GLOBAL INNOVATION INDEX 2019

PERU

69th Peru ranks 69th 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 Peru 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 Peru's ranking in the GII 2019 is between 67 and 75.

Peru's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	69	48	86
2018	71	59	83
2017	70	56	85

- Peru performs better in Innovation Inputs than Outputs.
- This year Peru ranks 48th in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Peru ranks 86th. This position is worse than last year and compared to 2017.

18th Peru ranks 18th among the 34 upper middle-income economies.

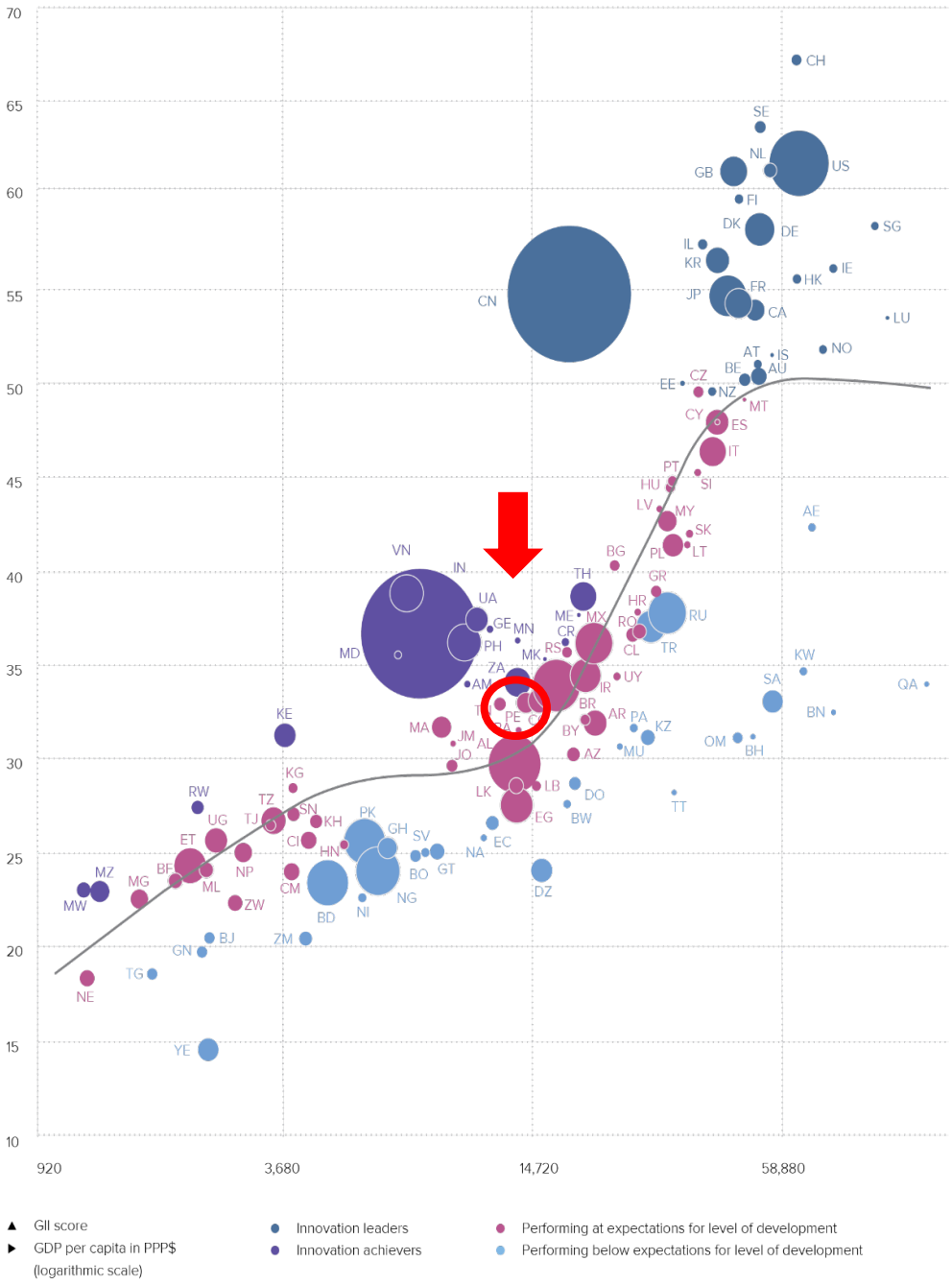
7th Peru ranks 7th among the 19 economies in Latin America and the Caribbean.

