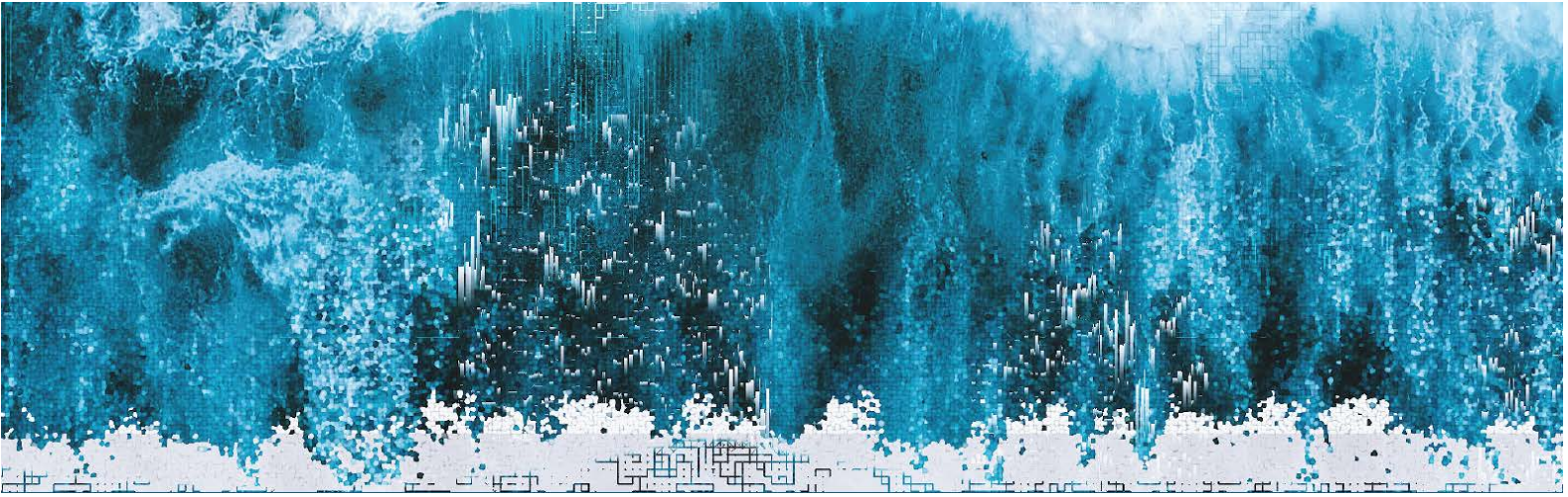


GLOBAL INNOVATION INDEX 2018

Canada

18th Canada is ranked 18th in the GII 2018, the same position as in 2017.

The GII indicators are grouped into innovation inputs and outputs. The table below shows Canada's rankings over time[1].

Canada's ranking over time

	GII	Input	Output	Efficiency
2018	18	10	26	61
2017	18	10	23	59
2016	15	10	23	57

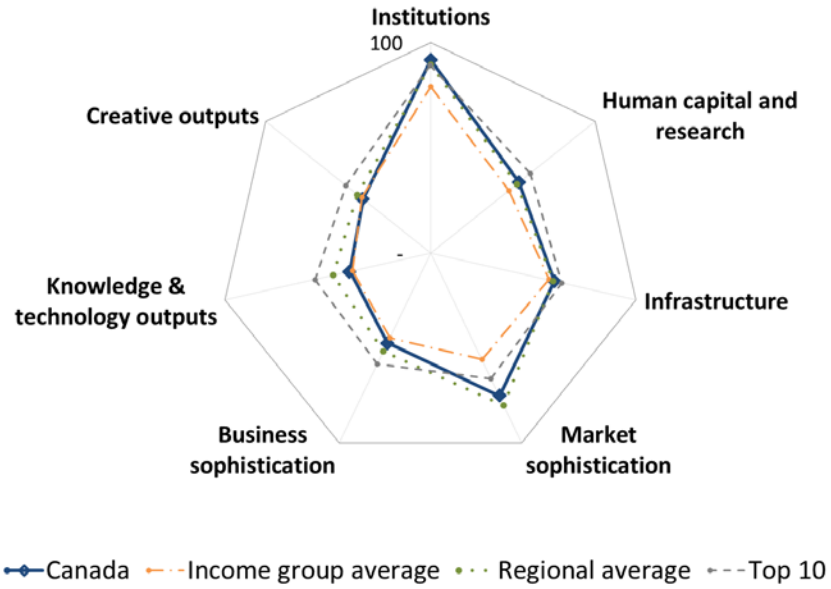
- Canada performs better in innovation inputs than in outputs.
- In innovation inputs, it exhibits a stable performance, ranking number 10 since 2016.
- In outputs, it ranks 26th, down positions from 2016 and 2017.
- Canada's efficiency in translating its innovation inputs into outputs is lower than other countries at a comparable income level. Indeed, its Innovation Efficiency Ratio is ranked 61st this year and exhibits a downward trend, deteriorating from the 59th position in 2017 and the 57th position in 2016. The ratio is negatively influenced by a much higher ranking in innovation inputs (10th) than in outputs (26th).

