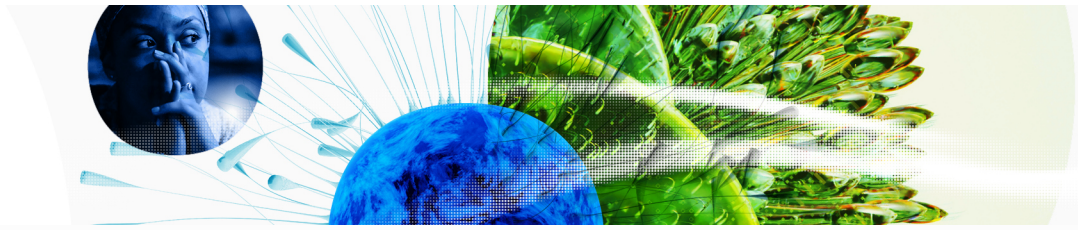
Global Innovation Index 2023



The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

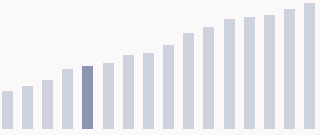
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Indonesia ranking in the Global Innovation Index 2023

> Indonesia ranks 61st among the 132 economies featured in the GII 2023.

> Indonesia ranks 5th among the 37 lower-middle-income group economies.

> Indonesia ranks 12th among the 16 economies in South East Asia, East Asia, and Oceania.



> Indonesia GII Ranking (2020-2023)

The table shows the rankings of Indonesia over the past four years. Data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Indonesia in the GII 2023 is between ranks 59 and 66.

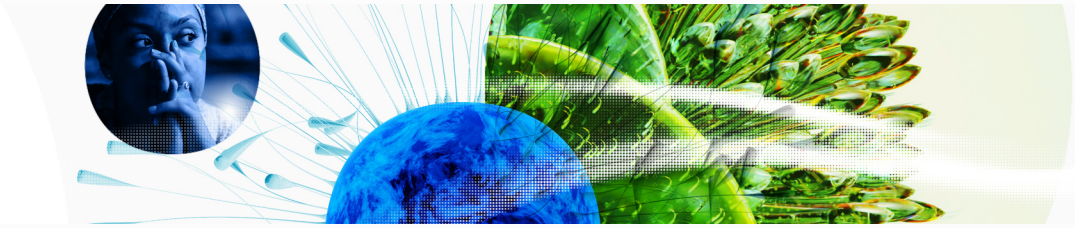
	GII Position	Innovation Inputs	Innovation Outputs
2020	85th	91st	76th
2021	87th	87th	84th
2022	75th	72nd	74th
2023	61st	64th	63rd

Indonesia performs better in innovation outputs than innovation inputs in 2023.

This year Indonesia ranks 64th in innovation inputs. This position is higher than last year.

Indonesia ranks 63rd in innovation outputs. This position is higher than last year.

Global Innovation Index 2023

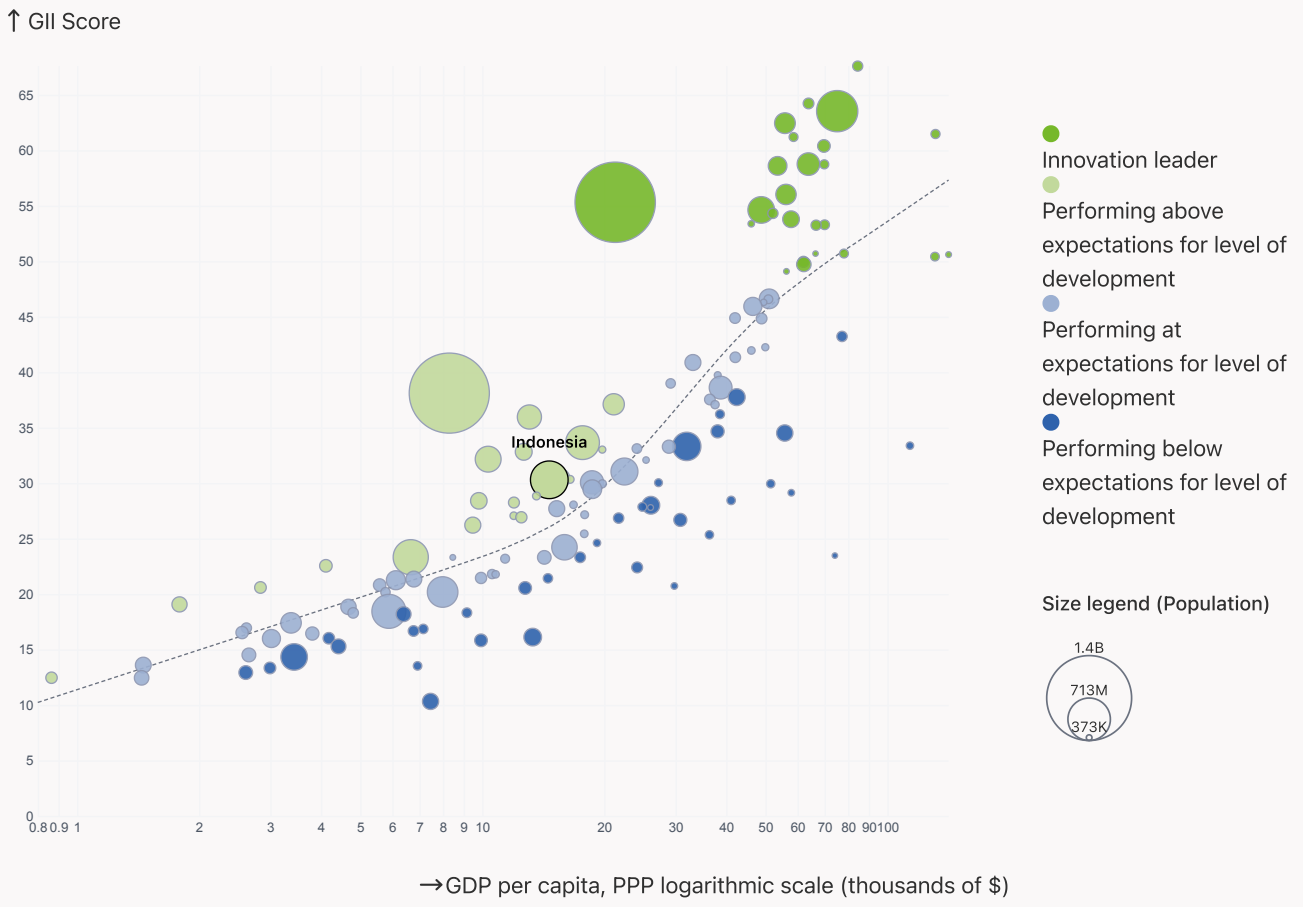


→ Expected vs. observed innovation performance

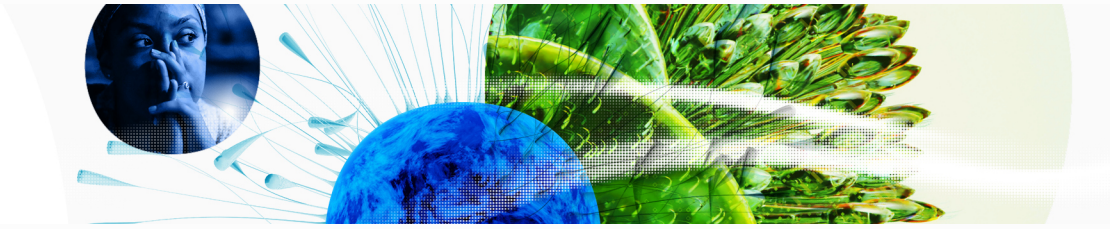
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

> Relative to GDP, Indonesia is performing above expectations for its level of development.

