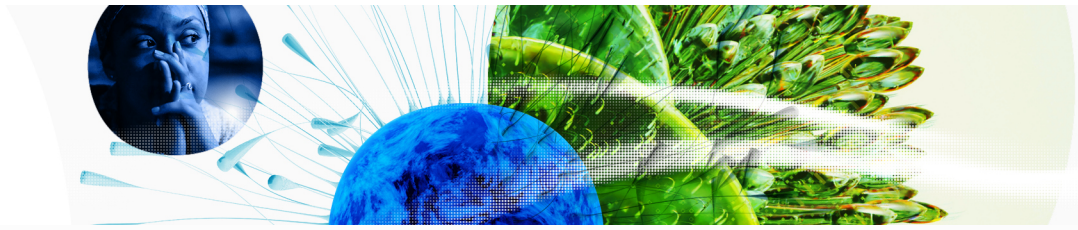
Global Innovation Index 2023



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**.

Greece ranking in the Global Innovation Index 2023

> Greece ranks 42nd among the 132 economies featured in the GII 2023.

> Greece ranks 37th among the 50 high-income group economies.

> Greece ranks 27th among the 39 economies in Europe.

> Greece GII Ranking (2020-2023)

The table shows the rankings of Greece 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 Greece in the GII 2023 is between ranks 40 and 44.

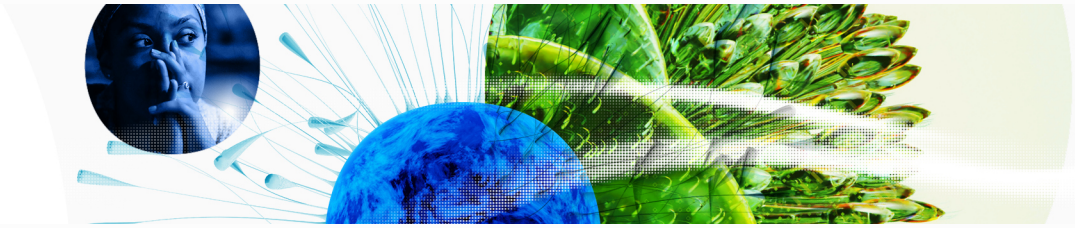
	GII Position	Innovation Inputs	Innovation Outputs
2020	43rd	40th	52nd
2021	47th	39th	60th
2022	44th	44th	49th
2023	42nd	42nd	41st

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

This year **Greece ranks 42nd in innovation inputs.** This position is higher than last year.

Greece ranks 41st in innovation outputs. This position is higher than last year.

