

GLOBAL INNOVATION INDEX 2019

THE UNITED STATES OF AMERICA

3rd

The United States of America ranks 3rd 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 the U.S. 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 the U.S. ranking in the GII 2019 is between 3 and 6.

U.S. Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	3	3	6
2018	6	6	7
2017	4	5	5

- The U.S. performs better in Innovation Inputs than Outputs in 2019.
- This year the U.S. ranks 3rd in Innovation Inputs, better than in 2018 and 2017.
- As for Innovation Outputs, the U.S. ranks 6th. This position is better than in 2018 and worse compared to 2017.

3rd

The United States of America ranks 3rd among the 50 high-income economies.

The United States of America (U.S.) reaches the 3rd position this year. Between 2018 and 2019, the rank increase for the U.S. is a mix of improved performance and new innovation data becoming available (page 9). It improves in five of the seven aspects of innovation measured by the GII.

It keeps its world leading position in the variables that capture the sophistication of its local market, and in particular in relation to its credit and investment environments, and the degree of local competition. It boasts top R&D-intensive companies and universities that help the U.S. attain top ranks in indicators such as intellectual property receipts (page 9) and in quality of scientific publications.

The U.S. is the world top economy in the quality of innovation.

It is also world leader in cluster development, hosting the largest number of top science and technology clusters of the world (26), with San Jose, CA as the 5th most prominent cluster.

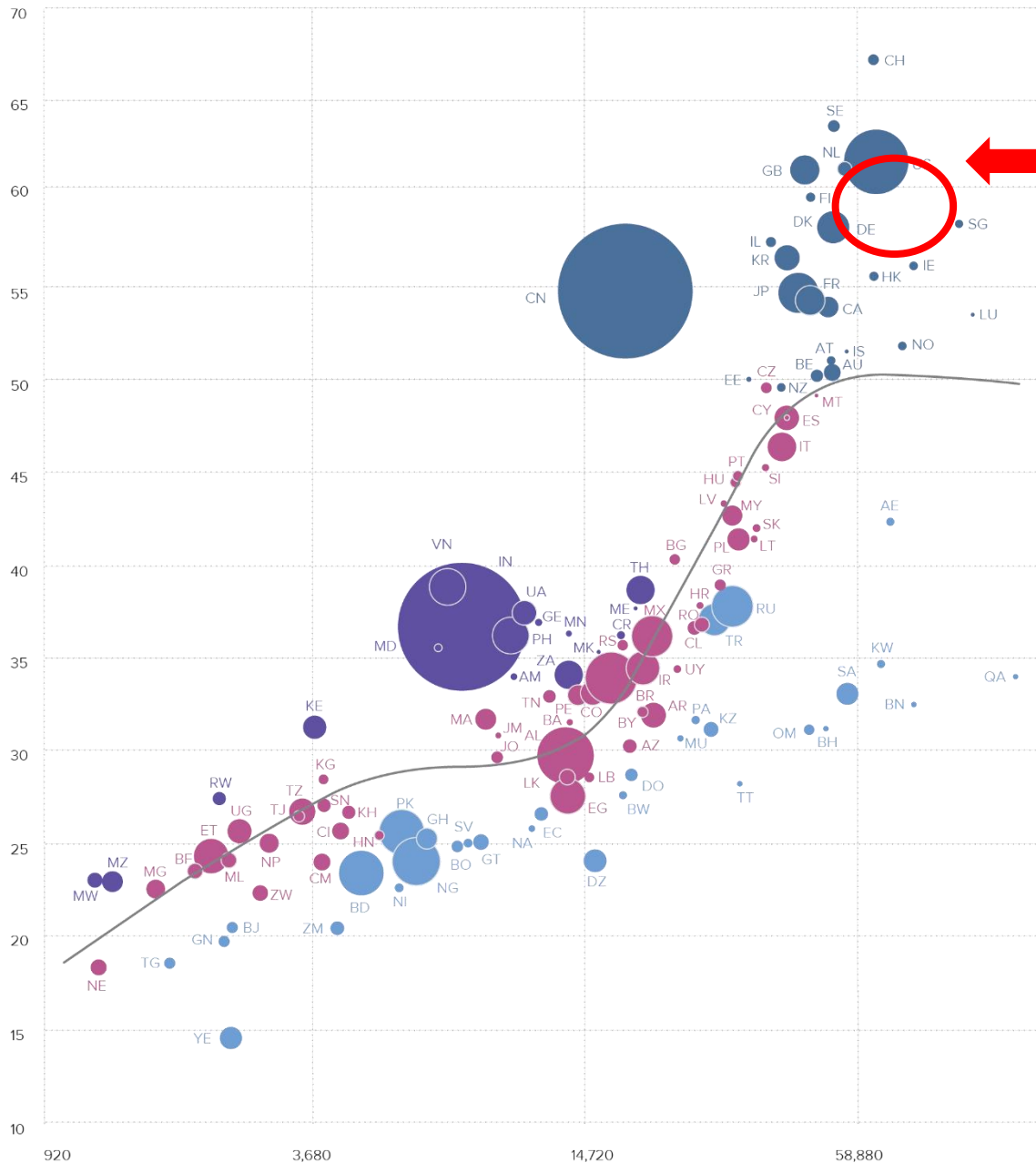
Despite its better overall rank this year, the U.S. still presents some areas of opportunity, such as the number of graduates in science and engineering and FDI inflows (pages 6 and 7).

