



AUSTRALIA

25th

Australia ranks 25th among the 132 economies featured in the GII 2022.

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.

The following table shows the rankings of Australia over the past three years, noting that 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 2022 is between ranks 24 and 28.

Rankings for Australia (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	23	13	31
2021	25	15	33
2022	25	19	32

- Australia performs better in innovation inputs than innovation outputs in 2022.
- This year Australia ranks 19th in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Australia ranks 32nd. This position is higher than last year but lower than 2020.

24th

Australia ranks 24th among the 48 high-income group economies.

7th

Australia ranks 7th among the 17 economies in South East Asia, East Asia, and Oceania.

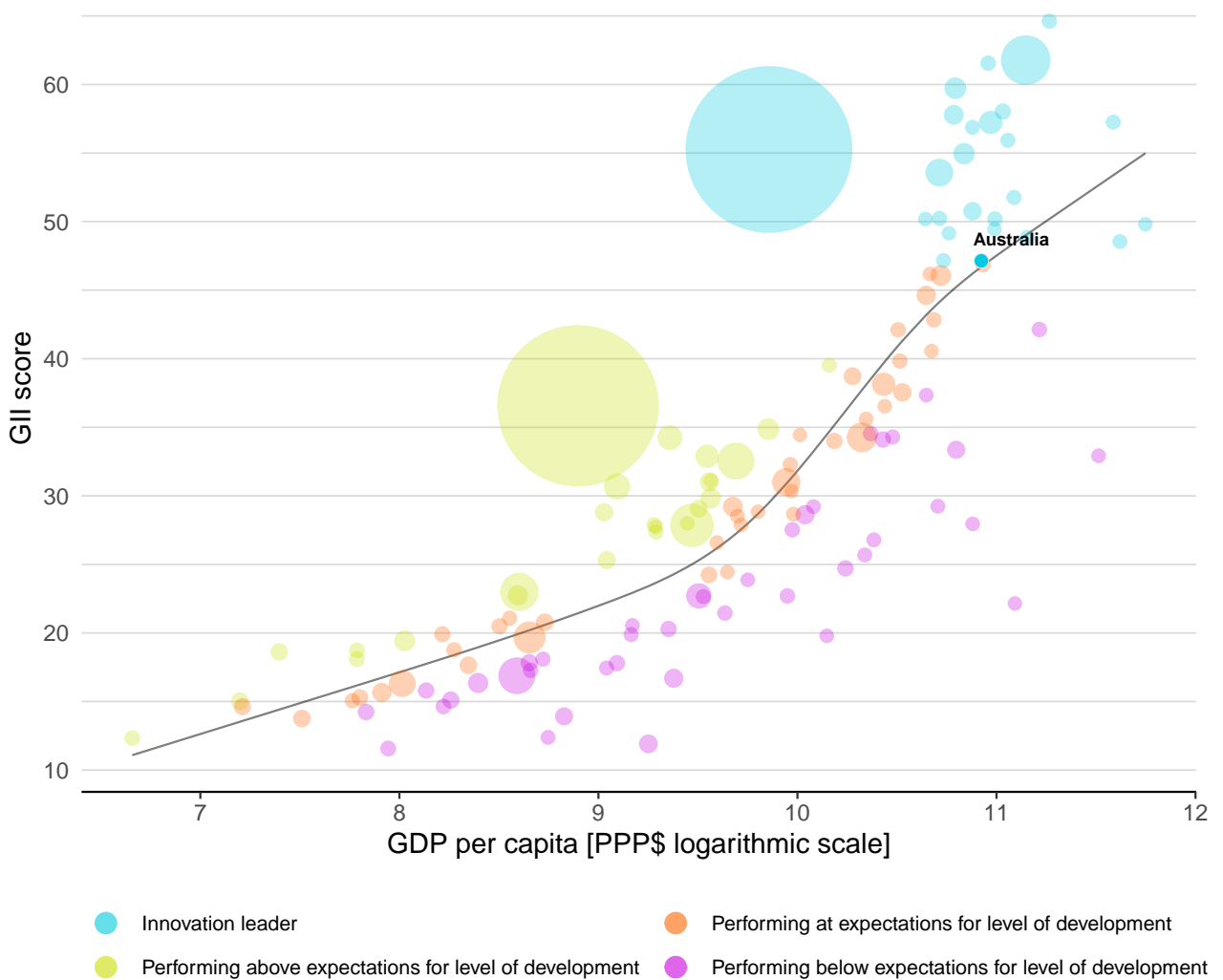


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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 performing below expectations.

