

Global Innovation Index 2023

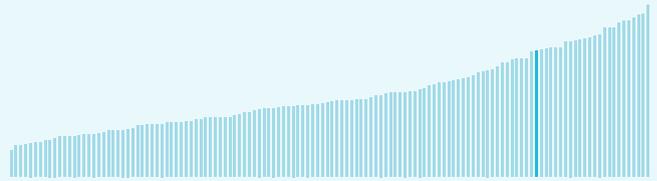


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

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

Australia ranking in the Global Innovation Index 2023

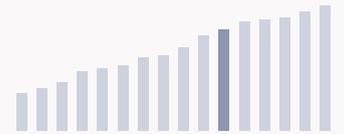
> Australia ranks **24th** among the 132 economies featured in the GII 2023.



> Australia ranks **23rd** among the 50 high-income group economies.



> Australia ranks **6th** among the 16 economies in South East Asia, East Asia, and Oceania.



> Australia GII Ranking (2020-2023)

The table shows the rankings of Australia 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 Australia in the GII 2023 is between ranks 22 and 25.

	GII Position	Innovation Inputs	Innovation Outputs
2020	23rd	13th	31st
2021	25th	15th	33rd
2022	25th	19th	32nd
2023	24th	16th	30th

Australia performs worse in innovation outputs than innovation inputs in 2023.

This year Australia ranks 16th in innovation inputs. This position is higher than last year.

Australia ranks 30th in innovation outputs. This position is higher than last year.

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→ Expected vs. observed innovation performance

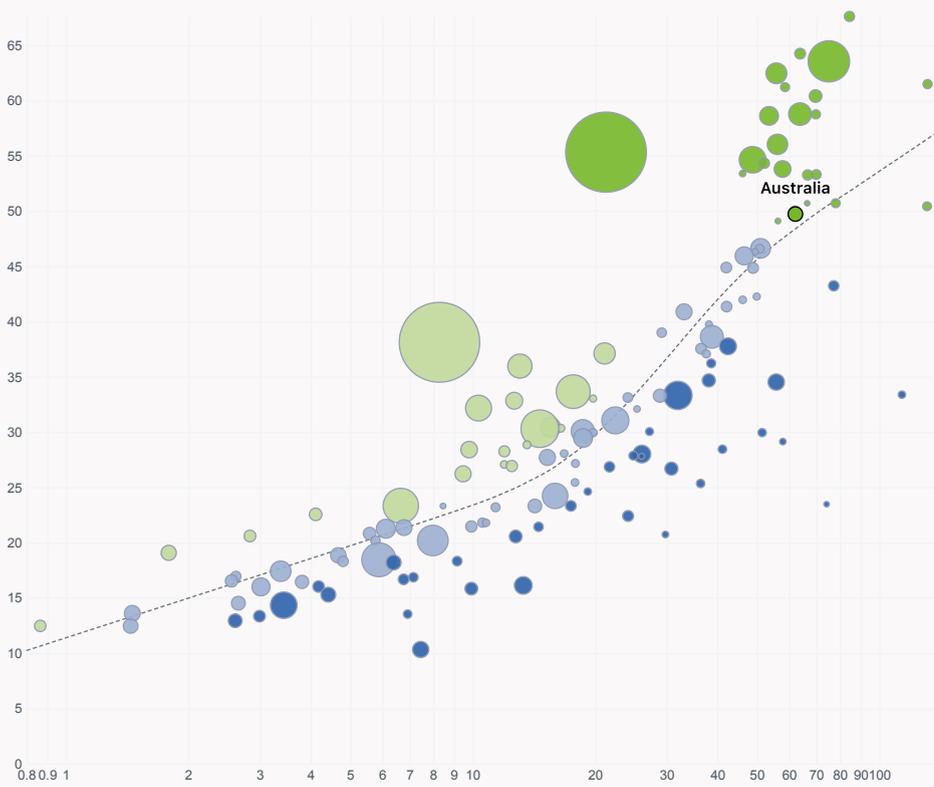
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



> Australia is an innovation leader, ranking in the top 25 of the GII.

> Innovation overperformers relative to their economic development

↑ GII Score



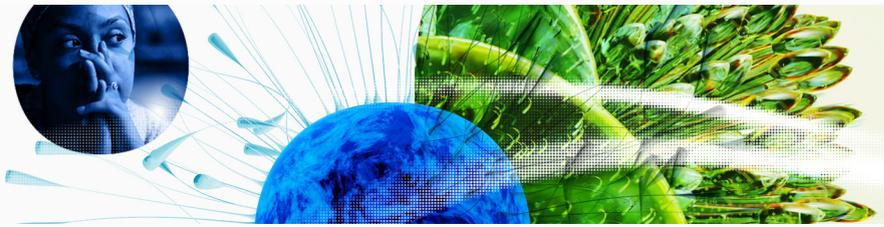
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



