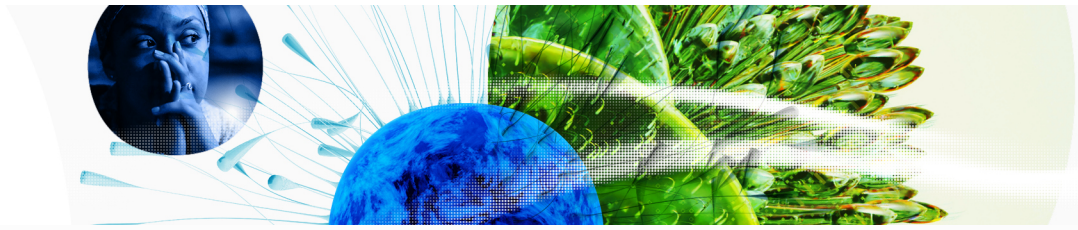
Global Innovation Index 2023



The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

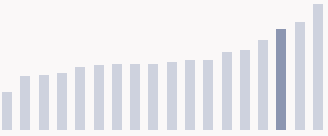
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

United Arab Emirates ranking in the Global Innovation Index 2023

> United Arab Emirates ranks 32nd among the 132 economies featured in the GII 2023.

> United Arab Emirates ranks 31st among the 50 high-income group economies.

> United Arab Emirates ranks 3rd among the 18 economies in Northern Africa and Western Asia.



> United Arab Emirates GII Ranking (2020-2023)

The table shows the rankings of United Arab Emirates over the past four years. 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 United Arab Emirates in the GII 2023 is between ranks 31 and 39.

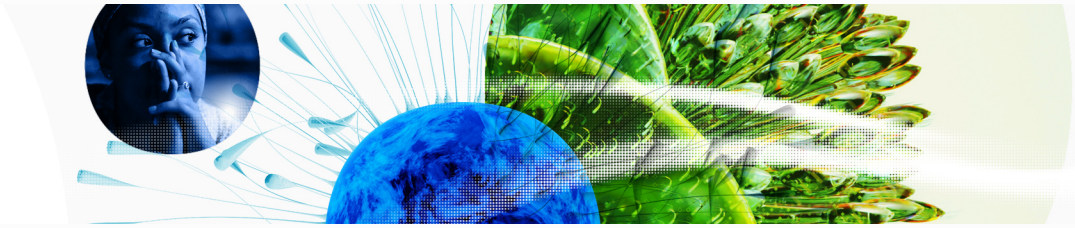
	GII Position	Innovation Inputs	Innovation Outputs
2020	34th	22nd	55th
2021	33rd	23rd	47th
2022	31st	18th	52nd
2023	32nd	19th	54th

United Arab Emirates performs worse in innovation outputs than innovation inputs in 2023.

This year United Arab Emirates ranks 19th in innovation inputs. This position is lower than last year.

United Arab Emirates ranks 54th in innovation outputs. This position is lower than last year.

Global Innovation Index 2023

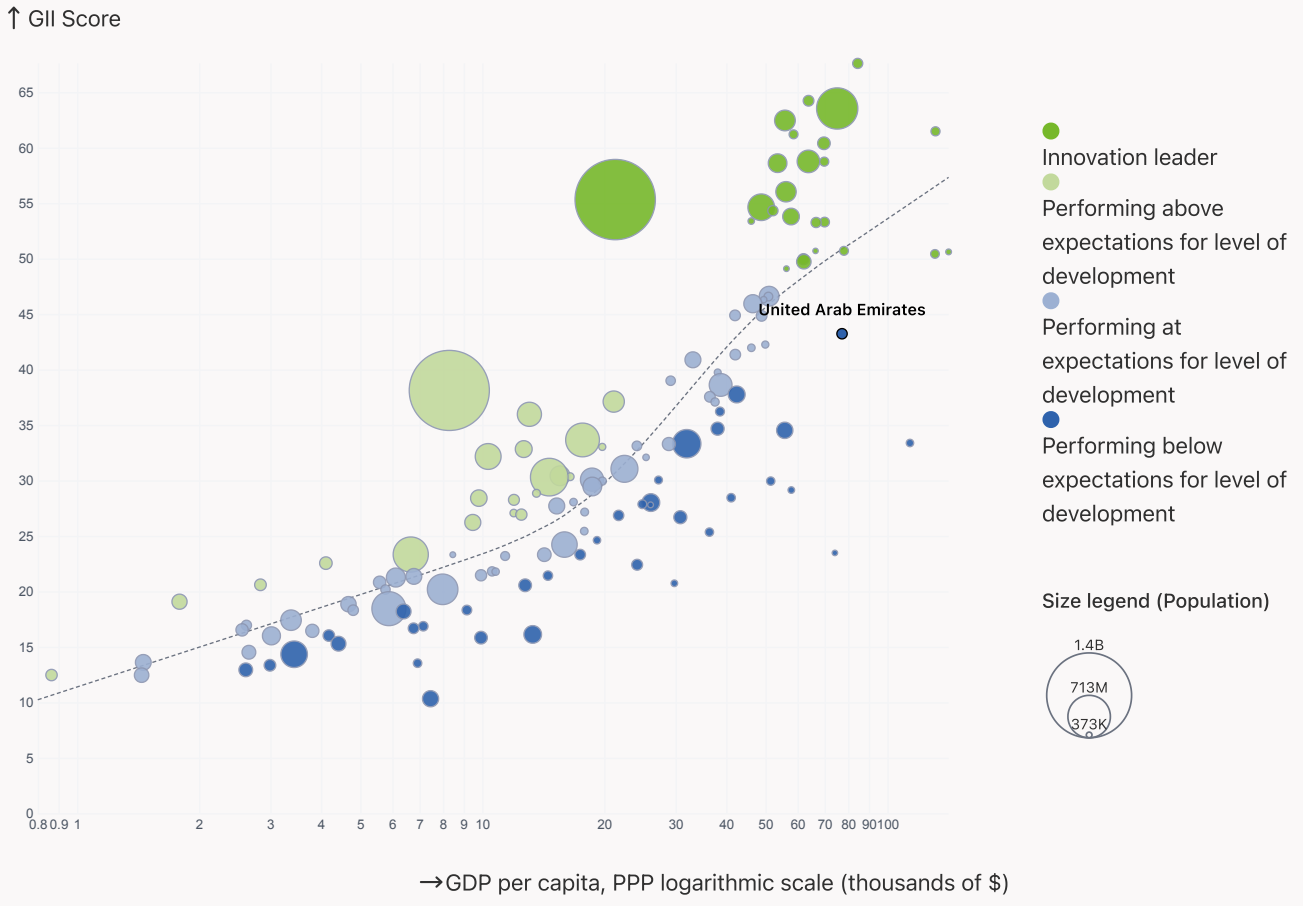


→ Expected vs. observed innovation performance

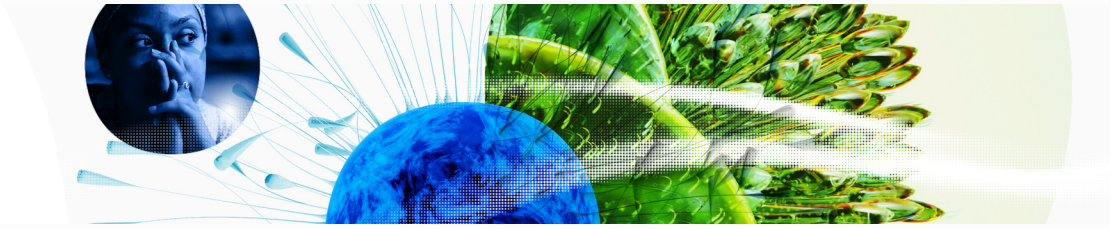
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

