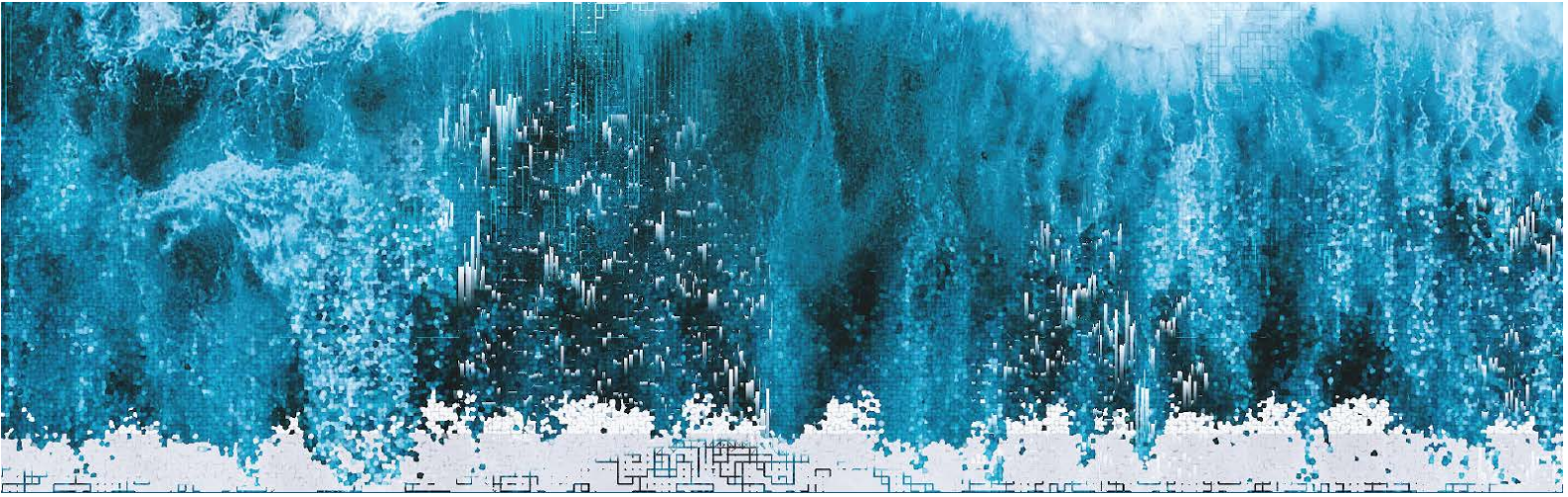


GLOBAL INNOVATION INDEX 2018

France

16th France is ranked 16th in the GII 2018, moving down 1 position from the previous year.

France moved down one position this year, ranking 16th in the GII 2018. Despite this downward movement, France shows improvements in its rankings in various areas, related for example to institutions, human capital and research, infrastructure, and knowledge- and technology-related outputs.

France holds top ranks in variables such as environmental performance, venture capital deals, and quality of scientific publications (for a complete list, see pages 3 and 4 of this brief). Indeed, in the aggregate measure that accounts for the quality aspect of innovation inputs and outputs, France enters the top 10 for the first time at 9th place this year. Its scores for patent families are above those of the United Kingdom and for the quality of its scientific publications are above those of Switzerland. France also benefits from a high score for the quality of its universities boosted by those for École Normale Supérieure, Paris (ENS); École Polytechnique; and the Pierre and Marie Curie University (UPMC).

Based on an analysis of international patent filings, France also boasts one of the top 10 most innovative clusters in the world. The Paris area in fact ranks 9th in the ranking of world most innovative clusters.

For all the factors mentioned above, France 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 France's ranking over time in the overall GII, the Innovation Input and Output Sub-Indices – which summarize France'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]

France's ranking over time

	GII	Input	Output	Efficiency
2018	16	16	16	32
2017	15	15	18	35
2016	18	15	19	44

- Over the last three years, France improved its ranking in innovation outputs, moving up from the 19th spot in 2016 to the 16th in 2018.
- It ranks 16th in innovation inputs, dropping 1 position from the 15th rank it held over the past two years.
- France is becoming increasingly efficient in translating its innovation inputs into outputs. As the Innovation Efficiency Ratio shows, in this ratio France improved 12 positions since 2016, ranking 32nd this year.

