GLOBAL INNOVATION INDEX 2019

INDONESIA

85th Indonesia ranks 85th 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 Indonesia 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 Indonesia's ranking in the GII 2019 is between 78 and 86.

Indonesia's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	85	87	78
2018	85	90	73
2017	87	99	73

- Indonesia performs better in Innovation Outputs than Inputs.
- This year Indonesia ranks 87th in Innovation Inputs, better than last year and compared to 2017.
- As for Innovation Outputs, Indonesia ranks 78th. This position is worse than last year and compared to 2017.

11th Indonesia ranks 11th among the 26 lower middle-income economies.

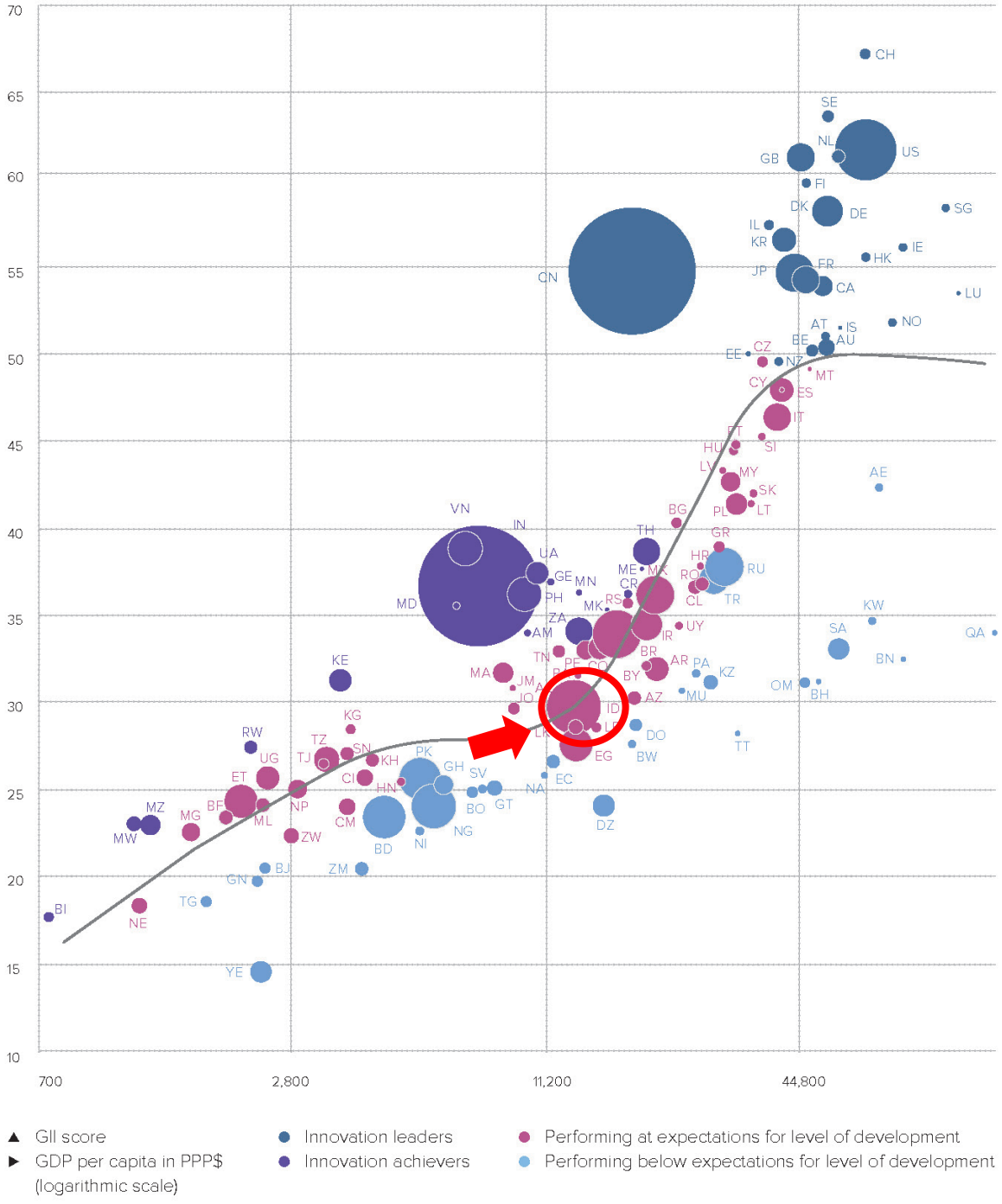
14th Indonesia ranks 14th among the 15 economies in South East Asia, East Asia, and Oceania.

