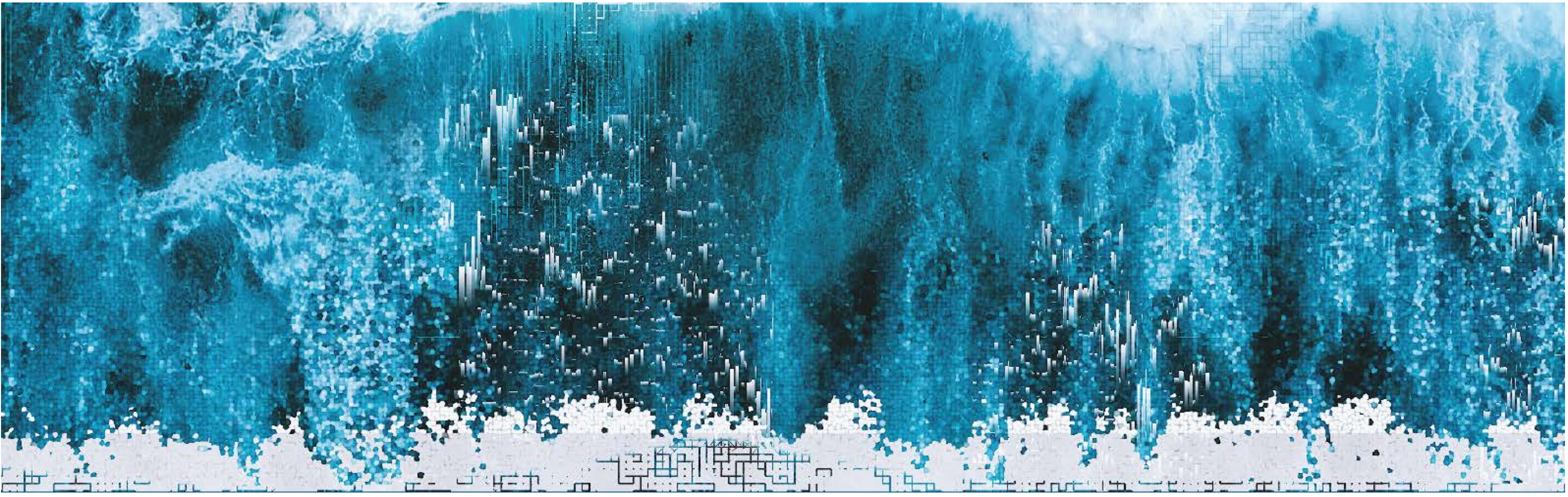


GLOBAL INNOVATION INDEX 2018

Kazakhstan

74th Kazakhstan is ranked 74th in the GII 2018, moving up 4 positions from last year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects Kazakhstan's ranking over time[1].

Kazakhstan's ranking over time

	GII	Input	Output	Efficiency
2018	74	55	91	111
2017	78	64	93	116
2016	75	65	90	108

- Kazakhstan ranks better in innovation inputs than outputs.
- Over the last three years, it has significantly improved in inputs, reaching the 55th position this year, up 9 positions from 2017.
- Innovation outputs also improve this year, gaining 2 positions and ranking 91st.
- The Innovation Efficiency Ratio also improves this year, moving to the 111th position, up from the 116th in 2017. Yet, relative to its overall GII position (74th), the Efficiency Ratio ranks rather low, indicating that the country can still improve its efficiency in translating innovation inputs into more outputs. Indeed, this low ranking is partly influenced by a much lower ranking in outputs (91st) compared to inputs (55th).

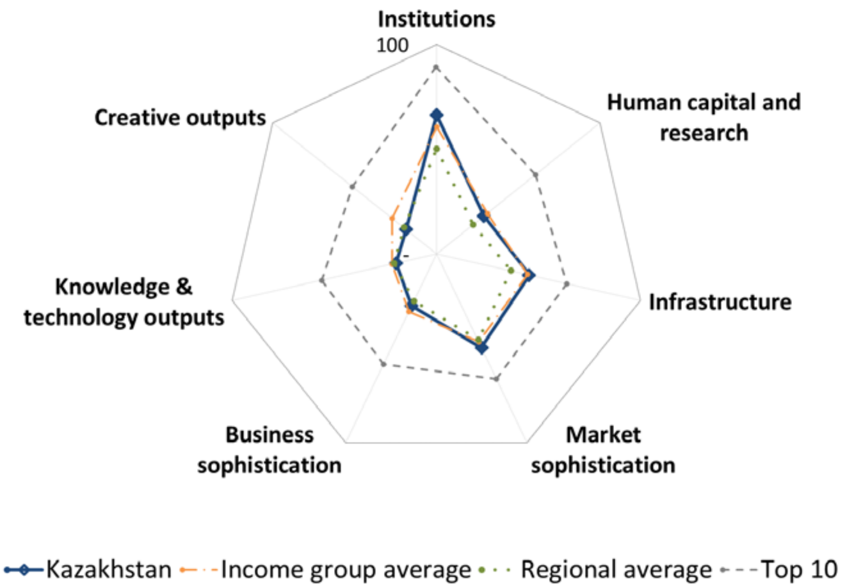
19th Kazakhstan is ranked 19th among the 34 upper-middle-income countries in the GII 2018.