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, Peru performs at its expected level of development.

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

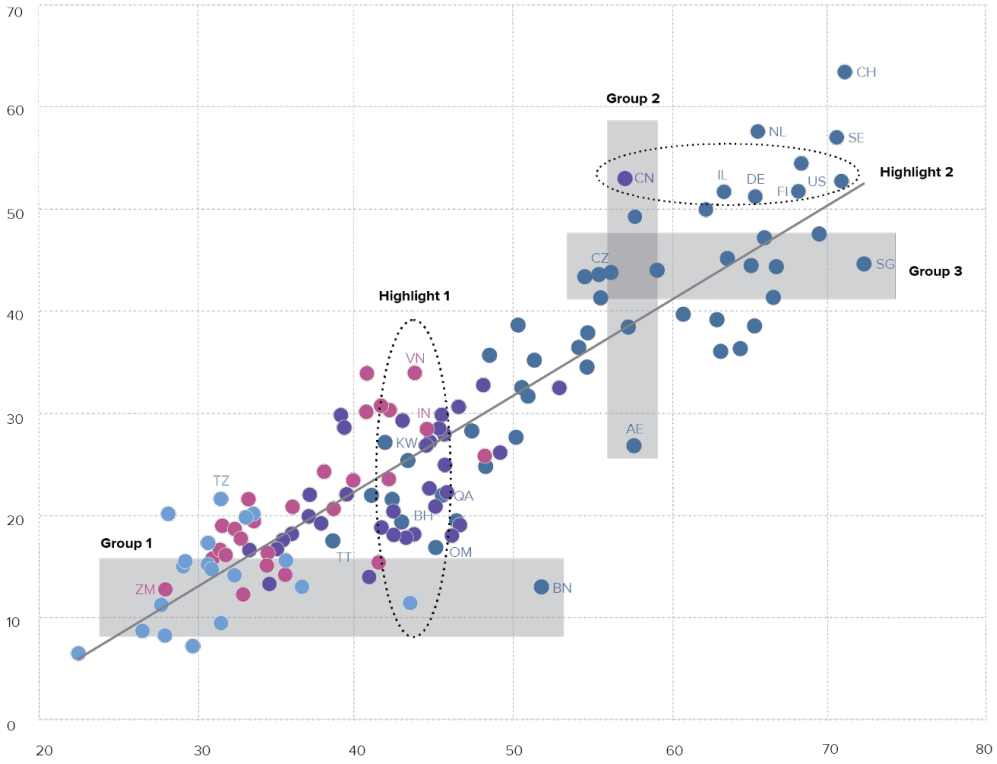


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Peru produces less 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

