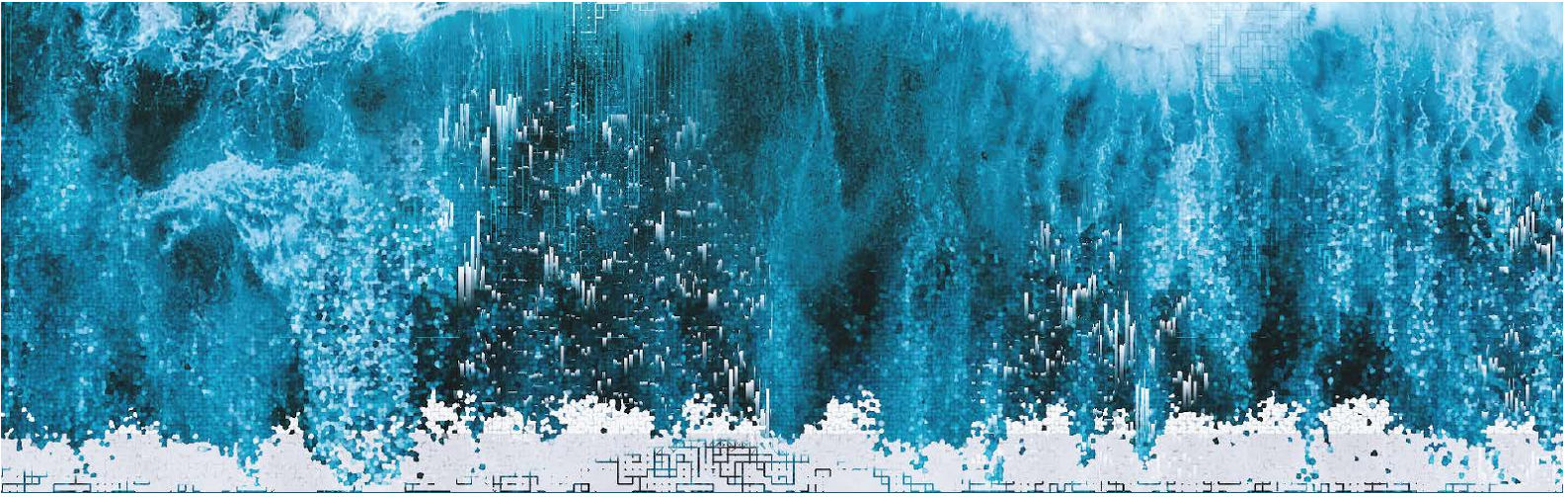


GLOBAL INNOVATION INDEX 2018

Israel

11th Israel is ranked 11th in the GII 2018, rising 6 positions from the previous year.

Israel witnesses a significant rise in the GII ranking this year, gaining 6 positions and getting very close to the top 10. Indeed, Israel (11th) is the fastest mover closing into the top 10 this year.

In 2018, the country improves in all areas of the GII, with the most significant gains in indicators related to Institutions and Creative outputs (15th). In the area of creative outputs, in particular, Israel comes in 4th in the newly introduced indicator, mobile application creation. Israel also confirms its leading position in the variables related to R&D, ranking first in number of researchers, R&D expenditures, business R&D, and research talent in business enterprise.

Another area in which the country performs well has to do with the innovation linkages and networks that connect the actors responsible for innovation in the country. Israel ranks third in the world in university/industry research collaborations and second in R&D expenditures financed by abroad (2nd). Moreover, one of the cluster in the country, the area of Tel Aviv–Jerusalem, is among the top 25 most innovative clusters in the world, by number of international patent filings.

Other areas of comparative strength include venture capital deals, females employed with advanced degrees, and ICT services exports (for a complete list, see page 3 of this brief).

For all the factors mentioned above, Israel has constantly over-performed in innovation compared to its level of development (see also page 5 of this brief).

