Global Innovation Index 2021

IRAN (ISLAMIC REPUBLIC OF)

60th Iran ranks 60th 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 Iran 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 Iran in the GII 2021 is between ranks 57 and 65.

Rankings for Iran (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	60	86	44
2020	67	90	50
2019	61	86	47

- Iran performs better in innovation outputs than innovation inputs in 2021.
- This year Iran ranks 86th in innovation inputs, higher than last year but the same as 2019.
- As for innovation outputs, Iran ranks 44th. This position is higher than both 2020 and 2019.

13th Iran ranks 13th among the 34 upper middle-income group economies.

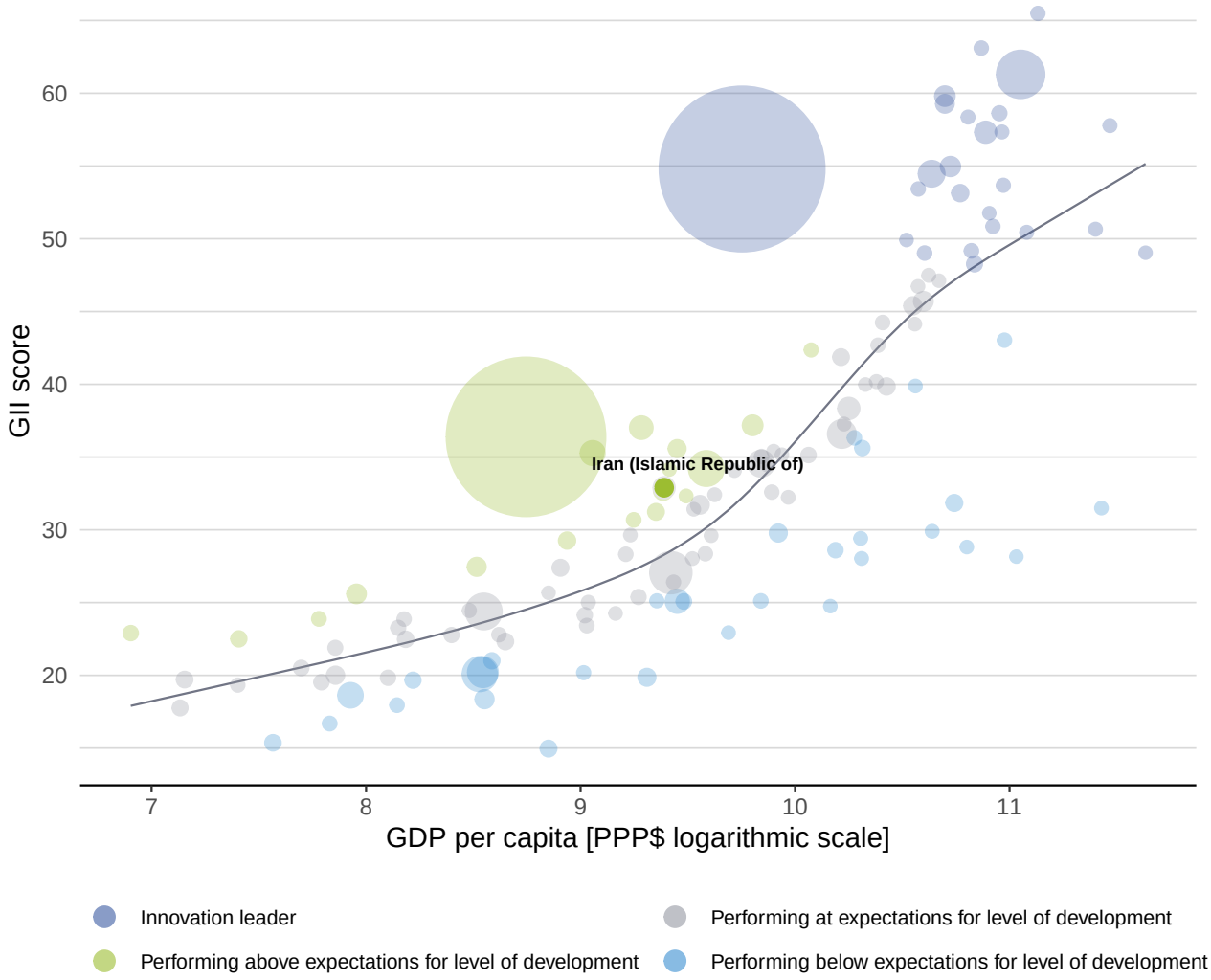
2nd Iran ranks 2nd among the 10 economies in Central and Southern Asia.