17th Canada is ranked 17th among the 47 high-income countries in the GII 2018.

[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 Canada to other high-income countries and the Northern America region

Canada's scores by area



High-income countries

Canada has high scores in 6 of the 7 GII areas – **Institutions, Human Capital & Research, Infrastructure, Market Sophistication, Business Sophistication, and Knowledge & Technology Outputs**, in which it scores above the average of the high-income group.

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

Northern America region

Compared to the U.S., the only other country in the Northern America region, Canada performs better in 3 areas: Institutions, Human Capital and Research, and Infrastructure.

Canada's innovation profile

Strengths

- One of Canada's major comparative strengths is in **Institutions**, where it ranks 5th in the world. It also exhibits strengths in all three of its components: *Political environment* (5th), *Regulatory environment* (8th), and *Business environment* (5th). At the indicator level, *Political stability and safety* (7th), *Rule of law* (8th), and *Ease of starting a business* (2nd) are all signaled as strengths.
- Another major strength for the country is in **Market Sophistication**, where it is number 3. Here as well, it has strong ranking in all its three elements, namely *Credit* (8th), *Investment* (1st), and *Trade, competition & market scale* (7th). At the variable level, *Ease of protecting minority investors* (8th) and *Venture capital deals* (1st) are identified as strengths.
- In **Human Capital & Research** (18th), Canada has strength in the indicator that captures the (7th).
- In **Infrastructure** (20th), the area *General infrastructure* (8th), as well as indicators *Government's online service* (4th) and *Electricity output* (5th), are marked as comparative strengths for Canada.
- Moving on to innovation output indicators, in **Knowledge and Technology Outputs** (22nd), Canada has strengths in indicators *Quality of scientific publications* (5th) and *Computer software spending* (6th).

- In **Creative Outputs** (30th), it exhibits strengths only in indicator *Generic top-level domains (TLDs)* (7th).