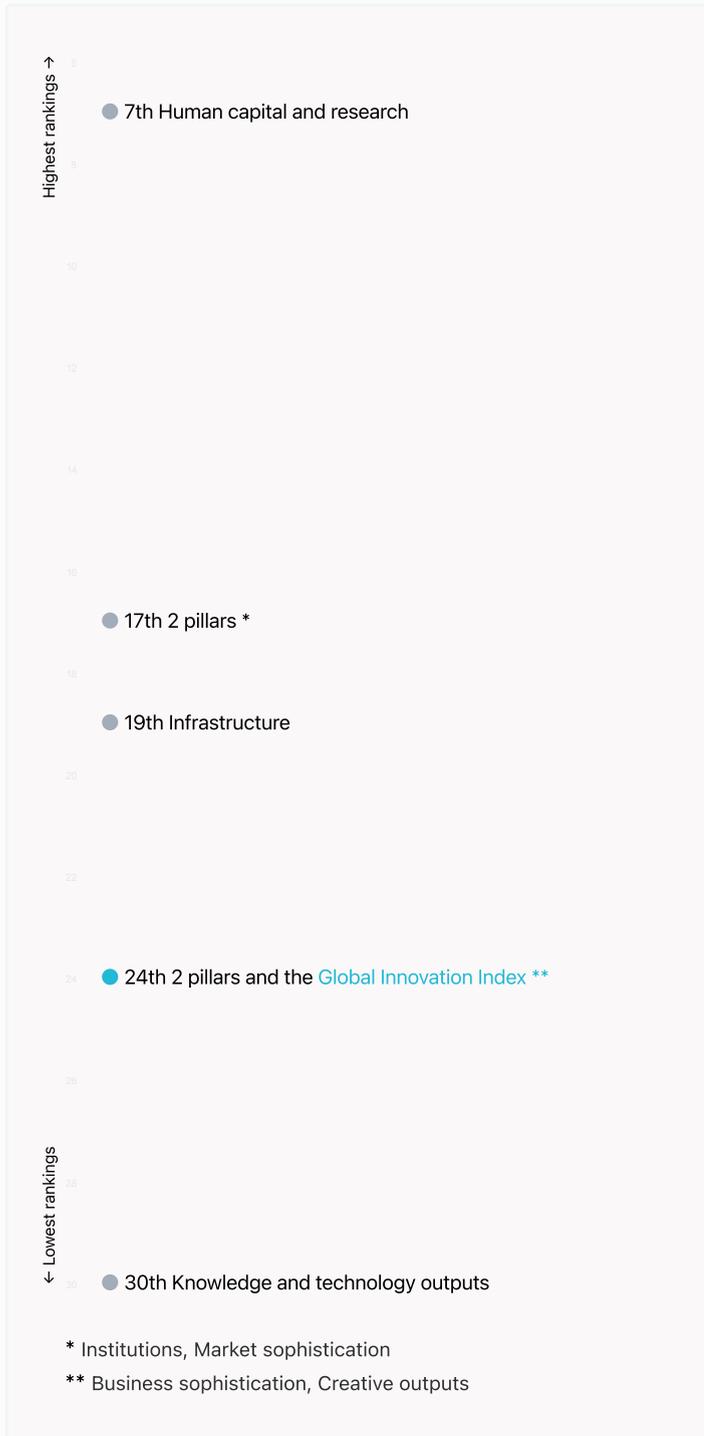
→ GDP per capita, PPP logarithmic scale (thousands of \$)

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→ Overview of Australia'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 Australia are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings



Australia ranks highest in Human capital and research (7th), Institutions, Market sophistication (17th), Infrastructure (19th) and Business sophistication, Creative outputs (24th).

> Lowest rankings



Australia ranks lowest in Knowledge and technology outputs (30th), Business sophistication, Creative outputs, GII Index (24th) and Infrastructure (19th).



The full WIPO Intellectual Property Statistics profile for Australia can be found on [this link](#).

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

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

> High-Income economies

Australia performs above the high-income group average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.

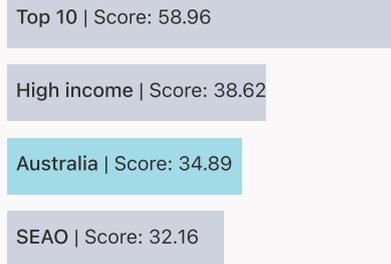


> South East Asia, East Asia, And Oceania

Australia performs above the regional average in all the pillars.

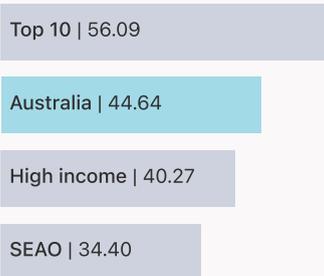


Knowledge and technology outputs

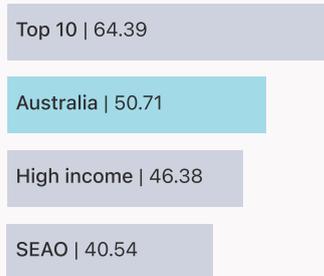


* South East Asia, East Asia, and Oceania

Creative outputs



Business sophistication



Market sophistication



Human capital and research



Infrastructure



Institutions





→ Innovation strengths and weaknesses in Australia

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



> Australia's main innovation strengths are **School life expectancy, years (rank 1)**, **E-participation (rank 2)** and **Tertiary enrolment, % gross (rank 3)**.

