GLOBAL INNOVATION INDEX 2020

INDIA

48th India ranks 48th 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 India 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 India in the GII 2020 is between ranks 44 and 51.

Rankings of India (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	48	57	45
2019	52	61	51
2018	57	63	57

- India performs better in innovation outputs than innovation inputs in 2020.
- This year India ranks 57th in innovation inputs, higher than last year and compared to 2018.
- As for innovation outputs, India ranks 45th. This position is higher than last year and compared to 2018.

3rd India ranks 3rd among the 29 lower middle-income group economies.

1st India ranks 1st among the 10 economies in Central and Southern Asia.

Moving up four positions from last year, India ranks 48th and makes it into the top 50 for the first time in 2020. It becomes the third most innovative lower middle-income economy in the world, thanks to newly available indicators and improvements in various areas of the GII. Together with three other economies, India holds the record for being an innovation achiever for 10 consecutive years.

India excels in the innovation outcomes it produces, and also in relation to its innovation efforts and investments. India's role in the global ICT services industry is reflected in it being ranked first in ICT services exports. It also stands out for its rate of productivity growth, for which it ranks 9th globally. India also outperforms in a new GII indicator – Global brand value –, producing more valuable brands than could be predicted from its income level. It ranks 31st in this indicator. It hosts 164 of the world's top 5,000 brands, including top brands Tata Group, LIC (Insurance) and Infosys.

India possesses a relatively sophisticated domestic market, both in terms of its size, as well as its credit and investment environments. It ranks 13th in Ease of protecting minority investors, 23rd in Ease of getting credit and 19th in Market capitalization. Its human capital and research systems benefit from a particularly high number of Graduates in science and engineering, ranking 12th in this indicator, and of R&D-intensive global companies, for which it ranks 16th.

India is among the top 25 in indicators such as Government's online services, E-participation, Gross capital formation, Quality of scientific publications, and Creative goods exports.

Thanks to universities, such as the Indian Institute of Technology in Bombay and Delhi and the Indian Institute of Science in Bengaluru, and the Quality of its scientific publications, India ranks second (after China) in innovation quality among middle-income economies.