Weaknesses

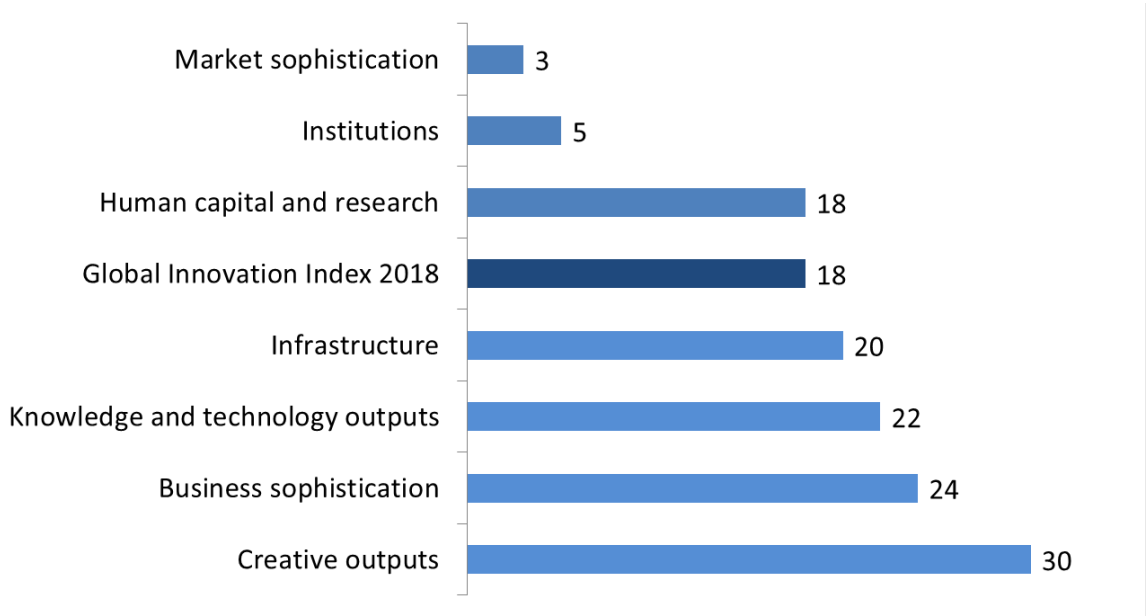
- In **Human Capital and Research** (18th), the area E*ducation* (69th) is a relative weakness for Canada, as well as the indicator *Government funding per pupil* (57th).
- In **Infrastructure** (20th), the area *Ecological sustainability* (73rd) as well as two of its indicators – *GDP per unit of energy use* (100th) and *ISO 14001 environmental certificates* (75th) – are identified as weaknesses.
- In **Business Sophistication** (24th), Canada ranks relatively weakly in *ICT services imports* (63rd).
- In **Knowledge and Technology Outputs** (22nd), Canada demonstrates relative weaknesses in four indicators: *Productivity growth* (68th), *New businesses* (104th), *ISO 9001 quality certificates* (70th), and *ICT services exports* (70th).
- In **Creative Outputs** (30th), the area *Creative goods & services* (66th), together with indicators *Industrial designs by origin* (82nd) and *Printing & other media* (88th), are signaled as relative weaknesses.