> Relative to GDP, United Arab Emirates's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

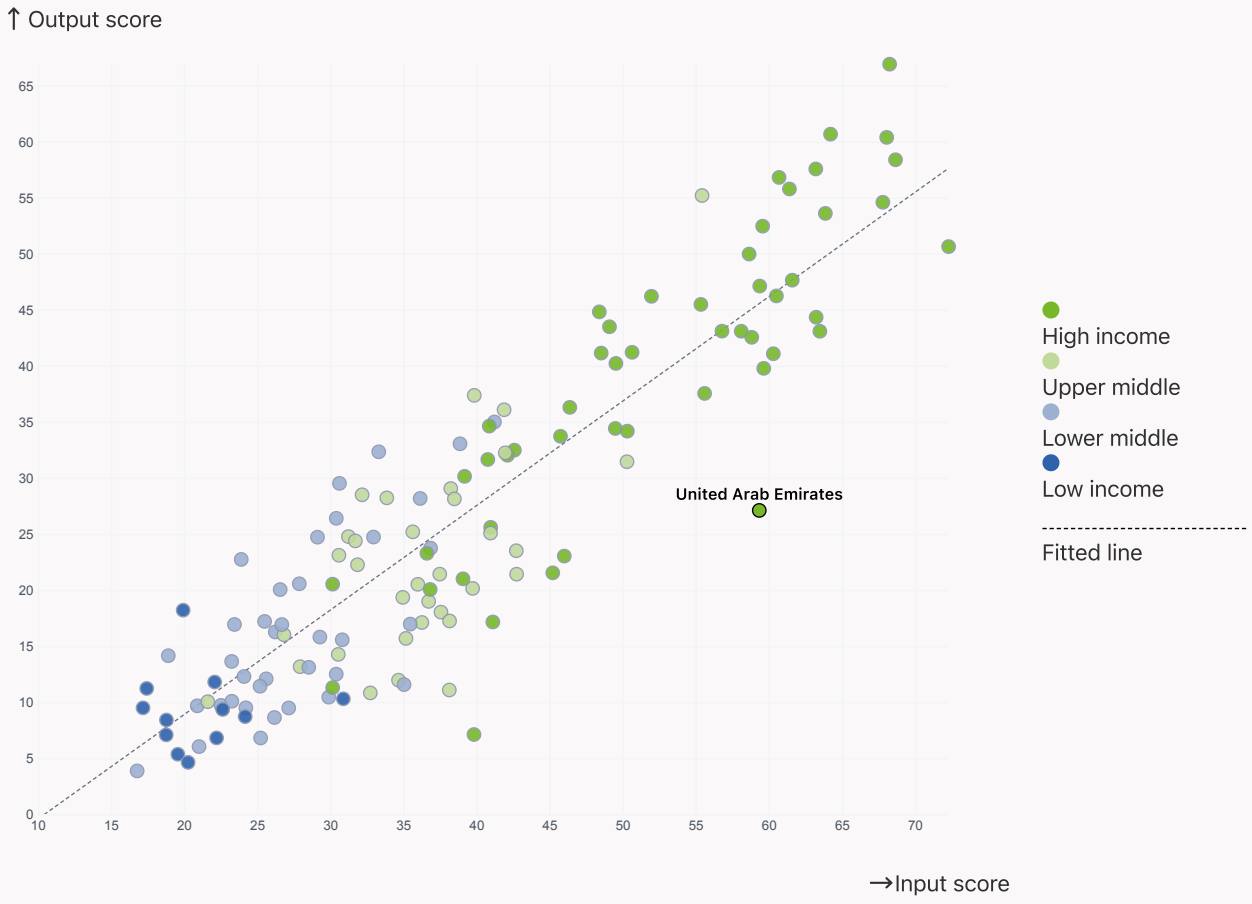


→ Effectively translating innovation investments into innovation outputs

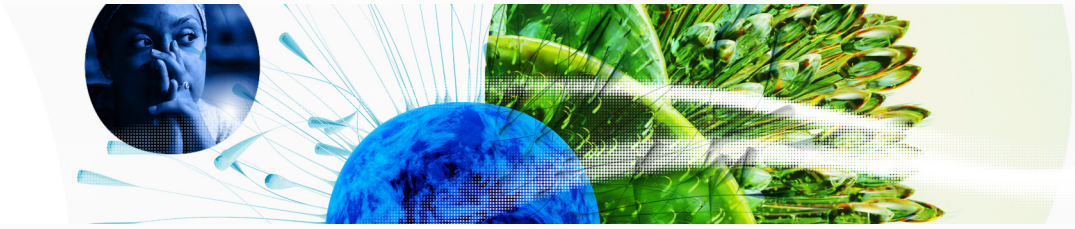
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> United Arab Emirates produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

