Global Innovation Index 2021

INDIA

46th India ranks 46th among the 132 economies featured in the GII 2021.

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 2021 is between ranks 43 and 48.

Rankings for India (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	46	57	45
2020	48	57	45
2019	52	61	51

- India performs better in innovation outputs than innovation inputs in 2021.
- This year India ranks 57th in innovation inputs, the same as last year but higher than 2019.
- As for innovation outputs, India ranks 45th. This position is the same as last year but higher than 2019.

2nd India ranks 2nd among the 34 lower middle-income group economies.

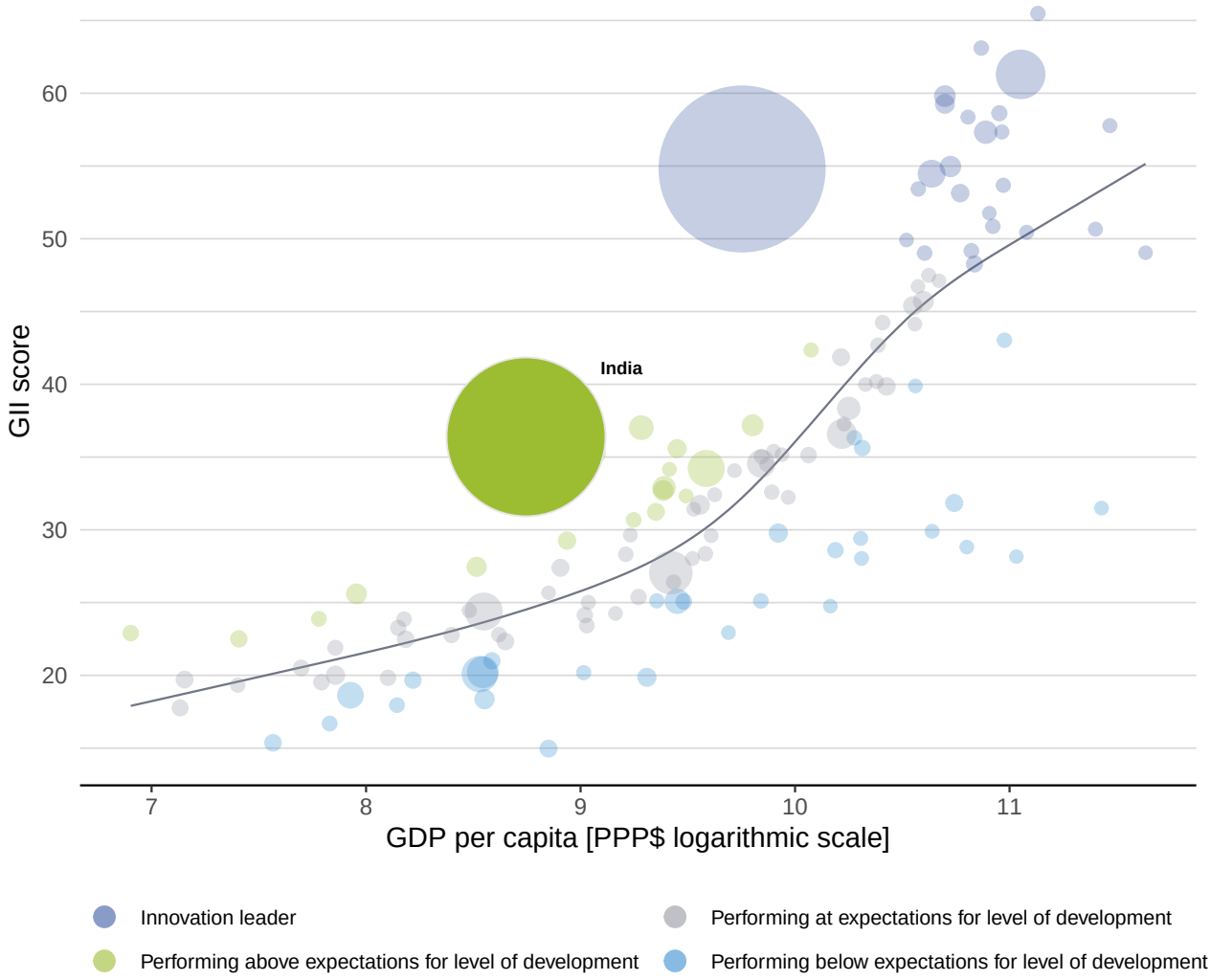
1st India ranks 1st among the 10 economies in Central and Southern Asia.