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

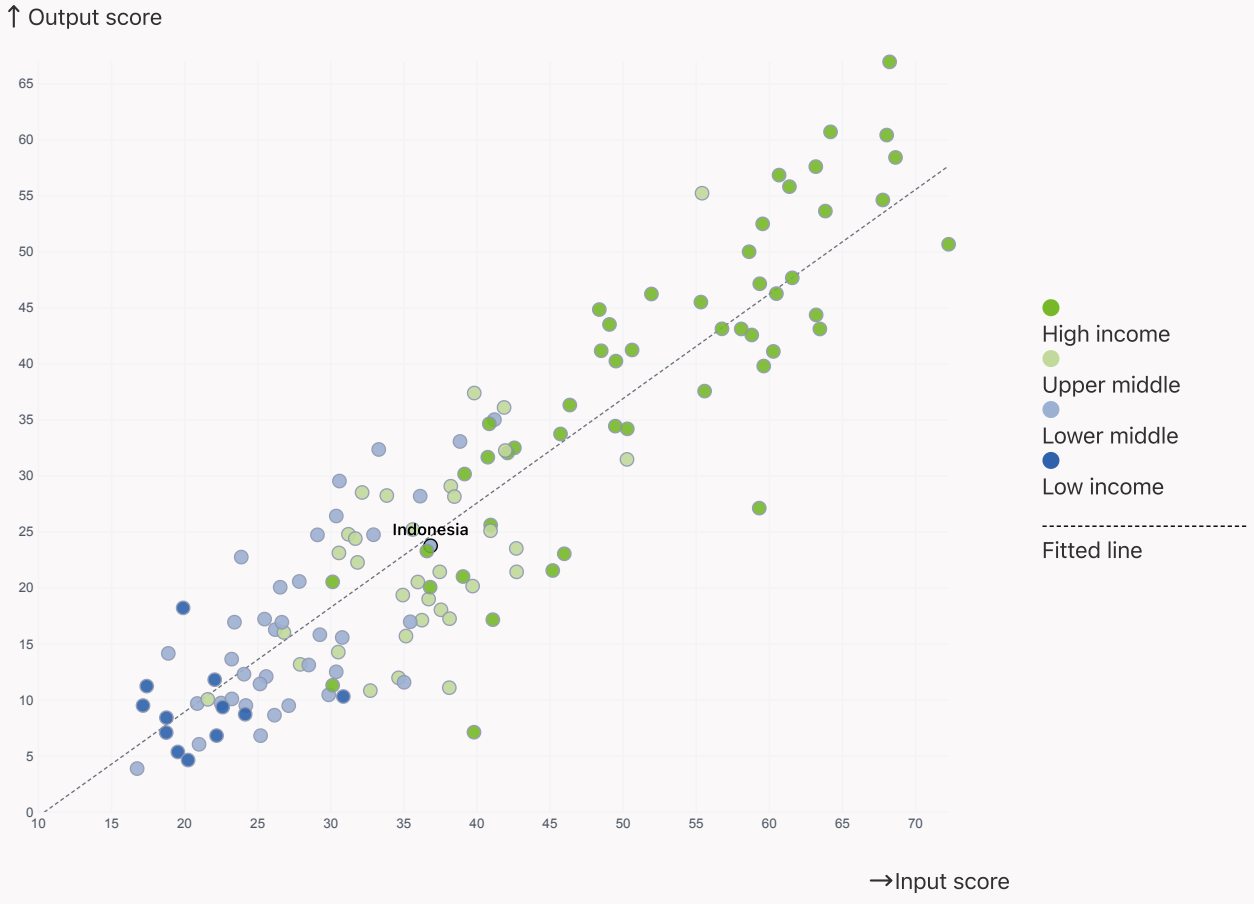


→ Effectively translating innovation investments into innovation outputs

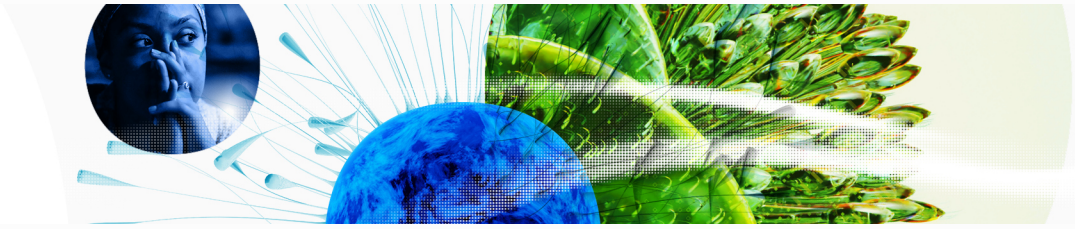
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> Indonesia produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