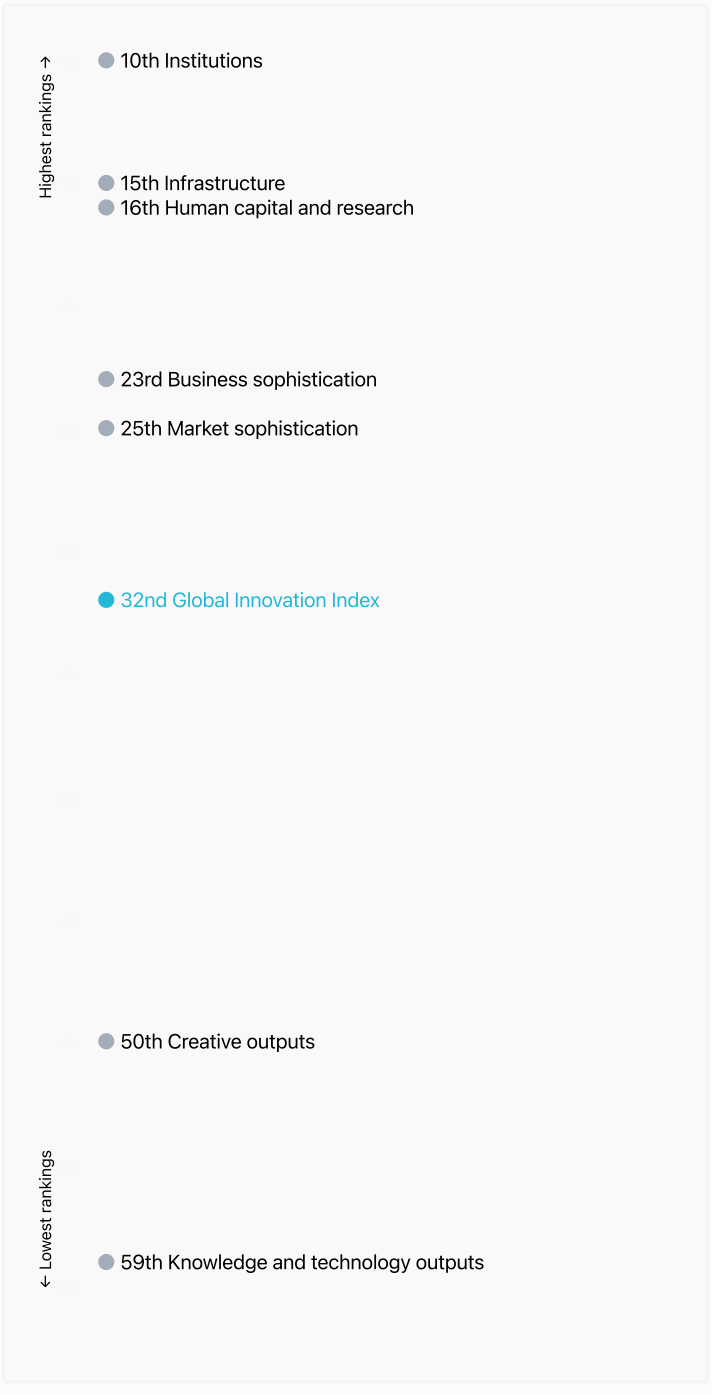


Global Innovation Index 2023



→ Overview of United Arab Emirates's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for United Arab Emirates are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

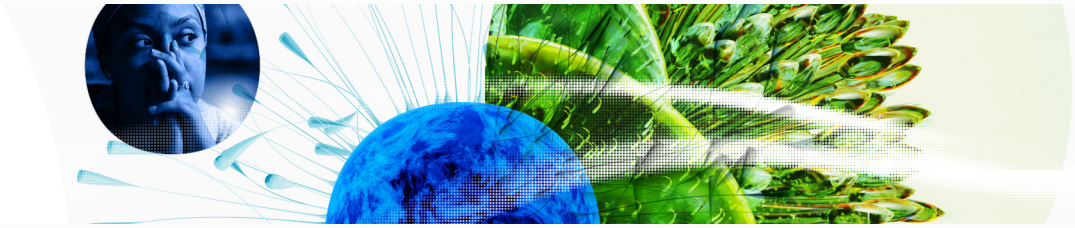
United Arab Emirates ranks highest in Institutions (10th), Infrastructure (15th), Human capital and research (16th), Business sophistication (23rd) and Market sophistication (25th).

> Lowest rankings

United Arab Emirates ranks lowest in Knowledge and technology outputs (59th), Creative outputs (50th) and Market sophistication (25th).

The full WIPO Intellectual Property Statistics profile for United Arab Emirates can be found on this link.

Global Innovation Index 2023



→ Benchmark of United Arab Emirates against other country groupings for each of the seven areas of the GII Index

The charts shows the relative position of United Arab Emirates (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> High-Income economies

United Arab Emirates performs above the high-income group average in Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.

> Northern Africa And Western Asia

United Arab Emirates performs above the regional average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- High income | Score: 38.62
- NAWA | Score: 24.01
- United Arab Emirates | Score: 23.90

Creative outputs

- Top 10 | 56.09
- High income | 40.27
- United Arab Emirates | 30.27
- NAWA | 24.51

Business sophistication

- Top 10 | 64.39
- United Arab Emirates | 51.59
- High income | 46.38
- NAWA | 29.44

Market sophistication

- Top 10 | 61.93
- United Arab Emirates | 50.27
- High income | 46.42
- NAWA | 36.12

Human capital and research

- Top 10 | 60.28
- United Arab Emirates | 54.34
- High income | 46.30
- NAWA | 32.72

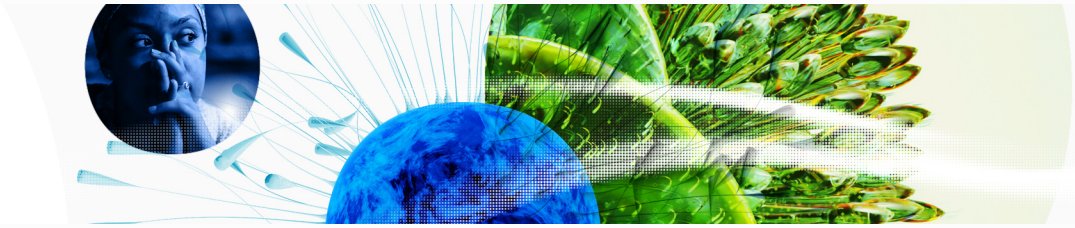
Infrastructure

- Top 10 | 62.83
- United Arab Emirates | 59.80
- High income | 55.85
- NAWA | 41.60

Institutions

- United Arab Emirates | 80.77
- Top 10 | 79.85
- High income | 68.16
- NAWA | 53.39

Global Innovation Index 2023



→ Innovation strengths and weaknesses in United Arab Emirates

The table below gives an overview of the indicator strengths and weaknesses of United Arab Emirates in the GII 2023.

> United Arab Emirates's main innovation strengths are **Cost of redundancy dismissal** (rank 1), **Entrepreneurship policies and culture** (rank 1) and **Tertiary inbound mobility, %** (rank 1).

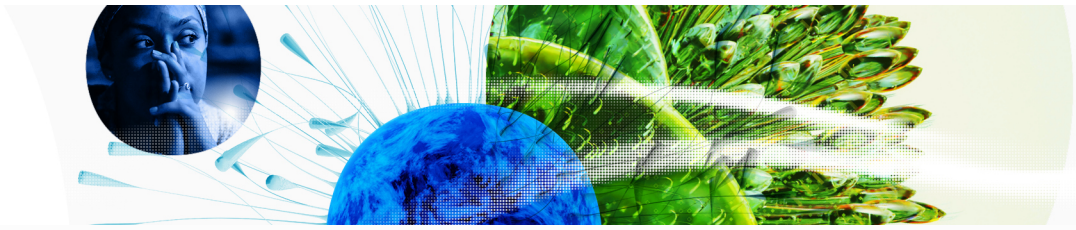
Strengths

Rank	Code	Indicator name
1	1.2.3	Cost of redundancy dismissal
1	1.3.2	Entrepreneurship policies and culture
1	2.2.3	Tertiary inbound mobility, %
3	5.3.5	Research talent, % in businesses
4	3.1.1	ICT access
4	5.2.2	State of cluster development
5	1.3.1	Policies for doing business
7	2.2.2	Graduates in science and engineering, %
8	3.2.1	Electricity output, GWh/mn pop.
8	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP

Weaknesses

Rank	Code	Indicator name
112	6.1.1	Patents by origin/bn PPP$ GDP
110	7.1.4	Industrial designs by origin/bn PPP$ GDP
109	7.1.2	Trademarks by origin/bn PPP$ GDP
98	6.3.2	Production and export complexity
92	3.3.1	GDP/unit of energy use
80	6.1.4	Scientific and technical articles/bn PPP$ GDP
78	7.2.1	Cultural and creative services exports, % total trade
77	2.1.1	Expenditure on education, % GDP
72	6.1.3	Utility models by origin/bn PPP$ GDP
54	7.2.2	National feature films/mn pop. 15-69

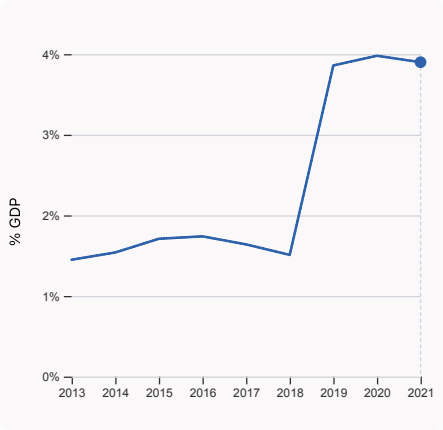
Global Innovation Index 2023



→ United Arab Emirates's innovation system

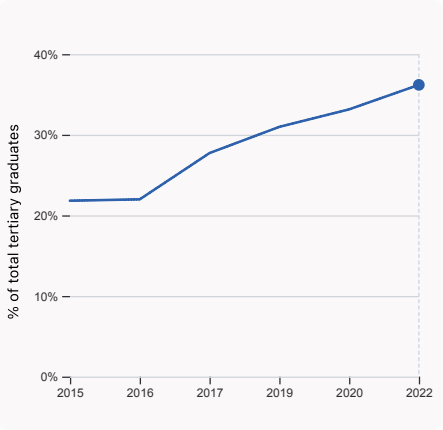
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in United Arab Emirates



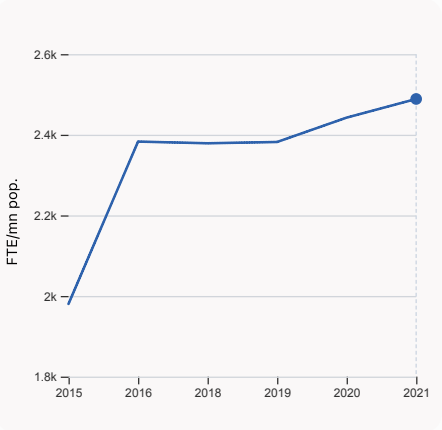
2.1.1 Expenditure on education, % GDP

was equal to 3.9% GDP in 2021, down by 0.08 percentage points from the year prior – and equivalent to an indicator rank of 77.



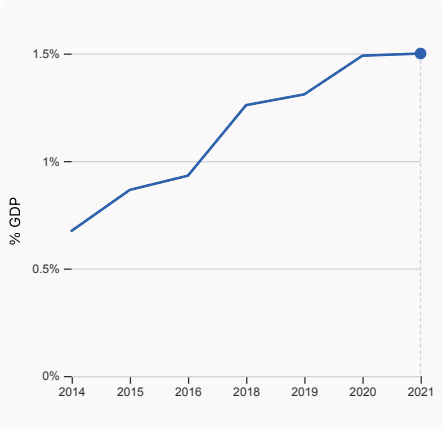
2.2.2 Graduates in science and engineering, %

was equal to 36.19% of total tertiary graduates in 2022, up by 3.04 percentage points from the year prior – and equivalent to an indicator rank of 7.



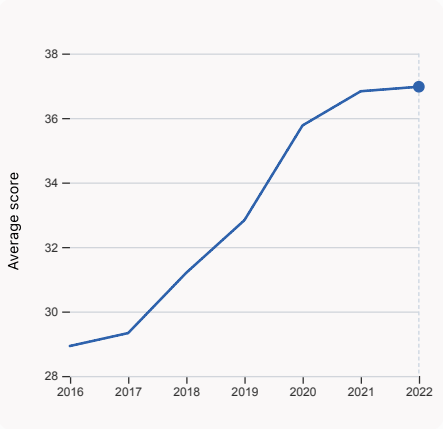
2.3.1 Researchers, FTE/mn pop.

was equal to 2,488.82 FTE/mn pop. in 2021, up by 1.89% from the year prior – and equivalent to an indicator rank of 34.



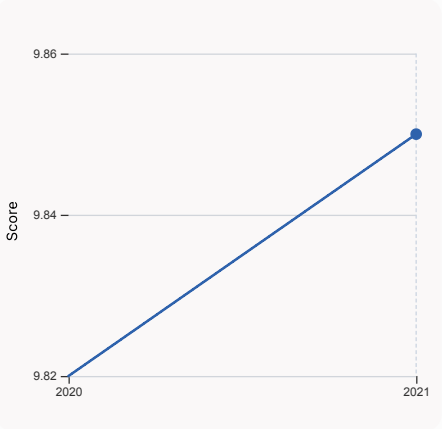
2.3.2 Gross expenditure on R&D, % GDP

was equal to 1.5% GDP in 2021, up by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 26.



2.3.4 QS university ranking, top 3

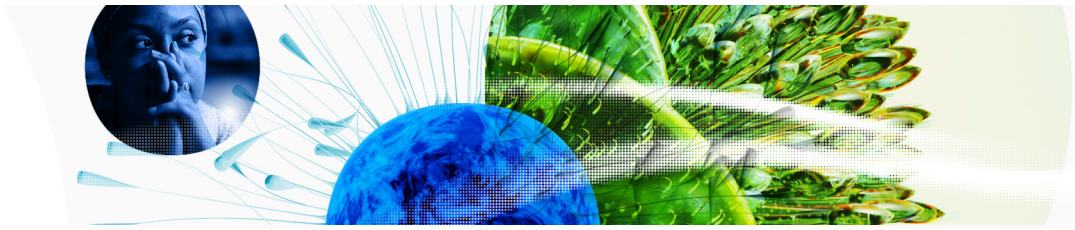
was equal to an average score of 36.97 for the top 3 universities in 2022, up by 0.38% from the year prior – and equivalent to an indicator rank of 34.

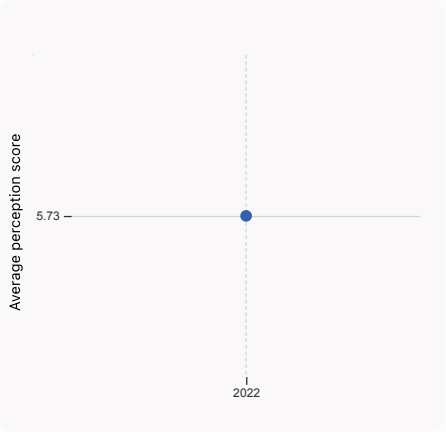


3.1.1 ICT access

was equal to a score of 9.85 in 2021, up by 0.31% from the year prior – and equivalent to an indicator rank of 4.