Relative to GDP, Australia's performance is above expectations for its level of development.

The positive relationship between innovation and development



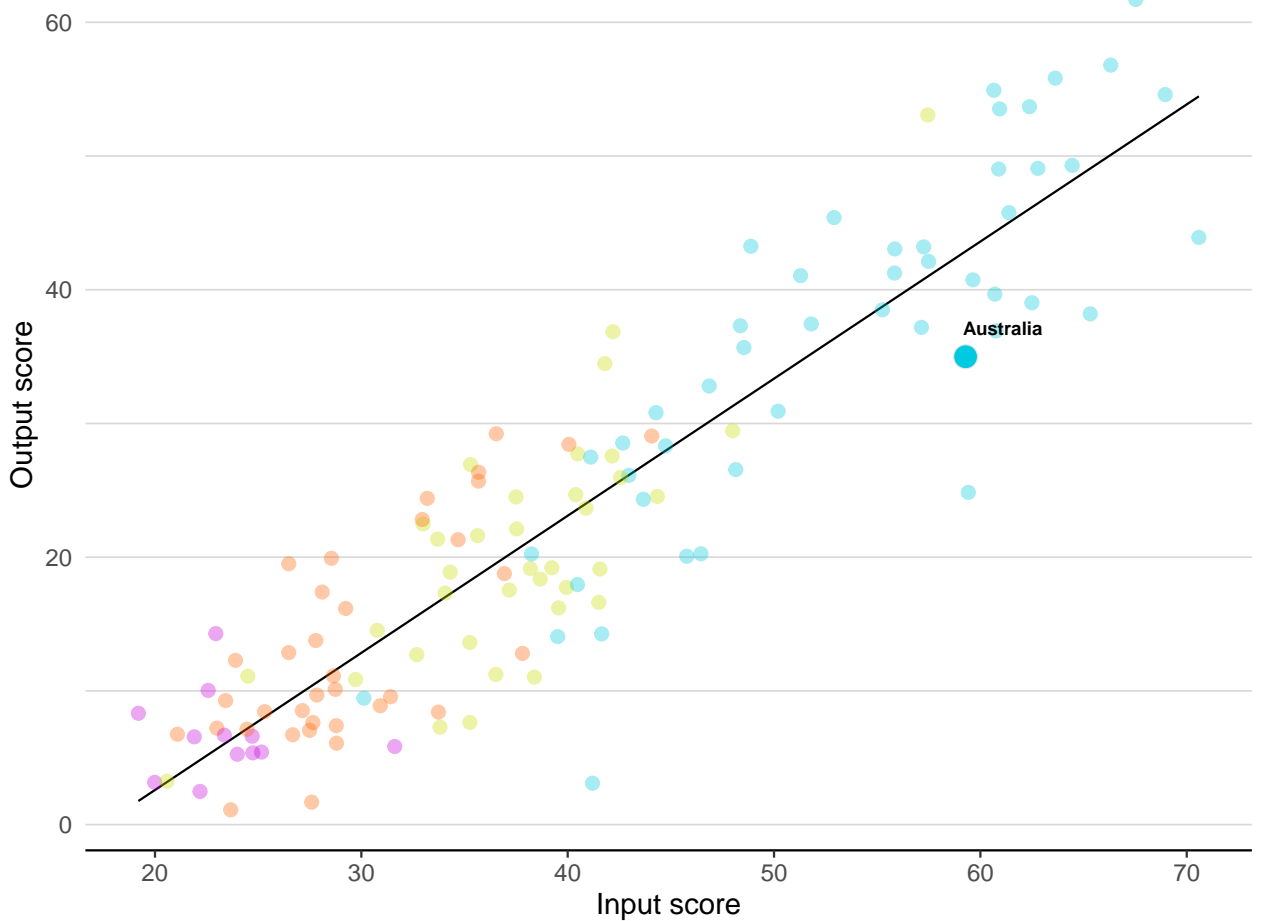


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Australia produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance

