

Global Innovation Index 2023

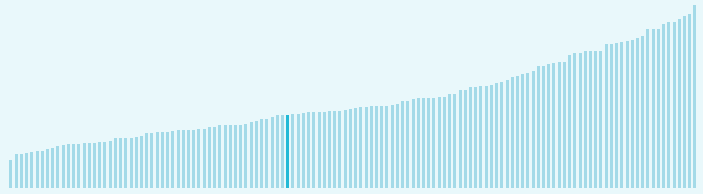


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

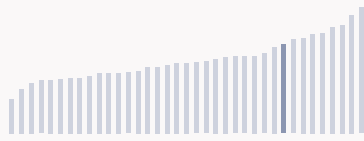
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Tunisia ranking in the Global Innovation Index 2023

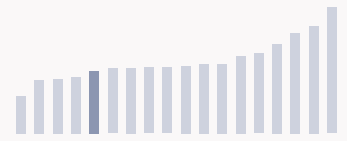
> Tunisia ranks **79th** among the 132 economies featured in the GII 2023.



> Tunisia ranks **9th** among the 37 lower-middle-income group economies.



> Tunisia ranks **14th** among the 18 economies in Northern Africa and Western Asia.



> Tunisia GII Ranking (2020-2023)

The table shows the rankings of Tunisia 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 Tunisia in the GII 2023 is between ranks 71 and 83.

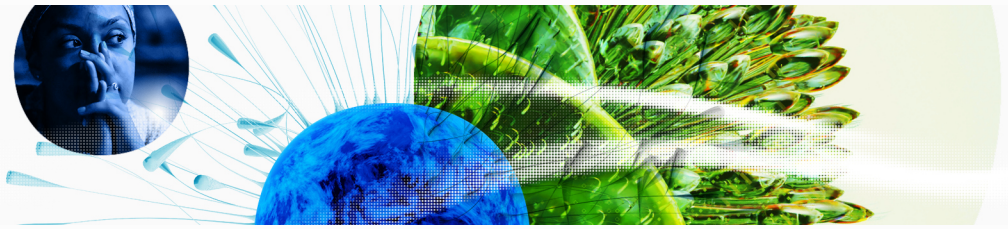
	GII Position	Innovation Inputs	Innovation Outputs
2020	65th	78th	59th
2021	71st	78th	64th
2022	73rd	89th	59th
2023	79th	96th	61st

Tunisia performs better in innovation outputs than innovation inputs in 2023.

This year Tunisia ranks **96th** in innovation inputs. This position is lower than last year.

Tunisia ranks **61st** in innovation outputs. This position is lower than last year.

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→ Expected vs. observed innovation performance

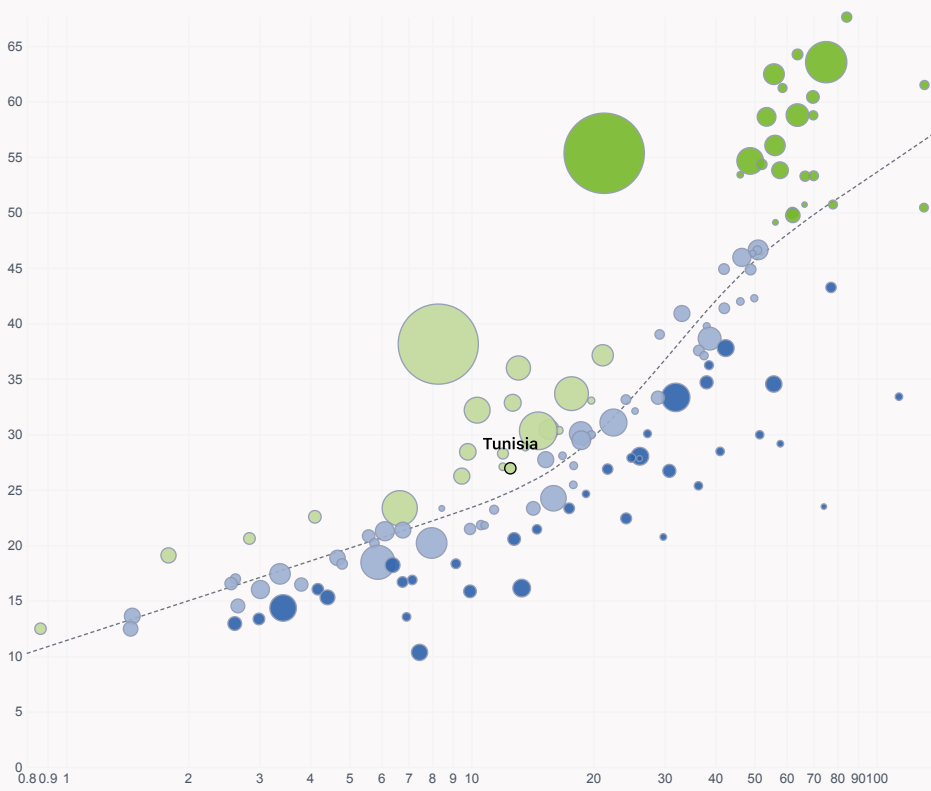
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



> Relative to GDP, Tunisia is performing above expectations for its level of development.

> Innovation overperformers relative to their economic development

↑ **GII Score**



- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



→ GDP per capita, PPP logarithmic scale (thousands of \$)