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's performance is above expectations for its level of development.

The positive relationship between innovation and development

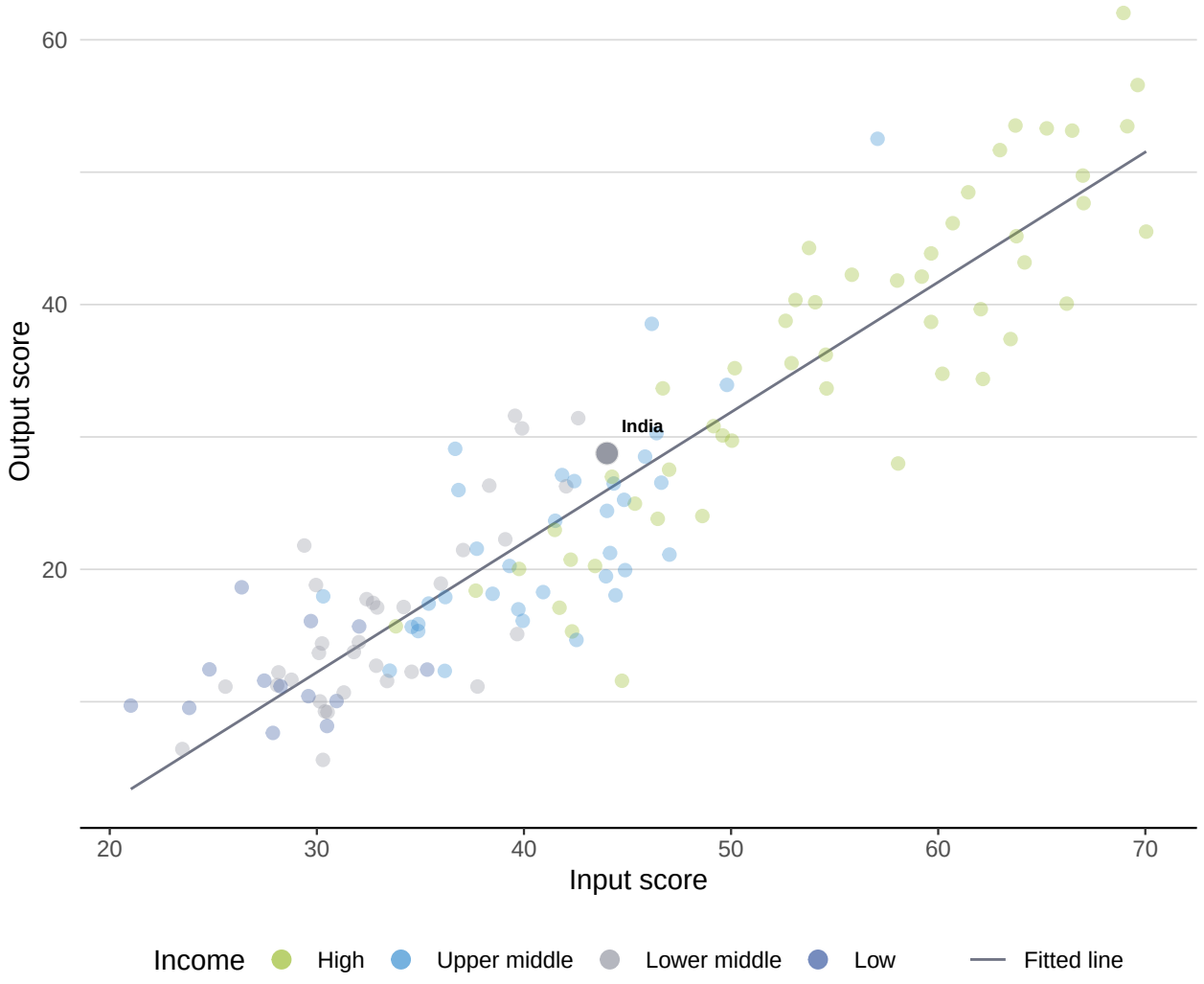


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

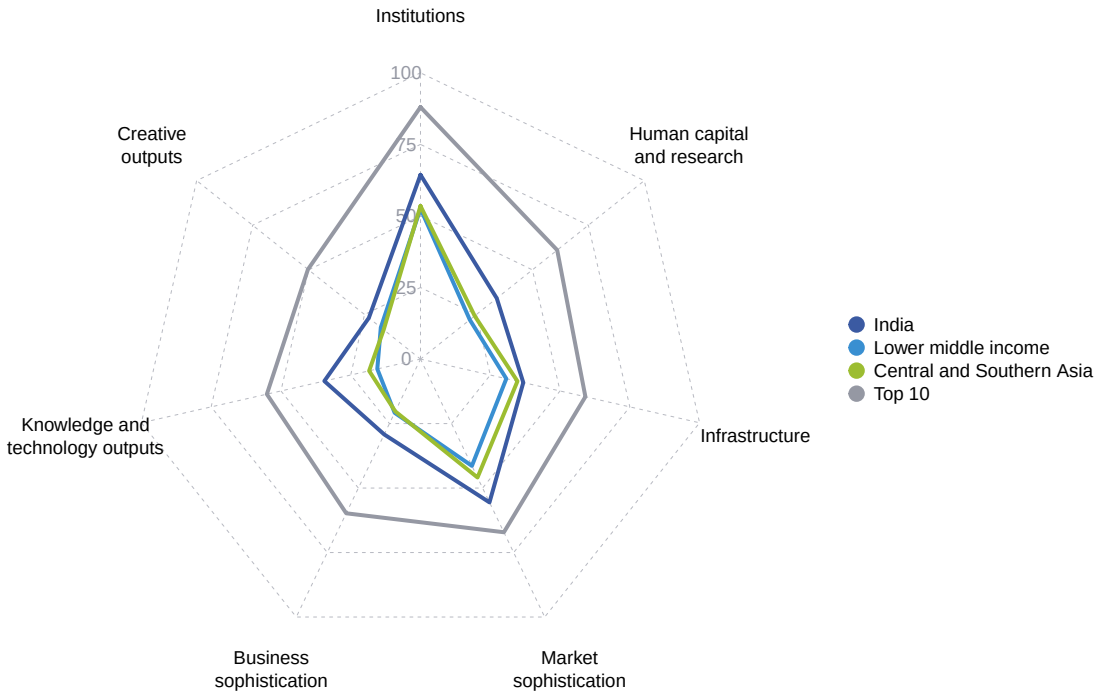
India produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER LOWER MIDDLE-INCOME GROUP ECONOMIES AND CENTRAL AND SOUTHERN ASIA

The seven GII pillar scores for India



Lower middle-income group economies

India performs above the lower middle-income group average in all GII pillars.