3rd Kazakhstan is 3rd among the 9 countries in Central and Southern 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 Kazakhstan to other upper-middle-income countries and the Central and Southern Asia region

Kazakhstan's scores by area



Upper-middle-income countries

Kazakhstan has high scores in 3 of the 7 GII areas – **Institutions, Infrastructure** and **Market Sophistication**, in which it scores above the average of the upper-middle-income group.

Top scores in areas such as *Business environment, Information & Communication Technologies (ICTs),* and *Trade, competition & market scale* are behind these high rankings.

Central and Southern Asia region

Compared to other countries in the Central and Southern Asia region, Kazakhstan performs above-average in 5 out of the 7 GII areas: Institutions, Human Capital & Research, Infrastructure, Market Sophistication, and Business Sophistication.

Kazakhstan's innovation profile

Strengths

- On the **innovation input** side, Kazakhstan's GII strengths are scattered across all five input areas.
- In **Institutions** (52nd), Kazakhstan shows strong performance in the area *Business environment* (34th) and in the indicator *Cost of redundancy dismissal* (20th).
- In **Human Capital & Research** (71st), the indicator *Pupil-teacher ratio* ranks 1st globally and is marked as a strength for Kazakhstan.
- Kazakhstan also shows GII strengths in **Infrastructure** (61st) in two indicators: *Government's online service* (31st) and *Gross capital formation* (25th).
- In **Market Sophistication** (51st), Kazakhstan performs strongly in the area *Investment* (18th) and one of its indicators, *Ease of protecting minority investors*, in which the country is number one in the world.
- Two indicators – *Females employed with advanced degrees* (30th) and *FDI inflows* (22nd) – are highlighted as strengths for Kazakhstan in **Business Sophistication** (78th).

- On the **innovation output** side, all strengths for Kazakhstan are exhibited in **Knowledge & Technology Outputs** (79th), where three indicators – *Utility models by origin* (17th), *High-tech exports* (34th), and *FDI outflows* (35th) – present strong performance.

Weaknesses

- Most of the relative GII weaknesses for Kazakhstan are found among **innovation outputs**.

- Kazakhstan shows relatively weak performance in **Knowledge & Technology Outputs** (79th), where four indicators are weak: *Scientific & technical articles* (113th), *Computer software spending* (118th), *Intellectual property receipts* (96th), and *ICT services exports* (111th).

- In **Creative Outputs** (100th), three indicators – *Industrial designs by origin* (106th), *Cultural & creative services exports* (77th), and *Generic top-level domains (TLDs)* (113th) – are signaled as GII weaknesses for Kazakhstan.

- On the **innovation input** side, two out of four GII weaknesses for the country are found in **Business Sophistication** (78th) in the area *Innovation linkages* (116th) as well as in the indicator *State of cluster development* (111th).