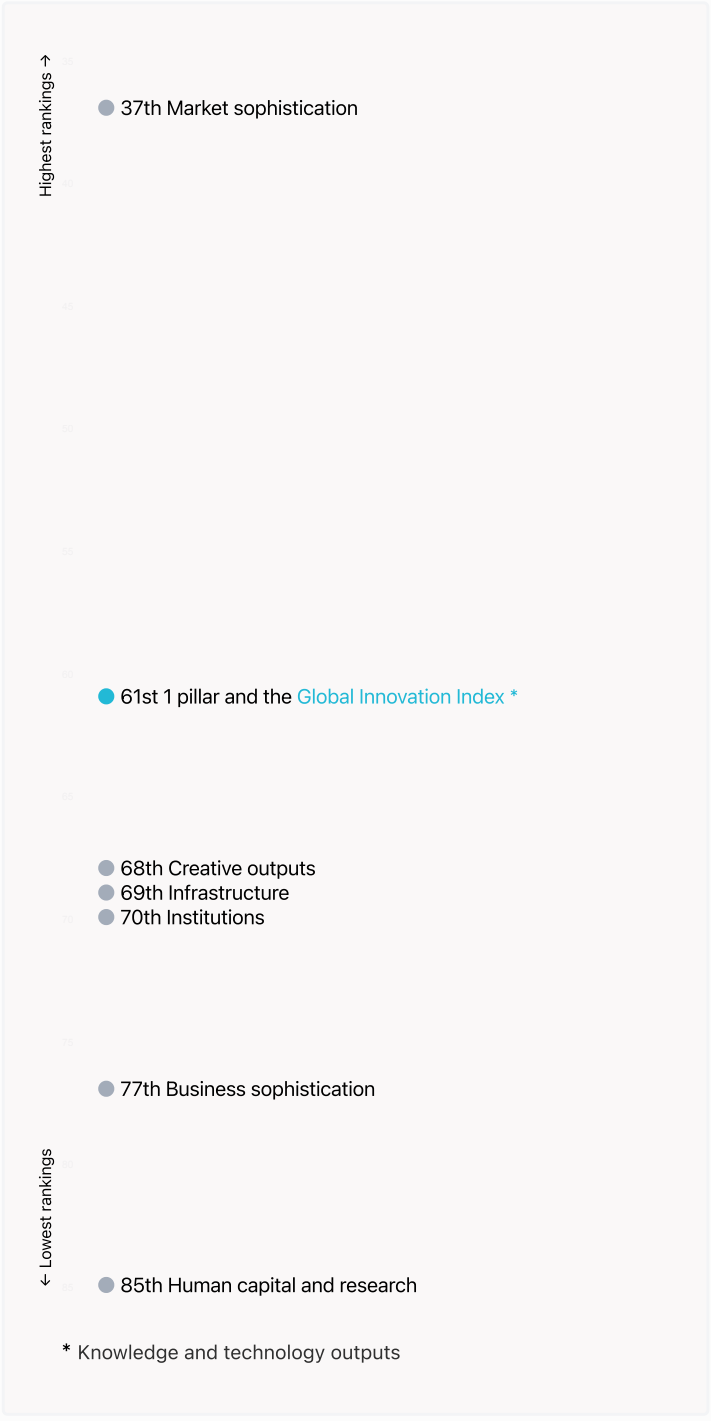


Global Innovation Index 2023



→ Overview of Indonesia's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Indonesia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

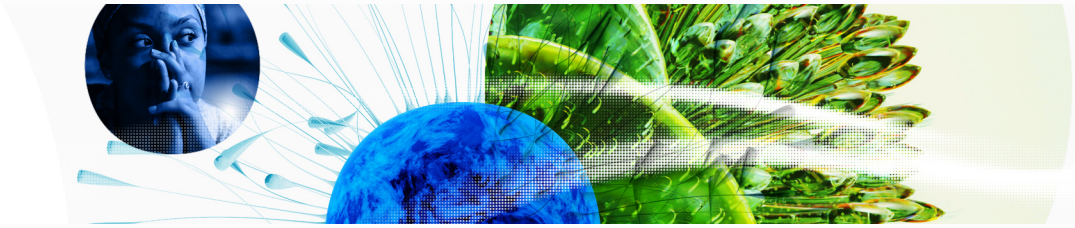
Indonesia ranks highest in Market sophistication (37th) and Knowledge and technology outputs (61st).

> Lowest rankings

Indonesia ranks lowest in Human capital and research (85th), Business sophistication (77th) and Institutions (70th).

The full WIPO Intellectual Property Statistics profile for Indonesia can be found on this link.

Global Innovation Index 2023



→ Benchmark of Indonesia against other country groupings for each of the seven areas of the GII Index

The charts shows the relative position of Indonesia (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Lower-Middle-Income economies

Indonesia performs above the lower-middle-income group average in all the pillars.

> South East Asia, East Asia, And Oceania

Indonesia performs below the regional average in all the pillars.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- SEAO | Score: 32.16
- Indonesia | Score: 23.68
- Lower middle income | Score: 17.21

* South East Asia, East Asia, and Oceania

Creative outputs

- Top 10 | 56.09
- SEAO | 34.40
- Indonesia | 23.76
- Lower middle income | 16.35

Business sophistication

- Top 10 | 64.39
- SEAO | 40.54
- Indonesia | 25.61
- Lower middle income | 22.71

Market sophistication

- Top 10 | 61.93
- SEAO | 47.18
- Indonesia | 45.04
- Lower middle income | 28.01

Human capital and research

- Top 10 | 60.28
- SEAO | 40.81
- Indonesia | 25.77
- Lower middle income | 21.73

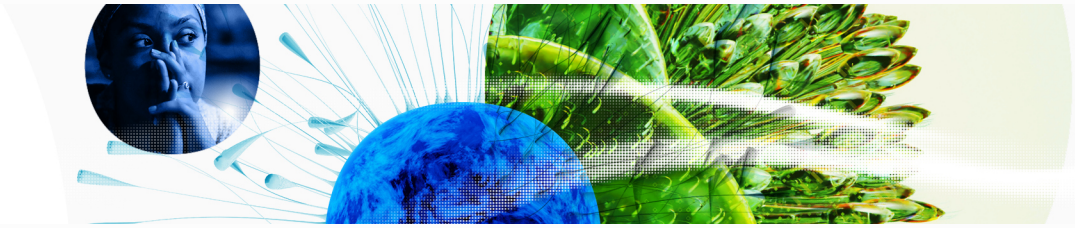
Infrastructure

- Top 10 | 62.83
- SEAO | 47.13
- Indonesia | 39.21
- Lower middle income | 27.83

Institutions

- Top 10 | 79.85
- SEAO | 62.54
- Indonesia | 48.72
- Lower middle income | 39.43

Global Innovation Index 2023



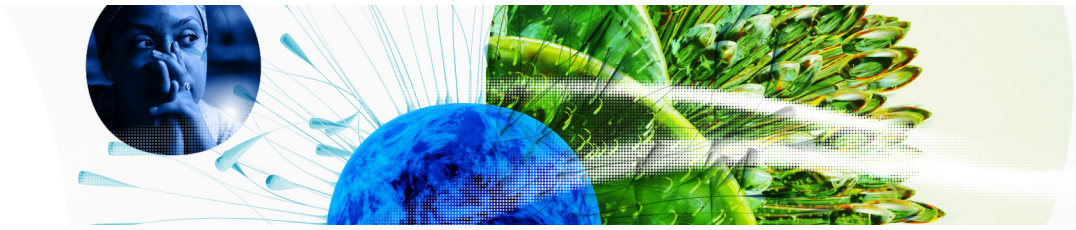
→ Innovation strengths and weaknesses in Indonesia

The table below gives an overview of the indicator strengths and weaknesses of Indonesia in the GII 2023.

> Indonesia's main innovation strengths are **Entrepreneurship policies and culture** (rank 5), **State of cluster development** (rank 5) and **University-industry R&D collaboration** (rank 5).