The GII indicators are grouped into innovation inputs and outputs. Innovation inputs capture the efforts made by the country to boost innovation. Innovation outputs measure the results of these efforts in terms of scientific publications, patents, trademarks, production, exports and other outputs. The table below presents Israel's ranking over time in the overall GII, the Innovation Input and Output Sub-Indices – which summarize Israel's performance in innovation input and output indicators–, and in the Efficiency Ratio – which captures how well the economy translates

innovation inputs into more outputs.[1]

Israel's ranking over time

	GII	Input	Output	Efficiency
2018	11	19	11	14
2017	17	20	14	23
2016	21	21	16	23

- Over the last three years, Israel has gained positions in innovation outputs, reaching the 11th global position this year, up from the 14th position in 2017 and the 16th in 2016.
- In innovation inputs Israel has also improved in the last years. In 2018, it ranks 19th globally, up from the 21st and 20th position in the past two years.
- This year Israel is also becoming more efficient in translating its innovation inputs into more and more varied innovation outputs. This is demonstrated by the Innovation Efficiency Ratio, which ranks 14th this year, up 9 spots from 2017 and 2016.

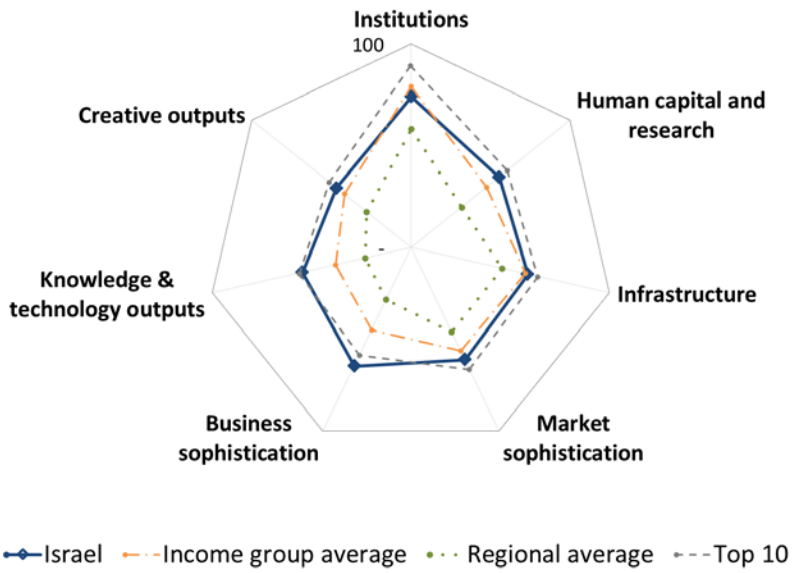
11th Israel is ranked 11th among the 47 high-income economies in the GII 2018.

1st Israel is the most innovative economy in Northern Africa and Western Asia.

[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 Israel to other high-income countries and the Northern Africa and Western Asia region

Israel's scores by GII area



High-income countries

Israel has high scores in 6 areas - **Human Capital and Research, Infrastructure, Market Sophistication, Business Sophistication, Knowledge and Technology Outputs** and **Creative Outputs**, in which it scores above the average of the high-income group.

Top scores in *Research and Development (R&D), Information and Communication Technologies (ICTs), Investment, Innovation linkages, Knowledge diffusion,* and *Intangible assets* are behind these high rankings.

Northern Africa and Western Asia region

Compared to other countries in the Northern Africa and Western Asia region, Israel performs above average in all GII areas.

