

GLOBAL INNOVATION INDEX 2018

Republic of Korea

12th The Republic of Korea is ranked 12th in the GII 2018, moving down 1 position from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects the Republic of Korea's rankings over time¹.

Republic of Korea's ranking over time

	GII	Input	Output	Efficiency
2018	12	14	12	20
2017	11	16	9	14
2016	11	13	11	24

- Over the last three years, the Republic of Korea exhibits some volatility in its ranking of both innovation inputs and outputs.
- This year it improves in innovation inputs, reaching the 14th spot up two spots from 2017.
- The Republic of Korea ranks better in innovation outputs (12th) than outputs, albeit it moves down from the 9th position of 2017 – the highest position it has ever held. Indeed, it improved consistently from the 24th spot it detained in 2012.
- The country ranks 20th in the Innovation Efficiency Ratio, becoming less efficient in translating its innovation inputs into outputs. It held a better position last year, due to a higher ranking in innovation outputs.

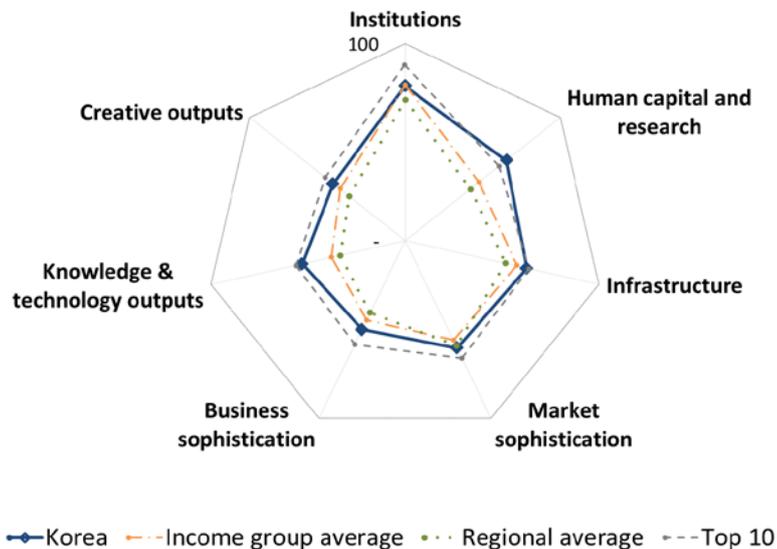
12th The Republic of Korea is ranked 12th among the 47 high-income countries in the GII 2018.

2nd The Republic of Korea is ranked 2nd among the 15 countries in South East Asia and Oceania.

¹ Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

Benchmarking the Republic of Korea to other high-income countries and the South East Asia and Oceania region

Republic of Korea's scores by area



High-income countries

The Republic of Korea has high scores in 6 out of 7 GII areas – **Human Capital and Research, Infrastructure, Market Sophistication, Knowledge and Technology Outputs, and Creative Outputs**, in which it scores above the average of the high-income group.

Top scores in areas *Research & Development (R&D)*, *Information and Communication Technologies (ICTs)*, *Trade, competition, and market scale*, *Knowledge workers*, *Knowledge creation*, and *Intangible assets* are behind these high rankings.

South East Asia and Oceania region

Compared to other countries in the South East Asia and Oceania region, Republic of Korea performs above average in all 7 GII areas.

The Republic of Korea's innovation profile

Strengths

- The area **Human Capital and Research** (2nd) is marked as a comparative strength for the Republic of Korea, where it has strong performance in the area *Research and development (R&D)* (1st), as well as in indicators *Expenditure on R&D* (2nd) and *Tertiary enrolment* (4th).
- In **Infrastructure** (13th), the country has strength in the area *Information and communication technologies (ICTs)* (2nd). At the indicator level, comparative strengths lie in *ICT use* (4th) and *E-participation* – both ranking 4th globally.
- In **Business Sophistication** (20th), the Republic of Korea exhibits strengths in indicators *R&D performed by business* (2nd), *R&D financed by business* (3rd), *Patent families filed in two or more offices* (1st), and *Research talent in business enterprise* (2nd).
- In **Institutions** (26th), the country also performs strongly in the area *Business environment* (2nd).
- Finally, among **innovation inputs**, the indicator *Intensity of local competition* (4th) is also marked as strength in **Market Sophistication** (14th).

