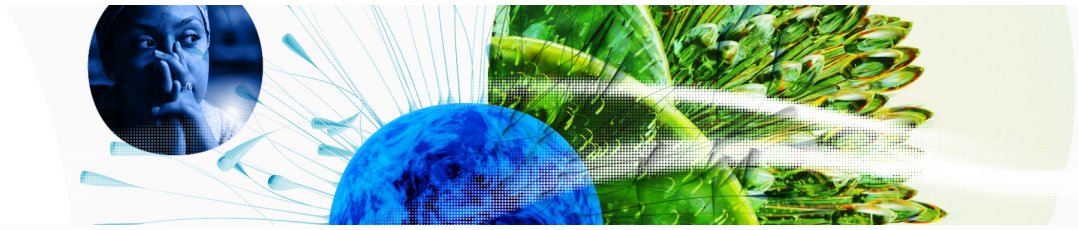
Global Innovation Index 2023



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

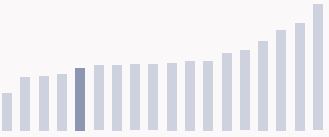
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

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.

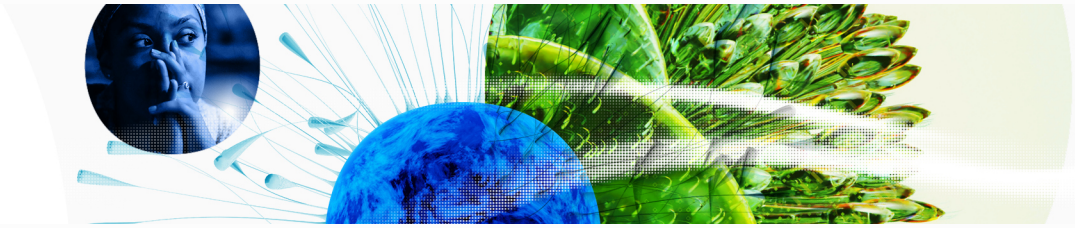
	GII Position	Innovation Inputs	Innovation Outputs
2020	65th	78th	59th
2021	71st	78th	64th
2022	73rd	89th	59th
2023	79th	96th	61st

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.

