



GLOBAL INNOVATION INDEX 2019

FINLAND

6th

Finland ranks 6th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 Finland over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Finland's ranking in the GII 2019 is between 4 and 6.

Finland's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	6	7	7
2018	7	5	8
2017	8	4	13

- Finland performs the same in Innovation Inputs as in Outputs in 2019.
- This year Finland ranks 7th in Innovation Inputs, worse than last year and compared to 2017.
- As for Innovation Outputs, Finland ranks 7th. This position is better than last year and compared to 2017.

6th

Finland ranks 6th among the 50 high-income economies.

5th

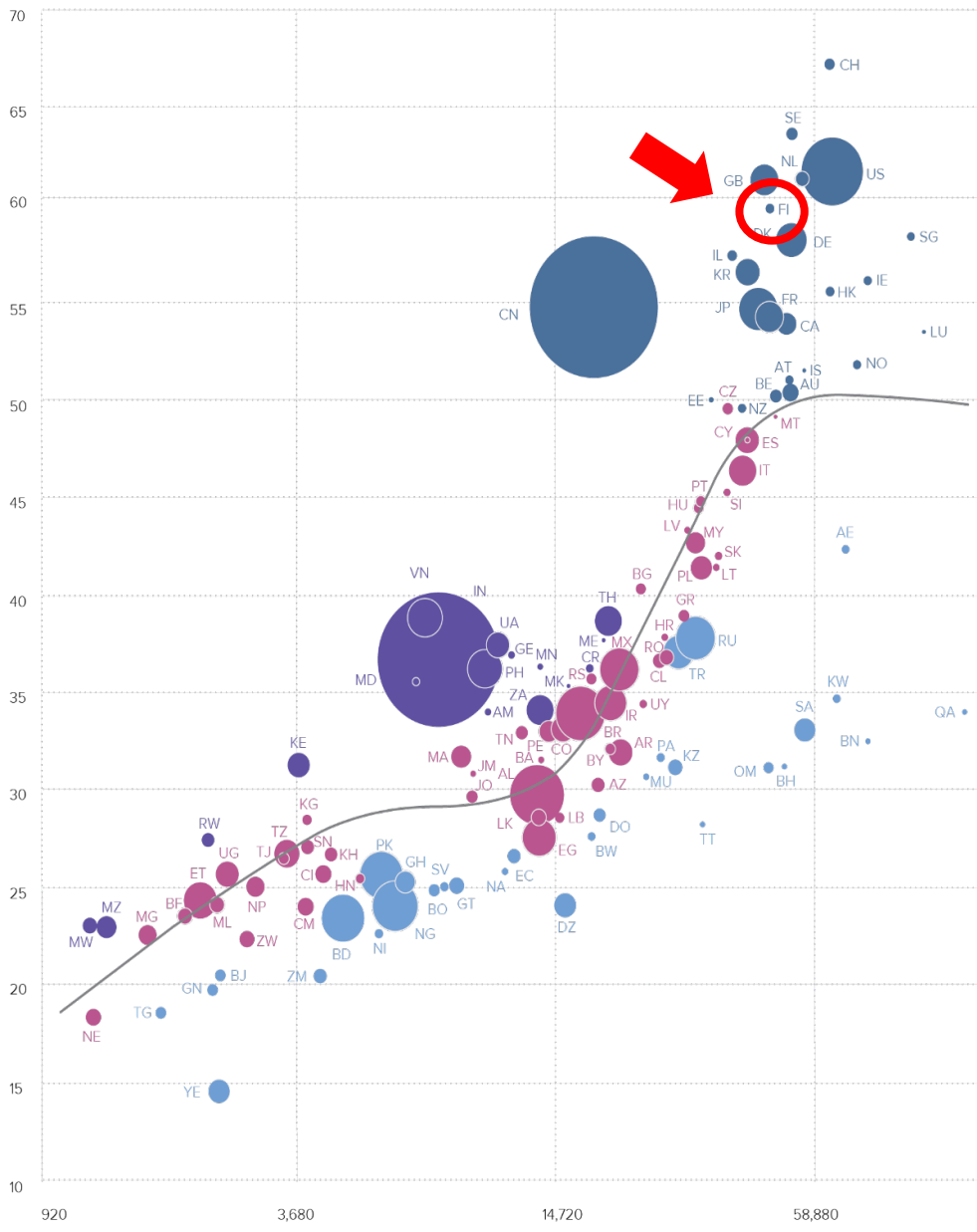
Finland ranks 5th among the 39 economies in Europe.