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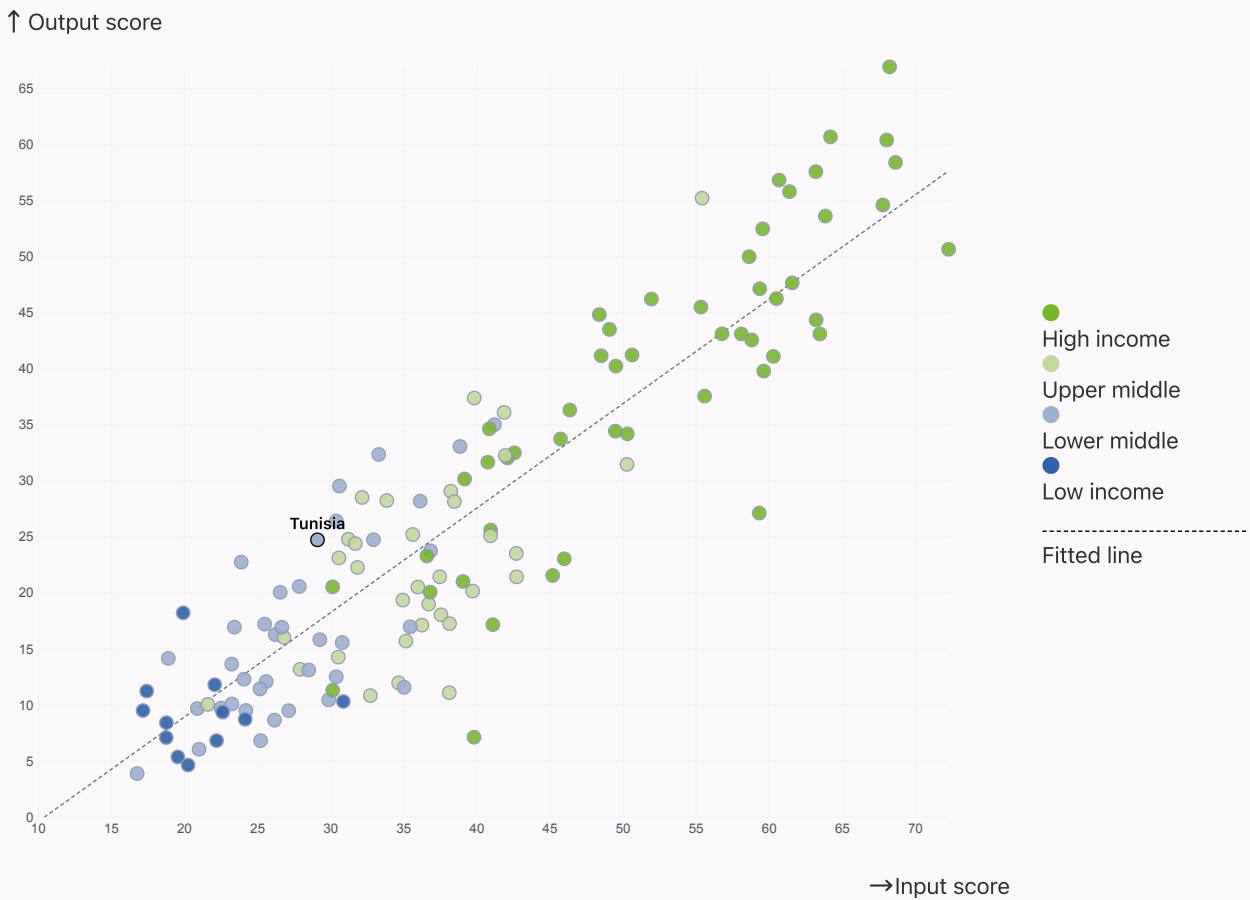
→ Effectively translating innovation investments into innovation outputs

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.

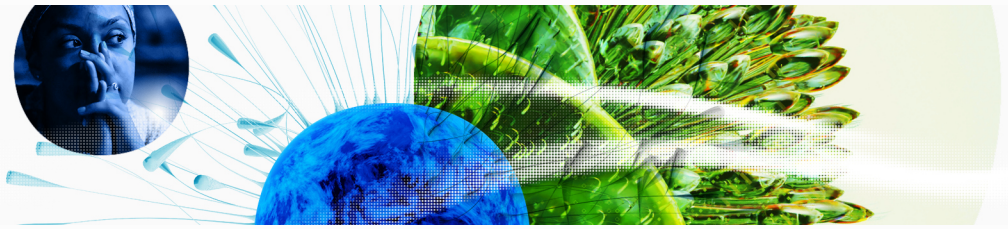


> Tunisia produces more innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

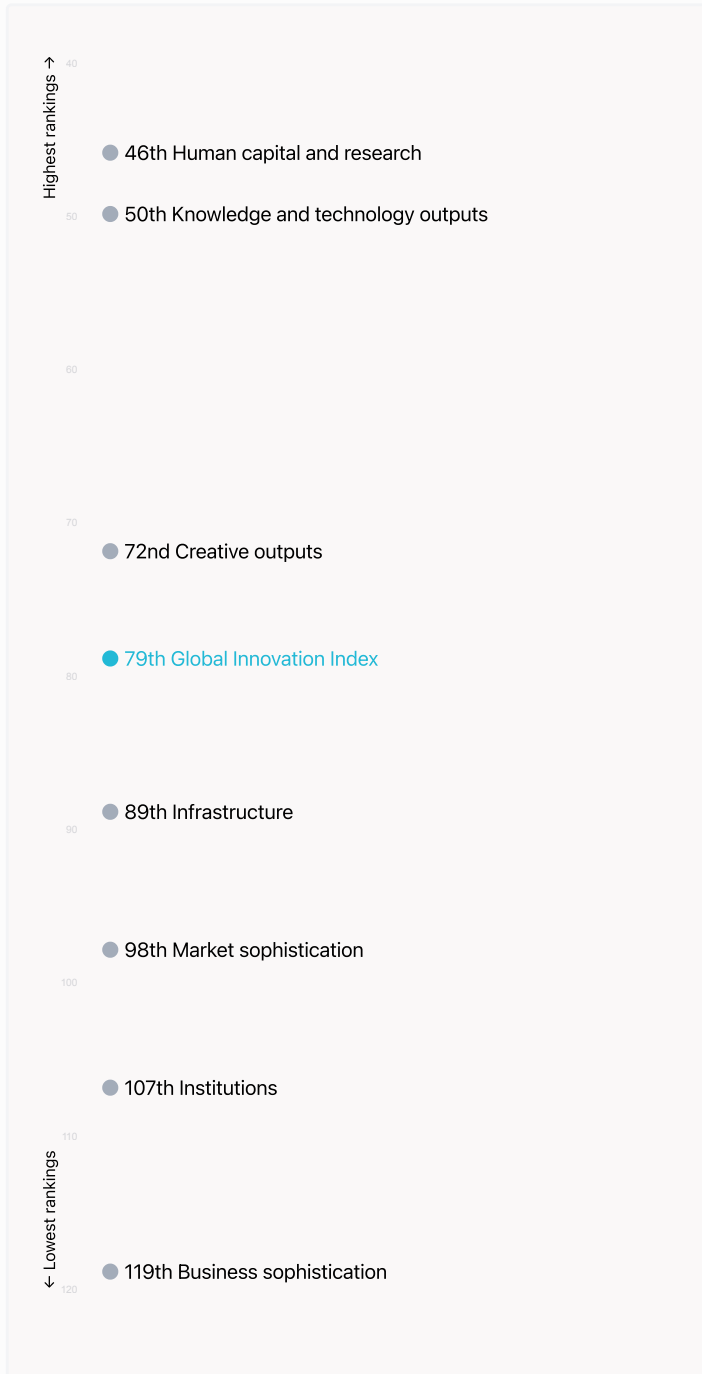


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→ Overview of Tunisia's rankings in the seven areas of the GII in 2023

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



> Highest rankings



Tunisia ranks highest in Human capital and research (46th), Knowledge and technology outputs (50th) and Creative outputs (72nd).