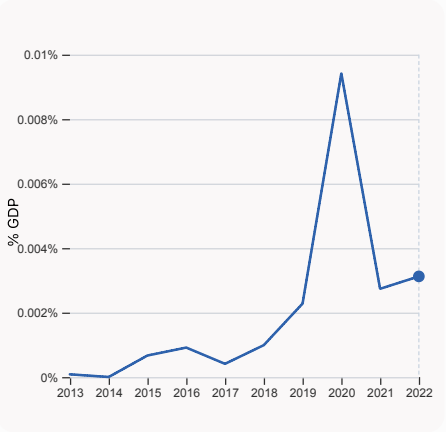
Global Innovation Index 2023





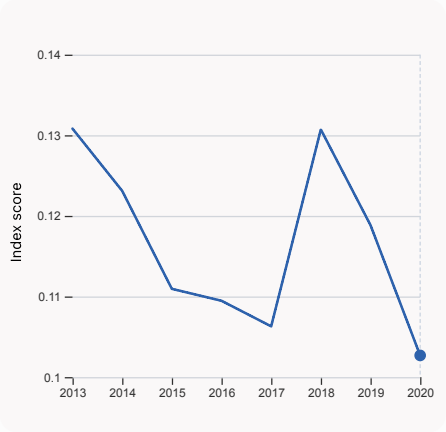
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 5.73 in 2022, equivalent to an indicator rank of 13.



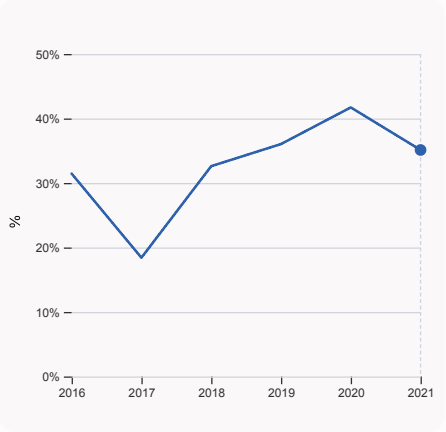
4.2.4 VC received, value, % GDP

was equal to 0.00312% GDP in 2022, up by 0.00038 percentage points from the year prior – and equivalent to an indicator rank of 12.



4.3.2 Domestic industry diversification

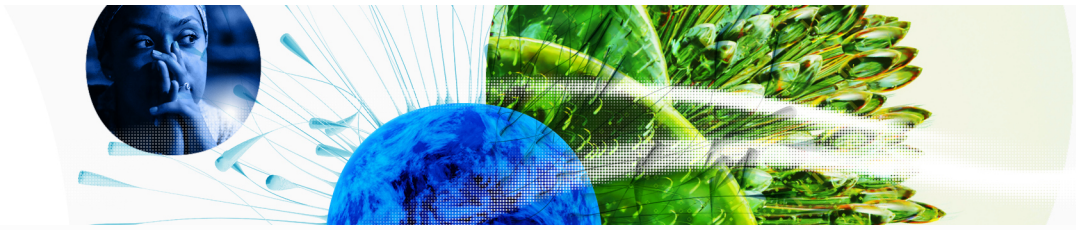
was equal to an index score of 0.103 in 2020, down by 13.6% from the year prior – and equivalent to an indicator rank of 20.



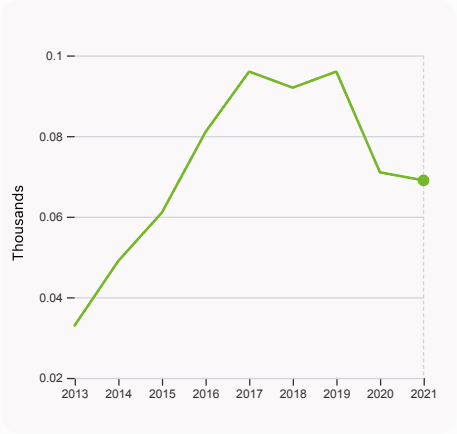
5.1.1 Knowledge-intensive employment, %

was equal to 35.12% in 2021, down by 6.6 percentage points from the year prior – and equivalent to an indicator rank of 42.

Global Innovation Index 2023

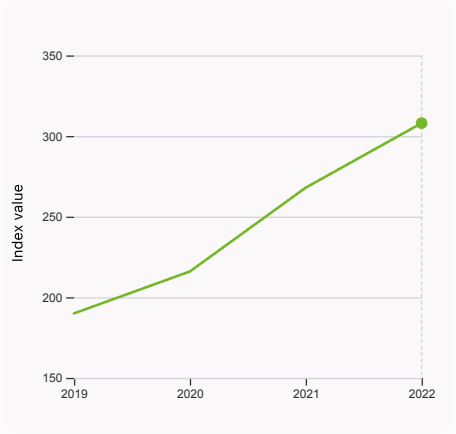


> Innovation outputs in United Arab Emirates



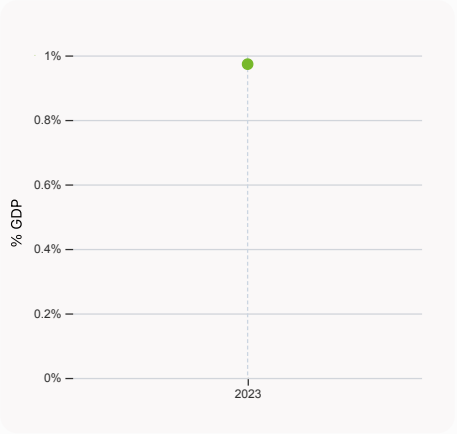
6.1.1 Patents by origin

was equal to 0.069 Thousands in 2021, down by 2.82% from the year prior – and equivalent to an indicator rank of 112.



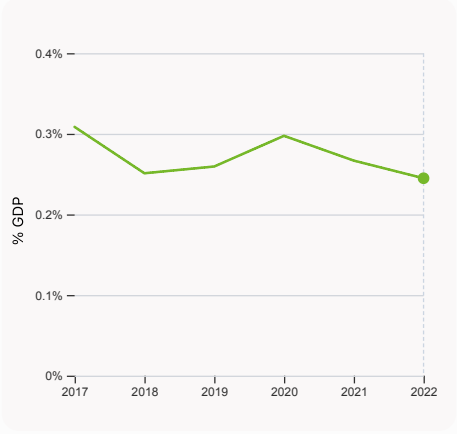
6.1.5 Citable documents H-index

was equal to an index value of 308 in 2022, up by 14.93% from the year prior – and equivalent to an indicator rank of 58.



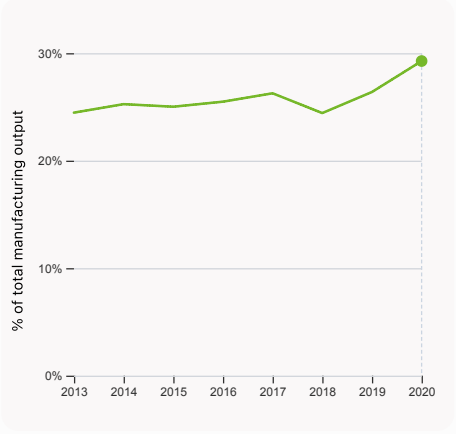
6.2.2 Unicorn valuation, % GDP

was equal to 0.973 % GDP in 2023 – and equivalent to an indicator rank of 34.



