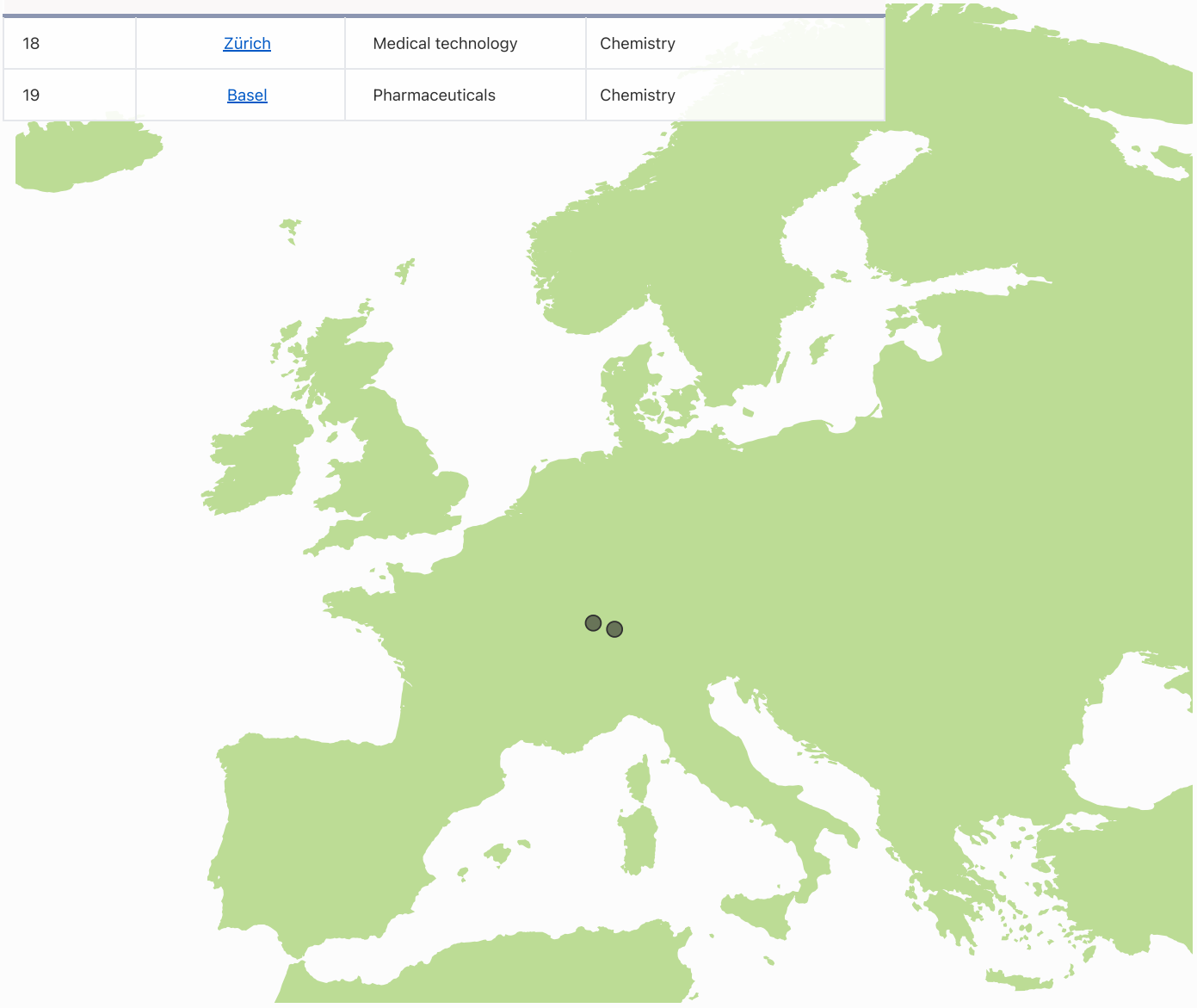


Global Innovation Index 2024

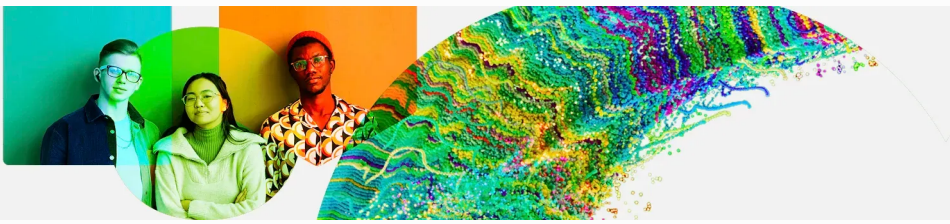


The table and map below give an overview of the top science and technology clusters by intensity in Switzerland.

