Global Innovation Index 2022

IRAN (ISLAMIC REPUBLIC OF)

53rd Iran ranks 53rd 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 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 2022 is between ranks 49 and 60.

Rankings for Iran (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	67	90	50
2021	60	86	44
2022	53	73	38

- Iran performs better in innovation outputs than innovation inputs in 2022.
- This year Iran ranks 73rd in innovation inputs, higher than both 2021 and 2020.
- As for innovation outputs, Iran ranks 38th. This position is higher than both 2021 and 2020.

3rd Iran ranks 3rd among the 36 lower-middle-income group economies.

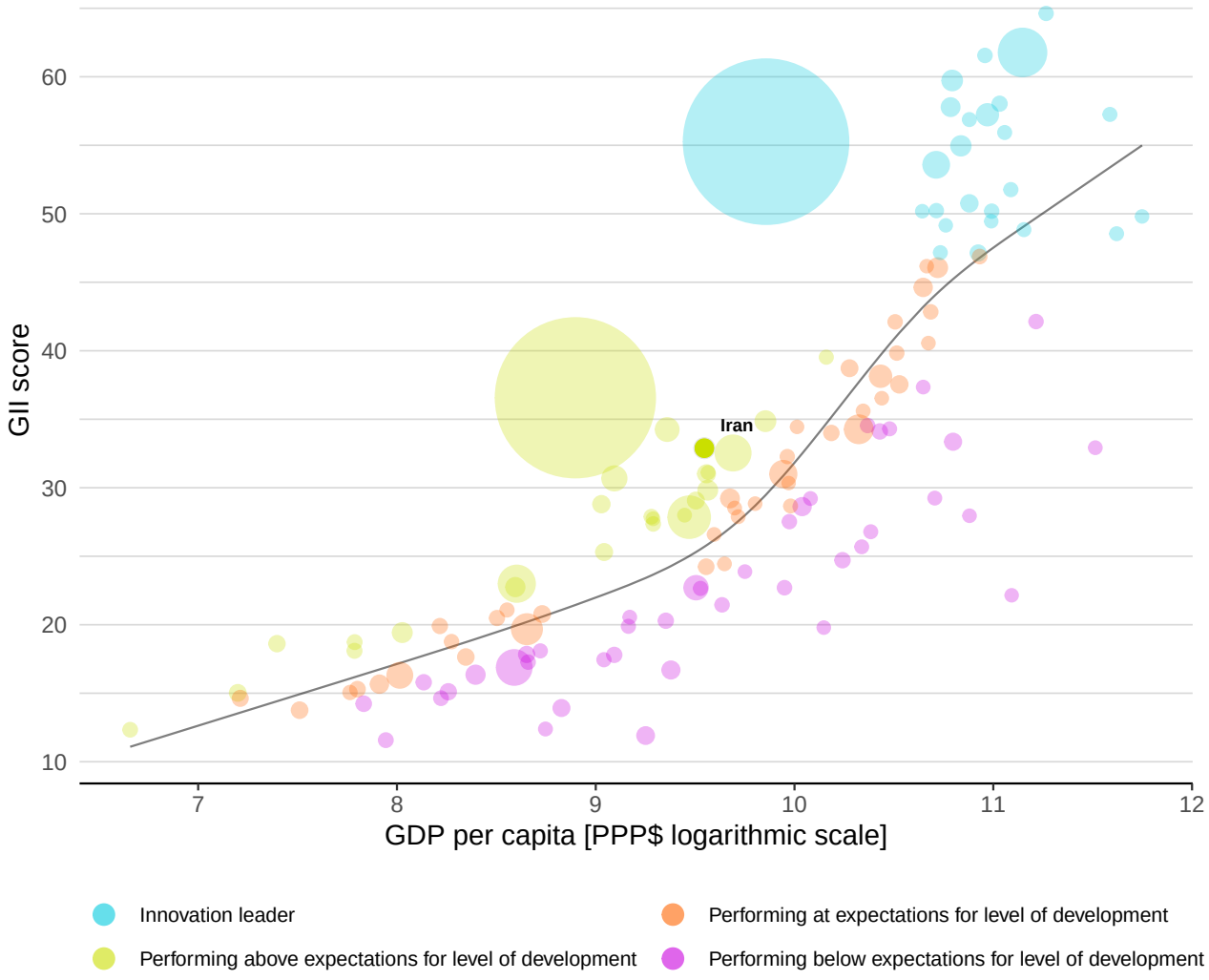
2nd Iran ranks 2nd among the 10 economies in Central and Southern Asia.