- On the **innovation output** side, most of the Republic of Korea's strengths are exhibited in **Knowledge and Technology Outputs** (9th), where it has strong performance in the area *Knowledge creation* (3rd), as well as in indicators *Patents by origin*, *PCT patents by origin*, and *High-tech exports* – all ranking 1st globally.
- In **Creative outputs** (17th), the country also shows strong performance in the area *Intangible assets* (2nd) and indicator *Industrial designs by origin*, where it ranks 1st.

Weaknesses

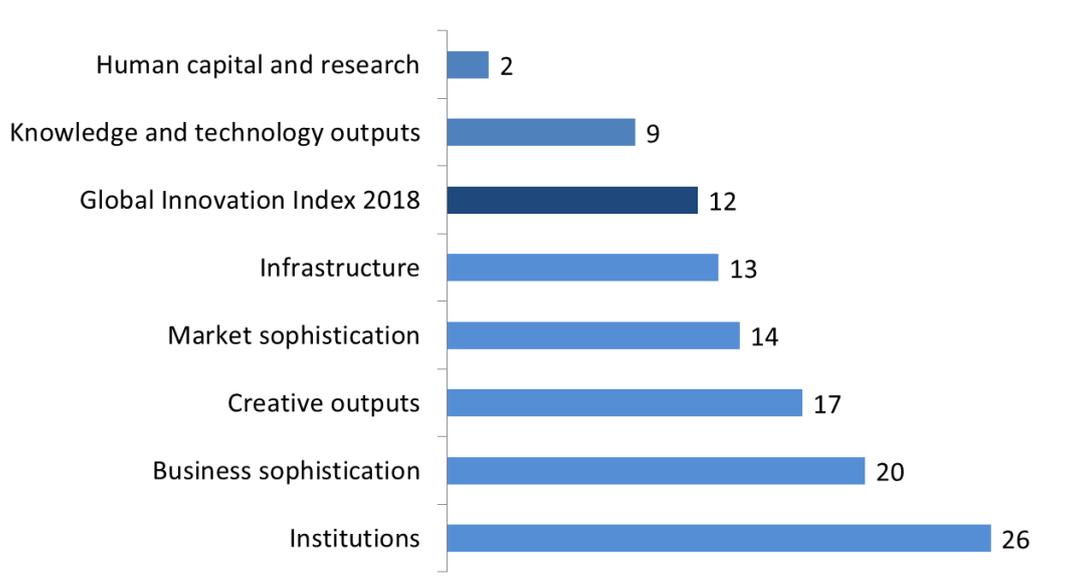
- The Republic of Korea's relative weaknesses on the **innovation input** side are mainly found in **Business Sophistication** (20th), where it shows weak performance in indicators *R&D financed by abroad* (92nd), *ICT services imports* (102nd), and *FDI inflows* (114th).
- In **Market Sophistication** (14th) the country performs relatively weakly in indicators *Venture capital deals* (54th) and *Applied tariff rate* (104th).
- Other three relative GII weakness on the **innovation input** side are found in indicators *Cost of redundancy dismissal* (103rd), *Tertiary inbound mobility* (77th), and *GDP per unit of energy use* (91st).
- On the **innovation output** side, the Republic of Korea exhibits relative weaknesses only in two indicators: *ICT services exports* (95th) and *Printing and other media* (90th).