Global Innovation Index 2023

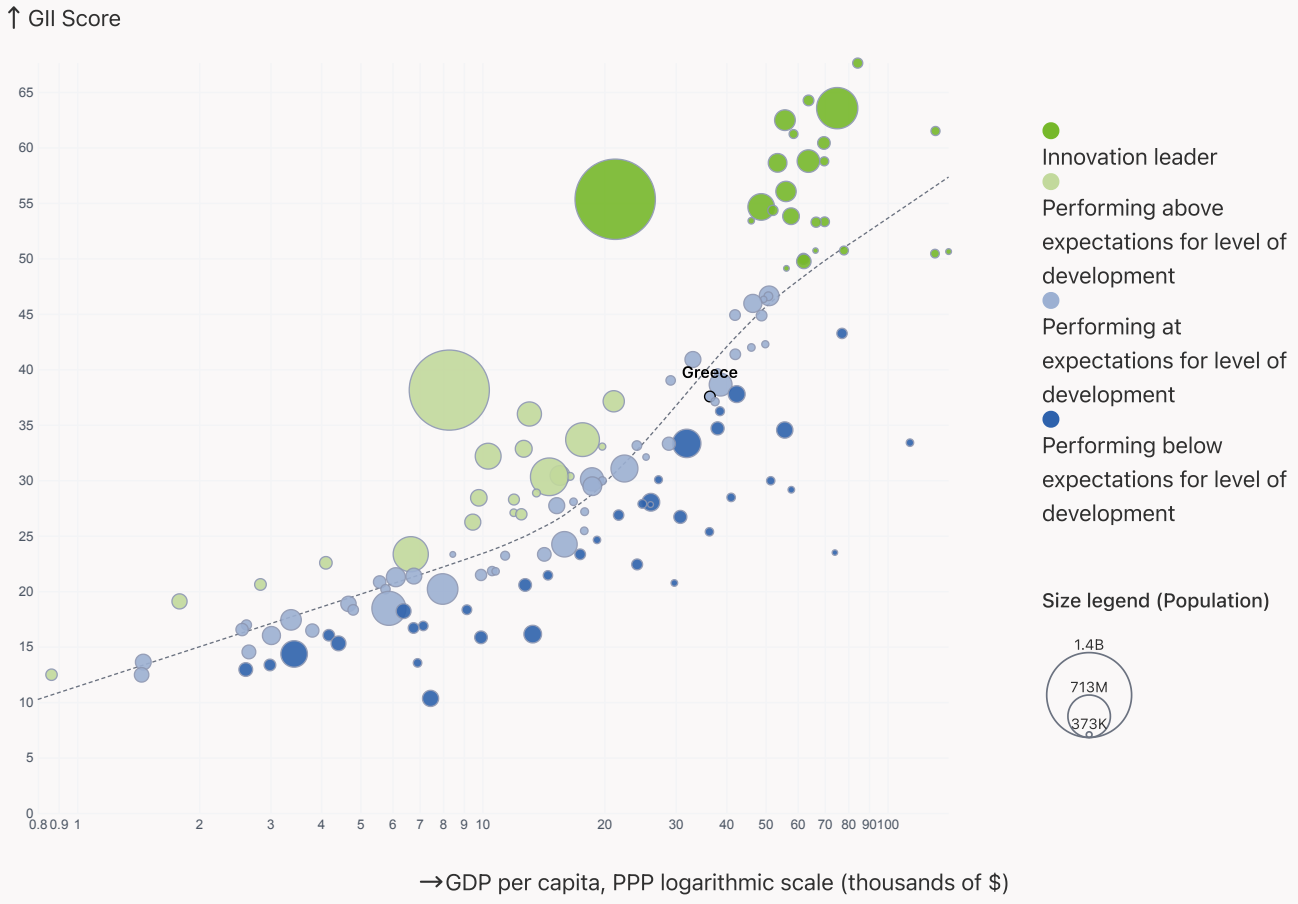


→ Expected vs. observed innovation performance

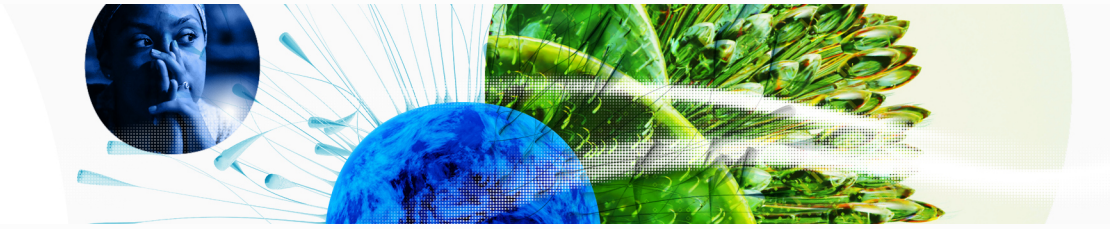
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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