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

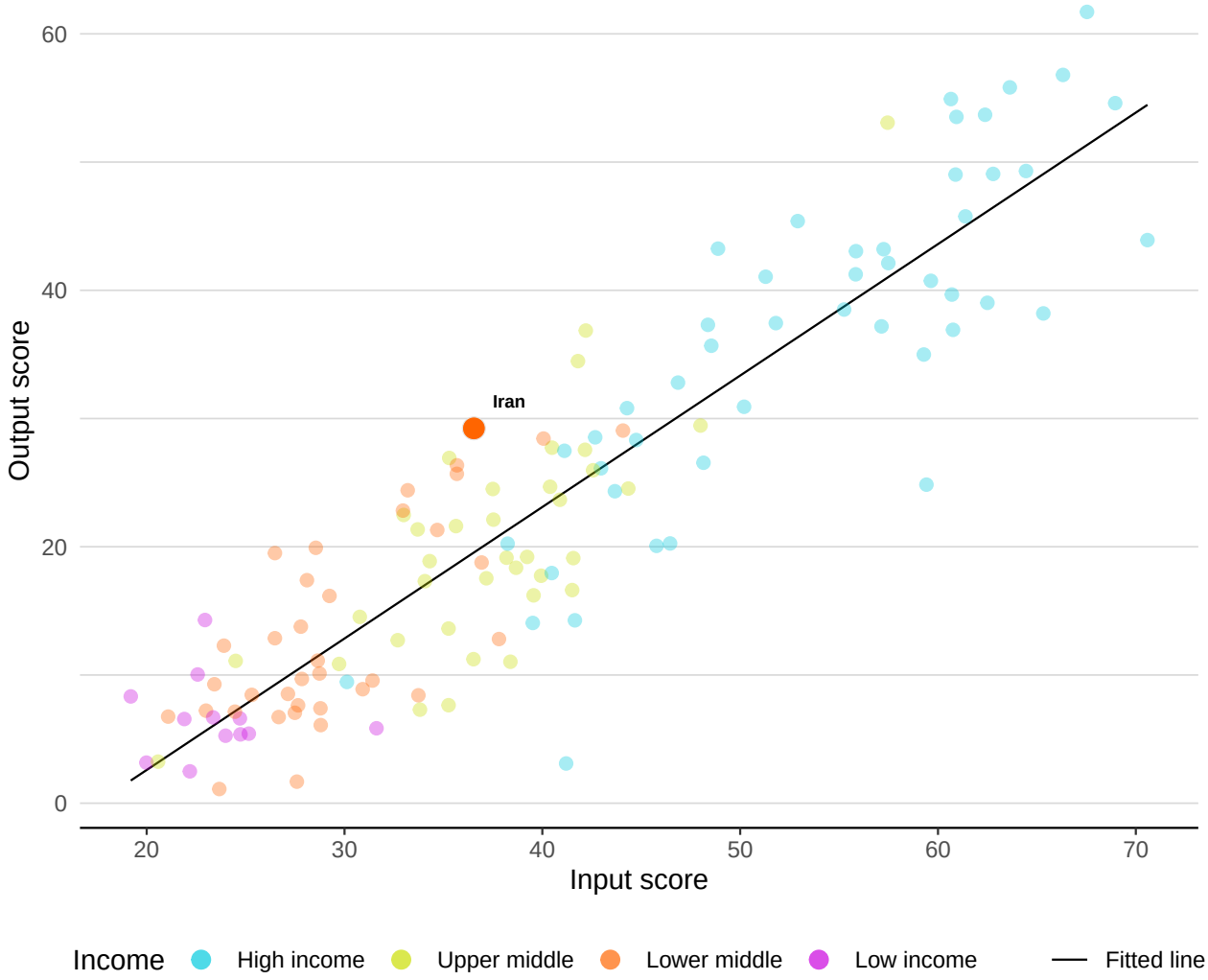


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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 LOWER MIDDLE-INCOME GROUP ECONOMIES AND CENTRAL AND SOUTHERN ASIA