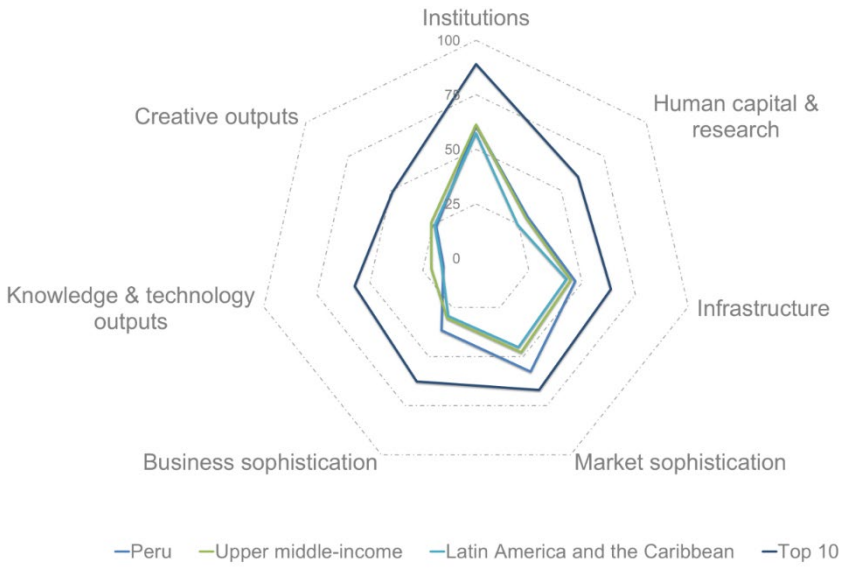
● Lower-middle income
● Low income

— 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 PERU TO OTHER UPPER MIDDLE-INCOME ECONOMIES AND THE LATIN AMERICA AND THE CARIBBEAN REGION

Peru's scores in the seven GII pillars



Upper middle-income economies

Peru has high scores in four out of the seven GII pillars: Human capital & research, Infrastructure, Market sophistication, and Business sophistication, which are above the average of the upper middle-income group.

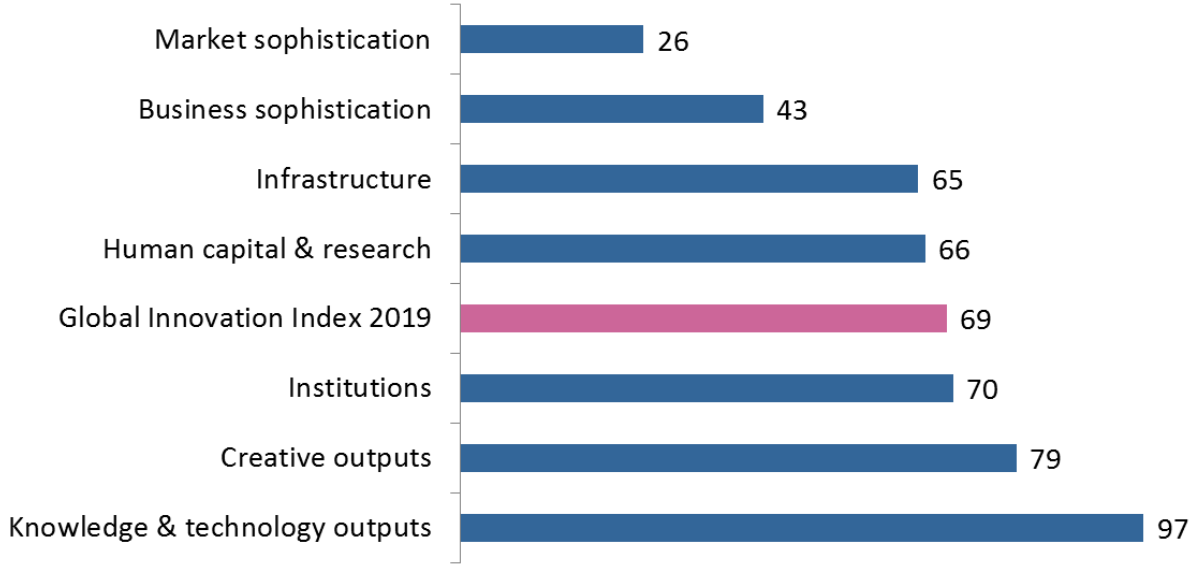
Latin America and the Caribbean Region

Compared to other economies in the Latin America and the Caribbean region, Peru performs above average in five out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, and Business sophistication.

Top ranks are found in sub-pillars Tertiary education, Ecological sustainability, Credit, Trade, competition, & market scale, and Knowledge workers where the country ranks in the top 50 worldwide.

OVERVIEW OF PERU'S RANKINGS IN THE 7 GII AREAS

Peru performs the best in Market sophistication and its weakest performance is in Knowledge & technology outputs.



*The highest possible ranking in each pillar is 1.