Global Innovation Index 2023

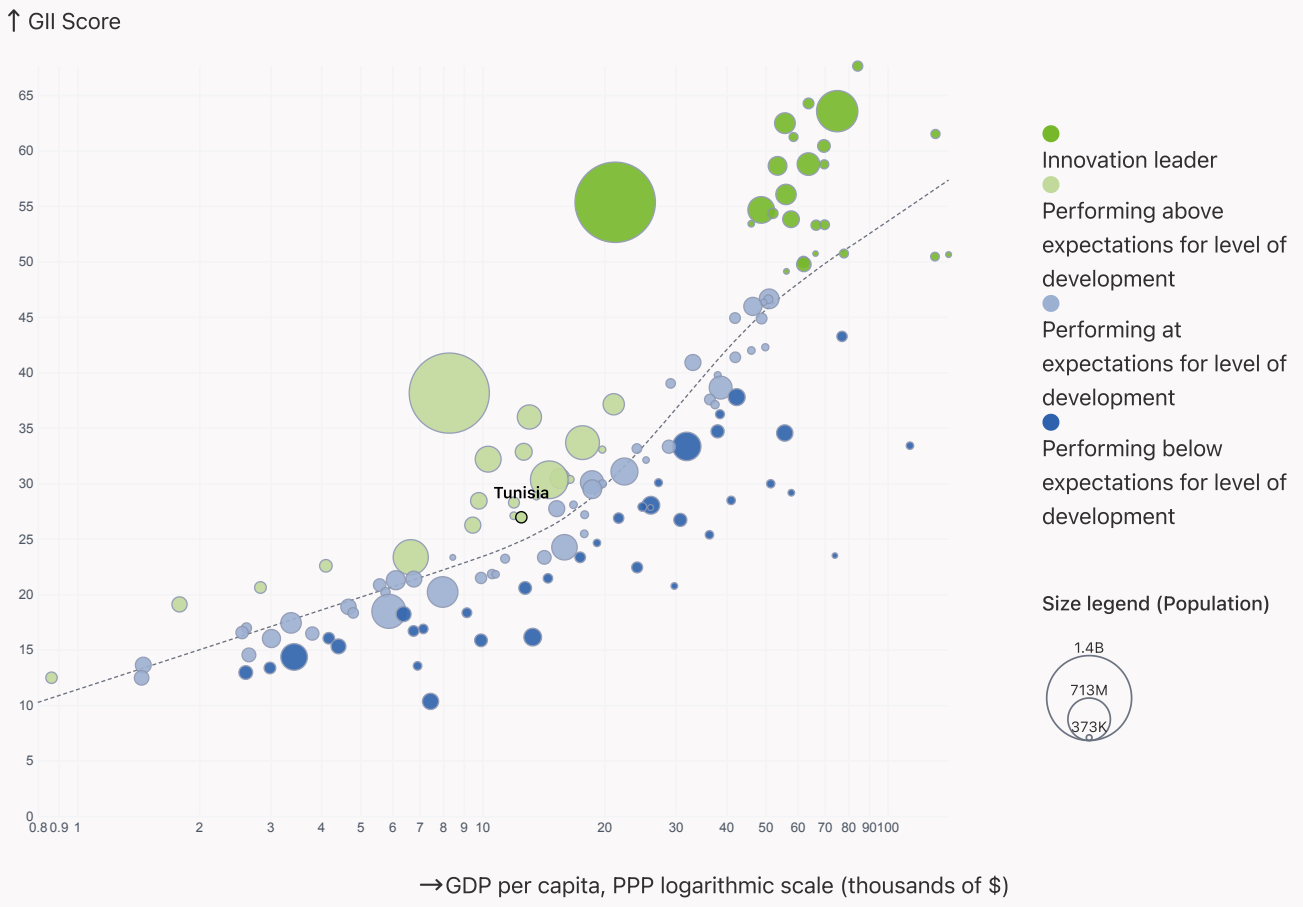


→ Expected vs. observed innovation performance

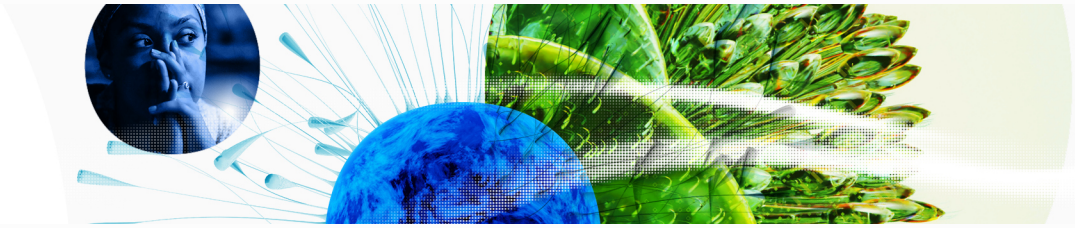
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

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

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

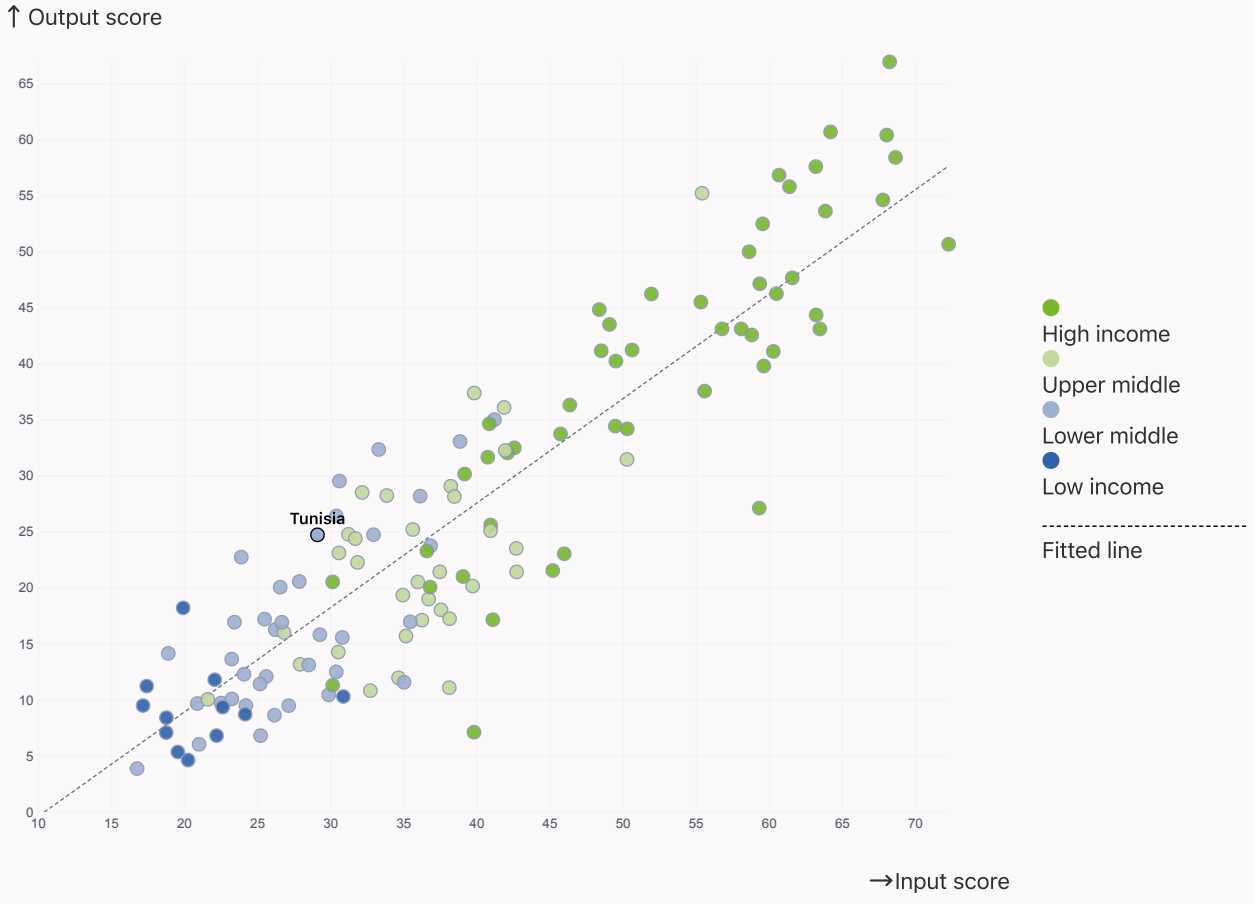


→ Effectively translating innovation investments into innovation outputs

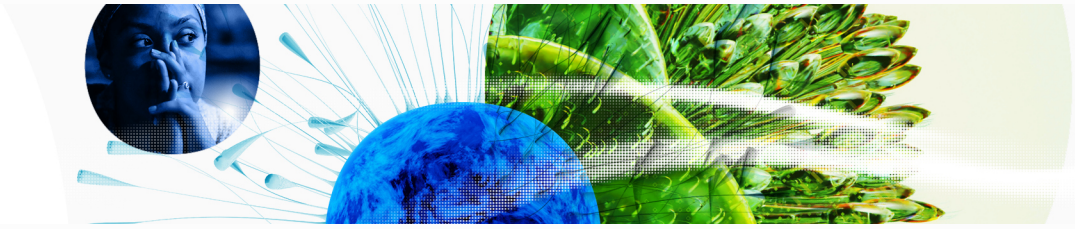
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

