Global Innovation Index 2021

AUSTRALIA

25th Australia ranks 25th among the 132 economies featured in the GII 2021.

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 2021 is between ranks 23 and 27.

Rankings for Australia (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	25	15	33
2020	23	13	31
2019	22	15	31

- Australia performs better in innovation inputs than innovation outputs in 2021.
- This year Australia ranks 15th in innovation inputs, lower than last year but the same as 2019.
- As for innovation outputs, Australia ranks 33rd. This position is lower than both 2020 and 2019.

24th Australia ranks 24th among the 51 high-income group economies.

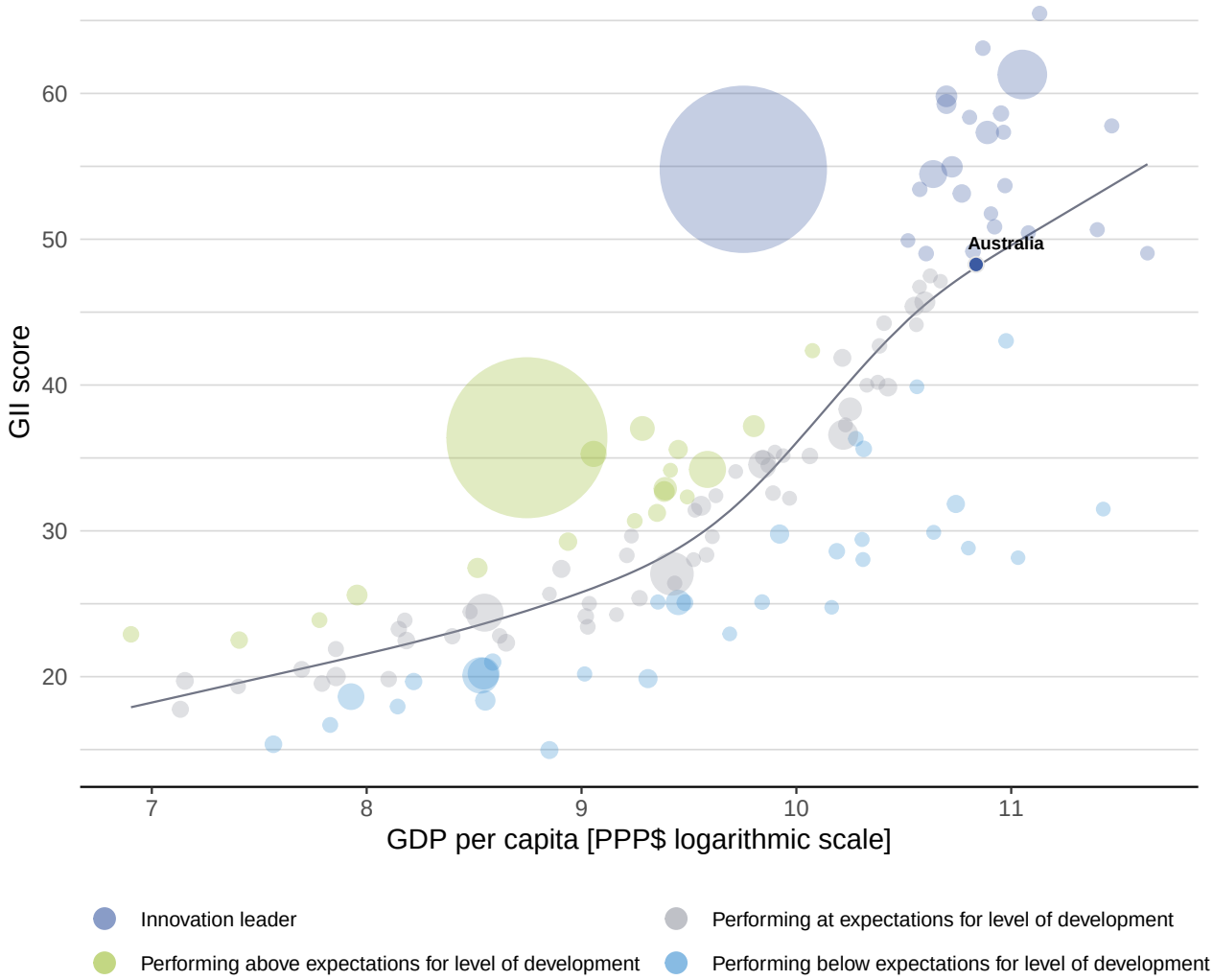
6th Australia ranks 6th among the 17 economies in South East Asia, East Asia, and Oceania.

