



YEMEN

128th Yemen ranks 128th 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 Yemen 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 Yemen in the GII 2022 is between ranks 117 and 131.

Rankings for Yemen (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	131	131	130
2021	131	132	125
2022	128	132	109

- Yemen performs better in innovation outputs than innovation inputs in 2022.
- This year Yemen ranks 132nd in innovation inputs, the same as last year but lower than 2020.
- As for innovation outputs, Yemen ranks 109th. This position is higher than both 2021 and 2020.

10th Yemen ranks 10th among the 12 low-income group economies.

18th Yemen ranks 18th among the 19 economies in Northern Africa and Western Asia.

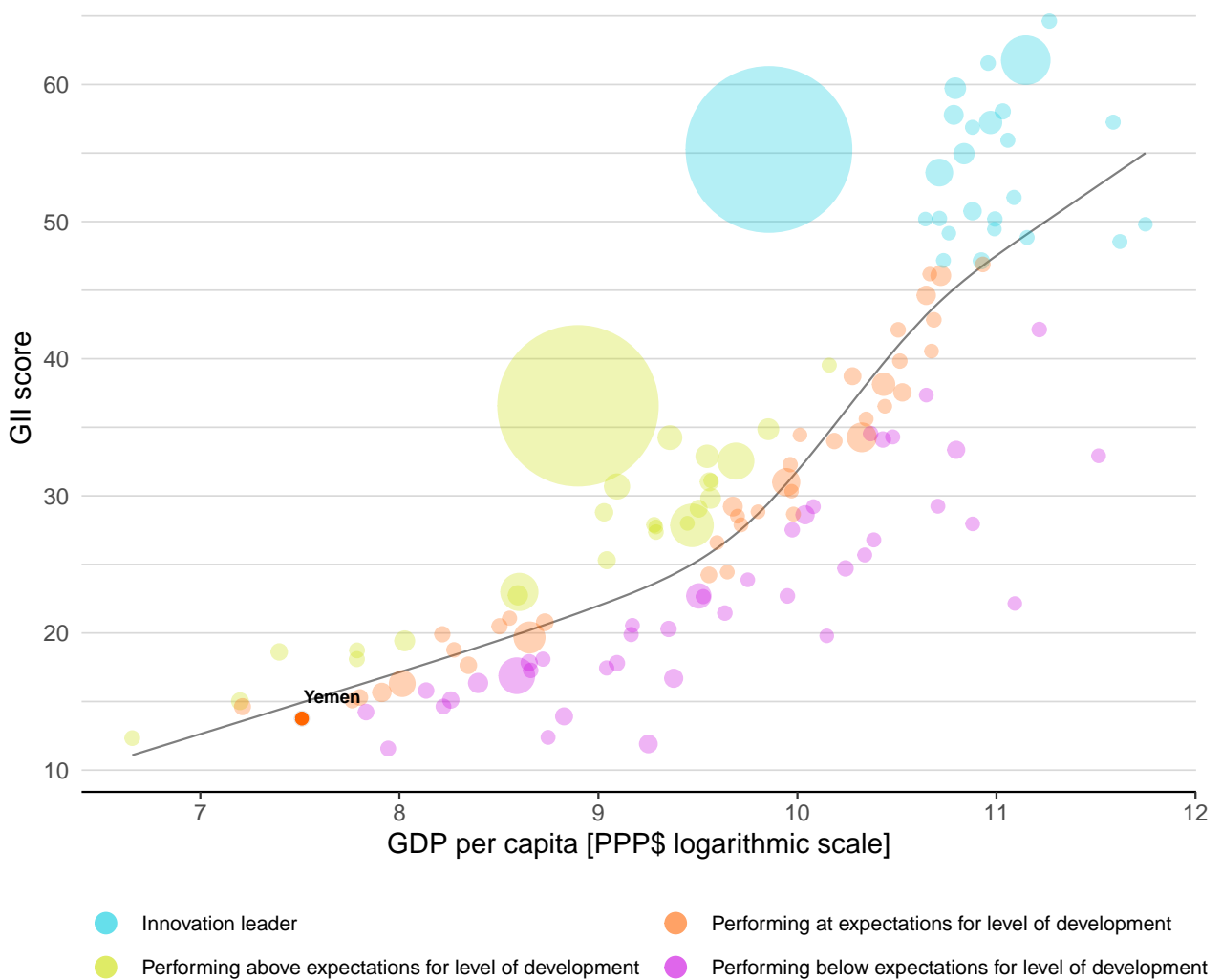


EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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

