Global Innovation Index 2022

NEPAL

111th Nepal ranks 111th among the 132 economies featured in the GII 2022.

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 2022 is between ranks 106 and 111.

Rankings for Nepal (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	95	89	106
2021	111	99	116
2022	111	106	111

- Nepal performs better in innovation inputs than innovation outputs in 2022.
- This year Nepal ranks 106th in innovation inputs, lower than both 2021 and 2020.
- As for innovation outputs, Nepal ranks 111th. This position is higher than last year but lower than 2020.

26th Nepal ranks 26th among the 36 lower-middle-income group economies.

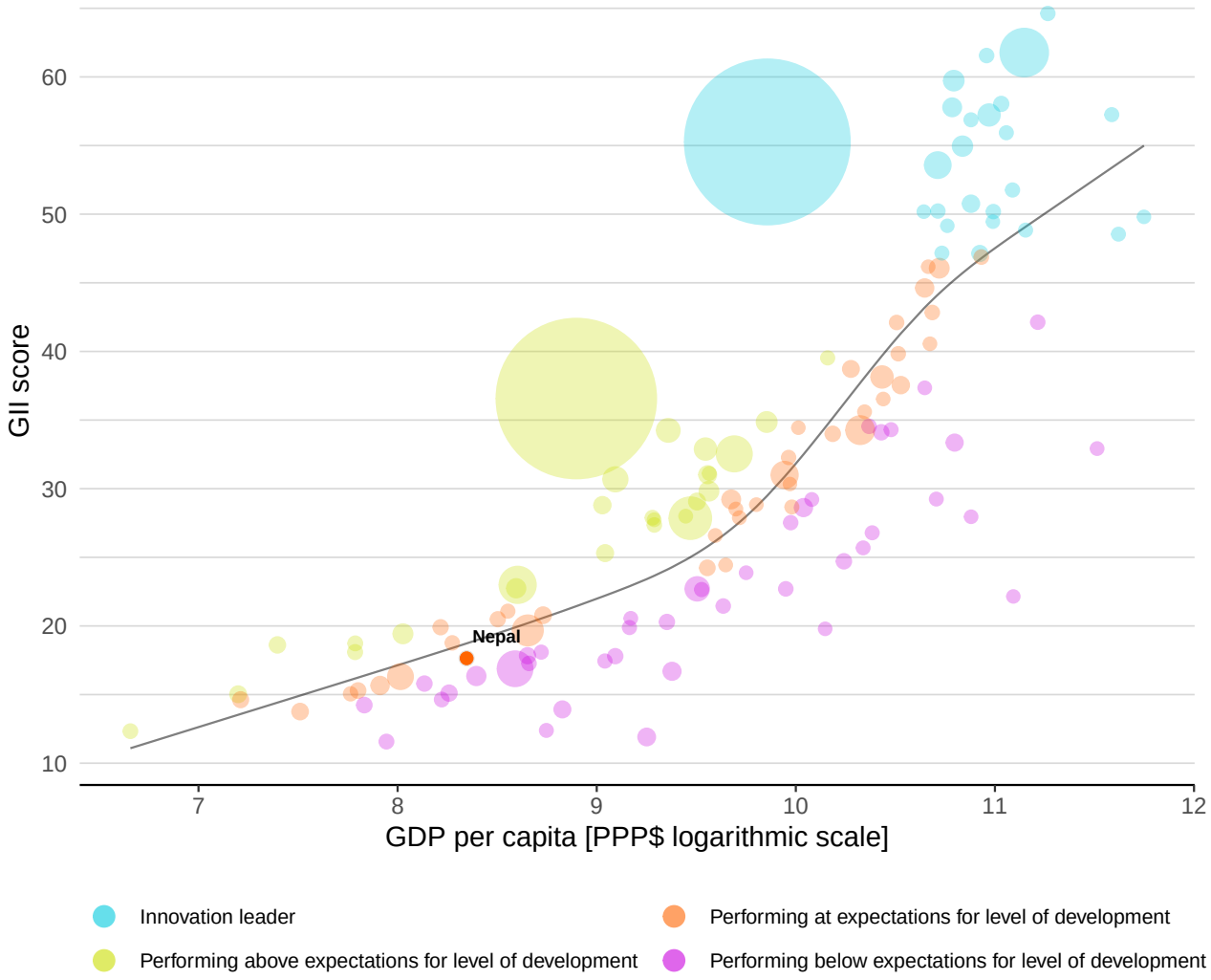
10th Nepal ranks 10th among the 10 economies in Central and Southern Asia.