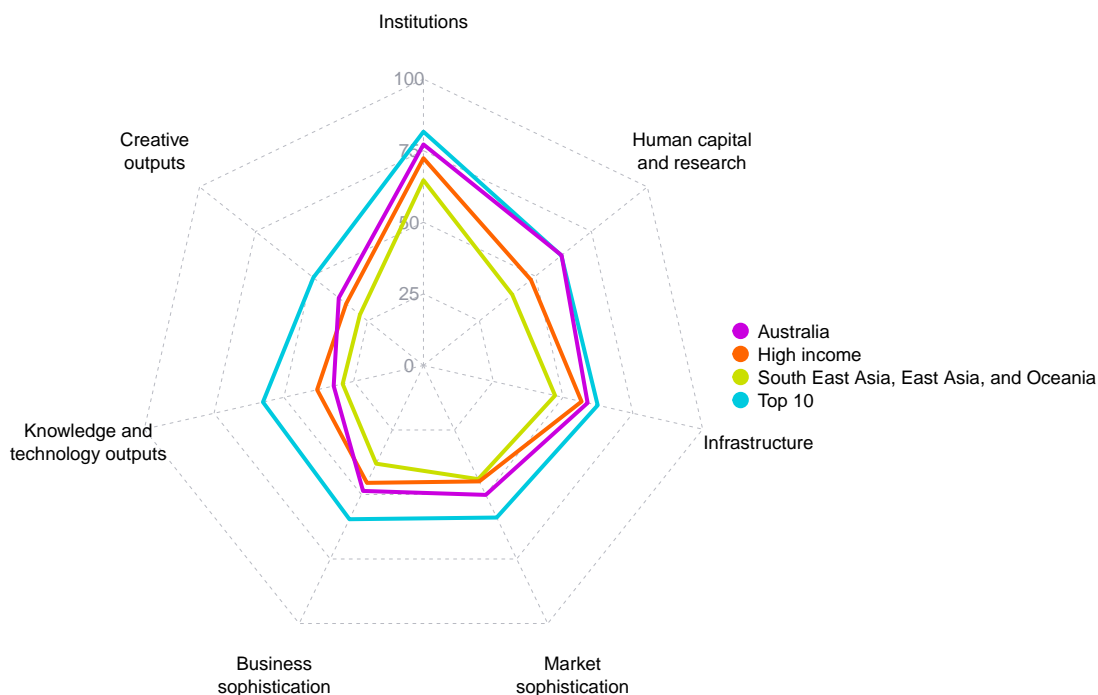


Income ● High income ● Upper middle ● Lower middle ● Low income — Fitted line



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

The seven GII pillar scores for Australia



High-income group economies

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

South East Asia, East Asia, and Oceania

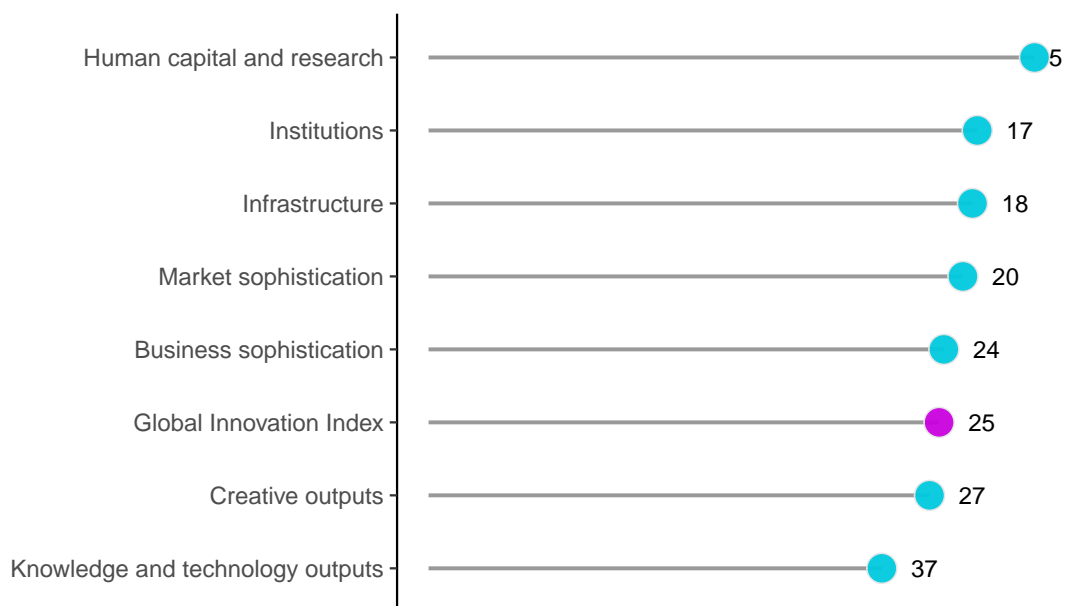
Australia performs above the regional average in all GII pillars.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Australia performs best in Human capital and research and its weakest performance is in Knowledge and technology outputs.