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, the U.S. performs well above its expected level of development.

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



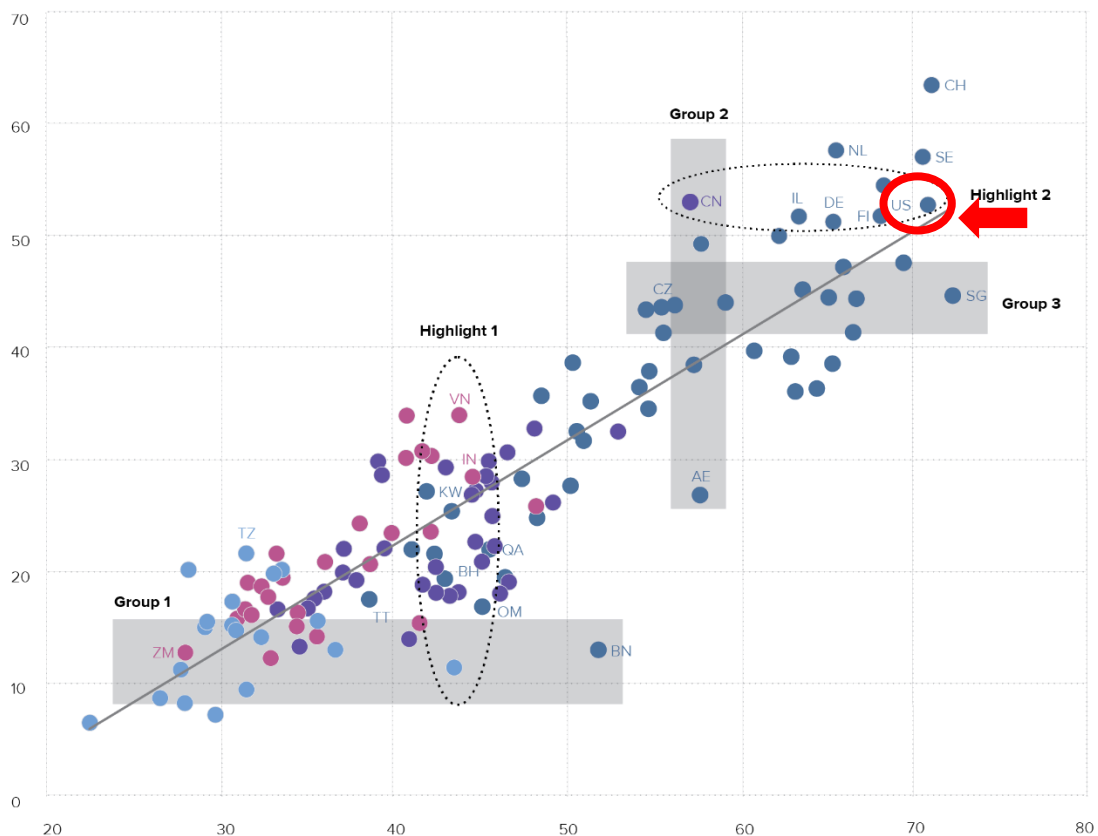
- ▲ GII score
- ▶ GDP per capita in PPP\$ (logarithmic scale)
- Innovation leaders
- Innovation achievers
- Performing at expectations for level of development
- Performing below expectations for level of development