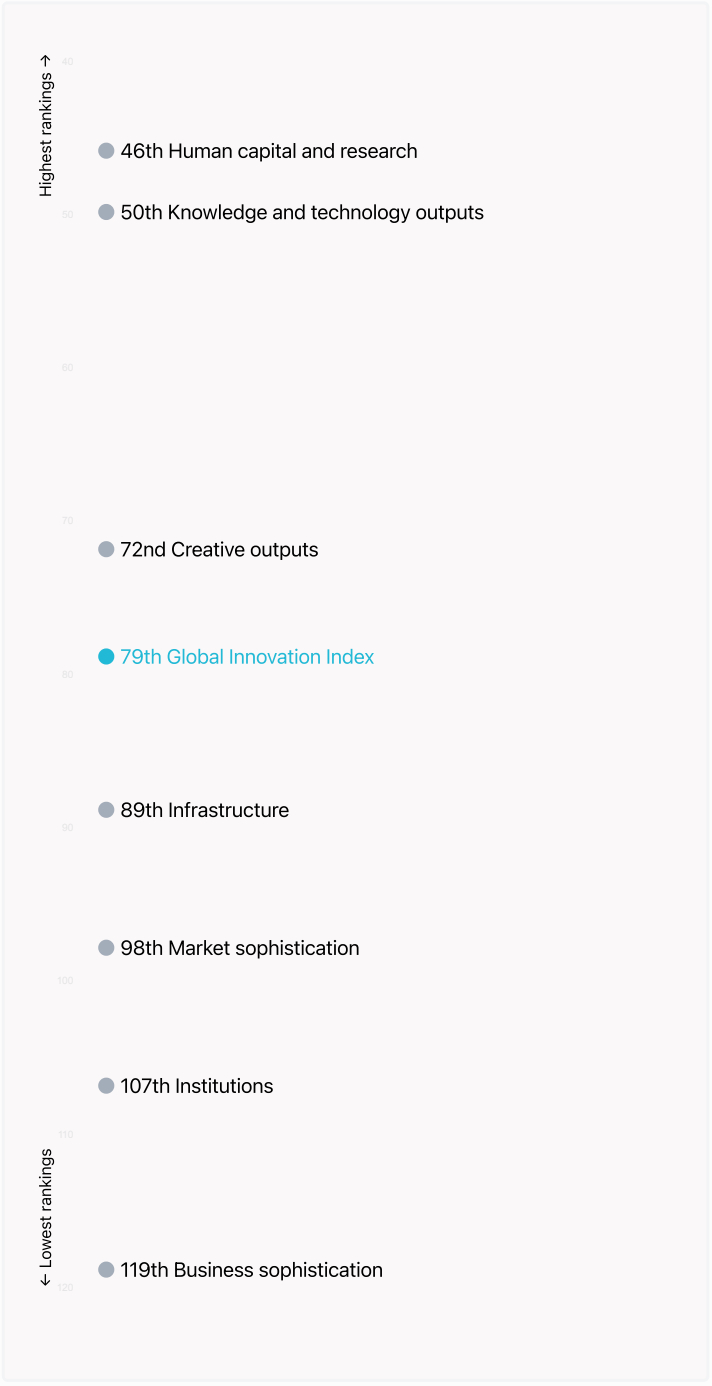


Global Innovation Index 2023



→ 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

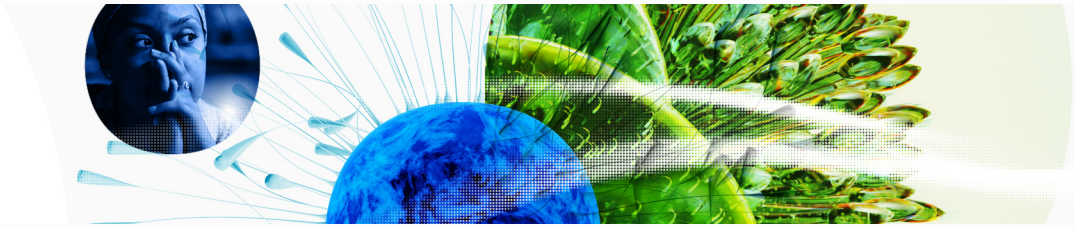
Tunisia ranks highest in Human capital and research (46th), Knowledge and technology outputs (50th) and Creative outputs (72nd).

> 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.