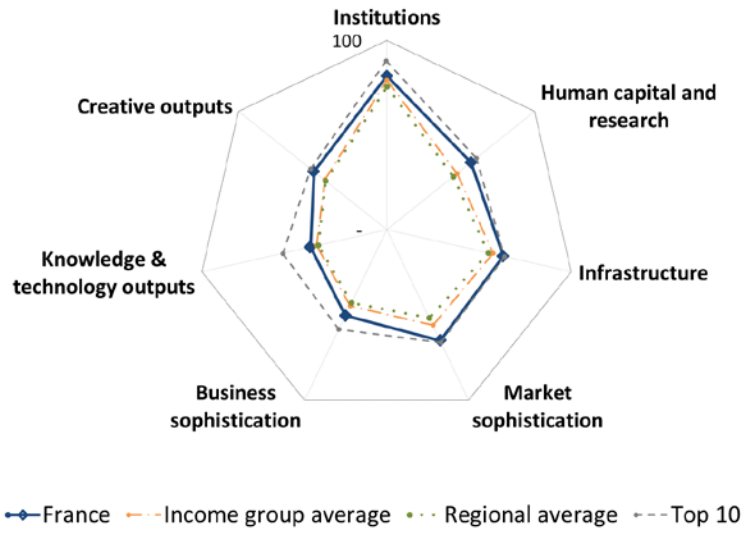
16th France is ranked 16th among the 47 high-income countries in the GII 2018.

10th France is ranked 10th among the 39 countries in Europe 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 France to other high-income countries and the Europe region

France's scores by area



High-income countries

France has high scores in all 7 GII areas – **Institutions, 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 areas such as *Regulatory environment, Research and Development (R&D), Information and Communication Technologies (ICTs), Trade, competition and market scale, Knowledge workers, Knowledge diffusion,* and *Intangible assets,* are behind these high rankings.

Europe region

Compared to other countries in the Europe region, France performs above average in all 7 GII areas.