Strengths			Weaknesses		
Rank	Code	Indicator name	Rank	Code	Indicator name
5	1.3.2	Entrepreneurship policies and culture	129	1.2.3	Cost of redundancy dismissal
5	5.2.2	State of cluster development	126	6.1.4	Scientific and technical articles/bn PPP$ GDP
5	5.2.1	University-industry R&D collaboration	122	3.3.2	Environmental performance
7	4.3.3	Domestic market scale, bn PPP$	111	2.2.3	Tertiary inbound mobility, %
8	4.1.1	Finance for startups and scaleups	97	5.1.2	Firms offering formal training, %
16	4.3.2	Domestic industry diversification	93	5.2.3	GERD financed by abroad, % GDP
19	6.2.2	Unicorn valuation, % GDP	90	2.1.2	Government funding/pupil, secondary, % GDP/cap
22	7.2.4	Creative goods exports, % total trade	82	5.1.3	GERD performed by business, % GDP
24	3.2.3	Gross capital formation, % GDP	72	2.1.4	PISA scales in reading, maths and science
24	1.3.1	Policies for doing business	58	4.1.3	Loans from microfinance institutions, % GDP

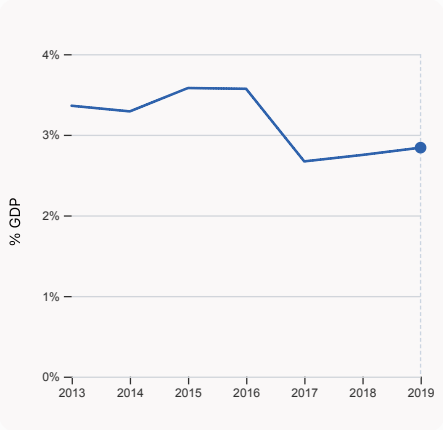
Global Innovation Index 2023



→ Indonesia's innovation system

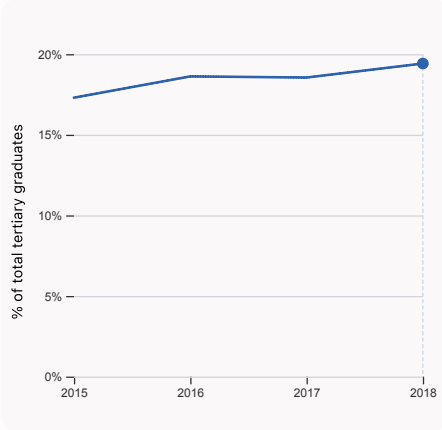
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Indonesia



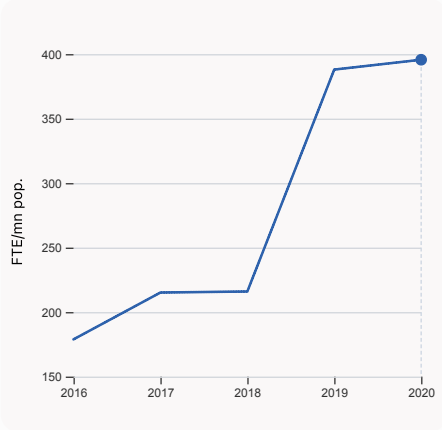
2.1.1 Expenditure on education, % GDP

was equal to 2.84% GDP in 2019, up by 0.09 percentage points from the year prior – and equivalent to an indicator rank of 109.



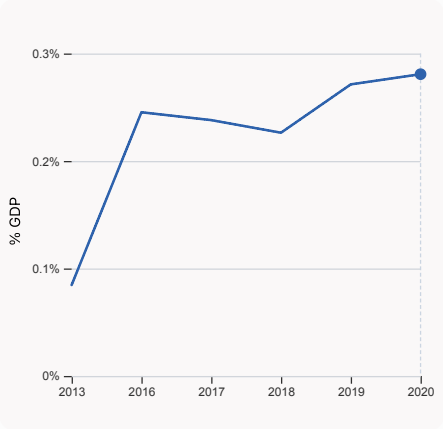
2.2.2 Graduates in science and engineering, %

was equal to 19.42% of total tertiary graduates in 2018, up by 0.87 percentage points from the year prior – and equivalent to an indicator rank of 79.



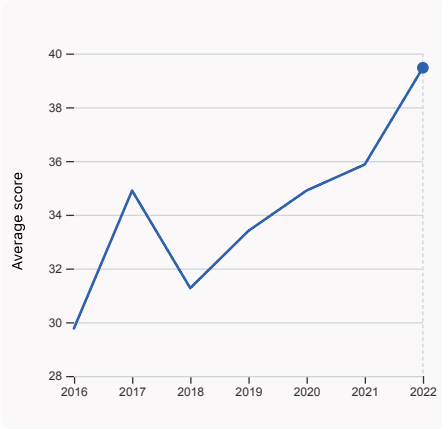
2.3.1 Researchers, FTE/mn pop.

was equal to 395.67 FTE/mn pop. in 2020, up by 1.97% from the year prior – and equivalent to an indicator rank of 75.



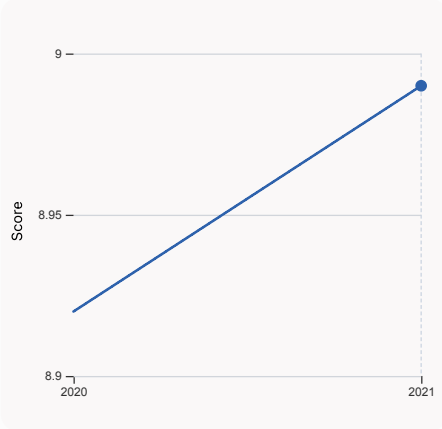
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.281% GDP in 2020, up by 0.0095 percentage points from the year prior – and equivalent to an indicator rank of 79.



2.3.4 QS university ranking, top 3

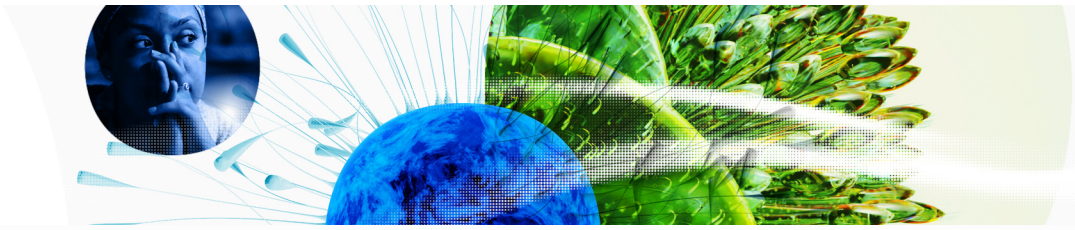
was equal to an average score of 39.47 for the top 3 universities in 2022, up by 10.036% from the year prior – and equivalent to an indicator rank of 32.

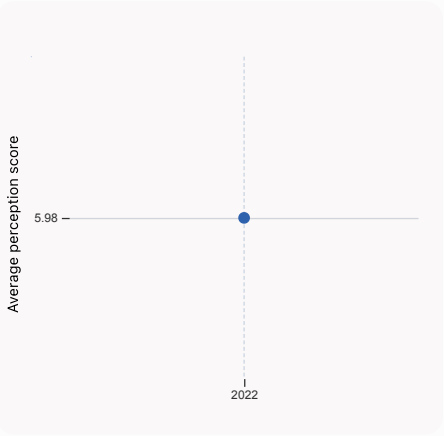


3.1.1 ICT access

was equal to a score of 8.99 in 2021, up by 0.78% from the year prior – and equivalent to an indicator rank of 49.