The positive relationship between innovation and development



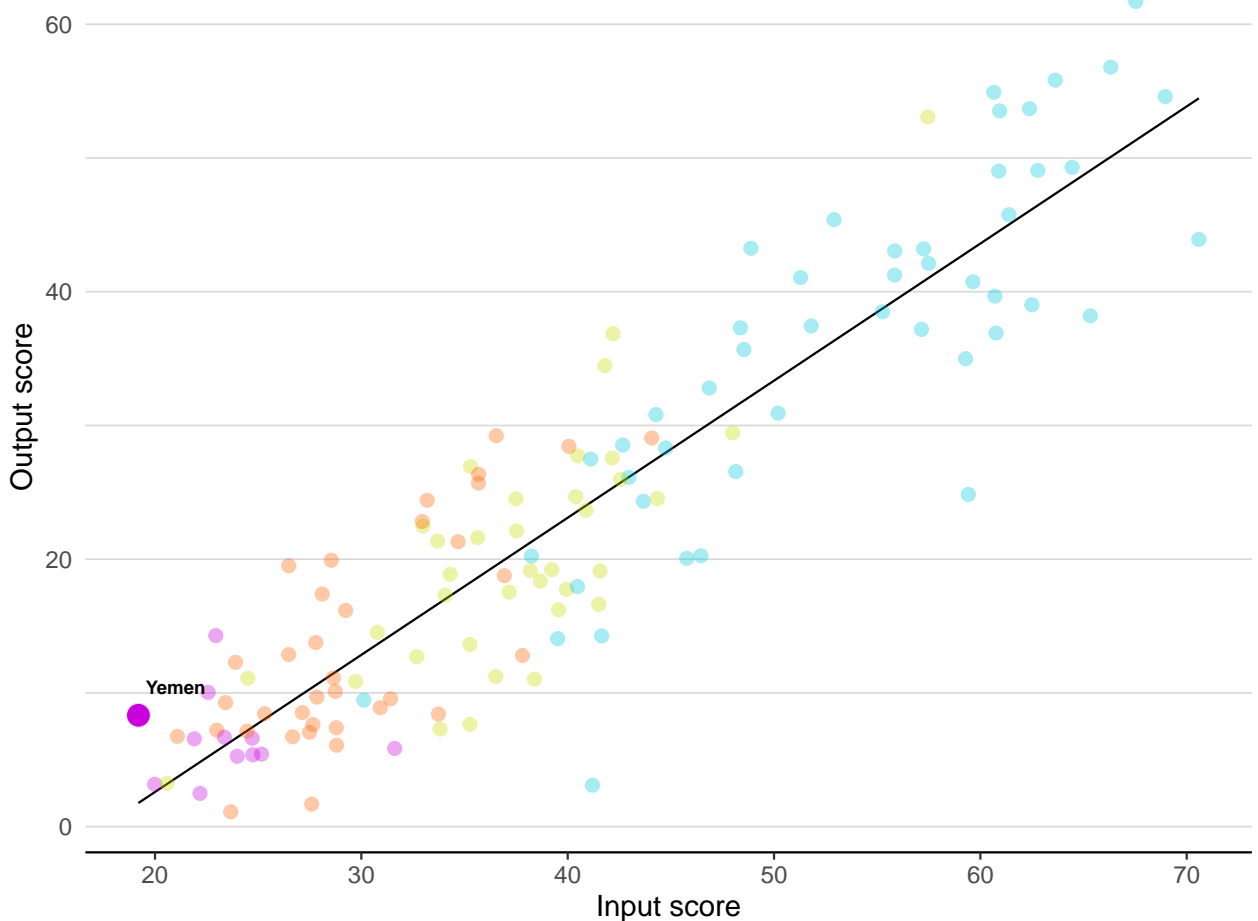


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

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

Innovation input to output performance

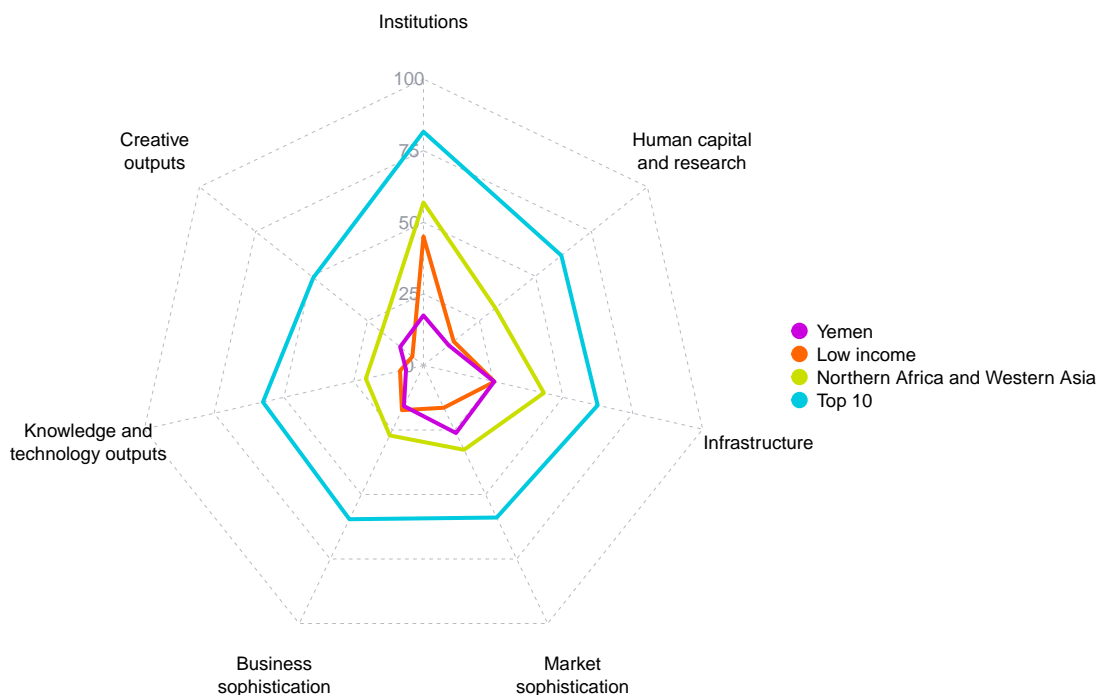


Income ● High income ● Upper middle ● Lower middle ● Low income — Fitted line