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.

The U.S. produces more innovation outputs relative to its level of innovation investments.

Innovation input/output performance by income group, 2019

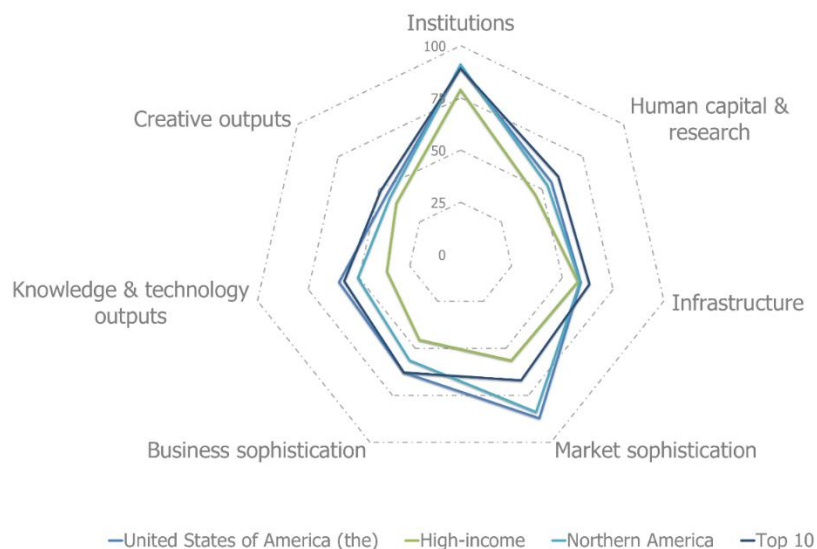


- ▲ Output score
- ▶ Input score
- High income
- Upper-middle income
- Lower-middle income
- Low income
- Fitted values

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 THE U.S. TO OTHER HIGH-INCOME ECONOMIES AND THE NORTHERN AMERICA REGION

The U.S.' scores in the seven GII pillars



High-income economies

The U.S. has high scores in all seven GII pillars. These are all above the average of the high-income group.

