



REPUBLIC OF KOREA

10th

The Republic of Korea ranks 10th 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 the Republic of Korea 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 the Republic of Korea in the GII 2020 is between ranks 8 and 10.

Rankings of the Republic of Korea (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	10	10	10
2019	11	10	13
2018	12	14	12

- This year the Republic of Korea ranks 10th in both innovation inputs and innovation outputs.
- This year the Republic of Korea ranks 10th in innovation inputs, the same as last year and higher compared to 2018.
- As for innovation outputs, the Republic of Korea ranks 10th. This position is higher than last year and compared to 2018.

10th

The Republic of Korea ranks 10th among the 49 high-income group economies.

2nd

The Republic of Korea ranks 2nd among the 17 economies in South East Asia, East Asia, and Oceania.

The Republic of Korea joins the GII top 10 for the first time, and is the second Asian economy to enter the top 10 after Singapore.

Its most significant gains have been made in those GII areas that measure the innovation efforts of the business sector and the innovation outcomes related to the production of new knowledge and technologies. As far as its business sector is concerned, the Republic of Korea ranks 2nd in R&D performed by business and in Research talent in business enterprises, and 3rd in R&D financed by business.

The economy also stands out for its human capital and research systems. It ranks 2nd in R&D expenditure, 3rd in both Researchers and in Tertiary enrolment and 4th in R&D-intensive global companies. It also achieves a top 10 ranking in PISA scales and Quality of universities.

Thanks to the excellence of its innovation ecosystem, the Republic of Korea is the world leader in Patents and Industrial designs by origin, and ranks among the top 10 in PCT patents, Utility models and High-technology manufacturing and exports. Several of its other indicators were in the top 10 this year. These include Ease of solving insolvency, ICT use, Government's online services, Domestic credit to private sector and Intensity of local competition. The Republic of Korea is the global leader in E-participation.

The Republic of Korea ranks 8th in quality of innovation, thanks especially to its efforts in internationalizing its inventions. Over 40% of its score in quality of innovation is due to reaching 1st spot in the indicator Patent families in two or more offices.

The Republic of Korea ranks 8th in the new GII indicator, Global brand value. Samsung is the 5th most valuable brand in the world, while Hyundai Group and LG Group are among other highly valuable Korean brands.