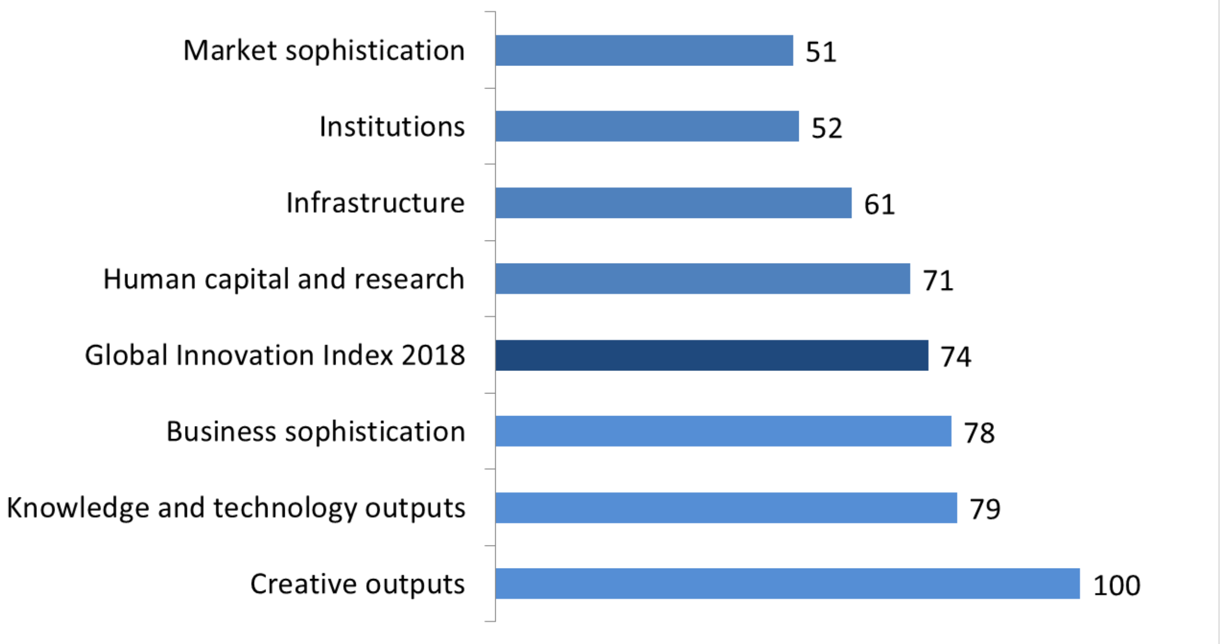
- Other GII weaknesses on the innovation input side lie in **Human Capital & Research** (71st) in the indicator *Global R&D companies expenditures* (40th) and in **Market Sophistication** (51st) in the indicator *Intensity of local competition* (106th).

