

# GLOBAL INNOVATION INDEX 2018

## Tunisia

**66<sup>th</sup>** Tunisia is ranked 66th in the GII 2018, moving up 8 positions from the previous year.

The GII indicators are grouped into innovation inputs and outputs. The following table reflects Tunisia's ranking over time<sup>1</sup>.

Tunisia's ranking over time

	GII	Input	Output	Efficiency
2018	66	77	63	55
2017	74	81	71	65
2016	77	82	84	86

- Over the last three years, Tunisia has improved in both innovation inputs and outputs.
- It increases its ranking in innovation inputs, moving up 5 positions from 2016 and taking the 77th spot this year.
- Innovation outputs rank 63rd this year, moving up 8 spots since 2017 and 21 from 2016.
- Tunisia positions 55th in the Innovation Efficiency Ratio, improving notably from the 65th spot in 2017 and the 86th in 2016. Relative to its overall GII position (66th), Tunisia places highly in this ratio, partly thanks to a higher ranking in innovation outputs (63rd) compared to inputs (77th).

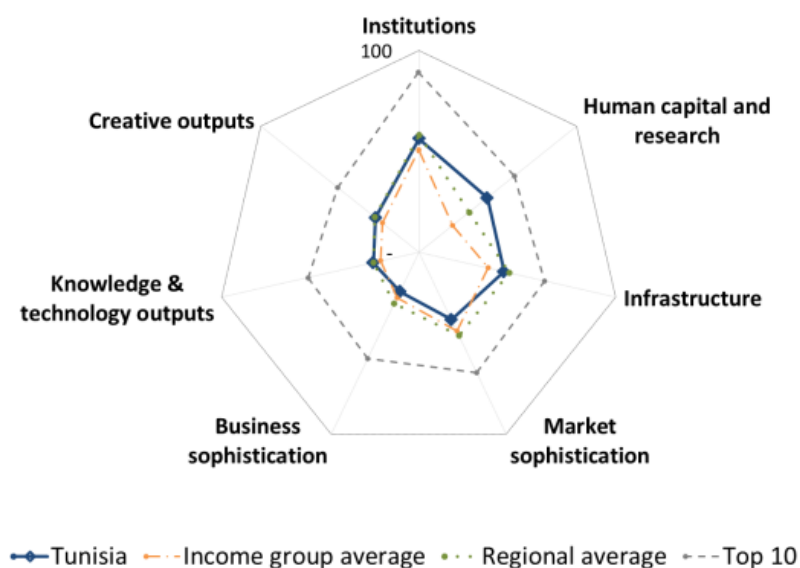
**7<sup>th</sup>** Tunisia is ranked 7th among the 30 lower-middle-income economies in the GII 2018.

**9<sup>th</sup>** Tunisia is ranked 9th among the 19 countries in Northern Africa and Western Asia.

<sup>1</sup> Note that year-on-year comparisons of the GII ranks are imperfect and influenced by changes in the GII model and data availability.

## Benchmarking Tunisia to other lower-middle-income countries and the Northern Africa and Western Asia region

Tunisia's scores by GII area



### Lower-middle-income countries

Tunisia has high scores in 5 of the 7 GII areas – **Institutions, Human Capital & Research, Infrastructure, Knowledge & Technology Outputs, and Creative Outputs**, in which it scores above the average of the lower-middle-income group.

Top scores in areas such as *Business environment, Education, Information & Communication Technologies (ICTs), Knowledge impact, and Intangible assets* are behind these high rankings.

### Northern Africa and Western Asia region

Compared to other countries in the Northern Africa and Western Asia region, Tunisia performs above-average in 2 of the 7 GII areas: **Human Capital & Research** and **Knowledge & Technology Outputs**.