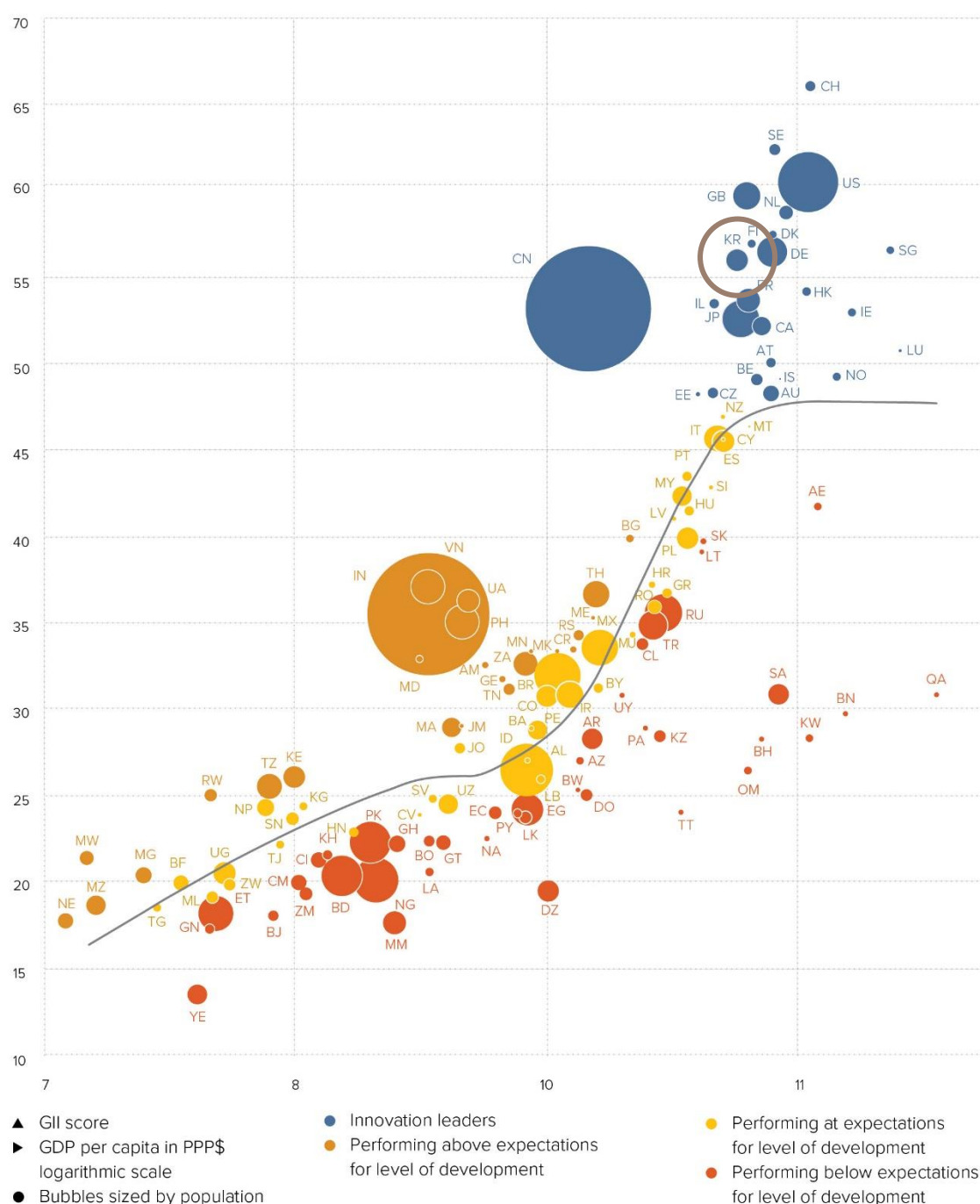
Three of the Republic of Korea's scientific and technology clusters make it into the list of the world's top 100 science and technology clusters, with Seoul ranking 3rd and Daejeon 22nd.

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, the Republic of Korea's performance is above expectations for its level of development.