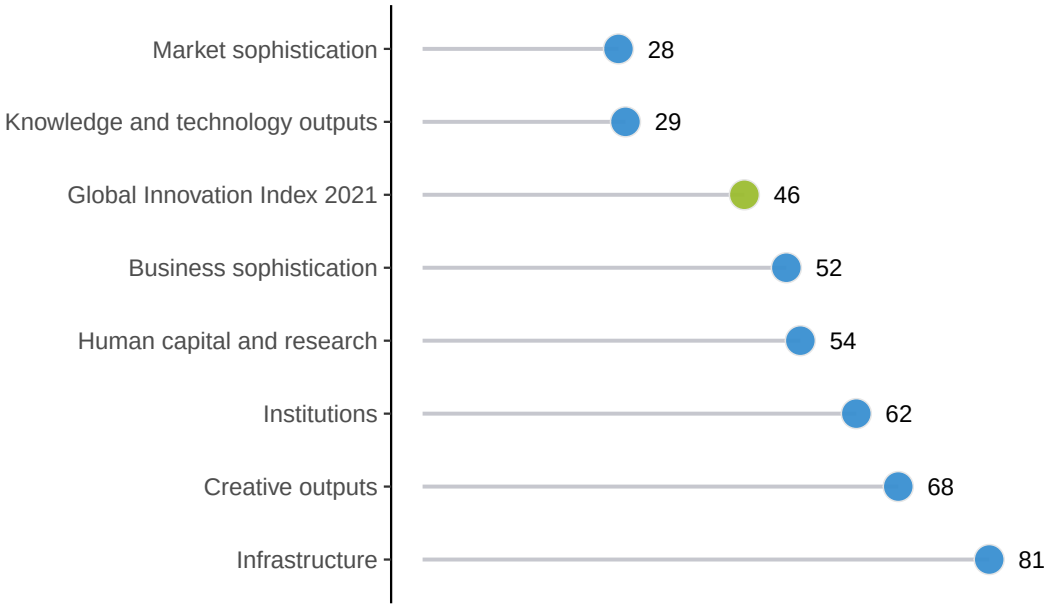
Central and Southern Asia

India performs above the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

India performs best in Market sophistication and its weakest performance is in Infrastructure.

The seven GII pillar ranks for India



Note: The highest possible ranking in each pillar is one.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of India in the GII 2021.

Strengths and weaknesses for India

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.2.2	Graduates in science and engineering, %	12	2.1.3	School life expectancy, years	95
2.3.3	Global corporate R&D investors, top 3, mn US$	15	2.1.5	Pupil-teacher ratio, secondary	99
2.3.4	QS university ranking, top 3	23	2.2.3	Tertiary inbound mobility, %	108
4.2.1	Ease of protecting minority investors	13	3.1.1	ICT access	111
4.3	Trade, diversification, and market scale	7	3.1.2	ICT use	110
4.3.2	Domestic industry diversification	12	3.3.2	Environmental performance	125
4.3.3	Domestic market scale, bn PPP$	3	5.1.5	Females employed w/advanced degrees, %	103
6.1.5	Citable documents H-index	21	6.2.2	New businesses/th pop. 15–64	115
6.2.1	Labor productivity growth, %	17	7.2.3	Entertainment and media market/th pop. 15–69	59
6.3	Knowledge diffusion	13	7.2.4	Printing and other media, % manufacturing	83
6.3.4	ICT services exports, % total trade	1	7.3.3	Wikipedia edits/mn pop. 15–69	117
7.2.1	Cultural and creative services exports, % total trade	18			

India

GII 2021 rank

46

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
45	57	Lower middle	CSA	1,380.0	8,681.3	6,284	48

		Score/ Value	Rank	
Institutions		**64.4**	**62**	◆
1.1	**Political environment**	**57.7**	**66**	◆
1.1.1	Political and operational stability*	64.3	80	
1.1.2	Government effectiveness*	54.5	60	◆
1.2	**Regulatory environment**	**63.6**	**71**	◆
1.2.1	Regulatory quality*	39.3	81	
1.2.2	Rule of law*	45.9	65	◆
1.2.3	Cost of redundancy dismissal	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 and research		**34.1**	**54**	◆