The seven GII pillar ranks for Australia



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Australia can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=AU.



INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Australia in the GII 2022.








Strengths and weaknesses for Australia

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1.2.1	Regulatory quality	5	1.3.2	Entrepreneurship policies and culture	37
2.1.3	School life expectancy, years	1	2.1.2	Government funding/pupil, secondary, % GDP/cap	64
2.2.1	Tertiary enrolment, % gross	3	2.2.2	Graduates in science and engineering, %	81
2.2.3	Tertiary inbound mobility, %	5	3.2.3	Gross capital formation, % GDP	65
2.3.4	QS university ranking, top 3	7	3.3.1	GDP/unit of energy use	81
4.3.1	Applied tariff rate, weighted avg., %	7	6.2.1	Labor productivity growth, %	78
5.1.5	Females employed w/advanced degrees, %	5	6.3.2	Production and export complexity	84
6.1.4	Scientific and technical articles/bn PPP\$ GDP	7	6.3.4	ICT services exports, % total trade	78
6.1.5	Citable documents H-index	7	7.2.1	Cultural and creative services exports, % total trade	68
6.2.2	New businesses/th pop. 15–64	7	7.2.2	National feature films/mn pop. 15–69	57

Australia

25

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
32	19	High	SEAO	25.8	1,427.3	55,492

		Score/ Value	Rank			Score/ Value	Rank
	Institutions	77.2	17		Business sophistication	48.6	24
1.1	Political environment	84.1	15	5.1	Knowledge workers	62.4	[19]
1.1.1	Political and operational stability*	83.6	16	5.1.1	Knowledge-intensive employment, %	47.8	13
1.1.2	Government effectiveness*	84.6	12	5.1.2	Firms offering formal training, %	n/a	n/a
1.2	Regulatory environment	90.8	10	5.1.3	GERD performed by business, % GDP	0.9	25
1.2.1	Regulatory quality*	90.3	5	5.1.4	GERD financed by business, %	n/a	n/a
1.2.2	Rule of law*	88.9	13	5.1.5	Females employed w/advanced degrees, %	28.5	5
1.2.3	Cost of redundancy dismissal	12.0	39	5.2	Innovation linkages	48.0	16
1.3	Business environment	56.6	39	5.2.1	University-industry R&D collaboration [†]	53.8	34
1.3.1	Policies for doing business [†]	67.1	23	5.2.2	State of cluster development and depth [†]	55.2	36
1.3.2	Entrepreneurship policies and culture*	46.1	37	5.2.3	GERD financed by abroad, % GDP	n/a	n/a
				5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	0.2	9
				5.2.5	Patent families/bn PPP\$ GDP	1.0	26
	Human capital and research	61.7	5	5.3	Knowledge absorption	35.5	48
2.1	Education	60.5	36	5.3.1	Intellectual property payments, % total trade	1.2	31
2.1.1	Expenditure on education, % GDP	5.1	37	5.3.2	High-tech imports, % total trade	12.1	23
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.0	64	5.3.3	ICT services imports, % total trade	1.5	62
2.1.3	School life expectancy, years	21.1	1	5.3.4	FDI net inflows, % GDP	2.9	49
2.1.4	PISA scales in reading, maths and science	499.0	20	5.3.5	Research talent, % in businesses	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a				
2.2	Tertiary education	58.8	3		Knowledge and technology outputs	32.2	37
2.2.1	Tertiary enrolment, % gross	114.2	3	6.1	Knowledge creation	40.6	22