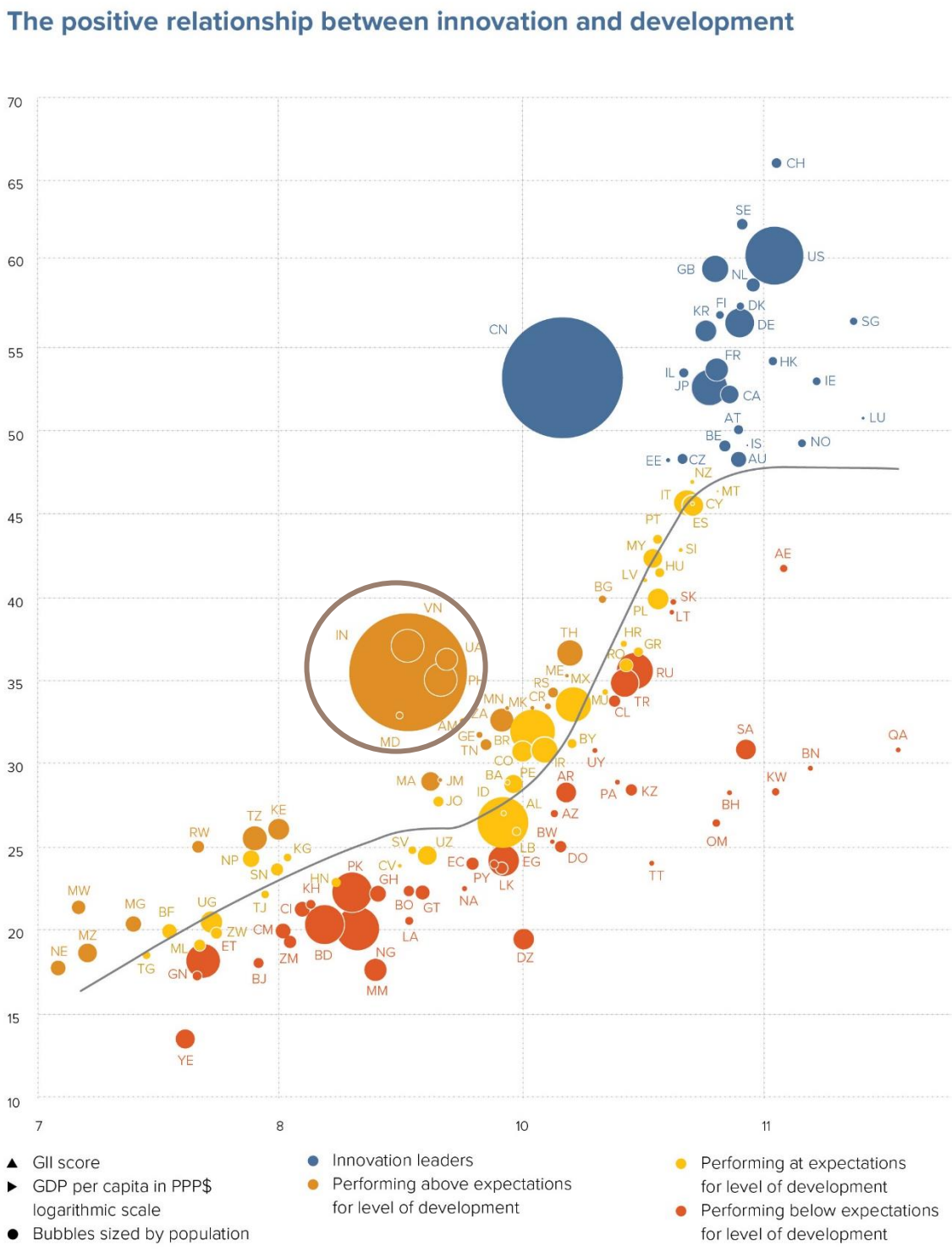
This year India has registered progress in various areas of the GII, in particular in those indicators that measure institutions and the innovativeness of the business sector. Indicators such as Political and operational stability, Ease of resolving insolvency, Intellectual property (IP) payments, and Research talent in business enterprises have moved up in the rankings.

India has made great progress in its GII innovation statistics over the last several years and a significant number of indicators have been updated this year.

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, India is performing above expectations for its level of development.

