GLOBAL INNOVATION INDEX 2020

UNITED KINGDOM

4th The United Kingdom ranks 4th among the 131 economies featured in the GII 2020.

The Global Innovation Index (GII) ranks world economies according to their innovation capabilities. Consisting of roughly 80 indicators, grouped into innovation inputs and outputs, the GII aims to capture the multi-dimensional facets of innovation.

The following table shows the rankings of the United Kingdom (U.K.) over the past three years, noting that data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings.

The statistical confidence interval for the ranking of the U.K. in the GII 2020 is between ranks 3 and 4.

Rankings of the United Kingdom (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	4	6	3
2019	5	6	4
2018	4	4	6

- The U.K. performs better in innovation outputs than innovation inputs in 2020.
- This year the U.K. ranks 6th in innovation inputs, the same as last year and lower compared to 2018.
- As for innovation outputs, the U.K. ranks 3rd. This position is higher than both last year and 2018.

4th The United Kingdom ranks 4th among the 49 high-income group economies.

3rd The United Kingdom ranks 3rd among the 39 economies in Europe.

The United Kingdom has moved up one spot since last year and maintains its leadership position in indicators such as Government's online service, Environmental performance, and Computer software spending. This year it has improved in the GII areas related to infrastructure and creativity, thanks to a combination of performance improvements and changes to the GII model. The U.K.'s ranking has improved notably in the indicator Industrial designs and it ranks 6th worldwide in the new GII indicator – Global brand value, with 314 of the top 5,000 brands worldwide. Top U.K. brands include the Telecoms giant Vodafone, bank HSBC, retailer Tesco, and automobile industry leader Land Rover.

The country ranks 2nd globally according to the indicator Quality of universities, being home to the universities of Oxford and Cambridge, which are among the top 10 universities in the world according to various rankings. The U.K. is also the world leader in the quality of its scientific publications. Thanks to these important results, it is the 6th ranking economy in the world in terms of the quality of innovation.

