

## AUSTRALIA

**23rd**

Australia ranks 23rd among the 131 economies featured in the GII 2020.

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 2020 is between ranks 21 and 27.

**Rankings of Australia (2018–2020)**

	<b>GII</b>	<b>Innovation inputs</b>	<b>Innovation outputs</b>
<b>2020</b>	23	13	31
<b>2019</b>	22	15	31
<b>2018</b>	20	11	31

- Australia performs better in innovation inputs than innovation outputs in 2020.
- This year Australia ranks 13th in innovation inputs, higher than last year and lower compared to 2018.
- As for innovation outputs, Australia ranks 31st. This position is the same as last year and the same compared to 2018.

**22nd**

Australia ranks 22nd among the 49 high-income group economies.

**6th**

Australia ranks 6th among the 17 economies in South East Asia, East Asia, and Oceania.

Australia ranks 23rd in the GII this year, down one position since 2019. It remains 6th in the South East Asia, East Asia, and Oceania region, but moves down one position to 22nd in the GII rankings among high-income economies. Among the most notable gains, Australia improves its rankings in environmental performance and in the volume of net foreign direct investment (FDI) inflows. Australia ranks 26th globally in the new GII indicator, Global brand value. Australia is home to 112 of the world's top 5,000 most valuable brands. They include telecommunications Telstra, and retailers Woolworths and Coles.

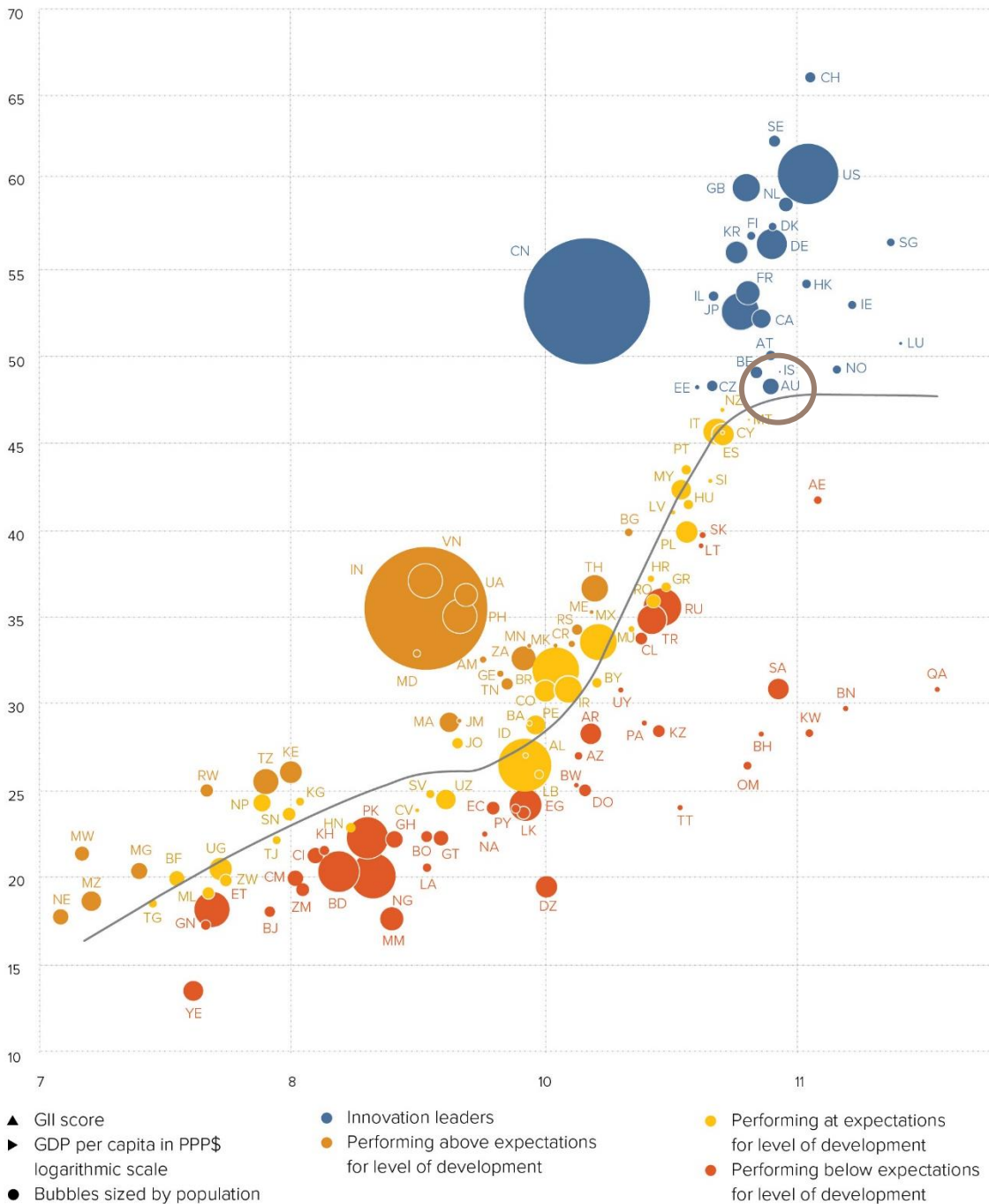
Australia ranks 6th according to the quality of universities metric, with the Australian National University, the University of Melbourne and the University of Sydney ranking among the top international higher education institutions. Australia also home to three of the top 100 science and technology clusters, Melbourne (35), Sydney (37) and Brisbane (83).