Global Innovation Index 2023



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

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

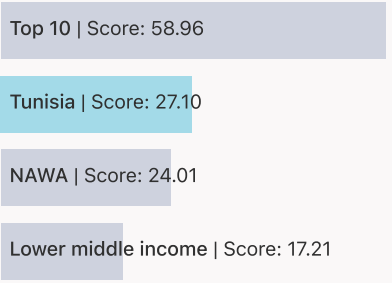
> Lower-Middle-Income economies

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

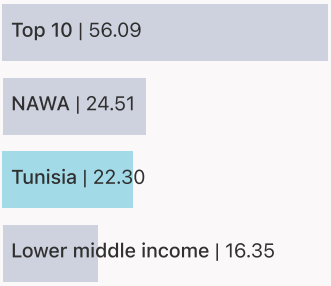
> Northern Africa And Western Asia

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

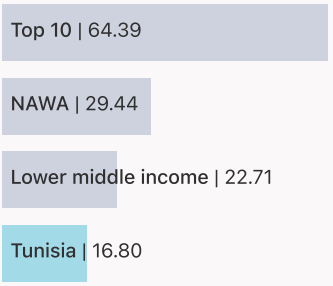
Knowledge and technology outputs



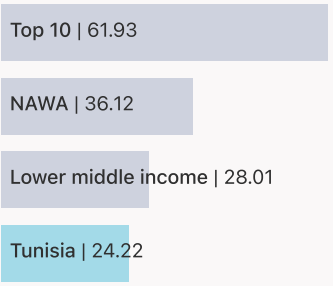
Creative outputs



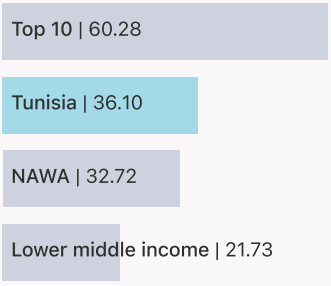
Business sophistication



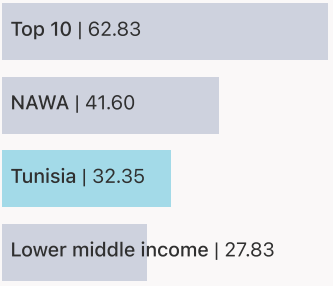
Market sophistication



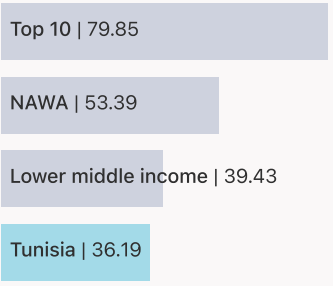
Human capital and research



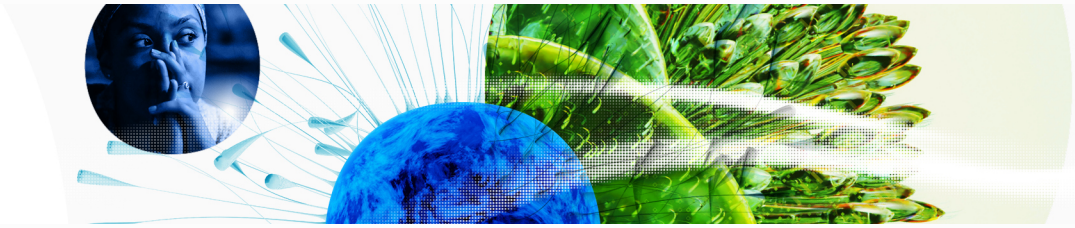
Infrastructure



Institutions



Global Innovation Index 2023



→ 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).

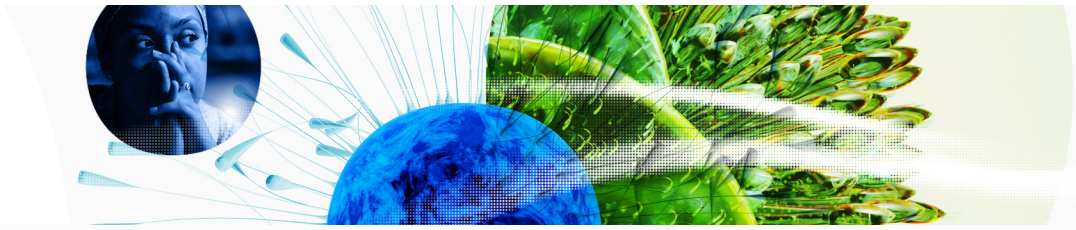
Strengths

Rank	Code	Indicator name
1	2.1.2	Government funding/pupil, secondary, % GDP/cap
5	2.2.2	Graduates in science and engineering, %
10	6.1.4	Scientific and technical articles/bn PPP$ GDP
33	6.3.5	ISO 9001 quality/bn PPP$ GDP
36	6.2.3	Software spending, % GDP
40	6.3.3	High-tech exports, % total trade
41	7.2.4	Creative goods exports, % total trade
42	4.1.2	Domestic credit to private sector, % GDP
44	3.3.3	ISO 14001 environment/bn PPP$ GDP

Weaknesses

Rank	Code	Indicator name
120	5.3.3	ICT services imports, % total trade
117	3.2.3	Gross capital formation, % GDP
103	7.2.1	Cultural and creative services exports, % total trade
78	1.3.2	Entrepreneurship policies and culture
74	7.1.3	Global brand value, top 5,000
74	2.1.4	PISA scales in reading, maths and science
71	2.3.4	QS university ranking, top 3
60	7.2.3	Entertainment and media market/th pop. 15-69
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

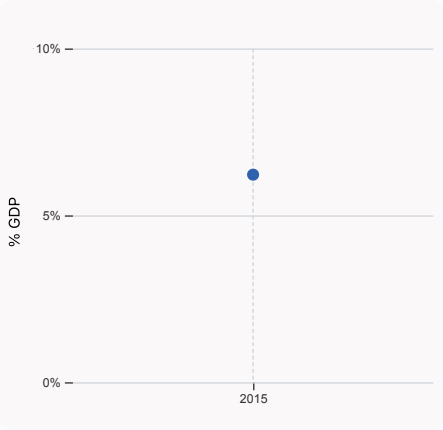
Global Innovation Index 2023



→ Tunisia's innovation system

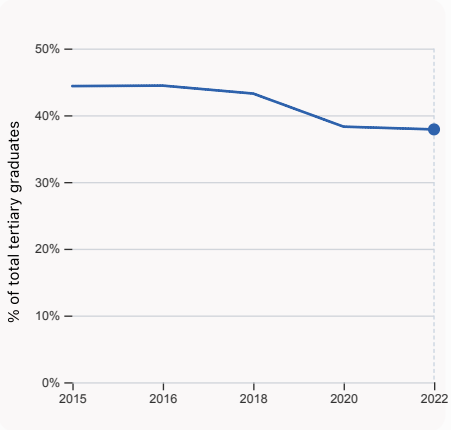
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Tunisia