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

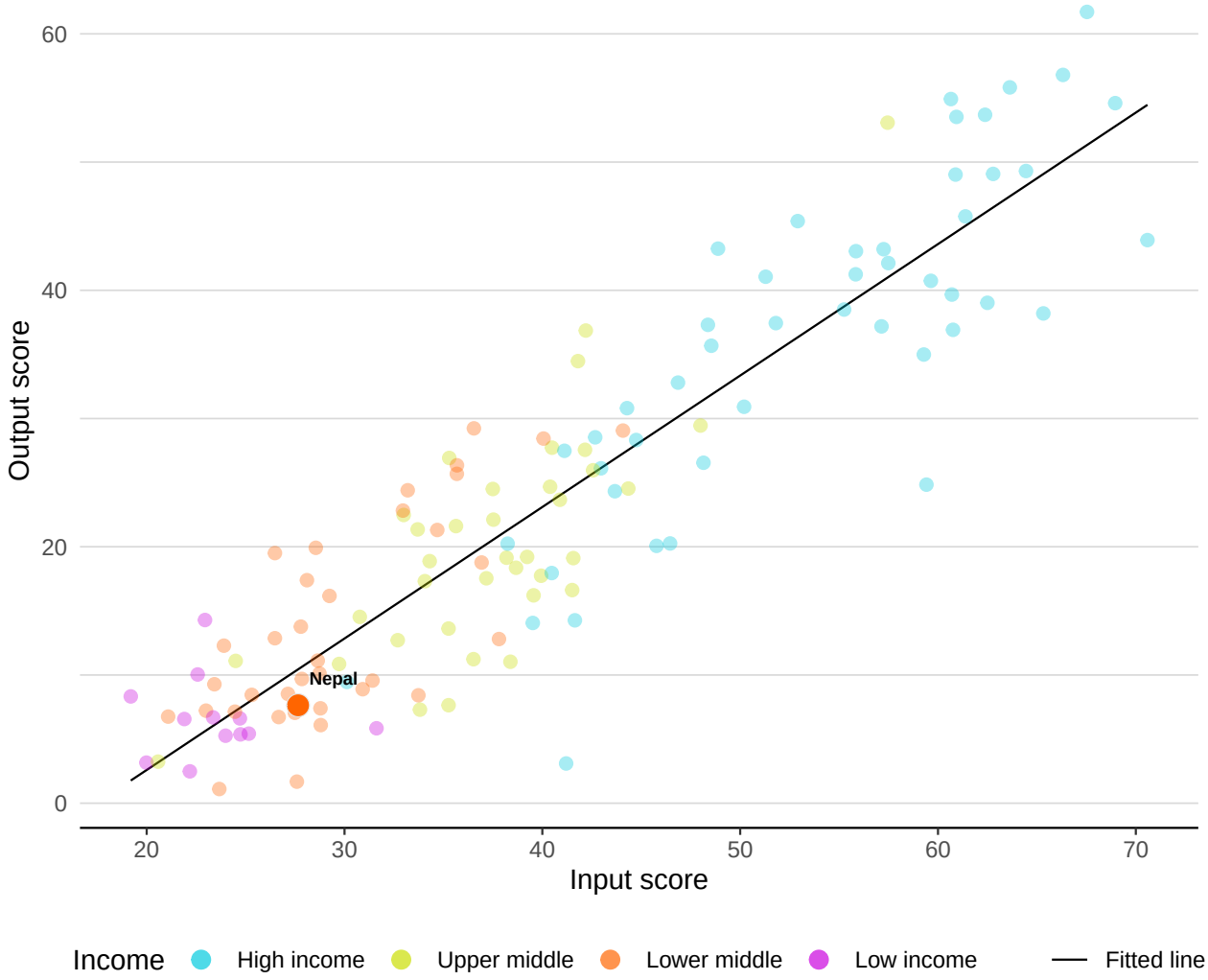


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

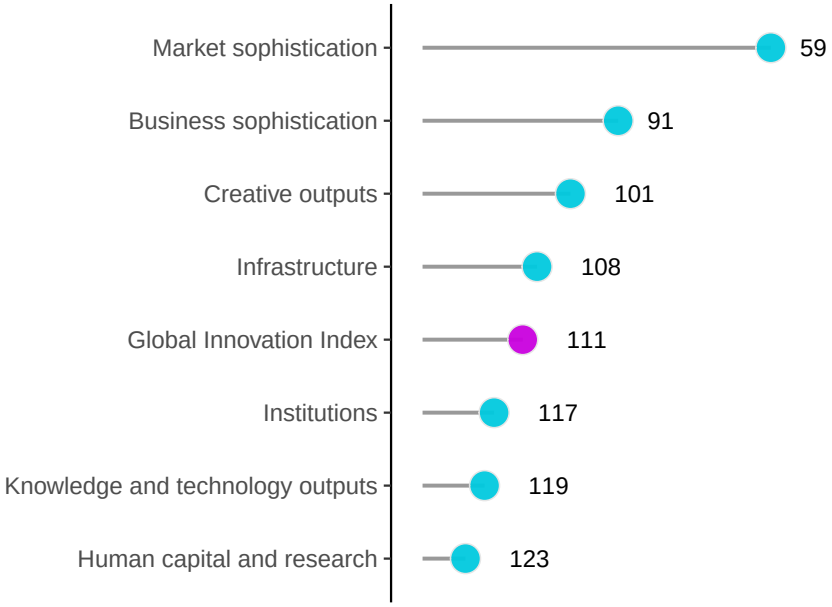
Central and Southern Asia

Nepal performs above the regional average in Market sophistication.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Nepal performs best in Market sophistication and its weakest performance is in Human capital and research.

The seven GII pillar ranks for Nepal



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Nepal can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=NP.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Nepal in the GII 2022.

Strengths and weaknesses for Nepal

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.1	Expenditure on education, % GDP	64	1.1.2	Government effectiveness	121
3.2.3	Gross capital formation, % GDP	4	2.1.5	Pupil-teacher ratio, secondary	118
4.1.2	Domestic credit to private sector, % GDP	35	2.2.3	Tertiary inbound mobility, %	112
4.1.3	Loans from microfinance institutions, % GDP	4	2.3.3	Global corporate R&D investors, top 3, mn USD	38
5.1.2	Firms offering formal training, %	52	2.3.4	QS university ranking, top 3	72
5.3.2	High-tech imports, % total trade	24	4.3.1	Applied tariff rate, weighted avg., %	125
6.1.4	Scientific and technical articles/bn PPP$ GDP	64	5.3.3	ICT services imports, % total trade	127
6.3.4	ICT services exports, % total trade	58	6.2.3	Software spending, % GDP	116
7.1.2	Trademarks by origin/bn PPP$ GDP	62	6.3.3	High-tech exports, % total trade	124
7.3.4	Mobile app creation/bn PPP$ GDP	44	7.1.3	Global brand value, top 5,000, % GDP	77

GII 2022 rank

Nepal

111

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
111	106	Lower middle	CSA	29.7	123.2	4,215