The following figure presents a summary of the Republic of Korea's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

Republic of Korea's rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

Total number of countries: 126



Missing and Outdated Data

More and better data improve the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for the Republic of Korea that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2016	Microfinance Information Exchange, Mix Market
5.1.2	Firms offering formal training, % firms	n/a	2013	World Bank, Enterprise Surveys

Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.1.3	School life expectancy, years	2015	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2015	2016	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2016	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2015	2016	UNESCO Institute for Statistics
5.1.1	Knowledge-intensive employment, %	2015	2016	ILO, ILOSTAT
5.1.5	Females employed w/advanced degrees, %	2015	2016	ILO, ILOSTAT



KOREA, REPUBLIC OF

GII 2018 rank

12

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
12	14	High	SEAO	20	51.0	2,026.7	39,433.8	11

	Score/Value	Rank
Institutions	78.5	26 ◊
1.1 Political environment.....	70.7	37 ◊
1.1.1 Political stability & safety*.....	68.6	56 ◊
1.1.2 Government effectiveness*.....	71.7	30 ◊
1.2 Regulatory environment.....	72.2	45 ◊
1.2.1 Regulatory quality*.....	72.7	26
1.2.2 Rule of law*.....	75.3	23
1.2.3 Cost of redundancy dismissal, salary weeks.....	27.4	103 ○◊
1.3 Business environment.....	92.6	2 ●◆
1.3.1 Ease of starting a business*.....	95.8	9
1.3.2 Ease of resolving insolvency*.....	89.3	5 ◆
Human capital & research	65.3	2 ●◆
2.1 Education.....	57.4	28
2.1.1 Expenditure on education, % GDP.....	5.1	49
2.1.2 Government funding/pupil, secondary, % GDP/cap.....	28.3	14 ◆
2.1.3 School life expectancy, years [Ⓔ]	16.5	20
2.1.4 PISA scales in reading, maths & science.....	519.1	7
2.1.5 Pupil-teacher ratio, secondary [Ⓔ]	14.4	64 ◊
2.2 Tertiary education.....	49.9	17
2.2.1 Tertiary enrolment, % gross [Ⓔ]	93.3	4 ●◆
2.2.2 Graduates in science & engineering, %.....	29.9	12 ◆
2.2.3 Tertiary inbound mobility, % [Ⓔ]	1.7	77 ○◊
2.3 Research & development (R&D).....	88.6	1 ●◆
2.3.1 Researchers, FTE/mn pop.....	7,113.2	4 ◆
2.3.2 Gross expenditure on R&D, % GDP.....	4.2	2 ●◆
2.3.3 Global R&D companies, top 3, mn US\$.....	91.5	5
2.3.4 QS university ranking, average score top 3*.....	77.1	9
Infrastructure	62.7	13
3.1 Information & communication technologies (ICTs).....	91.6	2 ●◆
3.1.1 ICT access*.....	88.5	7
3.1.2 ICT use*.....	87.1	4 ●◆
3.1.3 Government's online service*.....	94.2	5
3.1.4 E-participation*.....	96.6	4 ●◆
3.2 General infrastructure.....	61.4	6
3.2.1 Electricity output, kWh/cap.....	11,540.1	11
3.2.2 Logistics performance*.....	76.5	24
3.2.3 Gross capital formation, % GDP.....	31.6	18 ◆
3.3 Ecological sustainability.....	35.2	75 ◊
3.3.1 GDP/unit of energy use.....	6.3	91 ○
3.3.2 Environmental performance*.....	62.3	53 ◊
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP.....	2.6	41
Market sophistication	60.4	14
4.1 Credit.....	63.6	16
4.1.1 Ease of getting credit*.....	65.0	49
4.1.2 Domestic credit to private sector, % GDP.....	143.3	11
4.1.3 Microfinance gross loans, % GDP.....	n/a	n/a
4.2 Investment.....	46.4	43
4.2.1 Ease of protecting minority investors*.....	71.7	20
4.2.2 Market capitalization, % GDP.....	88.0	15
4.2.3 Venture capital deals/bn PPP\$ GDP.....	0.0	54 ○◊
4.3 Trade, competition, & market scale.....	71.2	29
4.3.1 Applied tariff rate, weighted mean, %.....	7.7	104 ○◊
4.3.2 Intensity of local competition [†]	83.9	4 ●◆
4.3.3 Domestic market scale, bn PPP\$.....	2,026.7	14