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, Indonesia performs at its expected level of development.

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

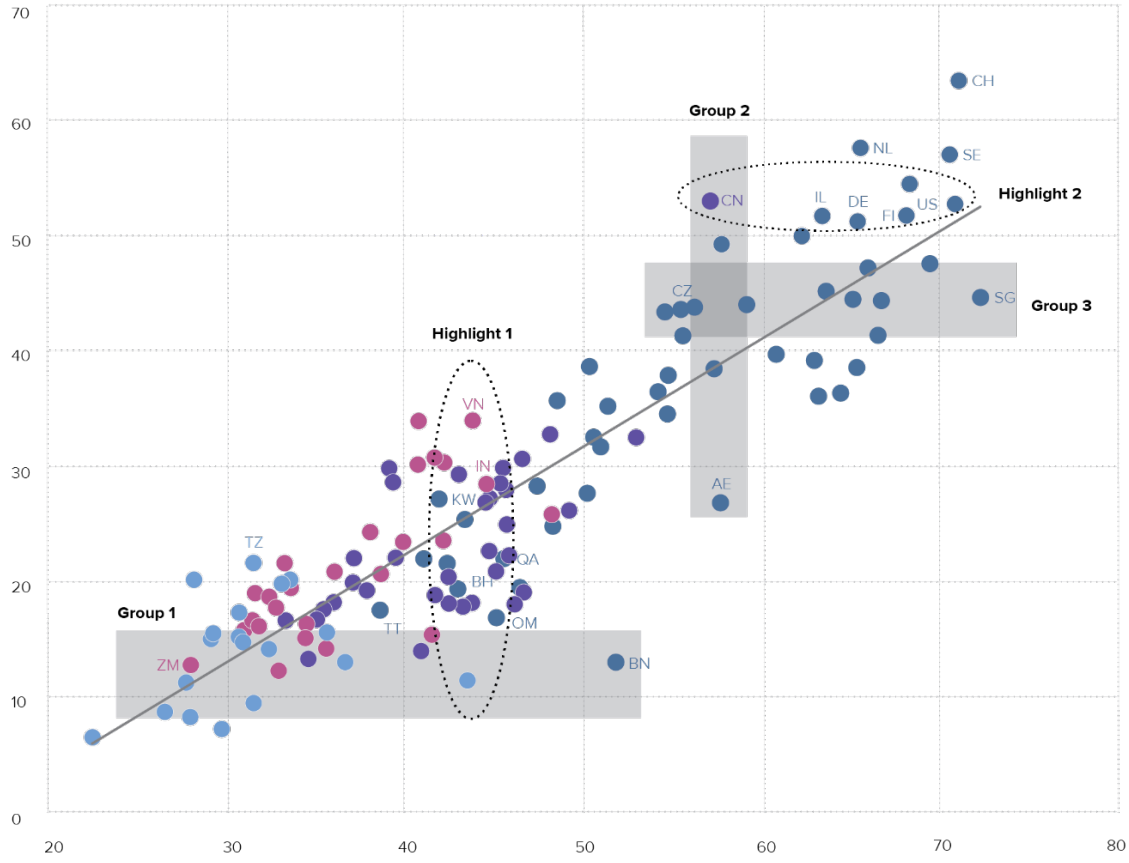


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

The level of Indonesia's innovation outputs is commensurate with its innovation investments.