France's innovation profile

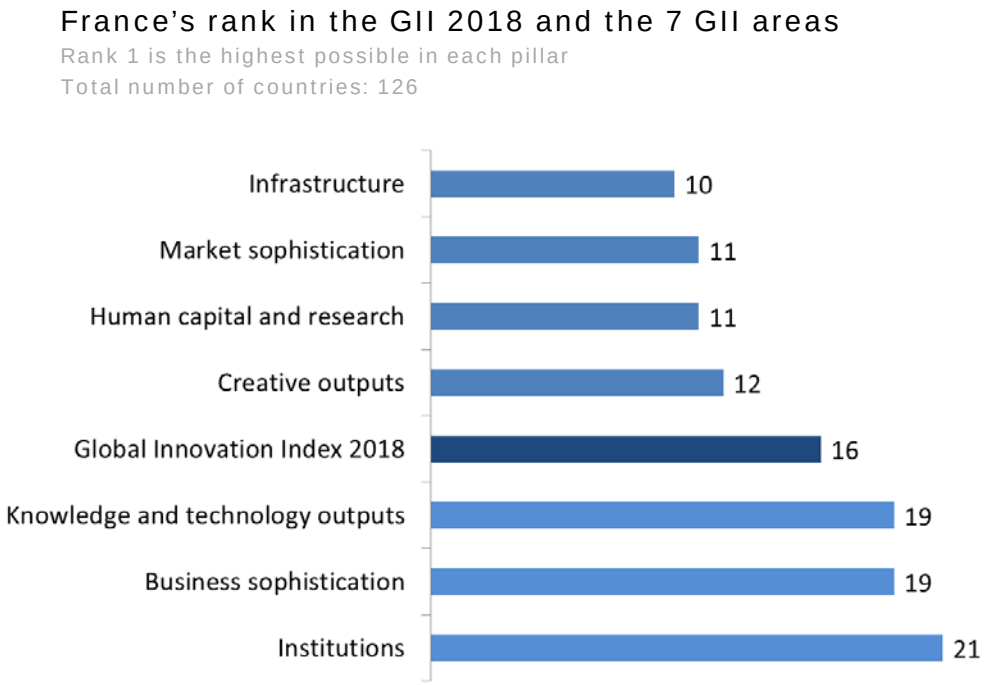
Strengths

- Three input areas are marked as comparative strengths for France: **Human Capital and Research** (11th), **Infrastructure** (10th), and **Market Sophistication** (11th).
- In **Human Capital and Research** (11th), an additional strength at the variable level is in *Global R&D companies expenditures* (8th).
- In **Infrastructure** (10th), France shows strong rankings in the area *Information and communication technologies (ICTs)* (7th) and in indicators *ICT access* (11th), *Government's online service* (5th), and *Environmental performance* (2nd).
- Strengths are found in two of the components of **Market Sophistication** (11th) – *Investment* (9th) and *Trade, competition, and market scale (5th)* – and in indicators *Venture capital deals* (1st), *Intensity of local competition* (11th), and *Domestic market scale* (10th).
- In **Knowledge and Technology Outputs** (19th), France has strengths in indicators *Quality of scientific publications* (4th), *Computer software spending* (10th), *Intellectual property receipts* (10th), and *High-tech exports* (10th).
- In **Creative Outputs** (12th), it shows strengths in the area *Intangible assets* (7th).

Weaknesses

- In **Institutions** (21st), France has relative weakness in indicator *Political stability and safety* (69th).
- In **Human Capital and Research** (11th), indicator *Pupil-teacher ratio* (53rd) is identified as a weakness.
- In **Infrastructure** (10th), indicator *Gross capital formation* (58th) is a relative weakness.
- In **Market sophistication** (11th), France demonstrates relative weakness in indicator *Ease of getting credit* (79th).
- In **Business sophistication** (19th), it exhibits weakness in indicators *R&D financed by abroad* (49th) and *FDI inflows* (101st).
- In **Knowledge and Technology Outputs** (19th), weak ranks are found in indicators *Utility models by origin* (59th), *Productivity growth* (64th), and *New businesses* (52nd).
- In **Creative Outputs** (12th), only one indicator – *Printing & other media* (54th) – is signaled as a relative weakness.

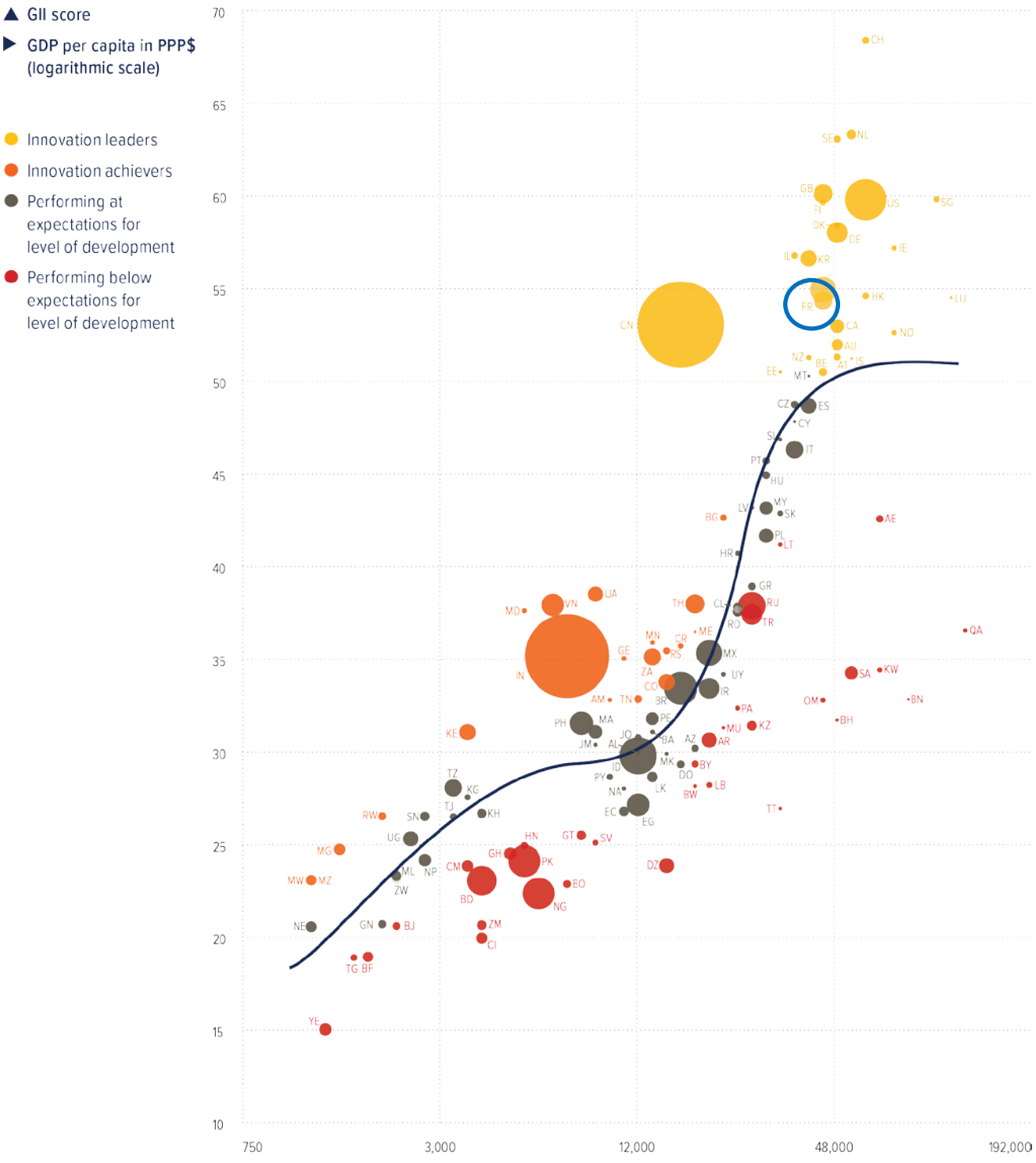
The following figure presents a summary of France's ranks in the 7 GII areas, as well as the overall rank in the GII 2018.