		Score/ Value	Rank
Institutions		**41.3**	**117**
1.1	**Political environment**	43.8	119
1.1.1	Political and operational stability*	58.2	103
1.1.2	Government effectiveness*	29.4	121 ○ ◇
1.2	**Regulatory environment**	46.2	114
1.2.1	Regulatory quality*	27.6	112
1.2.2	Rule of law*	33.3	91
1.2.3	Cost of redundancy dismissal	27.2	109
1.3	**Business environment**	34.0	[100]
1.3.1	Policies for doing business†	34.0	109
1.3.2	Entrepreneurship policies and culture*	n/a	n/a
Human capital and research		**11.5**	**123 ○ ◇**
2.1	**Education**	31.3	116
2.1.1	Expenditure on education, % GDP	4.4	64 ●
2.1.2	Government funding/pupil, secondary, % GDP/cap 🕘	9.2	98
2.1.3	School life expectancy, years	12.9	84
2.1.4	PISA scales in reading, maths and science	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary	30.4	118 ○ ◇
2.2	**Tertiary education**	3.2	124 ○ ◇
2.2.1	Tertiary enrolment, % gross	13.5	107
2.2.2	Graduates in science and engineering, %	n/a	n/a
2.2.3	Tertiary inbound mobility, % 🕘	0.0	112 ○ ◇
2.3	**Research and development (R&D)**	0.0	[120]
2.3.1	Researchers, FTE/mn pop.	n/a	n/a
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38 ○ ◇
2.3.4	QS university ranking, top 3*	0.0	72 ○ ◇
Infrastructure		**28.9**	**108**
3.1	**Information and communication technologies (ICTs)**	42.8	117
3.1.1	ICT access*	63.0	112
3.1.2	ICT use*	31.2	111
3.1.3	Government's online service*	40.0	114
3.1.4	E-participation*	36.9	114
3.2	**General infrastructure**	29.6	64 ●
3.2.1	Electricity output, GWh/mn pop. 🕘	216.0	117
3.2.2	Logistics performance*	21.4	105
3.2.3	Gross capital formation, % GDP	41.9	4 ● ◆
3.3	**Ecological sustainability**	14.3	127 ○ ◇
3.3.1	GDP/unit of energy use	6.3	110
3.3.2	Environmental performance*	28.3	117
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.2	116
Market sophistication		**34.2**	**59 ●**
4.1	**Credit**	65.0	4 ● ◆
4.1.1	Finance for startups and scaleups*	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	87.9	35 ● ◆
4.1.3	Loans from microfinance institutions, % GDP	6.7	4 ● ◆
4.2	**Investment**	1.2	[108]
4.2.1	Market capitalization, % GDP	n/a	n/a
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.0	88
4.2.4	Venture capital received, value, % GDP	0.0	94
4.3	**Trade, diversification, and market scale**	36.5	108
4.3.1	Applied tariff rate, weighted avg., %	11.6	125 ○ ◇
4.3.2	Domestic industry diversification 🕘	82.0	65
4.3.3	Domestic market scale, bn PPP$	123.2	81

		Score/ Value	Rank
Business sophistication		**22.3**	**[91]**
5.1	**Knowledge workers**	20.9	[93]
5.1.1	Knowledge-intensive employment, % 🕘	13.2	97
5.1.2	Firms offering formal training, % 🕘	31.9	52 ●
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, % 🕘	2.9	100
5.2	**Innovation linkages**	18.6	103
5.2.1	University-industry R&D collaboration†	31.5	113
5.2.2	State of cluster development and depth†	37.3	112
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	84
5.2.5	Patent families/bn PPP$ GDP	0.0	82
5.3	**Knowledge absorption**	27.4	[79]
5.3.1	Intellectual property payments, % total trade	n/a	n/a
5.3.2	High-tech imports, % total trade 🕘	11.1	24 ●
5.3.3	ICT services imports, % total trade	0.2	127 ○ ◇
5.3.4	FDI net inflows, % GDP	0.4	116
5.3.5	Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs		**7.6**	**[119]**
6.1	**Knowledge creation**	9.9	[74]
6.1.1	Patents by origin/bn PPP$ GDP 🕘	0.2	99
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	15.0	64 ●
6.1.5	Citable documents H-index	7.5	85
6.2	**Knowledge impact**	4.1	125 ○ ◇
6.2.1	Labor productivity growth, %	n/a	n/a
6.2.2	New businesses/th pop. 15–64	1.4	74
6.2.3	Software spending, % GDP	0.0	116 ○ ◇
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	0.8	112
6.2.5	High-tech manufacturing, % 🕘	6.8	96
6.3	**Knowledge diffusion**	8.7	[107]
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	124 ○
6.3.4	ICT services exports, % total trade	2.3	58 ●
Creative outputs		**7.7**	**101**
7.1	**Intangible assets**	10.0	100
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a
7.1.2	Trademarks by origin/bn PPP$ GDP 🕘	40.7	62 ●
7.1.3	Global brand value, top 5,000, % GDP	0.0	77 ○ ◇
7.1.4	Industrial designs by origin/bn PPP$ GDP 🕘	0.2	110
7.2	**Creative goods and services**	7.7	[89]
7.2.1	Cultural and creative services exports, % total trade	n/a	n/a
7.2.2	National feature films/mn pop. 15–69	2.6	41 ◆
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	88
7.2.5	Creative goods exports, % total trade 🕘	0.3	71
7.3	**Online creativity**	3.1	71
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.5	106
7.3.2	Country-code TLDs/th pop. 15–69	1.2	80
7.3.3	GitHub commit pushes received/mn pop. 15–69	2.3	81
7.3.4	Mobile app creation/bn PPP$ GDP	8.4	44 ●

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 appendices for details, including the year of the data, at https://www.wipo.int/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Nepal.

