Global Innovation Index 2021

NEPAL

111th Nepal ranks 111th 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 Nepal 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 Nepal in the GII 2021 is between ranks 102 and 113.

Rankings for Nepal (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	111	99	116
2020	95	89	106
2019	109	93	119

- Nepal performs better in innovation inputs than innovation outputs in 2021.
- This year Nepal ranks 99th in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Nepal ranks 116th. This position is lower than last year but higher than 2019.

22nd Nepal ranks 22nd among the 34 lower middle-income group economies.

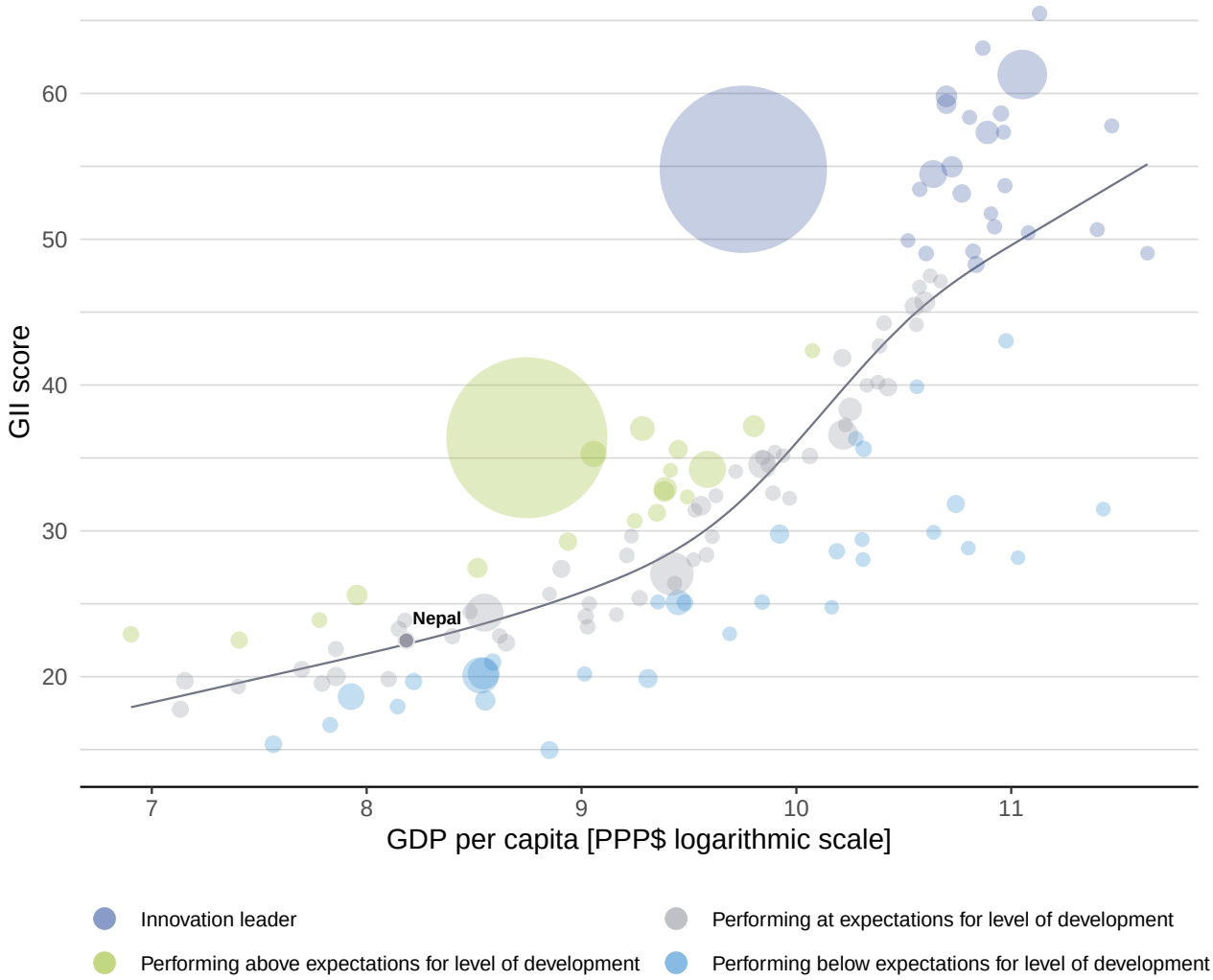
9th Nepal ranks 9th among the 10 economies in Central and Southern Asia.

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, Nepal's performance is at expectations for its level of development.