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	2.1.3	School life expectancy, years	90	6.3.2	Production and export complexity
2	3.1.4	E-participation	82	5.3.3	ICT services imports, % total trade
3	2.2.1	Tertiary enrolment, % gross	81	6.2.1	Labor productivity growth, %
4	1.2.1	Regulatory quality	79	5.3.4	FDI net inflows, % GDP
5	2.2.3	Tertiary inbound mobility, %	76	6.3.4	ICT services exports, % total trade
6	5.1.5	Females employed w/advanced degrees, %	74	3.3.1	GDP/unit of energy use
6	2.3.4	QS university ranking, top 3	68	2.2.2	Graduates in science and engineering, %
7	4.3.1	Applied tariff rate, weighted avg., %	67	2.1.2	Government funding/pupil, secondary, % GDP/cap
7	6.1.5	Citable documents H-index	65	7.2.1	Cultural and creative services exports, % total trade
7	3.1.3	Government's online service	58	7.2.2	National feature films/mn pop. 15-69

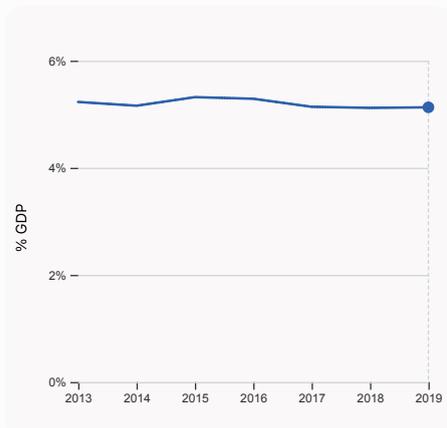
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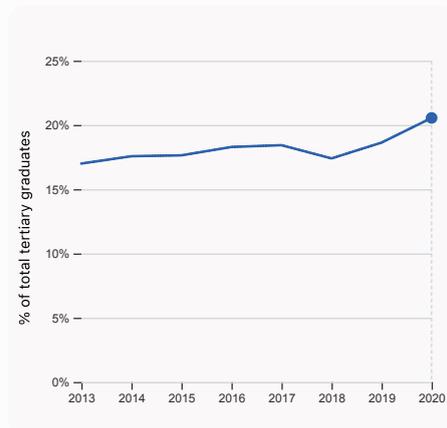
→ Australia's innovation system

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

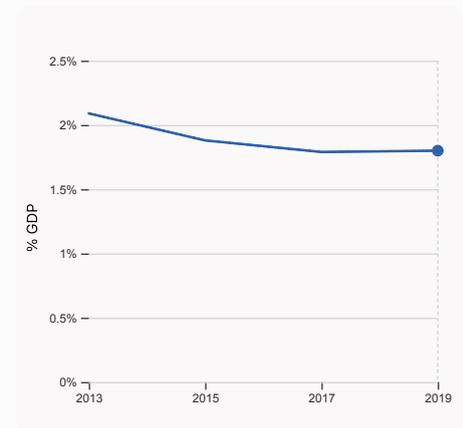
> Innovation inputs in Australia



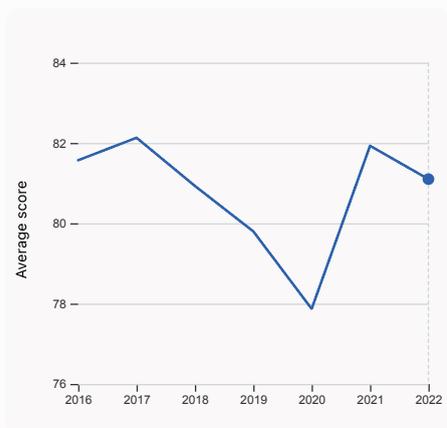
2.1.1 Expenditure on education, % GDP was equal to 5.13% GDP in 2019, up by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 35.



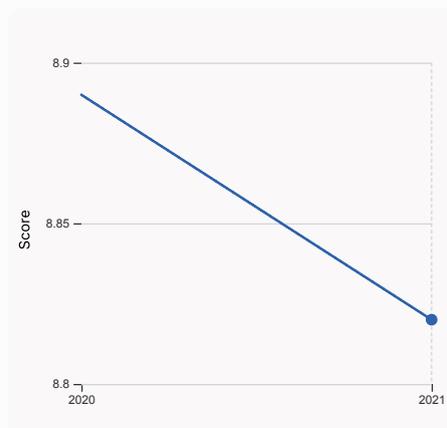
2.2.2 Graduates in science and engineering, % was equal to 20.55% of total tertiary graduates in 2020, up by 1.92 percentage points from the year prior – and equivalent to an indicator rank of 68.



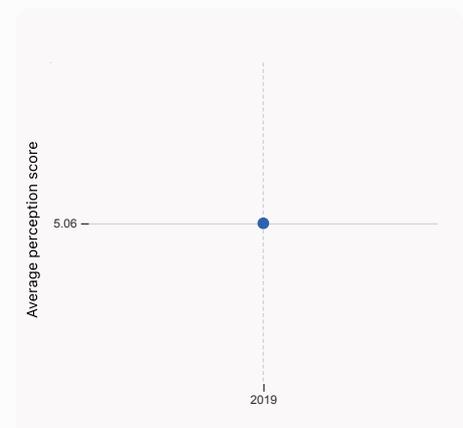
2.3.2 Gross expenditure on R&D, % GDP was equal to 1.8% GDP in 2019, up by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 21.



2.3.4 QS university ranking, top 3 was equal to an average score of 81.1 for the top 3 universities in 2022, down by 1.013% from the year prior – and equivalent to an indicator rank of 6.

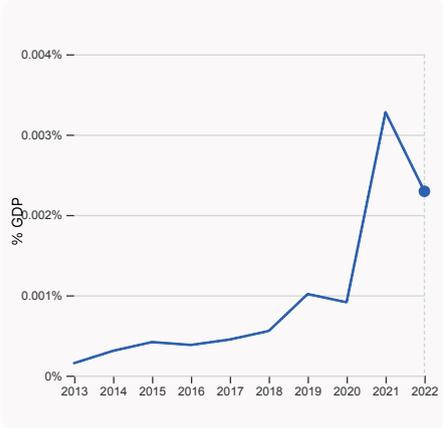


3.1.1 ICT access was equal to a score of 8.82 in 2021, down by 0.79% from the year prior – and equivalent to an indicator rank of 66.