Israel's innovation profile

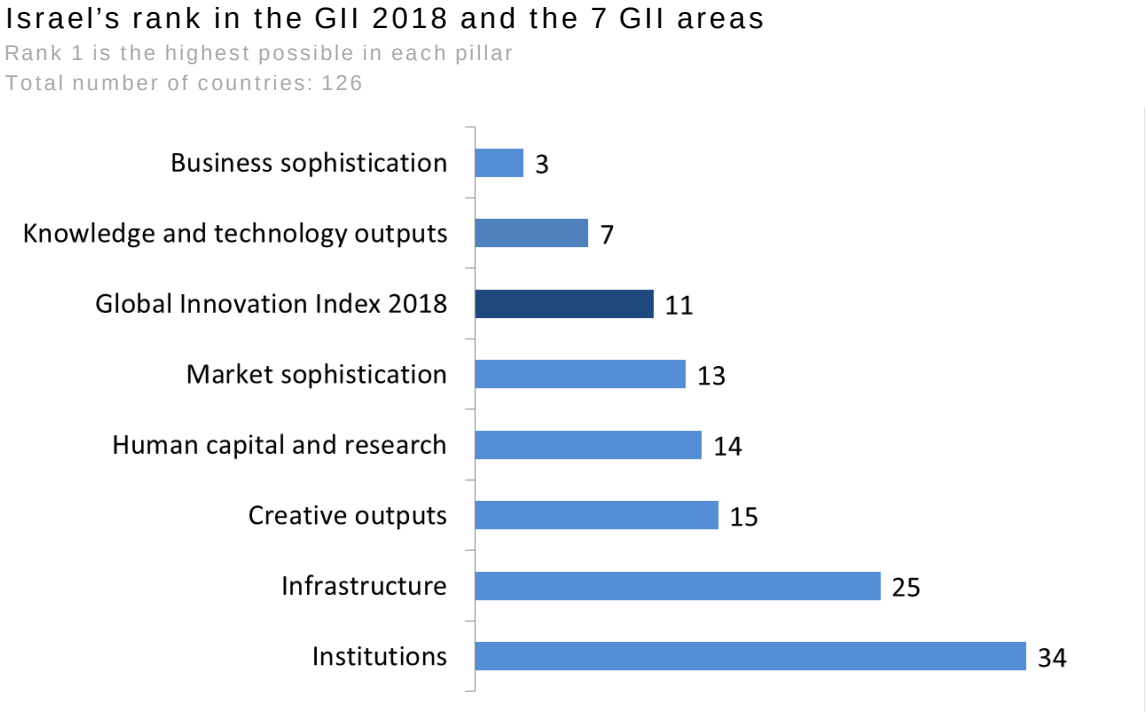
Strengths

- Israel ranks 3rd in the world in **Business Sophistication**, a strength for Israel.
- In **Business Sophistication**, it exhibits strength in the area *Innovation linkages* in which it ranks number 1 globally. It also has strengths in several indicators: *R&D performed by business* (1st), *Females employed with advanced degrees* (4th), *University/industry research collaboration* (3rd), *R&D financed by abroad* (2nd), and *Research talent in business enterprise* (1st).
- In **Human Capital and Research** (14th), Israel has strengths in the area *Research and development (R&D*, 3rd) and in indicators *Researchers* and *R&D expenditures* – both ranking 1st globally.
- In **Market Sophistication** (13th), Israel also has strength at the variable level in *Venture capital deals*, ranking 1st globally.
- In **Innovation Outputs**, Israel shows strengths in *ISO 9001 quality certificates* (4th), *ICT services exports* (1st), and *Wikipedia edits* (1st).

Weaknesses

- In **Institutions** (34th), Israel has relative weaknesses in *Political stability & safety* (102nd) and *Cost of redundancy dismissal* (107th).
- In **Human Capital and Research** (14th), indicators *Government funding per pupil* (60th), *PISA results* (38th), and *Tertiary inbound mobility* (64th) are relative weaknesses.
- In **Infrastructure** (25th), the indicator *Gross capital formation* (88th) is identified as a weakness.
- In **Business Sophistication** (3rd), Israel performs relatively weakly in indicators *Firms offering formal training* (75th) and *R&D financed by business* (52nd).
- In **innovation outputs**, Israel demonstrates relative weaknesses only in **Creative Outputs** (15), and especially in indicators *Trademarks by origin* (100th) and *Printing & other media* (56th).