PERU'S INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths

Code	Indicator name	Rank
1.2.3	Cost of redundancy dismissal, salary weeks	36
2.2	Tertiary education	21
2.2.1	Tertiary enrolment, % gross	28
3.1.4	E-participation*	36
3.3	Ecological sustainability	39
3.3.1	GDP/unit of energy use	10
4	Market sophistication	26
4.1	Credit	17
4.1.1	Ease of getting credit*	29
4.1.3	Microfinance gross loans, % GDP	1
4.3	Trade, competition, & market scale	30
4.3.1	Applied tariff rate, weighted mean, %	6
5.1.2	Firms offering formal training, % firms	8
5.1.5	Females employed w/advanced degrees, %	38
7.2.4	Printing & other media, % manufacturing	10

Weaknesses

Code	Indicator name	Rank
2.1.4	PISA scales in reading, maths & science	65
2.3.2	Gross expenditure on R&D, % GDP	101
2.3.3	Global R&D companies, top 3, in mn US$	43
5.2.1	University/industry research collaboration‡	100
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	104
6.1.4	Scientific & technical articles/bn PPP$ GDP	117
6.3	Knowledge diffusion	119
6.3.3	ICT services exports, % total trade	112
6.3.4	FDI net outflows, % GDP, 3-year average	98
7.1.2	Industrial designs by origin/bn PPP$ GDP	100
7.3.4	Mobile app creation/bn PPP$ GDP	84

STRENGTHS

- GII strengths for Peru are found in six of the seven GII pillars.
- The pillar Market sophistication (26) is a notable strength of Peru.
- In Market sophistication (26), several of Peru's strengths are found. These are sub-pillars Credit (17) and Trade, competition, & market scale (30) and indicators Ease of getting credit (29), Applied tariff rate (6), and Microfinance gross loans, where Peru ranks 1st globally.
- In Institutions (70), Peru exhibits strength in indicator Cost of redundancy dismissal (36).
- In Human capital & research (66), Peru's strength is sub-pillar Tertiary education (21) and indicator Tertiary enrolment (28).
- In Infrastructure (65), GII strengths for this country are sub-pillar Ecological sustainability (39) as well as indicators E-participation (36) and GDP per unit of energy use (10).
- In Business sophistication (43), Peru shows strengths in indicators Firms offering formal training (8) and Females employed with advanced degrees (38).
- In Creative outputs (79), indicator Printing & other media (10) is a relative strength for Peru.

WEAKNESSES

- Peru's weaknesses in the GII are found in four of the seven GII pillars.
- In Human capital & research (66), Peru's relative weaknesses are indicators PISA results (65), Gross expenditure on R&D (101), and Global R&D companies (43).
- In Business sophistication (43), GII weaknesses for this country are indicators University-industry research collaboration (100) and Joint Ventures - strategic alliance deals (104).
- In Knowledge & technology outputs (97), weaknesses are found in sub-pillar Knowledge diffusion (119) as well as in indicators Scientific & technical articles (117), ICT services exports (112), and FDI outflows (98).
- In Creative outputs (79), Peru shows relative weaknesses in two indicators: Industrial designs by origin (100) and Mobile app creation (84).

PERU

GII 2019 rank

69

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2018 rank
86	**48**	**Upper middle**	**LCN**	**32.6**	**458.4**	**14,224.3**	**71**