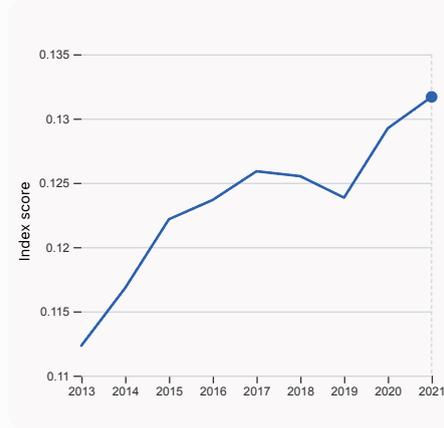
4.1.1 Finance for startups and scaleups was equal to an average perception score of 5.06 in 2019, equivalent to an indicator rank of 32.

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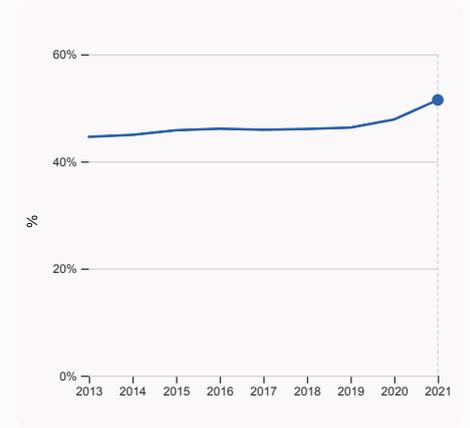
4.2.4 VC received, value, % GDP

was equal to 0.00229% GDP in 2022, down by 0.00098 percentage points from the year prior – and equivalent to an indicator rank of 32.



4.3.2 Domestic industry diversification

was equal to an index score of 0.132 in 2021, up by 1.89% from the year prior – and equivalent to an indicator rank of 41.



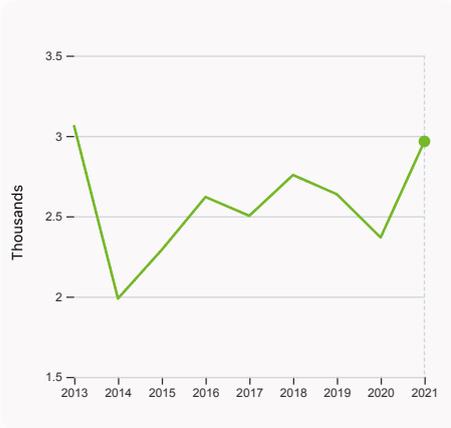
5.1.1 Knowledge-intensive employment, %

was equal to 51.48% in 2021, up by 3.64 percentage points from the year prior – and equivalent to an indicator rank of 8.

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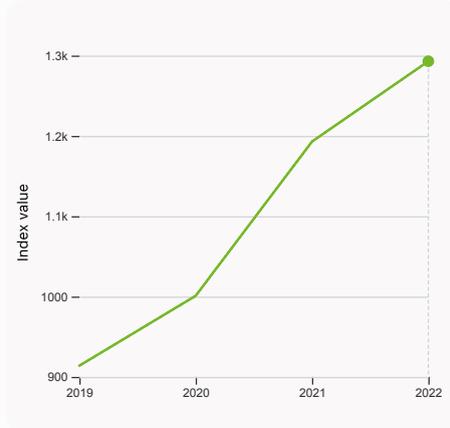


> Innovation outputs in Australia



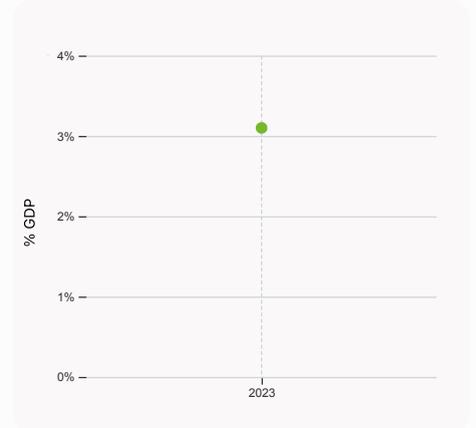
6.1.1 Patents by origin

was equal to 2.97 Thousands in 2021, up by 25.25% from the year prior – and equivalent to an indicator rank of 35.



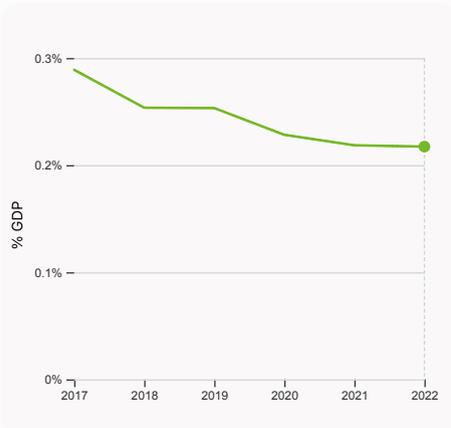
6.1.5 Citable documents H-index

was equal to an index value of 1,293 in 2022, up by 8.38% from the year prior – and equivalent to an indicator rank of 7.