Rank	Cluster name	Top patent field	Top academic subject
18	Zürich	Medical technology	Chemistry
19	Basel	Pharmaceuticals	Chemistry

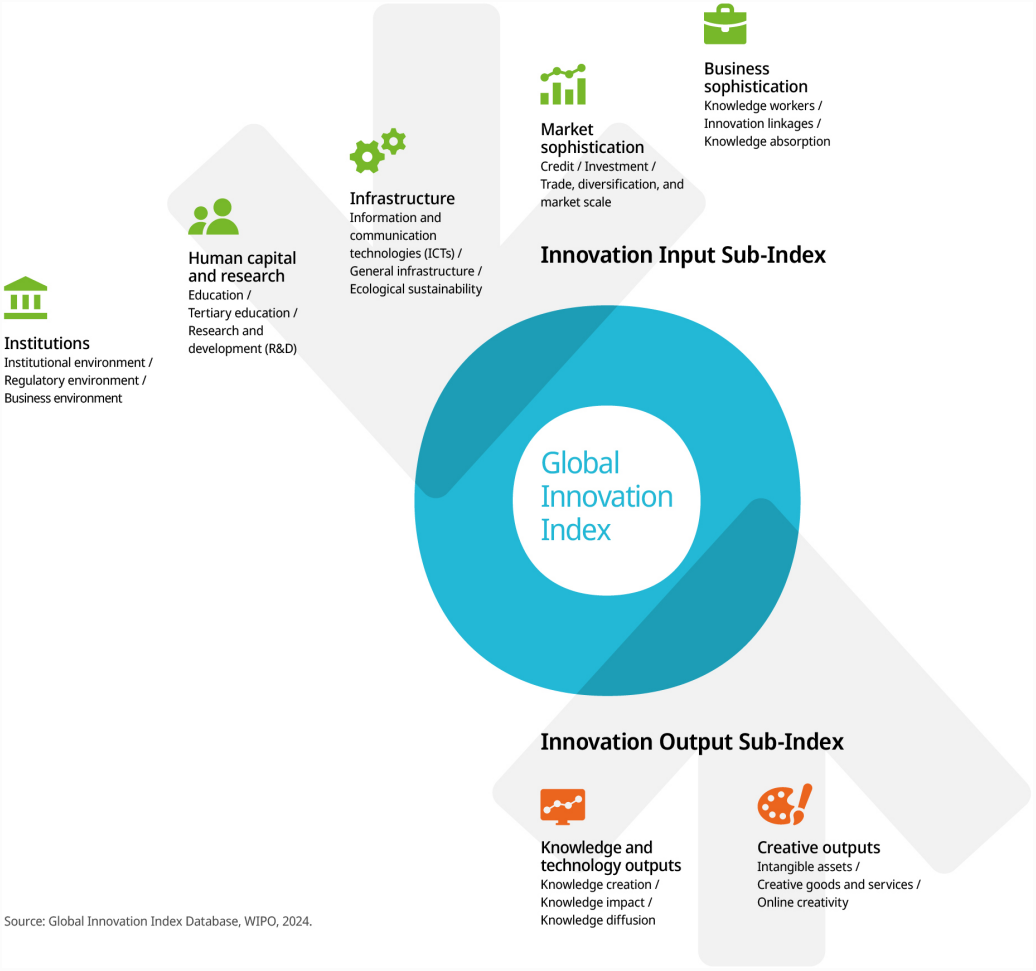


Global Innovation Index 2024



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, 2024.

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.