BENCHMARKING AGAINST OTHER LOW-INCOME GROUP ECONOMIES AND NORTHERN AFRICA AND WESTERN ASIA

The seven GII pillar scores for Yemen



Low-income group economies

Yemen performs above the low-income group average in two pillars, namely: Market sophistication; and, Creative outputs.

Northern Africa and Western Asia

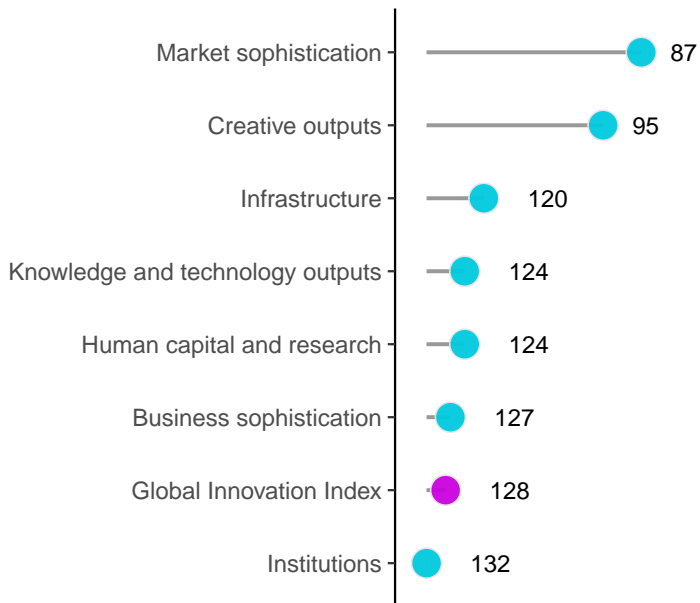
Yemen performs below the regional average in all GII pillars.



OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

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

The seven GII pillar ranks for Yemen



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

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

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










INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Yemen

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2.2.3	Tertiary inbound mobility, %	56	1.1.1	Political and operational stability	132
3.3.1	GDP/unit of energy use	3	1.1.2	Government effectiveness	132
4.1.3	Loans from microfinance institutions, % GDP	28	1.2.1	Regulatory quality	132
4.3.1	Applied tariff rate, weighted avg., %	91	1.2.2	Rule of law	132
5.3.1	Intellectual property payments, % total trade	23	2.3.3	Global corporate R&D investors, top 3, mn USD	38
6.1.1	Patents by origin/bn PPP\$ GDP	63	2.3.4	QS university ranking, top 3	72
6.1.4	Scientific and technical articles/bn PPP\$ GDP	58	3.1.2	ICT use	131
6.3.4	ICT services exports, % total trade	52	3.2.3	Gross capital formation, % GDP	126
7.1.2	Trademarks by origin/bn PPP\$ GDP	22	4.1.2	Domestic credit to private sector, % GDP	129
7.1.4	Industrial designs by origin/bn PPP\$ GDP	68	5.2.5	Patent families/bn PPP\$ GDP	101
			6.2.1	Labor productivity growth, %	118
			6.2.5	High-tech manufacturing, %	110
			7.1.3	Global brand value, top 5,000, % GDP	77
			7.2.3	Entertainment and media market/th pop. 15–69	62

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
109	132	Low	NAWA	30.5	60.8	1,827