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

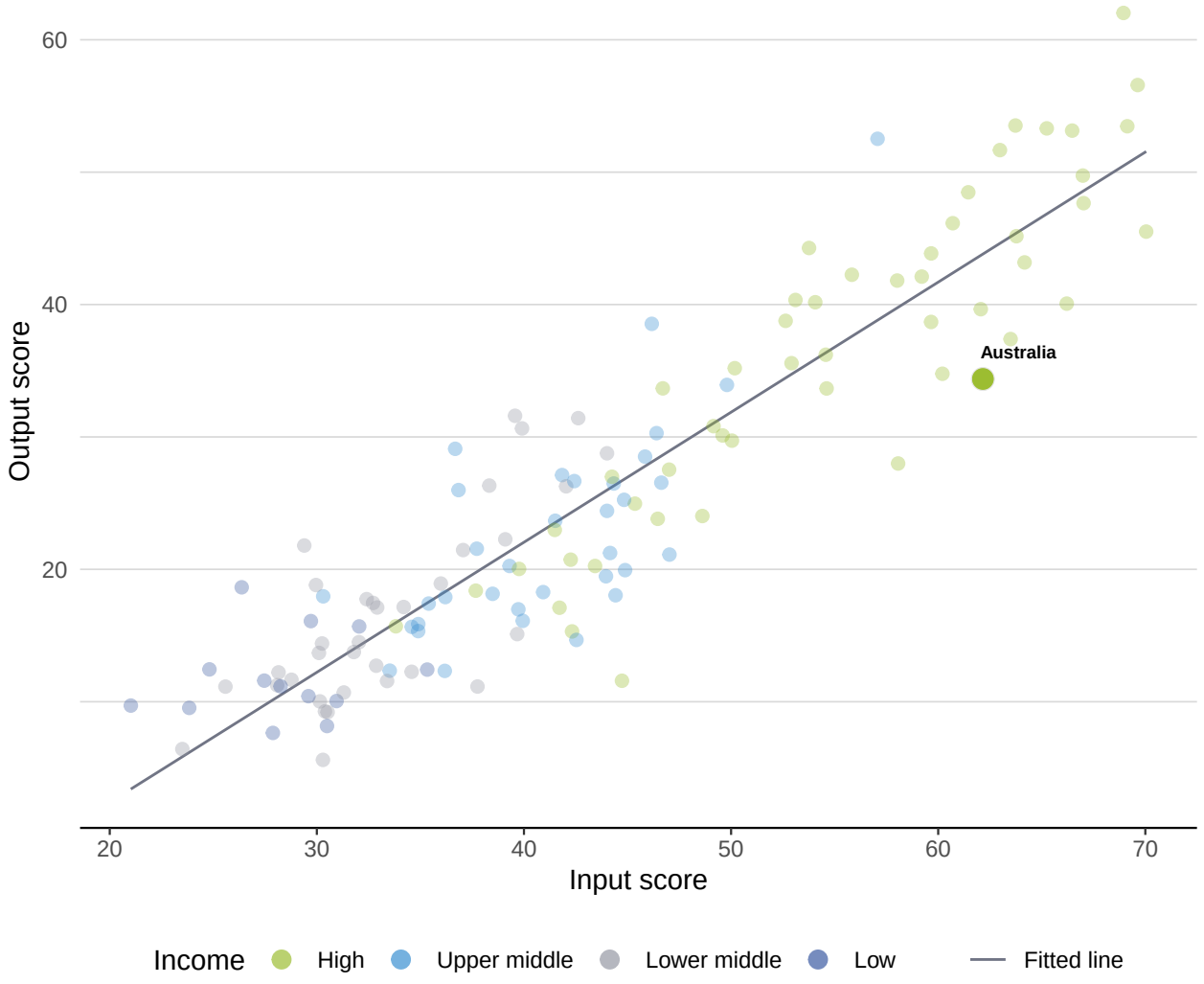


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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



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.