The positive relationship between innovation and development

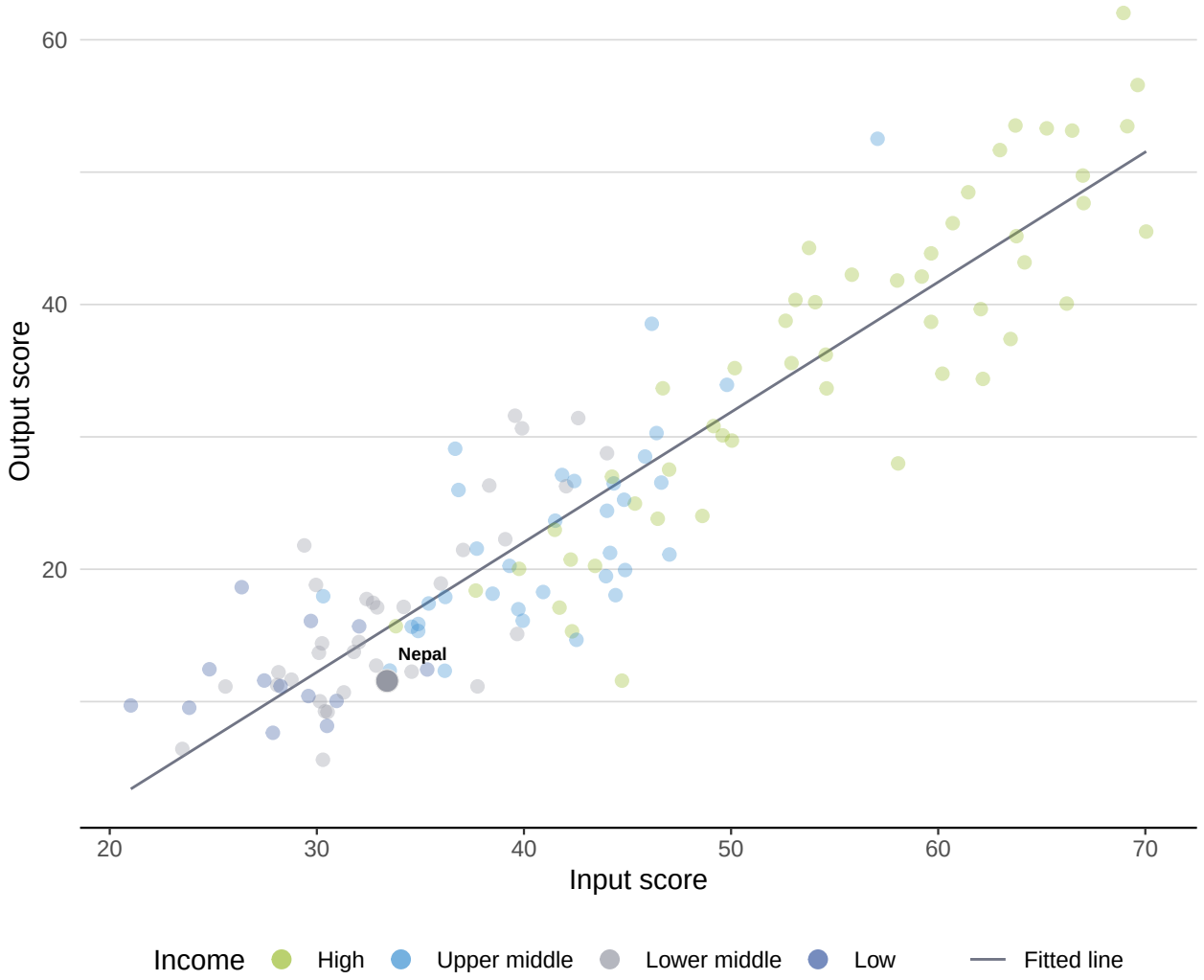


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Nepal produces less 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 Nepal

Lower middle-income group economies

Nepal performs above the lower middle-income group average in two pillars, namely: Market sophistication; and, Business sophistication.