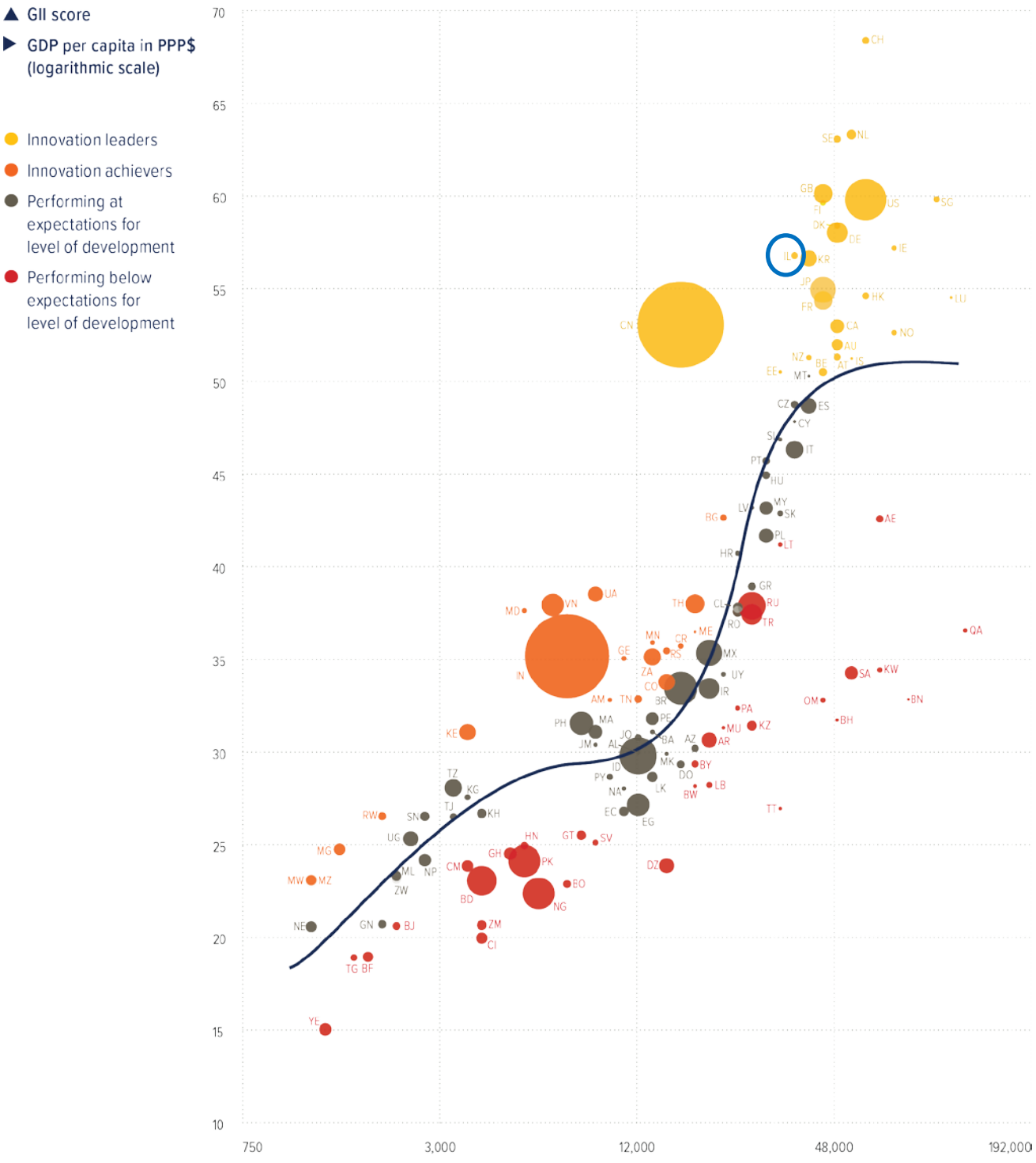
The following figure presents a summary of Israel's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.