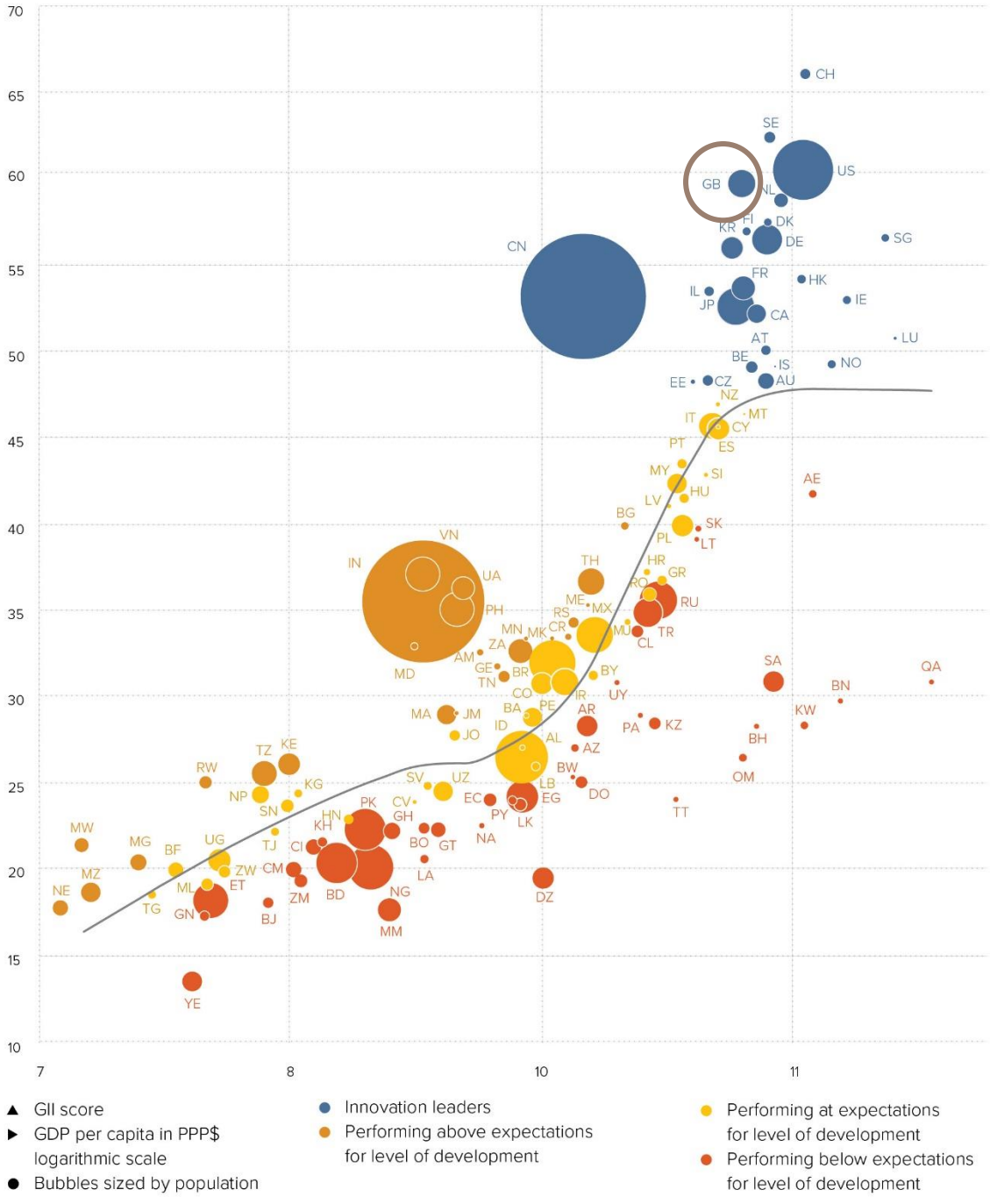
In addition, the U.K. hosts four of the world's top 100 science and technology clusters: London (15th), Cambridge (57th), Oxford (71st) and Manchester (93rd). Cambridge and Oxford are also the most science and technology-intensive clusters in the world.

EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

Relative to GDP, the U.K. is performing above expectations for its level of development.