Missing data for Nepal

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.2.2	Graduates in science and engineering, %	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	n/a	2020	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	n/a	2021	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	2021	Refinitiv
5.1.3	GERD performed by business, % GDP	n/a	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	n/a	2019	UNESCO Institute for Statistics
5.2.3	GERD financed by abroad, % GDP	n/a	2019	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	n/a	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics
6.1.2	PCT patents by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
6.2.1	Labor productivity growth, %	n/a	2021	The Conference Board
6.3.1	Intellectual property receipts, % total trade	n/a	2020	World Trade Organization and United Nations Conference on Trade and Development
6.3.2	Production and export complexity	n/a	2019	Harvard University, Growth Lab
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance
7.2.1	Cultural and creative services exports, % total trade	n/a	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

Outdated data for Nepal

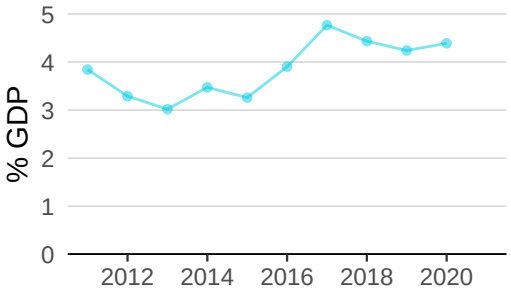
Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2018	UNESCO Institute for Statistics

Code	Indicator name	Economy year	Model year	Source
2.2.3	Tertiary inbound mobility, %	2011	2019	UNESCO Institute for Statistics
3.2.1	Electricity output, GWh/mn pop.	2019	2020	International Energy Agency
4.3.2	Domestic industry diversification	2018	2019	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2017	2021	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2017	2021	International Labour Organization
5.3.2	High-tech imports, % total trade	2019	2020	United Nations Comtrade Database
6.1.1	Patents by origin/bn PPP$ GDP	2017	2020	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2018	2019	United Nations Industrial Development Organization
6.3.3	High-tech exports, % total trade	2019	2020	United Nations Comtrade Database
7.1.2	Trademarks by origin/bn PPP$ GDP	2017	2020	World Intellectual Property Organization
7.1.4	Industrial designs by origin/bn PPP$ GDP	2017	2020	World Intellectual Property Organization
7.2.4	Printing and other media, % manufacturing	2011	2019	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2019	2020	United Nations Comtrade Database

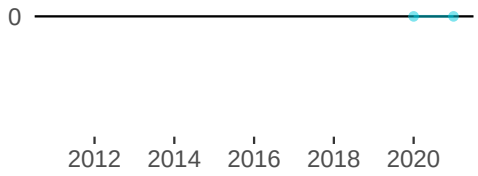
NEPAL'S INNOVATION SYSTEM

As far as practicable, the plots below present unscaled indicator data.

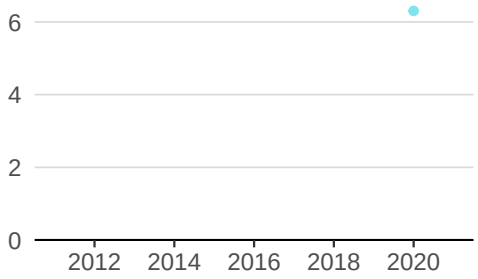
Innovation inputs



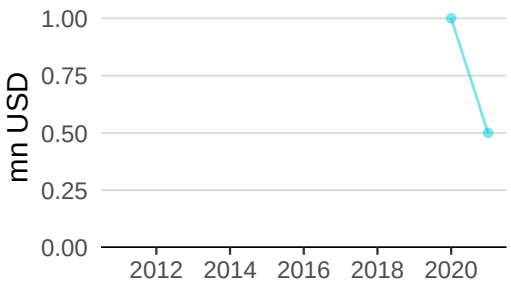
2.1.1 Expenditure on education was equal to 4.4% GDP in 2020–up by 4 percentage points from the year prior–and equivalent to an indicator rank of 64.