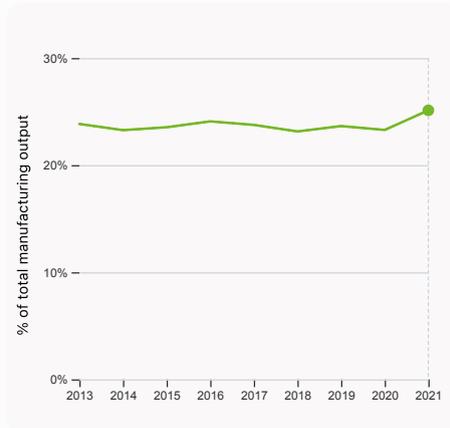
6.2.2 Unicorn valuation, % GDP

was equal to 3.1 % GDP in 2023 – and equivalent to an indicator rank of 14.



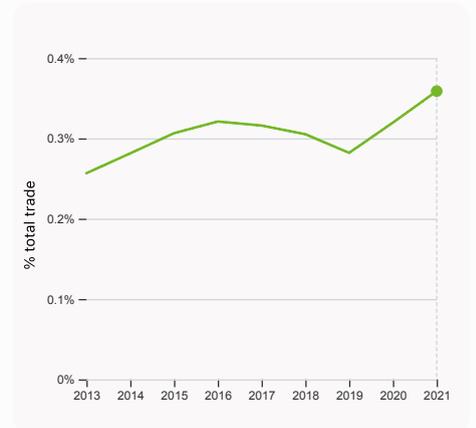
6.2.3 Software spending, % GDP

was equal to 0.217% GDP in 2022, down by 0.0013 percentage points from the year prior – and equivalent to an indicator rank of 67.



6.2.4 High-tech manufacturing, %

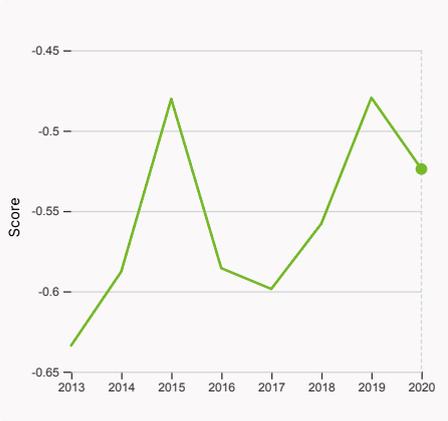
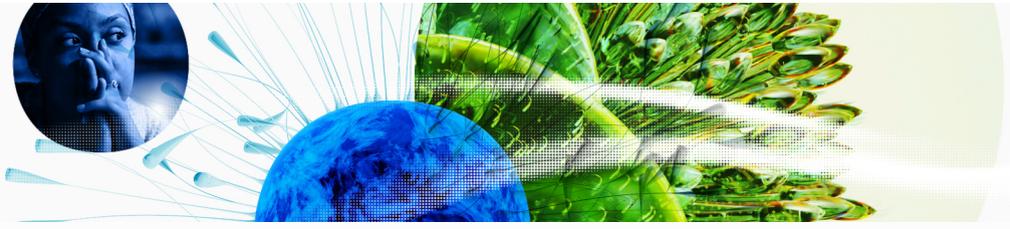
was equal to 25.12% of total manufacturing output in 2021, up by 1.83 percentage points from the year prior – and equivalent to an indicator rank of 50.



6.3.1 Intellectual property receipts, % total trade

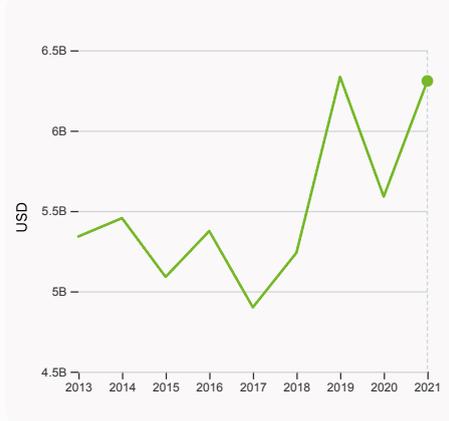
was equal to 0.359% total trade in 2021, up by 0.039 percentage points from the year prior – and equivalent to an indicator rank of 32.

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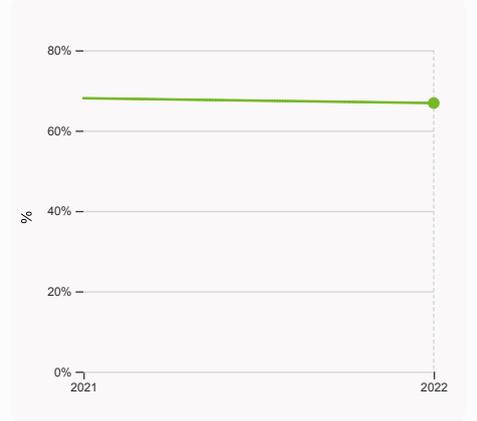
6.3.2 Production and export complexity

was equal to a score of -0.524 in 2020, down by 9.26% from the year prior – and equivalent to an indicator rank of 90.



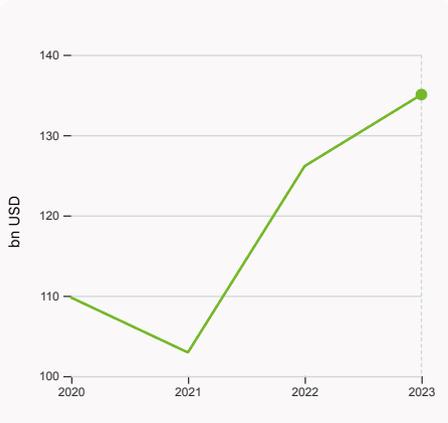
6.3.3 High-tech exports

was equal to 6,309,320,484 USD in 2021, up by 12.88% from the year prior – and equivalent to an indicator rank of 62.