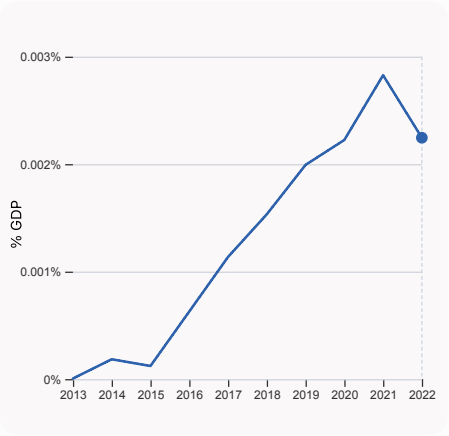
Global Innovation Index 2023





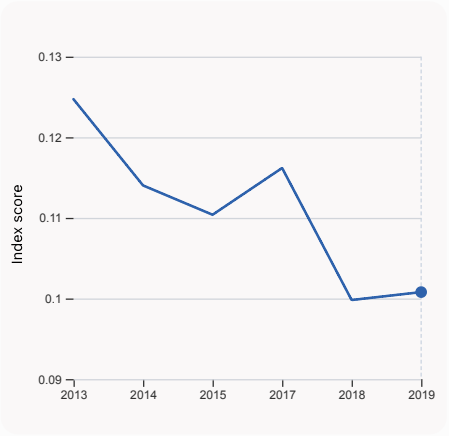
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 5.98 in 2022, equivalent to an indicator rank of 8.



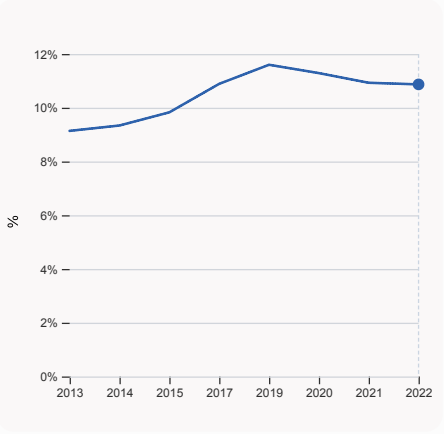
4.2.4 VC received, value, % GDP

was equal to 0.00225% GDP in 2022, down by 0.00058 percentage points from the year prior – and equivalent to an indicator rank of 30.



4.3.2 Domestic industry diversification

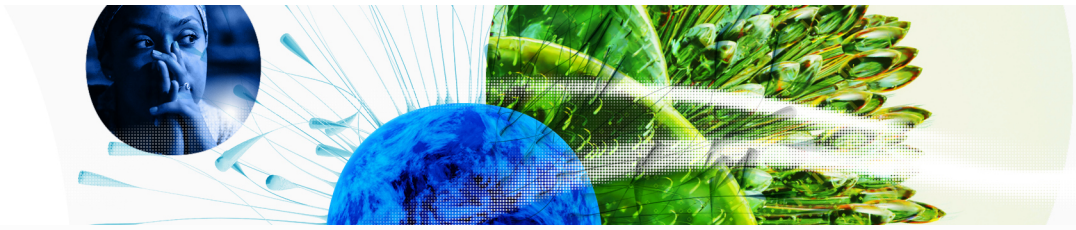
was equal to an index score of 0.101 in 2019, up by 0.98% from the year prior – and equivalent to an indicator rank of 16.



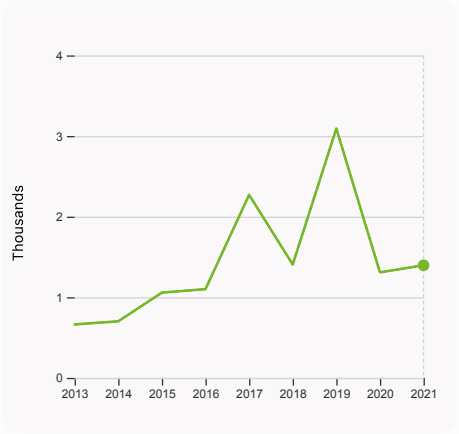
5.1.1 Knowledge-intensive employment, %

was equal to 10.87% in 2022, down by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 105.

Global Innovation Index 2023

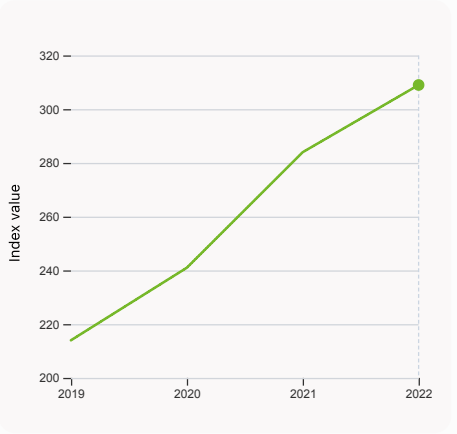


> Innovation outputs in Indonesia



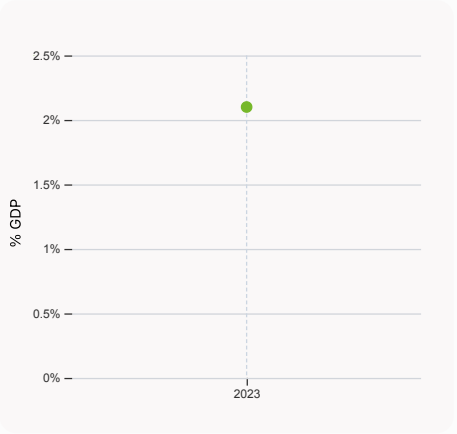
6.1.1 Patents by origin

was equal to 1.4 Thousands in 2021, up by 6.72% from the year prior – and equivalent to an indicator rank of 85.



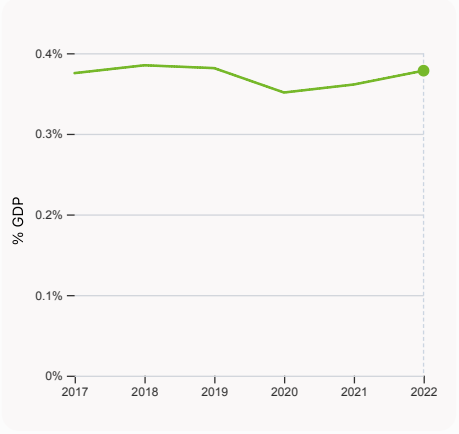
6.1.5 Citable documents H-index

was equal to an index value of 309 in 2022, up by 8.8% from the year prior – and equivalent to an indicator rank of 57.



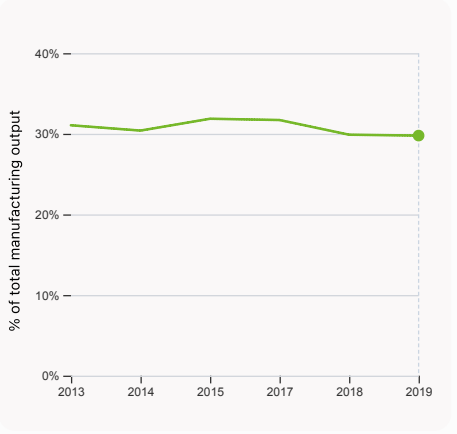
6.2.2 Unicorn valuation, % GDP

was equal to 2.1 % GDP in 2023 – and equivalent to an indicator rank of 19.