The seven GII pillar scores for Iran

Lower-middle-income group economies

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

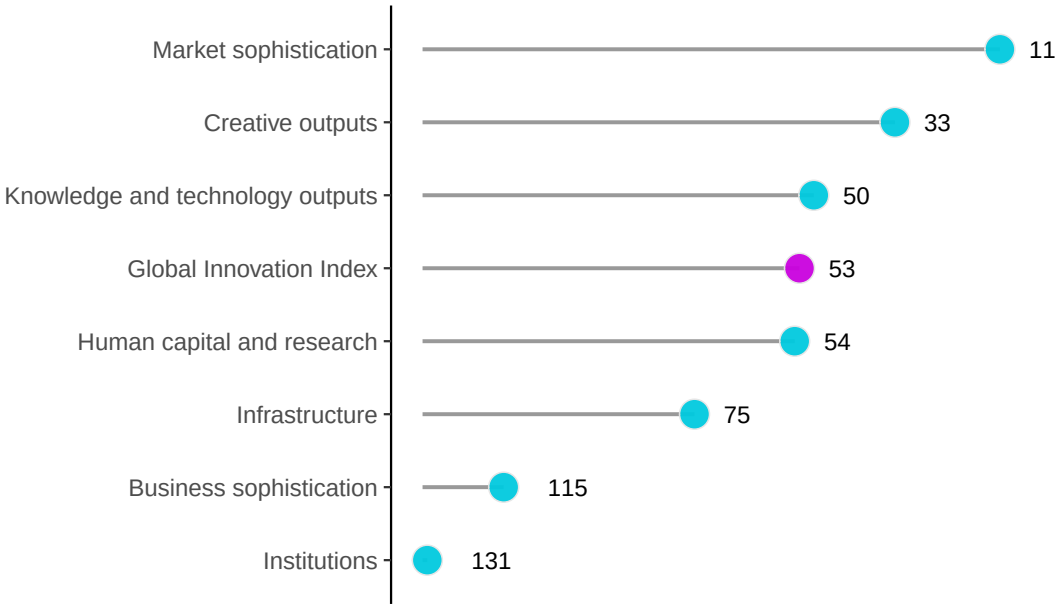
Central and Southern Asia

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

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Iran performs best in Market sophistication and its weakest performance is in Institutions.

The seven GII pillar ranks for Iran



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Iran

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.2.2	Graduates in science and engineering, %	2	1.1.1	Political and operational stability	126
3.2.3	Gross capital formation, % GDP	2	1.2.1	Regulatory quality	131
4.2.1	Market capitalization, % GDP	3	1.3.1	Policies for doing business	124
4.3.3	Domestic market scale, bn PPP$	22	1.3.2	Entrepreneurship policies and culture	70
6.1.1	Patents by origin/bn PPP$ GDP	10	2.3.3	Global corporate R&D investors, top 3, mn USD	38
6.1.4	Scientific and technical articles/bn PPP$ GDP	15	3.3.1	GDP/unit of energy use	125
6.2.3	Software spending, % GDP	30	4.3.1	Applied tariff rate, weighted avg., %	126
6.2.5	High-tech manufacturing, %	29	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	129
7.1.2	Trademarks by origin/bn PPP$ GDP	1	6.3.4	ICT services exports, % total trade	127
7.1.4	Industrial designs by origin/bn PPP$ GDP	6	7.2.4	Printing and other media, % manufacturing	93

GII 2022 rank

Iran (Islamic Republic of)

53

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
38	73	Lower middle	CSA	85.0	1,189.2	13,993