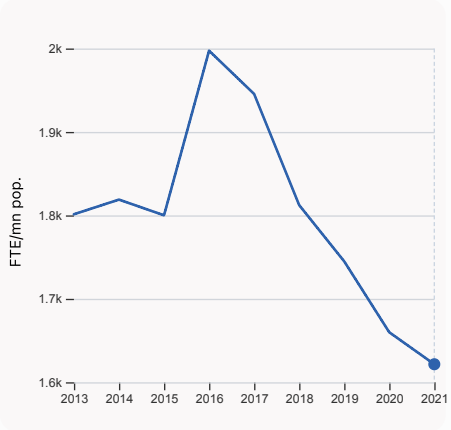
2.1.1 Expenditure on education, % GDP

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



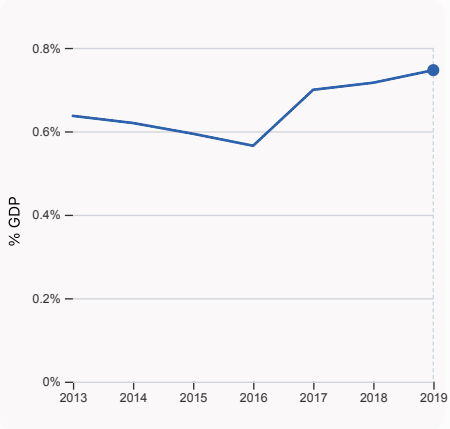
2.2.2 Graduates in science and engineering, %

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.



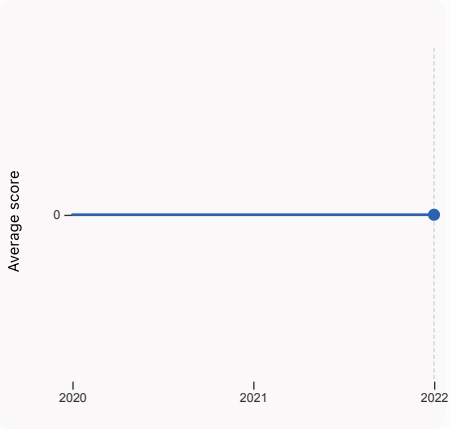
2.3.1 Researchers, FTE/mn pop.

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.



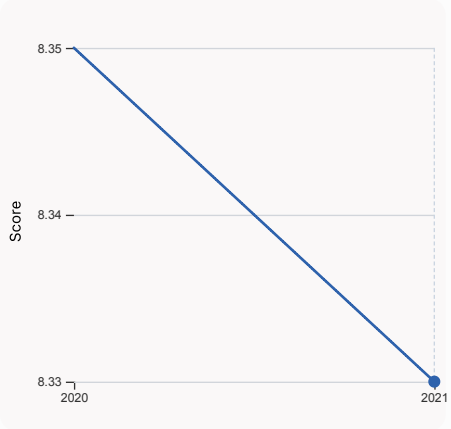
2.3.2 Gross expenditure on R&D, % GDP

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

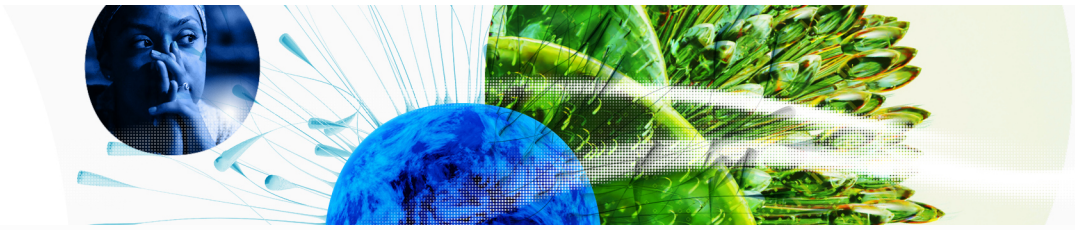
was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.

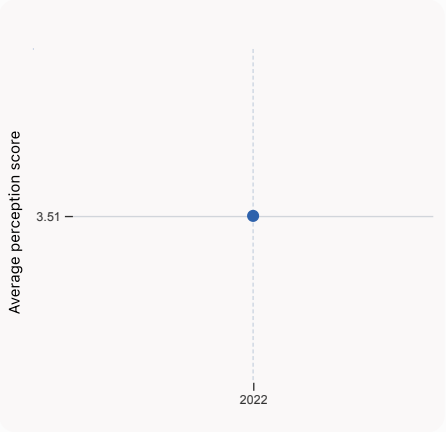


3.1.1 ICT access

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.

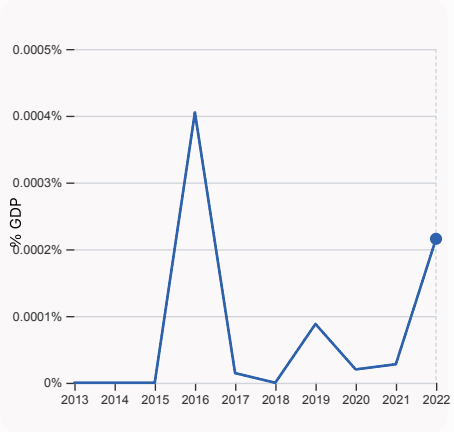
Global Innovation Index 2023





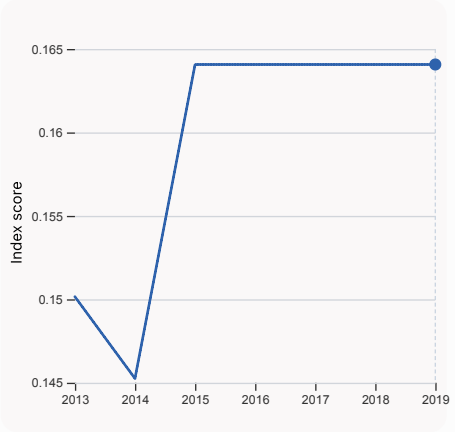
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 3.51 in 2022, equivalent to an indicator rank of 74.