## 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 is performing above expectations for its level of development.

### The positive relationship between innovation and development

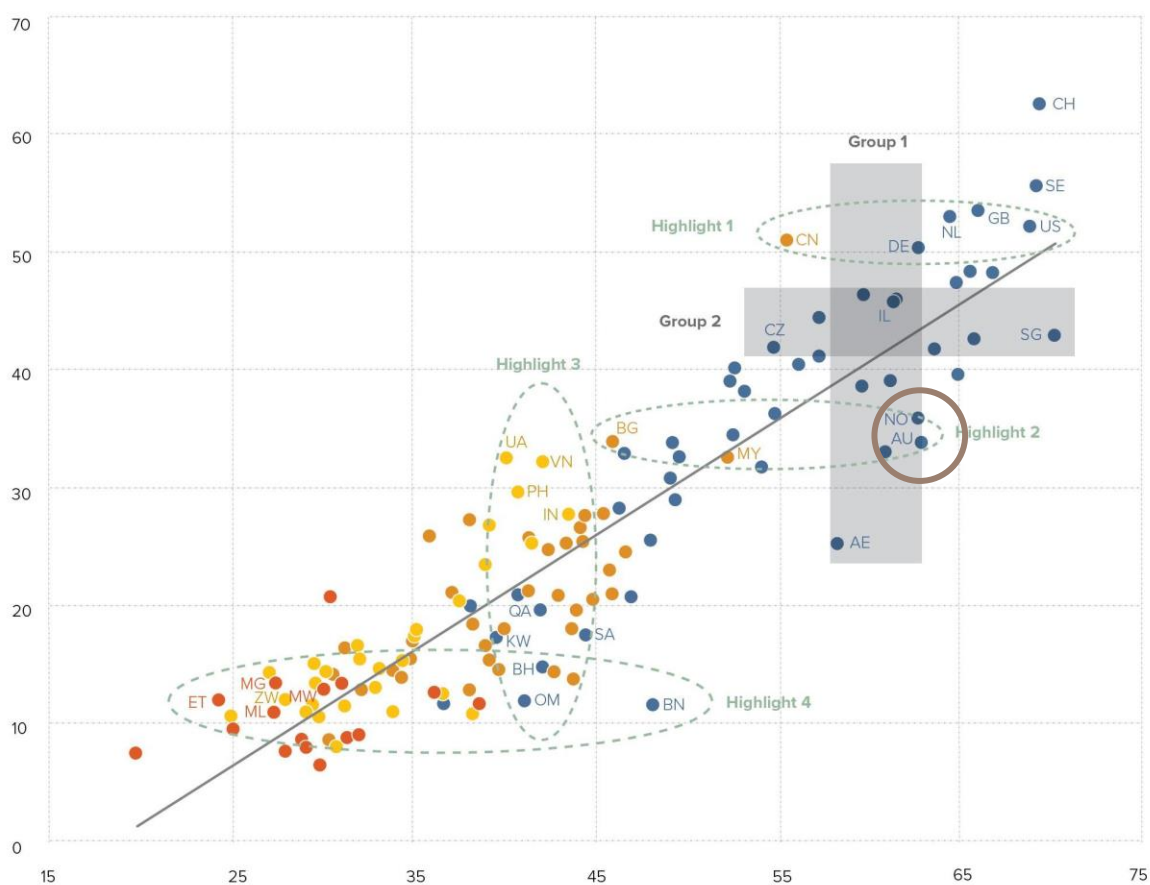


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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, 2020**

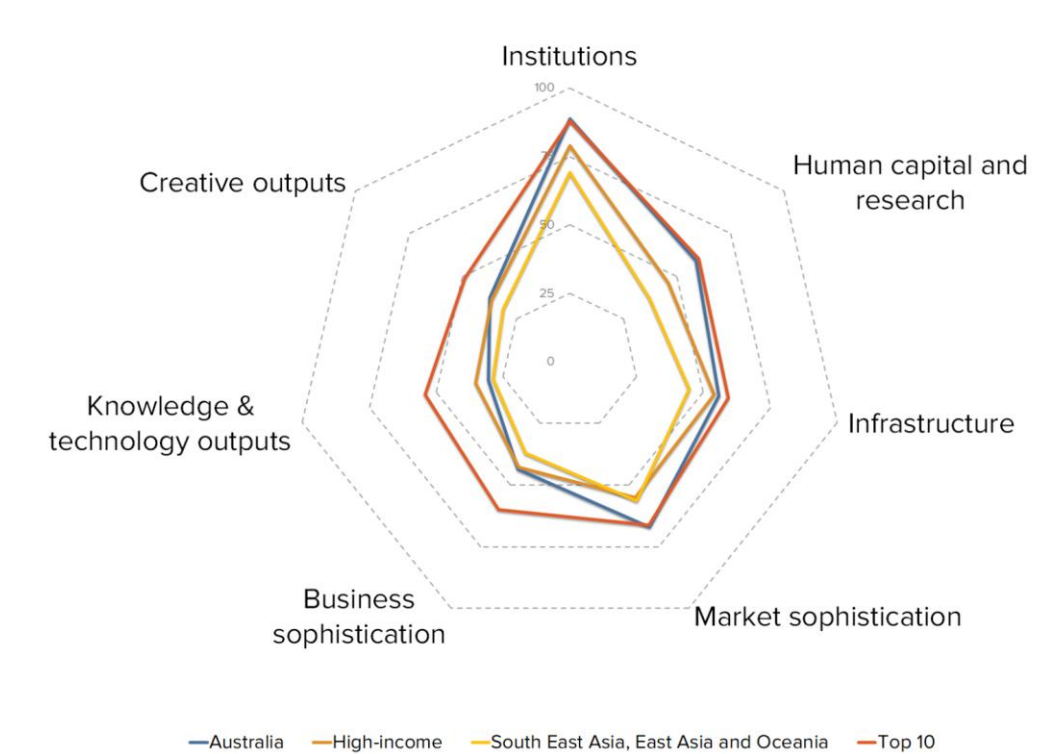


▲ Output score      ● High income group      ● Lower middle-income group      — Fitted values  
 ► Input score      ● Upper middle-income group      ● Low income group

AU Australia	IN India	NL Netherlands	CH Switzerland
BH Bahrain	IL Israel	NO Norway	UA Ukraine
BN Brunei Darussalam	KW Kuwait	OM Oman	AE United Arab Emirates
BG Bulgaria	MG Madagascar	PH Philippines	GB United Kingdom
CN China	MW Malawi	QA Qatar	US United States of America
CZ Czech Republic	ML Mali	SA Saudi Arabia	VN Viet Nam
ET Ethiopia	MY Malaysia	SG Singapore	ZW Zimbabwe
DE Germany		SE Sweden	

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

## Australia's scores in the seven GII pillars



### High-income group economies

Australia has high scores in six out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Market sophistication, Business sophistication and Creative outputs, which are above average for the high-income group.