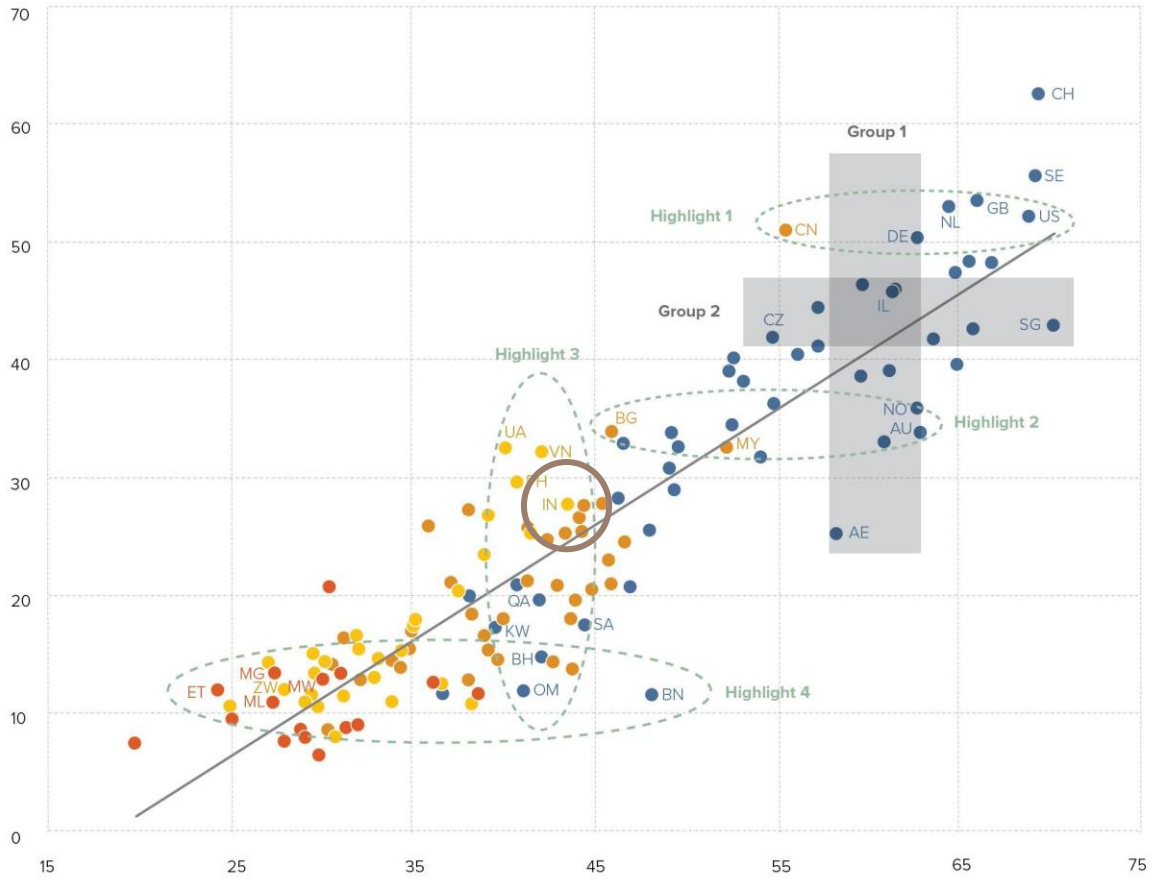


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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

India produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance, 2020



▲ Output score
► Input score

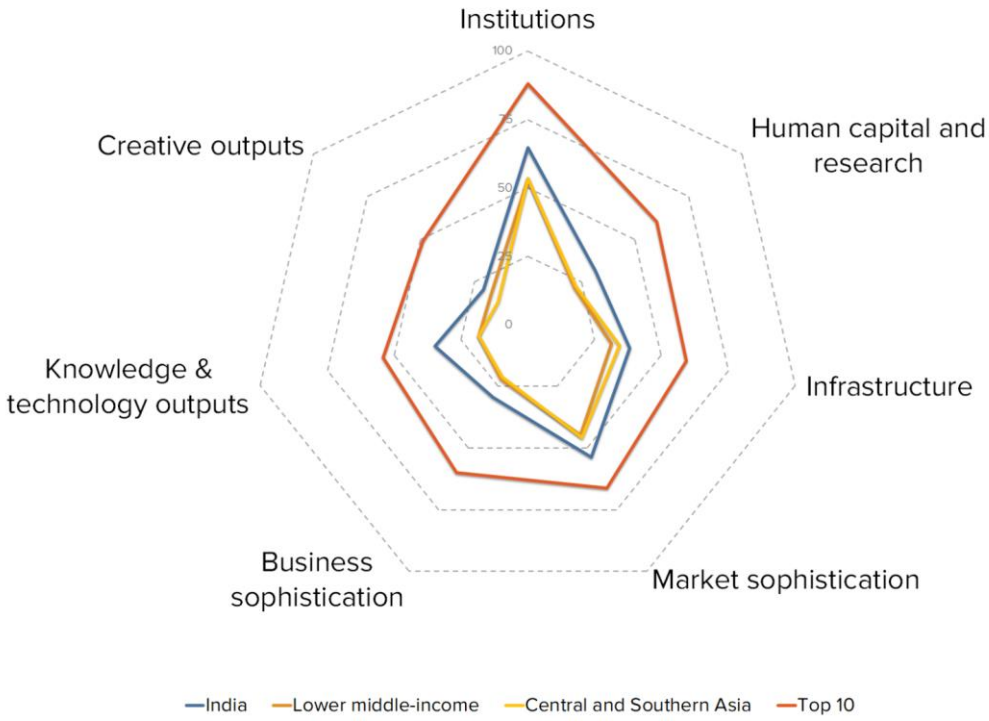
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— 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 INDIA AGAINST OTHER LOWER MIDDLE-INCOME ECONOMIES AND CENTRAL AND SOUTHERN ASIA