2.1	**Education**	**35.9**	**102**	
2.1.1	Expenditure on education, % GDP ◴	3.8	74	
2.1.2	Government funding/pupil, secondary, % GDP/cap ◴	16.9	66	
2.1.3	School life expectancy, years	11.5	95 ○	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	21.5	99 ○	
2.2	**Tertiary education**	**33.8**	**64**	◆
2.2.1	Tertiary enrolment, % gross	28.6	88	
2.2.2	Graduates in science and engineering, %	32.2	12 ● ◆	
2.2.3	Tertiary inbound mobility, %	0.1	108 ○	
2.3	**Research and development (R&D)**	**32.5**	**35**	◆
2.3.1	Researchers, FTE/mn pop. ◴	252.7	78	
2.3.2	Gross expenditure on R&D, % GDP ◴	0.7	52	◆
2.3.3	Global corporate R&D investors, top 3, mn US$	69.2	15 ● ◆	
2.3.4	QS university ranking, top 3*	44.9	23 ● ◆	
Infrastructure		**36.8**	**81**	◆
3.1	**Information and communication technologies (ICTs)**	**58.1**	**86**	
3.1.1	ICT access*	38.2	111 ○	
3.1.2	ICT use*	23.2	110 ○	
3.1.3	Government's online service*	85.3	24	◆
3.1.4	E-participation*	85.7	29	◆
3.2	**General infrastructure**	**32.1**	**52**	
3.2.1	Electricity output, GWh/mn pop.	1,198.1	94	
3.2.2	Logistics performance*	52.4	43	◆
3.2.3	Gross capital formation, % GDP	27.8	28	
3.3	**Ecological sustainability**	**20.3**	**98**	
3.3.1	GDP/unit of energy use	10.8	63	
3.3.2	Environmental performance*	27.6	125 ○ ◇	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	69	
Market sophistication		**55.5**	**28**	◆
4.1	**Credit**	**43.1**	**56**	
4.1.1	Ease of getting credit*	80.0	23	
4.1.2	Domestic credit to private sector, % GDP	50.2	69	
4.1.3	Microfinance gross loans, % GDP	0.9	25	
4.2	**Investment**	**35.9**	**45**	
4.2.1	Ease of protecting minority investors*	80.0	13 ● ◆	
4.2.2	Market capitalization, % GDP	80.2	19	◆
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.1	38	◆
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.1	22	◆
4.3	**Trade, diversification, and market scale**	**87.7**	**7** ● ◆	
4.3.1	Applied tariff rate, weighted avg., %	6.6	97	
4.3.2	Domestic industry diversification ◴	97.8	12 ● ◆	
4.3.3	Domestic market scale, bn PPP$	8,681.3	3 ● ◆	