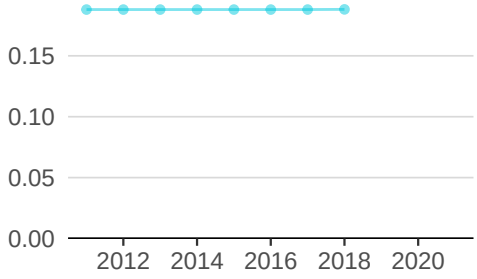
2.3.4 QS university ranking was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



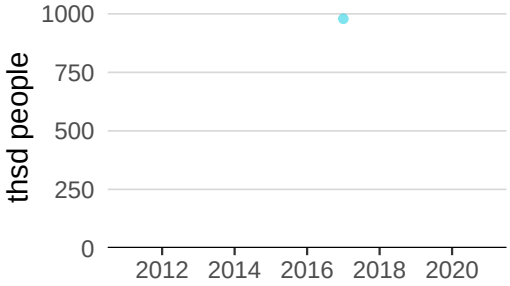
3.1.1 ICT access was equal to 6.3 in 2020 and equivalent to an indicator rank of 112.



4.2.4 Venture capital received was equal to 0.5 mn USD in 2021–down by 50 percentage points from the year prior–and equivalent to an indicator rank of 94.

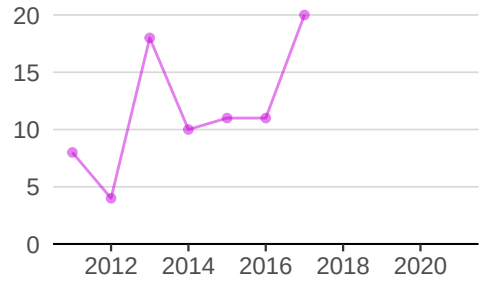


4.3.2 Domestic industry diversification was equal to 0.2 in 2018–effectively unchanged from the year prior–and equivalent to an indicator rank of 65.

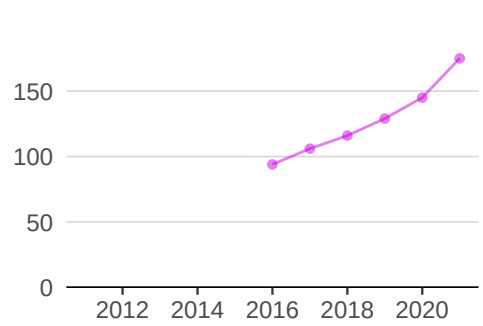


5.1.1 Knowledge-intensive employment was equal to 978.9 thsd people in 2017 and equivalent to an indicator rank of 97.

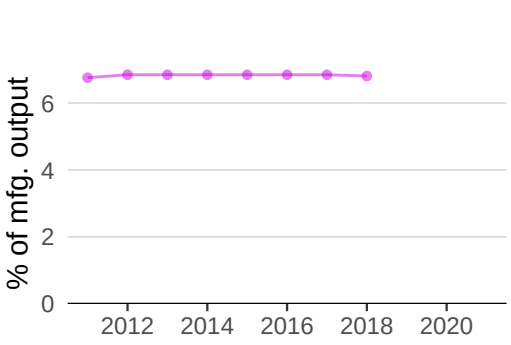
Innovation outputs



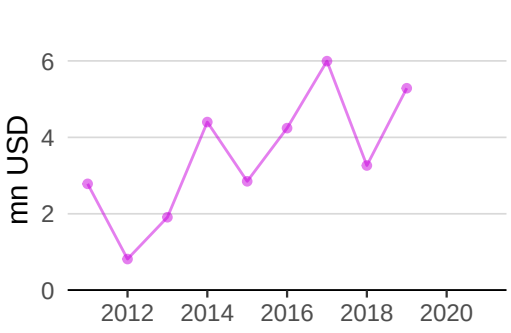
6.1.1 Patents by origin was equal to 20.0 in 2017–up by 82 percentage points from the year prior–and equivalent to an indicator rank of 99.