## Tunisia's innovation profile

### Strengths

- Tunisia exhibits particularly strong performance in **Human Capital & Research** (33rd) – its top-ranked GII area – which is highlighted as a strength for Tunisia. The country performs strongly in two of its three components: *Education* (16th) and *Tertiary education* (5th). At the indicator level, GII strengths lie in *Expenditure on education* (14th), and *Government funding per pupil* and *Graduates in science & engineering*, where it ranks 2nd in the world.
- Other relative strengths are found in **Market Sophistication** (111th), where it exhibits GII strengths in the indicators *Domestic credit to private sector* (37th) and *Venture capital deals* (20th).
- On the **innovation input** side, two other indicators are marked as relative strengths for Tunisia: *ISO 14001 environmental certificates* (42nd) in the area **Infrastructure** (70th) and *High-tech imports* (36th) in the area **Business Sophistication** (109th).
- On the **innovation output** side, Tunisia shows strengths in both the GII areas that collect innovation output indicators.

- In **Knowledge & Technology Outputs** (63rd), the country performs strongly in two indicators: *Scientific & technical articles* (14th) and *High-tech exports* (37th). Indicator *Creative goods exports* (20th) is a strength in **Creative Outputs** (66th).

## Weaknesses

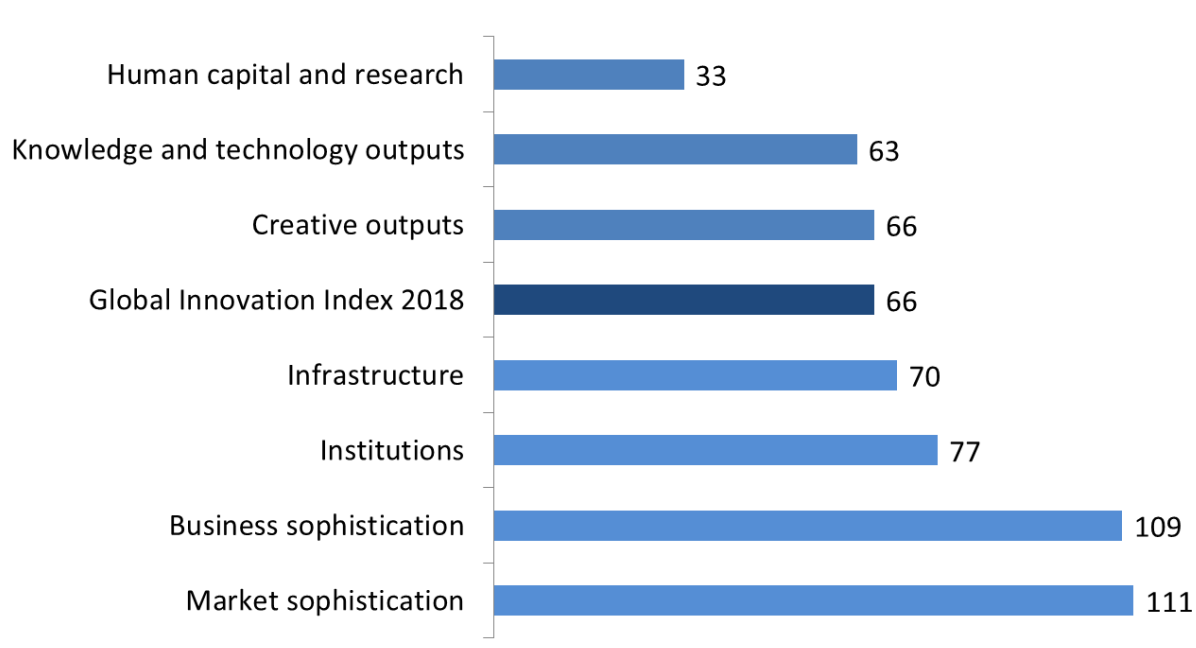
- On the **innovation input** side, most of the relative weaknesses for Tunisia are accrued in the area **Business Sophistication** (109th), which is itself signaled as a GII weakness. Here the country demonstrates weak performance in one of its components – *Innovation linkages* (111th) – as well as in the indicators *State of cluster development* (105th), *ICT services imports* (106th), and *Research talent in business enterprise* (74th).
- The GII area **Market Sophistication** (111th) area is also marked as a GII weakness for Tunisia. Here it also exhibits relatively weak performance in the indicator *Applied tariff rate* (110th).
- Indicators *PISA results* (67th), *Global R&D companies expenditure* (40th), and *Quality of universities* (78th) are signaled as GII weaknesses in **Human Capital & Research** (33rd).
- In **Institutions** (77th), only one indicator – *Political stability & safety* (112th) – is marked as a GII weakness.
- On the **innovation output** side, Tunisia performs relatively weakly in only two indicators: *ICTs & organizational model creation* (101st) and *Entertainment & Media market* (57th) in the area **Creative Outputs** (66th). No weak indicators are found in the other output area, **Knowledge & Technology Outputs** (63rd).