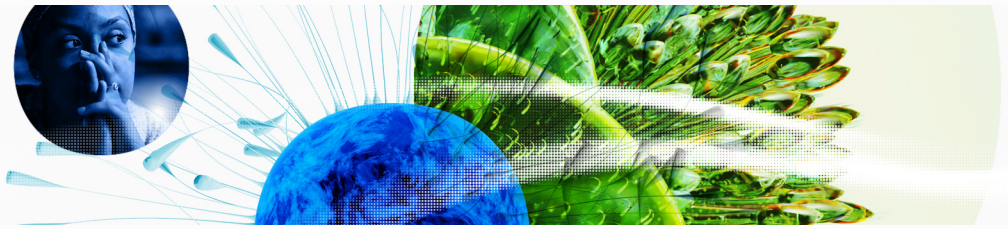
> Lowest rankings



Tunisia ranks lowest in Business sophistication (119th), Institutions (107th) and Market sophistication (98th).

The full WIPO Intellectual Property Statistics profile for Tunisia can be found on [this link](#).

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→ Benchmark of Tunisia against other country groupings for each of the seven areas of the GII Index

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

> Lower-Middle-Income economies

Tunisia performs above the lower-middle-income group average in Knowledge and technology outputs, Creative outputs, Human capital and research, Infrastructure.



> Northern Africa And Western Asia

Tunisia performs below the regional average in Creative outputs, Business sophistication, Market sophistication, Infrastructure, Institutions.



Knowledge and technology outputs

Top 10 | Score: 58.96

Tunisia | Score: 27.10

NAWA | Score: 24.01

Lower middle income | Score: 17.21

Creative outputs

Top 10 | 56.09

NAWA | 24.51

Tunisia | 22.30

Lower middle income | 16.35

Business sophistication

Top 10 | 64.39

NAWA | 29.44

Lower middle income | 22.71

Tunisia | 16.80

Market sophistication

Top 10 | 61.93

NAWA | 36.12

Lower middle income | 28.01

Tunisia | 24.22

Human capital and research

Top 10 | 60.28

Tunisia | 36.10

NAWA | 32.72

Lower middle income | 21.73

Infrastructure

Top 10 | 62.83

NAWA | 41.60

Tunisia | 32.35

Lower middle income | 27.83

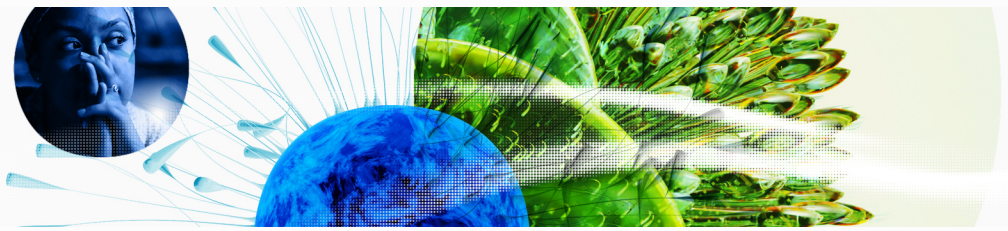
Institutions

Top 10 | 79.85

NAWA | 53.39

Lower middle income | 39.43

Tunisia | 36.19



→ Innovation strengths and weaknesses in Tunisia

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



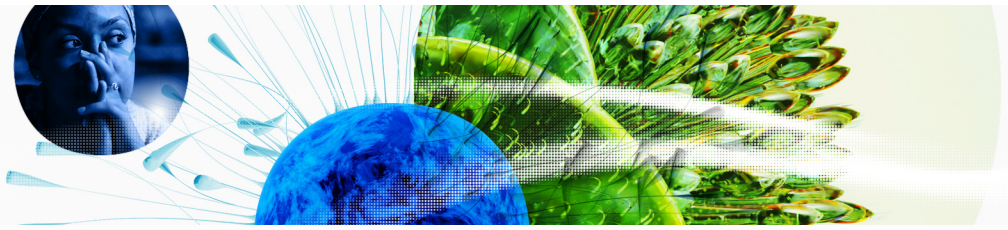
> Tunisia's main innovation strengths are **Government funding/pupil, secondary, % GDP/cap** (rank 1), **Graduates in science and engineering, %** (rank 5) and **Scientific and technical articles/bn PPP\$ GDP** (rank 10).

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	2.1.2	Government funding/pupil, secondary, % GDP/cap	120	5.3.3	ICT services imports, % total trade
5	2.2.2	Graduates in science and engineering, %	117	3.2.3	Gross capital formation, % GDP
10	6.1.4	Scientific and technical articles/bn PPP\$ GDP	103	7.2.1	Cultural and creative services exports, % total trade
33	6.3.5	ISO 9001 quality/bn PPP\$ GDP	78	1.3.2	Entrepreneurship policies and culture
36	6.2.3	Software spending, % GDP	74	7.1.3	Global brand value, top 5,000
40	6.3.3	High-tech exports, % total trade	74	2.1.4	PISA scales in reading, maths and science
41	7.2.4	Creative goods exports, % total trade	71	2.3.4	QS university ranking, top 3
42	4.1.2	Domestic credit to private sector, % GDP	60	7.2.3	Entertainment and media market/th pop. 15-69
44	3.3.3	ISO 14001 environment/bn PPP\$ GDP	48	6.2.2	Unicorn valuation, % GDP
			40	2.3.3	Global corporate R&D investors, top 3, mn US\$

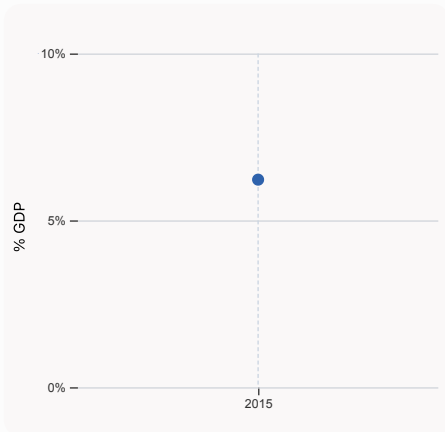
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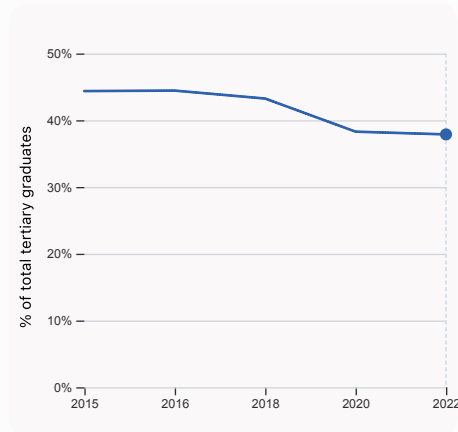
→ Tunisia's innovation system