Innovation input/output performance by income group, 2019



▲ Output score
▶ Input score

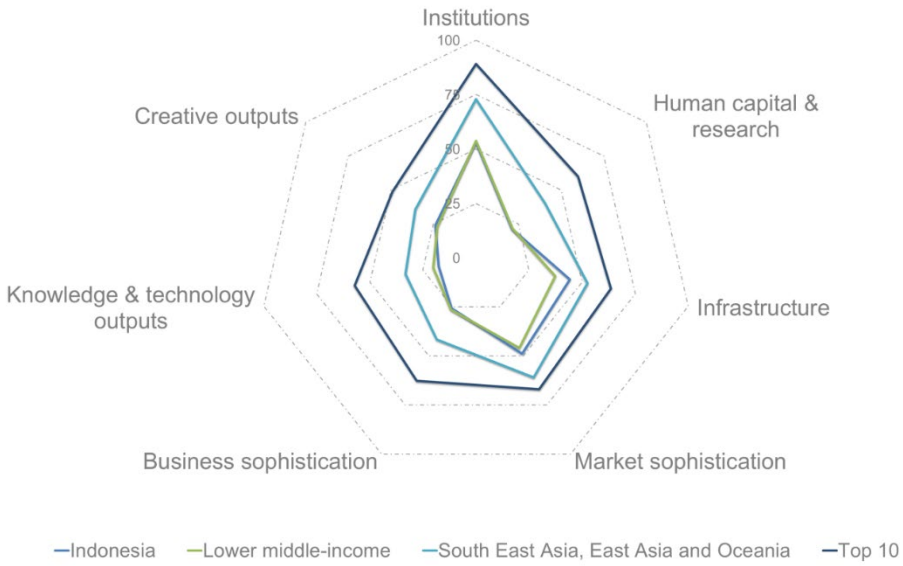
● High income
● Upper-middle income
● Lower-middle income
● Low income

— 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 INDONESIA TO OTHER LOWER MIDDLE-INCOME ECONOMIES AND THE SOUTH EAST ASIA, EAST ASIA, AND OCEANIA REGION

Indonesia's scores in the seven GII pillars



Lower middle-income economies

Indonesia has high scores in 3 out of the 7 GII pillars: Infrastructure, Market sophistication, and Creative outputs, which are above the average of the lower middle-income group.

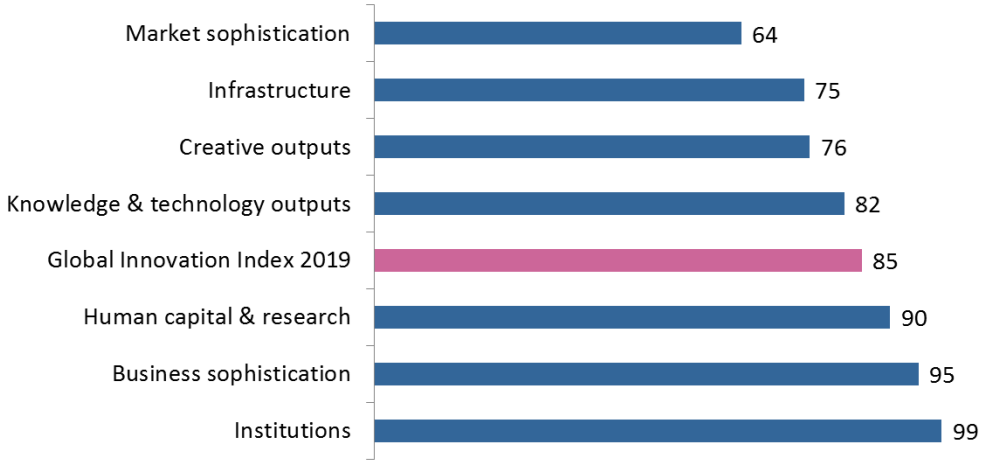
South East Asia, East Asia, and Oceania Region

Compared to other economies in South East Asia, East Asia, and Oceania, Indonesia performs below average in all the seven GII pillars.

Top ranks are found in sub-pillars Business environment, General infrastructure, Trade, competition, & market scale, Innovation linkages, and Knowledge absorption where the country ranks in the top 50 worldwide.

OVERVIEW OF INDONESIA'S RANKINGS IN THE 7 GII AREAS

Indonesia performs the best in Market sophistication and its weakest performance is in Institutions.



*The highest possible ranking in each pillar is 1.

