GLOBAL INNOVATION INDEX 2020

SWITZERLAND

1st Switzerland ranks 1st among the 131 economies featured in the GII 2020.

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.

The following table shows the rankings of Switzerland over the past three years, noting that data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings.

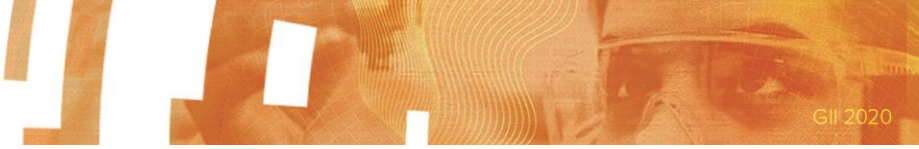
Rankings of Switzerland (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	1	2	1
2019	1	2	1
2018	1	2	1

- Switzerland performs better in innovation outputs than innovation inputs in 2020.
- This year Switzerland ranks 2nd in innovation inputs, the same as last year and 2018.
- As for innovation outputs, Switzerland ranks 1st. This position is the same as last year and 2018.

1st Switzerland ranks 1st among the 49 high-income group economies.

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



Switzerland remains the world leader in innovation for a tenth consecutive year. It displays a strong and solid performance across all GII seven areas, and ranks among the top 3 in 19 out of the 80 indicators that compose the GII.

A consistent producer of high-quality innovations, it also excels in the innovativeness of its business sector, with a strong share of knowledge-intensive employment and high R&D expenditures performed and financed by the private sector.

Switzerland consistently ranks among the top 3 in Patents by origin, PCT patents by origin, Scientific and technical articles, High-technology manufacturing, Intellectual property (IP) receipts, Entertainment and media market, and Country-code top-level domains. Host to 122 of the world's top 5,000 brands, this year Switzerland ranks 2nd in the new GII indicator, Global brand value. Its top brands include Nestlé (food), UBS (banks) and ABB (engineering and construction).

Its human capital and research systems also register important results. Switzerland ranks 4th in R&D expenditures, 5th in R&D-intensive global companies and 4th in the Quality of universities, with ETH Zurich (Swiss Federal Institute of Technology) and École Polytechnique Fédérale de Lausanne (EPFL) among the top 20 highest ranked universities in the world.

Switzerland ranks 2nd after the United States of America (U.S.) in its quality of innovation, thanks to the high-quality of its universities and scientific publications, but also – and especially – thanks to the great efforts it makes to internationalize its inventions, ranking 1st globally in Patent families in two or more offices.