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

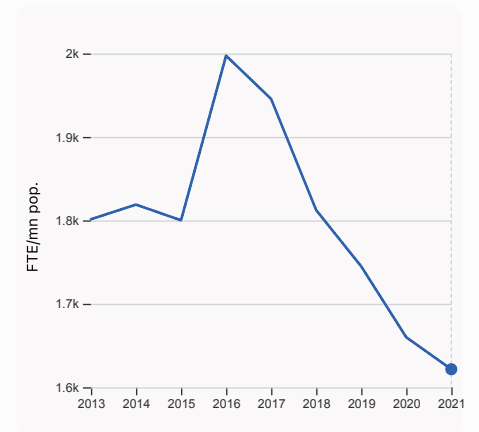
> Innovation inputs in Tunisia



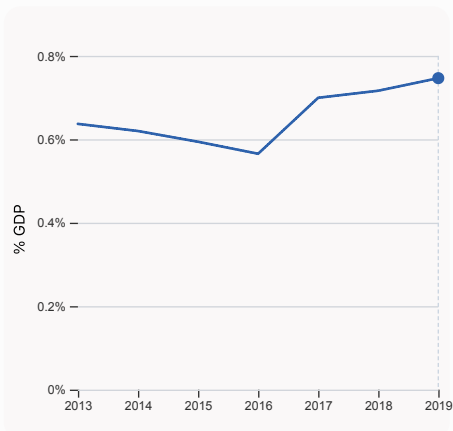
2.1.1 Expenditure on education, % GDP was equal to 6.22 % GDP in 2015, equivalent to an indicator rank of 16.



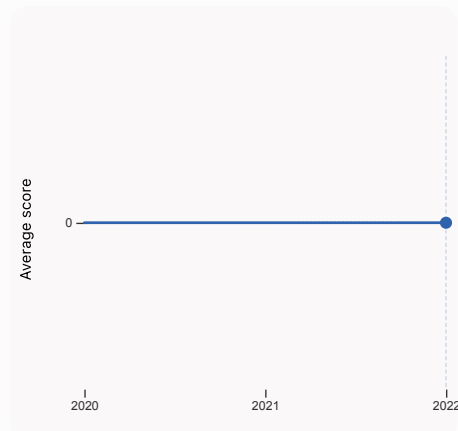
2.2.2 Graduates in science and engineering, % was equal to 37.88% of total tertiary graduates in 2022, down by 0.41 percentage points from the year prior – and equivalent to an indicator rank of 5.



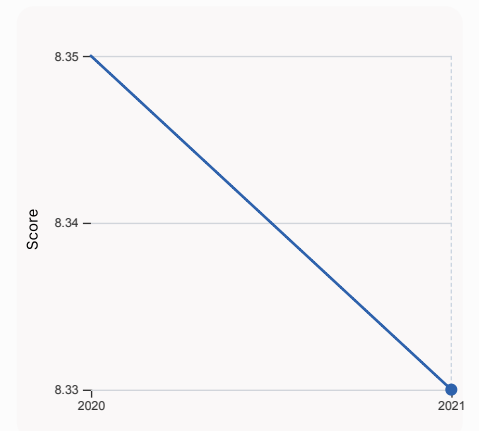
2.3.1 Researchers, FTE/mn pop. was equal to 1,621.6 FTE/mn pop. in 2021, down by 2.31% from the year prior – and equivalent to an indicator rank of 47.



2.3.2 Gross expenditure on R&D, % GDP was equal to 0.747% GDP in 2019, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 49.

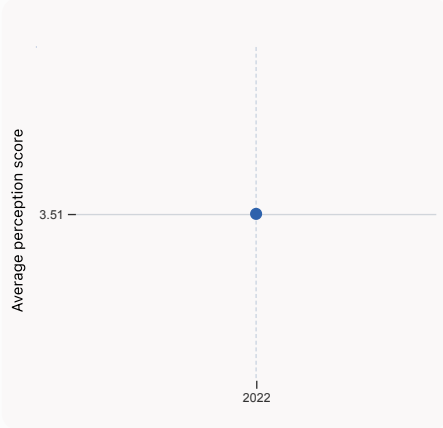
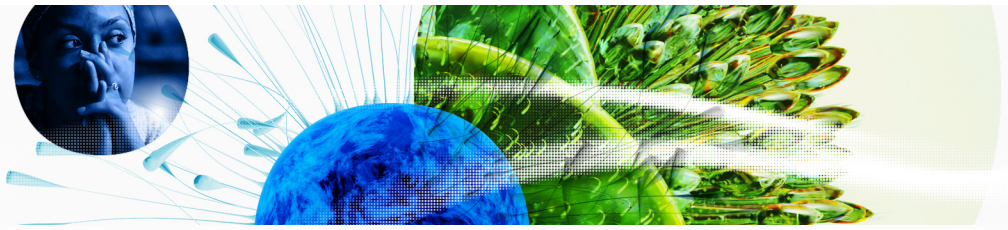


2.3.4 QS university ranking, top 3 was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.

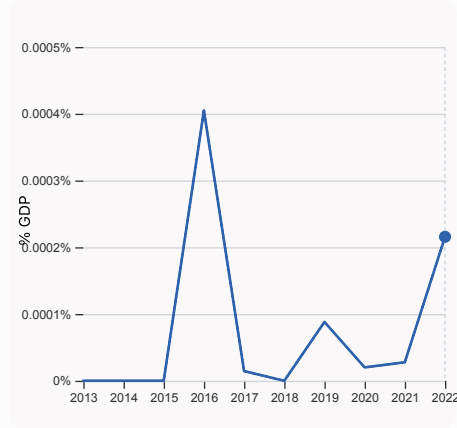


3.1.1 ICT access was equal to a score of 8.33 in 2021, down by 0.24% from the year prior – and equivalent to an indicator rank of 82.

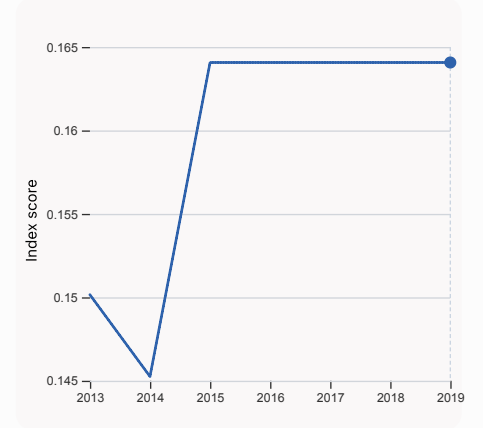
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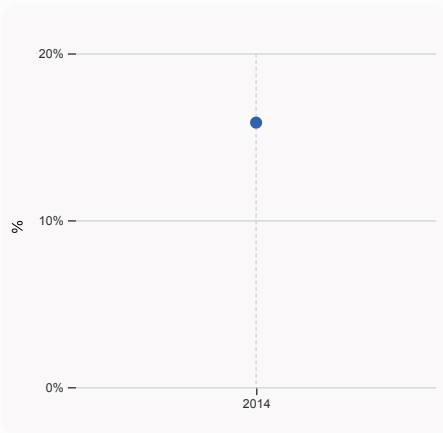
4.1.1 Finance for startups and scaleups was equal to an average perception score of 3.51 in 2022, equivalent to an indicator rank of 74.