Expected vs. Observed Innovation Performance

The GII bubble chart shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The depicted trendline gives an indication of the expected innovation performance at different levels of income. Countries located above the trendline are performing better that what would be expected based on their income level. Countries below the line are Innovation Under-performers relative to GDP.

Relative to GDP, Israel performs well above its expected level of development.



Missing and Outdated Data

More and better data improves 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 Israel that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
2.2.2	Graduates in science & engineering, %	n/a	2016	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2016	Microfinance Information Exchange, Mix Market
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2016	WIPO, Intellectual Property Statistics

Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.1.5	Pupil-teacher ratio, secondary	2009	2016	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2014	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2012	2016	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2013	2016	ILO, ILOSTAT
5.3.5	Research talent, % in business enterprise	2012	2016	UNESCO Institute for Statistics
6.2.5	High- & medium-high-tech manufactures, %	2014	2015	UNIDO, Industrial Statistics
7.2.4	Printing & other media, % manufacturing	2014	2015	UNIDO, Industrial Statistics

ISRAEL

GII 2018 rank **11**

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2017 rank
11	19	High	NAWA	14	8.3	315.6	36,340.1	17

		Score/Value	Rank	
	Institutions	**74.3**	**34**	◇
1.1	Political environment	67.7	40	◇
1.1.1	Political stability & safety*	45.5	102	○ ◇
1.1.2	Government effectiveness*	78.7	21	
1.2	Regulatory environment	72.6	43	◇
1.2.1	Regulatory quality*	77.7	22	
1.2.2	Rule of law*	71.9	30	◇
1.2.3	Cost of redundancy dismissal, salary weeks	27.4	107	○ ◇
1.3	Business environment	82.5	27	
1.3.1	Ease of starting a business*	92.3	33	
1.3.2	Ease of resolving insolvency*	72.7	27	
	Human capital & research	**55.3**	**14**	
2.1	Education	53.2	46	
2.1.1	Expenditure on education, % GDP	5.7	28	
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.9	60	○ ◇
2.1.3	School life expectancy, years	15.9	33	
2.1.4	PISA scales in reading, maths & science	471.7	38	○ ◇
2.1.5	Pupil-teacher ratio, secondary[d]	9.8	26	
2.2	Tertiary education	33.1	61	
2.2.1	Tertiary enrolment, % gross	64.2	34	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %[d]	2.8	64	○ ◇
2.3	Research & development (R&D)	79.6	3	● ◆
2.3.1	Researchers, FTE/mn pop.[d]	8,250.5	1	● ◆
2.3.2	Gross expenditure on R&D, % GDP	4.3	1	● ◆
2.3.3	Global R&D companies, top 3, mn US$	69.8	19	
2.3.4	QS university ranking, average score top 3*	48.6	26	
	Infrastructure	**58.6**	**25**	◇
3.1	Information & communication technologies (ICTs)	81.1	20	
3.1.1	ICT access*	81.7	18	
3.1.2	ICT use*	73.4	24	
3.1.3	Government's online service*	86.2	18	
3.1.4	E-participation*	83.1	17	
3.2	General infrastructure	44.7	44	◇
3.2.1	Electricity output, kWh/cap	7,793.6	22	
3.2.2	Logistics performance*	73.9	27	
3.2.3	Gross capital formation, % GDP	20.1	88	○
3.3	Ecological sustainability	50.0	25	
3.3.1	GDP/unit of energy use	12.0	28	
3.3.2	Environmental performance*	75.0	19	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	3.1	31	
	Market sophistication	**61.1**	**13**	
4.1	Credit	46.0	36	
4.1.1	Ease of getting credit*	65.0	49	
4.1.2	Domestic credit to private sector, % GDP	65.6	49	◇
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	69.6	6	◆
4.2.1	Ease of protecting minority investors*	73.3	16	
4.2.2	Market capitalization, % GDP	71.3	22	
4.2.3	Venture capital deals/bn PPP$ GDP	0.3	1	● ◆
4.3	Trade, competition, & market scale	67.8	39	
4.3.1	Applied tariff rate, weighted mean, %	2.3	53	
4.3.2	Intensity of local competition†	72.0	47	
4.3.3	Domestic market scale, bn PPP$	315.6	50	