		Score/ Value	Rank
Institutions		**31.1**	**131** ○ ◇
1.1	**Political environment**	36.9	125 ○ ◇
1.1.1	Political and operational stability*	45.5	126 ○ ◇
1.1.2	Government effectiveness*	28.4	123 ◇
1.2	**Regulatory environment**	43.1	120
1.2.1	Regulatory quality*	8.5	131 ○ ◇
1.2.2	Rule of law*	23.6	113
1.2.3	Cost of redundancy dismissal	23.1	99
1.3	**Business environment**	13.3	129 ○ ◇
1.3.1	Policies for doing business†	22.0	124 ○ ◇
1.3.2	Entrepreneurship policies and culture*	4.6	70 ○ ◇
Human capital and research		**35.0**	**54** ◆
2.1	**Education**	44.1	84
2.1.1	Expenditure on education, % GDP	3.6	94
2.1.2	Government funding/pupil, secondary, % GDP/cap	17.2	69
2.1.3	School life expectancy, years	14.6	59 ◆
2.1.4	PISA scales in reading, maths and science	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary ◴	19.0	91
2.2	**Tertiary education**	46.4	21 ● ◆
2.2.1	Tertiary enrolment, % gross	58.2	53 ◆
2.2.2	Graduates in science and engineering, %	39.0	2 ● ◆
2.2.3	Tertiary inbound mobility, %	0.8	94
2.3	**Research and development (R&D)**	14.4	47 ◆
2.3.1	Researchers, FTE/mn pop. ◴	1,659.5	47 ◆
2.3.2	Gross expenditure on R&D, % GDP ◴	0.9	45 ◆
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38 ○ ◇
2.3.4	QS university ranking, top 3*	25.8	43 ◆
Infrastructure		**41.1**	**75** ◆
3.1	**Information and communication technologies (ICTs)**	65.4	86
3.1.1	ICT access*	88.0	63 ◆
3.1.2	ICT use*	68.2	58 ◆
3.1.3	Government's online service*	58.8	88
3.1.4	E-participation*	46.4	107
3.2	**General infrastructure**	43.3	31 ● ◆
3.2.1	Electricity output, GWh/mn pop.	3,869.7	55 ◆
3.2.2	Logistics performance*	37.2	63
3.2.3	Gross capital formation, % GDP	46.0	2 ● ◆
3.3	**Ecological sustainability**	14.7	125 ○ ◇
3.3.1	GDP/unit of energy use	4.2	125 ○ ◇
3.3.2	Environmental performance*	34.5	93
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.5	84
Market sophistication		**56.8**	**11** ● ◆
4.1	**Credit**	27.1	65
4.1.1	Finance for startups and scaleups*	30.3	58
4.1.2	Domestic credit to private sector, % GDP ◴	66.1	52
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a
4.2	**Investment**	96.5	[1]
4.2.1	Market capitalization, % GDP	257.2	3 ● ◆
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	n/a	n/a
4.2.4	Venture capital received, value, % GDP	n/a	n/a
4.3	**Trade, diversification, and market scale**	46.9	87
4.3.1	Applied tariff rate, weighted avg., %	12.1	126 ○ ◇
4.3.2	Domestic industry diversification ◴	92.4	38
4.3.3	Domestic market scale, bn PPP$	1,189.1	22 ●

		Score/ Value	Rank
Business sophistication		**18.7**	**115**
5.1	**Knowledge workers**	19.2	[97]
5.1.1	Knowledge-intensive employment, % ◴	19.7	78
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, % ◴	7.6	83
5.2	**Innovation linkages**	18.1	107
5.2.1	University-industry R&D collaboration†	27.7	121 ◇
5.2.2	State of cluster development and depth†	44.4	81
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	129 ○ ◇
5.2.5	Patent families/bn PPP$ GDP	0.0	86
5.3	**Knowledge absorption**	18.7	119
5.3.1	Intellectual property payments, % total trade ◴	0.2	95
5.3.2	High-tech imports, % total trade ◴	5.1	117
5.3.3	ICT services imports, % total trade ◴	0.5	113
5.3.4	FDI net inflows, % GDP	0.7	109
5.3.5	Research talent, % in businesses ◴	19.2	54
Knowledge and technology outputs		**26.7**	**50** ◆
6.1	**Knowledge creation**	42.5	20 ● ◆
6.1.1	Patents by origin/bn PPP$ GDP	10.2	10 ● ◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	40 ◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a
6.1.4	Scientific and technical articles/bn PPP$ GDP	44.4	15 ● ◆
6.1.5	Citable documents H-index	22.1	39 ◆
6.2	**Knowledge impact**	27.8	65
6.2.1	Labor productivity growth, %	0.8	67
6.2.2	New businesses/th pop. 15–64	0.6	90
6.2.3	Software spending, % GDP	0.3	30 ● ◆
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	1.4	94
6.2.5	High-tech manufacturing, % ◴	38.4	29 ● ◆
6.3	**Knowledge diffusion**	9.8	103
6.3.1	Intellectual property receipts, % total trade ◴	0.0	90
6.3.2	Production and export complexity	33.4	78
6.3.3	High-tech exports, % total trade ◴	0.2	111
6.3.4	ICT services exports, % total trade ◴	0.2	127 ○
Creative outputs		**31.8**	**33** ● ◆
7.1	**Intangible assets**	60.2	10 ● ◆
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a
7.1.2	Trademarks by origin/bn PPP$ GDP	469.9	1 ● ◆
7.1.3	Global brand value, top 5,000, % GDP	0.6	76
7.1.4	Industrial designs by origin/bn PPP$ GDP	13.3	6 ● ◆
7.2	**Creative goods and services**	4.0	104
7.2.1	Cultural and creative services exports, % total trade	0.2	74
7.2.2	National feature films/mn pop. 15–69	1.7	50
7.2.3	Entertainment and media market/th pop. 15–69	3.0	52
7.2.4	Printing and other media, % manufacturing ◴	0.3	93 ○
7.2.5	Creative goods exports, % total trade ◴	0.1	97
7.3	**Online creativity**	2.6	78
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	7.1	46 ◆
7.3.3	GitHub commit pushes received/mn pop. 15–69	1.0	102
7.3.4	Mobile app creation/bn PPP$ GDP	0.5	81