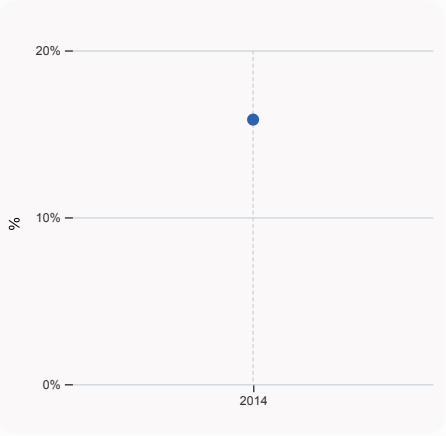
4.2.4 VC received, value, % GDP

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

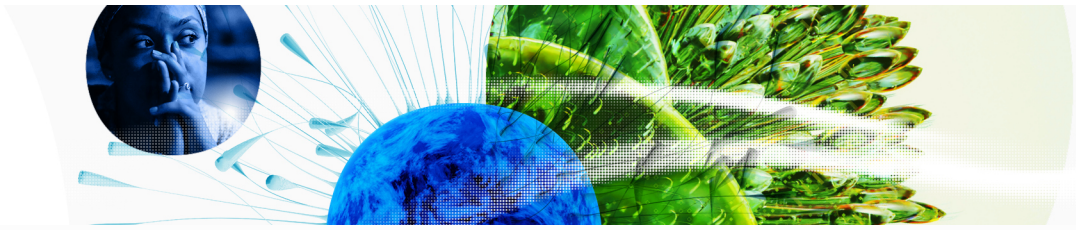
was equal to an index score of 0.164 in 2019, with no change from the year prior – and equivalent to an indicator rank of 55.



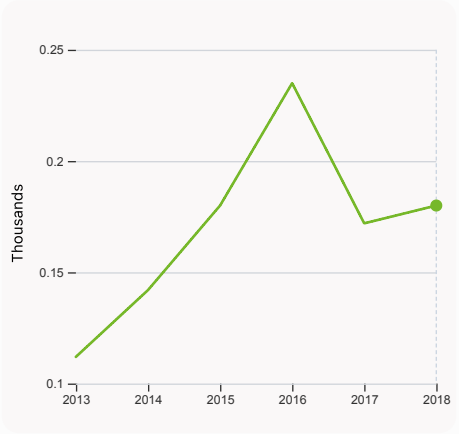
5.1.1 Knowledge-intensive employment, %

was equal to 15.85 % in 2014, equivalent to an indicator rank of 86.

Global Innovation Index 2023

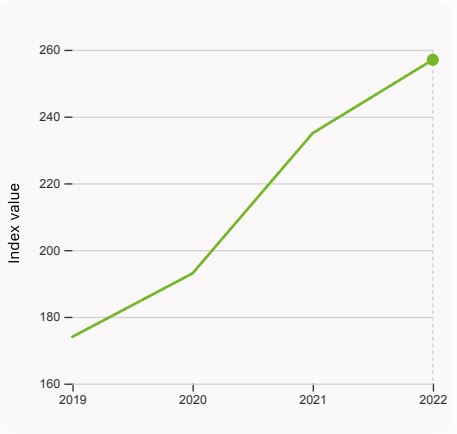


> Innovation outputs in Tunisia



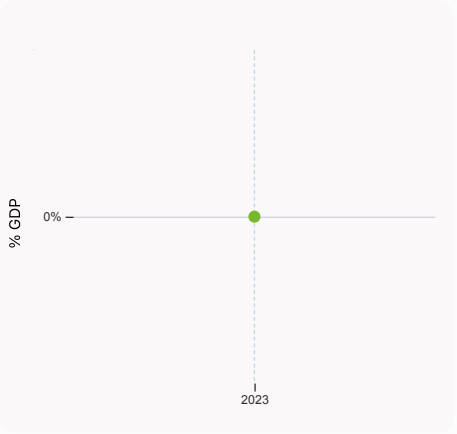
6.1.1 Patents by origin

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



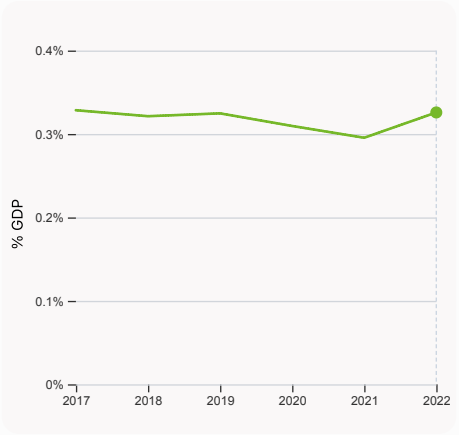
6.1.5 Citable documents H-index

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.