4.2.4 VC received, value, % GDP was equal to 0.00022% GDP in 2022, up by 0.00019 percentage points from the year prior – and equivalent to an indicator rank of 85.

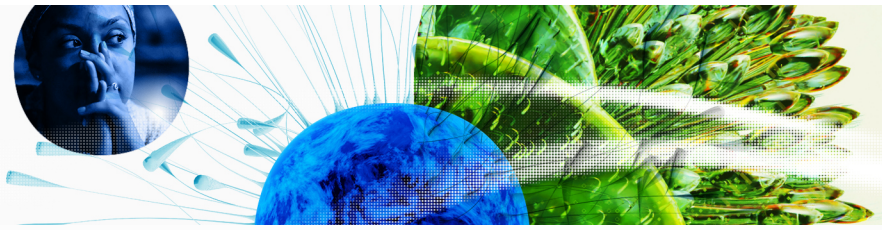


4.3.2 Domestic industry diversification was equal to an index score of 0.164 in 2019, with no change from the year prior – and equivalent to an indicator rank of 55.

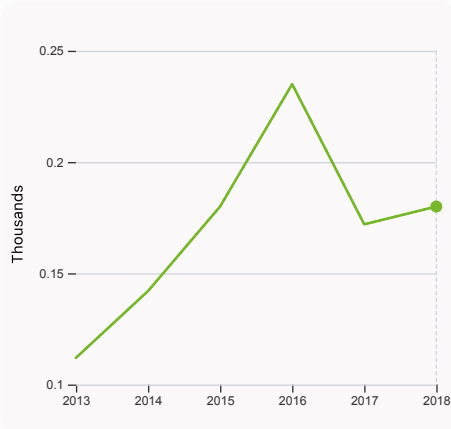


5.1.1 Knowledge-intensive employment, % was equal to 15.85 % in 2014, equivalent to an indicator rank of 86.

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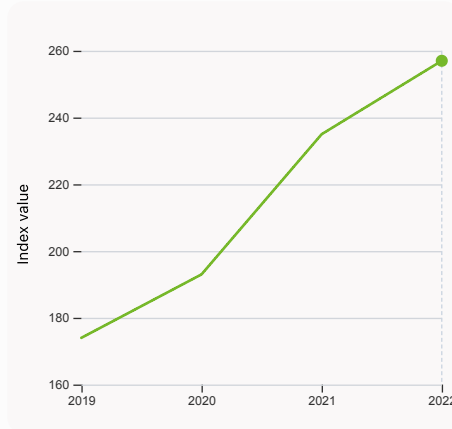


> Innovation outputs in Tunisia



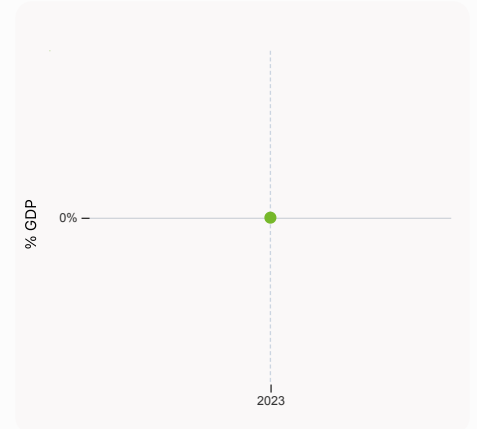
6.1.1 Patents by origin

was equal to 0.18 Thousands in 2018, up by 4.65% from the year prior – and equivalent to an indicator rank of 50.



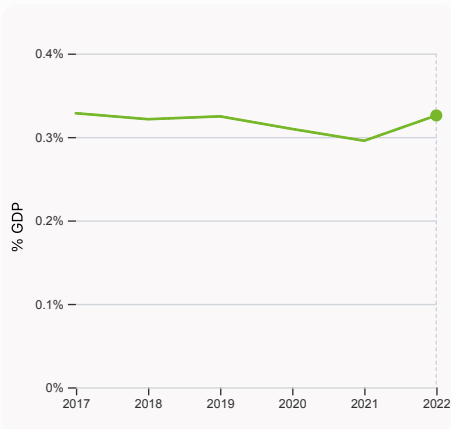
6.1.5 Citable documents H-index

was equal to an index value of 257 in 2022, up by 9.36% from the year prior – and equivalent to an indicator rank of 68.



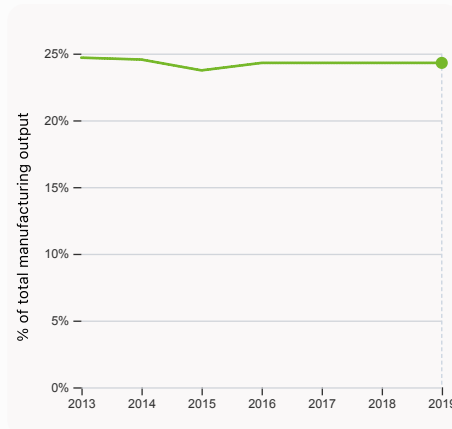
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



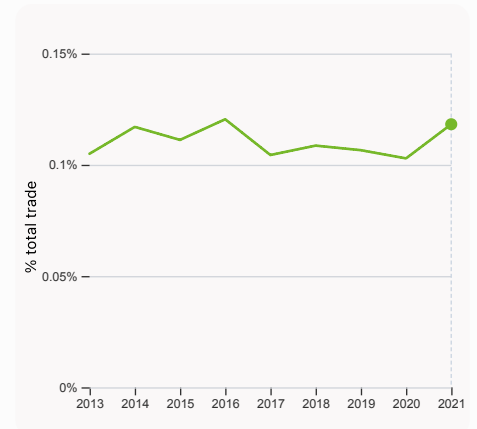
6.2.3 Software spending, % GDP

was equal to 0.326% GDP in 2022, up by 0.03 percentage points from the year prior – and equivalent to an indicator rank of 36.



6.2.4 High-tech manufacturing, %

was equal to 24.3% of total manufacturing output in 2019, up by with no change from the year prior – and equivalent to an indicator rank of 53.



6.3.1 Intellectual property receipts, % total trade

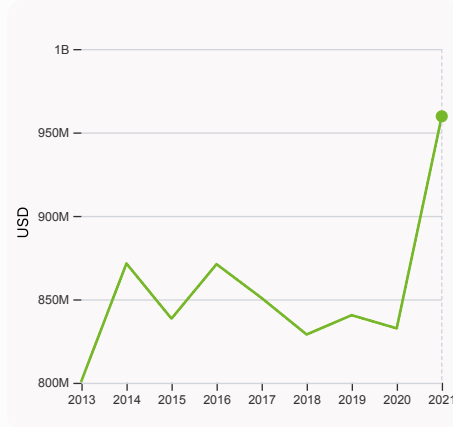
was equal to 0.118% total trade in 2021, up by 0.015 percentage points from the year prior – and equivalent to an indicator rank of 56.