		Score/Value	Rank	
INSTITUTIONS		**61.2**	**70**	
1.1	**Political environment**	**50.6**	**80**	
1.1.1	Political and operational stability*	64.9	79	
1.1.2	Government effectiveness*	43.4	79	
1.2	**Regulatory environment**	**69.0**	**57**	
1.2.1	Regulatory quality*	53.2	52	
1.2.2	Rule of law*	33.1	94	
1.2.3	Cost of redundancy dismissal, salary weeks	11.4	36	●
1.3	**Business environment**	**64.1**	**84**	
1.3.1	Ease of starting a business*	82.4	96	
1.3.2	Ease of resolving insolvency*	45.7	79	
HUMAN CAPITAL & RESEARCH		**30.4**	**66**	
2.1	**Education**	**39.7**	**86**	
2.1.1	Expenditure on education, % GDP	3.9	81	
2.1.2	Government funding/pupil, secondary, % GDP/cap	15.3	82	
2.1.3	School life expectancy, years	14.6	60	
2.1.4	PISA scales in reading, maths, & science	393.6	65	○
2.1.5	Pupil-teacher ratio, secondary	14.2	63	
2.2	**Tertiary education**	**45.8**	**21**	● ◆
2.2.1	Tertiary enrolment, % gross	69.6	28	● ◆
2.2.2	Graduates in science & engineering, %	23.8	36	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	**Research & development (R&D)**	**5.7**	**73**	
2.3.1	Researchers, FTE/mn pop	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.1	101	○
2.3.3	Global R&D companies, avg. exp. top 3, mn US$	0.0	43	○ ◇
2.3.4	QS university ranking, average score top 3*	14.8	56	
INFRASTRUCTURE		**46.7**	**65**	
3.1	**Information & communication technologies(ICTs)**	**65.2**	**70**	
3.1.1	ICT access*	50.8	87	◇
3.1.2	ICT use*	41.6	86	
3.1.3	Government's online service*	81.9	41	
3.1.4	E-participation*	86.5	36	●
3.2	**General infrastructure**	**26.7**	**92**	
3.2.1	Electricity output, kWh/mn pop	1,634.3	86	
3.2.2	Logistics performance*	29.5	81	
3.2.3	Gross capital formation, % GDP	22.3	72	
3.3	**Ecological sustainability**	**48.1**	**39**	● ◆
3.3.1	GDP/unit of energy use	15.6	10	● ◆
3.3.2	Environmental performance*	61.9	57	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.2	63	
MARKET SOPHISTICATION		**57.6**	**26**	● ◆
4.1	**Credit**	**64.5**	**17**	● ◆
4.1.1	Ease of getting credit*	75.0	29	●
4.1.2	Domestic credit to private sector, % GDP	42.3	79	
4.1.3	Microfinance gross loans, % GDP	5.8	1	● ◆
4.2	**Investment**	**36.2**	**97**	
4.2.1	Ease of protecting minority investors*	63.3	48	
4.2.2	Market capitalization, % GDP	39.7	37	
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	54	
4.3	**Trade, competition, & market scale**	**72.1**	**30**	●
4.3.1	Applied tariff rate, weighted avg., %	0.8	6	●
4.3.2	Intensity of local competition†	72.5	42	
4.3.3	Domestic market scale, bn PPP$	458.4	44	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**36.6**	**43**	
5.1	**Knowledge workers**	**56.8**	**[27]**	
5.1.1	Knowledge-intensive employment, %	24.4	59	
5.1.2	Firms offering formal training, % firms	60.1	8	● ◆
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	Females employed w/advanced degrees, %	16.3	38	●
5.2	**Innovation linkages**	**18.8**	**94**	
5.2.1	University/industry research collaboration†	31.9	100	○
5.2.2	State of cluster development†	39.5	94	
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	104	○ ◇
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	72	
5.3	**Knowledge absorption**	**34.2**	**62**	
5.3.1	Intellectual property payments, % total trade	0.7	57	
5.3.2	High-tech imports, % total trade	8.4	52	
5.3.3	ICT services imports, % total trade	1.2	59	
5.3.4	FDI net inflows, % GDP	3.7	45	
5.3.5	Research talent, % in business enterprise	n/a	n/a	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**15.3**	**97**	
6.1	**Knowledge creation**	**7.1**	**82**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	93	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.1	68	
6.1.3	Utility models by origin/bn PPP$ GDP	0.6	33	
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.6	117	○
6.1.5	Citable documents H-index	12.6	56	
6.2	**Knowledge impact**	**31.6**	**88**	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.3	55	
6.2.2	New businesses/th pop. 15-64	3.6	35	
6.2.3	Computer software spending, % GDP	0.2	67	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.2	75	
6.2.5	High- & medium-high-tech manufactures, %	0.1	75	
6.3	**Knowledge diffusion**	**7.3**	**119**	○ ◇
6.3.1	Intellectual property receipts, % total trade	0.0	74	
6.3.2	High-tech net exports, % total trade	0.4	83	
6.3.3	ICT services exports, % total trade	0.3	112	○
6.3.4	FDI net outflows, % GDP	0.1	98	○
CREATIVE OUTPUTS		**23.4**	**79**	
7.1	**Intangible assets**	**36.7**	**87**	
7.1.1	Trademarks by origin/bn PPP$ GDP	50.0	48	
7.1.2	Industrial designs by origin/bn PPP$ GDP	0.2	100	○
7.1.3	ICTs & business model creation†	59.3	69	
7.1.4	ICTs & organizational model creation†	48.6	85	
7.2	**Creative goods & services**	**17.5**	**61**	
7.2.1	Cultural & creative services exports, % total trade	0.1	84	
7.2.2	National feature films/mn pop. 15-69	1.1	80	
7.2.3	Entertainment & Media market/th pop. 15-69	7.4	41	
7.2.4	Printing & other media, % manufacturing	2.5	10	● ◆
7.2.5	Creative goods exports, % total trade	0.3	70	
7.3	**Online creativity**	**2.6**	**80**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	5.2	53	
7.3.2	Country-code TLDs/th pop. 15-69	1.3	73	
7.3.3	Wikipedia edits/mn pop. 15-69	5.8	76	
7.3.4	Mobile app creation/bn PPP$ GDP	0.1	84	○