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 considered Innovation under-performers relative to GDP.

Relative to GDP, Finland performs well above its expected level of development.

GII scores and GDP per capita in PPP US\$ (bubbles sized by population)



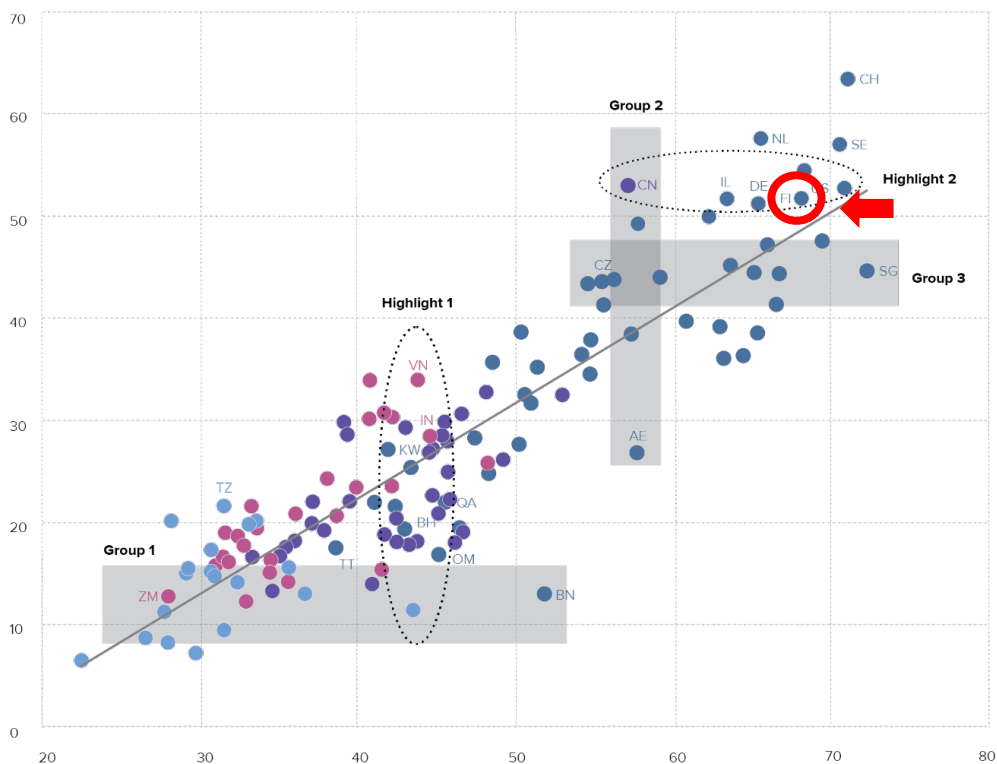
- ▲ GII score
- ▶ GDP per capita in PPP\$ (logarithmic scale)
- Innovation leaders
- Innovation achievers
- Performing at expectations for level of development
- Performing below expectations for level of development

EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

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

Innovation input/output performance by income group, 2019

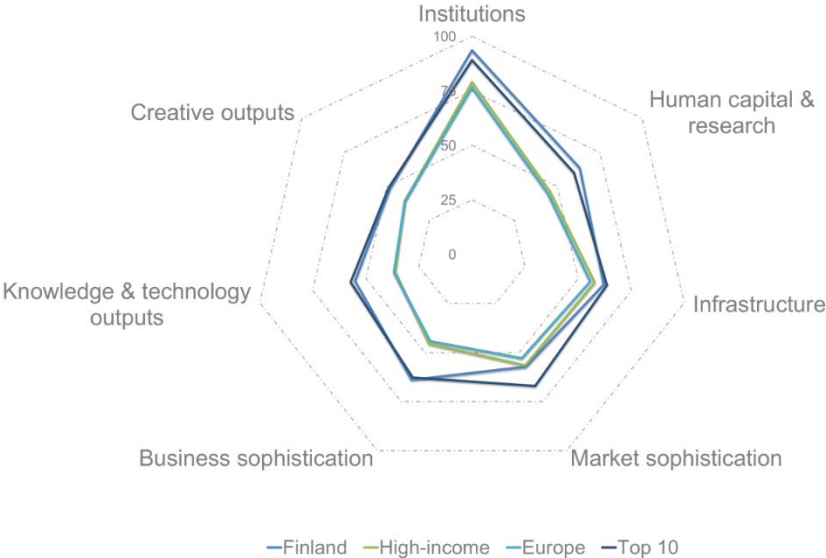


▲ Output score
 ► Input score
 ● High income
 ● Upper-middle income
 ● Lower-middle income
 ● Low income
 — Fitted values