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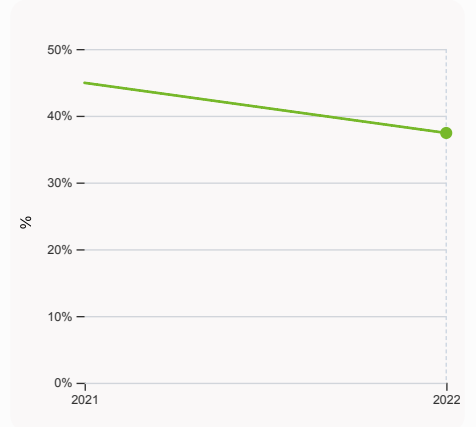
6.3.2 Production and export complexity

was equal to a score of 0.458 in 2020, up by 25.96% from the year prior – and equivalent to an indicator rank of 44.



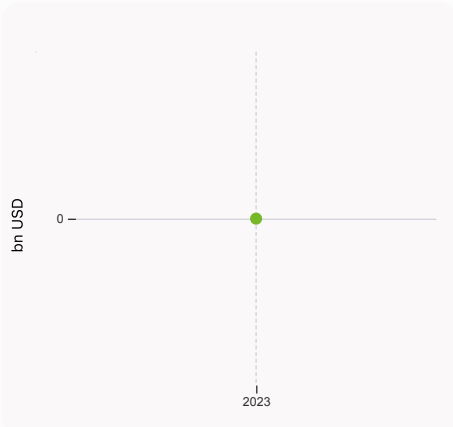
6.3.3 High-tech exports

was equal to 959,678,936 USD in 2021, up by 15.26% from the year prior – and equivalent to an indicator rank of 40.



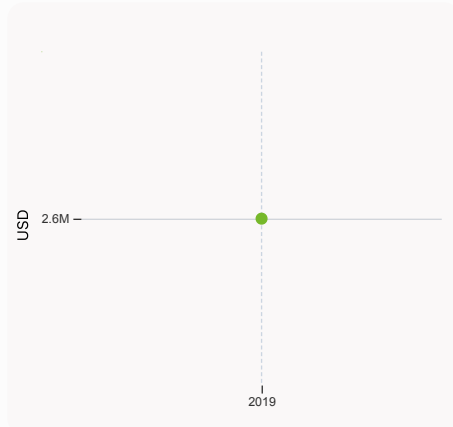
7.1.1 Intangible asset intensity, top 15, %

was equal to 37.42% in 2022, down by 7.51 percentage points from the year prior – and equivalent to an indicator rank of 63.



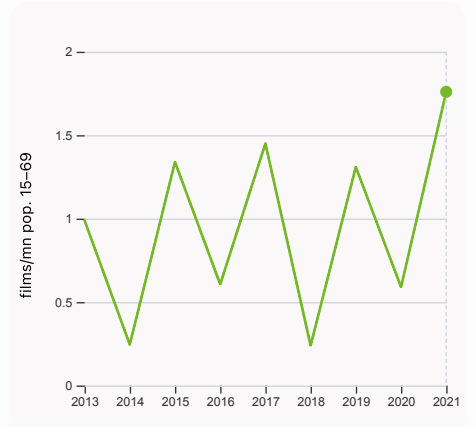
7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



7.2.1 Cultural and creative services exports

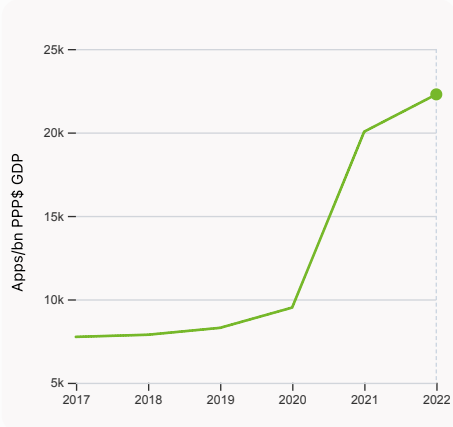
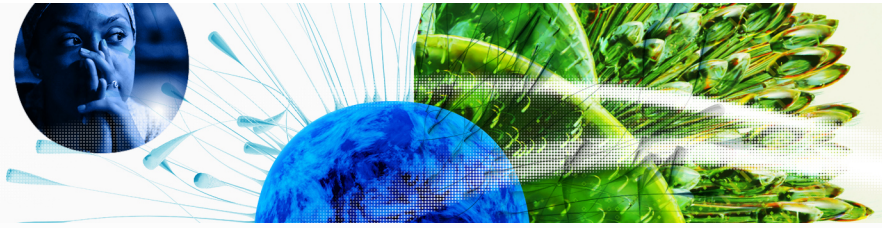
was equal to 2,602,000 USD in 2019 – and equivalent to an indicator rank of 103.



7.2.2 National feature films/mn pop. 15-69

was equal to 1.76 films/mn pop. 15-69 in 2021, up by 198.28% from the year prior – and equivalent to an indicator rank of 50.

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7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 22,281.22 Apps/bn PPP\$ GDP in 2022, up by 11.14% from the year prior – and equivalent to an indicator rank of 96.



→ Tunisia's innovation top performers

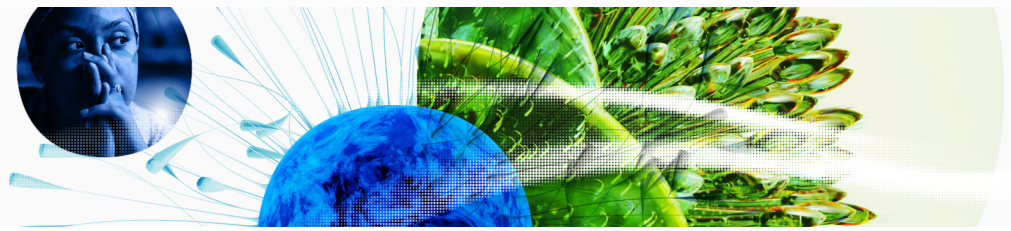
> 7.1.1 Top 15 intangible-asset intensive companies in Tunisia

Rank	Firm	Intensity, %
1	BANQUE INTERNATIONALE ARABE DE TUNISIE	27.45
2	CARTHAGE CEMENT	44.33
3	SOCIETE D'ARTICLES HYGIENIQUES SA	37.01

Source: Brand Finance (<https://brandirectory.com/reports/gifit-2022>).

Note: Brand Finance only provides within economy ranks.