		Score/ Value	Rank	
Business sophistication		**29.2**	**52**	◆
5.1	**Knowledge workers**	**26.4**	**83**	
5.1.1	Knowledge-intensive employment, %	17.0	90	
5.1.2	Firms offering formal training, % ◴	35.9	38	
5.1.3	GERD performed by business, % GDP ◴	0.2	51	◆
5.1.4	GERD financed by business, % ◴	36.8	51	
5.1.5	Females employed w/advanced degrees, %	2.3	103 ○	
5.2	**Innovation linkages**	**24.1**	**50**	◆
5.2.1	University-industry R&D collaboration†	42.7	65	
5.2.2	State of cluster development and depth†	45.6	72	
5.2.3	GERD financed by abroad, % GDP	n/a	n/a	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	35	◆
5.2.5	Patent families/bn PPP$ GDP	0.2	49	◆
5.3	**Knowledge absorption**	**37.1**	**34**	◆
5.3.1	Intellectual property payments, % total trade	1.4	27	◆
5.3.2	High-tech imports, % total trade	10.6	26	
5.3.3	ICT services imports, % total trade	1.7	43	
5.3.4	FDI net inflows, % GDP	1.6	88	
5.3.5	Research talent, % in businesses ◴	34.0	38	◆
Knowledge and technology outputs		**34.5**	**29**	◆
6.1	**Knowledge creation**	**21.0**	**51**	◆
6.1.1	Patents by origin/bn PPP$ GDP	2.0	36	◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	48	◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.3	84	
6.1.5	Citable documents H-index	40.8	21 ● ◆	
6.2	**Knowledge impact**	**33.3**	**51**	◆
6.2.1	Labor productivity growth, %	2.8	17 ●	
6.2.2	New businesses/th pop. 15–64	0.1	115 ○	
6.2.3	Software spending, % GDP	0.3	51	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.6	68	
6.2.5	High-tech manufacturing, %	34.1	36	◆
6.3	**Knowledge diffusion**	**49.1**	**13** ● ◆	
6.3.1	Intellectual property receipts, % total trade	0.1	46	
6.3.2	Production and export complexity	56.3	42	◆
6.3.3	High-tech exports, % total trade	4.0	39	
6.3.4	ICT services exports, % total trade	11.7	1 ● ◆	
Creative outputs		**23.1**	**68**	
7.1	**Intangible assets**	**31.9**	**61**	
7.1.1	Trademarks by origin/bn PPP$ GDP	33.8	68	
7.1.2	Global brand value, top 5,000, % GDP	70.3	28	◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	1.0	72	
7.1.4	ICTs and organizational model creation†	59.6	47	◆
7.2	**Creative goods and services**	**19.8**	**55**	◆
7.2.1	Cultural and creative services exports, % total trade	1.5	18 ● ◆	
7.2.2	National feature films/mn pop. 15–69 ◴	2.2	63	
7.2.3	Entertainment and media market/th pop. 15–69	0.9	59 ○	
7.2.4	Printing and other media, % manufacturing ◴	0.5	83 ○	
7.2.5	Creative goods exports, % total trade	2.7	24	◆
7.3	**Online creativity**	**8.6**	**105**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.9	97	
7.3.2	Country-code TLDs/th pop. 15–69	0.7	95	
7.3.3	Wikipedia edits/mn pop. 15–69	23.4	117 ○	
7.3.4	Mobile app creation/bn PPP$ GDP	13.3	42	