		Score/Value	Rank	
	Business sophistication	**64.5**	**3**	● ◆
5.1	Knowledge workers	62.7	19	
5.1.1	Knowledge-intensive employment, %	48.8	7	
5.1.2	Firms offering formal training, % firms	18.6	75	○ ◇
5.1.3	GERD performed by business, % GDP	3.6	1	● ◆
5.1.4	GERD financed by business, %	34.3	52	○ ◇
5.1.5	Females employed w/advanced degrees, %[d]	28.4	4	● ◆
5.2	Innovation linkages	77.9	1	● ◆
5.2.1	University/industry research collaboration†	78.1	3	● ◆
5.2.2	State of cluster development†	57.0	31	
5.2.3	GERD financed by abroad, %	51.6	2	● ◆
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	0.2	5	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	6.1	6	◆
5.3	Knowledge absorption	52.9	10	
5.3.1	Intellectual property payments, % total trade	0.6	54	
5.3.2	High-tech net imports, % total trade	11.4	27	
5.3.3	ICT services imports, % total trade	2.6	15	
5.3.4	FDI net inflows, % GDP	3.2	50	
5.3.5	Research talent, % in business enterprise[d]	83.7	1	● ◆
	Knowledge & technology outputs	**54.8**	**7**	
6.1	Knowledge creation	56.8	10	
6.1.1	Patents by origin/bn PPP$ GDP	4.3	28	
6.1.2	PCT patents by origin/bn PPP$ GDP	5.8	7	◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	26.9	13	
6.1.5	Citable documents H index	46.6	16	
6.2	Knowledge impact	50.6	15	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.2	52	
6.2.2	New businesses/th pop. 15–64	3.4	36	
6.2.3	Computer software spending, % GDP	0.3	50	◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	33.6	4	● ◆
6.2.5	High- & medium-high-tech manufactures, %[d]	0.4	23	
6.3	Knowledge diffusion	56.9	6	
6.3.1	Intellectual property receipts, % total trade	1.0	19	
6.3.2	High-tech net exports, % total trade	13.5	13	
6.3.3	ICT services exports, % total trade	13.2	1	● ◆
6.3.4	FDI net outflows, % GDP	3.1	22	◇
	Creative outputs	**46.9**	**15**	
7.1	Intangible assets	49.0	43	◇
7.1.1	Trademarks by origin/bn PPP$ GDP	11.5	100	○ ◇
7.1.2	Industrial designs by origin/bn PPP$ GDP	3.9	34	
7.1.3	ICTs & business model creation†	81.3	6	
7.1.4	ICTs & organizational model creation†	75.8	12	
7.2	Creative goods & services	40.9	15	
7.2.1	Cultural & creative services exports, % total trade	2.1	4	◆
7.2.2	National feature films/mn pop. 15–69	6.1	33	
7.2.3	Entertainment & Media market/th pop. 15–69	35.5	21	◇
7.2.4	Printing & other media, % manufacturing[d]	1.1	56	○
7.2.5	Creative goods exports, % total trade	2.1	27	
7.3	Online creativity	48.7	11	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	22.2	26	
7.3.2	Country-code TLDs/th pop. 15–69	13.1	35	◇
7.3.3	Wikipedia edits/mn pop. 15–69	148.4	1	● ◆
7.3.4	Mobile app creation/bn PPP$ GDP	59.4	4	◆

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. [d] 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.