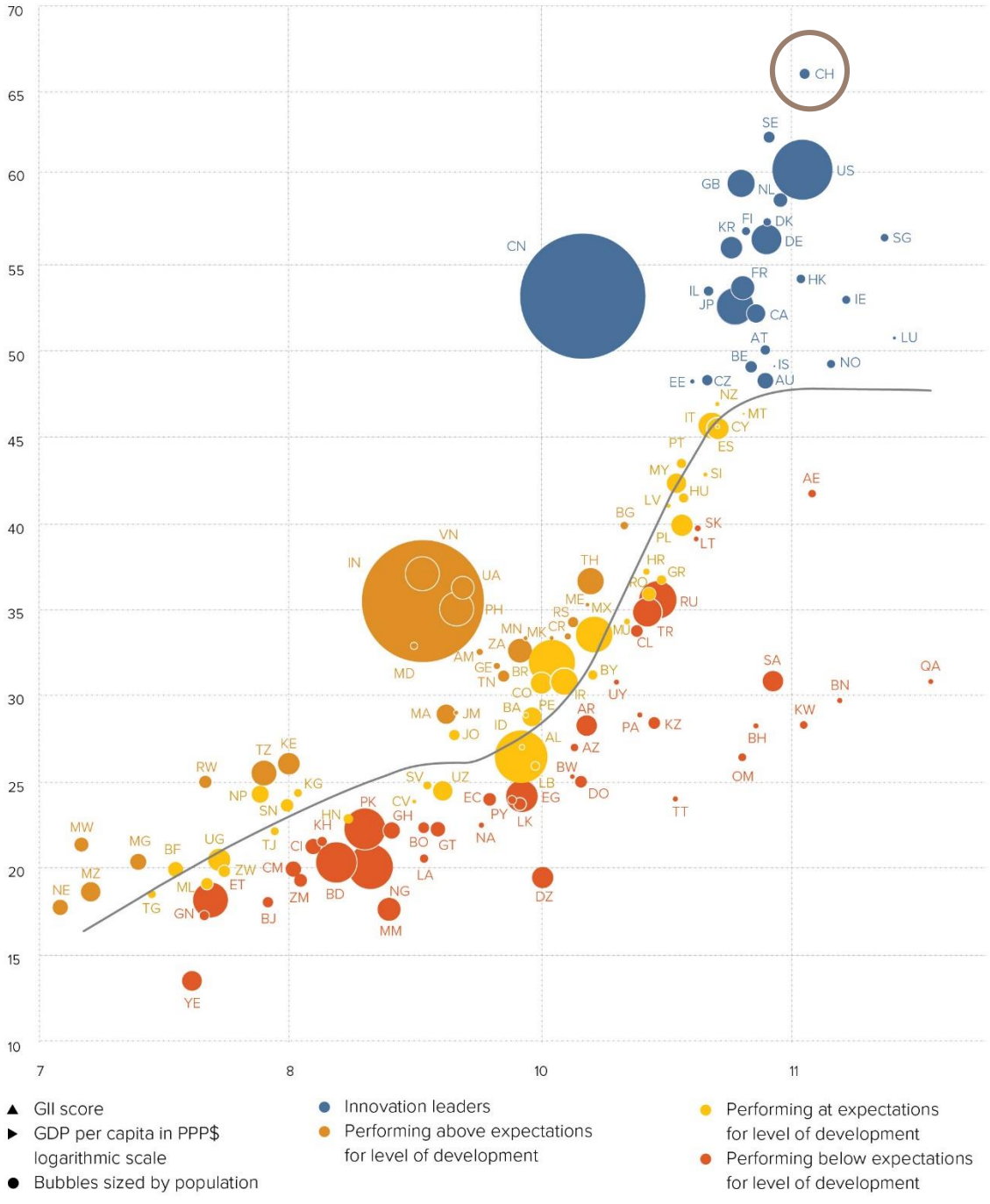
Other indicators where Switzerland achieves a top 3 ranking are found across various GII areas that include Government effectiveness, Environmental performance, Domestic credit to private sector, Market capitalization and ICT services imports. The country also shows a particularly well connected innovation ecosystem, ranking 2nd in University–industry collaborations and 5th in Cluster development, with Zurich (49th) and Lausanne (89th) among the world's top 100 science and technology clusters.

EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

Relative to GDP, Switzerland's is performance is above expectations for its level of development.