		Score/ Value	Rank			Score/ Value	Rank
	Institutions	17.5	132		Business sophistication	15.7	127
1.1	Political environment	0.0	132	5.1	Knowledge workers	10.3	[118]
1.1.1	Political and operational stability*	0.0	132	5.1.1	Knowledge-intensive employment, %	12.4	99
1.1.2	Government effectiveness*	0.0	132	5.1.2	Firms offering formal training, %	14.3	92
1.2	Regulatory environment	30.8	129	5.1.3	GERD performed by business, % GDP	n/a	n/a
1.2.1	Regulatory quality*	0.0	132	5.1.4	GERD financed by business, %	n/a	n/a
1.2.2	Rule of law*	0.0	132	5.1.5	Females employed w/advanced degrees, %	1.1	114
1.2.3	Cost of redundancy dismissal	27.4	111	5.2	Innovation linkages	14.3	124
1.3	Business environment	21.6	[124]	5.2.1	University-industry R&D collaboration [†]	20.7	127
1.3.1	Policies for doing business [†]	21.6	126	5.2.2	State of cluster development and depth [†]	33.1	121
1.3.2	Entrepreneurship policies and culture*	n/a	n/a	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	98
				5.2.5	Patent families/bn PPP\$ GDP	0.0	101
	Human capital and research	11.3	[124]	5.3	Knowledge absorption	22.6	101
2.1	Education	26.1	[125]	5.3.1	Intellectual property payments, % total trade	1.6	23
2.1.1	Expenditure on education, % GDP	n/a	n/a	5.3.2	High-tech imports, % total trade	2.3	129
2.1.2	Government funding/pupil, secondary, % GDP/cap	11.8	92	5.3.3	ICT services imports, % total trade	0.4	116
2.1.3	School life expectancy, years	9.1	110	5.3.4	FDI net inflows, % GDP	-1.4	124
2.1.4	PISA scales in reading, maths and science	n/a	n/a	5.3.5	Research talent, % in businesses	n/a	n/a
2.1.5	Pupil-teacher ratio, secondary	26.8	111				
2.2	Tertiary education	7.7	113		Knowledge and technology outputs	6.2	124
2.2.1	Tertiary enrolment, % gross	10.2	112	6.1	Knowledge creation	8.7	82
2.2.2	Graduates in science and engineering, %	n/a	n/a	6.1.1	Patents by origin/bn PPP\$ GDP	1.0	63
2.2.3	Tertiary inbound mobility, %	4.3	56	6.1.2	PCT patents by origin/bn PPP\$ GDP	n/a	n/a
2.3	Research and development (R&D)	0.0	[120]	6.1.3	Utility models by origin/bn PPP\$ GDP	0.0	73
2.3.1	Researchers, FTE/mn pop.	n/a	n/a	6.1.4	Scientific and technical articles/bn PPP\$ GDP	17.1	58
2.3.2	Gross expenditure on R&D, % GDP	n/a	n/a	6.1.5	Citable documents H-index	2.9	119
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38	6.2	Knowledge impact	1.0	131
2.3.4	QS university ranking, top 3*	0.0	72	6.2.1	Labor productivity growth, %	-5.5	118
				6.2.2	New businesses/th pop. 15-64	n/a	n/a
	Infrastructure	25.3	120	6.2.3	Software spending, % GDP	0.0	107
3.1	Information and communication technologies (ICTs)	28.7	129	6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	0.3	128
3.1.1	ICT access*	39.9	128	6.2.5	High-tech manufacturing, %	1.2	110
3.1.2	ICT use*	11.5	131	6.3	Knowledge diffusion	9.1	104
3.1.3	Government's online service*	32.4	122	6.3.1	Intellectual property receipts, % total trade	0.0	86
3.1.4	E-participation*	30.9	122	6.3.2	Production and export complexity	15.2	113
3.2	General infrastructure	3.6	131	6.3.3	High-tech exports, % total trade	0.1	121
3.2.1	Electricity output, GWh/mn pop.	123.5	123	6.3.4	ICT services exports, % total trade	2.6	52
3.2.2	Logistics performance*	10.2	118				
3.2.3	Gross capital formation, % GDP	6.5	126		Creative outputs	10.4	95
3.3	Ecological sustainability	43.7	26	7.1	Intangible assets	20.7	76
3.3.1	GDP/unit of energy use	28.7	3	7.1.1	Intangible asset intensity, top 15, %	n/a	n/a
3.3.2	Environmental performance*	n/a	n/a	7.1.2	Trademarks by origin/bn PPP\$ GDP	76.2	22
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP	0.2	109	7.1.3	Global brand value, top 5,000, % GDP	0.0	77
				7.1.4	Industrial designs by origin/bn PPP\$ GDP	1.0	68
	Market sophistication	26.2	87	7.2	Creative goods and services	0.0	[132]
4.1	Credit	6.5	122	7.2.1	Cultural and creative services exports, % total trade	n/a	n/a
4.1.1	Finance for startups and scaleups*	n/a	n/a	7.2.2	National feature films/mn pop. 15-69	n/a	n/a
4.1.2	Domestic credit to private sector, % GDP	5.6	129	7.2.3	Entertainment and media market/th pop. 15-69	0.0	62
4.1.3	Loans from microfinance institutions, % GDP	0.9	28	7.2.4	Printing and other media, % manufacturing	n/a	n/a
4.2	Investment	n/a	[n/a]	7.2.5	Creative goods exports, % total trade	0.0	125
4.2.1	Market capitalization, % GDP	n/a	n/a	7.3	Online creativity	0.2	123
4.2.2	Venture capital investors, deals/bn PPP\$ GDP	n/a	n/a	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	0.3	112
4.2.3	Venture capital recipients, deals/bn PPP\$ GDP	n/a	n/a	7.3.2	Country-code TLDs/th pop. 15-69	0.0	129
4.2.4	Venture capital received, value, % GDP	n/a	n/a	7.3.3	GitHub commit pushes received/mn pop. 15-69	0.1	124
4.3	Trade, diversification, and market scale	45.9	90	7.3.4	Mobile app creation/bn PPP\$ GDP	0.1	93
4.3.1	Applied tariff rate, weighted avg., %	5.0	91				
4.3.2	Domestic industry diversification	69.0	89				
4.3.3	Domestic market scale, bn PPP\$	60.8	99				

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 Yemen.