	Score/Value	Rank
Business sophistication	50.2	20
5.1 Knowledge workers.....	60.6	21
5.1.1 Knowledge-intensive employment, % [Ⓔ]	21.4	70 ◊
5.1.2 Firms offering formal training, % firms.....	n/a	n/a
5.1.3 GERD performed by business, % GDP.....	3.3	2 ●◆
5.1.4 GERD financed by business, %.....	75.4	3 ●◆
5.1.5 Females employed w/advanced degrees, % [Ⓔ]	16.2	38 ◊
5.2 Innovation linkages.....	41.6	31
5.2.1 University/industry research collaboration [†]	57.0	26 ◊
5.2.2 State of cluster development [†]	59.6	27
5.2.3 GERD financed by abroad, %.....	0.9	92 ○
5.2.4 JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	55 ◊
5.2.5 Patent families 2+ offices/bn PPP\$ GDP.....	14.6	1 ●◆
5.3 Knowledge absorption.....	48.2	16
5.3.1 Intellectual property payments, % total trade.....	1.7	17
5.3.2 High-tech net imports, % total trade.....	15.7	9
5.3.3 ICT services imports, % total trade.....	0.5	102 ○◊
5.3.4 FDI net inflows, % GDP.....	0.6	114 ○
5.3.5 Research talent, % in business enterprise.....	79.7	2 ●◆
Knowledge & technology outputs	53.3	9
6.1 Knowledge creation.....	72.6	3 ●◆
6.1.1 Patents by origin/bn PPP\$ GDP.....	84.5	1 ●◆
6.1.2 PCT patents by origin/bn PPP\$ GDP.....	7.8	1 ●◆
6.1.3 Utility models by origin/bn PPP\$ GDP.....	3.8	5 ◆
6.1.4 Scientific & technical articles/bn PPP\$ GDP.....	21.1	25
6.1.5 Citable documents H index.....	42.6	18
6.2 Knowledge impact.....	43.0	38
6.2.1 Growth rate of PPP\$ GDP/worker, %.....	1.7	44
6.2.2 New businesses/th pop. 15-64.....	2.6	43
6.2.3 Computer software spending, % GDP.....	0.2	59 ◊
6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....	5.9	56
6.2.5 High- & medium-high-tech manufactures, %.....	0.6	8 ◆
6.3 Knowledge diffusion.....	44.3	15
6.3.1 Intellectual property receipts, % total trade.....	1.2	15
6.3.2 High-tech net exports, % total trade.....	24.6	1 ●◆
6.3.3 ICT services exports, % total trade.....	0.6	95 ○
6.3.4 FDI net outflows, % GDP.....	1.9	33 ◊
Creative outputs	46.4	17
7.1 Intangible assets.....	68.0	2 ●◆
7.1.1 Trademarks by origin/bn PPP\$ GDP.....	95.0	15
7.1.2 Industrial designs by origin/bn PPP\$ GDP.....	32.4	1 ●◆
7.1.3 ICTs & business model creation [†]	77.4	15
7.1.4 ICTs & organizational model creation [†]	65.1	28 ◊
7.2 Creative goods & services.....	30.6	37
7.2.1 Cultural & creative services exports, % total trade.....	0.3	34
7.2.2 National feature films/mn pop. 15-69.....	6.9	24
7.2.3 Entertainment & Media market/th pop. 15-69.....	45.9	19
7.2.4 Printing & other media, % manufacturing.....	0.3	90 ○◊
7.2.5 Creative goods exports, % total trade.....	3.4	15
7.3 Online creativity.....	19.1	37 ◊
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69.....	8.0	43 ◊
7.3.2 Country-code TLDs/th pop. 15-69.....	7.7	41 ◊
7.3.3 Wikipedia edits/mn pop. 15-69.....	17.7	51 ◊
7.3.4 Mobile app creation/bn PPP\$ GDP.....	48.9	8

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; * an index; † a survey question. Ⓔ indicates that the country'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; see pagepage 75 of this appendix for details.