INDONESIA'S INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths

Code	Indicator name	Rank
1.3.2	Ease of resolving insolvency*	33
2.3.4	QS university ranking, average score top 3*	36
3.2	General infrastructure	35
3.2.3	Gross capital formation, % GDP	15
3.3.1	GDP/unit of energy use	30
4.3	Trade, competition, & market scale	7
4.3.3	Domestic market scale, bn PPP$	7
5.2.1	University/industry research collaboration†	34
5.2.2	State of cluster development†	27
6.2.3	Computer software spending, % GDP	33
7.1.4	ICTs & organizational model creation†	27
7.2.5	Creative goods exports, % total trade	19

Weaknesses

Code	Indicator name	Rank
1.2	Regulatory environment	128
1.2.3	Cost of redundancy dismissal, salary weeks	125
2.1.2	Government funding/pupil, secondary, % GDP/cap	94
2.2.3	Tertiary inbound mobility, %	110
2.3.2	Gross expenditure on R&D, % GDP	109
2.3.3	Global R&D companies, top 3, in mn US$	43
5.1	Knowledge workers	122
5.1.2	Firms offering formal training, % firms	90
6.1.2	PCT patents by origin/bn PPP$ GDP	97
6.1.4	Scientific & technical articles/bn PPP$ GDP	125
6.3.4	FDI net outflows, % GDP, 3-year average	112
7.2.2	National feature films/mn pop. 15–69	96

STRENGTHS

- GII strengths for Indonesia are found in all the seven GII pillars.
- In Institutions (99), Indonesia's relative strength is indicator Ease of resolving insolvency (33).
- In Human capital & research (90), indicator Quality of universities (36) is a GII strength for Indonesia.
- In Infrastructure (75), Indonesia presents three relative strengths: sub-pillar General infrastructure (35) and indicators Gross capital formation (15) and GDP per unit of energy use (30).
- In Market sophistication (64), Indonesia's strengths are sub-pillar Trade, competition, & market scale (7) and indicator Domestic market scale (7).
- In Business sophistication (95), relative strengths for the country are indicators University-industry research collaboration (34) and State of cluster development (27).
- In Knowledge & technology outputs (82), indicator Computer software spending (33) is a relative strength for Indonesia.
- In Creative outputs (76), GIIstrengths are indicators ICTs & organizational model creation (27) and Creative goods exports (19).

WEAKNESSES

- Indonesia's weaknesses in the GII are found in five of the seven GII pillars.
- Several of these weaknesses are in Human capital & research (90). Here Indonesia present weaknesses in indicators Government funding per pupil (94), Tertiary inbound mobility (110), Gross expenditure on R&D (109), and Global R&D companies (43).
- In Institutions (99), Indonesia's weaknesses are sub-pillar Regulatory environment (128) and indicator Cost of redundancy dismissal (125).
- In Business sophistication (95), relative weaknesses are sub-pillar Knowledge workers (122) and one of its indicators - Firms offering formal training (90).
- In Knowledge & technology outputs (82), Indonesia presents three weaknesses in indicators PCT patents by origin (97), Scientific & technical articles (125), and FDI outflows (112).
- In Creative outputs (76), only one weakness is found in indicator National feature films (96).

INDONESIA

GII 2019 rank

85

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2018 rank
78	**87**	**Lower middle**	**SEAO**	**266.8**	**3,495.9**	**13,229.5**	**85**