The positive relationship between innovation and development

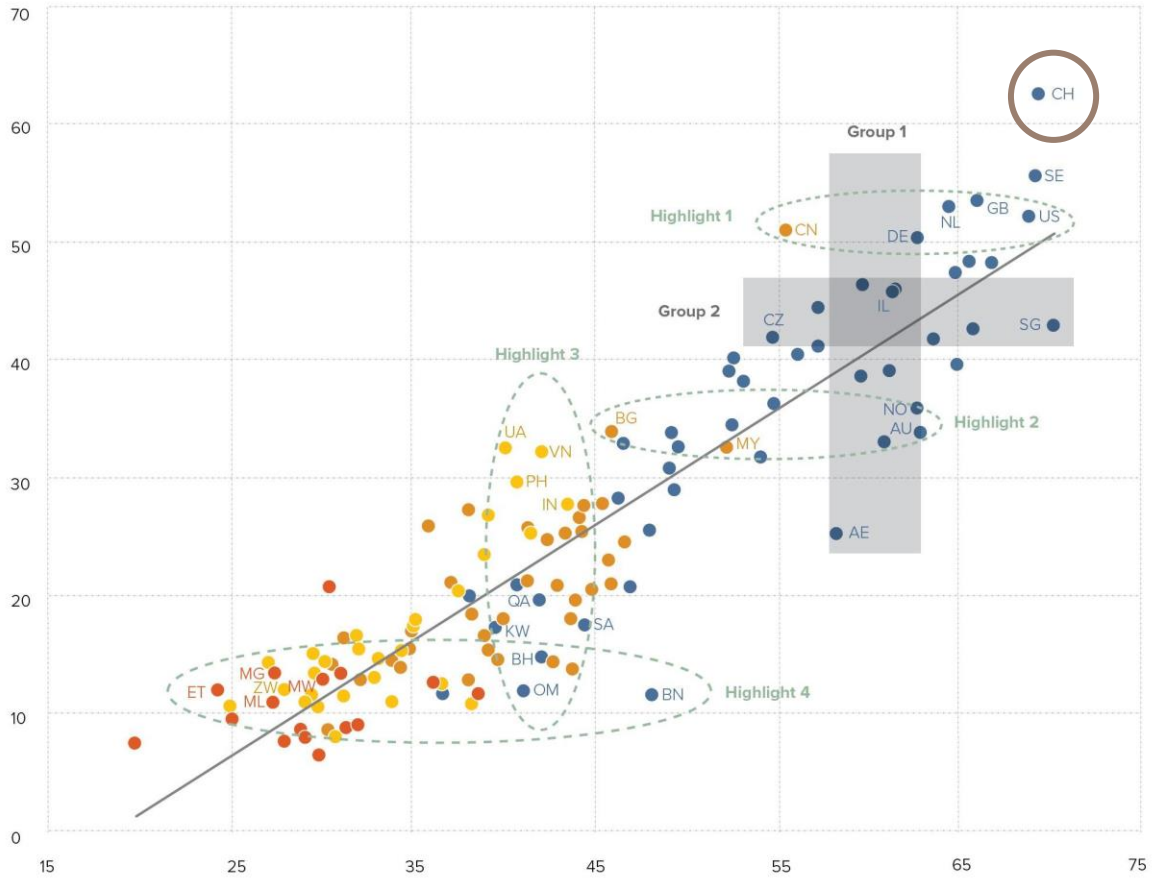


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Innovation input to output performance, 2020

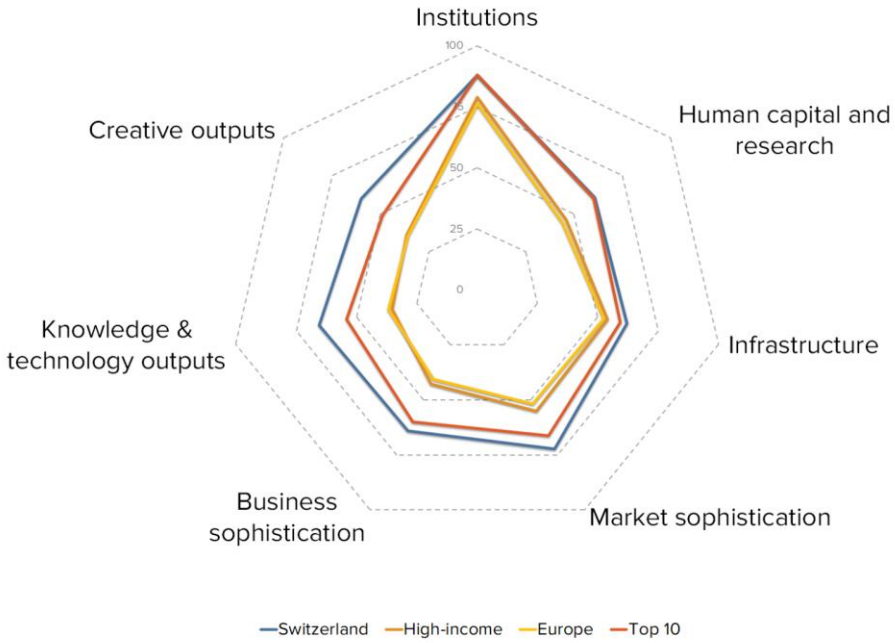


▲ Output score ● High income group ● Lower middle-income group — Fitted values
► Input score ● Upper middle-income group ● Low income group