The positive relationship between innovation and development

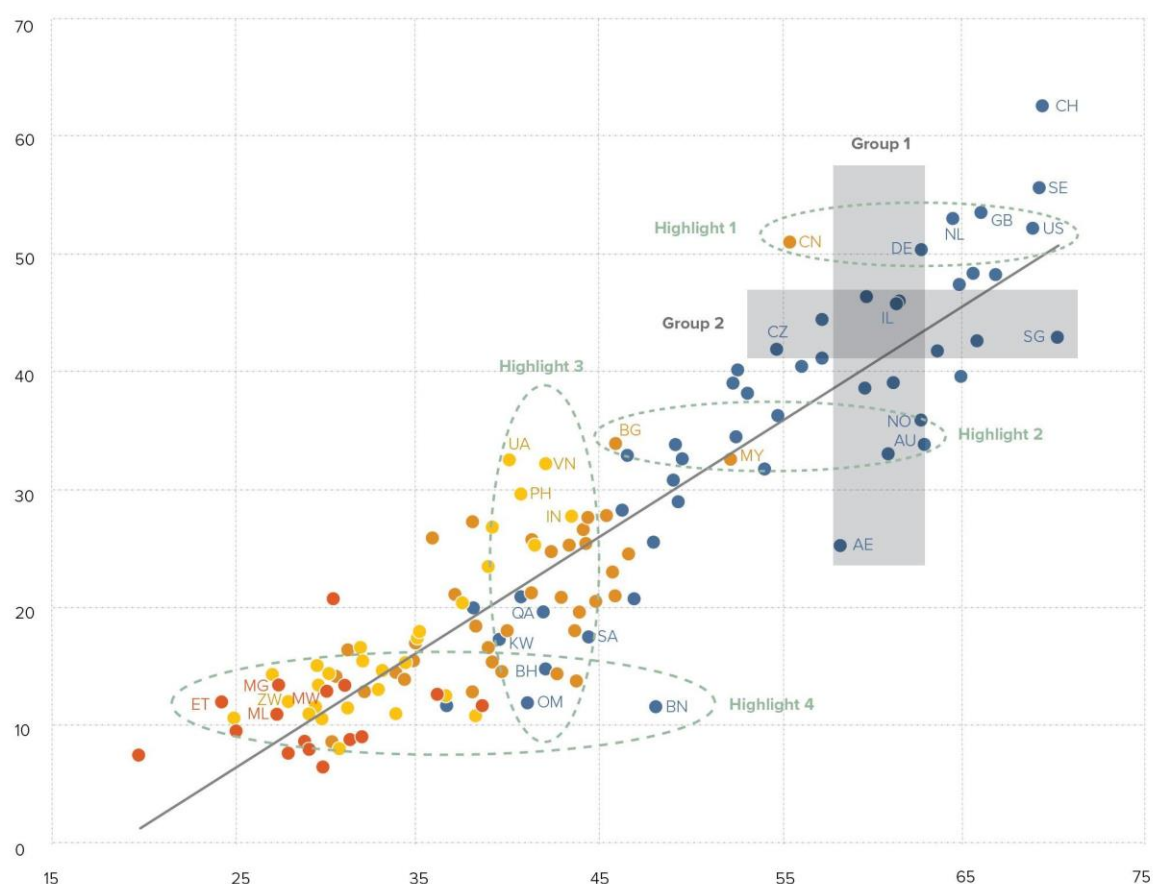


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

The Republic of Korea produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020

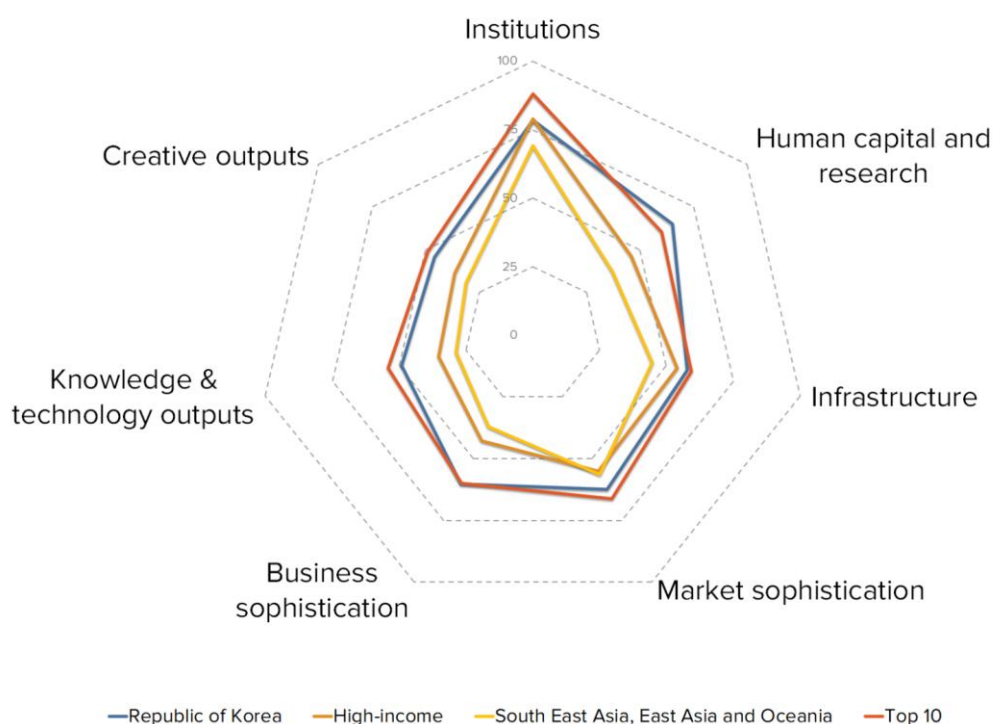


- ▲ Output score
- Input score
- High income group
- Lower middle-income group
- Upper middle-income group
- Low income group
- Fitted values

