

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2019 rank
23	18	High	EUR	9.0	479.4	46,758.1	21
				Score/Value	Rank		
				Score/Value	Rank		
INSTITUTIONS				86.2	15		
1.1	Political environment	83.6	17	5.1	Knowledge workers	60.9	13
1.1.1	Political and operational stability*.....	85.7	17	5.1.1	Knowledge-intensive employment, %.....	41.9	24
1.1.2	Government effectiveness*.....	82.6	18	5.1.2	Firms offering formal training, %.....	n/a	n/a
1.2	Regulatory environment	94.5	6 ●	5.1.3	GERD performed by business, % GDP.....	2.2	6 ●
1.2.1	Regulatory quality*.....	82.6	18	5.1.4	GERD financed by business, %.....	54.4	18
1.2.2	Rule of law*.....	95.6	6 ●	5.1.5	Females employed w/advanced degrees, %.....	17.0	38 ◇
1.2.3	Cost of redundancy dismissal, salary weeks.....	8.0	1 ●	5.2	Innovation linkages	55.1	12
1.3	Business environment	80.3	32	5.2.1	University/industry research collaboration*.....	64.1	19
1.3.1	Ease of starting a business*.....	83.2	98 ○ ◇	5.2.2	State of cluster development*.....	65.7	15
1.3.2	Ease of resolving insolvency*.....	77.4	21	5.2.3	GERD financed by abroad, % GDP.....	0.5	3 ● ◆
HUMAN CAPITAL & RESEARCH				59.7	7 ●		
2.1	Education	58.5	18	5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	56 ○ ◇
2.1.1	Expenditure on education, % GDP.....	5.5	21	5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	3.9	13
2.1.2	Graduates in science & engineering, % GDP/cap.....	27.7	16 ◆	5.3	Knowledge absorption	40.9	29
2.1.3	School life expectancy, years.....	16.1	33	5.3.1	Intellectual property payments, % total trade.....	0.8	51
2.1.4	PISA scales in reading, maths, & science.....	491.0	27	5.3.2	High-tech imports, % total trade.....	7.5	69 ○
2.1.5	Pupil-teacher ratio, secondary.....	9.3	25 ◆	5.3.3	ICT services imports, % total trade.....	2.5	17
2.2	Tertiary education	62.4	4 ● ◆	5.3.4	FDI net inflows, % GDP.....	-1.1	125 ○
2.2.1	Tertiary enrolment, % gross.....	85.1	11 ●	5.3.5	Research talent, % in business enterprise.....	63.0	9
2.2.2	Graduates in science & engineering, %.....	30.3	13 ◆	5.4	Knowledge creation	48.5	15
2.2.3	Tertiary inbound mobility, %.....	17.2	10 ● ◆	6.1.1	Patents by origin/bn PPP\$ GDP.....	9.3	12
2.3	Research & development (R&D)	58.2	17	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	3.0	11
2.3.1	Researchers, FTE/mn pop.....	5,733.1	9 ●	6.1.3	Utility models by origin/bn PPP\$ GDP.....	0.8	26
2.3.2	Gross expenditure on R&D, % GDP.....	3.2	6 ●	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	23.6	20
2.3.3	Global R&D companies, avg. exp. top 3, mn \$US.....	55.6	26	6.1.5	Citable documents H-index.....	44.1	18
2.3.4	QS university ranking, average score top 3*.....	43.4	26	6.2	Knowledge impact	35.9	23
INFRASTRUCTURE				56.5	20		
3.1	Information & communication technologies (ICTs)	82.1	27 ◇	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	0.6	72 ○
3.1.1	ICT access*.....	84.8	15	6.2.2	New businesses/th pop. 15-64.....	0.6	91 ○ ◇
3.1.2	ICT use*.....	74.2	31 ◇	6.2.3	Computer software spending, % GDP.....	0.0	15
3.1.3	Government's online service*.....	86.8	32	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	7.1	38
3.1.4	E-participation*.....	82.6	45 ◇	6.2.5	High- and medium-high-tech manufacturing, %.....	43.2	16
3.2	General infrastructure	42.5	17	6.3	Knowledge diffusion	37.6	28
3.2.1	Electricity output, kWh/mn pop.....	7,354.0	29	6.3.1	Intellectual property receipts, % total trade.....	0.6	24 ◇
3.2.2	Logistics performance*.....	91.8	4 ●	6.3.2	High-tech net exports, % total trade.....	6.8	25
3.2.3	Gross capital formation, % GDP.....	25.7	46	6.3.3	ICT services exports, % total trade.....	3.0	31
3.3	Ecological sustainability	45.0	30	6.3.4	FDI net outflows, % GDP.....	-0.9	127 ○
3.3.1	GDP/unit of energy use.....	12.0	33	5.5	CREATIVE OUTPUTS	37.5	22 ◇
3.3.2	Environmental performance*.....	79.6	6 ●	7.1	Intangible assets	36.7	36 ◇
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	2.3	35	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	55.4	42
MARKET SOPHISTICATION				51.1	48 ◇		
4.1	Credit	45.9	48	7.1.2	Global brand value, top 5,000, % GDP.....	51.1	34 ◇
4.1.1	Ease of getting credit*.....	55.0	88 ○	7.1.3	Industrial designs by origin/bn PPP\$ GDP.....	8.1	16
4.1.2	Domestic credit to private sector, % GDP.....	84.2	34	7.1.4	ICTs & organizational model creation*.....	64.9	29 ◇
4.1.3	Microfinance gross loans, % GDP.....	n/a	n/a	7.2	Creative goods and services	26.7	36
4.2	Investment	33.9	80 ○ ◇	7.2.1	Cultural & creative services exports, % total trade.....	1.1	22
4.2.1	Ease of protecting minority investors*.....	70.0	36	7.2.2	National feature films/mn pop. 15-69.....	7.0	30
4.2.2	Market capitalization, % GDP.....	30.8	46 ○ ◇	7.2.3	Entertainment & Media market/th pop. 15-69.....	63.2	9
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.1	27	7.2.4	Printing and other media, % manufacturing.....	1.1	45 ○
4.3	Trade, competition, and market scale	73.4	24	7.2.5	Creative goods exports, % total trade.....	0.9	48
4.3.1	Applied tariff rate, weighted avg., %.....	1.7	22	7.3	Online creativity	50.1	19
4.3.2	Intensity of local competition*.....	78.8	13	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	35.4	19
4.3.3	Domestic market scale, bn PPP\$.....	479.4	43	7.3.2	Country-code TLDs/th pop. 15-69.....	62.8	11 ●
				7.3.3	Wikipedia edits/mn pop. 15-69.....	85.8	14
				7.3.4	Mobile app creation/bn PPP\$ GDP.....	17.2	28

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.