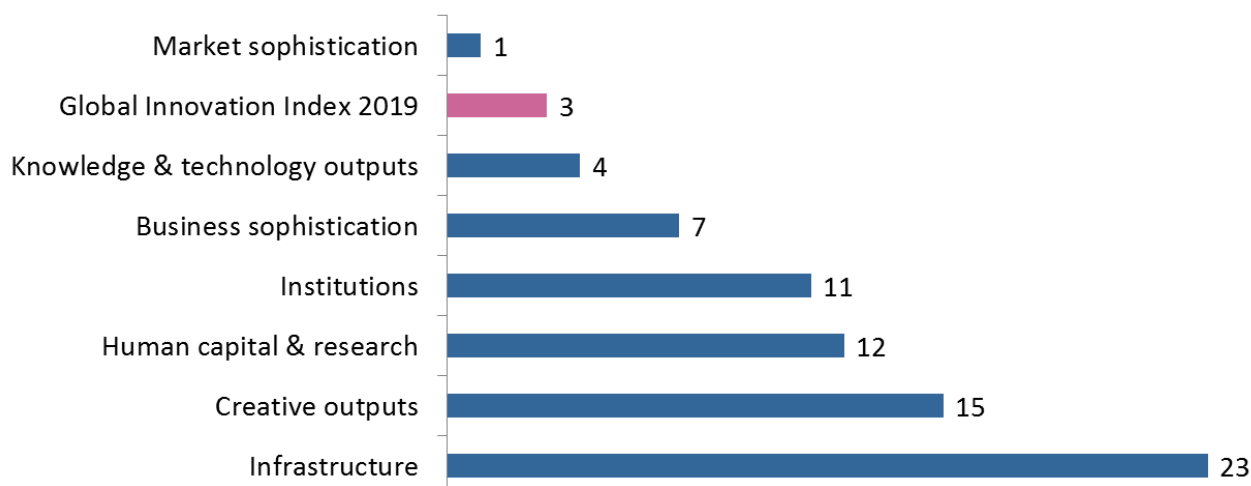
Northern America Region

Compared to Canada – the other economy in Northern America, the U.S. performs better in all GII areas, with the exception of Institutions.

Top ranks are found in areas such as the Business environment; Research and development (R&D); Credit; Trade, competition, & market scale; Knowledge creation; and Knowledge impact; where the country ranks in the top 3 worldwide.

OVERVIEW OF THE U.S.' RANKINGS IN THE 7 GII AREAS

The U.S. performs the best in Market sophistication and its weakest performance is in Infrastructure.



*The highest possible ranking in each pillar is 1.

THE U.S.' INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of the U.S. in the GII 2019.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	1	2.1.5	Pupil-teacher ratio, secondary	67
1.3	Business environment	2	2.2.2	Graduates in science & engineering, %	73
1.3.2	Ease of resolving insolvency*	3	3.2.3	Gross capital formation, % GDP	87
2.3	Research & development (R&D)	3	3.3.1	GDP/unit of energy use	74
2.3.3	Global R&D companies, top 3, in mn US\$	1	3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	106
2.3.4	QS university ranking, average score top 3*	1	5.2.3	GERD financed by abroad, %	58
3.1.3	Government's online service*	2	5.3.4	FDI net inflows, % GDP, 3-year average	72
4	Market sophistication	1	6.2.1	Growth rate of PPP\$ GDP/worker, %, 3-year average	64
4.1	Credit	1	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	99
4.1.1	Ease of getting credit*	3	7.1.1	Trademarks by origin/bn PPP\$ GDP	85
4.1.2	Domestic credit to private sector, % GDP	3			
4.2.3	Venture capital deals/bn PPP\$ GDP	1			
4.3	Trade, competition, & market scale	1			
4.3.2	Intensity of local competition†	3			
4.3.3	Domestic market scale, bn PPP\$	2			
5.2.1	University/industry research collaboration†	1			
5.2.2	State of cluster development†	1			
6.1	Knowledge creation	3			
6.1.5	Citable documents H index	1			
6.2	Knowledge impact	2			
6.2.3	Computer software spending, % GDP	1			
6.3.1	Intellectual property receipts, % total trade	1			
7.1.4	ICTs & organizational model creation†	1			
7.2.3	Entertainment & Media market/th pop. 15–69	1			
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1			

STRENGTHS

- The U.S. has relative strengths in all seven GII pillars.
- Most of these relative strengths are in Market sophistication, where the country ranks first in the world. This area is an innovation strength in itself.
- In Market sophistication (1), the U.S. has strong performance in the sub-pillars Credit (1); and Trade, competition, & market scale (1). Four of the indicators in these sub-pillars are also relative strengths: Ease of getting credit (3), Domestic credit to private sector (3), Intensity of local competition (3), and Domestic market scale (2).
- Venture capital deals (1) is also a relative strength in the sub-pillar Investment (7).
- Several other strengths for the U.S. are in the Knowledge & technology outputs (4) pillar. Here the U.S. exhibits strengths in two of its three sub-pillars - Knowledge creation (3) and Knowledge impact (2). At the indicator level, Quality of scientific publications, Computer software spending, and Intellectual property receipts are all ranked 1st and are relative strengths.
- Other relative strengths for the U.S. are scattered across other areas, as follows:
 - In Institutions (11), the U.S. exhibits strengths in sub-pillars Business environment (2) and in indicators Cost of redundancy dismissal (1) and Ease of resolving insolvency (3).
 - In Human capital & research (12), the U.S. has strengths in sub-pillar Research & development (3) as well as in two of its four indicators - Global R&D companies' expenditures and Quality of universities, where the country ranks 1st in the world.
 - In Business sophistication (7), the U.S. exhibits strengths in two indicators - University-industry research collaboration and State of cluster development, where it ranks number one globally.
 - In Creative outputs (15), the country shows strengths in three indicators - ICTs & organizational model creation, Entertainment & Media market, and Generic top-level domains where it also ranks 1st in the world.
 - In Infrastructure (23), the country has a relative strength in indicator Government's online service (2).