Missing data for Yemen

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2021	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	n/a	2020	UNESCO Institute for Statistics
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
3.3.2	Environmental performance	n/a	2022	Yale University
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
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
5.1.3	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
5.3.5	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
6.2.2	New businesses/th pop. 15–64	n/a	2020	World Bank, Entrepreneurship Database
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
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA
7.2.4	Printing and other media, % manufacturing	n/a	2019	United Nations Industrial Development Organization

Outdated data for Yemen

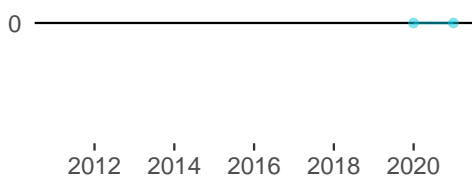
Code	Indicator name	Economy year	Model year	Source
2.1.2	Government funding/pupil, secondary, % GDP/cap	2011	2018	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2011	2019	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2019	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2011	2019	UNESCO Institute for Statistics
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
4.1.2	Domestic credit to private sector, % GDP	2013	2020	International Monetary Fund
4.1.3	Loans from microfinance institutions, % GDP	2015	2020	International Monetary Fund, Financial Access Survey (FAS)
4.3.1	Applied tariff rate, weighted avg., %	2017	2020	World Bank
4.3.2	Domestic industry diversification	2013	2019	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2014	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, %	2014	2021	International Labour Organization
5.2.4	Joint venture/strategic alliance deals/bn PPP\$ GDP	2020	2021	Refinitiv
5.3.1	Intellectual property payments, % total trade	2016	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.2	High-tech imports, % total trade	2019	2020	United Nations Comtrade Database
5.3.3	ICT services imports, % total trade	2016	2020	World Trade Organization and United Nations Conference on Trade and Development
5.3.4	FDI net inflows, % GDP	2018	2020	International Monetary Fund
6.1.3	Utility models by origin/bn PPP\$ GDP	2016	2020	World Intellectual Property Organization
6.2.5	High-tech manufacturing, %	2013	2019	United Nations Industrial Development Organization
6.3.1	Intellectual property receipts, % total trade	2016	2020	World Trade Organization and United Nations Conference on Trade and Development
6.3.3	High-tech exports, % total trade	2015	2020	United Nations Comtrade Database
6.3.4	ICT services exports, % total trade	2016	2020	World Trade Organization and United Nations Conference on Trade and Development
7.2.5	Creative goods exports, % total trade	2015	2020	United Nations Comtrade Database

YEMEN'S INNOVATION SYSTEM

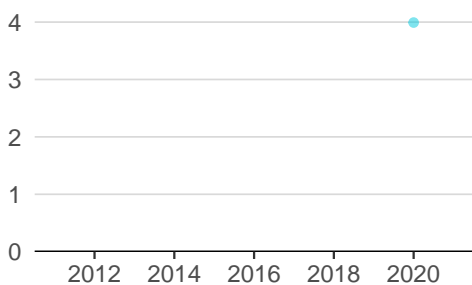
As far as practicable, the plots below present unscaled indicator data.

Innovation inputs

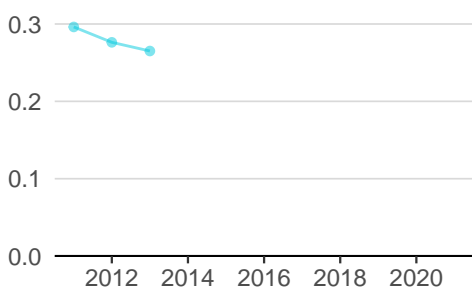
2.3.4 QS university ranking was equal to 0.0 in 2021—effectively unchanged from the year prior—and equivalent to an indicator rank of 72.