AE United Arab Emirates	CZ Czech Republic	NL Netherlands	TZ United Republic of Tanzania
BH Bahrain	DE Germany	OM Oman	US United States of America
BN Brunei Darussalam	FI Finland	QA Qatar	VN Viet Nam
CH Switzerland	IL Israel	SE Sweden	ZM Zambia
CN China	IN India	SG Singapore	
	KW Kuwait	TT Trinidad and Tobago	

BENCHMARKING FINLAND TO OTHER HIGH-INCOME ECONOMIES AND THE EUROPE REGION

Finland's scores in the seven GII pillars



High-income economies

Finland has high scores in all the 7 GII pillars, which are above the average of the high-income group.

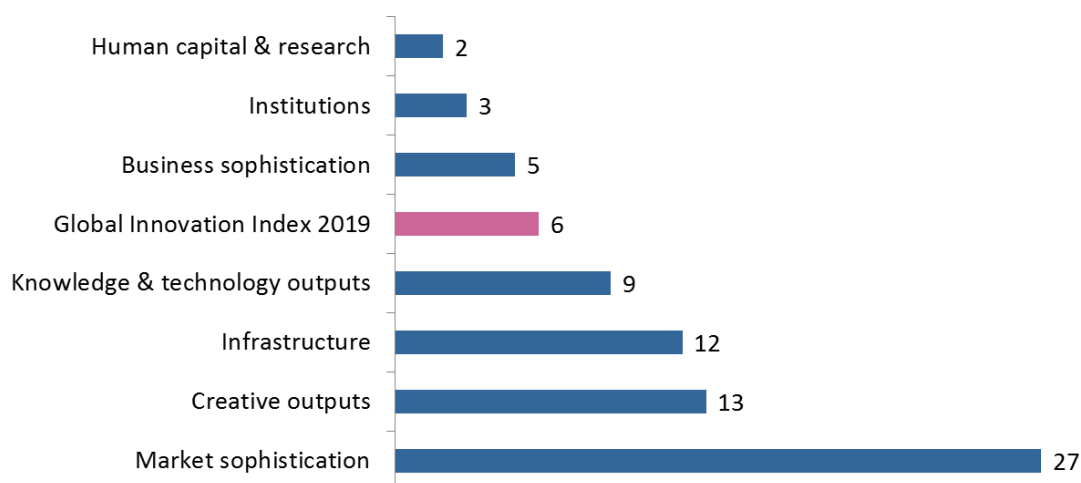
Europe Region

Compared to other economies in Europe, Finland performs above average in all the 7 GII pillars.

Top ranks are found in all sub-pillars within Institutions – Political environment, Regulatory environment, and Business environment – as well as sub-pillars Education and Innovation linkages, where the country ranks in the top 5 worldwide.

OVERVIEW OF FINLAND'S RANKINGS IN THE 7 GII AREAS

Finland performs the best in Human capital & research and its weakest performance is in Market sophistication.



*The highest possible ranking in each pillar is 1.

FINLAND'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of Finland's strengths and weaknesses in the GII 2019.