2.2.2	Graduates in science and engineering, %	18.6	81	6.1.1	Patents by origin/bn PPP\$ GDP	1.8	41
2.2.3	Tertiary inbound mobility, %	26.0	5	6.1.2	PCT patents by origin/bn PPP\$ GDP	1.2	26
2.3	Research and development (R&D)	65.7	12	6.1.3	Utility models by origin/bn PPP\$ GDP	0.7	29
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	6.1.4	Scientific and technical articles/bn PPP\$ GDP	55.9	7
2.3.2	Gross expenditure on R&D, % GDP	1.8	20	6.1.5	Citable documents H-index	69.0	7
2.3.3	Global corporate R&D investors, top 3, mn USD	65.6	19	6.2	Knowledge impact	35.6	37
2.3.4	QS university ranking, top 3*	81.9	7	6.2.1	Labor productivity growth, %	0.4	78
				6.2.2	New businesses/th pop. 15-64	14.3	7
				6.2.3	Software spending, % GDP	0.2	55
	Infrastructure	58.8	18	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	6.1	46
3.1	Information and communication technologies (ICTs)	90.4	11	6.2.5	High-tech manufacturing, %	24.6	49
3.1.1	ICT access*	88.9	57	6.3	Knowledge diffusion	20.3	72
3.1.2	ICT use*	81.8	18	6.3.1	Intellectual property receipts, % total trade	0.3	32
3.1.3	Government's online service*	94.7	7	6.3.2	Production and export complexity	31.0	84
3.1.4	E-participation*	96.4	9	6.3.3	High-tech exports, % total trade	2.0	59
3.2	General infrastructure	53.7	19	6.3.4	ICT services exports, % total trade	1.4	78
3.2.1	Electricity output, GWh/mn pop.	10,303.1	14		Creative outputs	37.8	27
3.2.2	Logistics performance*	79.1	18	7.1	Intangible assets	43.3	31
3.2.3	Gross capital formation, % GDP	23.3	65	7.1.1	Intangible asset intensity, top 15, %	68.1	27
3.3	Ecological sustainability	32.3	47	7.1.2	Trademarks by origin/bn PPP\$ GDP	67.6	30
3.3.1	GDP/unit of energy use	9.0	81	7.1.3	Global brand value, top 5,000, % GDP	78.3	27
3.3.2	Environmental performance*	60.1	17	7.1.4	Industrial designs by origin/bn PPP\$ GDP	2.0	47
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	2.3	38	7.2	Creative goods and services	24.5	48
	Market sophistication	50.2	20	7.2.1	Cultural and creative services exports, % total trade	0.3	68
4.1	Credit	49.1	21	7.2.2	National feature films/mn pop. 15-69	1.1	57
4.1.1	Finance for startups and scaleups*	44.2	28	7.2.3	Entertainment and media market/th pop. 15-69	54.3	11
4.1.2	Domestic credit to private sector, % GDP	142.3	13	7.2.4	Printing and other media, % manufacturing	2.0	12
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	7.2.5	Creative goods exports, % total trade	0.6	58
4.2	Investment	28.3	27	7.3	Online creativity	40.2	16
4.2.1	Market capitalization, % GDP	108.3	13	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	61.4	10
4.2.2	Venture capital investors, deals/bn PPP\$ GDP	0.2	23	7.3.2	Country-code TLDs/th pop. 15-69	54.8	15
4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	0.1	21	7.3.3	GitHub commit pushes received/mn pop. 15-69	32.2	21
4.2.4	Venture capital received, value, % GDP	0.0	31	7.3.4	Mobile app creation/bn PPP\$ GDP	12.2	31
4.3	Trade, diversification, and market scale	73.1	16				
4.3.1	Applied tariff rate, weighted avg., %	0.7	7				
4.3.2	Domestic industry diversification	91.9	43				
4.3.3	Domestic market scale, bn PPP\$	1,427.3	18				