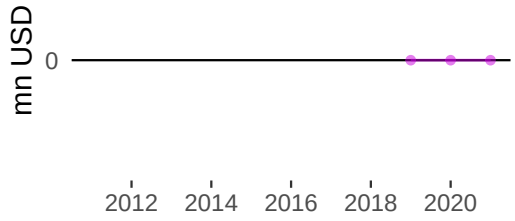
6.1.5 Citable documents H-index was equal to 175.0 in 2021–up by 21 percentage points from the year prior–and equivalent to an indicator rank of 85.



6.2.5 High-tech manufacturing was equal to 6.8% of mfg. output in 2018–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 96.



6.3.3 High-tech exports was equal to 5.3 mn USD in 2019–up by 62 percentage points from the year prior–and equivalent to an indicator rank of 124.



7.1.3 Global brand value was equal to 0.0 mn USD in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 77.

NEPAL'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

2.3.4 QS university ranking

University	Score	Rank

No observations

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).

7.1.1 Intangible asset intensity, top 15

Firm	Rank

No observations

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank

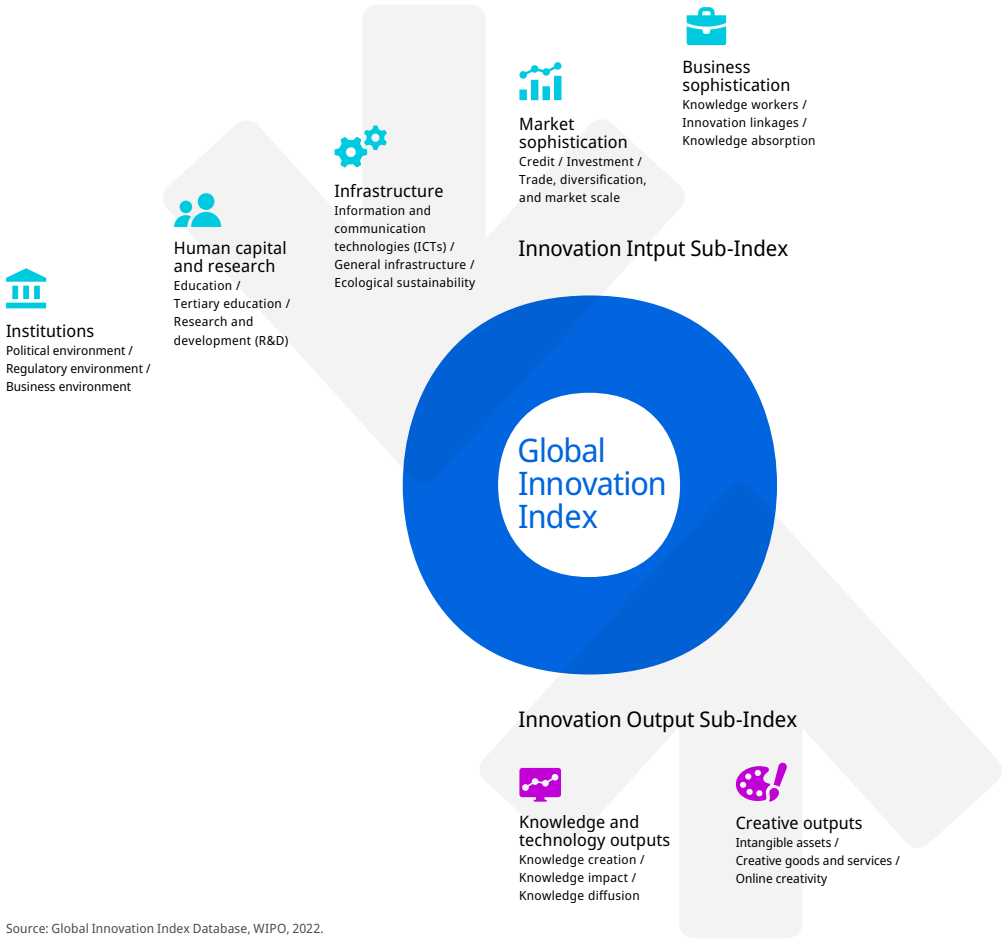
No observations

Source: Brand Finance (https://brandirectory.com).

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 Database, WIPO, 2022.

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.