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

The positive relationship between innovation and development

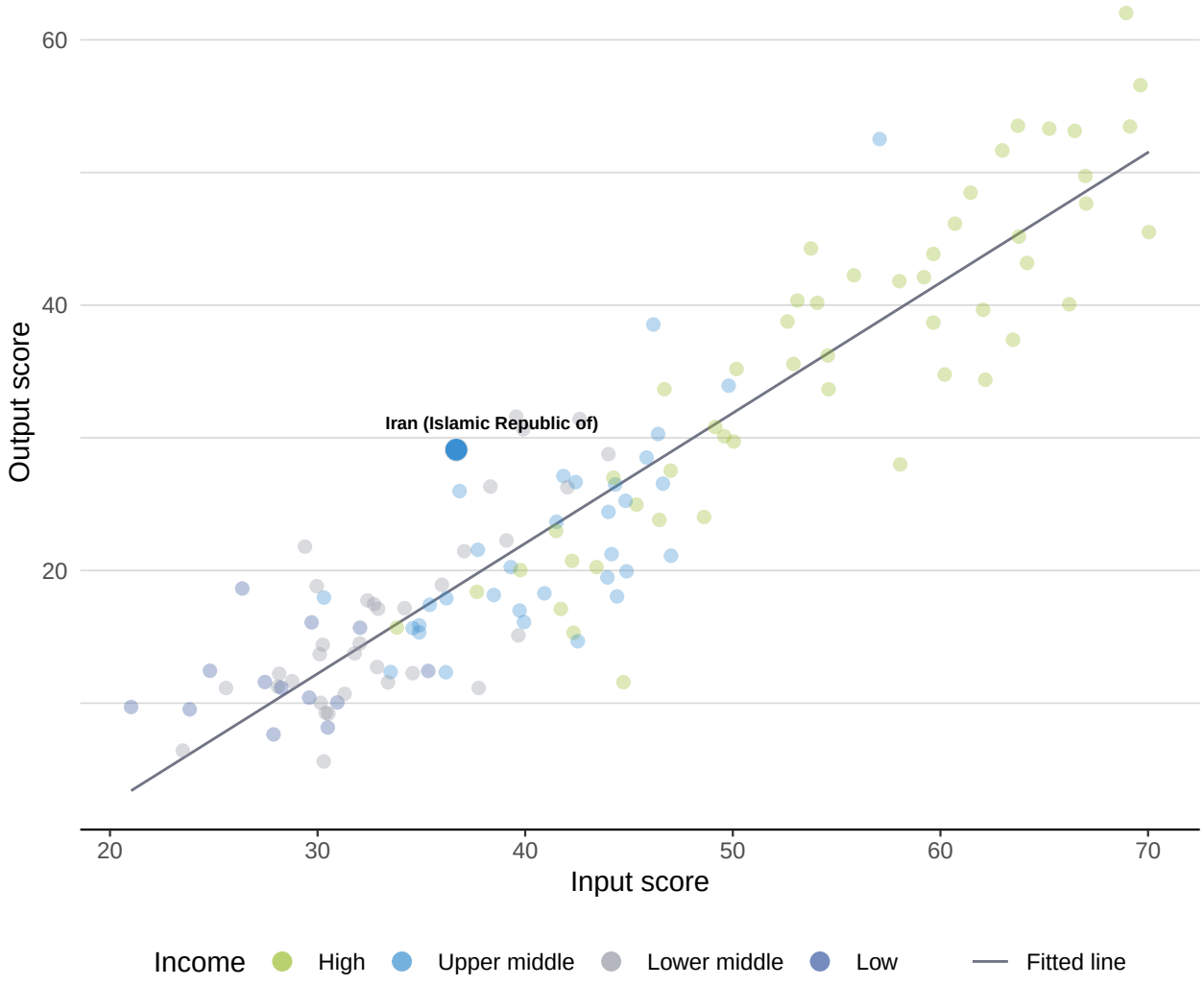


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance



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

The seven GII pillar scores for Iran

Upper middle-income group economies

Iran performs above the upper middle-income group average in four pillars, namely: Human capital and research; Infrastructure; Knowledge and technology outputs; and, Creative outputs.