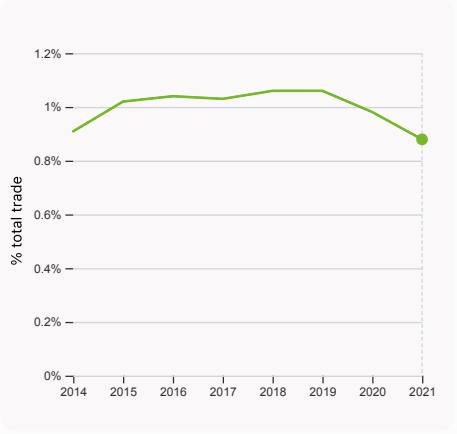
6.2.3 Software spending, % GDP

was equal to 0.245% GDP in 2022, down by 0.022 percentage points from the year prior – and equivalent to an indicator rank of 60.



6.2.4 High-tech manufacturing, %

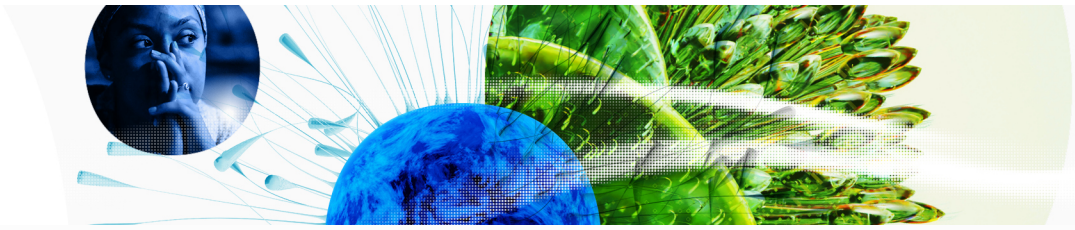
was equal to 29.27% of total manufacturing output in 2020, up by 2.88 percentage points from the year prior – and equivalent to an indicator rank of 42.



6.3.1 Intellectual property receipts, % total trade

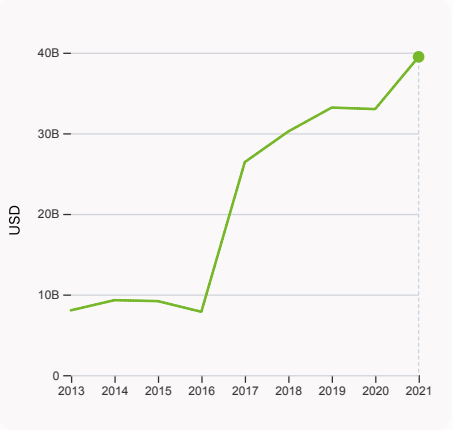
was equal to 0.879% total trade in 2021, down by 0.1 percentage points from the year prior – and equivalent to an indicator rank of 22.

Global Innovation Index 2023



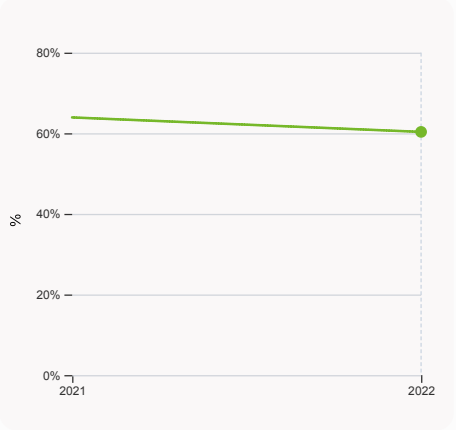
6.3.2 Production and export complexity

was equal to a score of -0.734 in 2020, down by 38.39% from the year prior – and equivalent to an indicator rank of 98.



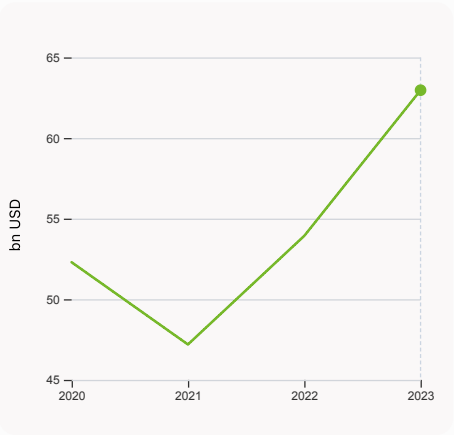
6.3.3 High-tech exports

was equal to 39,479,718,043 USD in 2021, up by 19.64% from the year prior – and equivalent to an indicator rank of 16.



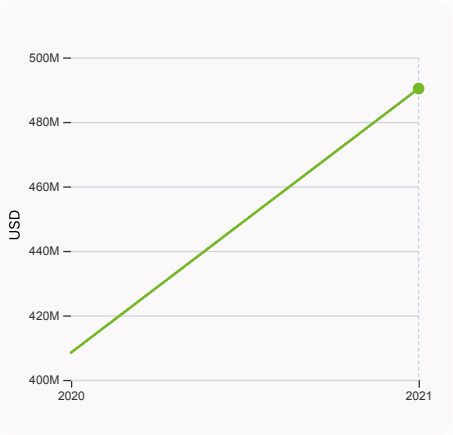
7.1.1 Intangible asset intensity, top 15, %

was equal to 60.34% in 2022, down by 3.59 percentage points from the year prior – and equivalent to an indicator rank of 37.



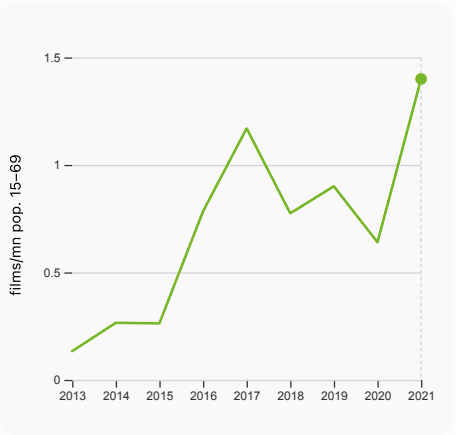
7.1.3 Global brand value, top 5,000

was equal to 62.967 bn USD in 2023, up by 16.75% from the year prior – and equivalent to an indicator rank of 12.



7.2.1 Cultural and creative services exports

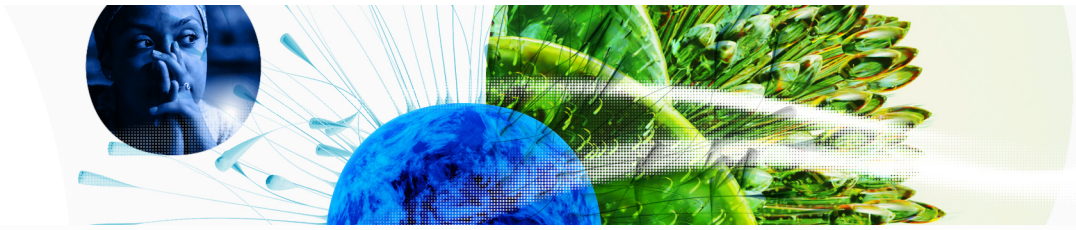
was equal to 490,343,000 USD in 2021, up by 20.052% from the year prior – and equivalent to an indicator rank of 78.