Strengths		
Code	Indicator name	Rank
1	Institutions	3
1.1.2	Government effectiveness*	4
1.2.2	Rule of law*	1
1.3	Business environment	1
1.3.2	Ease of resolving insolvency*	2
2	Human capital & research	2
2.1	Education	4
2.1.3	School life expectancy, years	3
3.1.4	E-participation*	1
5.2	Innovation linkages	4
5.2.5	Patent families 2+ offices/bn PPP\$ GDP	3
5.3.3	ICT services imports, % total trade	4
6.1.2	PCT patents by origin/bn PPP\$ GDP	1
7.1.3	ICTs & business model creation [†]	2
7.1.4	ICTs & organizational model creation [†]	3
7.3.4	Mobile app creation/bn PPP\$ GDP	1

Weaknesses		
Code	Indicator name	Rank
2.1.5	Pupil-teacher ratio, secondary	58
3.2.3	Gross capital formation, % GDP	66
3.3.1	GDP/unit of energy use	96
4.1.1	Ease of getting credit*	54
4.2.1	Ease of protecting minority investors*	68
4.3.2	Intensity of local competition [†]	99
5.3.2	High-tech imports, % total trade	60
6.2.1	Growth rate of PPP\$ GDP/worker, %, 3-year average	57
7.1.1	Trademarks by origin/bn PPP\$ GDP	58
7.2.4	Printing & other media, % manufacturing	58

STRENGTHS

- GII strengths for Finland are found in six of the seven GII pillars.
- GII pillars Institutions (3) and Human capital & research (2) are notable strengths of Finland.
- In Institutions (3), Finland's strengths are also sub-pillar Business environment, where it ranks 1st, and indicators Government effectiveness (4), Ease of resolving insolvency (2), and Rule of law, in which Finland is world leader.
- In Human capital & research (2), GII strengths for Finland are sub-pillar Education (4) and indicator School life expectancy (3).
- In Infrastructure (12), Finland's strength is indicator E-participation, ranked 1st worldwide.
- In Business sophistication (5), relative strengths for the country are sub-pillar Innovation linkages (4) as well as indicators Patent families in two or more offices (3) and ICT services imports (4).
- In Knowledge & technology outputs (9), Finland has only one strength in indicator PCT patents by origin, where it ranks 1st.
- In Creative outputs (13), three strengths are found in indicators ICTs & business model creation (2), ICTs & organizational model creation (3), and Mobile app creation – where Finland ranks 1st.

WEAKNESSES

- Finland's weaknesses in the GII are found in six of the seven GII pillars.
- In Human capital & research (2), Finland's relative weakness is indicator Pupil-teacher ratio (58).
- In Infrastructure (12), weaknesses are indicators Gross capital formation (66) and GDP per unit of energy use (96).
- In Market sophistication (27), weaknesses are indicators Ease of getting credit (54), Ease of protecting minority investors (68), and Intensity of local competition (99).
- In Business sophistication (5), one indicator – High-tech imports (60) – is a relative weakness for this country.
- In Knowledge & technology outputs (9), Finland shows only one weakness in indicator Labor productivity growth (57).
- In Creative outputs (13), two indicators – Trademarks by origin (58) and Printing & other media (58) – are relative weaknesses for Finland.