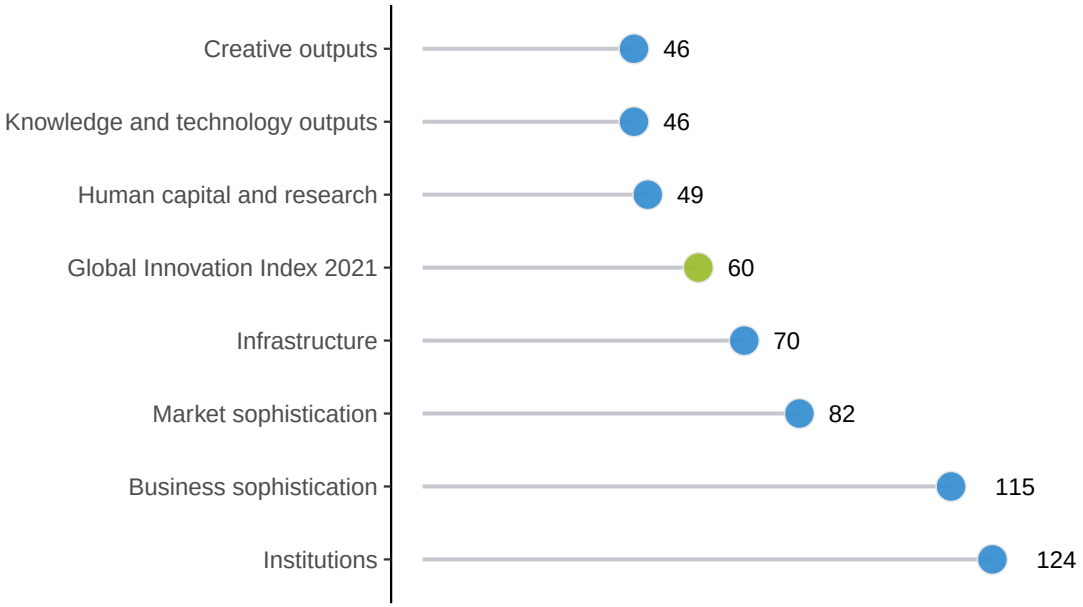
Central and Southern Asia

Iran performs above the regional average in four pillars, namely: Human capital and research; Infrastructure; Knowledge and technology outputs; and, Creative outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Iran performs best in Knowledge and technology outputs and Creative outputs and its weakest performance is in Institutions.

The seven GII pillar ranks for Iran



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 Iran in the GII 2021.