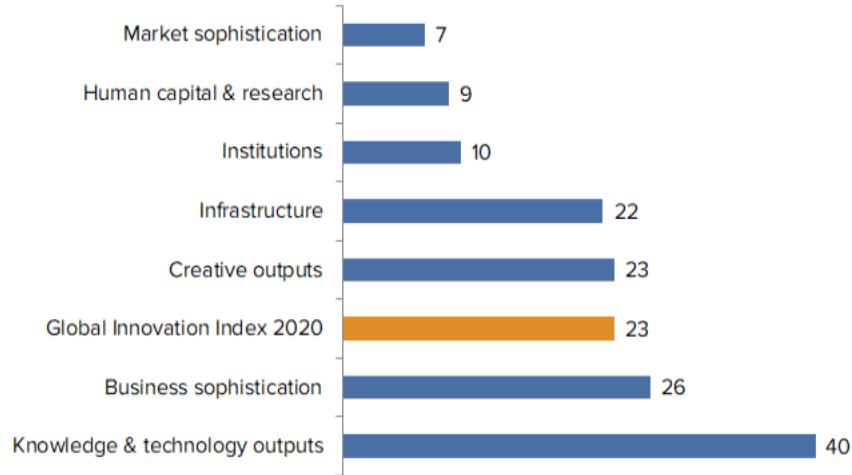
Conversely, Australia scores below average for its income group in the pillar Knowledge & technology outputs.

### South East Asia, East Asia, and Oceania

Compared to other economies in South East Asia, East Asia, and Oceania, Australia performs above average in all seven GII pillars.

## OVERVIEW OF AUSTRALIA RANKINGS IN THE SEVEN GII AREAS

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



\*The highest possible ranking in each pillar is 1.

## INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Australia in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
1	Institutions	10	2.1.2	Government funding/pupil, secondary, % GDP/cap	79
1.2	Regulatory environment	10	2.2.2	Graduates in science & engineering, %	78
1.2.1	Regulatory quality*	5	3.2.3	Gross capital formation, % GDP	72
1.3.1	Ease of starting a business*	7	3.3.1	GDP/unit of energy use	66
2	Human capital & research	9	5.3.3	ICT services imports, % total trade	73
2.1.3	School life expectancy, years	1	6.2.1	Growth rate of PPP\$ GDP/worker, %	96
2.2	Tertiary education	5	6.3	Knowledge diffusion	74
2.2.1	Tertiary enrolment, % gross	2	6.3.3	ICT services exports, % total trade	82
2.2.3	Tertiary inbound mobility, %	5	6.3.4	FDI net outflows, % GDP	101
2.3.4	QS university ranking, average score top 3*	6	7.2.1	Cultural & creative services exports, % total trade	63
3.1.3	Government's online service*	7	7.2.2	National feature films/mn pop. 15–69	58
3.1.4	E-participation*	5			
4	Market sophistication	7			
4.1	Credit	5			
4.1.1	Ease of getting credit*	4			
4.3	Trade, competition, and market scale	9			
4.3.1	Applied tariff rate, weighted avg., %	10			
6.1.5	Citable documents H index	10			
6.2.2	New businesses/th pop. 15–64	9			
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	10			

## STRENGTHS

GII strengths for Australia are found in six of the seven GII pillars.

- Institutions (10): exhibits strengths in the sub-pillar Regulatory environment (10) and in the indicators Regulatory quality (5) and Ease of starting a business (7).
- Human capital & research (9): shows strengths in the sub-pillar Tertiary education (5) and in the indicators School life expectancy (1), Tertiary enrolment (2), Tertiary inbound mobility (5) and QS university ranking (6).
- Infrastructure (22): demonstrates strengths in the indicators Government's online service (7) and E-participation (5).
- Market sophistication (7): has strengths in the sub-pillars Credit (5) and Trade, competition, and market scale (9) and in the indicators Ease of getting credit (4) and Applied tariff rate (10).
- Knowledge & technology outputs (40): reveals strengths in the indicators Citable documents H index (10) and New businesses (9).
- Creative outputs (23): the indicator Generic top-level domains (TLDs) (10) is a strength.