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
7	7	High	EUR	5.5	257.2	46,429.5	7
				Score/Value	Rank		
INSTITUTIONS				93.6	3 ● ◆		
1.1	Political environment	92.2	5				
1.1.1	Political and operational stability*.....	89.5	15				
1.1.2	Government effectiveness*.....	93.5	4 ●				
1.2	Regulatory environment	96.1	5				
1.2.1	Regulatory quality*.....	90.8	8				
1.2.2	Rule of law*.....	100.0	1 ●				
1.2.3	Cost of redundancy dismissal, salary weeks.....	10.1	31				
1.3	Business environment	92.6	1 ● ◆				
1.3.1	Ease of starting a business*.....	92.4	39				
1.3.2	Ease of resolving insolvency*.....	92.8	2 ● ◆				
HUMAN CAPITAL & RESEARCH				63.4	2 ● ◆		
2.1	Education	69.9	4 ● ◆				
2.1.1	Expenditure on education, % GDP.....	7.1	10 ◆				
2.1.2	Government funding/pupil, secondary, % GDP/cap... ..	25.8	22				
2.1.3	School life expectancy, years.....	19.3	3 ● ◆				
2.1.4	PISA scales in reading, maths, & science.....	522.7	6				
2.1.5	Pupil-teacher ratio, secondary.....	13.2	58 ○				
2.2	Tertiary education	53.0	10				
2.2.1	Tertiary enrolment, % gross.....	87.0	10				
2.2.2	Graduates in science & engineering, %.....	29.5	15				
2.2.3	Tertiary inbound mobility, %.....	7.8	29				
2.3	Research & development (R&D)	67.3	10				
2.3.1	Researchers, FTE/mn pop.....	6,707.5	6				
2.3.2	Gross expenditure on R&D, % GDP.....	2.8	10				
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$.....	79.7	11				
2.3.4	QS university ranking, average score top 3*.....	48.0	19				
INFRASTRUCTURE				62.1	12		
3.1	Information & communication technologies (ICTs)	87.5	16				
3.1.1	ICT access*.....	73.9	52 ○ ◆				
3.1.2	ICT use*.....	79.7	17				
3.1.3	Government's online service*.....	96.5	8				
3.1.4	E-participation*.....	100.0	1 ●				
3.2	General infrastructure	51.7	13				
3.2.1	Electricity output, kWh/mn pop.....	12,236.8	10				
3.2.2	Logistics performance*.....	89.1	10				
3.2.3	Gross capital formation, % GDP.....	22.9	66 ○				
3.3	Ecological sustainability	47.0	42				
3.3.1	GDP/unit of energy use.....	6.3	96 ○				
3.3.2	Environmental performance*.....	78.6	10				
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP..	6.0	18				
MARKET SOPHISTICATION				57.3	27		
4.1	Credit	54.9	25				
4.1.1	Ease of getting credit*.....	65.0	54 ○				
4.1.2	Domestic credit to private sector, % GDP.....	94.5	29				
4.1.3	Microfinance gross loans, % GDP.....	n/a	n/a				
4.2	Investment	51.7	34				
4.2.1	Ease of protecting minority investors*.....	58.3	68 ○				
4.2.2	Market capitalization, % GDP.....	n/a	n/a				
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.2	11				
4.3	Trade, competition, & market scale	65.2	52				
4.3.1	Applied tariff rate, weighted avg., %.....	1.8	23				
4.3.2	Intensity of local competition*.....	61.7	99 ○ ◆				
4.3.3	Domestic market scale, bn PPP\$.....	257.2	58				
BUSINESS SOPHISTICATION				63.9	5 ◆		
5.1	Knowledge workers	74.0	6				
5.1.1	Knowledge-intensive employment, %.....	47.4	10				
5.1.2	Firms offering formal training, % firms.....	n/a	n/a				
5.1.3	GERD performed by business, % GDP.....	1.8	10				
5.1.4	GERD financed by business, %.....	57.0	15				
5.1.5	Females employed w/advanced degrees, %.....	27.2	5 ◆				
5.2	Innovation linkages	62.6	4 ● ◆				
5.2.1	University/industry research collaboration*.....	74.7	5				
5.2.2	State of cluster development*.....	64.9	17				
5.2.3	GERD financed by abroad, %.....	12.1	35				
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.1	10				
5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	6.5	3 ● ◆				
5.3	Knowledge absorption	54.9	12				
5.3.1	Intellectual property payments, % total trade.....	1.0	37				
5.3.2	High-tech imports, % total trade.....	7.7	60 ○				
5.3.3	ICT services imports, % total trade.....	3.7	4 ● ◆				
5.3.4	FDI net inflows, % GDP.....	4.9	31				
5.3.5	Research talent, % in business enterprise.....	55.5	20				
KNOWLEDGE & TECHNOLOGY OUTPUTS				55.1	9		
6.1	Knowledge creation	58.5	9				
6.1.1	Patents by origin/bn PPP\$ GDP.....	13.1	7				
6.1.2	PCT patents by origin/bn PPP\$ GDP.....	7.1	1 ● ◆				
6.1.3	Utility models by origin/bn PPP\$ GDP.....	2.0	11				
6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	30.9	6 ◆				
6.1.5	Citable documents H-index.....	42.9	19				
6.2	Knowledge impact	44.9	28				
6.2.1	Growth rate of PPP\$ GDP/worker, %.....	1.3	57 ○				
6.2.2	New businesses/th pop. 15-64.....	4.0	32				
6.2.3	Computer software spending, % GDP.....	0.6	17				
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	10.8	29				
6.2.5	High- & medium-high-tech manufactures, %.....	0.3	34				
6.3	Knowledge diffusion	61.9	7				
6.3.1	Intellectual property receipts, % total trade.....	3.3	6 ◆				
6.3.2	High-tech net exports, % total trade.....	4.4	34				
6.3.3	ICT services exports, % total trade.....	8.1	5 ◆				
6.3.4	FDI net outflows, % GDP.....	4.0	14				
CREATIVE OUTPUTS				48.1	13		
7.1	Intangible assets	55.3	19				
7.1.1	Trademarks by origin/bn PPP\$ GDP.....	44.7	58 ○				
7.1.2	Industrial designs by origin/bn PPP\$ GDP.....	3.9	32				
7.1.3	ICTs & business model creation*.....	84.4	2 ● ◆				
7.1.4	ICTs & organizational model creation*.....	80.4	3 ● ◆				
7.2	Creative goods & services	24.7	44				
7.2.1	Cultural & creative services exports, % total trade.....	1.0	29				
7.2.2	National feature films/mn pop. 15-69.....	10.7	15				
7.2.3	Entertainment & Media market/th pop. 15-69.....	57.5	13				
7.2.4	Printing & other media, % manufacturing.....	1.1	58 ○				
7.2.5	Creative goods exports, % total trade.....	0.5	56				
7.3	Online creativity	57.3	6				
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	29.2	21				
7.3.2	Country-code TLDs/th pop. 15-69.....	34.0	18				
7.3.3	Wikipedia edits/mn pop. 15-69.....	98.1	8				
7.3.4	Mobile app creation/bn PPP\$ GDP.....	100.0	1 ● ◆				