Strengths and weaknesses for Iran

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.2	Tertiary education	9	1.1.1	Political and operational stability	129
2.2.2	Graduates in science and engineering, %	3	1.2.1	Regulatory quality	130
3.1.1	ICT access	37	1.3	Business environment	125
3.2	General infrastructure	25	1.3.1	Ease of starting a business	129
3.2.3	Gross capital formation, % GDP	6	2.3.3	Global corporate R&D investors, top 3, mn US$	41
4.3.3	Domestic market scale, bn PPP$	25	4.3.1	Applied tariff rate, weighted avg., %	130
6.1	Knowledge creation	14	5.2.1	University-industry R&D collaboration	120
6.1.1	Patents by origin/bn PPP$ GDP	7	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	127
6.1.4	Scientific and technical articles/bn PPP$ GDP	11	6.2.1	Labor productivity growth, %	119
6.1.5	Citable documents H-index	40	6.3.4	ICT services exports, % total trade	125
6.2.5	High-tech manufacturing, %	28	7.2.4	Printing and other media, % manufacturing	98
7.1	Intangible assets	13			
7.1.1	Trademarks by origin/bn PPP$ GDP	1			
7.1.3	Industrial designs by origin/bn PPP$ GDP	4			

Iran (Islamic Republic of)

GII 2021 rank
60

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
44	86	Upper middle	CSA	84.0	1,006.7	11,963	67

		Score/ Value	Rank
Institutions		**45.3**	**124** ◇
1.1	**Political environment**	**41.0**	**114** ◇
1.1.1	Political and operational stability*	46.4	129 ○ ◇
1.1.2	Government effectiveness*	38.3	102 ◇
1.2	**Regulatory environment**	**43.4**	**119** ◇
1.2.1	Regulatory quality*	6.3	130 ○ ◇
1.2.2	Rule of law*	27.0	110 ◇
1.2.3	Cost of redundancy dismissal	23.1	98
1.3	**Business environment**	**51.4**	**125** ○ ◇
1.3.1	Ease of starting a business*	67.8	129 ○ ◇
1.3.2	Ease of resolving insolvency*	35.1	111 ◇
Human capital and research		**37.3**	**49**
2.1	**Education**	**44.5**	**80**
2.1.1	Expenditure on education, % GDP	4.0	69
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.5	61
2.1.3	School life expectancy, years ◴	14.8	58
2.1.4	PISA scales in reading, maths and science	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary ◴	19.0	93
2.2	**Tertiary education**	**52.9**	**9** ● ◆
2.2.1	Tertiary enrolment, % gross	62.8	46
2.2.2	Graduates in science and engineering, %	40.2	3 ● ◆
2.2.3	Tertiary inbound mobility, %	0.6	94
2.3	**Research and development (R&D)**	**14.6**	**48**
2.3.1	Researchers, FTE/mn pop. ◴	1,474.9	44
2.3.2	Gross expenditure on R&D, % GDP ◴	0.8	45
2.3.3	Global corporate R&D investors, top 3, mn US$	0.0	41 ○ ◇
2.3.4	QS university ranking, top 3*	24.2	44
Infrastructure		**40.9**	**70**
3.1	**Information and communication technologies (ICTs)**	**60.1**	**83**
3.1.1	ICT access*	79.2	37 ● ◆
3.1.2	ICT use*	56.0	69
3.1.3	Government's online service*	58.8	88
3.1.4	E-participation*	46.4	107 ◇
3.2	**General infrastructure**	**41.5**	**25** ● ◆
3.2.1	Electricity output, GWh/mn pop.	3,787.8	56
3.2.2	Logistics performance*	37.4	63
3.2.3	Gross capital formation, % GDP	40.7	6 ● ◆
3.3	**Ecological sustainability**	**21.2**	**93** ◇
3.3.1	GDP/unit of energy use	5.9	108 ◇
3.3.2	Environmental performance*	48.0	61
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.7	77
Market sophistication		**43.4**	**82**
4.1	**Credit**	**38.1**	**78**
4.1.1	Ease of getting credit*	50.0	94 ◇
4.1.2	Domestic credit to private sector, % GDP ◴	66.1	49
4.1.3	Microfinance gross loans, % GDP	n/a	n/a
4.2	**Investment**	**24.6**	**[85]**
4.2.1	Ease of protecting minority investors*	40.0	110 ◇
4.2.2	Market capitalization, % GDP ◴	27.6	50
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	n/a	n/a
4.3	**Trade, diversification, and market scale**	**67.5**	**71**
4.3.1	Applied tariff rate, weighted avg., %	15.4	130 ○ ◇
4.3.2	Domestic industry diversification	93.5	38
4.3.3	Domestic market scale, bn PPP$	1,006.7	25 ●