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 THE REPUBLIC OF KOREA AGAINST OTHER HIGH-INCOME ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

The Republic of Korea's scores in the seven GII Pillars



High-income group economies

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

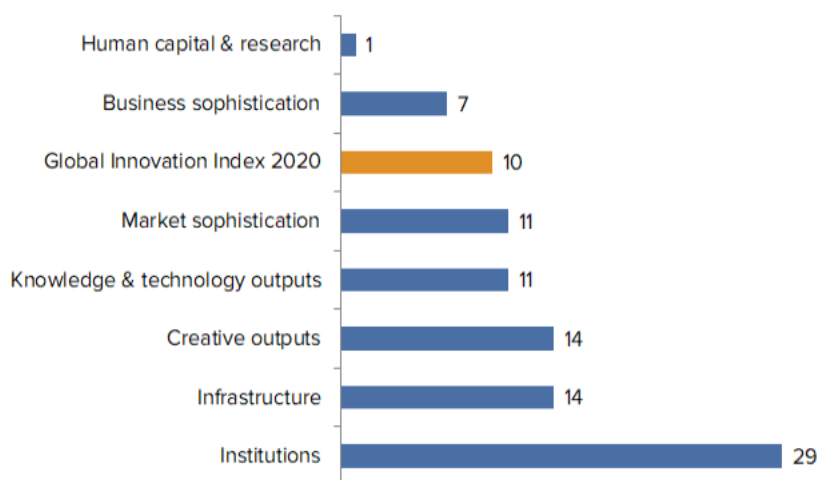
Conversely, the Republic of Korea scores below average for its income group in the pillar Institutions.

South East Asia, East Asia, and Oceania

Compared to other economies in South East Asia, East Asia, and Oceania, the Republic of Korea performs above average in all seven GII pillars.

OVERVIEW OF THE REPUBLIC OF KOREA RANKINGS IN THE SEVEN GII AREAS

The Republic of Korea performs best in Human capital & research and its weakest performance is in Institutions.



*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 the Republic of Korea in the GII 2020.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2	Human capital & research	1	1.2.3	Cost of redundancy dismissal, salary weeks	109
2.2.1	Tertiary enrolment, % gross	3	2.1.1	Expenditure on education, % GDP	60
2.3	Research & development (R&D)	1	2.2.3	Tertiary inbound mobility, %	73
2.3.1	Researchers, FTE/mn pop.	3	3.3.1	GDP/unit of energy use	95
2.3.2	Gross expenditure on R&D, % GDP	2	4.1.1	Ease of getting credit*	61
2.3.3	Global R&D companies, top 3, mn US\$	4	4.3.1	Applied tariff rate, weighted avg., %	88
3.1	Information & communication technologies (ICTs)	2	5.3.3	ICT services imports, % total trade	108
3.1.2	ICT use*	4	5.3.4	FDI net inflows, % GDP	110
3.1.4	E-participation*	1	6.3.3	ICT services exports, % total trade	89
4.3.2	Intensity of local competition†	4	7.2.4	Printing & other media, % manufacturing	98
5.1	Knowledge workers	2			
5.1.3	GERD performed by business, % GDP	2			
5.1.4	GERD financed by business, %	3			
5.2.5	Patent families 2+ offices/bn PPP\$ GDP	1			
5.3.5	Research talent, % in business enterprise	2			
6.1.1	Patents by origin/bn PPP\$ GDP	1			
6.1.2	PCT patents by origin/bn PPP\$ GDP	2			
6.3.2	High-tech net exports, % total trade	4			
7.1	Intangible assets	2			
7.1.3	Industrial designs by origin/bn PPP\$ GDP	1			

NOTES: * indicates an index; † indicates a survey question. Strengths and weaknesses are listed for pillars and/or sub-pillars where the data minimum coverage (DMC) requirements were not met. For the sake of caution, these ranks are shown in square brackets [] in the country profile. This is to ensure that incomplete data coverage does not lead to erroneous conclusions being made about strengths or weaknesses, in particular about strong or weak sub-pillar rankings.