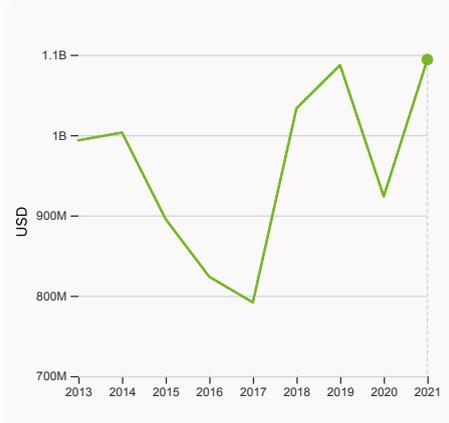
7.1.1 Intangible asset intensity, top 15, %

was equal to 66.87% in 2022, down by 1.2 percentage points from the year prior – and equivalent to an indicator rank of 24.



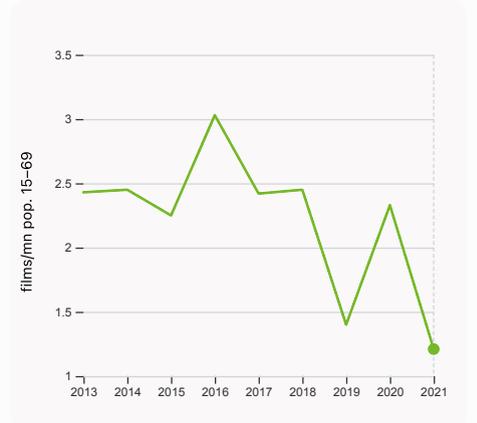
7.1.3 Global brand value, top 5,000

was equal to 135.045 bn USD in 2023, up by 7.059% from the year prior – and equivalent to an indicator rank of 27.



7.2.1 Cultural and creative services exports

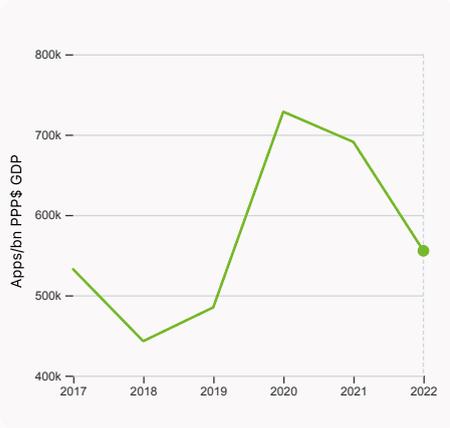
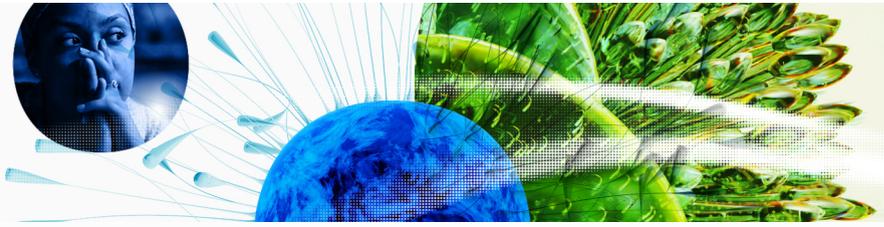
was equal to 1,094,053,000 USD in 2021, up by 18.46% from the year prior – and equivalent to an indicator rank of 65.



7.2.2 National feature films/mn pop. 15-69

was equal to 1.21 films/mn pop. 15-69 in 2021, down by 48.069% from the year prior – and equivalent to an indicator rank of 58.

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7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 555,428.67 Apps/bn PPP\$ GDP in 2022, down by 19.61% from the year prior – and equivalent to an indicator rank of 37.

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→ Australia's innovation top performers

> 2.3.3 Global corporate R&D investors from Australia

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
194	CSL	Pharmaceuticals & Biotechnology	1,021	15	11
322	TELSTRA	Technology Hardware & Equipment	571	-4	4
375	COMMONWEALTH BANK OF AUSTRALIA	Banks	476	34	3
515	ARISTOCRAT LEISURE	Travel & Leisure	348	5	11

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).

Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

> 2.3.4 QS university ranking of Australia's top universities

Rank	University	Score
30	THE AUSTRALIAN NATIONAL UNIVERSITY	82.10
33	THE UNIVERSITY OF MELBOURNE	81.60
41	THE UNIVERSITY OF SYDNEY	79.60

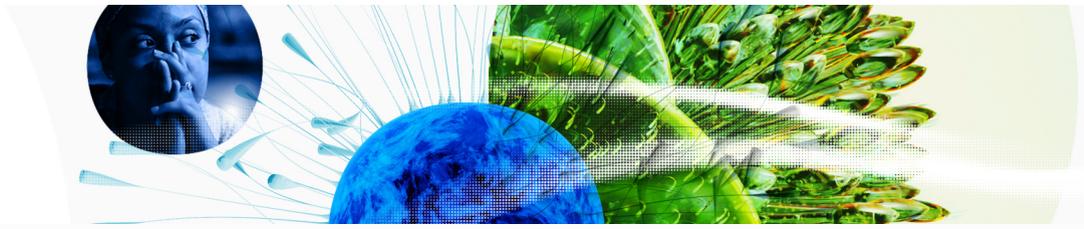
Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).