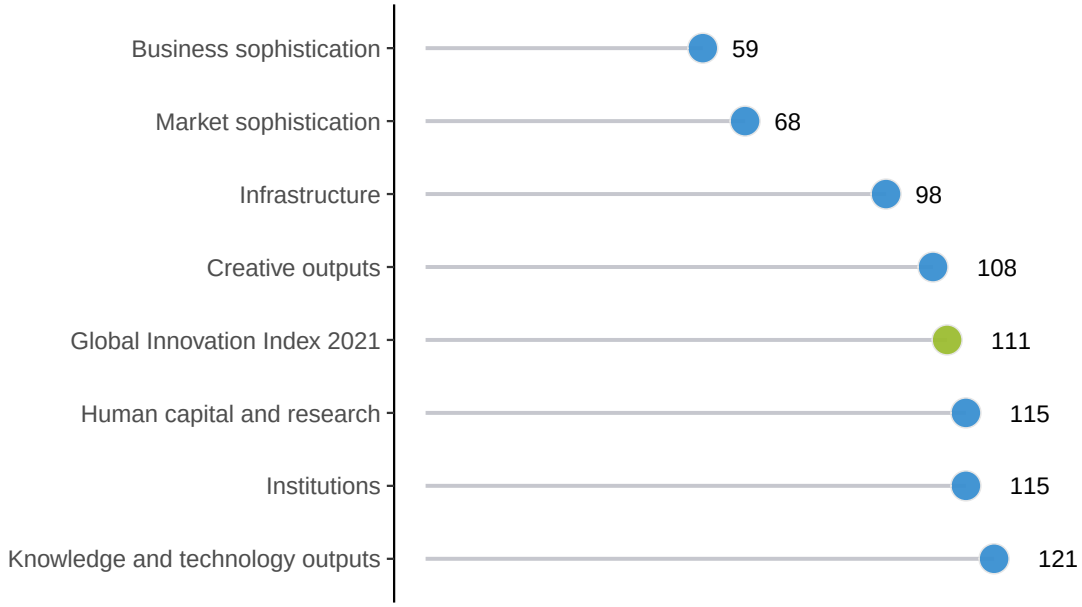
Central and Southern Asia

Nepal performs above the regional average in Business sophistication.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Nepal performs best in Business sophistication and its weakest performance is in Knowledge and technology outputs.

The seven GII pillar ranks for Nepal



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 Nepal in the GII 2021.

Strengths and weaknesses for Nepal

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	36	1.1.2	Government effectiveness	124
3.2	General infrastructure	28	2.2	Tertiary education	123
3.2.3	Gross capital formation, % GDP	2	2.2.3	Tertiary inbound mobility, %	111
4.1	Credit	30	2.3.3	Global corporate R&D investors, top 3, mn US$	41
4.1.1	Ease of getting credit	34	2.3.4	QS university ranking, top 3	74
4.1.2	Domestic credit to private sector, % GDP	31	3.2.1	Electricity output, GWh/mn pop.	118
4.1.3	Microfinance gross loans, % GDP	16	3.3	Ecological sustainability	126
5.1.2	Firms offering formal training, %	48	4.3.1	Applied tariff rate, weighted avg., %	129
5.3.2	High-tech imports, % total trade	21	5.3.3	ICT services imports, % total trade	124
6.1.4	Scientific and technical articles/bn PPP$ GDP	64	6.2	Knowledge impact	129
6.3.4	ICT services exports, % total trade	40	6.2.3	Software spending, % GDP	117
7.1.1	Trademarks by origin/bn PPP$ GDP	49	7.1.2	Global brand value, top 5,000, % GDP	80
7.3.4	Mobile app creation/bn PPP$ GDP	39	7.1.4	ICTs and organizational model creation	118

Nepal

GII 2021 rank

111

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
116	**99**	**Lower middle**	**CSA**	**29.1**	**103.4**	**3,586**	**95**