STRENGTHS


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

- Human capital & research (1): shows strengths in the sub-pillar Research & development (R&D) (1) and in four indicators: Tertiary enrolment (3), Researchers (3), R&D expenditure (2) and R&D-intensive global companies (4).
- Infrastructure (14): demonstrates strengths in the sub-pillar Information & communication technologies (ICTs) (2) and in the indicators ICT use (4) and E-participation (1).
- Market sophistication (11): the indicator Intensity of local competition (4) is a strength.
- Business sophistication (7): displays strengths in the sub-pillar Knowledge workers (2) and in the indicators R&D performed by business (2), R&D financed by business (3), Patent families, two or more offices (1) and Research talent in business enterprises (2).
- Knowledge & technology outputs (11): reveals strengths in indicators Patents by origin (1), PCT patents by origin (2) and High-tech exports (4).
- Creative outputs (14): has strengths in the sub-pillar Intangible assets (2) and in the indicator Industrial designs by origin (1).

WEAKNESSES

GII weaknesses for the Republic of Korea are scattered across all seven GII pillars.

- Institutions (29): the indicator Cost of redundancy dismissal (109) is a weakness.
- Human capital & research (1): demonstrates weaknesses in the indicators Expenditure on education (60) and Tertiary inbound mobility (73).
- Infrastructure (14): the indicator GDP per unit of energy use (95) is a weakness.
- Market sophistication (11): shows weaknesses in the indicators Ease of getting credit (61) and Applied tariff rate (88).
- Business sophistication (7): demonstrates weaknesses in the indicators ICT services imports (108) and FDI inflows (110).
- Knowledge & technology outputs (11): the indicator ICT services exports (89) is a weakness.
- Creative outputs (14): the indicator Printing and other media (98) is a weakness.