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 Australia

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	CANVA	Internet software & services	Surry Hills	40
2	AIRWALLEX	Fintech	Melbourne	6
3	IMMUTABLE	Fintech	Sydney	3

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 Australia

Rank	Firm	Intensity, %
1	CSL LTD	92.23
2	BHP GROUP LTD	58.95
3	COMMONWEALTH BANK OF AUSTRALIA	43.86

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 Australia with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	WOOLWORTHS	Retail	10,886.9
2	TELSTRA	Telecoms	8,890.6
3	COMMONWEALTH BANK	Banking	7,672.8

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

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GII 2023 rank

24

Australia

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
30	16	High	SEAO	26.2	1,615.3	62,191.6
Score / Value Rank				Score / Value Rank		
Institutions 75.6 17				Business sophistication 50.7 24		
1.1 Institutional environment 77.8 14				5.1 Knowledge workers 63.6 [15]		
1.1.1 Operational stability for businesses* 77.1 14				5.1.1 Knowledge-intensive employment, % 51.5 8		
1.1.2 Government effectiveness* 78.5 13				5.1.2 Firms offering formal training, % n/a n/a		
1.2 Regulatory environment 90.7 10				5.1.3 GERD performed by business, % GDP 0.9 24		
1.2.1 Regulatory quality* 89.8 4				5.1.4 GERD financed by business, % n/a n/a		
1.2.2 Rule of law* 88.8 12				5.1.5 Females employed w/advanced degrees, % 28.7 6		
1.2.3 Cost of redundancy dismissal 12.0 39				5.2 Innovation linkages 52.3 18		
1.3 Business environment 58.4 37				5.2.1 University-industry R&D collaboration+ 70.2 24		
1.3.1 Policies for doing business* 69.3 27				5.2.2 State of cluster development+ 64.6 30		
1.3.2 Entrepreneurship policies and culture* 47.6 37				5.2.3 GERD financed by abroad, % GDP n/a n/a		
Human capital and research 59.5 7				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.2 11		
2.1 Education 59.2 40				5.2.5 Patent families/bn PPP\$ GDP 1.0 27		
2.1.1 Expenditure on education, % GDP 5.1 35				5.3 Knowledge absorption 36.2 54		
2.1.2 Government funding/pupil, secondary, % GDP/cap 17.0 67				5.3.1 Intellectual property payments, % total trade 1.2 30		
2.1.3 School life expectancy, years 21.1 1				5.3.2 High-tech imports, % total trade 11.0 25		
2.1.4 PISA scales in reading, maths and science 499.0 20				5.3.3 ICT services imports, % total trade 1.1 82		
2.1.5 Pupil-teacher ratio, secondary n/a n/a				5.3.4 FDI net inflows, % GDP 1.8 79		
2.2 Tertiary education 59.2 4				5.3.5 Research talent, % in businesses n/a n/a		
2.2.1 Tertiary enrolment, % gross 114.2 3				Knowledge and technology outputs 34.9 30		
2.2.2 Graduates in science and engineering, % 20.6 68				6.1 Knowledge creation 45.8 17		
2.2.3 Tertiary inbound mobility, % 26.0 5				6.1.1 Patents by origin/bn PPP\$ GDP 2.0 35		
2.3 Research and development (R&D) 60.0 16				6.1.2 PCT patents by origin/bn PPP\$ GDP 1.1 27		
2.3.1 Researchers, FTE/mn pop. n/a n/a				6.1.3 Utility models by origin/bn PPP\$ GDP 1.2 21		
2.3.2 Gross expenditure on R&D, % GDP 1.8 21				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 65.5 18				6.1.5 Citable documents H-index 69.6 7		
2.3.4 QS university ranking, top 3* 82.2 6				6.2 Knowledge impact 38.4 34		
Infrastructure 58.8 19				6.2.1 Labor productivity growth, % 0.5 81		
3.1 Information and communication technologies (ICTs) 91.8 9				6.2.2 Unicorn valuation, % GDP 3.1 14		
3.1.1 ICT access* 82.3 66				6.2.3 Software spending, % GDP 0.2 67		
3.1.2 ICT use* 92.7 14				6.2.4 High-tech manufacturing, % 25.1 50		
3.1.3 Government's online service* 93.1 7				6.3 Knowledge diffusion 20.5 72		
3.1.4 E-participation* 98.8 2				6.3.1 Intellectual property receipts, % total trade 0.3 32		
3.2 General infrastructure 47.9 23				6.3.2 Production and export complexity 41.5 90		
3.2.1 Electricity output, GWh/mn pop. 10,300.7 14				6.3.3 High-tech exports, % total trade 1.8 62		
3.2.2 Logistics performance* 72.7 18				6.3.4 ICT services exports, % total trade 1.3 76		
3.2.3 Gross capital formation, % GDP 23.2 72				6.3.5 ISO 9001 quality/bn PPP\$ GDP 5.8 49		
3.3 Ecological sustainability 36.7 38				Creative outputs 44.6 24		
3.3.1 GDP/unit of energy use 9.7 74				7.1 Intangible assets 46.8 33		
3.3.2 Environmental performance* 69.8 17				7.1.1 Intangible asset intensity, top 15, % 66.9 24		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 2.4 37				7.1.2 Trademarks by origin/bn PPP\$ GDP 66.9 29		
Market sophistication 53.7 17				7.1.3 Global brand value, top 5,000 7.6 27		
4.1 Credit 57.3 21				7.1.4 Industrial designs by origin/bn PPP\$ GDP 1.8 46		
4.1.1 Finance for startups and scaleups* 60.6 32				7.2 Creative goods and services 20.9 47		
4.1.2 Domestic credit to private sector, % GDP 142.4 12				7.2.1 Cultural and creative services exports, % total trade 0.3 65		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 1.2 58		
4.2 Investment 29.5 24				7.2.3 Entertainment and media market/th pop. 15-69 62.7 8		
4.2.1 Market capitalization, % GDP 108.3 13				7.2.4 Creative goods exports, % total trade 0.6 58		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.3 21				7.3 Online creativity 64.0 12		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.1 18				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 67.7 11		
4.2.4 VC received, value, % GDP 0.0 32				7.3.2 Country-code TLDs/th pop. 15-69 67.2 10		
4.3 Trade, diversification, and market scale 74.3 15				7.3.3 GitHub commits/mn pop. 15-69 47.5 22		
4.3.1 Applied tariff rate, weighted avg., % 0.7 7				7.3.4 Mobile app creation/bn PPP\$ GDP 73.5 37		
4.3.2 Domestic industry diversification 92.8 41						
4.3.3 Domestic market scale, bn PPP\$ 1,615.3 19						