The positive relationship between innovation and development

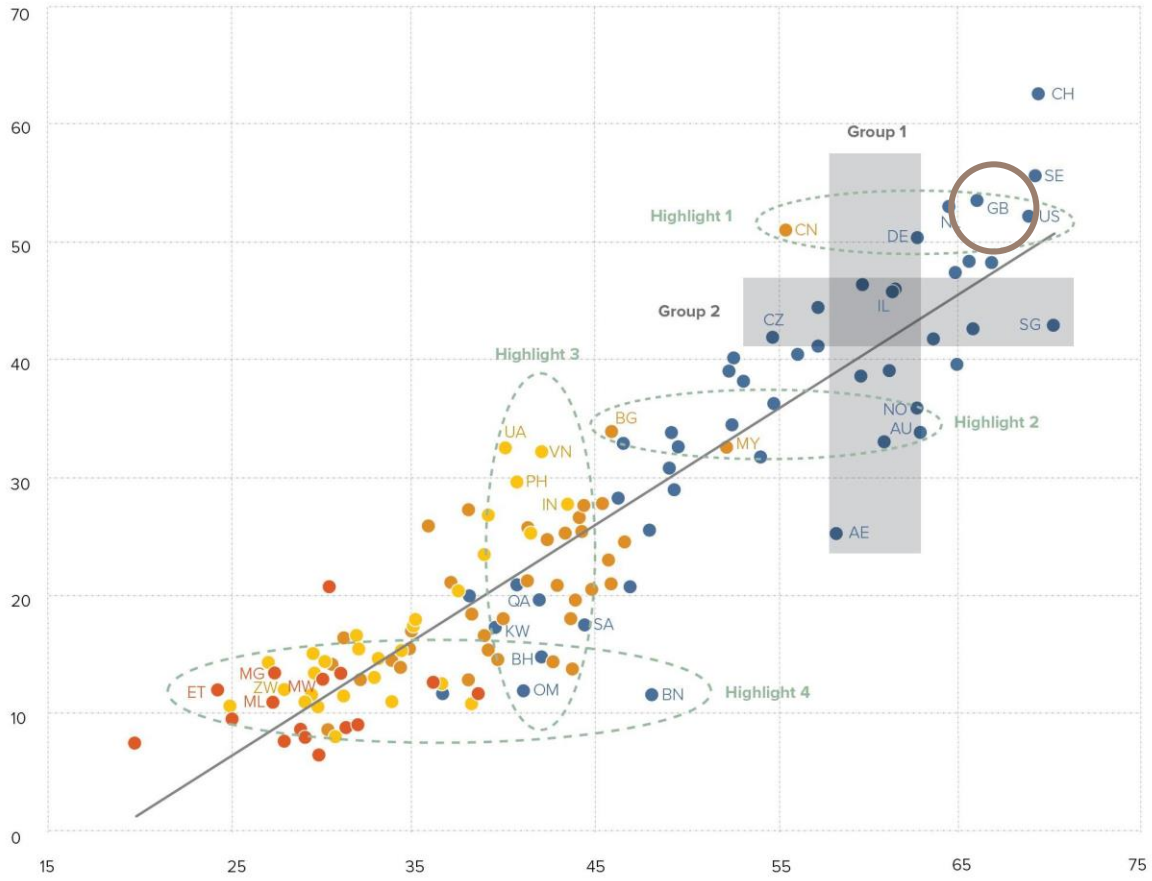


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

The U.K. produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

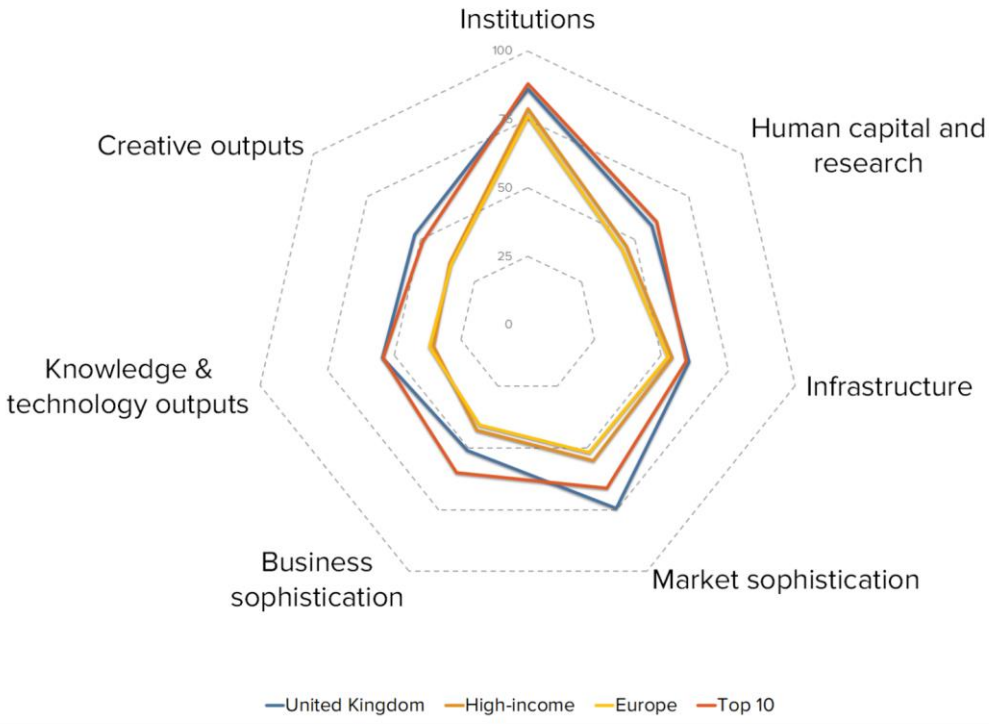
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