India's scores in the seven GII pillars



Lower middle-income group

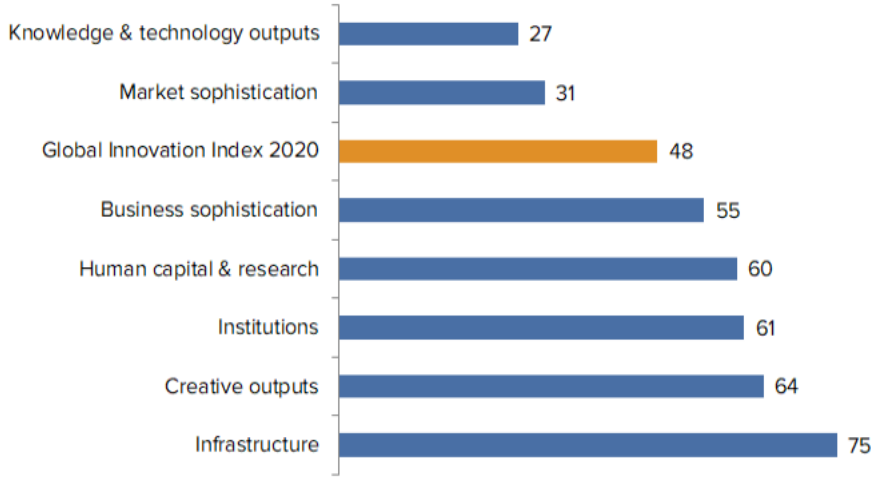
India has high scores in all seven GII pillars which are above the average for the lower middle-income group.

Central and Southern Asia

Compared to other economies in Central and Southern Asia, India performs above average in all seven GII pillars.

OVERVIEW OF INDIA RANKINGS IN THE SEVEN GII AREAS

India performs best in Knowledge & technology outputs and its weakest performance is in Infrastructure.



*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 India in the GII 2020.

Strengths

Code	Indicator name	Rank
2.2.2	Graduates in science & engineering, %	12
2.3.3	Global R&D companies, top 3, mn US$	16
2.3.4	QS university ranking, average score top 3*	22
3.1.3	Government's online service*	9
3.1.4	E-participation*	15
4.2.1	Ease of protecting minority investors*	13
4.3	Trade, competition, and market scale	15
4.3.3	Domestic market scale, bn PPP$	3
6.1.5	Citable documents H index	21
6.2.1	Growth rate of PPP$ GDP/worker, %	9
6.3	Knowledge diffusion	10
6.3.3	ICT services exports, % total trade	1

Weaknesses

Code	Indicator name	Rank
2.1	Education	107
2.1.5	Pupil-teacher ratio, secondary	118
2.2.3	Tertiary inbound mobility, %	108
3.1.1	ICT access*	108
3.1.2	ICT use*	108
3.3.2	Environmental performance*	124
5.1.5	Females employed w/advanced degrees, %	101
6.2.2	New businesses/th pop. 15–64	115
7.2.3	Entertainment & Media market/th pop. 15–69	60
7.2.4	Printing & other media, % manufacturing	81
7.3.3	Wikipedia edits/mn pop. 15–69	98

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 India are found in four of the seven GII pillars.

- Human capital & research (60): shows strengths in three important indicators – Graduates in science & engineering (12), Global R&D companies (16) and Quality of universities (22).
- Infrastructure (75): demonstrates strengths in the indicators Government's online service (9) and E-participation (15).
- Market sophistication (31): has strengths in the sub-pillar Trade, competition, and market scale (15) and in the indicators Ease of protecting minority investors (13) and Domestic market scale (3).
- Knowledge & technology outputs (27): reveals strengths in the sub-pillar Knowledge diffusion (10) and in indicators Quality of scientific publications (21), Productivity growth (9) and ICT services exports (1).