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

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

Rank 1 is the highest possible in each pillar

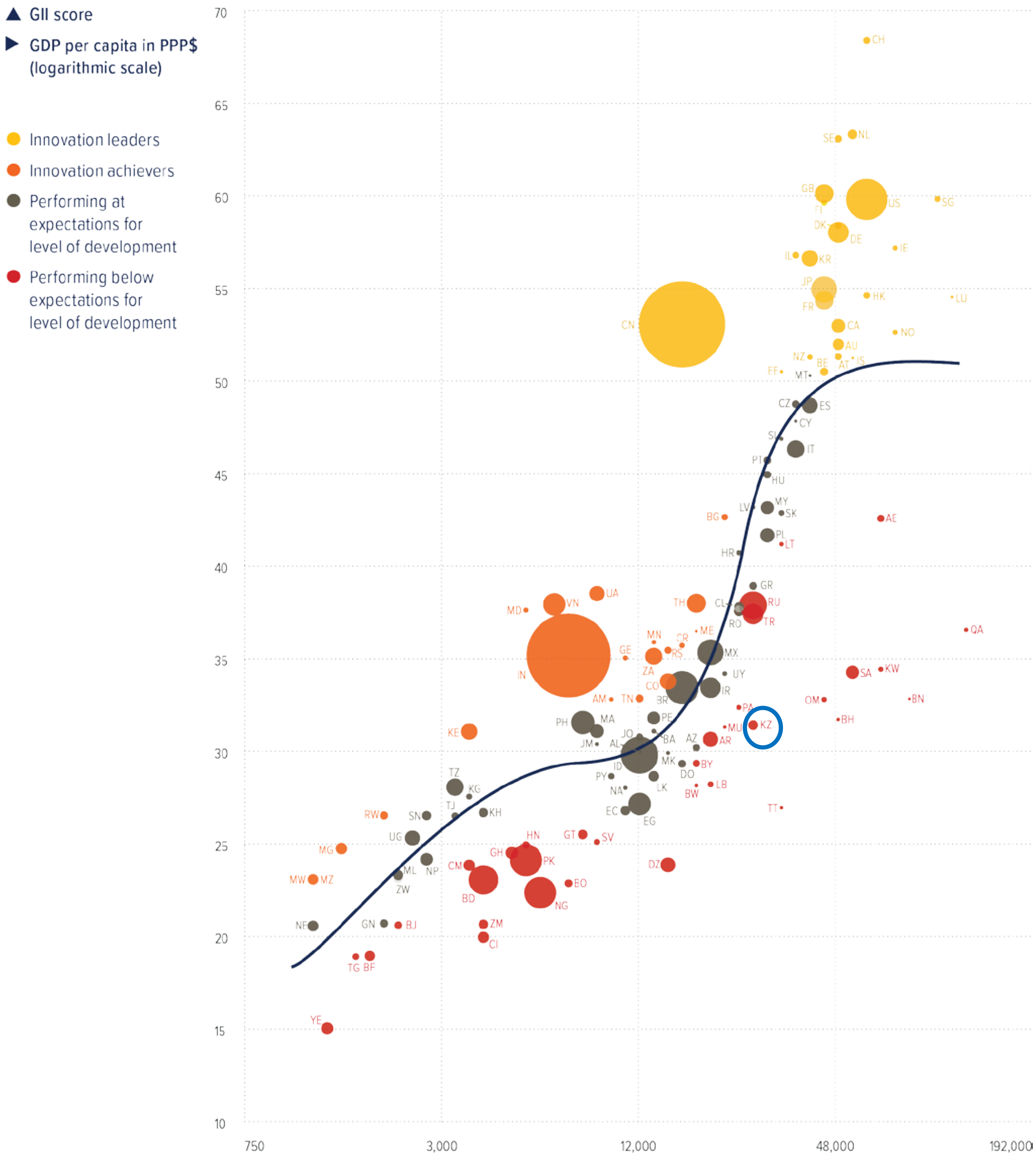
Total number of countries: 126



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, Kazakhstan performs below 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 Kazakhstan that is not available or that is outdated.

Missing Data

Code	Indicator	Country Year	Model Year	Source
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	2017	Thomson Reuters, Thomson One Banker Private Equity, SDC Platinum
5.3.5	Research talent, % in business enterprise	n/a	2016	UNESCO Institute for Statistics
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2016	PwC's Global Entertainment and Media Outlook, 2017–2021

Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.1.4	PISA scales in reading, maths & science	2012	2015	OECD PISA
5.1.1	Knowledge-intensive employment, %	2015	2016	ILO, ILOSTAT
5.1.5	Females employed w/advanced degrees, %	2013	2016	ILO, ILOSTAT
7.3.3	Wikipedia edits/mn pop. 15–69	2016	2017	Wikimedia Foundation

KAZAKHSTAN

GII 2018 rank
74

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2017 rank
91	55	Upper-middle	CSA	111	18.2	474.3	26,252.1	78

		Score/Value	Rank	
1	**Institutions**	**66.2**	**52**	
1.1	Political environment	51.0	65	
1.1.1	Political stability & safety*	65.7	64	
1.1.2	Government effectiveness*	43.7	74	
1.2	Regulatory environment	68.0	61	
1.2.1	Regulatory quality*	41.5	75	
1.2.2	Rule of law*	32.5	90	
1.2.3	Cost of redundancy dismissal, salary weeks	8.7	20	●
1.3	Business environment	79.7	34	● ◆
1.3.1	Ease of starting a business*	92.0	37	
1.3.2	Ease of resolving insolvency*	67.5	36	
2	**Human capital & research**	**29.1**	**71**	
2.1	Education	43.4	77	
2.1.1	Expenditure on education, % GDP	3.0	101	◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.2	49	
2.1.3	School life expectancy, years	15.1	46	
2.1.4	PISA scales in reading, maths & science ⓓ	416.4	53	
2.1.5	Pupil-teacher ratio, secondary	6.6	1	● ◆
2.2	Tertiary education	32.0	63	
2.2.1	Tertiary enrolment, % gross	49.6	53	
2.2.2	Graduates in science & engineering, %	23.2	39	
2.2.3	Tertiary inbound mobility, %	2.2	68	
2.3	Research & development (R&D)	11.8	55	
2.3.1	Researchers, FTE/mn pop.	687.6	56	
2.3.2	Gross expenditure on R&D, % GDP	0.1	96	
2.3.3	Global R&D companies, top 3, mn US$	0.0	40	○ ◇
2.3.4	QS university ranking, average score top 3*	35.9	36	
3	**Infrastructure**	**45.4**	**61**	
3.1	Information & communication technologies (ICTs)	67.1	43	
3.1.1	ICT access*	75.5	38	◆
3.1.2	ICT use*	56.9	52	
3.1.3	Government's online service*	76.8	31	● ◆
3.1.4	E-participation*	59.3	65	
3.2	General infrastructure	41.6	51	
3.2.1	Electricity output, kWh/cap	6,070.0	34	◆
3.2.2	Logistics performance*	31.9	77	
3.2.3	Gross capital formation, % GDP	28.1	25	●
3.3	Ecological sustainability	27.5	107	◇
3.3.1	GDP/unit of energy use	5.4	102	◇
3.3.2	Environmental performance*	54.6	84	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.3	100	
4	**Market sophistication**	**49.7**	**51**	
4.1	Credit	23.2	108	◇
4.1.1	Ease of getting credit*	55.0	70	
4.1.2	Domestic credit to private sector, % GDP	33.4	93	
4.1.3	Microfinance gross loans, % GDP	0.1	53	
4.2	Investment	59.5	18	● ◆
4.2.1	Ease of protecting minority investors*	85.0	1	● ◆
4.2.2	Market capitalization, % GDP	19.5	64	
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	n/a	
4.3	Trade, competition, & market scale	66.2	47	
4.3.1	Applied tariff rate, weighted mean, %	2.5	56	
4.3.2	Intensity of local competition†	59.0	106	○ ◇
4.3.3	Domestic market scale, bn PPP$	474.3	39	