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

BENCHMARKING SWITZERLAND AGAINST OTHER HIGH-INCOME ECONOMIES AND EUROPE

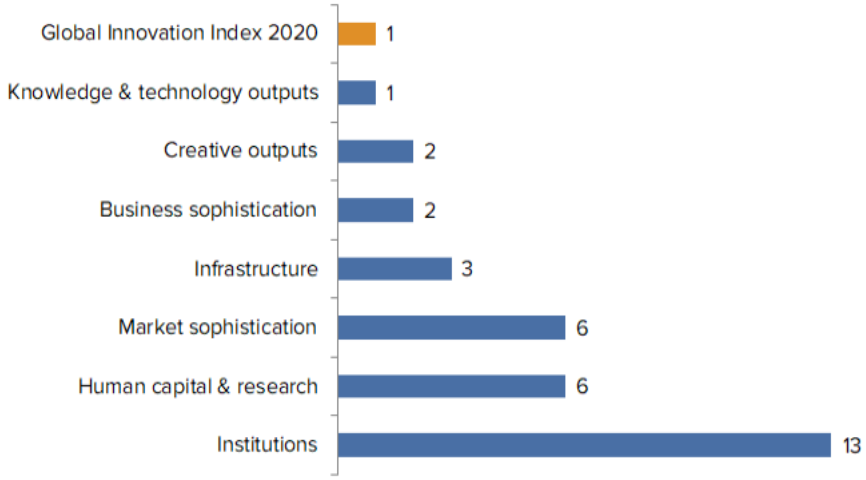
Switzerland's scores in the seven GII pillars



- Switzerland has high scores in all seven GII pillars above average for the high-income group.
- Compared to other economies in Europe, Switzerland performs above average in all seven GII pillars.

OVERVIEW OF SWITZERLAND RANKINGS IN THE SEVEN GII AREAS

Switzerland performs the best in Knowledge & technology outputs and its weakest performance is in Institutions.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Switzerland in the GII 2020.

Strengths

Code	Indicator name	Rank
1.1	Political environment	2
1.1.2	Government effectiveness*	2
1.2.2	Rule of law*	3
3	Infrastructure	3
3.1.2	ICT use*	3
3.3	Ecological sustainability	2
3.3.2	Environmental performance*	3
4.1.2	Domestic credit to private sector, % GDP	3
4.2.2	Market capitalization, % GDP	1
5	Business sophistication	2
5.1.1	Knowledge-intensive employment, %	3
5.2.1	University/industry research collaboration†	2
5.2.5	Patent families 2+ offices/bn PPP$ GDP	1
5.3.3	ICT services imports, % total trade	3
6	Knowledge & technology outputs	1
6.1	Knowledge creation	1
6.1.1	Patents by origin/bn PPP$ GDP	1
6.1.2	PCT patents by origin/bn PPP$ GDP	3
6.1.4	Scientific & technical articles/bn PPP$ GDP	3
6.2.3	Computer software spending, % GDP	3
6.2.5	High- & medium-high-tech manufacturing, %	3
6.3.1	Intellectual property receipts, % total trade	1
7	Creative outputs	2
7.1	Intangible assets	3
7.1.2	Global brand value, top 5000, % GDP	2
7.2	Creative goods and services	3
7.2.3	Entertainment & Media market/th pop. 15–69	1
7.3.2	Country-code TLDs/th pop. 15–69	1

Weaknesses

Code	Indicator name	Rank
1.3	Business environment	47
1.3.1	Ease of starting a business*	66
2.2.1	Tertiary enrolment, % gross	48
2.2.2	Graduates in science & engineering, %	38
3.2.3	Gross capital formation, % GDP	67
4.1.1	Ease of getting credit*	61
4.2.1	Ease of protecting minority investors*	92
4.3.1	Applied tariff rate, weighted avg., %	50
5.3.2	High-tech imports, % total trade	87
6.2.1	Growth rate of PPP$ GDP/worker, %	67
7.2.4	Printing & other media, % manufacturing	36

NOTES: * indicates an index; † indicates a survey question.

STRENGTHS

GII strengths for Switzerland are found in six of the seven GII pillars, mostly on the output side of the GII.