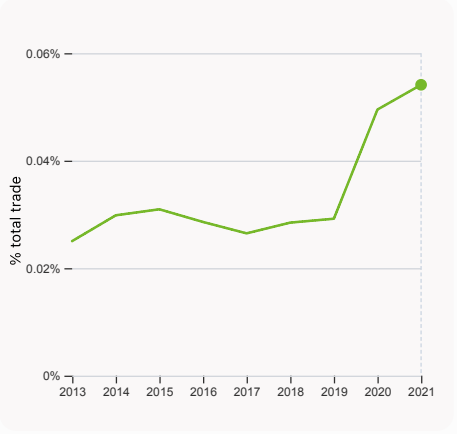
6.2.3 Software spending, % GDP

was equal to 0.378% GDP in 2022, up by 0.017 percentage points from the year prior – and equivalent to an indicator rank of 25.



6.2.4 High-tech manufacturing, %

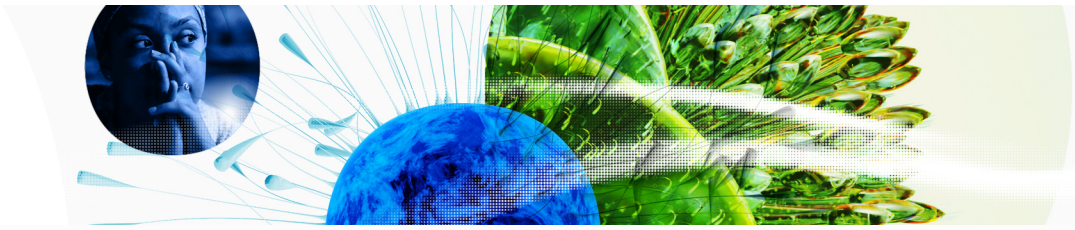
was equal to 29.78% of total manufacturing output in 2019, down by 0.11 percentage points from the year prior – and equivalent to an indicator rank of 39.

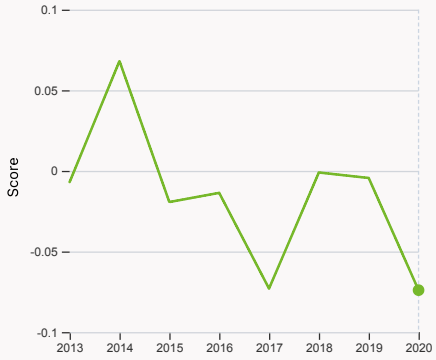


6.3.1 Intellectual property receipts, % total trade

was equal to 0.054% total trade in 2021, up by 0.0046 percentage points from the year prior – and equivalent to an indicator rank of 73.

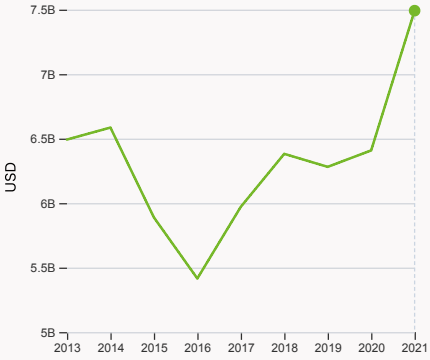
Global Innovation Index 2023





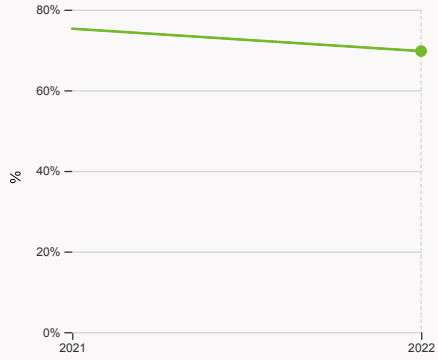
6.3.2 Production and export complexity

was equal to a score of -0.074 in 2020, down by 1578.18% from the year prior – and equivalent to an indicator rank of 66.



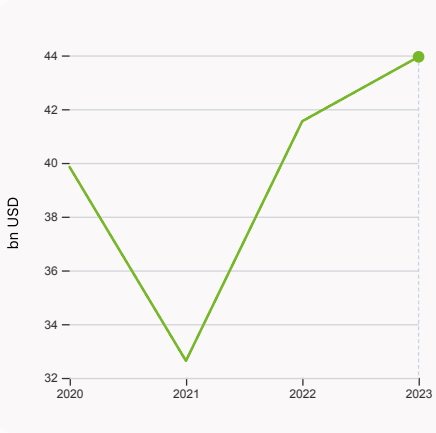
6.3.3 High-tech exports

was equal to 7,492,072,758 USD in 2021, up by 16.9% from the year prior – and equivalent to an indicator rank of 45.



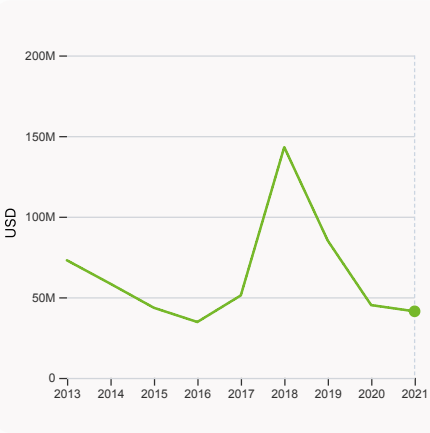
7.1.1 Intangible asset intensity, top 15, %

was equal to 69.72% in 2022, down by 5.56 percentage points from the year prior – and equivalent to an indicator rank of 19.



7.1.3 Global brand value, top 5,000

was equal to 43.948 bn USD in 2023, up by 5.77% from the year prior – and equivalent to an indicator rank of 43.



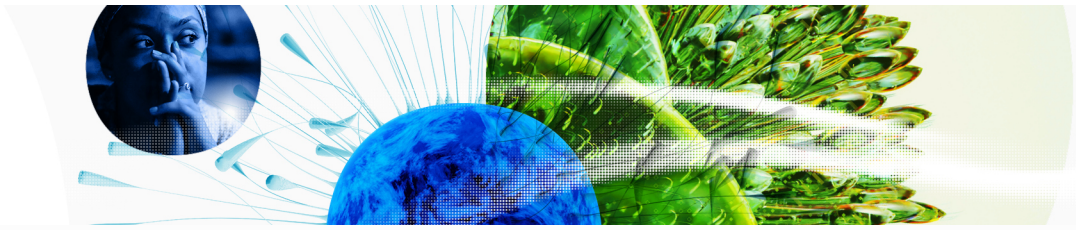
7.2.1 Cultural and creative services exports

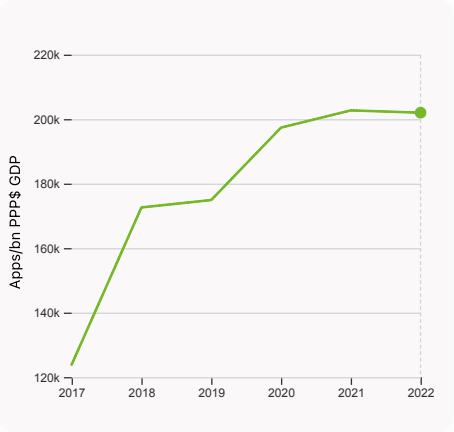
was equal to 41,282,000 USD in 2021, down by 8.56% from the year prior – and equivalent to an indicator rank of 98.