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
10	10	High	SEAO	51.2	2,319.6	39,059.7	11
		Score/Value	Rank				
 INSTITUTIONS		78.4	29	 BUSINESS SOPHISTICATION		60.3	7
1.1	Political environment	79.0	24	5.1	Knowledge workers	77.7	2
1.1.1	Political and operational stability*.....	83.9	21	5.1.1	Knowledge-intensive employment, %.....	39.5	29
1.1.2	Government effectiveness*.....	76.6	26	5.1.2	Firms offering formal training, %.....	n/a	n/a
1.2	Regulatory environment	68.2	52	5.1.3	GERD performed by business, % GDP.....	3.6	2
1.2.1	Regulatory quality*.....	70.7	30	5.1.4	GERD financed by business, %.....	76.6	3
1.2.2	Rule of law*.....	78.9	23	5.1.5	Females employed w/advanced degrees, %.....	19.3	31
1.2.3	Cost of redundancy dismissal, salary weeks.....	27.4	109	5.2	Innovation linkages	48.8	16
1.3	Business environment	88.1	10	5.2.1	University/industry research collaboration*.....	57.4	28
1.3.1	Ease of starting a business*.....	93.4	31	5.2.2	State of cluster development.....	60.0	24
1.3.2	Ease of resolving insolvency*.....	82.9	10	5.2.3	GERD financed by abroad, % GDP.....	0.1	43
 HUMAN CAPITAL & RESEARCH		65.2	1	5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.1	37
2.1	Education	56.4	28	5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	11.3	1
2.1.1	Expenditure on education, % GDP.....	4.6	60	5.3	Knowledge absorption	54.3	8
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	28.2	15	5.3.1	Intellectual property payments, % total trade.....	1.5	20
2.1.3	School life expectancy, years.....	16.5	23	5.3.2	High-tech imports, % total trade.....	14.8	13
2.1.4	PISA scales in reading, maths, & science.....	519.7	6	5.3.3	ICT services imports, % total trade.....	0.4	108
2.1.5	Pupil-teacher ratio, secondary.....	13.3	63	5.3.4	FDI net inflows, % GDP.....	1.0	110
2.2	Tertiary education	51.1	16	5.3.5	Research talent, % in business enterprise.....	82.0	2
2.2.1	Tertiary enrolment, % gross.....	94.3	3	 KNOWLEDGE & TECHNOLOGY OUTPUTS		49.0	11
2.2.2	Graduates in science & engineering, %.....	29.3	18	6.1	Knowledge creation	65.8	7
2.2.3	Tertiary inbound mobility, %.....	2.3	73	6.1.1	Patents by origin/bn PPP\$ GDP.....	72.7	1
2.3	Research & development (R&D)	88.1	1	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	8.2	2
2.3.1	Researchers, FTE/mn pop.....	7,980.4	3	6.1.3	Utility models by origin/bn PPP\$ GDP.....	2.6	7
2.3.2	Gross expenditure on R&D, % GDP.....	4.5	2	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	20.8	27
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....	91.4	4	6.1.5	Citable documents H-index.....	44.4	17
2.3.4	QS university ranking, average score top 3*.....	73.6	9	6.2	Knowledge impact	34.8	27
 INFRASTRUCTURE		57.7	14	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	1.7	50
3.1	Information & communication technologies (ICTs)	93.5	2	6.2.2	New businesses/th pop. 15-64.....	2.6	51
3.1.1	ICT access*.....	87.8	8	6.2.3	Computer software spending, % GDP.....	0.0	62
3.1.2	ICT use*.....	88.5	4	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	6.3	45
3.1.3	Government's online service*.....	97.9	4	6.2.5	High- and medium-high-tech manufacturing, %.....	56.7	6
3.1.4	E-participation*.....	100.0	1	6.3	Knowledge diffusion	46.3	15
3.2	General infrastructure	45.2	10	6.3.1	Intellectual property receipts, % total trade.....	1.1	18
3.2.1	Electricity output, kWh/mn pop.....	11,149.2	11	6.3.2	High-tech net exports, % total trade.....	28.4	4
3.2.2	Logistics performance*.....	72.4	25	6.3.3	ICT services exports, % total trade.....	0.7	89
3.2.3	Gross capital formation, % GDP.....	31.4	22	6.3.4	FDI net outflows, % GDP.....	2.2	33
3.3	Ecological sustainability	34.4	49	 CREATIVE OUTPUTS		45.8	14
3.3.1	GDP/unit of energy use.....	6.6	95	7.1	Intangible assets	60.4	2
3.3.2	Environmental performance*.....	66.5	28	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	93.0	15
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	2.6	31	7.1.2	Global brand value, top 5,000, % GDP.....	156.9	8
 MARKET SOPHISTICATION		62.5	11	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....	26.9	1
4.1	Credit	66.4	10	7.1.4	ICTs & organizational model creation*.....	64.0	32
4.1.1	Ease of getting credit*.....	65.0	61	7.2	Creative goods and services	34.6	19
4.1.2	Domestic credit to private sector, % GDP.....	150.3	8	7.2.1	Cultural & creative services exports, % total trade.....	0.5	53
4.1.3	Microfinance gross loans, % GDP.....	n/a	n/a	7.2.2	National feature films/mn pop. 15-69.....	12.5	13
4.2	Investment	43.5	42	7.2.3	Entertainment & Media market/th pop. 15-69.....	50.9	18
4.2.1	Ease of protecting minority investors*.....	74.0	24	7.2.4	Printing and other media, % manufacturing.....	0.3	98
4.2.2	Market capitalization, % GDP.....	97.2	12	7.2.5	Creative goods exports, % total trade.....	3.9	14
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.1	31	7.3	Online creativity	27.8	37
4.3	Trade, competition, and market scale	77.6	12	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	8.2	43
4.3.1	Applied tariff rate, weighted avg., %.....	4.8	88	7.3.2	Country-code TLDs/th pop. 15-69.....	8.5	42
4.3.2	Intensity of local competition*.....	83.9	4	7.3.3	Wikipedia edits/mn pop. 15-69.....	58.8	54
4.3.3	Domestic market scale, bn PPP\$.....	2,319.6	14	7.3.4	Mobile app creation/bn PPP\$ GDP.....	37.9	13