> Relative to GDP, Greece's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

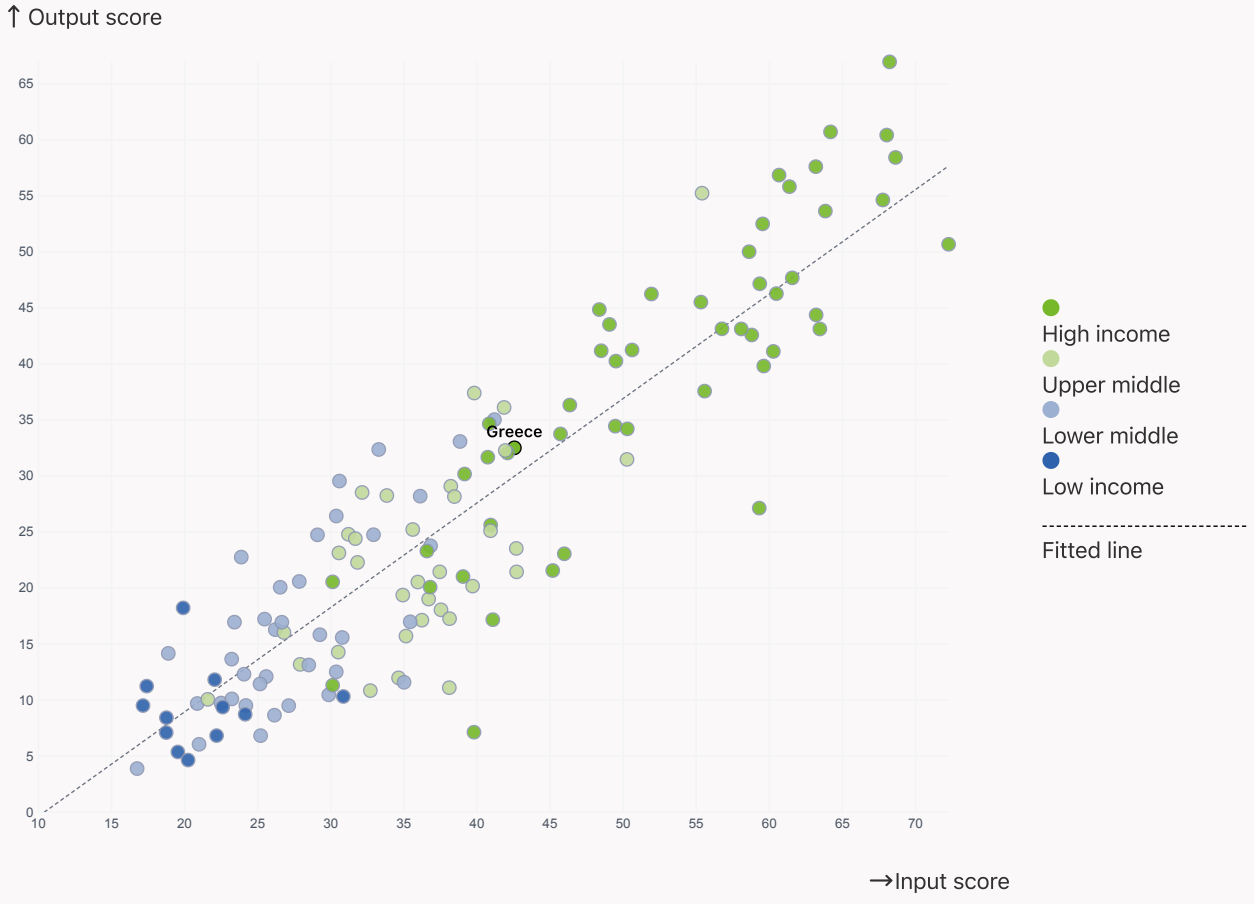


→ Effectively translating innovation investments into innovation outputs

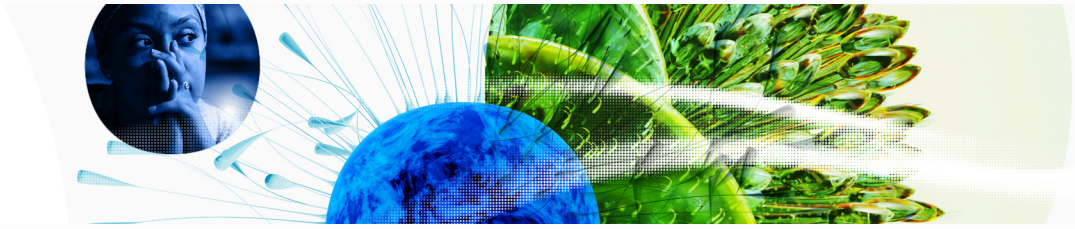
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