- Institutions (13): exhibits strengths in the sub-pillar Political environment (2) and in the indicators Government effectiveness (2) and Rule of law (3).
- Infrastructure (3): demonstrates strengths in the sub-pillar Ecological sustainability (2) and in the indicators ICT use (3) and Environmental performance (3).
- Market sophistication (6): has strengths in the indicators Domestic credit to private sector (3) and Market capitalization (1).
- Business sophistication (2): displays strengths in four indicators: Knowledge-intensive employment (3), University–industry research collaboration (2), Patent families in two or more offices (1) and ICT services imports (3).
- Knowledge & technology outputs (1): reveals strengths in the sub-pillar Knowledge creation (1) and in several indicators: Patents by origin (1), PCT patents by origin (3), Scientific & technical articles (3), Computer software spending (3), High- and medium-high-tech manufacturing (3) and Intellectual property receipts (1).
- Creative outputs (2): has strengths in the sub-pillars Intangible assets (3) and Creative goods and services (3), and in three indicators: Global brand value (2), Entertainment & Media market (1) and Country-code top-level domains (1).

WEAKNESSES

GII weaknesses for Switzerland are scattered across all seven of the GII pillars.

- Institutions (13): exhibits weaknesses in the sub-pillar Business environment (47) and in its indicator Ease of starting a business (66).
- Human capital & research (6): has weaknesses in the indicators Tertiary enrolment (48) and Graduates in science & engineering (38).
- Infrastructure (3): the indicator Gross capital formation (67) is a weakness.
- Market sophistication (6): shows weaknesses in the indicators Ease of getting credit (61), Ease of protecting minority investors (92) and Applied tariff rate (50).
- Business sophistication (2): the indicator High-tech imports (87) is a weakness.
- Knowledge & technology outputs (1): the indicator Productivity growth (67) is a weakness.
- Creative outputs (2): the indicator Printing and other media (36) is a weakness.

SWITZERLAND

GII 2020 rank

1

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
1	2	High	EUR	8.6	565.6	57,791.1	1