WEAKNESSES

GII weaknesses for India are found in five of the seven GII pillars.

- Human capital & research (60): has weaknesses in the sub-pillar Education (107) and in the indicators Pupil-teacher ratio (118) and Tertiary inbound mobility (108).
- Infrastructure (75): displays weaknesses in three indicators – ICT access (108), ICT use (108) and Environmental performance (124).
- Business sophistication (55): the indicator Females employed with advanced degrees (101) is a weakness.
- Knowledge & technology outputs (27): the indicator New businesses (115) is a weakness.
- Creative outputs (64): has weaknesses in three indicators – Entertainment & Media market (60), Printing and other media (81) and Wikipedia edits (98).

INDIA

GII 2020 rank

48

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
45	57	Lower middle	CSA	1,366.4	11,325.7	7,314.6	52

		Score/Value	Rank	
	INSTITUTIONS	**64.7**	**61**	◆
1.1	**Political environment**	**59.1**	**63**	◆
1.1.1	Political and operational stability*	64.3	83	
1.1.2	Government effectiveness*	56.5	55	◆
1.2	**Regulatory environment**	**63.4**	**70**	◆
1.2.1	Regulatory quality*	36.9	84	
1.2.2	Rule of law*	47.3	62	◆
1.2.3	Cost of redundancy dismissal, salary weeks	15.8	61	
1.3	**Business environment**	**71.8**	**62**	
1.3.1	Ease of starting a business*	81.6	105	
1.3.2	Ease of resolving insolvency*	62.0	47	◆
	HUMAN CAPITAL & RESEARCH	**31.6**	**60**	◆
2.1	**Education**	**29.6**	**107**	○
2.1.1	Expenditure on education, % GDP ⏲	3.8	79	
2.1.2	Government funding/pupil, secondary, % GDP/cap ⏲	16.9	68	
2.1.3	School life expectancy, years	12.2	90	
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	28.5	118	○ ◇
2.2	**Tertiary education**	**32.4**	**66**	
2.2.1	Tertiary enrolment, % gross	28.1	84	
2.2.2	Graduates in science & engineering, %	31.7	12	● ◆
2.2.3	Tertiary inbound mobility, %	0.1	108	○
2.3	**Research & development (R&D)**	**32.9**	**35**	◆
2.3.1	Researchers, FTE/mn pop	252.7	78	
2.3.2	Gross expenditure on R&D, % GDP	0.6	57	◆
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	69.7	16	● ◆
2.3.4	QS university ranking, average score top 3*	47.2	22	● ◆
	INFRASTRUCTURE	**38.1**	**75**	◆
3.1	**Information & communication technologies (ICTs)**	**63.3**	**74**	◆
3.1.1	ICT access*	37.9	108	○
3.1.2	ICT use*	24.7	108	○
3.1.3	Government's online service*	95.1	9	● ◆
3.1.4	E-participation*	95.5	15	● ◆
3.2	**General infrastructure**	**30.9**	**46**	◆
3.2.1	Electricity output, kWh/mn pop	1,144.2	92	
3.2.2	Logistics performance*	51.9	43	◆
3.2.3	Gross capital formation, % GDP	31.3	24	
3.3	**Ecological sustainability**	**20.2**	**98**	
3.3.1	GDP/unit of energy use	9.5	63	
3.3.2	Environmental performance*	27.6	124	○ ◇
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	70	
	MARKET SOPHISTICATION	**53.7**	**31**	◆
4.1	**Credit**	**43.0**	**60**	
4.1.1	Ease of getting credit*	80.0	23	
4.1.2	Domestic credit to private sector, % GDP	49.9	70	
4.1.3	Microfinance gross loans, % GDP	0.9	25	
4.2	**Investment**	**40.8**	**59**	
4.2.1	Ease of protecting minority investors*	80.0	13	● ◆
4.2.2	Market capitalization, % GDP	77.6	19	◆
4.2.3	Venture capital deals/bn PPP$ GDP	0.0	39	◆
4.3	**Trade, competition, and market scale**	**77.2**	**15**	● ◆
4.3.1	Applied tariff rate, weighted avg., %	4.9	90	
4.3.2	Intensity of local competition+	67.6	70	
4.3.3	Domestic market scale, bn PPP$	11,325.7	3	● ◆