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 the Republic of Korea.

Missing data

Code	Indicator name	Country year	Model year	Source
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

Outdated data

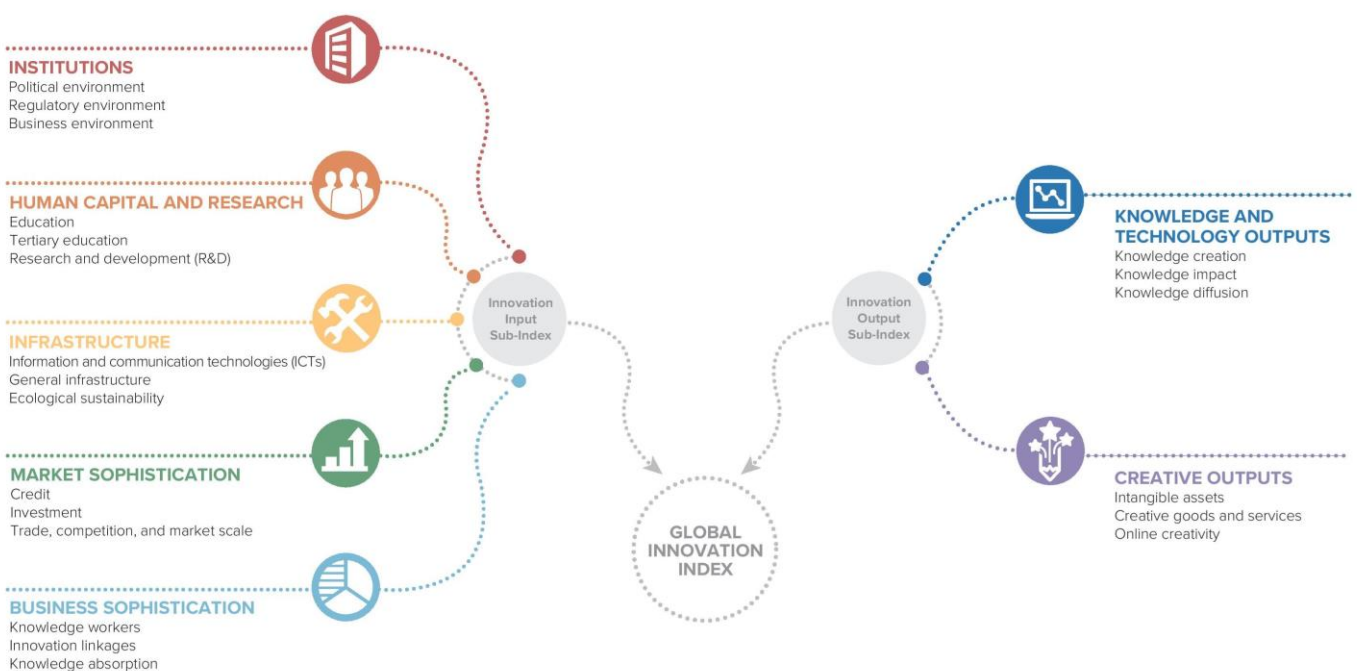
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
6.2.2	New businesses/th pop. 15–64	2016	2018	World Bank

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 13th 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.



www.globalinnovationindex.org



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