		Score/Value	Rank	
INSTITUTIONS		**88.0**	**13**	
1.1	**Political environment**	**94.2**	**2**	● ◆
1.1.1	Political and operational stability*	91.1	5	
1.1.2	Government effectiveness*	95.7	2	● ◆
1.2	**Regulatory environment**	**94.4**	**7**	
1.2.1	Regulatory quality*	88.8	8	
1.2.2	Rule of law*	97.0	3	●
1.2.3	Cost of redundancy dismissal, salary weeks	10.1	31	
1.3	**Business environment**	**75.5**	**47**	○ ◇
1.3.1	Ease of starting a business*	88.4	66	○ ◇
1.3.2	Ease of resolving insolvency*	62.6	44	◇
HUMAN CAPITAL & RESEARCH		**60.7**	**6**	
2.1	**Education**	**56.1**	**31**	
2.1.1	Expenditure on education, % GDP ⊙	5.1	40	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⊙	24.5	22	
2.1.3	School life expectancy, years	16.3	26	
2.1.4	PISA scales in reading, maths, & science	498.2	21	
2.1.5	Pupil-teacher ratio, secondary ⊙	9.8	31	
2.2	**Tertiary education**	**49.4**	**18**	
2.2.1	Tertiary enrolment, % gross	59.6	48	○
2.2.2	Graduates in science & engineering, %	24.9	38	○
2.2.3	Tertiary inbound mobility, %	17.8	9	◆
2.3	**Research & development (R&D)**	**76.6**	**4**	◆
2.3.1	Researchers, FTE/mn pop ⊙	5,450.5	12	
2.3.2	Gross expenditure on R&D, % GDP ⊙	3.3	4	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	91.3	5	
2.3.4	QS university ranking, average score top 3*	83.0	4	
INFRASTRUCTURE		**62.0**	**3**	● ◆
3.1	**Information & communication technologies (ICTs)**	**85.8**	**21**	
3.1.1	ICT access*	85.2	14	
3.1.2	ICT use*	88.8	3	● ◆
3.1.3	Government's online service*	84.7	35	
3.1.4	E-participation*	84.3	41	
3.2	**General infrastructure**	**39.6**	**25**	
3.2.1	Electricity output, kWh/mn pop	7,783.9	25	
3.2.2	Logistics performance*	85.9	13	
3.2.3	Gross capital formation, % GDP	23.3	67	○
3.3	**Ecological sustainability**	**60.7**	**2**	● ◆
3.3.1	GDP/unit of energy use	20.0	5	◆
3.3.2	Environmental performance*	81.5	3	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.2	23	
MARKET SOPHISTICATION		**72.3**	**6**	
4.1	**Credit**	**72.1**	**6**	
4.1.1	Ease of getting credit*	65.0	61	○
4.1.2	Domestic credit to private sector, % GDP ⊙	174.9	3	● ◆
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**71.9**	**7**	◆
4.2.1	Ease of protecting minority investors*	50.0	92	○ ◇
4.2.2	Market capitalization, % GDP	220.5	1	● ◆
4.2.3	Venture capital deals/bn PPP$ GDP	0.4	7	
4.3	**Trade, competition, and market scale**	**72.8**	**27**	
4.3.1	Applied tariff rate, weighted avg., %	1.7	50	○
4.3.2	Intensity of local competition+	75.5	23	
4.3.3	Domestic market scale, bn PPP$	565.6	37	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**64.1**	**2**	● ◆
5.1	**Knowledge workers**	**74.0**	**4**	◆
5.1.1	Knowledge-intensive employment, %	53.8	3	● ◆
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP ⊙	2.3	5	
5.1.4	GERD financed by business, %	68.6	6	◆
5.1.5	Females employed w/advanced degrees, %	19.5	30	
5.2	**Innovation linkages**	**66.2**	**5**	
5.2.1	University/industry research collaboration+	77.5	2	● ◆
5.2.2	State of cluster development+	71.9	5	◆
5.2.3	GERD financed by abroad, % GDP	0.2	22	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.2	13	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	8.0	1	● ◆
5.3	**Knowledge absorption**	**52.0**	**12**	
5.3.1	Intellectual property payments, % total trade	3.0	5	
5.3.2	High-tech imports, % total trade	6.4	87	○
5.3.3	ICT services imports, % total trade	3.8	3	● ◆
5.3.4	FDI net inflows, % GDP	3.7	40	
5.3.5	Research talent, % in business enterprise ⊙	49.7	24	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**65.5**	**1**	● ◆
6.1	**Knowledge creation**	**87.9**	**1**	● ◆
6.1.1	Patents by origin/bn PPP$ GDP	16.7	1	● ◆
6.1.2	PCT patents by origin/bn PPP$ GDP	8.2	3	● ◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	35.8	3	● ◆
6.1.5	Citable documents H-index	66.3	9	
6.2	**Knowledge impact**	**50.8**	**5**	◆
6.2.1	Growth rate of PPP$ GDP/worker, %	0.8	67	○
6.2.2	New businesses/th pop. 15-64	4.5	33	
6.2.3	Computer software spending, % GDP	0.0	3	● ◆
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	15.1	19	◆
6.2.5	High- and medium-high-tech manufacturing, %	60.0	3	● ◆
6.3	**Knowledge diffusion**	**57.9**	**6**	
6.3.1	Intellectual property receipts, % total trade	5.6	1	● ◆
6.3.2	High-tech net exports, % total trade	7.2	22	
6.3.3	ICT services exports, % total trade	3.0	33	
6.3.4	FDI net outflows, % GDP	10.9	6	
CREATIVE OUTPUTS		**60.0**	**2**	● ◆
7.1	**Intangible assets**	**60.3**	**3**	● ◆
7.1.1	Trademarks by origin/bn PPP$ GDP	75.2	27	
7.1.2	Global brand value, top 5,000, % GDP	234.5	2	● ◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	6.2	22	
7.1.4	ICTs & organizational model creation+	77.4	9	
7.2	**Creative goods and services**	**51.1**	**3**	● ◆
7.2.1	Cultural & creative services exports, % total trade	0.8	37	
7.2.2	National feature films/mn pop. 15-69	19.4	6	◆
7.2.3	Entertainment & Media market/th pop. 15-69	100.0	1	● ◆
7.2.4	Printing and other media, % manufacturing ⊙	1.2	36	○
7.2.5	Creative goods exports, % total trade	3.9	15	
7.3	**Online creativity**	**68.3**	**5**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	58.4	13	
7.3.2	Country-code TLDs/th pop. 15-69	100.0	1	● ◆
7.3.3	Wikipedia edits/mn pop. 15-69	84.0	16	
7.3.4	Mobile app creation/bn PPP$ GDP	31.8	17	