BENCHMARKING THE UNITED KINGDOM AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

The U.K.'s scores in the seven GII pillars



High-income group economies

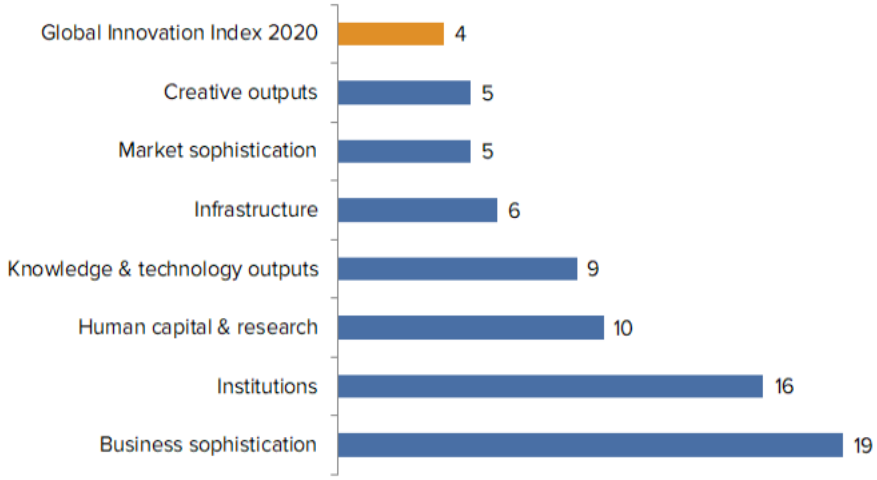
The U.K. has high scores in all seven GII pillars, which are above average for the high-income group.

Europe

Compared to other economies in Europe, the U.K. performs above average in all seven GII pillars.

OVERVIEW OF UNITED KINGDOM RANKINGS IN THE SEVEN GII AREAS

The U.K. performs best in Creative outputs and Market sophistication and its weakest performance is in Business sophistication.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of the U.K. in the GII 2020.

Strengths

Code	Indicator name	Rank
2.3.4	QS university ranking, average score top 3*	2
3	Infrastructure	6
3.1	Information & communication technologies (ICTs)	1
3.1.1	ICT access*	4
3.1.2	ICT use*	6
3.1.3	Government's online service*	4
3.3.2	Environmental performance*	4
4	Market sophistication	5
4.2	Investment	5
4.3	Trade, competition, and market scale	4
6.1	Knowledge creation	6
6.1.5	Citable documents H-index	1
6.2.3	Computer software spending, % GDP	4
7	Creative outputs	5
7.1.2	Global brand value, top 5,000, % GDP	6
7.1.4	ICTs & organizational model creation†	6
7.2.1	Cultural & creative services exports, % total trade	6

Weaknesses

Code	Indicator name	Rank
1.1.1	Political & operational stability*	49
2.1.2	Government funding/pupil, secondary, % GDP/cap	44
2.1.5	Pupil-teacher ratio, secondary	79
2.2.1	Tertiary enrolment, % gross	46
3.2.1	Electricity output, GWh/mn pop	42
3.2.3	Gross capital formation, % GDP	117
4.3.1	Applied tariff rate, weighted avg., %	22
5.3.5	Research talent, % in business enterprise	33
6.2.1	Growth rate of PPP$ GDP/worker, %	79
7.2.2	National feature films/mn pop. 15–69	36

NOTES: * indicates an index; † indicates a survey question. Strengths and weaknesses are listed for pillars and/or sub-pillars where the data minimum coverage (DMC) requirements were not met. For the sake of caution, these ranks are shown in square brackets [ ] in the country profile. This is to ensure that incomplete data coverage does not lead to erroneous conclusions being made about strengths or weaknesses, in particular about strong or weak sub-pillar rankings.