WEAKNESSES

- Relative weaknesses for the U.S. are found in 5 pillars. Institutions and Market sophistication are the two pillars where the U.S. has no relative weaknesses.
- Most of the relative weaknesses of the U.S. are in the Infrastructure (23) pillar. Here three indicators are relative weaknesses: Gross capital formation (87), GDP per unit of energy use (74), and ISO 14001 environmental certificates (106).
- Other relative weaknesses are observed as follows:
 - In Human capital & research (12), the country has relative weaknesses in two indicators: Pupil-teacher ratio (67) and Graduates in science & engineering (73).
 - In Business sophistication (7), indicators R&D financed by abroad (58) and FDI inflows (72) are relative weaknesses.
 - In Knowledge & technology outputs (4), two indicators – Labor productivity growth (64) and ISO 9001 quality certificates (99) – are relative weaknesses.
 - Trademarks by origin (85) is a relative weakness in the Creative outputs (15) pillar.

UNITED STATES OF AMERICA

(THE)

GII 2019 rank

3

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
6	3	High	NAC	326.8	20,513.0	62,605.6	6

		Score/Value	Rank
INSTITUTIONS		89.7	11
1.1	Political environment	84.2	16
1.1.1	Political and operational stability*	84.2	25
1.1.2	Government effectiveness*	84.2	14
1.2	Regulatory environment	93.9	9
1.2.1	Regulatory quality*	85.6	15
1.2.2	Rule of law*	89.9	15
1.2.3	Cost of redundancy dismissal, salary weeks	8.0	1 ●
1.3	Business environment	91.1	2 ● ◆
1.3.1	Ease of starting a business*	91.2	47
1.3.2	Ease of resolving insolvency*	90.9	3 ● ◆
HUMAN CAPITAL & RESEARCH		55.7	12
2.1	Education	54.5	45
2.1.1	Expenditure on education, % GDP	5.0	50
2.1.2	Government funding/pupil, secondary, % GDP/cap	22.5	39
2.1.3	School life expectancy, years	16.3	29
2.1.4	PISA scales in reading, maths, & science	487.6	29 ◇
2.1.5	Pupil-teacher ratio, secondary	14.7	67 ○ ◇
2.2	Tertiary education	34.6	53
2.2.1	Tertiary enrolment, % gross	88.8	8
2.2.2	Graduates in science & engineering, %	17.9	73 ○
2.2.3	Tertiary inbound mobility, %	5.0	40
2.3	Research & development (R&D)	77.9	3 ● ◆
2.3.1	Researchers, FTE/mn pop.	4,256.3	23
2.3.2	Gross expenditure on R&D, % GDP	2.8	9
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$	100.0	1 ● ◆
2.3.4	QS university ranking, average score top 3*	99.0	1 ● ◆
INFRASTRUCTURE		59.2	23
3.1	Information & communication technologies (ICTs)	89.7	8
3.1.1	ICT access*	84.8	14
3.1.2	ICT use*	77.2	21
3.1.3	Government's online service*	98.6	2 ●
3.1.4	E-participation*	98.3	5
3.2	General infrastructure	49.4	19
3.2.1	Electricity output, kWh/mn pop.	13,000.9	9
3.2.2	Logistics performance*	85.2	14
3.2.3	Gross capital formation, % GDP	21.1	87 ○
3.3	Ecological sustainability	38.4	64 ◇
3.3.1	GDP/unit of energy use	8.1	74 ○
3.3.2	Environmental performance*	71.2	26
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	0.3	106 ○ ◇
MARKET SOPHISTICATION		87.0	1 ● ◆
4.1	Credit	94.6	1 ● ◆
4.1.1	Ease of getting credit*	95.0	3 ● ◆
4.1.2	Domestic credit to private sector, % GDP	192.2	3 ● ◆
4.1.3	Microfinance gross loans, % GDP	n/a	n/a
4.2	Investment	73.7	7 ◆
4.2.1	Ease of protecting minority investors*	64.7	47
4.2.2	Market capitalization, % GDP	150.3	5
4.2.3	Venture capital deals/bn PPP\$ GDP	0.4	1 ● ◆
4.3	Trade, competition, & market scale	92.7	1 ● ◆
4.3.1	Applied tariff rate, weighted avg., %	1.7	18
4.3.2	Intensity of local competition*	84.3	3 ● ◆
4.3.3	Domestic market scale, bn PPP\$	20,513.0	2 ● ◆