7.2.2 National feature films/mn pop. 15-69

was equal to 0.492 films/mn pop. 15–69 in 2021, up by 70.89% from the year prior – and equivalent to an indicator rank of 70.

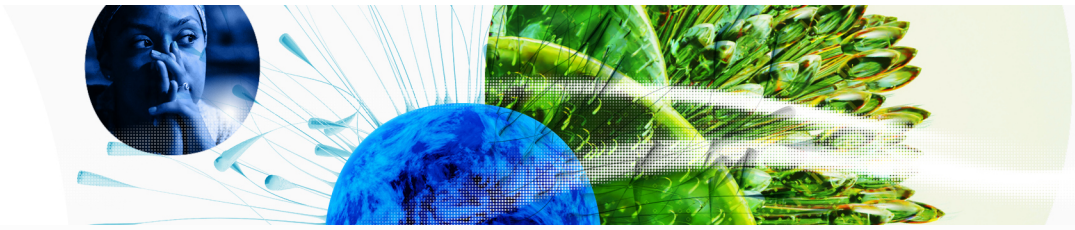
Global Innovation Index 2023





7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 202,001.51 Apps/bn PPP$ GDP in 2022, down by 0.35% from the year prior – and equivalent to an indicator rank of 60.



→ Indonesia's innovation top performers

> 2.3.4 QS university ranking of Indonesia's top universities

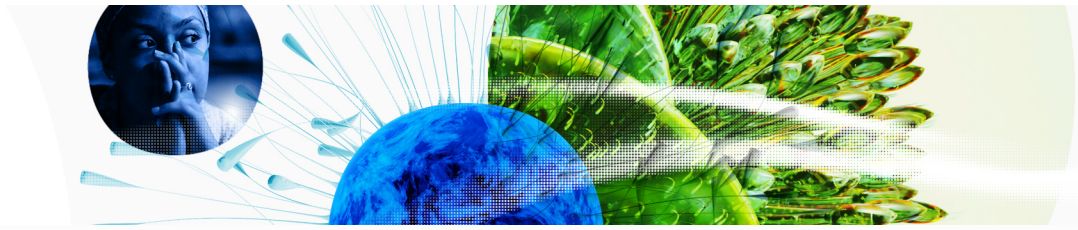
Rank	University	Score
231	GADJAH MADA UNIVERSITY	40.20
235	BANDUNG INSTITUTE OF TECHNOLOGY (ITB)	39.50
248	UNIVERSITAS INDONESIA	38.70

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 6.2.2 Top Unicorn Companies in Indonesia

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	J&T EXPRESS	Supply chain, logistics, & delivery	Jakarta	20
2	TRAVELOKA	Travel	Jakarta	3
3	AKULAKU	E-commerce & direct-to-consumer	Jakarta	2

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies



> 7.1.1 Top 15 intangible-asset intensive companies in Indonesia

Rank	Firm	Intensity, %
1	BANK CENTRAL ASIA TBK PT	73.23
2	BANK RAKYAT INDONESIA PERSERO TBK PT	46.26
3	TELKOM INDONESIA PERSERO TBK PT	63.16

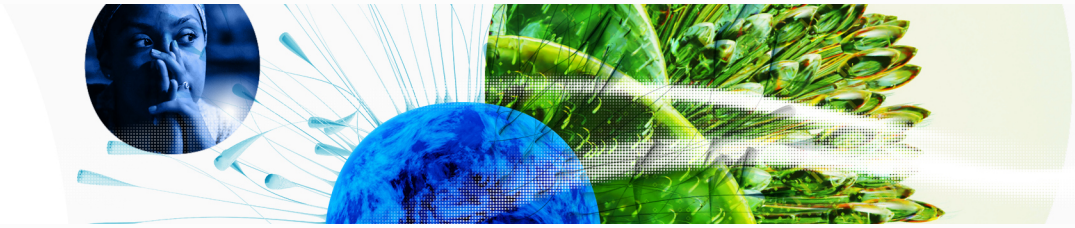
Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Indonesia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	BRI	Banking	4,257.9
2	TELKOM INDONESIA	Telecoms	4,008.1
3	PERTAMINA	Oil & Gas	3,690.5

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

Global Innovation Index 2023



Indonesia

GII 2023 rank **61**

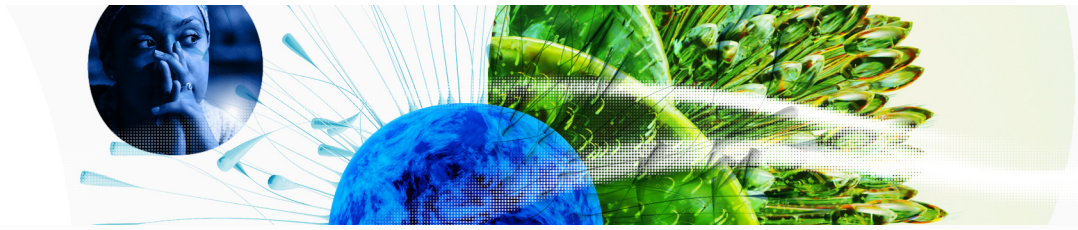
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
63	64	Lower middle	SEAO	275.5	4,023.5	14,638.4