STRENGTHS

GII strengths for the U.K. are found in five of the seven GII pillars.

- Human capital & research (10): shows strength in the indicator Quality of universities (2).
- Infrastructure (6): demonstrates strengths in the sub-pillar Information & communication technologies (ICTs) (1) and in four indicators: ICT access (4), ICT use (6), Government's online service (4) and Environmental performance (4).
- Market sophistication (5): displays strengths in the sub-pillars Investment (5) and Trade, competition, and market scale (4).
- Knowledge & technology outputs (9): reveals strengths in the sub-pillar Knowledge creation (6) and in the indicators Quality of scientific publications (1) and Computer software spending (4).
- Creative outputs (5): shows strengths in several indicators: Global brand value (6), ICTs & organizational model creation (6) and Cultural & creative services exports (6).

WEAKNESSES

GII weaknesses for the U.K. are scattered across all seven GII pillars.

- Institutions (16): the indicator Political & operational stability (49) reveals a weakness.
- Human capital & research (10): displays weaknesses in three indicators: Government funding (44), Pupil–teacher ratio (79) and Tertiary enrolment (46).
- Infrastructure (6): shows weaknesses in the indicators Electricity output (42) and Gross capital formation (117).
- Market sophistication (5): the indicator Applied tariff rate (22) reveals a weakness.
- Business sophistication (19): the indicator Research talent in business enterprise (33) demonstrates a weakness.
- Knowledge & technology outputs (9): displays a weakness in the indicator Productivity growth (79).
- Creative outputs (5): the indicator National feature films (36) reveals a weakness.

UNITED KINGDOM

GII 2020 rank

4

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
3	6	High	EUR	67.5	3,131.2	40,881.3	5