		Score/Value	Rank
BUSINESS SOPHISTICATION		62.7	7
5.1	Knowledge workers	76.4	4 ◆
5.1.1	Knowledge-intensive employment, %	47.3	11
5.1.2	Firms offering formal training, % firms	n/a	n/a
5.1.3	GERD performed by business, % GDP	2.0	8
5.1.4	GERD financed by business, %	63.6	9
5.1.5	Females employed w/advanced degrees, %	26.3	6 ◆
5.2	Innovation linkages	54.3	9
5.2.1	University/industry research collaboration*	80.9	1 ● ◆
5.2.2	State of cluster development*	79.5	1 ● ◆
5.2.3	GERD financed by abroad, %	6.2	58 ○
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP	0.1	9
5.2.5	Patent families 2+ offices/bn PPP\$ GDP	3.3	15
5.3	Knowledge absorption	57.3	7
5.3.1	Intellectual property payments, % total trade	1.8	15
5.3.2	High-tech imports, % total trade	17.2	9 ◆
5.3.3	ICT services imports, % total trade	1.5	40
5.3.4	FDI net inflows, % GDP	2.4	72 ○
5.3.5	Research talent, % in business enterprise	71.0	5 ◆
KNOWLEDGE & TECHNOLOGY OUTPUTS		59.7	4 ◆
6.1	Knowledge creation	72.3	3 ● ◆
6.1.1	Patents by origin/bn PPP\$ GDP	15.1	6 ◆
6.1.2	PCT patents by origin/bn PPP\$ GDP	2.7	12
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	n/a
6.1.4	Scientific & technical articles/bn PPP\$ GDP	10.5	44 ◇
6.1.5	Citable documents H-index	100.0	1 ● ◆
6.2	Knowledge impact	60.4	2 ● ◆
6.2.1	Growth rate of PPP\$ GDP/worker, %	0.9	64 ○
6.2.2	New businesses/th pop. 15-64	n/a	n/a
6.2.3	Computer software spending, % GDP	1.1	1 ● ◆
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	1.5	99 ○ ◇
6.2.5	High- & medium-high-tech manufactures, %	0.5	10
6.3	Knowledge diffusion	46.5	15
6.3.1	Intellectual property receipts, % total trade	5.0	1 ● ◆
6.3.2	High-tech net exports, % total trade	5.8	27
6.3.3	ICT services exports, % total trade	1.6	65
6.3.4	FDI net outflows, % GDP	1.8	33
CREATIVE OUTPUTS		45.5	15
7.1	Intangible assets	50.3	32
7.1.1	Trademarks by origin/bn PPP\$ GDP	22.0	85 ○ ◇
7.1.2	Industrial designs by origin/bn PPP\$ GDP	1.2	61
7.1.3	ICTs & business model creation*	81.0	6
7.1.4	ICTs & organizational model creation*	83.7	1 ● ◆
7.2	Creative goods & services	43.8	5 ◆
7.2.1	Cultural & creative services exports, % total trade	2.5	5 ◆
7.2.2	National feature films/mn pop. 15-69	2.9	58 ◇
7.2.3	Entertainment & Media market/th pop. 15-69	100.0	1 ● ◆
7.2.4	Printing & other media, % manufacturing	1.5	31
7.2.5	Creative goods exports, % total trade	3.3	17
7.3	Online creativity	37.5	19
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	100.0	1 ● ◆
7.3.2	Country-code TLDs/th pop. 15-69	2.4	62 ◇
7.3.3	Wikipedia edits/mn pop. 15-69	26.1	42 ◇
7.3.4	Mobile app creation/bn PPP\$ GDP	30.1	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 missing or are outdated for the U.S.