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/global_innovation_index/en/2022. 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.

Missing data for Australia

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	n/a	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2020	UNESCO Institute for Statistics
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	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	2019	UNESCO Institute for Statistics
5.2.3	GERD financed by abroad, % GDP	n/a	2019	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics

Outdated data for Australia

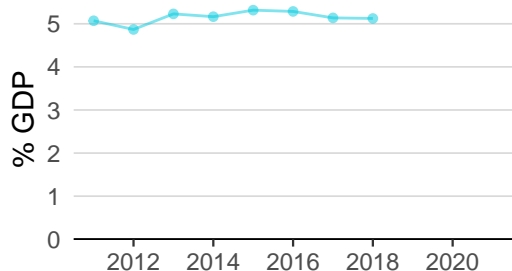
Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2019	2021	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2018	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2019	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2019	2020	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2019	2021	Global Entrepreneurship Monitor
5.1.1	Knowledge-intensive employment, %	2020	2021	International Labour Organization
5.1.3	GERD performed by business, % GDP	2019	2020	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2020	2021	International Labour Organization



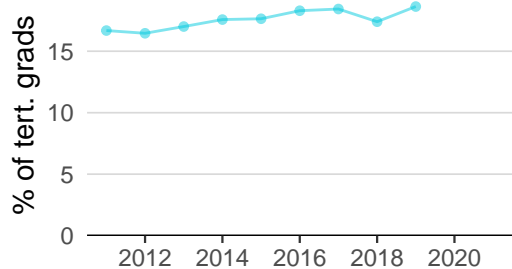
AUSTRALIA'S INNOVATION SYSTEM

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

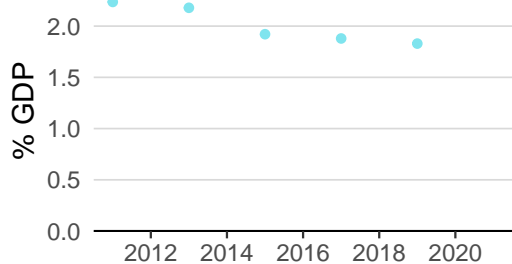
Innovation inputs



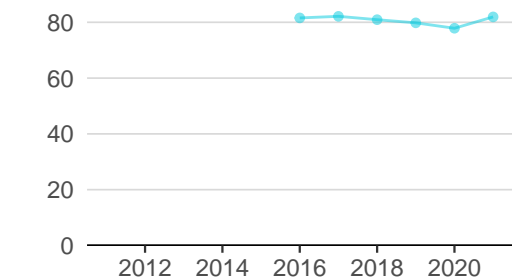
2.1.1 Expenditure on education was equal to 5.1% GDP in 2018—effectively unchanged from the year prior—and equivalent to an indicator rank of 37.



2.2.2 Graduates in science and engineering was equal to 18.6% of tert. grads in 2019—up by 7 percentage points from the year prior—and equivalent to an indicator rank of 81.



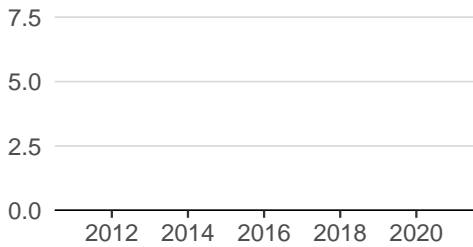
2.3.2 Gross expenditure on R&D was equal to 1.8% GDP in 2019 and equivalent to an indicator rank of 20.



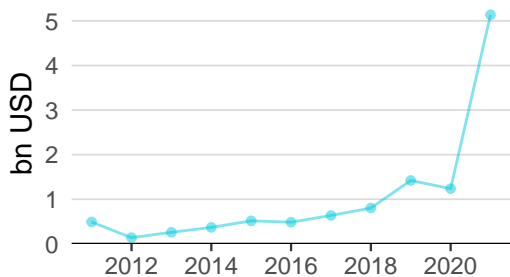
2.3.4 QS university ranking was equal to 81.9 in 2021—up by 5 percentage points from the year prior—and equivalent to an indicator rank of 7.



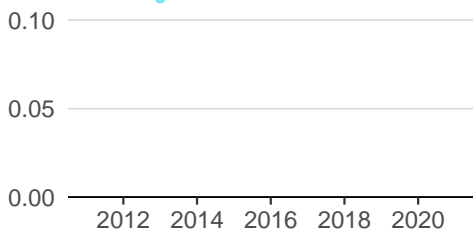
3.1.1 ICT access was equal to 8.9 in 2020 and equivalent to an indicator rank of 57.



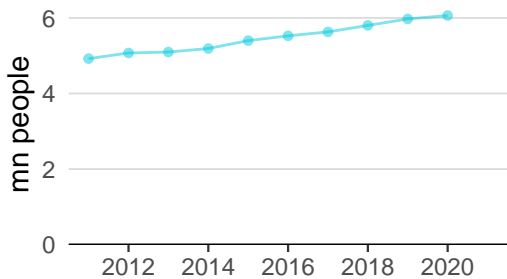
4.2.4 Venture capital received was equal to 5.1 bn USD in 2021—up by 315 percentage points from the year prior—and equivalent to an indicator rank of 31.



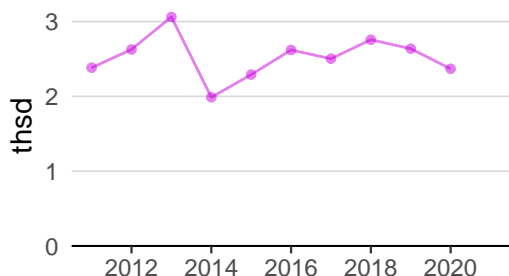
4.3.2 Domestic industry diversification was equal to 0.1 in 2020—up by 4 percentage points from the year prior—and equivalent to an indicator rank of 43.