## WEAKNESSES

GII weaknesses for Australia are found in five of the seven GII pillars.

- Human capital & research (9): has weaknesses in the indicators Government funding per pupil (79) and Graduates in science & engineering (78).
- Infrastructure (22): displays weaknesses in the indicators Gross capital formation (72) and GDP per unit of energy use (66).
- Business sophistication (26): the indicator ICT services imports (73) is a weakness.
- Knowledge & technology outputs (40): displays weaknesses in the sub-pillar Knowledge diffusion (74) and in the indicators Growth rate of GDP per worker (96), ICT services exports (82) and FDI net outflows (101).
- Creative outputs (23): has weaknesses in the indicators Cultural & creative services exports (63) and National feature films (58).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
31	13	High	SEAO	25.2	1,364.8	46,601.0	22
				Score/Value	Rank		
<b>INSTITUTIONS</b>				88.7	10		
<b>1.1</b>	<b>Political environment</b>	<b>86.4</b>	<b>13</b>	<b>5.1</b>	<b>Knowledge workers</b>	<b>53.0</b>	<b>[24]</b>
1.1.1	Political and operational stability*	87.5	11	5.1.1	Knowledge-intensive employment, %	46.1	15
1.1.2	Government effectiveness*	85.8	14	5.1.2	Firms offering formal training, %	n/a	n/a
<b>1.2</b>	<b>Regulatory environment</b>	<b>92.1</b>	<b>10</b>	5.1.3	GERD performed by business, % GDP	0.9	22
1.2.1	Regulatory quality*	92.7	5	5.1.4	GERD financed by business, %	n/a	n/a
1.2.2	Rule of law*	91.4	14	5.1.5	Females employed w/advanced degrees, %	22.6	19
1.2.3	Cost of redundancy dismissal, salary weeks	12.0	38	<b>5.2</b>	<b>Innovation linkages</b>	<b>44.1</b>	<b>20</b>
<b>1.3</b>	<b>Business environment</b>	<b>87.7</b>	<b>11</b>	5.2.1	University/industry research collaboration†	50.4	39
1.3.1	Ease of starting a business*	96.6	7	5.2.2	State of cluster development†	54.2	38
1.3.2	Ease of resolving insolvency*	78.9	19	5.2.3	GERD financed by abroad, % GDP	n/a	n/a
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP	0.2	12
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP	1.0	26
<b>HUMAN CAPITAL &amp; RESEARCH</b>				59.0	9		
<b>2.1</b>	<b>Education</b>	<b>56.4</b>	<b>29</b>	<b>5.3</b>	<b>Knowledge absorption</b>	<b>33.8</b>	<b>47</b>
2.1.1	Expenditure on education, % GDP	5.3	33	5.3.1	Intellectual property payments, % total trade	1.2	30
2.1.2	Government funding/pupil, secondary, % GDP/cap	15.0	79	5.3.2	High-tech imports, % total trade	10.5	26
2.1.3	School life expectancy, years	22.0	1	5.3.3	ICT services imports, % total trade	1.0	73
2.1.4	PISA scales in reading, maths, & science	499.0	20	5.3.4	FDI net inflows, % GDP	3.8	39
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	5.3.5	Research talent, % in business enterprise	27.9	44
<b>2.2</b>	<b>Tertiary education</b>	<b>61.4</b>	<b>5</b>	<b>6.1</b>	<b>Knowledge creation</b>	<b>42.5</b>	<b>21</b>
2.2.1	Tertiary enrolment, % gross	113.1	2	6.1.1	Patents by origin/bn PPP\$ GDP	2.1	39
2.2.2	Graduates in science & engineering, %	18.4	78	6.1.2	PCT patents by origin/bn PPP\$ GDP	1.3	24
2.2.3	Tertiary inbound mobility, %	21.5	5	6.1.3	Utility models by origin/bn PPP\$ GDP	0.9	25
<b>2.3</b>	<b>Research &amp; development (R&amp;D)</b>	<b>59.4</b>	<b>15</b>	6.1.4	Scientific & technical articles/bn PPP\$ GDP	29.2	11