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 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, PISA
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	2021	Refinitiv
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	n/a	2021	Refinitiv
4.2.4	Venture capital received, value, % GDP	n/a	2021	Refinitiv
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
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
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2020	World Intellectual Property Organization
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance

Outdated data for Iran

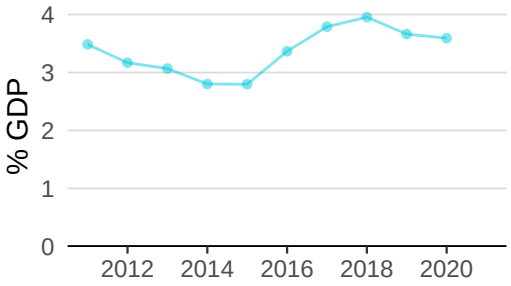
Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2017	2019	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2019	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2019	2020	UNESCO Institute for Statistics
4.1.2	Domestic credit to private sector, % GDP	2016	2020	International Monetary Fund
4.3.2	Domestic industry diversification	2016	2019	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2020	2021	International Labour Organization
5.1.3	GERD performed by business, % GDP	2017	2020	UNESCO Institute for Statistics
5.1.5	Females employed w/advanced degrees, %	2020	2021	International Labour Organization
5.3.1	Intellectual property payments, % total trade	2018	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.2	High-tech imports, % total trade	2018	2020	United Nations Comtrade Database
5.3.3	ICT services imports, % total trade	2018	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.5	Research talent, % in businesses	2017	2020	UNESCO Institute for Statistics

Code	Indicator name	Economy year	Model year	Source
6.2.5	High-tech manufacturing, %	2016	2019	United Nations Industrial Development Organization
6.3.1	Intellectual property receipts, % total trade	2018	2020	World Trade Organization and United Nations Conference on Trade and Development
6.3.3	High-tech exports, % total trade	2018	2020	United Nations Comtrade Database
6.3.4	ICT services exports, % total trade	2018	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.4	Printing and other media, % manufacturing	2016	2019	United Nations Industrial Development Organization
7.2.5	Creative goods exports, % total trade	2018	2020	United Nations Comtrade Database

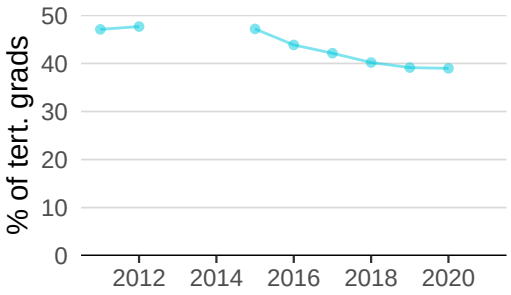
IRAN'S INNOVATION SYSTEM

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

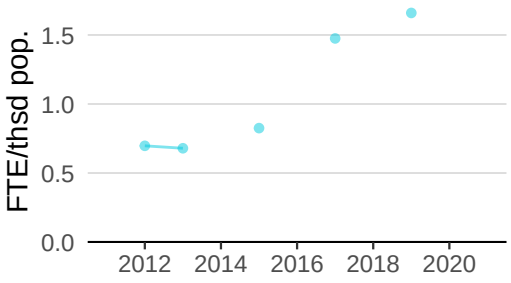
Innovation inputs



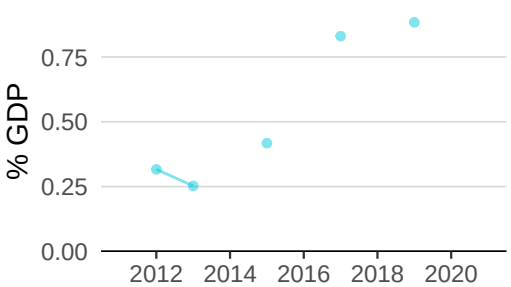
2.1.1 Expenditure on education was equal to 3.6% GDP in 2020–down by 2 percentage points from the year prior–and equivalent to an indicator rank of 94.