		Score/Value	Rank	
INSTITUTIONS		**53.2**	**99**	
1.1	**Political environment**	**53.9**	**68**	◆
1.1.1	Political and operational stability*	66.7	74	
1.1.2	Government effectiveness*	47.5	68	◆
1.2	**Regulatory environment**	**31.1**	**128**	○ ◇
1.2.1	Regulatory quality*	39.1	75	
1.2.2	Rule of law*	37.2	82	
1.2.3	Cost of redundancy dismissal, salary weeks	57.8	125	○ ◇
1.3	**Business environment**	**74.6**	**49**	◆
1.3.1	Ease of starting a business*	81.2	102	
1.3.2	Ease of resolving insolvency*	67.9	33	● ◆
HUMAN CAPITAL & RESEARCH		**21.3**	**90**	
2.1	**Education**	**33.9**	**99**	
2.1.1	Expenditure on education, % GDP	3.6	92	
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.5	94	○
2.1.3	School life expectancy, years	13.4	78	
2.1.4	PISA scales in reading, maths, & science	395.5	63	
2.1.5	Pupil-teacher ratio, secondary	15.3	69	
2.2	**Tertiary education**	**21.5**	**89**	
2.2.1	Tertiary enrolment, % gross	36.3	74	
2.2.2	Graduates in science & engineering, %	19.4	68	
2.2.3	Tertiary inbound mobility, %	0.1	110	○
2.3	**Research & development (R&D)**	**8.4**	**63**	
2.3.1	Researchers, FTE/mn pop. 🕘	89.2	86	
2.3.2	Gross expenditure on R&D, % GDP 🕘	0.1	109	○ ◇
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*	31.3	36	● ◆
INFRASTRUCTURE		**44.2**	**75**	◆
3.1	**Information & communication technologies(ICTs)**	**53.7**	**88**	
3.1.1	ICT access*	51.4	85	
3.1.2	ICT use*	44.8	77	◆
3.1.3	Government's online service*	56.9	92	
3.1.4	E-participation*	61.8	88	
3.2	**General infrastructure**	**43.5**	**35**	● ◆
3.2.1	Electricity output, kWh/mn pop	952.1	94	
3.2.2	Logistics performance*	50.8	45	◆
3.2.3	Gross capital formation, % GDP	33.4	15	●
3.3	**Ecological sustainability**	**35.4**	**76**	
3.3.1	GDP/unit of energy use	11.9	30	●
3.3.2	Environmental performance*	46.9	105	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	75	
MARKET SOPHISTICATION		**48.8**	**64**	
4.1	**Credit**	**29.0**	**96**	
4.1.1	Ease of getting credit*	70.0	40	
4.1.2	Domestic credit to private sector, % GDP	38.7	85	
4.1.3	Microfinance gross loans, % GDP	0.0	61	
4.2	**Investment**	**36.8**	**90**	
4.2.1	Ease of protecting minority investors*	63.3	48	
4.2.2	Market capitalization, % GDP	46.0	32	
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	60	
4.3	**Trade, competition, & market scale**	**80.6**	**7**	● ◆
4.3.1	Applied tariff rate, weighted avg., %	2.1	54	◆
4.3.2	Intensity of local competition†	73.2	37	◆
4.3.3	Domestic market scale, bn PPP$	3,495.9	7	● ◆

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**25.7**	**95**	
5.1	**Knowledge workers**	**10.9**	**122**	○ ◇
5.1.1	Knowledge-intensive employment, %	10.9	97	
5.1.2	Firms offering formal training, % firms	7.7	90	○ ◇
5.1.3	GERD performed by business, % GDP 🕘	0.0	78	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	Females employed w/advanced degrees, %	6.0	85	
5.2	**Innovation linkages**	**29.4**	**50**	
5.2.1	University/industry research collaboration†	53.8	34	● ◆
5.2.2	State of cluster development†	60.0	27	● ◆
5.2.3	GERD financed by abroad, %	n/a	n/a	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	92	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	91	
5.3	**Knowledge absorption**	**36.7**	**48**	
5.3.1	Intellectual property payments, % total trade	1.0	35	◆
5.3.2	High-tech imports, % total trade	8.5	49	
5.3.3	ICT services imports, % total trade	1.3	54	
5.3.4	FDI net inflows, % GDP	1.6	90	
5.3.5	Research talent, % in business enterprise 🕘	35.5	37	◆
KNOWLEDGE & TECHNOLOGY OUTPUTS		**17.6**	**82**	
6.1	**Knowledge creation**	**4.6**	**101**	
6.1.1	Patents by origin/bn PPP$ GDP	0.7	72	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.0	97	○
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	54	
6.1.4	Scientific & technical articles/bn PPP$ GDP	0.6	125	○
6.1.5	Citable documents H-index	12.7	55	
6.2	**Knowledge impact**	**36.7**	**64**	
6.2.1	Growth rate of PPP$ GDP/worker, %	2.3	37	
6.2.2	New businesses/th pop. 15-64	0.3	91	
6.2.3	Computer software spending, % GDP	0.3	33	● ◆
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.2	85	
6.2.5	High- & medium-high-tech manufactures, % 🕘	0.3	37	◆
6.3	**Knowledge diffusion**	**11.5**	**96**	
6.3.1	Intellectual property receipts, % total trade	0.0	76	
6.3.2	High-tech net exports, % total trade	3.1	43	
6.3.3	ICT services exports, % total trade	0.5	101	
6.3.4	FDI net outflows, % GDP	0.0	112	○
CREATIVE OUTPUTS		**24.0**	**76**	
7.1	**Intangible assets**	**40.0**	**68**	
7.1.1	Trademarks by origin/bn PPP$ GDP	16.0	93	
7.1.2	Industrial designs by origin/bn PPP$ GDP	0.7	80	
7.1.3	ICTs & business model creation†	67.1	40	◆
7.1.4	ICTs & organizational model creation†	65.4	27	● ◆
7.2	**Creative goods & services**	**13.9**	**73**	
7.2.1	Cultural & creative services exports, % total trade	0.0	99	
7.2.2	National feature films/mn pop. 15-69 🕘	0.5	96	○
7.2.3	Entertainment & Media market/th pop. 15-69	2.2	52	◆
7.2.4	Printing & other media, % manufacturing 🕘	0.8	77	
7.2.5	Creative goods exports, % total trade	2.9	19	● ◆
7.3	**Online creativity**	**2.0**	**83**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	1.5	88	
7.3.2	Country-code TLDs/th pop. 15-69	0.4	97	
7.3.3	Wikipedia edits/mn pop. 15-69	2.0	99	
7.3.4	Mobile app creation/bn PPP$ GDP	4.8	49	