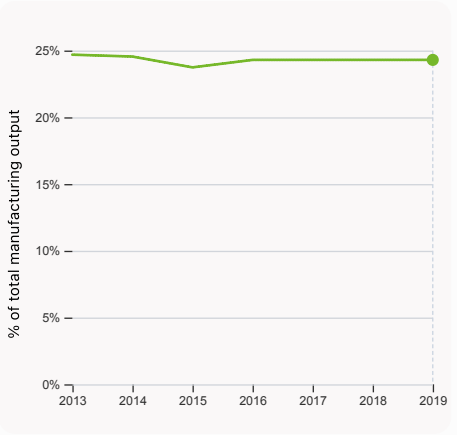
6.2.2 Unicorn valuation, % GDP

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



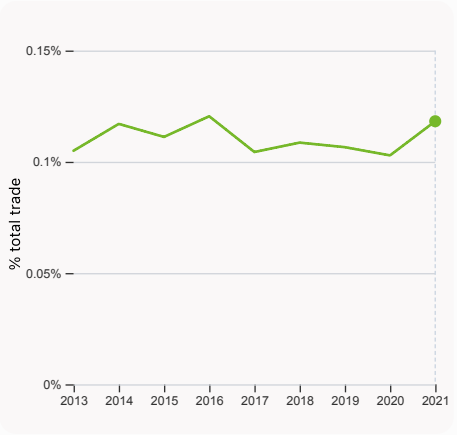
6.2.3 Software spending, % GDP

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, %

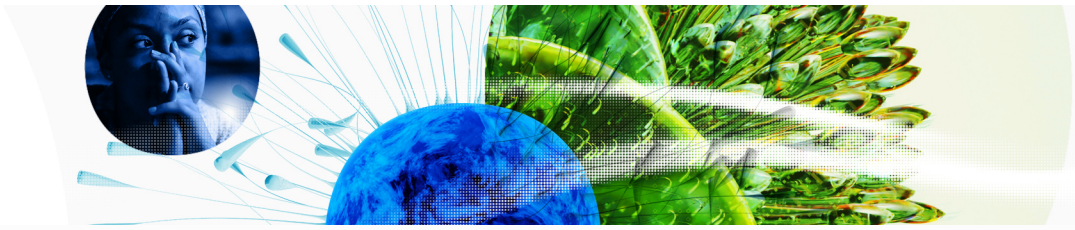
was equal to 24.3% of total manufacturing output in 2019, up by with no change from the year prior – and equivalent to an indicator rank of 53.



6.3.1 Intellectual property receipts, % total trade

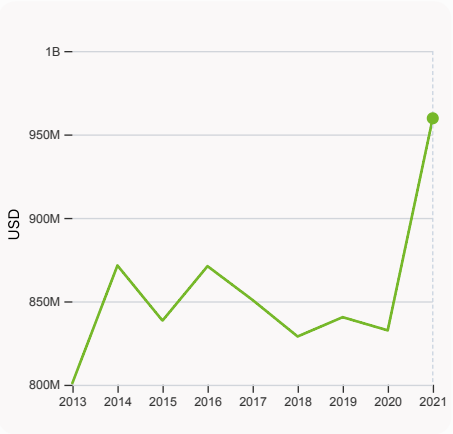
was equal to 0.118% total trade in 2021, up by 0.015 percentage points from the year prior – and equivalent to an indicator rank of 56.

Global Innovation Index 2023



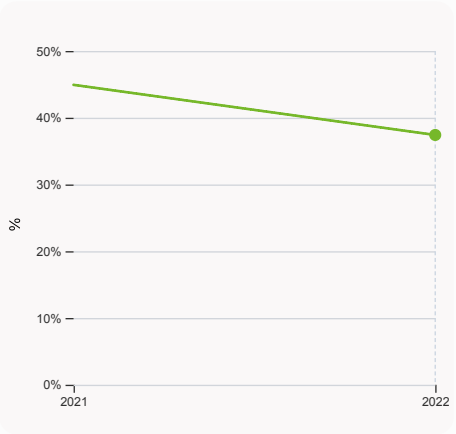
6.3.2 Production and export complexity

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.



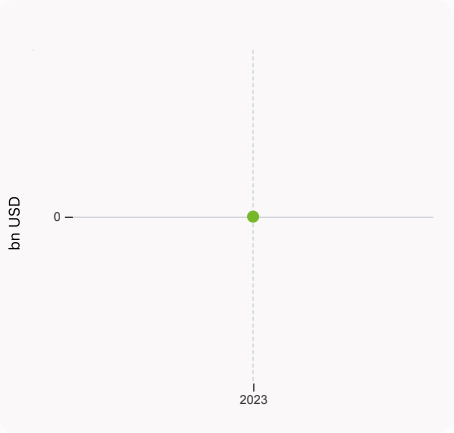
6.3.3 High-tech exports

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.



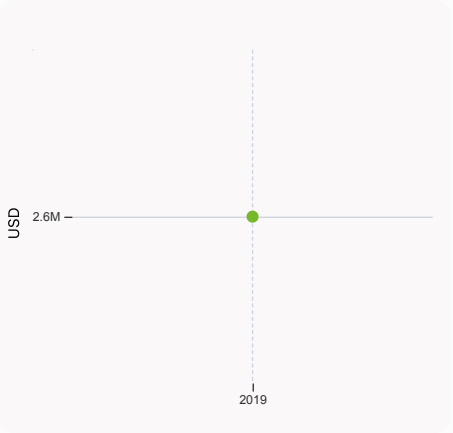
7.1.1 Intangible asset intensity, top 15, %

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.