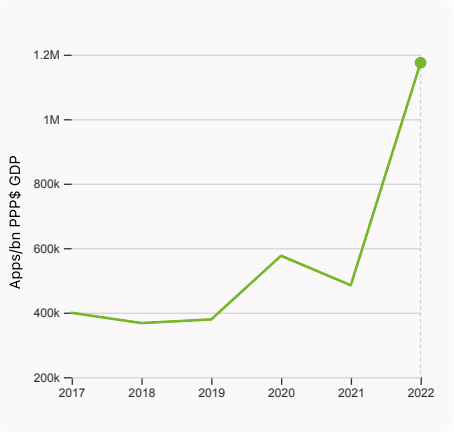


7.2.2 National feature films/mn pop. 15-69

was equal to 1.4 films/mn pop. 15–69 in 2021, up by 118.62% from the year prior – and equivalent to an indicator rank of 54.

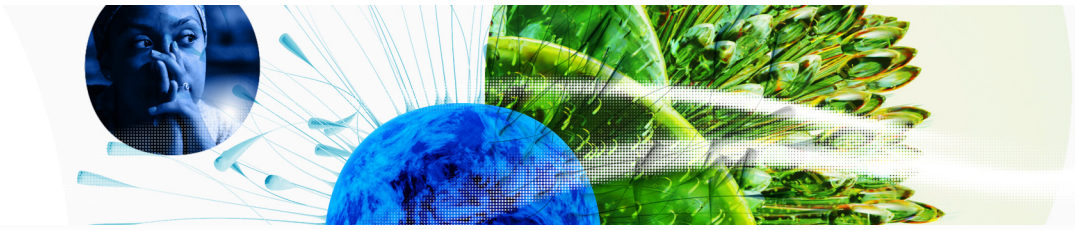
Global Innovation Index 2023





7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 1,174,981.59 Apps/bn PPP$ GDP in 2022, up by 142.39% from the year prior – and equivalent to an indicator rank of 24.



United Arab Emirates's innovation top performers

2.3.4 QS university ranking of United Arab Emirates's top universities

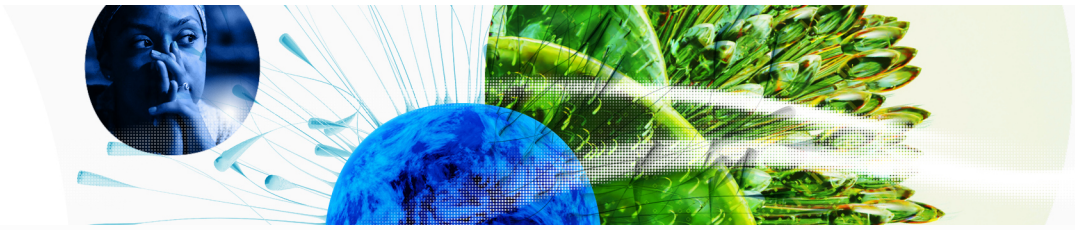
Rank	University	Score
181	KHALIFA UNIVERSITY	45.60
296	UNITED ARAB EMIRATES UNIVERSITY	35.40
369	AMERICAN UNIVERSITY OF SHARJAH	29.90

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
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".

6.2.2 Top Unicorn Companies in United Arab Emirates

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	VISTA GLOBAL	Other	Dubai	3
2	KITOPI	Supply chain, logistics, & delivery	Dubai	2
3	EMERGING MARKETS PROPERTY GROUP	Other	Dubai	1

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies



> 7.1.1 Top 15 intangible-asset intensive companies in United Arab Emirates

Rank	Firm	Intensity, %
1	ABU DHABI NATIONAL ENERGY CO PJSC	77.16
2	EMIRATES TELECOMMUNICATIONS GROUP CO PJSC	81.35
3	FIRST ABU DHABI BANK PJSC	47.58

Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in United Arab Emirates with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	ADNOC	Oil & Gas	14,208.5
2	ETISALAT BY E&	Telecoms	10,456.9
3	EMIRATES	Airlines	5,103.8

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

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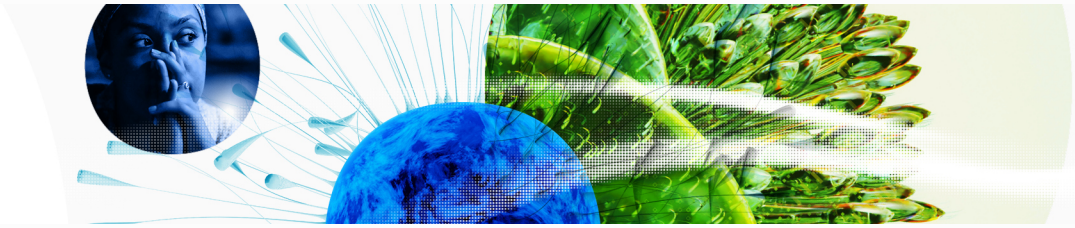

United Arab Emirates

GII 2023 rank **32**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
54	19	High	NAWA	9.4	814.7	77,272.3

	Score / Value	Rank
Institutions	**80.8**	**10**
1.1 Institutional environment	**67.5**	**30**
1.1.1 Operational stability for businesses*	59.7	47
1.1.2 Government effectiveness*	75.4	18
1.2 Regulatory environment	**83.1**	**21**
1.2.1 Regulatory quality*	68.4	30
1.2.2 Rule of law*	64.0	36
1.2.3 Cost of redundancy dismissal	8.0	1 ●
1.3 Business environment	**91.7**	**2**
1.3.1 Policies for doing business†	83.3	5 ●
1.3.2 Entrepreneurship policies and culture†	100.0	1 ●
Human capital and research	**54.3**	**16**
2.1 Education	**54.5**	**56**
2.1.1 Expenditure on education, % GDP	3.9	77 ○
2.1.2 Government funding/pupil, secondary, % GDP/cap	25.6	17
2.1.3 School life expectancy, years	16.0	38
2.1.4 PISA scales in reading, maths and science	433.5	47 ◇
2.1.5 Pupil-teacher ratio, secondary	8.5	16
2.2 Tertiary education	**71.2**	**1**
2.2.1 Tertiary enrolment, % gross	55.3	61
2.2.2 Graduates in science and engineering, %	36.2	7 ●
2.2.3 Tertiary inbound mobility, %	70.3	1 ●
2.3 Research and development (R&D)	**37.3**	**29**
2.3.1 Researchers, FTE/mn pop.	2,488.8	34
2.3.2 Gross expenditure on R&D, % GDP	1.5	26
2.3.3 Global corporate R&D investors, top 3, mn US$	59.4	24
2.3.4 QS university ranking, top 3*	37.5	34
Infrastructure	**59.8**	**15**
3.1 Information and communication technologies (ICTs)	**89.0**	**14**
3.1.1 ICT access*	97.9	4 ●
3.1.2 ICT use*	91.1	20
3.1.3 Government's online service*	89.1	12
3.1.4 E-participation*	77.9	18
3.2 General infrastructure	**58.4**	**8**
3.2.1 Electricity output, GWh/mn pop.	13,883.7	8 ●
3.2.2 Logistics performance*	86.4	7
3.2.3 Gross capital formation, % GDP	22.9	73
3.3 Ecological sustainability	**32.0**	**47**
3.3.1 GDP/unit of energy use	7.6	92 ○
3.3.2 Environmental performance*	56.8	34
3.3.3 ISO 14001 environment/bn PPP$ GDP	3.0	31
Market sophistication	**50.3**	**25**
4.1 Credit	**54.4**	**24**
4.1.1 Finance for startups and scaleups†	75.1	13
4.1.2 Domestic credit to private sector, % GDP	90.8	35
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a
4.2 Investment	**32.1**	**23**
4.2.1 Market capitalization, % GDP	65.9	27
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.3	18
4.2.3 VC recipients, deals/bn PPP$ GDP	0.1	30
4.2.4 VC received, value, % GDP	0.0	12
4.3 Trade, diversification, and market scale	**64.4**	**33**
4.3.1 Applied tariff rate, weighted avg., %	3.3	75
4.3.2 Domestic industry diversification	96.8	20
4.3.3 Domestic market scale, bn PPP$	814.7	33