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

Canada's rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

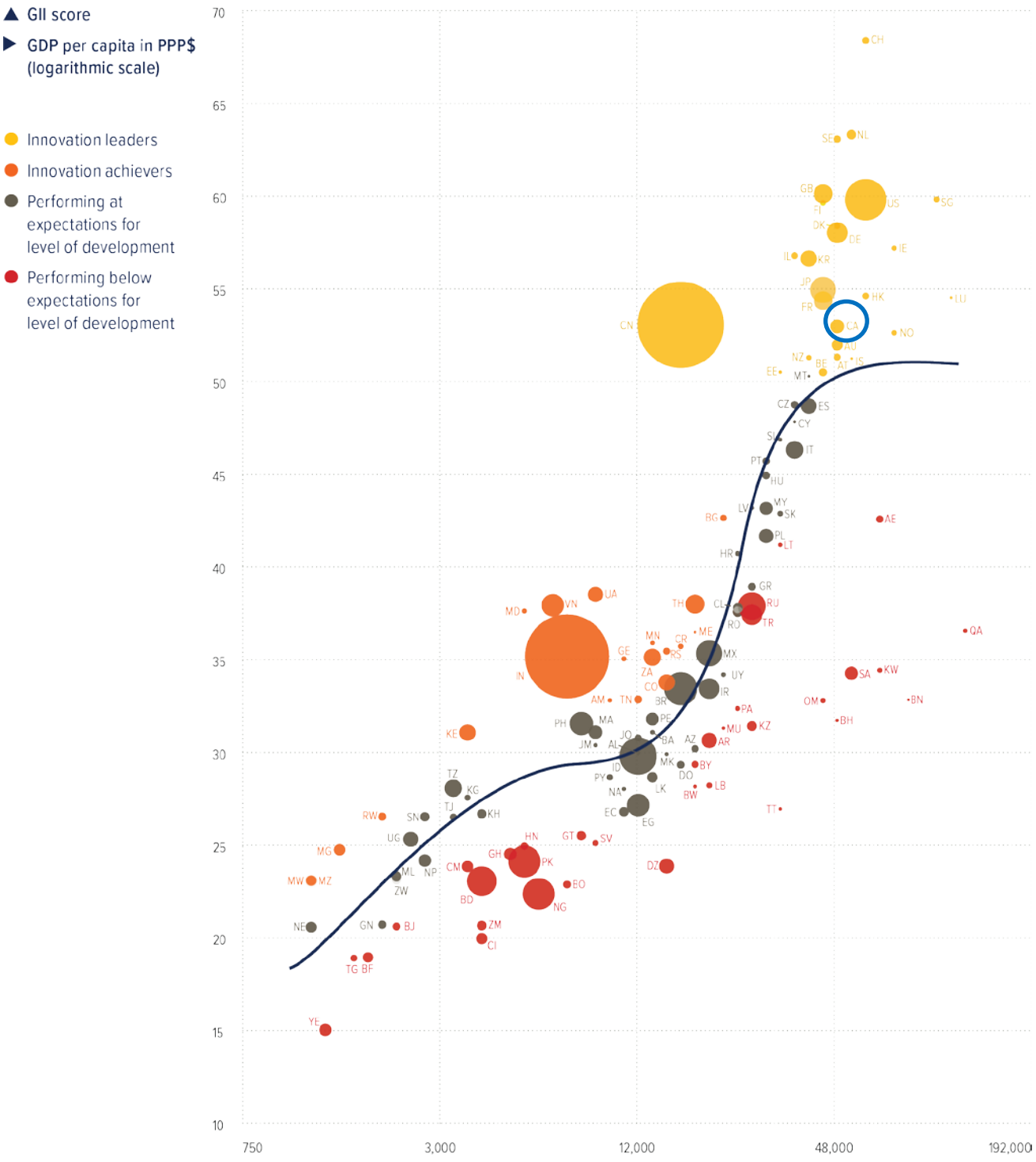
Total number of countries: 126



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, Canada performs above its expected level of development.



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 Canada that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
2.1.3	School life expectancy, years	n/a	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	n/a	2016	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	n/a	2016	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	n/a	2016	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	n/a	2016	UNESCO Institute for Statistics
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
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
2.1.1	Expenditure on education, % GDP	2011	2014	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2011	2014	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2016	UNESCO Institute for Statistics
4.1.2	Domestic credit to private sector, % GDP	2008	2016	IMF, World Economic Outlook
5.1.1	Knowledge-intensive employment, %	2014	2016	ILO, ILOSTAT
5.3.5	Research talent, % in business enterprise	2014	2016	UNESCO Institute for Statistics
6.2.5	High- & medium-high-tech manufactures, %	2012	2015	UNIDO, Industrial Statistics
7.2.1	Cultural & creative services exports, % total trade	2015	2016	WTO, Trade in Commercial Services
7.2.4	Printing & other media, % manufacturing	2012	2015	UNIDO, Industrial Statistics

CANADA

GII 2018 rank **18**

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2017 rank
26	10	High	NAC	61	36.6	1,763.8	48,265.2	18

		Score/Value	Rank	
	Institutions	**91.7**	**5**	●
1.1	Political environment	91.0	5	●
1.1.1	Political stability & safety*	93.4	7	●
1.1.2	Government effectiveness*	89.8	10	
1.2	Regulatory environment	94.2	8	●
1.2.1	Regulatory quality*	88.7	12	
1.2.2	Rule of law*	94.3	8	●
1.2.3	Cost of redundancy dismissal, salary weeks	10.0	30	
1.3	Business environment	89.8	5	●
1.3.1	Ease of starting a business*	98.2	2	● ◆
1.3.2	Ease of resolving insolvency*	81.5	10	
	Human capital & research	**53.7**	**18**	
2.1	Education	45.8	69	○ ◇
2.1.1	Expenditure on education, % GDP	5.3	38	
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.3	57	○ ◇
2.1.3	School life expectancy, years	n/a	n/a	
2.1.4	PISA scales in reading, maths & science	523.3	5	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	Tertiary education	n/a	n/a	
2.2.1	Tertiary enrolment, % gross	n/a	n/a	
2.2.2	Graduates in science & engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	n/a	n/a	
2.3	Research & development (R&D)	61.6	15	
2.3.1	Researchers, FTE/mn pop.	4,552.5	16	
2.3.2	Gross expenditure on R&D, % GDP	1.6	22	
2.3.3	Global R&D companies, top 3, mn US$	71.6	17	
2.3.4	QS university ranking, average score top 3*	81.9	7	●
	Infrastructure	**60.2**	**20**	
3.1	Information & communication technologies (ICTs)	84.8	11	
3.1.1	ICT access*	79.3	27	
3.1.2	ICT use*	72.7	25	
3.1.3	Government's online service*	95.7	4	●
3.1.4	E-participation*	91.5	8	
3.2	General infrastructure	60.4	8	●
3.2.1	Electricity output, kWh/cap	18,041.4	5	● ◆
3.2.2	Logistics performance*	86.4	14	
3.2.3	Gross capital formation, % GDP	23.3	56	
3.3	Ecological sustainability	35.3	73	○ ◇
3.3.1	GDP/unit of energy use	5.5	100	○ ◇
3.3.2	Environmental performance*	72.2	24	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.8	75	○ ◇
	Market sophistication	**75.2**	**3**	● ◆
4.1	Credit	69.3	8	●
4.1.1	Ease of getting credit*	85.0	11	◆
4.1.2	Domestic credit to private sector, % GDP	124.4	17	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	77.1	1	● ◆
4.2.1	Ease of protecting minority investors*	78.3	8	● ◆
4.2.2	Market capitalization, % GDP	116.6	7	
4.2.3	Venture capital deals/bn PPP$ GDP	0.5	1	● ◆
4.3	Trade, competition, & market scale	79.3	7	●
4.3.1	Applied tariff rate, weighted mean, %	0.9	9	
4.3.2	Intensity of local competition†	74.2	31	
4.3.3	Domestic market scale, bn PPP$	1,763.8	17	