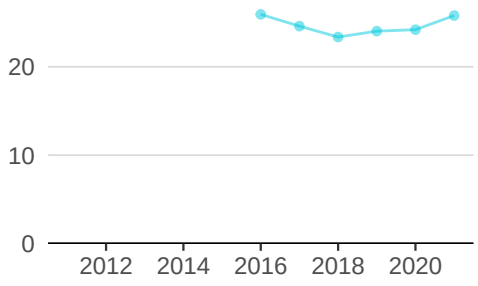
2.2.2 Graduates in science and engineering was equal to 39.0% of tert. grads in 2020–effectively unchanged from the year prior–and equivalent to an indicator rank of 2.



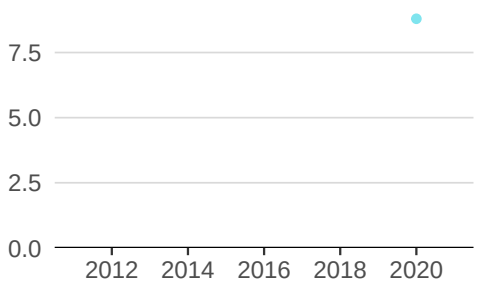
2.3.1 Researchers was equal to 1.7 FTE/thsd pop. in 2019 and equivalent to an indicator rank of 47.



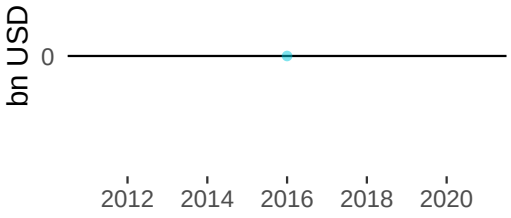
2.3.2 Gross expenditure on R&D was equal to 0.9% GDP in 2019 and equivalent to an indicator rank of 45.



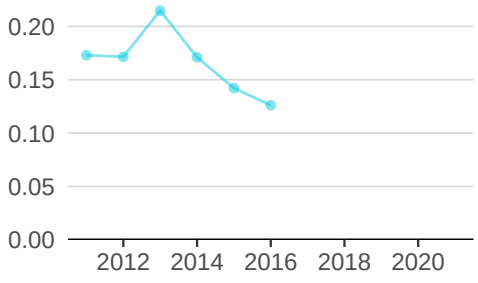
2.3.4 QS university ranking was equal to 25.8 in 2021–up by 7 percentage points from the year prior–and equivalent to an indicator rank of 43.



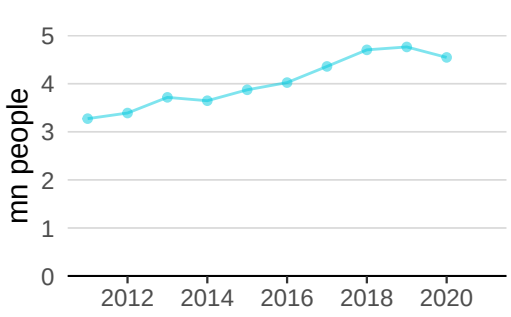
3.1.1 ICT access was equal to 8.8 in 2020 and equivalent to an indicator rank of 63.



4.2.4 Venture capital received was equal to 0.0 bn USD in 2016 .

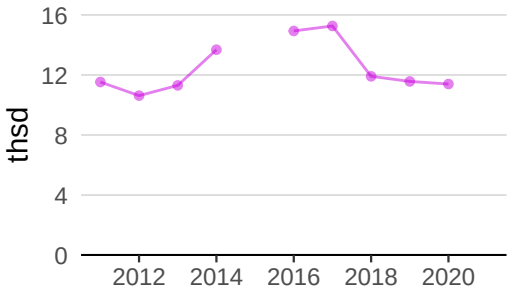


4.3.2 Domestic industry diversification was equal to 0.1 in 2016–down by 11 percentage points from the year prior–and equivalent to an indicator rank of 38.