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 Indonesia.

Missing data

Code	Indicator name	Country year	Model year	Source
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

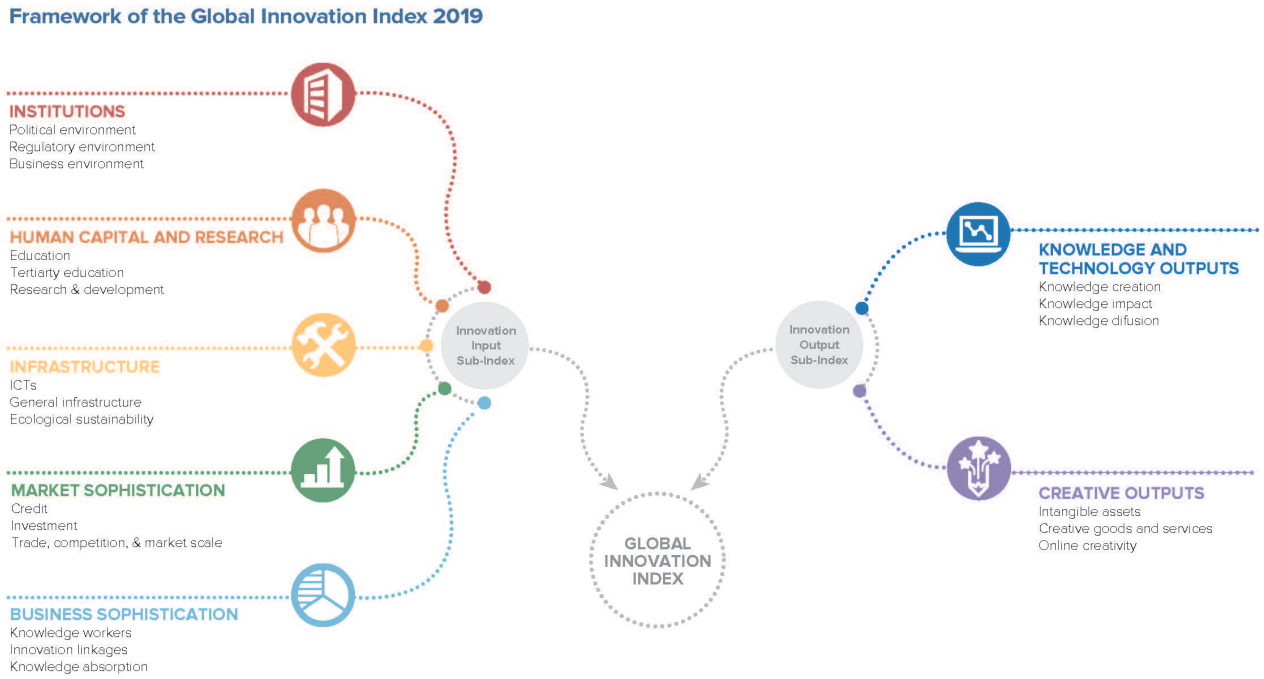
Outdated data

Code	Indicator name	Country year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2009	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2013	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.3	GERD performed by business, % GDP	2013	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.3.5	Research talent, % in business enterprise	2009	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.2.5	High- & medium-high-tech manufactures, %	2015	2016	United Nations Industrial Development Organization
7.2.2	National feature films/mn pop. 15–69	2012	2017	UNESCO Institute for Statistics
7.2.4	Printing & other media, % manufacturing	2015	2016	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 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.