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, France performs 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 France 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	2013	2016	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2016	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2015	2016	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2015	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2015	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	2015	2016	UNESCO Institute for Statistics
7.2.1	Cultural & creative services exports, % total trade	2015	2016	WTO, Trade in Commercial Services

FRANCE

GII 2018 rank **16**

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2017 rank
16	16	High	EUR	32	65.0	2,826.5	43,760.8	15

		Score/Value	Rank	
	Institutions	**81.2**	**21**	
1.1	Political environment	74.4	30	
1.1.1	Political stability & safety*	63.2	69	○ ◇
1.1.2	Government effectiveness*	80.1	20	
1.2	Regulatory environment	85.6	20	
1.2.1	Regulatory quality*	71.5	28	◇
1.2.2	Rule of law*	82.5	19	
1.2.3	Cost of redundancy dismissal, salary weeks	11.8	39	
1.3	Business environment	83.6	22	
1.3.1	Ease of starting a business*	93.3	22	
1.3.2	Ease of resolving insolvency*	73.9	26	
	Human capital & research	**56.8**	**11**	●
2.1	Education	57.2	29	
2.1.1	Expenditure on education, % GDP	5.5	32	
2.1.2	Government funding/pupil, secondary, % GDP/cap	26.9	19	
2.1.3	School life expectancy, years[d]	16.4	23	
2.1.4	PISA scales in reading, maths & science	495.7	24	
2.1.5	Pupil-teacher ratio, secondary[d]	12.9	53	○
2.2	Tertiary education	47.9	21	
2.2.1	Tertiary enrolment, % gross[d]	65.3	31	
2.2.2	Graduates in science & engineering, %[d]	25.3	30	
2.2.3	Tertiary inbound mobility, %[d]	9.9	20	
2.3	Research & development (R&D)	65.4	13	
2.3.1	Researchers, FTE/mn pop.[d]	4,307.2	21	
2.3.2	Gross expenditure on R&D, % GDP	2.2	12	
2.3.3	Global R&D companies, top 3, mn US$	86.3	8	●
2.3.4	QS university ranking, average score top 3*	70.5	12	
	Infrastructure	**62.9**	**10**	●
3.1	Information & communication technologies (ICTs)	87.4	7	●
3.1.1	ICT access*	86.4	11	●
3.1.2	ICT use*	79.3	16	
3.1.3	Government's online service*	94.2	5	●
3.1.4	E-participation*	89.8	12	
3.2	General infrastructure	51.4	26	
3.2.1	Electricity output, kWh/cap	8,243.6	19	
3.2.2	Logistics performance*	85.0	16	
3.2.3	Gross capital formation, % GDP	23.3	58	○
3.3	Ecological sustainability	49.9	27	
3.3.1	GDP/unit of energy use	10.3	46	
3.3.2	Environmental performance*	84.0	2	● ◆
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.4	43	
	Market sophistication	**65.0**	**11**	●
4.1	Credit	45.7	37	
4.1.1	Ease of getting credit*	50.0	79	○
4.1.2	Domestic credit to private sector, % GDP	97.6	28	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	Investment	67.4	9	●
4.2.1	Ease of protecting minority investors*	66.7	32	
4.2.2	Market capitalization, % GDP	82.2	19	
4.2.3	Venture capital deals/bn PPP$ GDP	0.3	1	● ◆
4.3	Trade, competition, & market scale	81.9	5	●
4.3.1	Applied tariff rate, weighted mean, %	1.6	19	
4.3.2	Intensity of local competition†	79.9	11	●
4.3.3	Domestic market scale, bn PPP$	2,826.5	10	●