	Score / Value	Rank	
Institutions	**48.7**	**70**	
1.1 Institutional environment	**46.5**	**63**	◆
1.1.1 Operational stability for businesses*	45.8	78	
1.1.2 Government effectiveness*	47.2	49	◆
1.2 Regulatory environment	**21.5**	**129**	○ ◇
1.2.1 Regulatory quality*	49.8	56	◆
1.2.2 Rule of law*	33.1	74	
1.2.3 Cost of redundancy dismissal	57.8	129	○ ◇
1.3 Business environment	**78.2**	**11**	● ◆
1.3.1 Policies for doing business†	72.8	24	● ◆
1.3.2 Entrepreneurship policies and culture†	83.6	5	● ◆
Human capital and research	**25.8**	**85**	
2.1 Education	**34.3**	**113**	
2.1.1 Expenditure on education, % GDP	2.8	109	
2.1.2 Government funding/pupil, secondary, % GDP/cap	10.6	90	○
2.1.3 School life expectancy, years	13.6	74	
2.1.4 PISA scales in reading, maths and science	381.9	72	○
2.1.5 Pupil-teacher ratio, secondary	15.2	78	
2.2 Tertiary education	**17.4**	**95**	
2.2.1 Tertiary enrolment, % gross	36.3	81	
2.2.2 Graduates in science and engineering, %	19.4	79	
2.2.3 Tertiary inbound mobility, %	0.1	111	○ ◇
2.3 Research and development (R&D)	**25.6**	**39**	◆
2.3.1 Researchers, FTE/mn pop.	395.7	75	
2.3.2 Gross expenditure on R&D, % GDP	0.3	79	
2.3.3 Global corporate R&D investors, top 3, mn US$	53.6	28	◆
2.3.4 QS university ranking, top 3*	40.0	32	◆
Infrastructure	**39.2**	**69**	◆
3.1 Information and communication technologies (ICTs)	**73.9**	**54**	◆
3.1.1 ICT access*	84.9	49	◆
3.1.2 ICT use*	65.8	80	
3.1.3 Government's online service*	74.0	51	◆
3.1.4 E-participation*	70.9	37	◆
3.2 General infrastructure	**25.5**	**71**	
3.2.1 Electricity output, GWh/mn pop.	1,118.4	95	
3.2.2 Logistics performance*	40.9	60	◆
3.2.3 Gross capital formation, % GDP	30.3	24	● ◆
3.3 Ecological sustainability	**18.2**	**88**	
3.3.1 GDP/unit of energy use	13.5	34	
3.3.2 Environmental performance*	15.8	122	○
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.8	74	
Market sophistication	**45.0**	**37**	◆
4.1 Credit	**31.2**	**63**	
4.1.1 Finance for startups and scaleups†	80.4	8	● ◆
4.1.2 Domestic credit to private sector, % GDP	38.7	84	
4.1.3 Loans from microfinance institutions, % GDP	0.0	58	○
4.2 Investment	**13.8**	**48**	
4.2.1 Market capitalization, % GDP	46.8	38	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.0	71	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	59	
4.2.4 VC received, value, % GDP	0.0	30	
4.3 Trade, diversification, and market scale	**90.1**	**5**	● ◆
4.3.1 Applied tariff rate, weighted avg., %	2.0	62	◆
4.3.2 Domestic industry diversification	97.1	16	● ◆
4.3.3 Domestic market scale, bn PPP$	4,023.5	7	● ◆

	Score / Value	Rank	
Business sophistication	**25.6**	**77**	
5.1 Knowledge workers	**8.7**	**125**	○ ◇
5.1.1 Knowledge-intensive employment, %	10.9	105	
5.1.2 Firms offering formal training, %	7.7	97	○ ◇
5.1.3 GERD performed by business, % GDP	0.0	82	○
5.1.4 GERD financed by business, %	8.0	78	
5.1.5 Females employed w/advanced degrees, %	6.3	89	
5.2 Innovation linkages	**35.2**	**35**	◆
5.2.1 University-industry R&D collaboration†	87.4	5	● ◆
5.2.2 State of cluster development†	86.5	5	● ◆
5.2.3 GERD financed by abroad, % GDP	0.0	93	○
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	111	
5.2.5 Patent families/bn PPP$ GDP	0.0	91	
5.3 Knowledge absorption	**32.9**	**70**	
5.3.1 Intellectual property payments, % total trade	0.9	46	◆
5.3.2 High-tech imports, % total trade	10.4	31	
5.3.3 ICT services imports, % total trade	2.1	35	◆
5.3.4 FDI net inflows, % GDP	1.9	72	
5.3.5 Research talent, % in businesses	7.5	63	
Knowledge and technology outputs	**23.7**	**61**	
6.1 Knowledge creation	**9.5**	**82**	
6.1.1 Patents by origin/bn PPP$ GDP	0.4	85	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	100	
6.1.3 Utility models by origin/bn PPP$ GDP	0.9	23	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	14.8	57	
6.2 Knowledge impact	**41.4**	**28**	◆
6.2.1 Labor productivity growth, %	1.3	54	
6.2.2 Unicorn valuation, % GDP	2.1	19	● ◆
6.2.3 Software spending, % GDP	0.4	25	◆
6.2.4 High-tech manufacturing, %	29.8	39	◆
6.3 Knowledge diffusion	**20.2**	**73**	
6.3.1 Intellectual property receipts, % total trade	0.0	73	
6.3.2 Production and export complexity	51.0	66	
6.3.3 High-tech exports, % total trade	3.2	45	
6.3.4 ICT services exports, % total trade	0.8	93	
6.3.5 ISO 9001 quality/bn PPP$ GDP	2.3	85	
Creative outputs	**23.8**	**68**	
7.1 Intangible assets	**33.3**	**59**	
7.1.1 Intangible asset intensity, top 15, %	69.7	19	
7.1.2 Trademarks by origin/bn PPP$ GDP	25.6	83	
7.1.3 Global brand value, top 5,000	3.2	43	◆
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.8	76	
7.2 Creative goods and services	**9.4**	**68**	
7.2.1 Cultural and creative services exports, % total trade	0.0	98	
7.2.2 National feature films/mn pop. 15-69	0.5	70	
7.2.3 Entertainment and media market/th pop. 15-69	3.3	48	◆
7.2.4 Creative goods exports, % total trade	2.7	22	● ◆
7.3 Online creativity	**19.0**	**71**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	1.7	91	
7.3.2 Country-code TLDs/th pop. 15-69	1.1	87	
7.3.3 GitHub commits/mn pop. 15-69	6.0	68	
7.3.4 Mobile app creation/bn PPP$ GDP	67.3	60	

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 appendices for details, including the year of the data, at https://www.wipo.int/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

Global Innovation Index 2023



→ Data availability

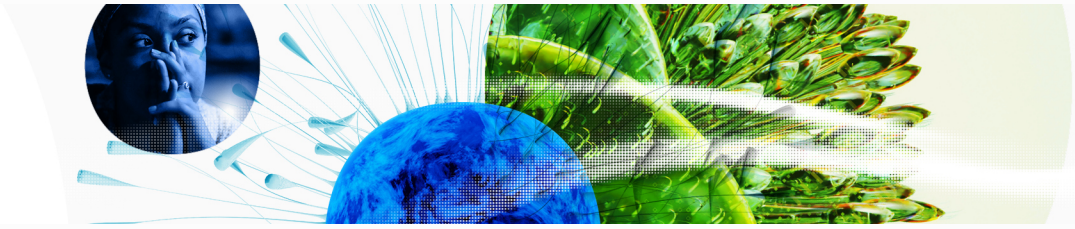
The following tables list indicators that are either missing or outdated for Indonesia.

> Indonesia has missing data for zero indicators and outdated data for sixteen indicators.

> Outdated data for Indonesia

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2018	2020	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2018	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2018	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	2018	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.3.2	Domestic industry diversification	2019	2020	United Nations Industrial Development Organization
5.1.2	Firms offering formal training, %	2015	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.2.4	High-tech manufacturing, %	2019	2020	United Nations Industrial Development Organization

Global Innovation Index 2023



About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- 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.

Source: Global Innovation Index Database, WIPO, 2023.

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.