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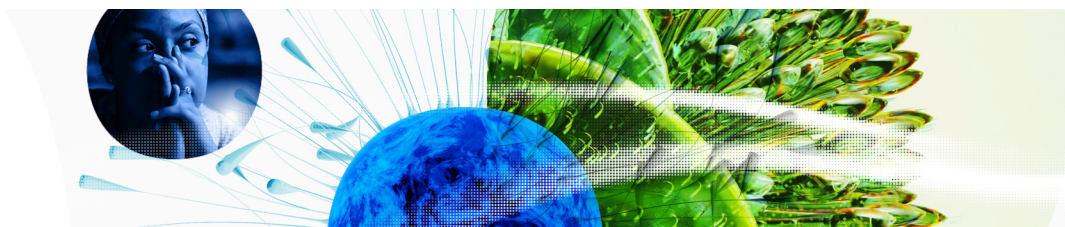
GII 2023 rank

79

Tunisia

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
61	96	Lower middle	NAWA	12.4	151.5	12,490.2
			Score / Value Rank			
Institutions				36.2	107	
1.1 Institutional environment				34.8	94	
1.1.1 Operational stability for businesses*				37.5	101	
1.1.2 Government effectiveness*				32.1	82	
1.2 Regulatory environment				55.2	88	
1.2.1 Regulatory quality*				32.0	93	
1.2.2 Rule of law*				42.5	60	◆
1.2.3 Cost of redundancy dismissal				21.6	94	
1.3 Business environment				18.6	121	○◇
1.3.1 Policies for doing business†				26.5	111	
1.3.2 Entrepreneurship policies and culture†				10.6	78	○◇
Human capital and research				36.1	46	◆
2.1 Education				62.9	20	◆◆
2.1.1 Expenditure on education, % GDP				● 6.2	16	
2.1.2 Government funding/pupil, secondary, % GDP/cap				● 51.1	1	◆◆
2.1.3 School life expectancy, years				● 15.1	50	◆
2.1.4 PISA scales in reading, maths and science				● 371.4	74	○
2.1.5 Pupil-teacher ratio, secondary				13.3	61	
2.2 Tertiary education				37.9	38	◆◆
2.2.1 Tertiary enrolment, % gross				37.5	80	
2.2.2 Graduates in science and engineering, %				37.9	5	◆◆
2.2.3 Tertiary inbound mobility, %				2.9	68	
2.3 Research and development (R&D)				7.5	69	
2.3.1 Researchers, FTE/mn pop.				1,621.6	47	◆
2.3.2 Gross expenditure on R&D, % GDP				● 0.7	49	◆
2.3.3 Global corporate R&D investors, top 3, mn US\$				0.0	40	○◇
2.3.4 QS university ranking, top 3*				0.0	71	○◇
Infrastructure				32.3	89	
3.1 Information and communication technologies (ICTs)				63.0	80	◆
3.1.1 ICT access*				74.9	82	
3.1.2 ICT use*				67.4	77	
3.1.3 Government's online service*				56.1	85	
3.1.4 E-participation*				53.5	67	◆
3.2 General infrastructure				7.9	127	○◇
3.2.1 Electricity output, GWh/mn pop.				● 1,830.1	85	
3.2.2 Logistics performance*				n/a	n/a	
3.2.3 Gross capital formation, % GDP				15.9	117	○◇
3.3 Ecological sustainability				26.1	61	◆
3.3.1 GDP/unit of energy use				11.0	57	
3.3.2 Environmental performance*				36.9	72	◆
3.3.3 ISO 14001 environment/bn PPP\$ GDP				2.0	44	◆◆
Market sophistication				24.2	98	
4.1 Credit				23.5	83	
4.1.1 Finance for startups and scaleups†				27.3	74	○
4.1.2 Domestic credit to private sector, % GDP				● 81.7	42	◆◆
4.1.3 Loans from microfinance institutions, % GDP				1.1	25	
4.2 Investment				5.5	72	
4.2.1 Market capitalization, % GDP				20.0	59	
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP				0.0	55	
4.2.3 VC recipients, deals/bn PPP\$ GDP				0.0	48	
4.2.4 VC received, value, % GDP				0.0	85	
4.3 Trade, diversification, and market scale				43.7	99	
4.3.1 Applied tariff rate, weighted avg., %				● 9.3	116	
4.3.2 Domestic industry diversification				● 88.3	55	
4.3.3 Domestic market scale, bn PPP\$				151.5	77	
Business sophistication				16.8	119	◇
5.1 Knowledge workers				18.5	103	
5.1.1 Knowledge-intensive employment, %				● 15.9	86	
5.1.2 Firms offering formal training, %				19.1	83	
5.1.3 GERD performed by business, % GDP				● 0.1	60	
5.1.4 GERD financed by business, %				● 18.9	68	
5.1.5 Females employed w/advanced degrees, %				● 8.8	80	
5.2 Innovation linkages				11.5	112	
5.2.1 University-industry R&D collaboration†				23.4	109	
5.2.2 State of cluster development†				22.9	107	
5.2.3 GERD financed by abroad, % GDP				● 0.0	58	
5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP				0.0	63	
5.2.5 Patent families/bn PPP\$ GDP				0.0	78	
5.3 Knowledge absorption				20.3	129	○◇
5.3.1 Intellectual property payments, % total trade				0.1	101	
5.3.2 High-tech imports, % total trade				8.7	55	
5.3.3 ICT services imports, % total trade				0.4	120	○
5.3.4 FDI net inflows, % GDP				1.5	89	
5.3.5 Research talent, % in businesses				● 5.2	69	
Knowledge and technology outputs				27.1	50	◆
6.1 Knowledge creation				26.2	37	◆◆
6.1.1 Patents by origin/bn PPP\$ GDP				● 1.3	50	
6.1.2 PCT patents by origin/bn PPP\$ GDP				0.0	76	
6.1.3 Utility models by origin/bn PPP\$ GDP				n/a	n/a	
6.1.4 Scientific and technical articles/bn PPP\$ GDP				n/a	n/a	
6.1.5 Citable documents H-index				11.9	68	
6.2 Knowledge impact				26.7	65	
6.2.1 Labor productivity growth, %				0.2	91	
6.2.2 Unicorn valuation, % GDP				0.0	48	○◇
6.2.3 Software spending, % GDP				0.3	36	◆◆
6.2.4 High-tech manufacturing, %				● 24.3	53	
6.3 Knowledge diffusion				28.4	54	◆
6.3.1 Intellectual property receipts, % total trade				0.1	56	
6.3.2 Production and export complexity				62.1	44	◆
6.3.3 High-tech exports, % total trade				4.5	40	◆◆
6.3.4 ICT services exports, % total trade				1.5	71	
6.3.5 ISO 9001 quality/bn PPP\$ GDP				8.2	33	◆◆
Creative outputs				22.3	72	
7.1 Intangible assets				33.1	61	
7.1.1 Intangible asset intensity, top 15, %				37.4	63	
7.1.2 Trademarks by origin/bn PPP\$ GDP				n/a	n/a	
7.1.3 Global brand value, top 5,000				0.0	74	○◇
7.1.4 Industrial designs by origin/bn PPP\$ GDP				● 1.6	50	
7.2 Creative goods and services				6.4	81	
7.2.1 Cultural and creative services exports, % total trade				● 0.0	103	○
7.2.2 National feature films/mn pop. 15-69				1.8	50	
7.2.3 Entertainment and media market/th pop. 15-69				0.1	60	○◇
7.2.4 Creative goods exports, % total trade				1.2	41	◆◆
7.3 Online creativity				16.5	88	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69				3.1	68	◆
7.3.2 Country-code TLDs/th pop. 15-69				1.9	72	
7.3.3 GitHub commits/mn pop. 15-69				6.3	65	
7.3.4 Mobile app creation/bn PPP\$ GDP				54.8	96	

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.