		Score/Value	Rank	
	BUSINESS SOPHISTICATION	**29.4**	**55**	◆
5.1	**Knowledge workers**	**25.9**	**83**	
5.1.1	Knowledge-intensive employment, %	15.7	90	
5.1.2	Firms offering formal training, % ⏲	35.9	37	
5.1.3	GERD performed by business, % GDP	0.2	52	
5.1.4	GERD financed by business, %	36.8	48	◆
5.1.5	Females employed w/advanced degrees, %	2.2	101	○
5.2	**Innovation linkages**	**26.6**	**41**	◆
5.2.1	University/industry research collaboration+	47.7	45	◆
5.2.2	State of cluster development+	54.3	37	◆
5.2.3	GERD financed by abroad, % GDP	n/a	n/a	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	47	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.2	47	◆
5.3	**Knowledge absorption**	**35.7**	**39**	◆
5.3.1	Intellectual property payments, % total trade	1.3	27	◆
5.3.2	High-tech imports, % total trade	10.1	29	
5.3.3	ICT services imports, % total trade	1.2	60	
5.3.4	FDI net inflows, % GDP	1.7	92	
5.3.5	Research talent, % in business enterprise	34.0	38	◆
	KNOWLEDGE & TECHNOLOGY OUTPUTS	**34.7**	**27**	◆
6.1	**Knowledge creation**	**19.8**	**51**	
6.1.1	Patents by origin/bn PPP$ GDP	1.6	51	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	51	◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific & technical articles/bn PPP$ GDP	5.8	76	
6.1.5	Citable documents H-index	40.4	21	● ◆
6.2	**Knowledge impact**	**30.4**	**41**	◆
6.2.1	Growth rate of PPP$ GDP/worker, %	5.0	9	●
6.2.2	New businesses/th pop. 15-64	0.1	115	○
6.2.3	Computer software spending, % GDP	0.0	64	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.0	72	
6.2.5	High- and medium-high-tech manufacturing, % ⏲	34.1	34	◆
6.3	**Knowledge diffusion**	**54.0**	**10**	● ◆
6.3.1	Intellectual property receipts, % total trade	0.1	50	
6.3.2	High-tech net exports, % total trade	3.4	42	
6.3.3	ICT services exports, % total trade	9.9	1	● ◆
6.3.4	FDI net outflows, % GDP	0.4	82	
	CREATIVE OUTPUTS	**20.6**	**64**	
7.1	**Intangible assets**	**27.3**	**67**	
7.1.1	Trademarks by origin/bn PPP$ GDP	28.4	80	
7.1.2	Global brand value, top 5,000, % GDP	61.5	31	◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.9	75	
7.1.4	ICTs & organizational model creation+	59.6	47	◆
7.2	**Creative goods and services**	**18.7**	**58**	
7.2.1	Cultural & creative services exports, % total trade	1.3	21	◆
7.2.2	National feature films/mn pop. 15-69 ⏲	2.2	63	
7.2.3	Entertainment & Media market/th pop. 15-69	0.8	60	○
7.2.4	Printing and other media, % manufacturing ⏲	0.6	81	○
7.2.5	Creative goods exports, % total trade	2.4	23	
7.3	**Online creativity**	**9.1**	**90**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	0.9	99	
7.3.2	Country-code TLDs/th pop. 15-69	0.7	94	
7.3.3	Wikipedia edits/mn pop. 15-69	28.1	98	○
7.3.4	Mobile app creation/bn PPP$ GDP	10.5	45	