		Score/ Value	Rank	
Institutions		**49.3**	**115**	
1.1	**Political environment**	**37.9**	**123**	◇
1.1.1	Political and operational stability*	58.9	100	
1.1.2	Government effectiveness*	27.4	124	○ ◇
1.2	**Regulatory environment**	**45.4**	**114**	
1.2.1	Regulatory quality*	25.2	113	
1.2.2	Rule of law*	32.6	97	
1.2.3	Cost of redundancy dismissal	27.2	108	
1.3	**Business environment**	**64.4**	**86**	
1.3.1	Ease of starting a business*	81.7	104	
1.3.2	Ease of resolving insolvency*	47.2	79	
Human capital and research		**15.2**	**115**	
2.1	**Education**	**37.9**	**96**	
2.1.1	Expenditure on education, % GDP	5.1	36	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	10.5	91	
2.1.3	School life expectancy, years	13.2	79	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	28.3	114	◇
2.2	**Tertiary education**	**5.9**	**123**	○ ◇
2.2.1	Tertiary enrolment, % gross	13.3	106	
2.2.2	Graduates in science and engineering, %	n/a	n/a	
2.2.3	Tertiary inbound mobility, %	0.0	111	○ ◇
2.3	**Research and development (R&D)**	**2.0**	**96**	
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	
2.3.2	Gross expenditure on R&D, % GDP	0.3	79	
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41	○ ◇
2.3.4	QS university ranking, top 3*	0.0	74	○ ◇
Infrastructure		**30.7**	**98**	
3.1	**Information and communication technologies (ICTs)**	**35.8**	**118**	
3.1.1	ICT access*	41.9	104	
3.1.2	ICT use*	24.5	109	
3.1.3	Government's online service*	40.0	117	
3.1.4	E-participation*	36.9	116	
3.2	**General infrastructure**	**41.3**	**28**	● ◆
3.2.1	Electricity output, GWh/mn pop.	174.9	118	○
3.2.2	Logistics performance*	21.7	107	
3.2.3	Gross capital formation, % GDP	49.1	2	● ◆
3.3	**Ecological sustainability**	**15.0**	**126**	○ ◇
3.3.1	GDP/unit of energy use	5.9	109	
3.3.2	Environmental performance*	32.7	113	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	110	
Market sophistication		**45.8**	**68**	
4.1	**Credit**	**50.5**	**30**	● ◆
4.1.1	Ease of getting credit*	75.0	34	●
4.1.2	Domestic credit to private sector, % GDP	88.1	31	● ◆
4.1.3	Microfinance gross loans, % GDP	1.7	16	●
4.2	**Investment**	**30.5**	**[68]**	
4.2.1	Ease of protecting minority investors*	58.0	77	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.0	75	
4.3	**Trade, diversification, and market scale**	**56.5**	**106**	
4.3.1	Applied tariff rate, weighted avg., %	14.2	129	○ ◇
4.3.2	Domestic industry diversification	85.3	65	
4.3.3	Domestic market scale, bn PPP$	103.4	82	

		Score/ Value	Rank	
Business sophistication		**25.9**	**[59]**	
5.1	**Knowledge workers**	**23.2**	**[90]**	
5.1.1	Knowledge-intensive employment, %	13.8	97	
5.1.2	Firms offering formal training, %	31.9	48	●
5.1.3	GERD performed by business, % GDP	n/a	n/a	
5.1.4	GERD financed by business, %	n/a	n/a	
5.1.5	Females employed w/advanced degrees, %	3.0	101	
5.2	**Innovation linkages**	**24.1**	**[49]**	
5.2.1	University-industry R&D collaboration†	33.1	100	
5.2.2	State of cluster development and depth†	38.1	109	
5.2.3	GERD financed by abroad, % GDP	n/a	n/a	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	73	
5.2.5	Patent families/bn PPP$ GDP	n/a	n/a	
5.3	**Knowledge absorption**	**30.3**	**[56]**	
5.3.1	Intellectual property payments, % total trade	n/a	n/a	
5.3.2	High-tech imports, % total trade	11.4	21	●
5.3.3	ICT services imports, % total trade	0.2	124	○ ◇
5.3.4	FDI net inflows, % GDP	0.5	117	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**8.7**	**[121]**	
6.1	**Knowledge creation**	**10.3**	**[78]**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	92	
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	n/a	
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific and technical articles/bn PPP$ GDP	14.1	64	●
6.1.5	Citable documents H-index	7.9	86	
6.2	**Knowledge impact**	**3.8**	**129**	○ ◇
6.2.1	Labor productivity growth, %	n/a	n/a	
6.2.2	New businesses/th pop. 15–64	1.3	75	
6.2.3	Software spending, % GDP	0.0	117	○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.1	108	
6.2.5	High-tech manufacturing, %	6.7	98	
6.3	**Knowledge diffusion**	**11.8**	**[84]**	
6.3.1	Intellectual property receipts, % total trade	n/a	n/a	
6.3.2	Production and export complexity	n/a	n/a	
6.3.3	High-tech exports, % total trade	0.1	122	
6.3.4	ICT services exports, % total trade	2.7	40	●
Creative outputs		**14.5**	**108**	
7.1	**Intangible assets**	**21.8**	**93**	
7.1.1	Trademarks by origin/bn PPP$ GDP	46.8	49	●
7.1.2	Global brand value, top 5,000, % GDP	0.0	80	○ ◇
7.1.3	Industrial designs by origin/bn PPP$ GDP	0.2	102	
7.1.4	ICTs and organizational model creation†	37.9	118	○ ◇
7.2	**Creative goods and services**	**3.8**	**[109]**	
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a	
7.2.2	National feature films/mn pop. 15–69	n/a	n/a	
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	0.4	92	
7.2.5	Creative goods exports, % total trade	0.2	73	
7.3	**Online creativity**	**10.5**	**91**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	110	
7.3.2	Country-code TLDs/th pop. 15–69	1.0	86	
7.3.3	Wikipedia edits/mn pop. 15–69	29.6	106	
7.3.4	Mobile app creation/bn PPP$ GDP	13.7	39	●

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 Nepal.