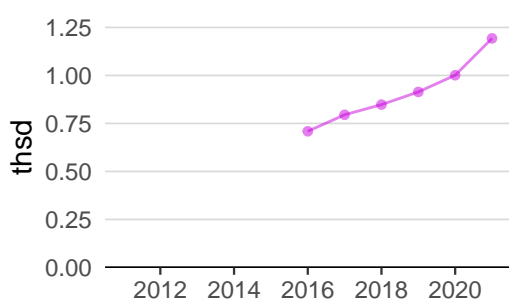
5.1.1 Knowledge-intensive employment was equal to 6.1 mn people in 2020—up by 2 percentage points from the year prior—and equivalent to an indicator rank of 13.



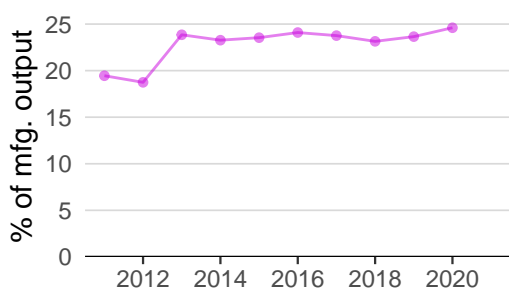
Innovation outputs



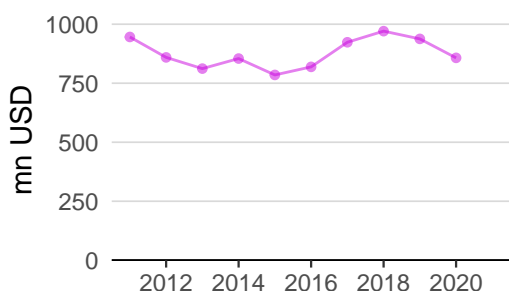
6.1.1 Patents by origin was equal to 2.4 thsd in 2020—down by 10 percentage points from the year prior—and equivalent to an indicator rank of 41.



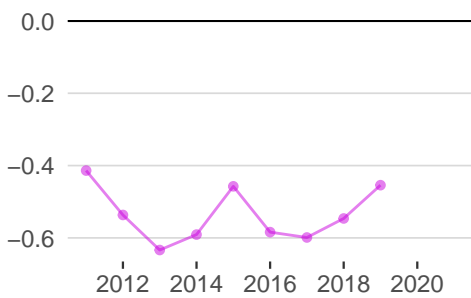
6.1.5 Citable documents H-index was equal to 1.2 thsd in 2021—up by 19 percentage points from the year prior—and equivalent to an indicator rank of 7.



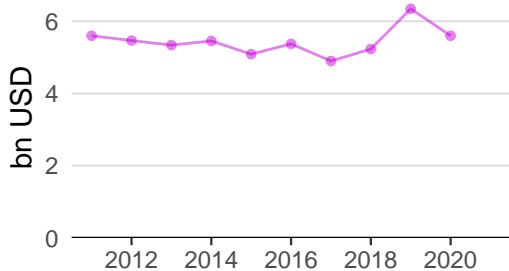
6.2.5 High-tech manufacturing was equal to 24.6% of mfg. output in 2020—up by 4 percentage points from the year prior—and equivalent to an indicator rank of 49.



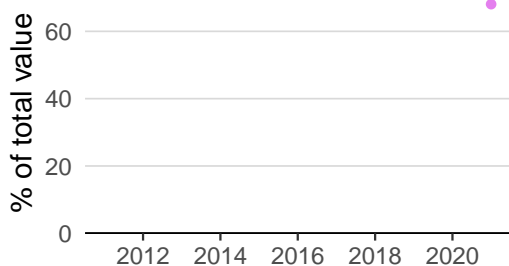
6.3.1 Intellectual property receipts was equal to 857.4 mn USD in 2020—down by 9 percentage points from the year prior—and equivalent to an indicator rank of 32.



6.3.2 Production and export complexity was equal to -0.5 in 2019—up by 17 percentage points from the year prior—and equivalent to an indicator rank of 84.



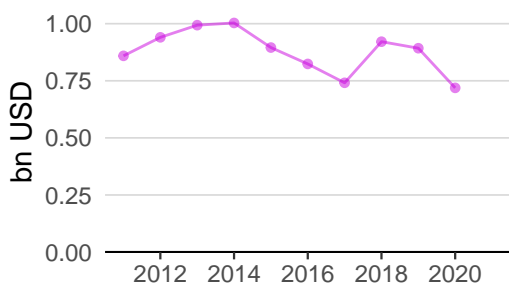
6.3.3 High-tech exports was equal to 5.6 bn USD in 2020—down by 12 percentage points from the year prior—and equivalent to an indicator rank of 59.