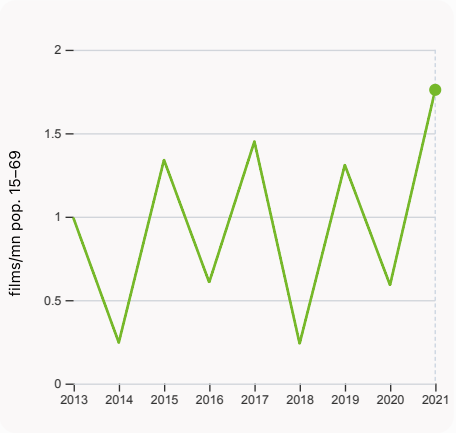
7.1.3 Global brand value, top 5,000

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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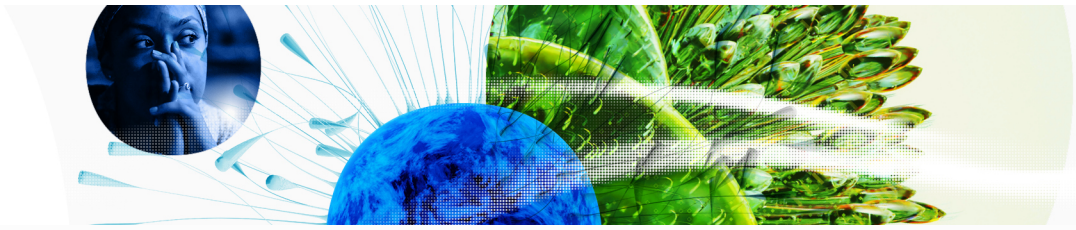
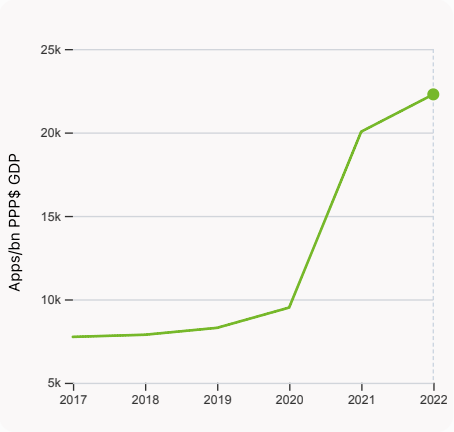
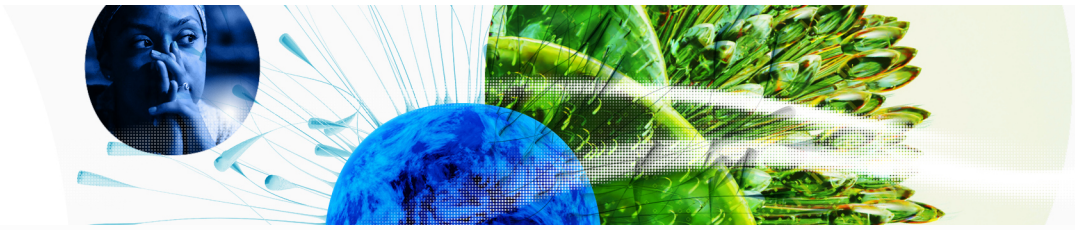




7.3.4 Mobile app creation/bn PPP$ GDP

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/gift-2022).
Note: Brand Finance only provides within economy ranks.

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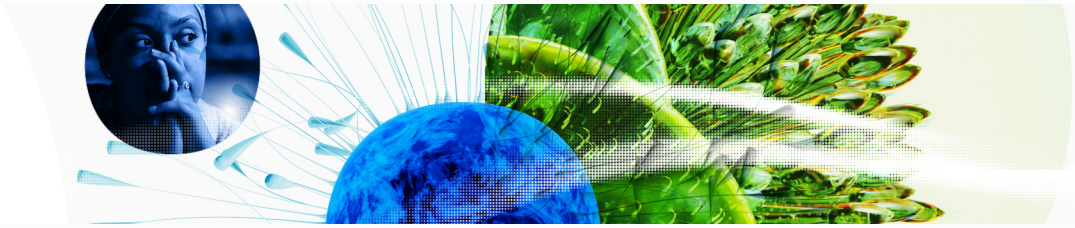


Tunisia

GII 2023 rank **79**

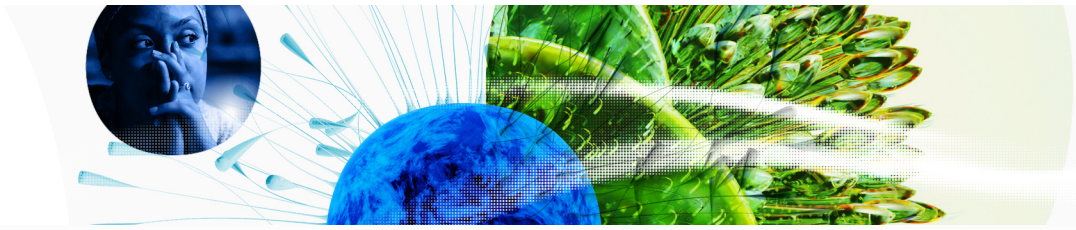
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
61	96	Lower middle	NAWA	12.4	151.5	12,490.2

	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

	Score / Value	Rank
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.

Global Innovation Index 2023



→ 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.

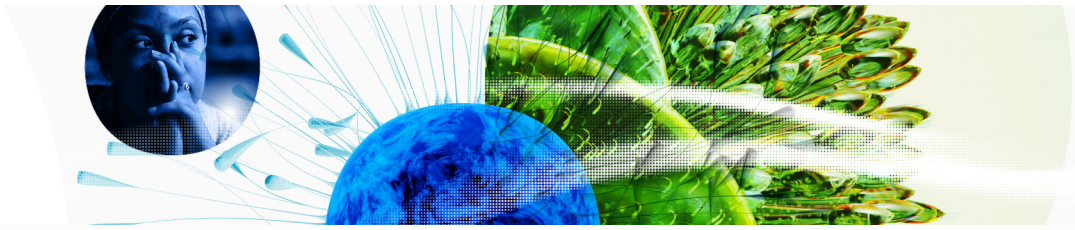
> Missing data for Tunisia

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

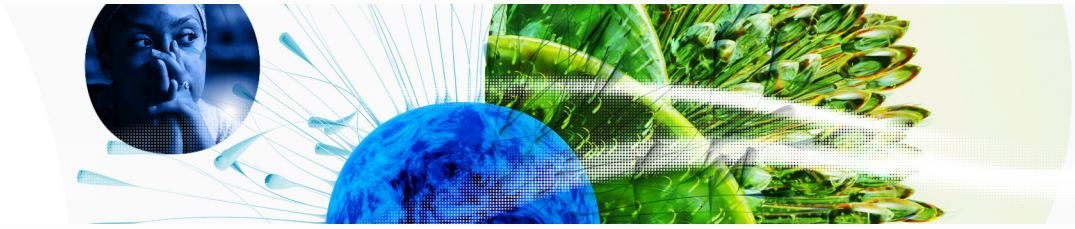
Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2015	2021	UNESCO Institute for Statistics
2.1.2	Government funding/pupil, secondary, % GDP/cap	2015	2019	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2016	2020	UNESCO Institute for Statistics
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

Global Innovation Index 2023



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

Global Innovation Index 2023



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.