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.



→ Data availability

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



> Australia has missing data for seven indicators and outdated data for seven indicators.

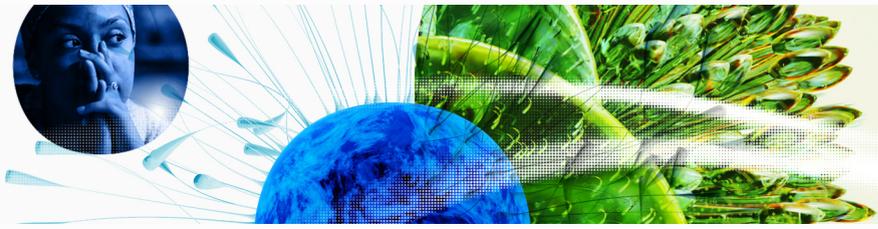
> Missing data for Australia

Code	Indicator name	Economy Year	Model Year	Source
2.1.5	Pupil-teacher ratio, secondary	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

> Outdated data for Australia

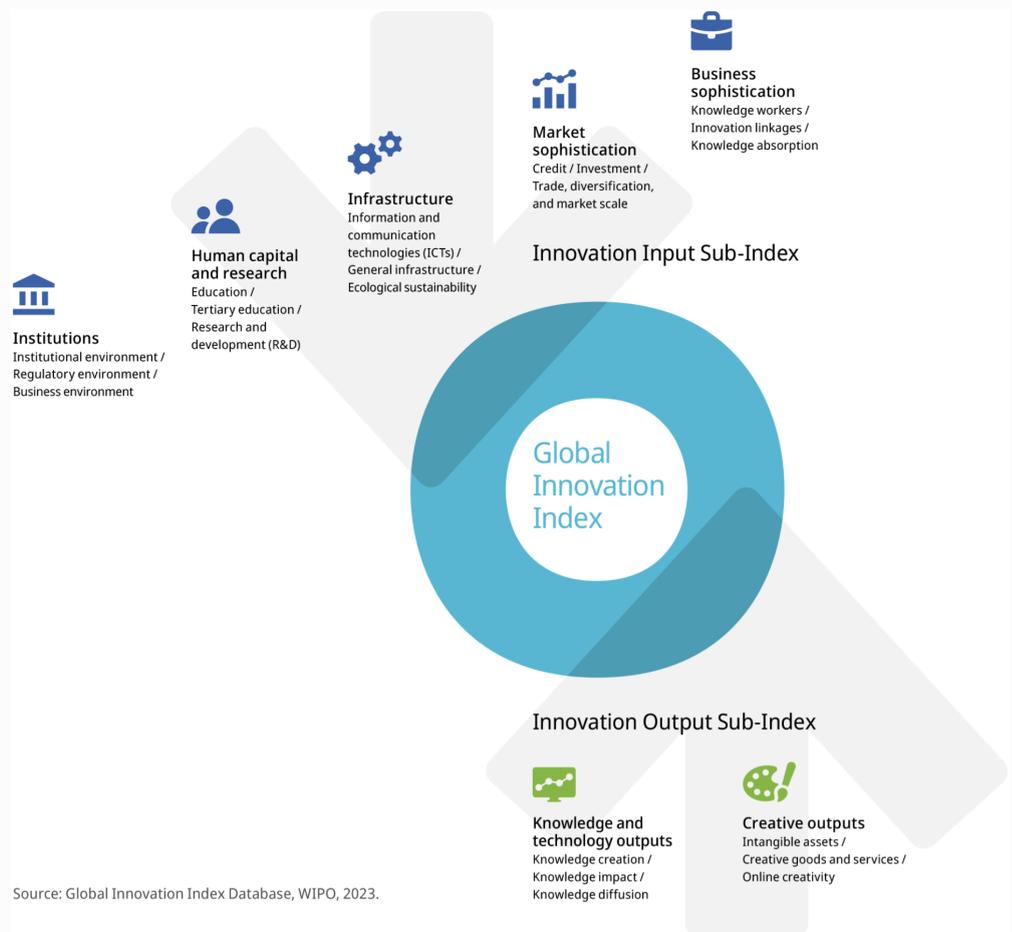
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2019	2022	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	2019	2022	Global Entrepreneurship Monitor
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour 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.



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.