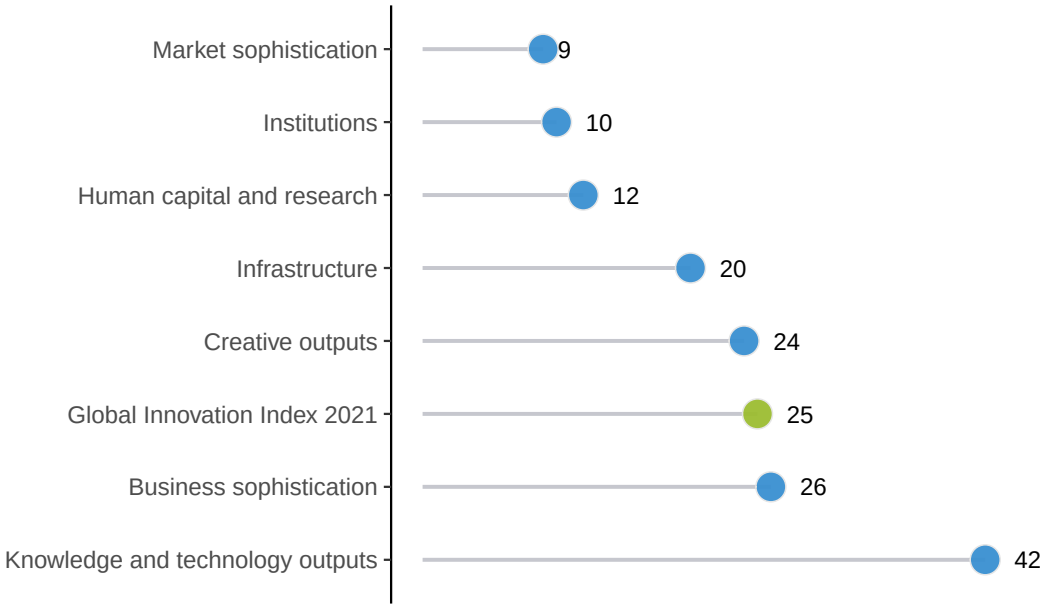
South East Asia, East Asia, and Oceania

Australia performs above the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Australia performs best in Market sophistication 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 one.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Australia in the GII 2021.

Strengths and weaknesses for Australia

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.1	Regulatory quality	4	2.1.2	Government funding/pupil, secondary, % GDP/cap	74
1.3.1	Ease of starting a business	7	2.2.2	Graduates in science and engineering, %	88
2.1.3	School life expectancy, years	1	3.2.3	Gross capital formation, % GDP	66
2.2	Tertiary education	6	3.3.1	GDP/unit of energy use	77
2.2.1	Tertiary enrolment, % gross	3	5.3.3	ICT services imports, % total trade	67
2.2.3	Tertiary inbound mobility, %	4	6.2.1	Labor productivity growth, %	87
2.3.4	QS university ranking, top 3	7	6.3	Knowledge diffusion	78
3.1.3	Government's online service	7	6.3.2	Production and export complexity	86
4.1	Credit	5	6.3.4	ICT services exports, % total trade	78
4.1.1	Ease of getting credit	4	7.2.1	Cultural and creative services exports, % total trade	66
4.3.1	Applied tariff rate, weighted avg., %	8	7.2.2	National feature films/mn pop. 15–69	58
6.1.4	Scientific and technical articles/bn PPP$ GDP	6			
6.1.5	Citable documents H-index	9			
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	9			

Australia

GII 2021 rank **25**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
33	15	High	SEAO	25.5	1,307.9	50,845	23