The Indicators Tertiary enrolment and Females employed with advanced degrees, for which data was missing in GII 2018, become available in the GII 2019.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2017	Microfinance Information Exchange
5.1.2	Firms offering formal training, % firms	n/a	2013	World Bank
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2017	World Intellectual Property Organization
6.2.2	New businesses/th pop. 15–64	n/a	2016	World Bank

Outdated data

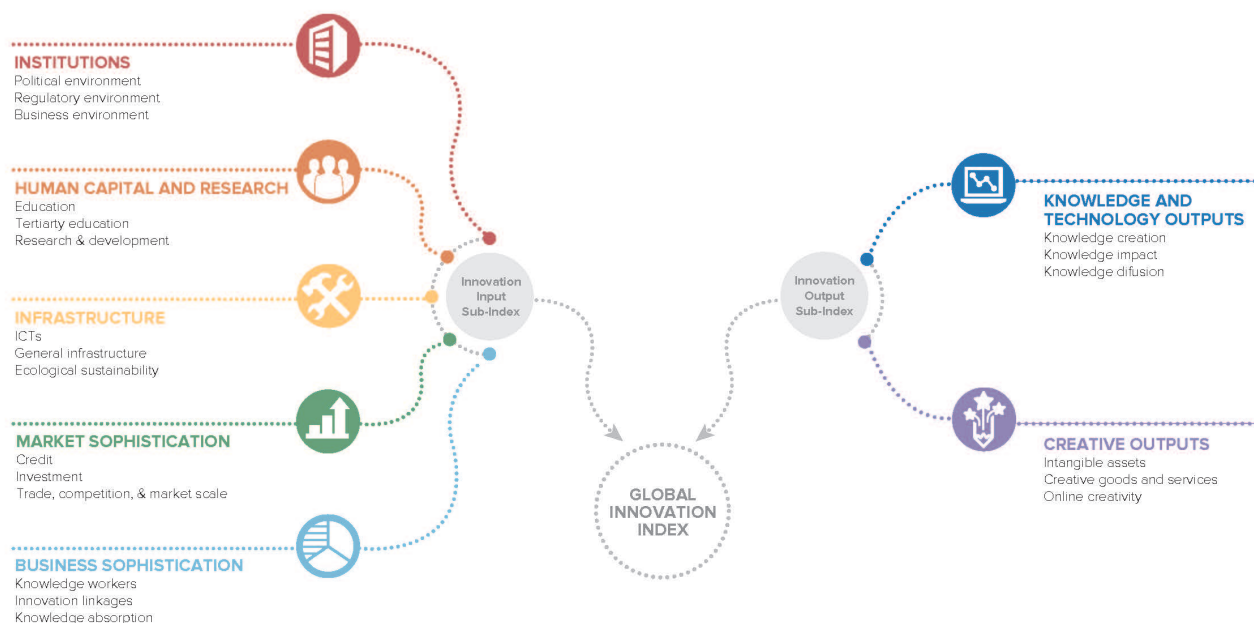
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2014	2015	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2014	2015	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2015	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.2	Domestic credit to private sector, % GDP	2016	2017	International Monetary Fund
5.3.5	Research talent, % in business enterprise	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

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.