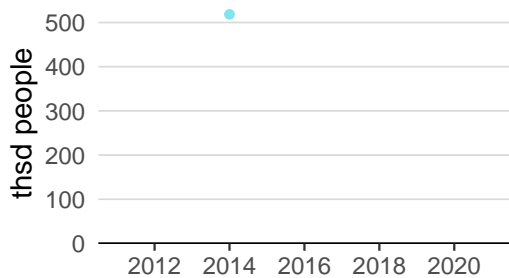
3.1.1 ICT access was equal to 4.0 in 2020 and equivalent to an indicator rank of 128.



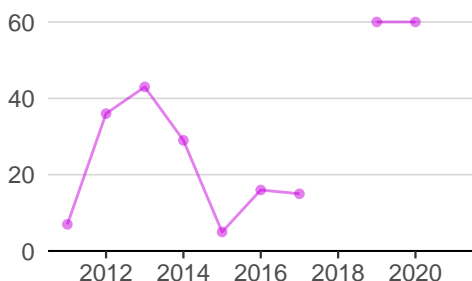
4.3.2 Domestic industry diversification was equal to 0.3 in 2013—down by 4 percentage points from the year prior—and equivalent to an indicator rank of 89.



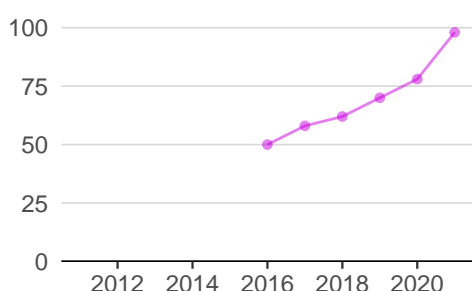
5.1.1 Knowledge-intensive employment was equal to 518.4 thsd people in 2014 and equivalent to an indicator rank of 99.



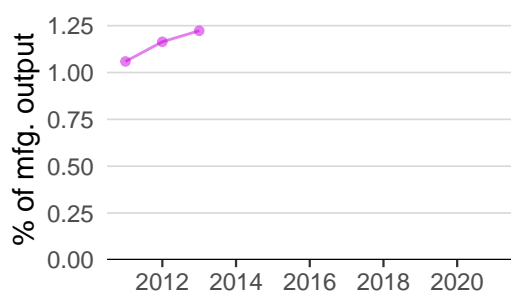
Innovation outputs



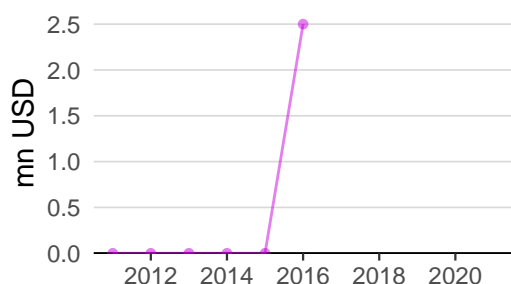
6.1.1 Patents by origin was equal to 60.0 in 2020—effectively unchanged from the year prior—and equivalent to an indicator rank of 63.



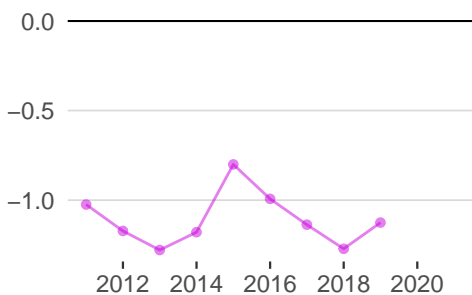
6.1.5 Citable documents H-index was equal to 98.0 in 2021—up by 26 percentage points from the year prior—and equivalent to an indicator rank of 119.