The following figure presents a summary of Tunisia’s ranks in the 7 GII areas, as well as the overall rank in the GII 2018.

### Tunisia’s rank in the GII 2018 and the 7 GII areas

Rank 1 is the highest possible in each pillar

Total number of countries: 126





## Missing and Outdated Data

More and better data improves the ability of a country to understand its strengths and weaknesses and give policymakers greater capacity to plan and adapt public policies accordingly. The GII 2018 covers 126 countries that complied with the minimum indicator coverage of 35 indicators in the Innovation Input Sub-Index (66%) and 18 indicators in the Innovation Output Sub-Index (66%).

The following tables show data for Tunisia that is not available or that is outdated.

### Missing Data

Code	Indicator	Country Year	Model Year	Source
5.1.5	Females employed w/advanced degrees, %	n/a	2016	ILO, ILOSTAT
6.1.3	Utility models by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
7.1.1	Trademarks by origin/bn PPP\$ GDP	n/a	2016	WIPO, Intellectual Property Statistics
7.2.1	Cultural & creative services exports, % total trade	n/a	2016	WTO, Trade in Commercial Services
7.2.4	Printing & other media, % manufacturing	n/a	2015	UNIDO, Industrial Statistics








### Outdated Data

Code	Indicator	Country Year	Model Year	Source
2.1.5	Pupil-teacher ratio, secondary	2011	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2015	2016	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2015	2016	UNESCO Institute for Statistics
5.1.1	Knowledge-intensive employment, %	2012	2016	ILO, ILOSTAT
5.1.3	GERD performed by business, % GDP	2014	2016	UNESCO Institute for Statistics
5.3.1	Intellectual property payments, % total trade	2015	2016	WTO, Trade in Commercial Services
5.3.3	ICT services imports, % total trade	2015	2016	WTO, Trade in Commercial Services
5.3.5	Research talent, % in business enterprise	2015	2016	UNESCO Institute for Statistics
6.2.2	New businesses/th pop. 15–64	2013	2016	World Bank, Doing Business
6.3.1	Intellectual property receipts, % total trade	2015	2016	WTO, Trade in Commercial Services
6.3.3	ICT services exports, % total trade	2015	2016	WTO, Trade in Commercial Services
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation



Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2017 rank
63	77	Lower-middle	NAWA	55	11.5	135.9	11,755.3	74