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

> Relationship between innovation inputs and outputs

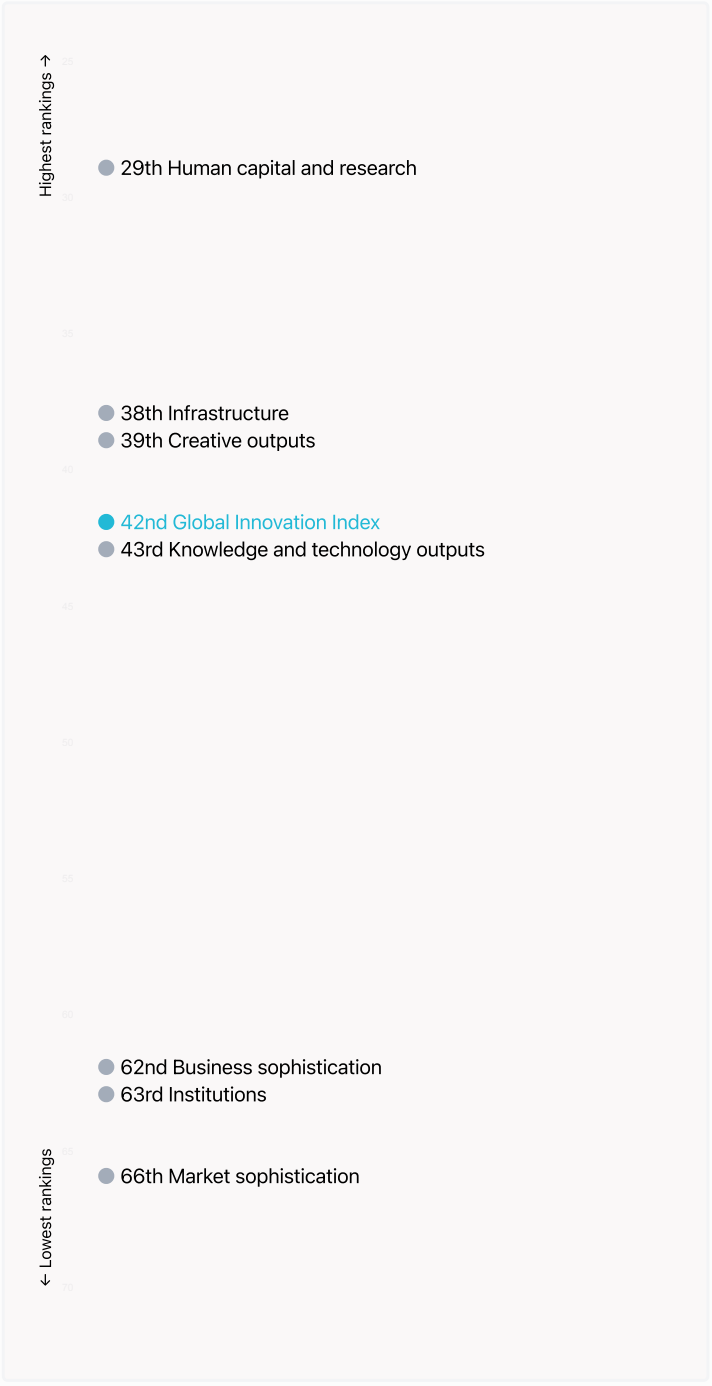


Global Innovation Index 2023



→ Overview of Greece'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 Greece are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

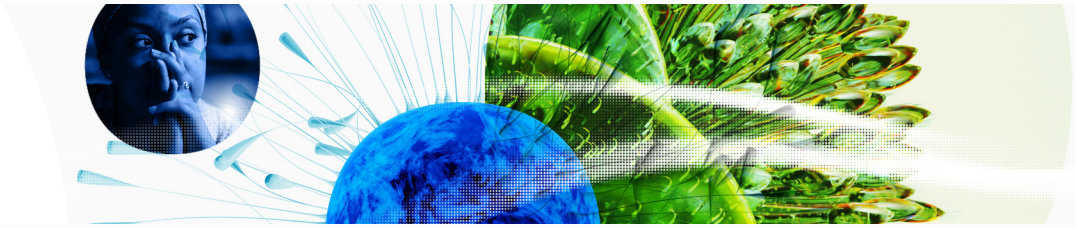
Greece ranks highest in Human capital and research (29th), Infrastructure (38th) and Creative outputs (39th).

> Lowest rankings

Greece ranks lowest in Market sophistication (66th), Institutions (63rd) and Business sophistication (62nd).

The full WIPO Intellectual Property Statistics profile for Greece can be found on this link.

Global Innovation Index 2023



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

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

> High-Income economies

Greece performs below the high-income group average in all the pillars.