		Score/Value	Rank	
INSTITUTIONS		**86.1**	**16**	
1.1	**Political environment**	**77.8**	**25**	◇
1.1.1	Political and operational stability*	73.2	49	○ ◇
1.1.2	Government effectiveness*	80.1	21	
1.2	**Regulatory environment**	**93.1**	**8**	
1.2.1	Regulatory quality*	88.3	9	
1.2.2	Rule of law*	89.4	15	
1.2.3	Cost of redundancy dismissal, salary weeks	9.3	25	
1.3	**Business environment**	**87.4**	**12**	
1.3.1	Ease of starting a business*	94.6	17	
1.3.2	Ease of resolving insolvency*	80.3	13	
HUMAN CAPITAL & RESEARCH		**58.0**	**10**	
2.1	**Education**	**55.2**	**35**	
2.1.1	Expenditure on education, % GDP ⊙	5.5	22	
2.1.2	Government funding/pupil, secondary, % GDP/cap	21.2	44	○
2.1.3	School life expectancy, years	17.5	16	
2.1.4	PISA scales in reading, maths, & science	503.5	12	
2.1.5	Pupil-teacher ratio, secondary ⊙	16.6	79	○ ◇
2.2	**Tertiary education**	**51.3**	**15**	
2.2.1	Tertiary enrolment, % gross	60.0	46	○
2.2.2	Graduates in science & engineering, % ⊙	26.3	31	
2.2.3	Tertiary inbound mobility, %	17.9	8	◆
2.3	**Research & development (R&D)**	**67.6**	**9**	
2.3.1	Researchers, FTE/mn pop	4,603.3	20	
2.3.2	Gross expenditure on R&D, % GDP	1.7	21	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	84.8	8	
2.3.4	QS university ranking, average score top 3*	95.7	2	● ◆
INFRASTRUCTURE		**60.3**	**6**	●
3.1	**Information & communication technologies (ICTs)**	**93.6**	**1**	● ◆
3.1.1	ICT access*	91.5	4	● ◆
3.1.2	ICT use*	86.5	6	●
3.1.3	Government's online service*	97.9	4	●
3.1.4	E-participation*	98.3	5	
3.2	**General infrastructure**	**33.1**	**38**	◇
3.2.1	Electricity output, kWh/mn pop	4,986.0	42	○
3.2.2	Logistics performance*	89.9	9	
3.2.3	Gross capital formation, % GDP	16.4	117	○ ◇
3.3	**Ecological sustainability**	**54.2**	**14**	◆
3.3.1	GDP/unit of energy use	14.9	13	
3.3.2	Environmental performance*	81.3	4	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	4.2	22	
MARKET SOPHISTICATION		**74.4**	**5**	● ◆
4.1	**Credit**	**68.1**	**8**	
4.1.1	Ease of getting credit*	75.0	34	
4.1.2	Domestic credit to private sector, % GDP	136.2	14	
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**73.9**	**5**	● ◆
4.2.1	Ease of protecting minority investors*	84.0	7	◆
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital deals/bn PPP$ GDP	0.4	9	
4.3	**Trade, competition, and market scale**	**81.3**	**4**	●
4.3.1	Applied tariff rate, weighted avg., %	1.7	22	○
4.3.2	Intensity of local competition+	79.9	9	
4.3.3	Domestic market scale, bn PPP$	3,131.2	9	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**51.0**	**19**	
5.1	**Knowledge workers**	**59.6**	**16**	
5.1.1	Knowledge-intensive employment, %	49.2	7	
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP	1.2	18	
5.1.4	GERD financed by business, % ⊙	51.8	25	
5.1.5	Females employed w/advanced degrees, %	23.4	16	
5.2	**Innovation linkages**	**51.0**	**14**	
5.2.1	University/industry research collaboration+	69.0	11	
5.2.2	State of cluster development+	65.9	14	
5.2.3	GERD financed by abroad, % GDP ⊙	0.3	12	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.2	16	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	2.3	17	
5.3	**Knowledge absorption**	**42.5**	**27**	
5.3.1	Intellectual property payments, % total trade	1.5	21	
5.3.2	High-tech imports, % total trade	11.5	21	
5.3.3	ICT services imports, % total trade	1.9	31	
5.3.4	FDI net inflows, % GDP	5.9	20	
5.3.5	Research talent, % in business enterprise	40.6	33	○ ◇
KNOWLEDGE & TECHNOLOGY OUTPUTS		**54.4**	**9**	
6.1	**Knowledge creation**	**66.2**	**6**	●
6.1.1	Patents by origin/bn PPP$ GDP	6.1	15	
6.1.2	PCT patents by origin/bn PPP$ GDP	1.8	18	
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	25.2	15	
6.1.5	Citable documents H-index	100.0	1	● ◆
6.2	**Knowledge impact**	**45.3**	**10**	
6.2.1	Growth rate of PPP$ GDP/worker, %	0.4	79	○
6.2.2	New businesses/th pop. 15-64	15.6	8	◆
6.2.3	Computer software spending, % GDP	0.0	4	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	9.7	28	
6.2.5	High- and medium-high-tech manufacturing, %	42.8	18	
6.3	**Knowledge diffusion**	**51.8**	**11**	
6.3.1	Intellectual property receipts, % total trade	2.5	8	
6.3.2	High-tech net exports, % total trade	8.8	20	
6.3.3	ICT services exports, % total trade	3.3	27	
6.3.4	FDI net outflows, % GDP	2.8	23	
CREATIVE OUTPUTS		**52.7**	**5**	●
7.1	**Intangible assets**	**53.9**	**9**	
7.1.1	Trademarks by origin/bn PPP$ GDP	56.9	41	
7.1.2	Global brand value, top 5,000, % GDP	167.2	6	●
7.1.3	Industrial designs by origin/bn PPP$ GDP	9.5	13	
7.1.4	ICTs & organizational model creation+	79.1	6	●
7.2	**Creative goods and services**	**41.6**	**10**	
7.2.1	Cultural & creative services exports, % total trade	2.1	6	● ◆
7.2.2	National feature films/mn pop. 15-69	6.2	36	○
7.2.3	Entertainment & Media market/th pop. 15-69	63.4	8	
7.2.4	Printing and other media, % manufacturing	1.9	17	
7.2.5	Creative goods exports, % total trade	2.9	20	
7.3	**Online creativity**	**61.6**	**10**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	60.3	11	
7.3.2	Country-code TLDs/th pop. 15-69	77.6	7	
7.3.3	Wikipedia edits/mn pop. 15-69	84.9	15	
7.3.4	Mobile app creation/bn PPP$ GDP	24.3	22	

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.