2.3.1	Researchers, FTE/mn pop.	4,532.4	22	6.1.5	Citable documents H-index	65.9	10
2.3.2	Gross expenditure on R&D, % GDP	1.8	20	<b>6.2</b>	<b>Knowledge impact</b>	<b>28.2</b>	<b>48</b>
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US	67.4	19	6.2.1	Growth rate of PPP\$ GDP/worker, %	-0.2	96
2.3.4	QS university ranking, average score top 3*	79.8	6	6.2.2	New businesses/th pop. 15-64	14.5	9
				6.2.3	Computer software spending, % GDP	0.0	53
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	6.2	47
				6.2.5	High- and medium-high-tech manufacturing, %	27.0	39
<b>INFRASTRUCTURE</b>				55.8	22		
<b>3.1</b>	<b>Information &amp; communication technologies (ICTs)</b>	<b>88.6</b>	<b>14</b>	<b>6.3</b>	<b>Knowledge diffusion</b>	<b>20.3</b>	<b>74</b>
3.1.1	ICT access*	79.6	29	6.3.1	Intellectual property receipts, % total trade	0.3	29
3.1.2	ICT use*	79.2	22	6.3.2	High-tech net exports, % total trade	1.7	62
3.1.3	Government's online service*	97.2	7	6.3.3	ICT services exports, % total trade	1.0	82
3.1.4	E-participation*	98.3	5	6.3.4	FDI net outflows, % GDP	0.1	101
<b>3.2</b>	<b>General infrastructure</b>	<b>39.7</b>	<b>22</b>	<b>7.1</b>	<b>Intangible assets</b>	<b>37.1</b>	<b>35</b>
3.2.1	Electricity output, kWh/mn pop.	10,444.3	13	7.1.1	Trademarks by origin/bn PPP\$ GDP	63.4	32
3.2.2	Logistics performance*	78.9	18	7.1.2	Global brand value, top 5,000, % GDP	79.8	26
3.2.3	Gross capital formation, % GDP	22.5	72	7.1.3	Industrial designs by origin/bn PPP\$ GDP	2.3	48
				7.1.4	ICTs & organizational model creation†	67.3	25
<b>3.3</b>	<b>Ecological sustainability</b>	<b>39.0</b>	<b>37</b>	<b>7.2</b>	<b>Creative goods and services</b>	<b>23.7</b>	<b>41</b>
3.3.1	GDP/unit of energy use	9.2	66	7.2.1	Cultural & creative services exports, % total trade	0.3	63
3.3.2	Environmental performance*	74.9	13	7.2.2	National feature films/mn pop. 15-69	3.2	58
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	2.0	44	7.2.3	Entertainment & Media market/th pop. 15-69	64.9	7
				7.2.4	Printing and other media, % manufacturing	2.3	10
				7.2.5	Creative goods exports, % total trade	0.6	59
<b>MARKET SOPHISTICATION</b>				67.1	7		
<b>4.1</b>	<b>Credit</b>	<b>78.9</b>	<b>5</b>	<b>7.3</b>	<b>Online creativity</b>	<b>51.5</b>	<b>16</b>
4.1.1	Ease of getting credit*	95.0	4	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	61.3	10
4.1.2	Domestic credit to private sector, % GDP	139.6	13	7.3.2	Country-code TLDs/th pop. 15-69	54.7	14
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	7.3.3	Wikipedia edits/mn pop. 15-69	79.5	26
<b>4.2</b>	<b>Investment</b>	<b>43.7</b>	<b>40</b>	7.3.4	Mobile app creation/bn PPP\$ GDP	11.6	41
4.2.1	Ease of protecting minority investors*	64.0	56				
4.2.2	Market capitalization, % GDP	102.1	11				
4.2.3	Venture capital deals/bn PPP\$ GDP	0.1	22				
<b>4.3</b>	<b>Trade, competition, and market scale</b>	<b>78.8</b>	<b>9</b>				
4.3.1	Applied tariff rate, weighted avg., %	0.9	10				
4.3.2	Intensity of local competition†	79.2	11				
4.3.3	Domestic market scale, bn PPP\$	1,364.8	21				

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25-ranked GII economies; ◇ a weakness relative to the other top 25-ranked GII economies; \* 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 either missing or outdated for Australia.