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25-ranked GII economies; ◇ a weakness relative to the other top 25-ranked GII economies; * an index; + a survey question. ⊙ indicates that the economy's data are older than the base year; see Appendix II for details, including the year of the data, at http://globalinnovationindex.org. 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 data that are either missing or outdated for Switzerland.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2018	World Bank

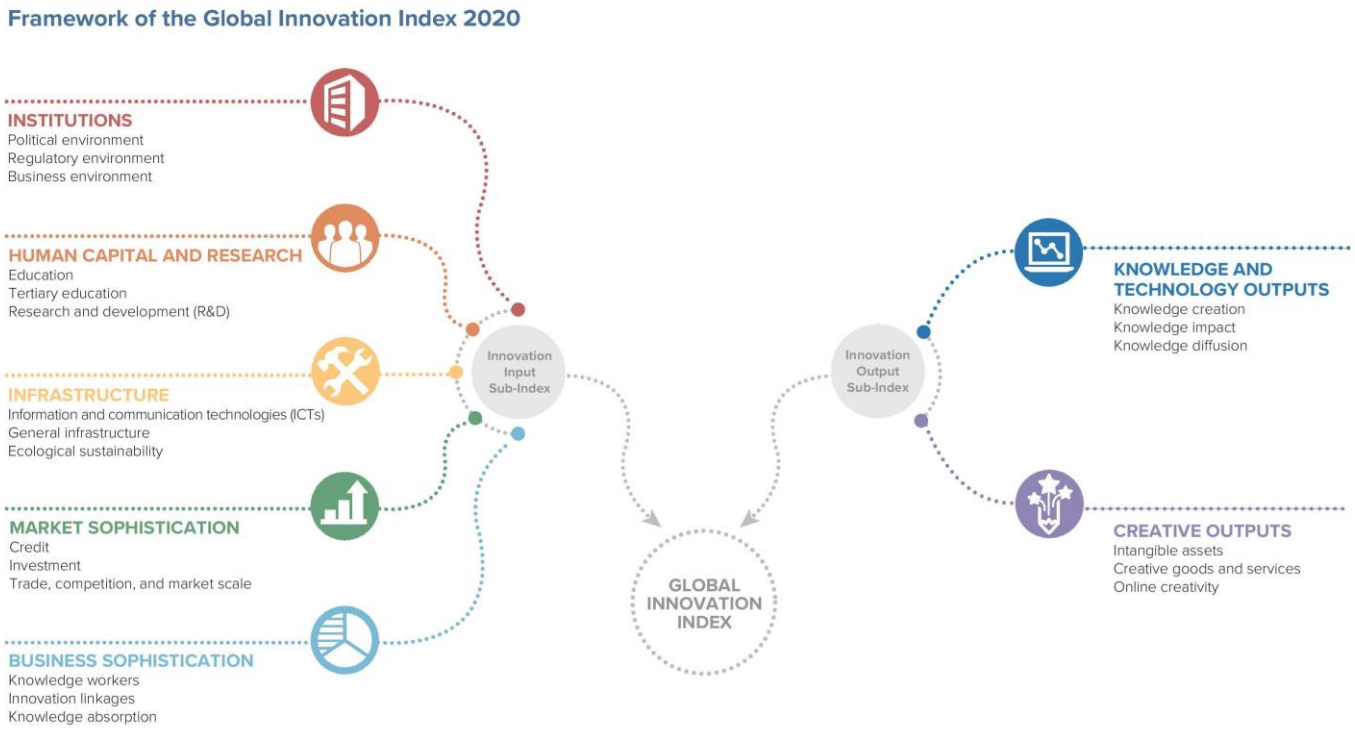
Outdated data

Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
4.1.2	Domestic credit to private sector, % GDP	2016	2018	International Monetary Fund
5.1.3	GERD performed by business, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.3.5	Research talent, % in business enterprise	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
7.2.4	Printing & other media, % manufacturing	2013	2017	United Nations Industrial Development Organization

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.