DATA AVAILABILITY

The following tables list data that are either missing or outdated for the U.K.

Missing data

Code	Indicator name	Country year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
5.1.2	Firms offering formal training, %	n/a	2018	World Bank
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2018	World Intellectual Property Organization

Outdated data

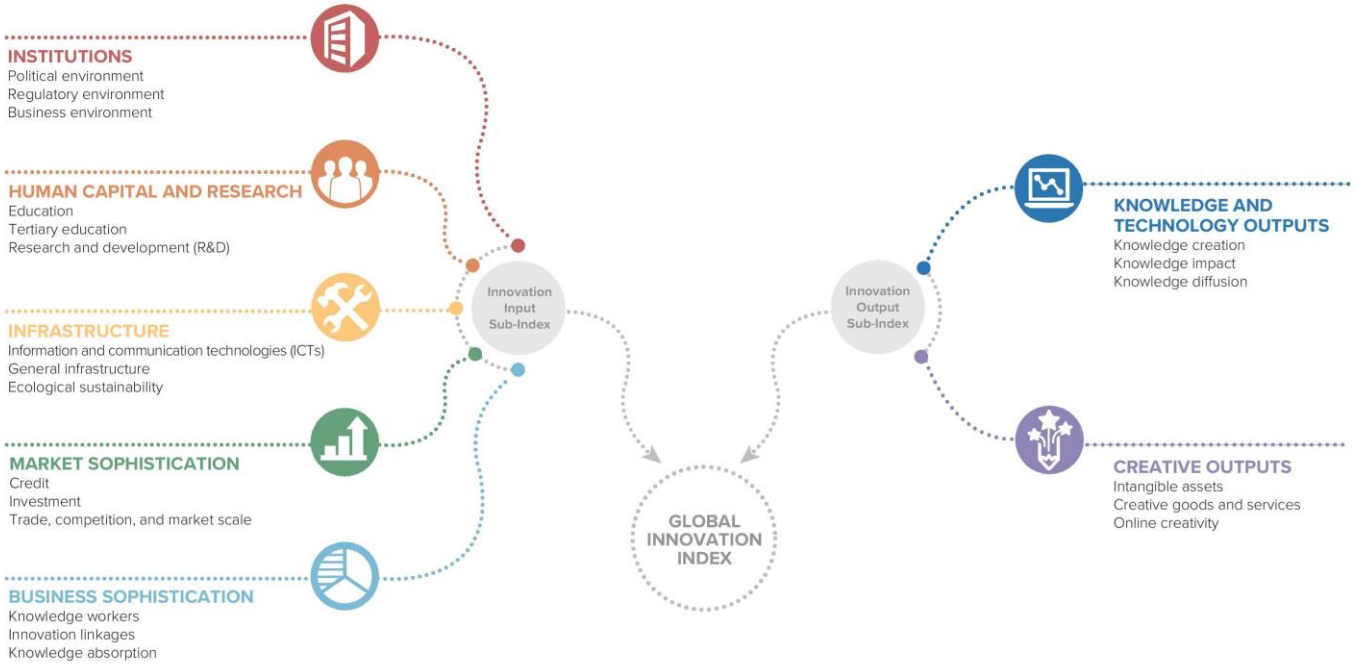
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2016	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2018	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2016	2017	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	2016	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	2016	2017	UNESCO Institute for Statistics

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a "tool for action" for economies that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2020



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.