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 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 Peru.

Missing data

Code	Indicator name	Country year	Model year	Source
2.2.3	Tertiary inbound mobility, %	n/a	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.3	GERD performed by business, % GDP	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	n/a	2016	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, %	n/a	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

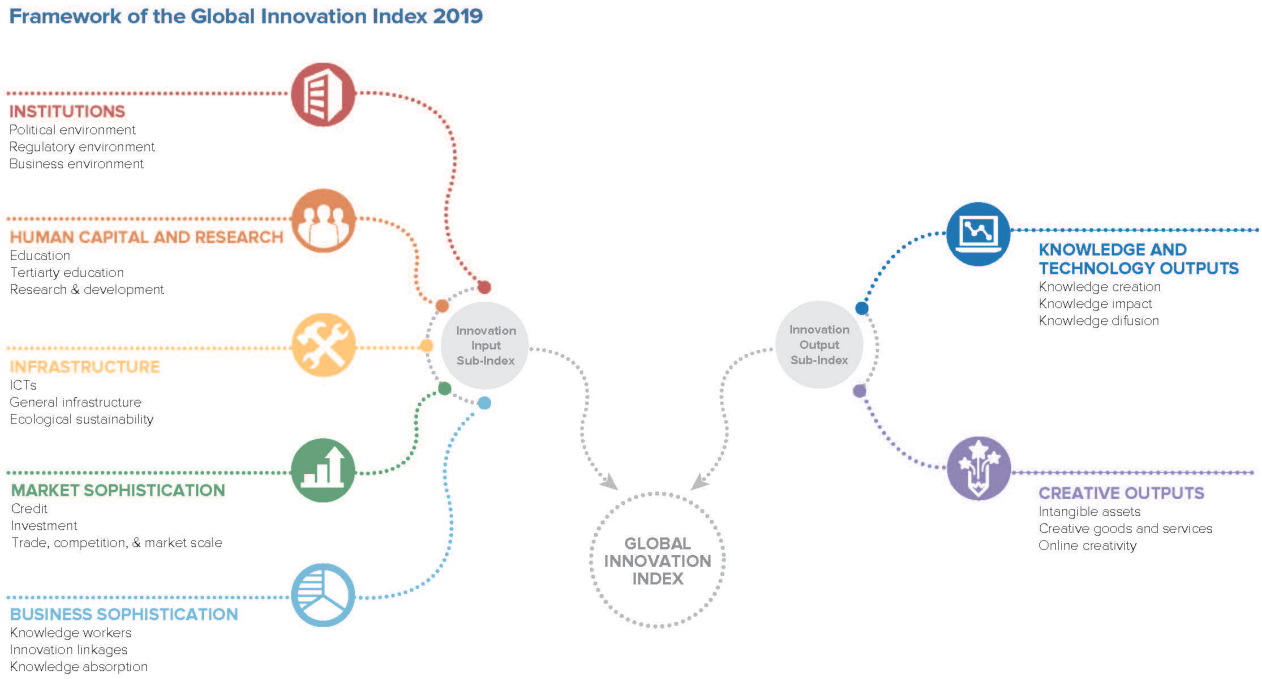
Outdated data

Code	Indicator name	Country year	Model year	Source
2.2.1	Tertiary enrolment, % gross	2016	2017	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, % firms	2010	2013	World Bank

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.



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.