	Score/Value	Rank		Score/Value	Rank		
	<b>Institutions</b> .....	<b>56.4</b>	<b>77</b>		<b>Business sophistication</b> .....	<b>21.6</b>	<b>109</b>
1.1	Political environment.....	40.5	96	5.1	Knowledge workers.....	26.8	88
1.1.1	Political stability & safety*.....	41.8	112 ○	5.1.1	Knowledge-intensive employment, % <sup>Ⓔ</sup> .....	21.0	73
1.1.2	Government effectiveness*.....	39.9	85	5.1.2	Firms offering formal training, % firms.....	28.9	51
1.2	Regulatory environment.....	58.8	82	5.1.3	GERD performed by business, % GDP <sup>Ⓔ</sup> .....	0.1	59
1.2.1	Regulatory quality*.....	32.0	102	5.1.4	GERD financed by business, %.....	18.9	67
1.2.2	Rule of law*.....	44.6	60 ◆	5.1.5	Females employed w/advanced degrees, %.....	n/a	n/a
1.2.3	Cost of redundancy dismissal, salary weeks.....	21.6	84	5.2	Innovation linkages.....	18.5	111 ○
1.3	Business environment.....	69.8	61 ◆	5.2.1	University/industry research collaboration <sup>†</sup> .....	32.8	97
1.3.1	Ease of starting a business*.....	85.0	77	5.2.2	State of cluster development <sup>†</sup> .....	33.8	105 ○
1.3.2	Ease of resolving insolvency*.....	54.5	59 ◆	5.2.3	GERD financed by abroad, %.....	3.9	64
				5.2.4	JV-strategic alliance deals/bn PPP\$ GDP.....	0.0	50
				5.2.5	Patent families 2+ offices/bn PPP\$ GDP.....	0.0	86
	<b>Human capital &amp; research</b> .....	<b>43.2</b>	<b>33</b> ◆◆	5.3	Knowledge absorption.....	19.5	105
2.1	Education.....	62.0	16 ◆◆◆	5.3.1	Intellectual property payments, % total trade <sup>Ⓔ</sup> .....	0.1	97
2.1.1	Expenditure on education, % GDP.....	6.6	14 ◆◆◆	5.3.2	High-tech net imports, % total trade.....	10.6	36 ●
2.1.2	Government funding/pupil, secondary, % GDP/cap.....	52.8	2 ◆◆◆	5.3.3	ICT services imports, % total trade <sup>Ⓔ</sup> .....	0.4	106 ○
2.1.3	School life expectancy, years.....	15.1	47 ◆	5.3.4	FDI net inflows, % GDP.....	2.0	79
2.1.4	PISA scales in reading, maths & science.....	371.4	67 ○	5.3.5	Research talent, % in business enterprise <sup>Ⓔ</sup> .....	4.0	74 ○
2.1.5	Pupil-teacher ratio, secondary <sup>Ⓔ</sup> .....	13.6	58				
2.2	Tertiary education.....	58.7	5 ◆◆		<b>Knowledge &amp; technology outputs</b> .....	<b>23.4</b>	<b>63</b>
2.2.1	Tertiary enrolment, % gross.....	32.6	75	6.1	Knowledge creation.....	22.0	43
2.2.2	Graduates in science & engineering, %.....	44.4	2 ◆◆	6.1.1	Patents by origin/bn PPP\$ GDP.....	1.8	49
2.2.3	Tertiary inbound mobility, %.....	2.1	69	6.1.2	PCT patents by origin/bn PPP\$ GDP.....	0.1	71
2.3	Research & development (R&D).....	9.0	61	6.1.3	Utility models by origin/bn PPP\$ GDP.....	n/a	n/a
2.3.1	Researchers, FTE/mn pop. <sup>Ⓔ</sup> .....	1,784.1	42 ◆	6.1.4	Scientific & technical articles/bn PPP\$ GDP.....	26.2	14 ◆◆
2.3.2	Gross expenditure on R&D, % GDP <sup>Ⓔ</sup> .....	0.6	50 ◆	6.1.5	Citable documents H index.....	9.3	72
2.3.3	Global R&D companies, top 3, mn US\$.....	0.0	40 ○◇	6.2	Knowledge impact.....	31.7	83
2.3.4	QS university ranking, average score top 3*.....	0.0	78 ○◇	6.2.1	Growth rate of PPP\$ GDP/worker, %.....	(0.3)	90
				6.2.2	New businesses/th pop. 15-64 <sup>Ⓔ</sup> .....	1.7	57
				6.2.3	Computer software spending, % GDP.....	0.3	43