		Score/ Value	Rank
Business sophistication		**16.5**	**115** ◇
5.1	**Knowledge workers**	**18.1**	**[104]**
5.1.1	Knowledge-intensive employment, %	19.8	80
5.1.2	Firms offering formal training, %	n/a	n/a
5.1.3	GERD performed by business, % GDP ◴	0.2	53
5.1.4	GERD financed by business, %	n/a	n/a
5.1.5	Females employed w/advanced degrees, %	7.9	80
5.2	**Innovation linkages**	**16.2**	**102**
5.2.1	University-industry R&D collaboration†	26.7	120 ○ ◇
5.2.2	State of cluster development and depth†	42.9	87
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	127 ○ ◇
5.2.5	Patent families/bn PPP$ GDP	0.0	74
5.3	**Knowledge absorption**	**15.1**	**117** ◇
5.3.1	Intellectual property payments, % total trade	0.2	97
5.3.2	High-tech imports, % total trade ◴	3.8	119
5.3.3	ICT services imports, % total trade	0.5	107
5.3.4	FDI net inflows, % GDP ◴	0.8	110 ◇
5.3.5	Research talent, % in businesses ◴	19.2	55
Knowledge and technology outputs		**26.9**	**46**
6.1	**Knowledge creation**	**50.6**	**14** ● ◆
6.1.1	Patents by origin/bn PPP$ GDP	11.1	7 ● ◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	44
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4	Scientific and technical articles/bn PPP$ GDP	46.2	11 ● ◆
6.1.5	Citable documents H-index	20.5	40 ●
6.2	**Knowledge impact**	**24.9**	**85**
6.2.1	Labor productivity growth, %	–4.9	119 ○ ◇
6.2.2	New businesses/th pop. 15–64	0.4	101
6.2.3	Software spending, % GDP	0.3	38
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	2.1	87
6.2.5	High-tech manufacturing, %	38.6	28 ● ◆
6.3	**Knowledge diffusion**	**5.2**	**119** ◇
6.3.1	Intellectual property receipts, % total trade	0.0	95
6.3.2	Production and export complexity	27.6	100 ◇
6.3.3	High-tech exports, % total trade ◴	0.1	117
6.3.4	ICT services exports, % total trade	0.1	125 ○
Creative outputs		**31.3**	**46**
7.1	**Intangible assets**	**53.8**	**13** ● ◆
7.1.1	Trademarks by origin/bn PPP$ GDP	418.9	1 ● ◆
7.1.2	Global brand value, top 5,000, % GDP	1.0	78
7.1.3	Industrial designs by origin/bn PPP$ GDP	16.7	4 ● ◆
7.1.4	ICTs and organizational model creation†	47.4	92
7.2	**Creative goods and services**	**2.8**	**113** ◇
7.2.1	Cultural and creative services exports, % total trade	0.1	81
7.2.2	National feature films/mn pop. 15–69	1.7	73
7.2.3	Entertainment and media market/th pop. 15–69	3.0	51 ◇
7.2.4	Printing and other media, % manufacturing ◴	0.3	98 ○ ◇
7.2.5	Creative goods exports, % total trade ◴	0.1	106
7.3	**Online creativity**	**14.9**	**75**
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	1.8	80
7.3.2	Country-code TLDs/th pop. 15–69	6.2	48
7.3.3	Wikipedia edits/mn pop. 15–69	50.7	64
7.3.4	Mobile app creation/bn PPP$ GDP	0.8	75

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 Iran.