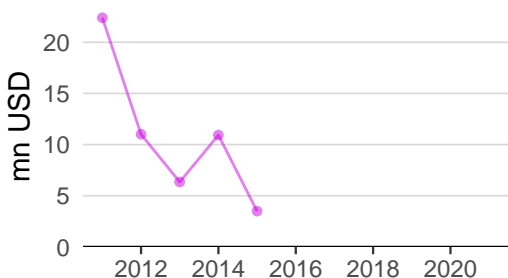
6.2.5 High-tech manufacturing was equal to 1.2% of mfg. output in 2013—up by 5 percentage points from the year prior—and equivalent to an indicator rank of 110.



6.3.1 Intellectual property receipts was equal to 2.5 mn USD in 2016—up by 1nf percentage points from the year prior—and equivalent to an indicator rank of 86.



6.3.2 Production and export complexity was equal to -1.1 in 2019—up by 12 percentage points from the year prior—and equivalent to an indicator rank of 113.



6.3.3 High-tech exports was equal to 3.5 mn USD in 2015—down by 68 percentage points from the year prior—and equivalent to an indicator rank of 121.



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.



YEMEN'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank
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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
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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
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No observations

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

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank
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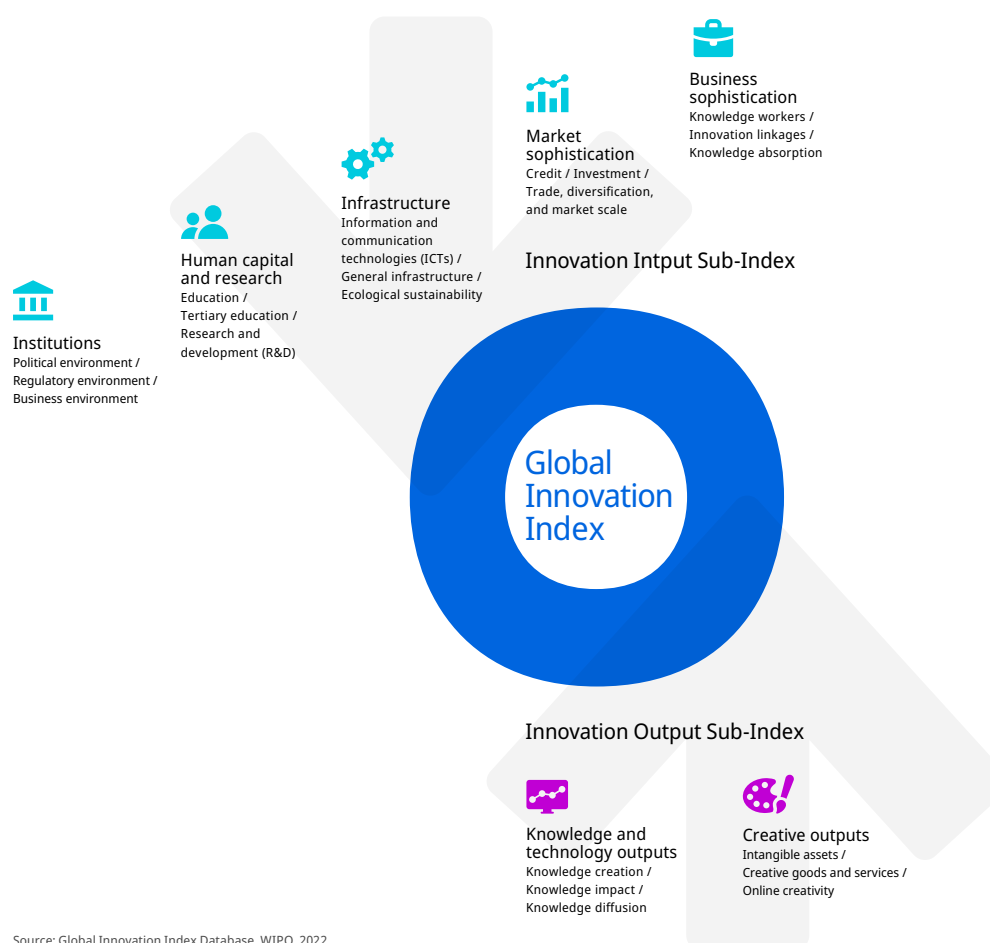
No observations

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.



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.