				6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP.....	7.8	45 ◆
				6.2.5	High- & medium-high-tech manufactures, %.....	0.1	65
	<b>Infrastructure</b> .....	<b>43.1</b>	<b>70</b> ◆	6.3	Knowledge diffusion.....	16.5	84
3.1	Information & communication technologies (ICTs).....	58.4	67 ◆	6.3.1	Intellectual property receipts, % total trade <sup>Ⓔ</sup> .....	0.1	56
3.1.1	ICT access*.....	51.1	82	6.3.2	High-tech net exports, % total trade.....	4.6	37 ●
3.1.2	ICT use*.....	41.1	74 ◆	6.3.3	ICT services exports, % total trade <sup>Ⓔ</sup> .....	1.6	64
3.1.3	Government's online service*.....	71.7	40 ◆	6.3.4	FDI net outflows, % GDP.....	0.1	102
3.1.4	E-participation*.....	69.5	43 ◆				
3.2	General infrastructure.....	28.6	104		<b>Creative outputs</b> .....	<b>27.6</b>	<b>66</b>
3.2.1	Electricity output, kWh/cap.....	1,749.0	81	7.1	Intangible assets.....	41.9	66
3.2.2	Logistics performance*.....	20.1	104	7.1.1	Trademarks by origin/bn PPP\$ GDP.....	n/a	n/a
3.2.3	Gross capital formation, % GDP.....	22.5	65	7.1.2	Industrial designs by origin/bn PPP\$ GDP.....	1.2	65
3.3	Ecological sustainability.....	42.2	49 ◆	7.1.3	ICTs & business model creation <sup>†</sup> .....	59.0	66
3.3.1	GDP/unit of energy use.....	10.9	41	7.1.4	ICTs & organizational model creation <sup>†</sup> .....	42.6	101 ○
3.3.2	Environmental performance*.....	62.4	51 ◆	7.2	Creative goods & services.....	24.8	56
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP.....	2.5	42 ◆◆	7.2.1	Cultural & creative services exports, % total trade.....	n/a	n/a
				7.2.2	National feature films/mn pop. 15-69.....	1.4	72
				7.2.3	Entertainment & Media market/th pop. 15-69.....	1.1	57 ○
				7.2.4	Printing & other media, % manufacturing.....	n/a	n/a
				7.2.5	Creative goods exports, % total trade.....	2.4	20 ◆◆
	<b>Market sophistication</b> .....	<b>37.0</b>	<b>111</b> ○	7.3	Online creativity.....	1.8	94
4.1	Credit.....	28.5	94	7.3.1	Generic top-level domains (TLDs)/th pop. 15-69.....	2.6	68
4.1.1	Ease of getting credit*.....	45.0	88	7.3.2	Country-code TLDs/th pop. 15-69.....	1.4	72
4.1.2	Domestic credit to private sector, % GDP.....	81.2	37 ◆◆	7.3.3	Wikipedia edits/mn pop. 15-69 <sup>Ⓔ</sup> .....	2.9	94
4.1.3	Microfinance gross loans, % GDP.....	0.4	41	7.3.4	Mobile app creation/bn PPP\$ GDP.....	1.0	78
4.2	Investment.....	31.5	106				
4.2.1	Ease of protecting minority investors*.....	48.3	97				
4.2.2	Market capitalization, % GDP.....	19.6	63				
4.2.3	Venture capital deals/bn PPP\$ GDP.....	0.1	20 ◆◆				
4.3	Trade, competition, & market scale.....	51.0	98				
4.3.1	Applied tariff rate, weighted mean, %.....	8.9	110 ○				
4.3.2	Intensity of local competition <sup>†</sup> .....	66.0	75				
4.3.3	Domestic market scale, bn PPP\$.....	135.9	70				

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; \* an index; † a survey question.

Ⓔ indicates that the country's data are older than the base year; see Appendix II for details, including the year of the data, at <http://globalinnovationindex.org>.

Square brackets indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level; see page 75 of this appendix for details.