Missing data for Nepal

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)
2.2.2	Graduates in science and engineering, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.1	Researchers, FTE/mn pop.	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.2.2	Market capitalization, % GDP	n/a	2019	World Federation of Exchanges
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	2020	Refinitiv Eikon
5.1.3	GERD performed by business, % GDP	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	n/a	2018	UNESCO Institute for Statistics
5.2.5	Patent families/bn PPP$ GDP	n/a	2017	World Intellectual Property Organization
5.3.1	Intellectual property payments, % total trade	n/a	2019	World Trade Organization
5.3.5	Research talent, % in businesses	n/a	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization
6.2.1	Labor productivity growth, %	n/a	2020	The Conference Board
6.3.1	Intellectual property receipts, % total trade	n/a	2019	World Trade Organization
6.3.2	Production and export complexity	n/a	2018	Growth Lab, Harvard University

Code	Indicator name	Economy year	Model year	Source
7.2.1	Cultural and creative services exports, % total trade	n/a	2019	World Trade Organization
7.2.2	National feature films/mn pop. 15–69	n/a	2017	UNESCO Institute for Statistics
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2020	PwC

Outdated data for Nepal

Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2011	2018	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2010	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.3.2	Domestic industry diversification	2011	2018	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2017	2019	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank
5.1.5	Females employed w/advanced degrees, %	2017	2019	International Labour Organization
5.3.2	High-tech imports, % total trade	2017	2019	United Nations, COMTRADE
6.1.1	Patents by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2011	2018	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2017	2019	United Nations, COMTRADE
7.1.1	Trademarks by origin/bn PPP$ GDP	2017	2019	World Intellectual Property Organization
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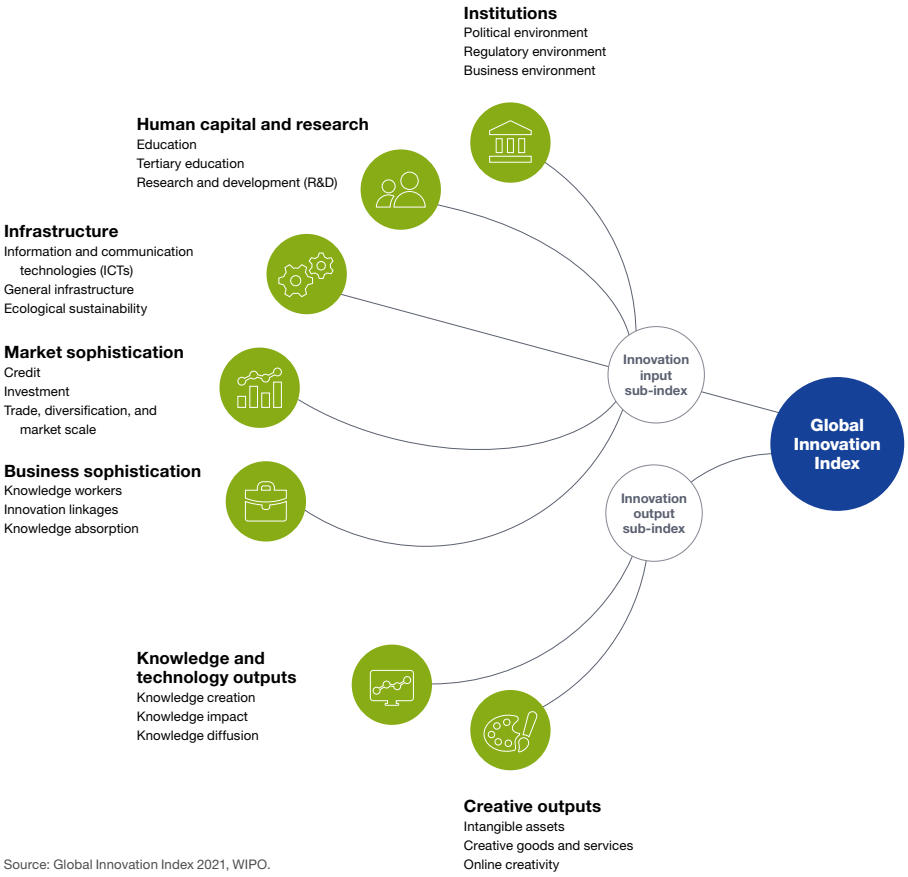
7.2.4	Printing and other media, % manufacturing	2011	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2017	2019	United Nations, COMTRADE

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.