		Score/Value	Rank	
5	**Business sophistication**	**27.5**	**78**	
5.1	Knowledge workers	40.3	53	
5.1.1	Knowledge-intensive employment, % ⓓ	33.3	39	◆
5.1.2	Firms offering formal training, % firms	28.3	53	
5.1.3	GERD performed by business, % GDP	0.1	69	
5.1.4	GERD financed by business, %	39.6	41	
5.1.5	Females employed w/advanced degrees, % ⓓ	17.5	30	●
5.2	Innovation linkages	16.9	116	○ ◇
5.2.1	University/industry research collaboration†	39.1	72	
5.2.2	State of cluster development†	32.5	111	○ ◇
5.2.3	GERD financed by abroad, %	1.5	86	
5.2.4	JV–strategic alliance deals/bn PPP$ GDP	0.0	79	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.2	43	
5.3	Knowledge absorption	25.1	85	
5.3.1	Intellectual property payments, % total trade	0.3	76	
5.3.2	High-tech net imports, % total trade	7.0	80	
5.3.3	ICT services imports, % total trade	0.7	88	
5.3.4	FDI net inflows, % GDP	6.3	22	●
5.3.5	Research talent, % in business enterprise	n/a	n/a	
6	**Knowledge & technology outputs**	**19.9**	**79**	
6.1	Knowledge creation	12.2	61	
6.1.1	Patents by origin/bn PPP$ GDP	2.3	43	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.1	79	
6.1.3	Utility models by origin/bn PPP$ GDP	1.4	17	●
6.1.4	Scientific & technical articles/bn PPP$ GDP	1.8	113	○
6.1.5	Citable documents H index	3.5	108	
6.2	Knowledge impact	27.3	96	
6.2.1	Growth rate of PPP$ GDP/worker, %	1.9	38	
6.2.2	New businesses/th pop. 15–64	2.2	47	
6.2.3	Computer software spending, % GDP	0.0	118	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.2	104	
6.2.5	High- & medium-high-tech manufactures, %	0.1	80	
6.3	Knowledge diffusion	20.2	64	
6.3.1	Intellectual property receipts, % total trade	0.0	96	○ ◇
6.3.2	High-tech net exports, % total trade	5.0	34	●
6.3.3	ICT services exports, % total trade	0.3	111	○
6.3.4	FDI net outflows, % GDP	1.8	35	●
7	**Creative outputs**	**18.7**	**100**	◇
7.1	Intangible assets	31.2	101	
7.1.1	Trademarks by origin/bn PPP$ GDP	18.8	90	
7.1.2	Industrial designs by origin/bn PPP$ GDP	0.2	106	○
7.1.3	ICTs & business model creation†	54.1	90	
7.1.4	ICTs & organizational model creation†	46.8	94	
7.2	Creative goods & services	8.2	100	◇
7.2.1	Cultural & creative services exports, % total trade	0.0	77	○
7.2.2	National feature films/mn pop. 15–69	1.3	73	
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing & other media, % manufacturing	0.7	75	
7.2.5	Creative goods exports, % total trade	0.2	89	
7.3	Online creativity	4.1	74	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.3	113	○
7.3.2	Country-code TLDs/th pop. 15–69	3.1	58	
7.3.3	Wikipedia edits/mn pop. 15–69 ⓓ	17.3	52	
7.3.4	Mobile app creation/bn PPP$ GDP	1.2	77	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * 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 page 75 of this appendix for details.