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 IV 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 for India

Code	Indicator name	Economy year	Model year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD Programme for International Student Assessment (PISA)
5.2.3	GERD financed by abroad, % GDP	n/a	2018	UNESCO Institute for Statistics
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization

Outdated data for India

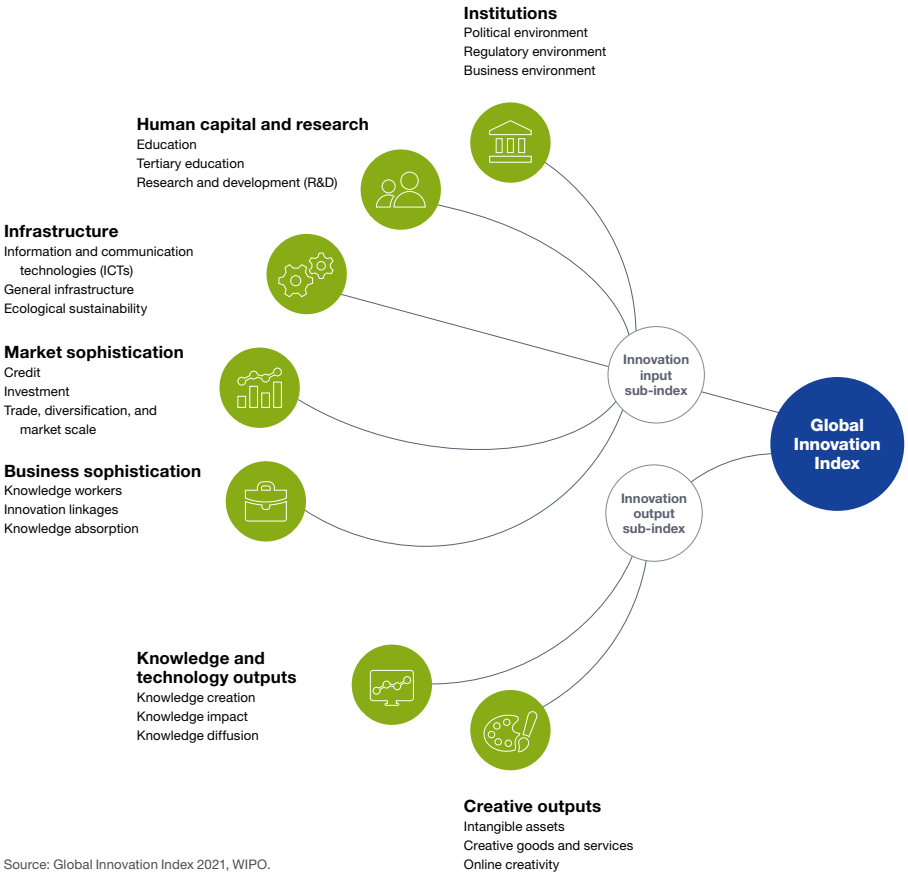
Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	2013	2017	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2013	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.2	Domestic industry diversification	2017	2018	United Nations Industrial Development Organization
5.1.2	Firms offering formal training, %	2014	2019	World Bank
5.1.3	GERD performed by business, % GDP	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2017	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators

Code	Indicator name	Economy year	Model year	Source
5.3.5	Research talent, % in businesses	2018	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
7.2.2	National feature films/mn pop. 15–69	2016	2017	UNESCO Institute for Statistics
7.2.4	Printing and other media, % manufacturing	2017	2018	United Nations Industrial Development Organization

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.

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.



Source: Global Innovation Index 2021, WIPO.

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.