		Score/ Value	Rank
Institutions		**88.3**	**10**
1.1	**Political environment**	**85.0**	**15**
1.1.1	Political and operational stability*	83.9	13
1.1.2	Government effectiveness*	85.6	14
1.2	**Regulatory environment**	**92.3**	**10**
1.2.1	Regulatory quality*	92.5	4 ●
1.2.2	Rule of law*	92.4	13
1.2.3	Cost of redundancy dismissal	12.0	38
1.3	**Business environment**	**87.7**	**11**
1.3.1	Ease of starting a business*	96.6	7 ●
1.3.2	Ease of resolving insolvency*	78.9	19
Human capital and research		**57.4**	**12**
2.1	**Education**	**59.6**	**29**
2.1.1	Expenditure on education, % GDP	5.1	35
2.1.2	Government funding/pupil, secondary, % GDP/cap	15.4	74 ○ ◇
2.1.3	School life expectancy, years	20.5	1 ● ◆
2.1.4	PISA scales in reading, maths and science	499.0	20
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a
2.2	**Tertiary education**	**54.3**	**6 ● ◆**
2.2.1	Tertiary enrolment, % gross	107.8	3 ● ◆
2.2.2	Graduates in science and engineering, %	17.4	88 ○ ◇
2.2.3	Tertiary inbound mobility, %	26.5	4 ● ◆
2.3	**Research and development (R&D)**	**58.3**	**17**
2.3.1	Researchers, FTE/mn pop.	◴4,532.4	21
2.3.2	Gross expenditure on R&D, % GDP	◴ 1.8	20
2.3.3	Global corporate R&D investors, top 3, mn US$	65.3	18
2.3.4	QS university ranking, top 3*	77.9	7 ●
Infrastructure		**55.7**	**20**
3.1	**Information and communication technologies (ICTs)**	**88.3**	**13**
3.1.1	ICT access*	80.6	29
3.1.2	ICT use*	81.5	20
3.1.3	Government's online service*	94.7	7 ●
3.1.4	E-participation*	96.4	9
3.2	**General infrastructure**	**42.4**	**22**
3.2.1	Electricity output, GWh/mn pop.	10,435.2	13
3.2.2	Logistics performance*	79.1	18
3.2.3	Gross capital formation, % GDP	22.0	66 ○
3.3	**Ecological sustainability**	**36.4**	**41**
3.3.1	GDP/unit of energy use	9.3	77 ○
3.3.2	Environmental performance*	74.9	13
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	1.9	47
Market sophistication		**66.4**	**9 ●**
4.1	**Credit**	**75.8**	**5 ● ◆**
4.1.1	Ease of getting credit*	95.0	4 ● ◆
4.1.2	Domestic credit to private sector, % GDP	135.8	13
4.1.3	Microfinance gross loans, % GDP	n/a	n/a
4.2	**Investment**	**38.2**	**39**
4.2.1	Ease of protecting minority investors*	64.0	56
4.2.2	Market capitalization, % GDP	102.7	12
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.1	23
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.1	19
4.3	**Trade, diversification, and market scale**	**85.2**	**13**
4.3.1	Applied tariff rate, weighted avg., %	0.8	8 ●
4.3.2	Domestic industry diversification	94.0	35
4.3.3	Domestic market scale, bn PPP$	1,307.9	18

		Score/ Value	Rank
Business sophistication		**43.0**	**26** ◇
5.1	**Knowledge workers**	**52.2**	**[24]**
5.1.1	Knowledge-intensive employment, %	◴ 46.1	17
5.1.2	Firms offering formal training, %	n/a	n/a
5.1.3	GERD performed by business, % GDP	◴ 0.9	22
5.1.4	GERD financed by business, %	n/a	n/a
5.1.5	Females employed w/advanced degrees, %	◴ 22.6	22
5.2	**Innovation linkages**	**44.6**	**19**
5.2.1	University-industry R&D collaboration†	53.4	33 ◇
5.2.2	State of cluster development and depth†	55.3	34
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	10
5.2.5	Patent families/bn PPP$ GDP	1.0	27 ◇
5.3	**Knowledge absorption**	**32.2**	**52** ◇
5.3.1	Intellectual property payments, % total trade	1.1	33
5.3.2	High-tech imports, % total trade	10.2	30
5.3.3	ICT services imports, % total trade	1.1	67 ○ ◇
5.3.4	FDI net inflows, % GDP	3.6	37
5.3.5	Research talent, % in businesses	◴ 27.9	43 ◇
Knowledge and technology outputs		**29.1**	**42** ◇
6.1	**Knowledge creation**	**42.9**	**20**
6.1.1	Patents by origin/bn PPP$ GDP	2.0	38 ◇
6.1.2	PCT patents by origin/bn PPP$ GDP	1.3	25 ◇
6.1.3	Utility models by origin/bn PPP$ GDP	0.7	28
6.1.4	Scientific and technical articles/bn PPP$ GDP	52.2	6 ●
6.1.5	Citable documents H-index	66.6	9 ●
6.2	**Knowledge impact**	**31.6**	**59** ◇
6.2.1	Labor productivity growth, %	–1.2	87 ○
6.2.2	New businesses/th pop. 15–64	14.5	9
6.2.3	Software spending, % GDP	0.2	61
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.7	49
6.2.5	High-tech manufacturing, %	24.6	50 ◇
6.3	**Knowledge diffusion**	**12.8**	**78** ○ ◇
6.3.1	Intellectual property receipts, % total trade	0.3	29 ◇
6.3.2	Production and export complexity	31.6	86 ○ ◇
6.3.3	High-tech exports, % total trade	2.0	58 ◇
6.3.4	ICT services exports, % total trade	1.1	78 ○
Creative outputs		**39.6**	**24**
7.1	**Intangible assets**	**41.7**	**37**
7.1.1	Trademarks by origin/bn PPP$ GDP	58.2	38
7.1.2	Global brand value, top 5,000, % GDP	77.1	26
7.1.3	Industrial designs by origin/bn PPP$ GDP	2.3	43
7.1.4	ICTs and organizational model creation†	67.3	25 ◇
7.2	**Creative goods and services**	**22.4**	**43** ◇
7.2.1	Cultural and creative services exports, % total trade	0.3	66 ○
7.2.2	National feature films/mn pop. 15–69	3.2	58 ○
7.2.3	Entertainment and media market/th pop. 15–69	62.4	6
7.2.4	Printing and other media, % manufacturing	2.0	15
7.2.5	Creative goods exports, % total trade	0.7	57
7.3	**Online creativity**	**52.9**	**17**
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	62.3	9 ●
7.3.2	Country-code TLDs/th pop. 15–69	54.6	15
7.3.3	Wikipedia edits/mn pop. 15–69	75.8	21
7.3.4	Mobile app creation/bn PPP$ GDP	15.1	33