		Score/Value	Rank	
	Business sophistication	**50.6**	**19**	
5.1	Knowledge workers	65.7	14	
5.1.1	Knowledge-intensive employment, %	45.2	13	
5.1.2	Firms offering formal training, % firms	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.4	14	
5.1.4	GERD financed by business, %	54.0	17	
5.1.5	Females employed w/advanced degrees, %	21.3	19	
5.2	Innovation linkages	38.9	39	
5.2.1	University/industry research collaboration†	53.7	34	◇
5.2.2	State of cluster development†	61.4	20	
5.2.3	GERD financed by abroad, %	7.6	49	○
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	0.0	39	◇
5.2.5	Patent families 2+ offices/bn PPP$ GDP	3.3	13	
5.3	Knowledge absorption	47.0	17	
5.3.1	Intellectual property payments, % total trade	1.8	15	
5.3.2	High-tech net imports, % total trade	11.5	25	
5.3.3	ICT services imports, % total trade	2.3	18	
5.3.4	FDI net inflows, % GDP	1.1	101	○
5.3.5	Research talent, % in business enterprise[d]	59.7	11	
	Knowledge & technology outputs	**41.6**	**19**	
6.1	Knowledge creation	36.5	24	
6.1.1	Patents by origin/bn PPP$ GDP	9.0	15	
6.1.2	PCT patents by origin/bn PPP$ GDP	2.8	14	
6.1.3	Utility models by origin/bn PPP$ GDP	0.1	59	○ ◇
6.1.4	Scientific & technical articles/bn PPP$ GDP	17.6	31	
6.1.5	Citable documents H index	79.1	4	● ◆
6.2	Knowledge impact	43.7	32	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.5	64	○
6.2.2	New businesses/th pop. 15–64	1.8	52	○
6.2.3	Computer software spending, % GDP	0.7	10	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	8.6	41	
6.2.5	High- & medium-high-tech manufactures, %	0.4	25	
6.3	Knowledge diffusion	44.5	14	
6.3.1	Intellectual property receipts, % total trade	2.1	10	●
6.3.2	High-tech net exports, % total trade	14.3	10	●
6.3.3	ICT services exports, % total trade	2.2	49	
6.3.4	FDI net outflows, % GDP	2.1	28	◇
	Creative outputs	**49.2**	**12**	
7.1	Intangible assets	62.2	7	●
7.1.1	Trademarks by origin/bn PPP$ GDP	103.6	11	◆
7.1.2	Industrial designs by origin/bn PPP$ GDP	7.4	17	
7.1.3	ICTs & business model creation†	78.3	13	
7.1.4	ICTs & organizational model creation†	71.0	19	
7.2	Creative goods & services	36.7	24	
7.2.1	Cultural & creative services exports, % total trade[d]	1.1	11	
7.2.2	National feature films/mn pop. 15–69	6.8	25	
7.2.3	Entertainment & Media market/th pop. 15–69	52.4	16	
7.2.4	Printing & other media, % manufacturing	1.1	54	○
7.2.5	Creative goods exports, % total trade	1.8	30	
7.3	Online creativity	35.9	24	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	40.8	18	
7.3.2	Country-code TLDs/th pop. 15–69	20.4	28	
7.3.3	Wikipedia edits/mn pop. 15–69	64.7	15	
7.3.4	Mobile app creation/bn PPP$ GDP	38.9	18	

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.