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 missing or are outdated for Finland.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2017	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	n/a	2017	World Federation of Exchanges
5.1.2	Firms offering formal training, % firms	n/a	2013	World Bank

Outdated data

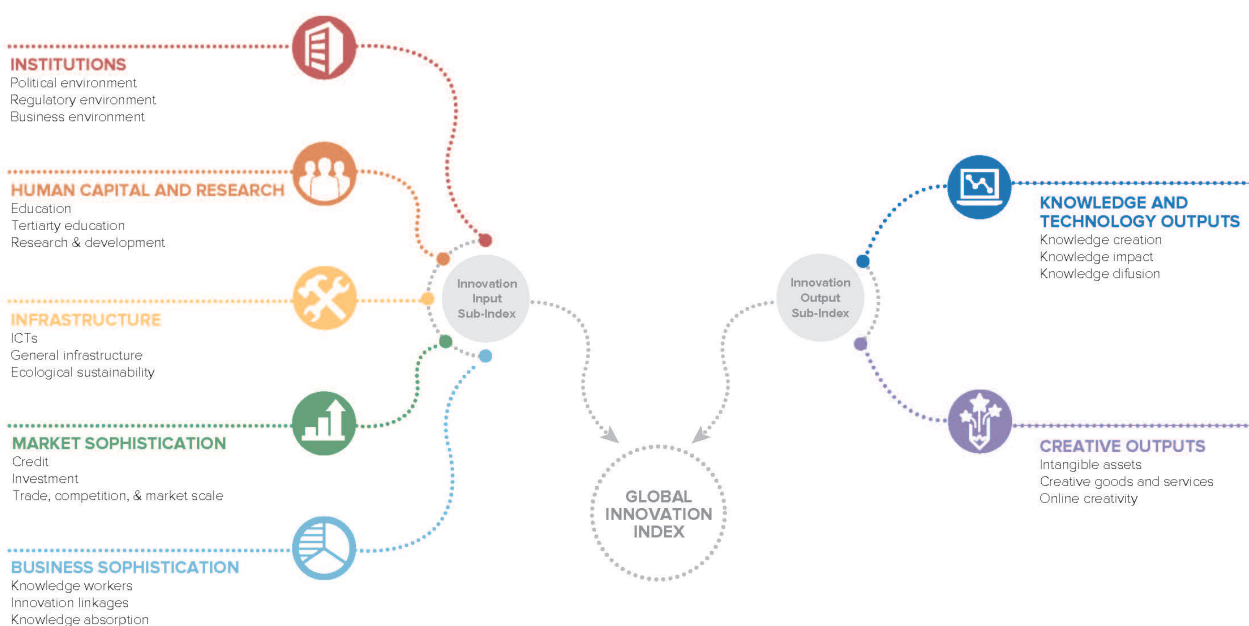
Code	Indicator name	Country year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2016	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics

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 2019, the GII presents its 12th edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