→ Data availability

The following tables list indicators that are either missing or outdated for Tunisia.



> Tunisia has missing data for three indicators and outdated data for nineteen indicators.

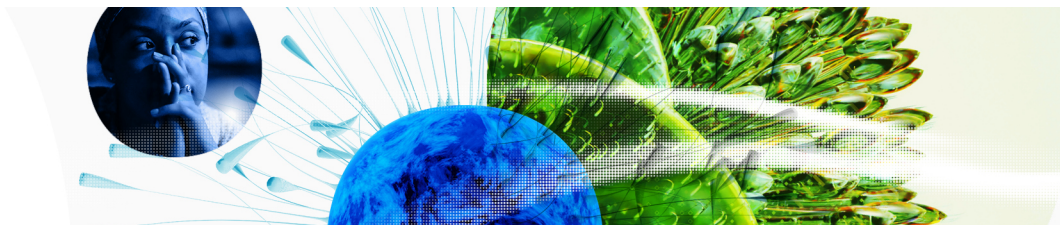
> Missing data for Tunisia

Code	Indicator name	Economy Year	Model Year	Source
3.2.2	Logistics performance	n/a	2023	World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org/); and World Bank 2023, Connecting to Compete 2023: Trade Logistics in the Global Economy ÔÇô The Logistics Performance Index and its Indicators.
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund
7.1.2	Trademarks by origin/bn PPP\$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

> Outdated data for Tunisia

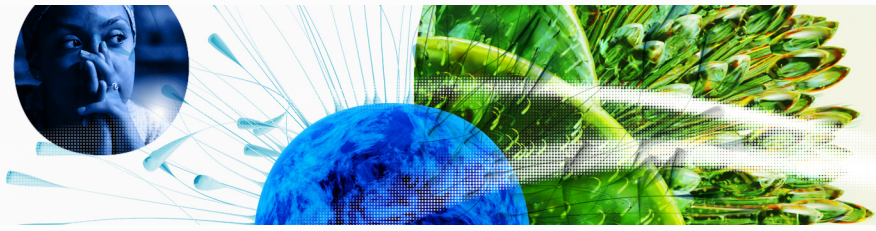
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2015	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2020	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	2015	2018	OECD, PISA
2.3.2	Gross expenditure on R&D, % GDP	2019	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.1.2	Domestic credit to private sector, % GDP	2017	2020	International Monetary Fund; World Bank and OECD GDP estimates.
4.3.1	Applied tariff rate, weighted avg., %	2016	2020	World Bank
4.3.2	Domestic industry diversification	2019	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2014	2022	International Labour Organization

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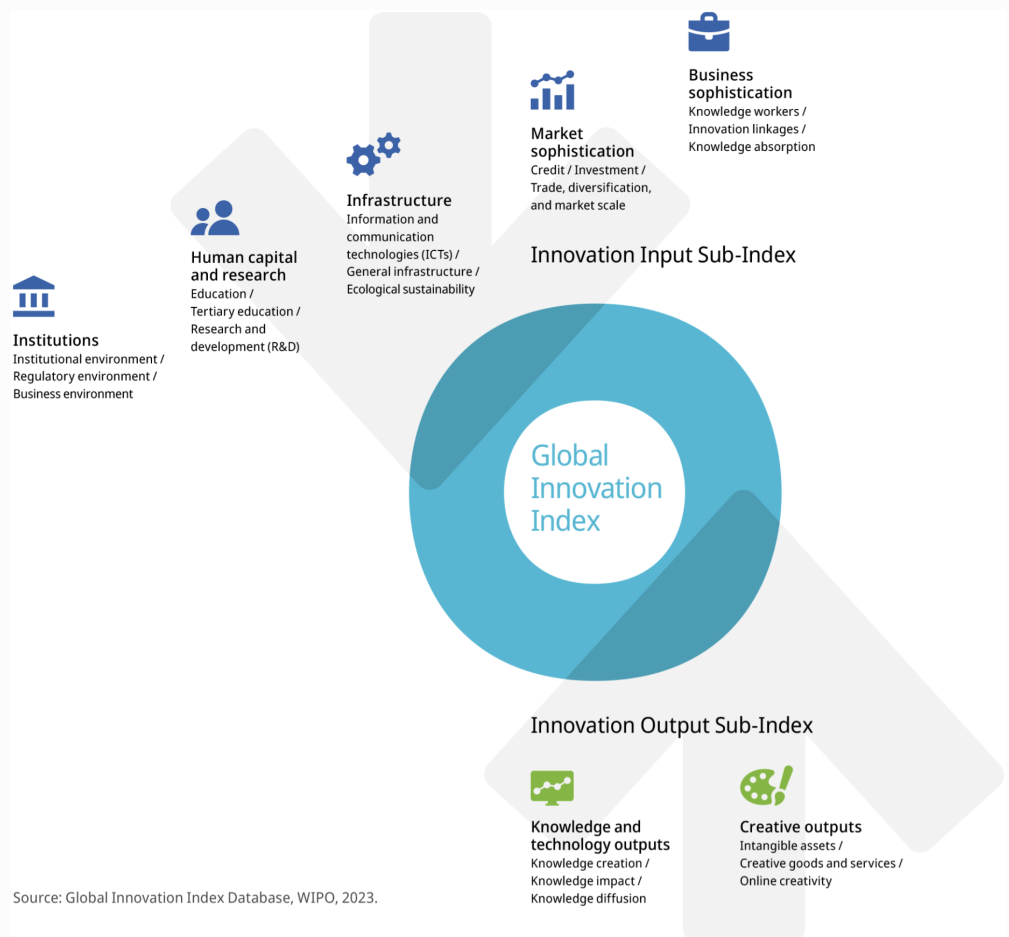
Code	Indicator name	Economy Year	Model Year	Source
5.1.3	GERD performed by business, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2015	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	2017	2022	International Labour Organization
5.2.3	GERD financed by abroad, % GDP	2015	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.3.5	Research talent, % in businesses	2018	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.1	Patents by origin/bn PPP\$ GDP	2018	2021	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	2019	2020	United Nations Industrial Development Organization
7.1.4	Industrial designs by origin/bn PPP\$ GDP	2019	2021	World Intellectual Property Organization; International Monetary Fund
7.2.1	Cultural and creative services exports, % total trade	2019	2021	World Trade Organization and United Nations Conference on Trade and Development

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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.



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.