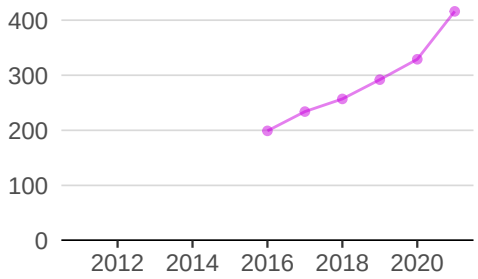


5.1.1 Knowledge-intensive employment was equal to 4.5 mn people in 2020–down by 5 percentage points from the year prior–and equivalent to an indicator rank of 78.

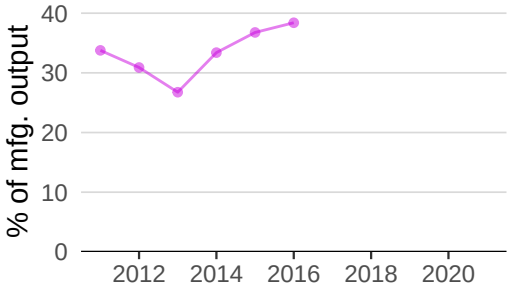
Innovation outputs



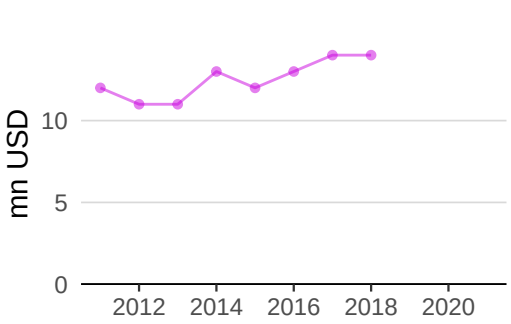
6.1.1 Patents by origin was equal to 11.4 thsd in 2020–down by 1 percentage point from the year prior–and equivalent to an indicator rank of 10.



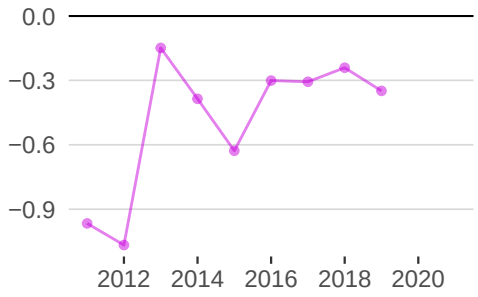
6.1.5 Citable documents H-index was equal to 416.0 in 2021–up by 26 percentage points from the year prior–and equivalent to an indicator rank of 39.



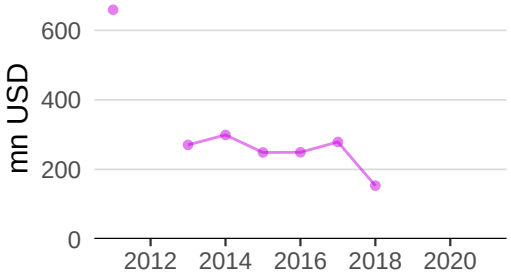
6.2.5 High-tech manufacturing was equal to 38.4% of mfg. output in 2016–up by 4 percentage points from the year prior–and equivalent to an indicator rank of 29.



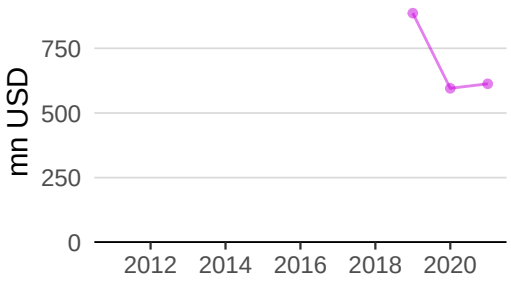
6.3.1 Intellectual property receipts was equal to 14.0 mn USD in 2018–effectively unchanged from the year prior–and equivalent to an indicator rank of 90.