### Missing data

Code	Indicator name	Country year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	n/a	2018	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2018	World Bank
5.1.4	GERD financed by business, %	n/a	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	n/a	2017	UNESCO Institute for Statistics

### Outdated data

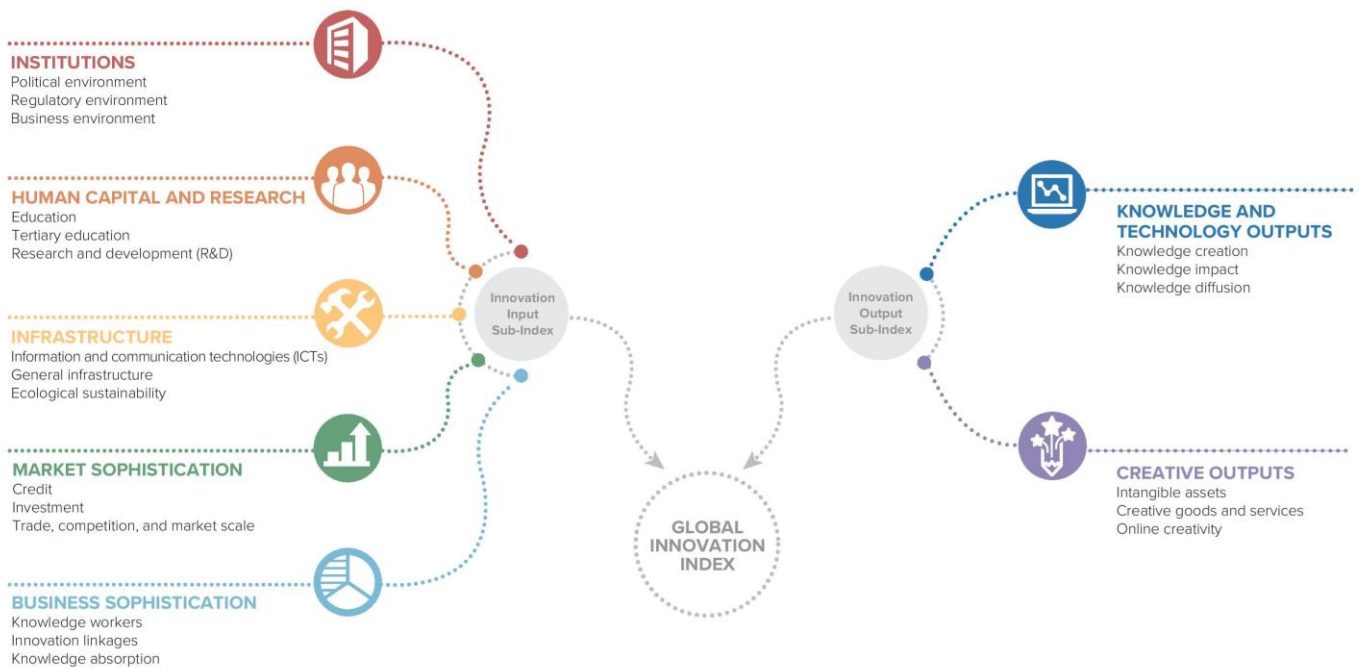
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.3	GERD performed by business, % GDP	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2013	2018	International Labour Organization
5.3.5	Research talent, % in business enterprise	2010	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators

## 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 2020, the GII presents its 13<sup>th</sup> edition devoted to the theme *Who Will Finance Innovation?*

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.

### Framework of the Global Innovation Index 2020



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.