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question. ◴ indicates that the economy's data are older than the base year; see Appendix IV 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 for Australia

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	n/a	2019	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	2019	World Bank
5.1.4	GERD financed by business, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	n/a	2018	UNESCO Institute for Statistics

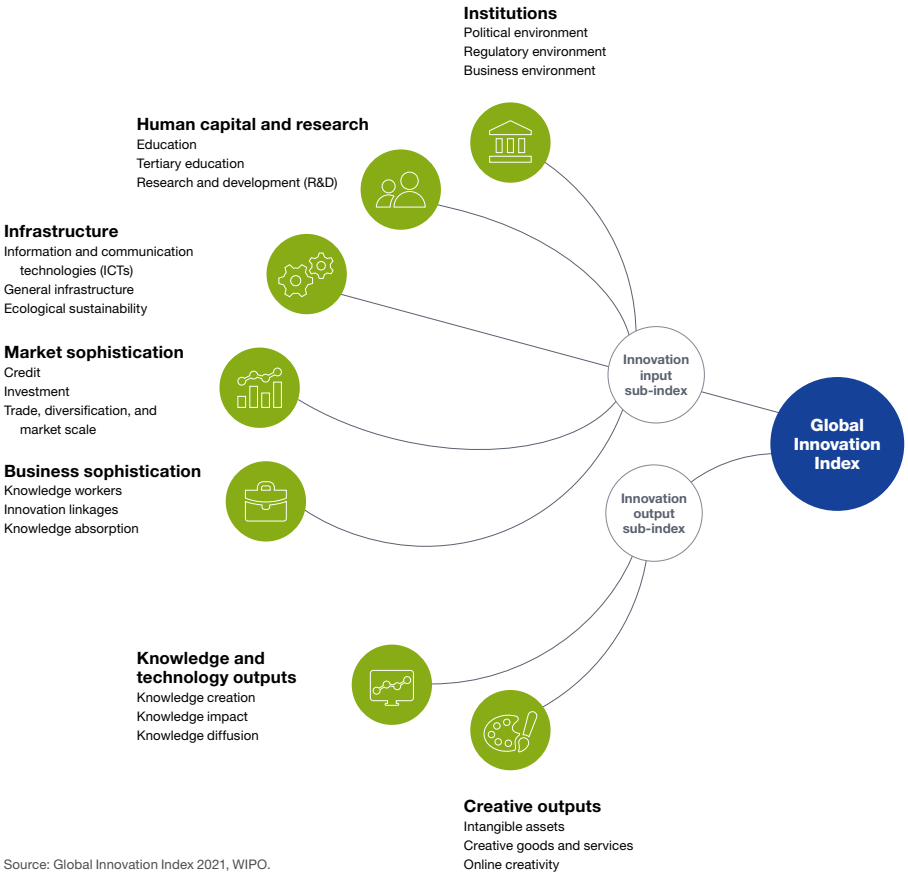
Outdated data for Australia

Code	Indicator name	Economy year	Model year	Source
2.3.1	Researchers, FTE/mn pop.	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.1	Knowledge-intensive employment, %	2018	2019	International Labour Organization
5.1.3	GERD performed by business, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.5	Females employed w/advanced degrees, %	2013	2019	International Labour Organization
5.3.5	Research talent, % in businesses	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

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 2021, WIPO.

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.