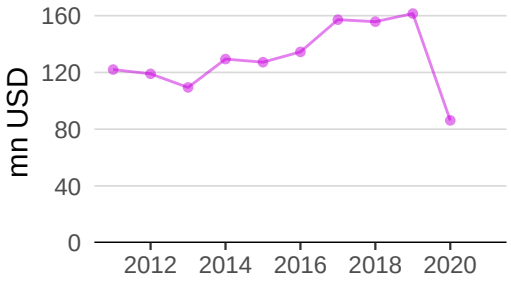
6.3.2 Production and export complexity was equal to -0.3 in 2019–down by 45 percentage points from the year prior–and equivalent to an indicator rank of 78.



6.3.3 High-tech exports was equal to 153.1 mn USD in 2018–down by 45 percentage points from the year prior–and equivalent to an indicator rank of 111.



7.1.3 Global brand value was equal to 612.7 mn USD in 2021–up by 3 percentage points from the year prior–and equivalent to an indicator rank of 76.



7.2.1 Cultural and creative services exports was equal to 86.2 mn USD in 2020–down by 47 percentage points from the year prior–and equivalent to an indicator rank of 74.

IRAN'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
SHARIF UNIVERSITY OF TECHNOLOGY	29.3	381=
AMIRKABIR UNIVERSITY OF TECHNOLOGY	25.3	465=
UNIVERSITY OF TEHRAN	22.8	521-530

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

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

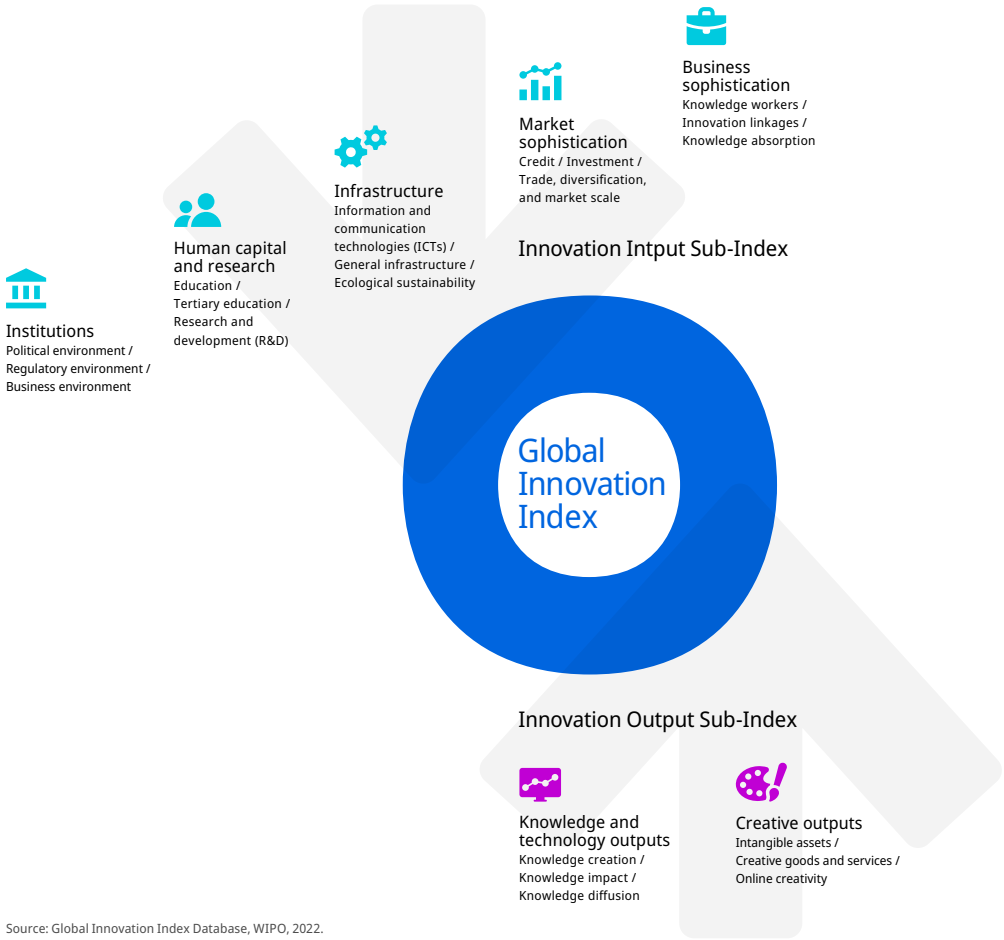
Brand	Industry	Rank
BANK PASARGAD	Banking	1

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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.