		Score/Value	Rank	
	Business sophistication	**47.6**	**24**	
5.1	Knowledge workers	55.5	28	◇
5.1.1	Knowledge-intensive employment, %	43.7	18	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.8	24	
5.1.4	GERD financed by business, %	40.6	39	◇
5.1.5	Females employed w/advanced degrees, %	17.5	31	◇
5.2	Innovation linkages	44.7	25	
5.2.1	University/industry research collaboration†	60.0	23	
5.2.2	State of cluster development†	60.4	23	
5.2.3	GERD financed by abroad, %	10.7	39	
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	0.2	9	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	2.2	19	
5.3	Knowledge absorption	42.5	23	
5.3.1	Intellectual property payments, % total trade	2.0	13	
5.3.2	High-tech net imports, % total trade	10.7	34	
5.3.3	ICT services imports, % total trade	1.1	63	○
5.3.4	FDI net inflows, % GDP	3.1	53	
5.3.5	Research talent, % in business enterprise	56.8	16	
	Knowledge & technology outputs	**39.5**	**22**	◇
6.1	Knowledge creation	42.2	17	
6.1.1	Patents by origin/bn PPP$ GDP	2.4	40	◇
6.1.2	PCT patents by origin/bn PPP$ GDP	1.4	27	◇
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	21.8	22	
6.1.5	Citable documents H index	78.8	5	● ◆
6.2	Knowledge impact	39.6	49	◇
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	68	○
6.2.2	New businesses/th pop. 15–64	0.1	104	○ ◇
6.2.3	Computer software spending, % GDP	0.7	6	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.0	70	○
6.2.5	High- & medium-high-tech manufactures, %	0.3	37	
6.3	Knowledge diffusion	36.7	23	
6.3.1	Intellectual property receipts, % total trade	0.9	21	
6.3.2	High-tech net exports, % total trade	5.4	32	
6.3.3	ICT services exports, % total trade	1.4	70	○
6.3.4	FDI net outflows, % GDP	4.4	13	
	Creative outputs	**41.1**	**30**	◇
7.1	Intangible assets	50.2	36	◇
7.1.1	Trademarks by origin/bn PPP$ GDP	48.5	53	
7.1.2	Industrial designs by origin/bn PPP$ GDP	0.5	82	○
7.1.3	ICTs & business model creation†	76.4	18	
7.1.4	ICTs & organizational model creation†	75.4	13	
7.2	Creative goods & services	21.2	66	○ ◇
7.2.1	Cultural & creative services exports, % total trade	0.6	23	
7.2.2	National feature films/mn pop. 15–69	3.9	50	
7.2.3	Entertainment & Media market/th pop. 15–69	55.6	14	
7.2.4	Printing & other media, % manufacturing	0.4	88	○ ◇
7.2.5	Creative goods exports, % total trade	0.6	55	
7.3	Online creativity	42.8	17	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	75.9	7	● ◆
7.3.2	Country-code TLDs/th pop. 15–69	28.9	20	
7.3.3	Wikipedia edits/mn pop. 15–69	49.0	25	
7.3.4	Mobile app creation/bn PPP$ GDP	33.2	26	

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.