7.1.1 Intangible asset intensity was equal to 68.1% of total value in 2021 and equivalent to an indicator rank of 27.



7.1.3 Global brand value was equal to 126.1 bn USD in 2021—up by 23 percentage points from the year prior—and equivalent to an indicator rank of 27.



7.2.1 Cultural and creative services exports was equal to 0.7 bn USD in 2020—down by 19 percentage points from the year prior—and equivalent to an indicator rank of 68.

AUSTRALIA'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank
		[mn EUR]	[%]	[%]	
CSL	Pharmaceuticals & Biotechnology	816	8.6	9.8	199
TELSTRA	Technology Hardware & Equipment	580	25.9	4.3	274
NATIONAL AUSTRALIA BANK	Banks	395	-27.8	3.7	363

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2021-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

University	Score	Rank
THE AUSTRALIAN NATIONAL UNIVERSITY	84.0	27=
THE UNIVERSITY OF MELBOURNE	81.4	37
THE UNIVERSITY OF SYDNEY	80.4	38

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2022>).
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".

7.1.1 Intangible asset intensity, top 15

Firm	Rank
BHP GROUP	1
CSL	2
ATLISSIAN	3

Source: Brand Finance (<https://brandirectory.com/reports/gift-2021>).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

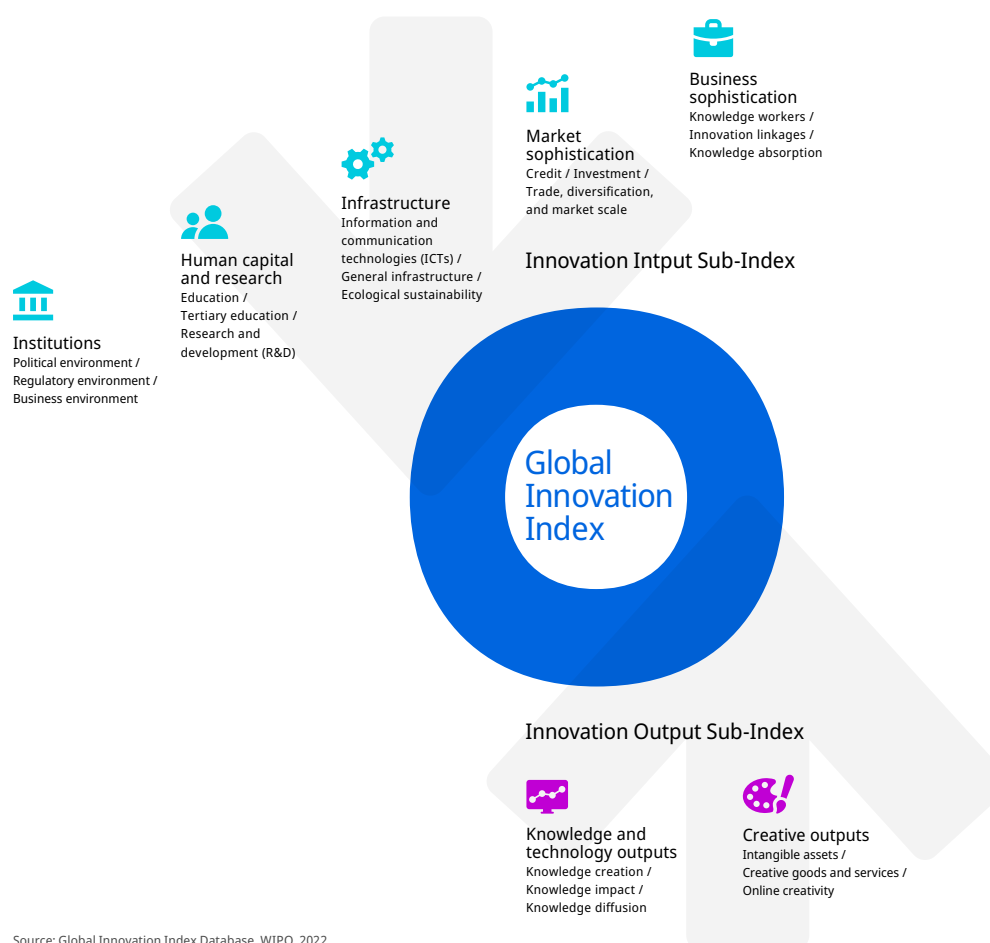
Brand	Industry	Rank
WOOLWORTHS	Retail	1
TELSTRA	Telecoms	2
BHP	Mining, Iron & Steel	3

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

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.