Missing data for Iran

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)
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
4.2.3	Venture capital investors, deals/bn PPP$ GDP	n/a	2020	Refinitiv Eikon
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	n/a	2020	Refinitiv Eikon
5.1.2	Firms offering formal training, %	n/a	2019	World Bank
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
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization

Outdated data for Iran

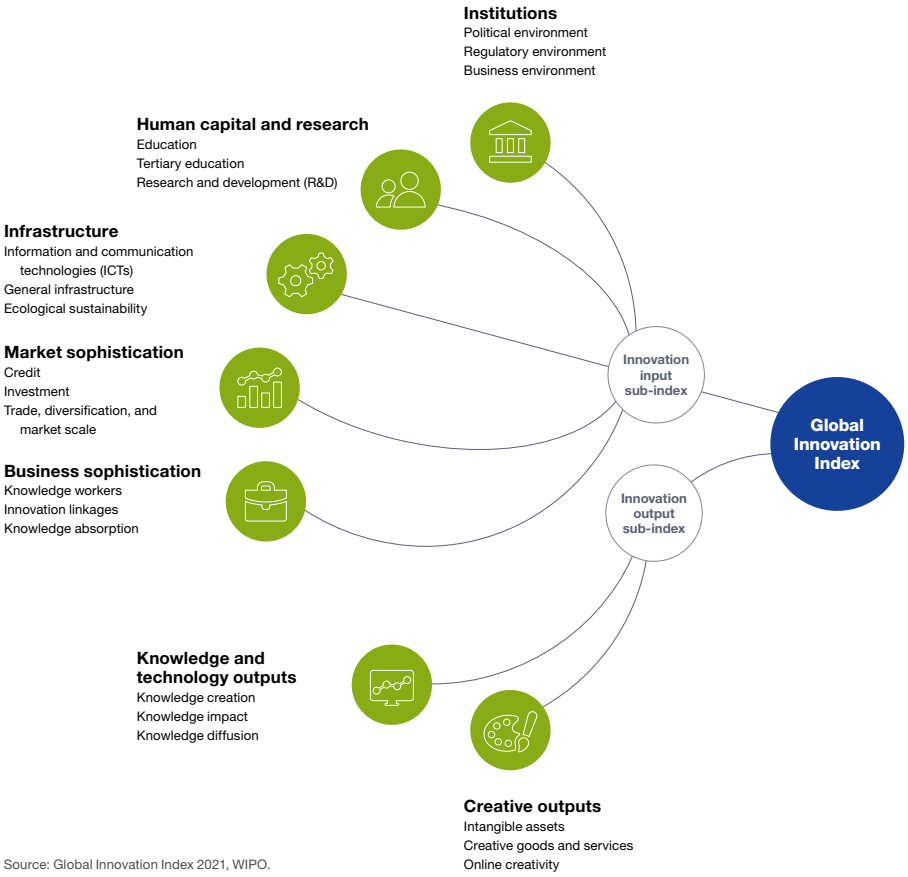
Code	Indicator name	Economy year	Model year	Source
2.1.3	School life expectancy, years	2017	2018	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2017	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
4.1.2	Domestic credit to private sector, % GDP	2016	2019	International Monetary Fund
4.2.2	Market capitalization, % GDP	2018	2019	World Federation of Exchanges

Code	Indicator name	Economy year	Model year	Source
5.1.3	GERD performed by business, % GDP	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.3.2	High-tech imports, % total trade	2018	2019	United Nations, COMTRADE
5.3.4	FDI net inflows, % GDP	2018	2019	International Monetary Fund
5.3.5	Research talent, % in businesses	2017	2019	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
6.3.3	High-tech exports, % total trade	2018	2019	United Nations, COMTRADE
7.2.4	Printing and other media, % manufacturing	2016	2018	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	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.