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * 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 India.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
5.2.3	GERD financed by abroad, % GDP	n/a	2017	UNESCO Institute for Statistics
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2018	World Intellectual Property Organization

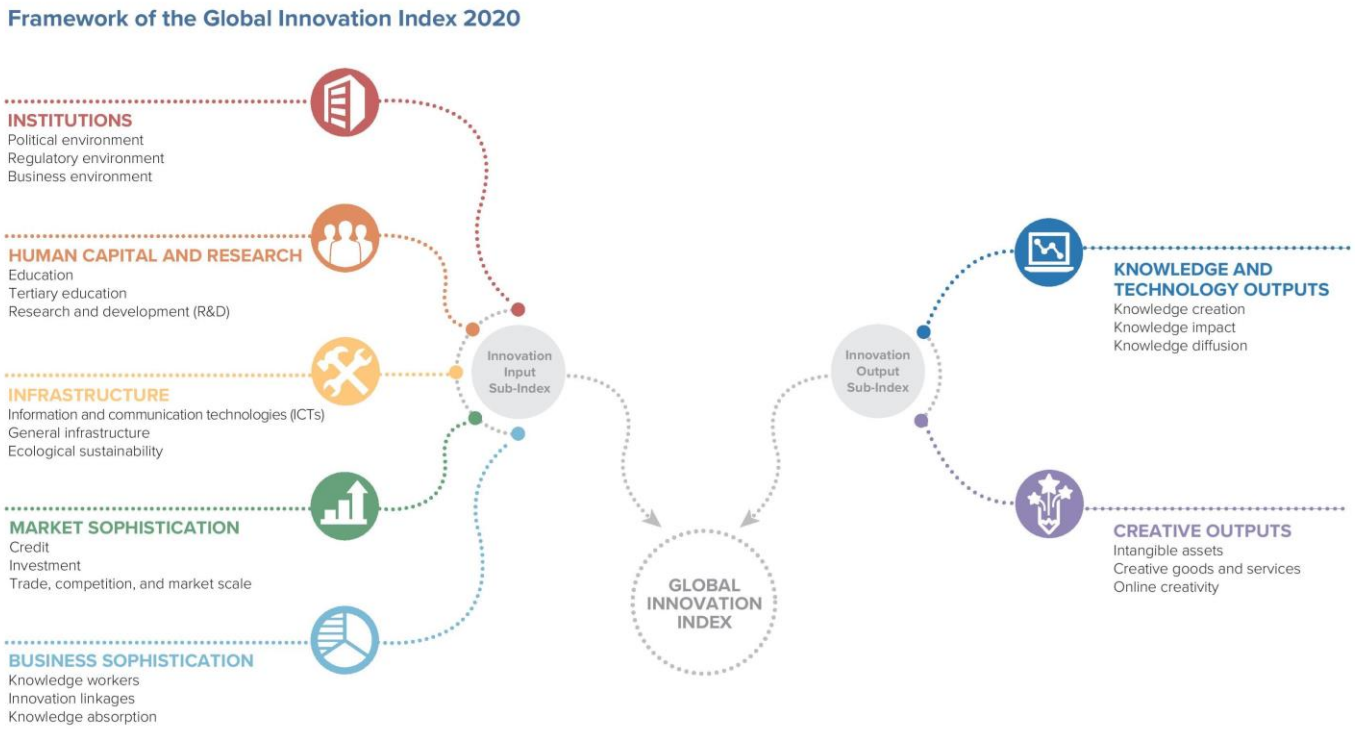
Outdated data

Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2018	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2016	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, %	2013	2018	World Bank
6.2.5	High- & medium-high-tech manufacturing, %	2016	2017	United Nations Industrial Development Organization
7.2.2	National feature films/mn pop. 15–69	2016	2017	UNESCO Institute for Statistics
7.2.4	Printing & other media, % manufacturing	2016	2017	United Nations Industrial Development Organization

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.



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.