	Score / Value	Rank
Business sophistication	**51.6**	**23**
5.1 Knowledge workers	**49.9**	**29**
5.1.1 Knowledge-intensive employment, %	35.1	42
5.1.2 Firms offering formal training, %	n/a	n/a
5.1.3 GERD performed by business, % GDP	0.8	33
5.1.4 GERD financed by business, %	74.3	5
5.1.5 Females employed w/advanced degrees, %	12.2	63 ◇
5.2 Innovation linkages	**56.3**	**15**
5.2.1 University-industry R&D collaboration†	73.1	20
5.2.2 State of cluster development†	86.7	4 ●
5.2.3 GERD financed by abroad, % GDP	n/a	n/a
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.2	8 ●
5.2.5 Patent families/bn PPP$ GDP	0.1	55
5.3 Knowledge absorption	**48.6**	**25**
5.3.1 Intellectual property payments, % total trade	0.7	58
5.3.2 High-tech imports, % total trade	14.3	17
5.3.3 ICT services imports, % total trade	1.1	78
5.3.4 FDI net inflows, % GDP	5.0	20
5.3.5 Research talent, % in businesses	77.9	3 ●
Knowledge and technology outputs	**23.9**	**59 ◇**
6.1 Knowledge creation	**7.4**	**96 ◇**
6.1.1 Patents by origin/bn PPP$ GDP	0.1	112 ○ ◇
6.1.2 PCT patents by origin/bn PPP$ GDP	0.1	54
6.1.3 Utility models by origin/bn PPP$ GDP	0.0	72 ○ ◇
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	14.7	58
6.2 Knowledge impact	**32.4**	**48**
6.2.1 Labor productivity growth, %	1.0	64
6.2.2 Unicorn valuation, % GDP	1.0	34
6.2.3 Software spending, % GDP	0.2	60
6.2.4 High-tech manufacturing, %	29.3	42
6.3 Knowledge diffusion	**31.9**	**47**
6.3.1 Intellectual property receipts, % total trade	1.0	22
6.3.2 Production and export complexity	37.1	98 ○ ◇
6.3.3 High-tech exports, % total trade	10.6	16
6.3.4 ICT services exports, % total trade	2.0	59
6.3.5 ISO 9001 quality/bn PPP$ GDP	6.2	46
Creative outputs	**30.3**	**50**
7.1 Intangible assets	**34.6**	**55**
7.1.1 Intangible asset intensity, top 15, %	60.3	37
7.1.2 Trademarks by origin/bn PPP$ GDP	11.4	109 ○ ◇
7.1.3 Global brand value, top 5,000	12.1	12
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.1	110 ○ ◇
7.2 Creative goods and services	**24.9**	**41**
7.2.1 Cultural and creative services exports, % total trade	0.1	78 ○
7.2.2 National feature films/mn pop. 15-69	1.4	54 ○ ◇
7.2.3 Entertainment and media market/th pop. 15-69	22.3	27
7.2.4 Creative goods exports, % total trade	5.6	11
7.3 Online creativity	**27.1**	**47**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	13.1	36
7.3.2 Country-code TLDs/th pop. 15-69	8.2	43
7.3.3 GitHub commits/mn pop. 15-69	12.0	52 ◇
7.3.4 Mobile app creation/bn PPP$ GDP	75.0	24

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/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

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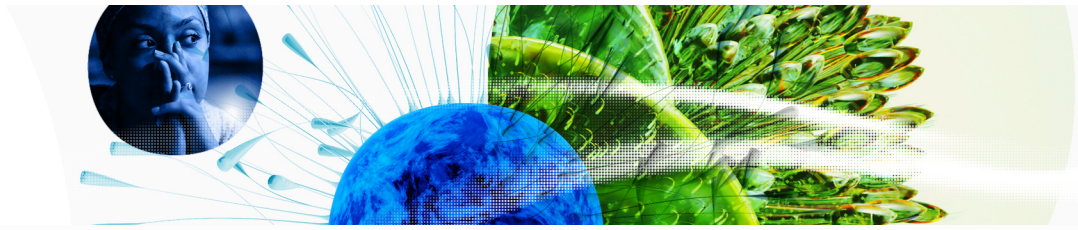

→ Data availability

The following tables list indicators that are either missing or outdated for United Arab Emirates.

> United Arab Emirates has missing data for three indicators and outdated data for seven indicators.

> Missing data for United Arab Emirates

Code	Indicator name	Economy Year	Model Year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys
5.2.3	GERD financed by abroad, % GDP	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

> Outdated data for United Arab Emirates

Code	Indicator name	Economy Year	Model Year	Source
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour Organization
5.3.5	Research talent, % in businesses	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.3	Utility models by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund

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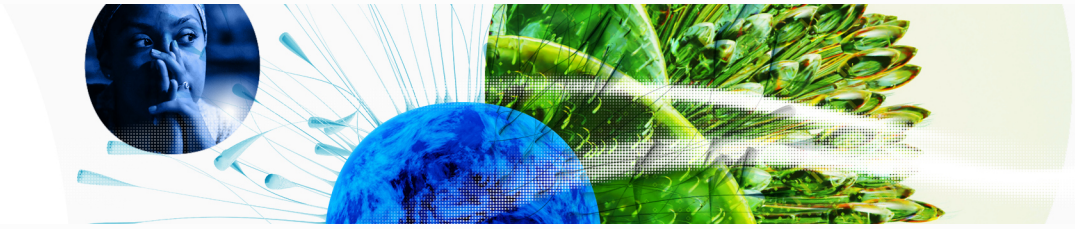

About the Global Innovation Index

- 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, 2023.

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.