> Europe

Greece performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Infrastructure, Institutions.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Europe | Score: 38.80
- High income | Score: 38.62
- Greece | Score: 31.20

Creative outputs

- Top 10 | 56.09
- High income | 40.27
- Europe | 39.87
- Greece | 33.73

Business sophistication

- Top 10 | 64.39
- High income | 46.38
- Europe | 44.61
- Greece | 28.68

Market sophistication

- Top 10 | 61.93
- High income | 46.42
- Europe | 43.65
- Greece | 34.71

Human capital and research

- Top 10 | 60.28
- High income | 46.30
- Greece | 45.06
- Europe | 44.05

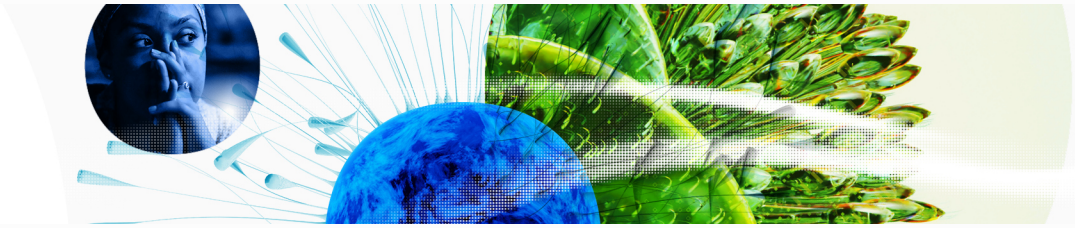
Infrastructure

- Top 10 | 62.83
- High income | 55.85
- Europe | 54.69
- Greece | 53.67

Institutions

- Top 10 | 79.85
- High income | 68.16
- Europe | 61.69
- Greece | 50.89

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Greece

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

> Greece's main innovation strengths are **Tertiary enrolment, % gross** (rank 1), **School life expectancy, years** (rank 3) and **ISO 9001 quality/bn PPP$ GDP** (rank 11).

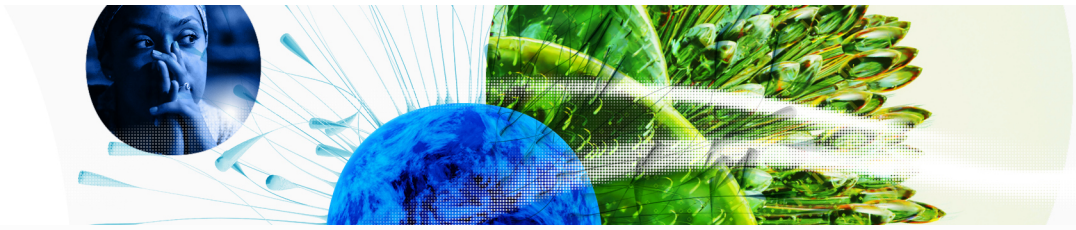
Strengths

Rank	Code	Indicator name
1	2.2.1	Tertiary enrolment, % gross
3	2.1.3	School life expectancy, years
11	6.3.5	ISO 9001 quality/bn PPP$ GDP
13	6.2.3	Software spending, % GDP
15	2.1.5	Pupil-teacher ratio, secondary
18	3.3.3	ISO 14001 environment/bn PPP$ GDP
18	3.2.2	Logistics performance
19	6.1.4	Scientific and technical articles/bn PPP$ GDP
20	5.2.3	GERD financed by abroad, % GDP
27	3.3.1	GDP/unit of energy use
28	3.3.2	Environmental performance

Weaknesses

Rank	Code	Indicator name
120	5.2.2	State of cluster development
118	5.2.1	University-industry R&D collaboration
109	3.2.3	Gross capital formation, % GDP
109	6.2.1	Labor productivity growth, %
99	5.3.2	High-tech imports, % total trade
86	4.2.3	VC recipients, deals/bn PPP$ GDP
76	5.1.2	Firms offering formal training, %
69	1.3.2	Entrepreneurship policies and culture
64	6.1.3	Utility models by origin/bn PPP$ GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

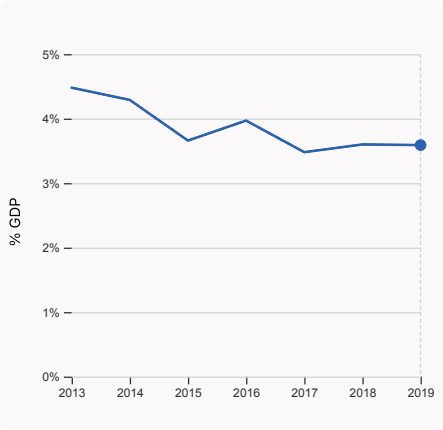
Global Innovation Index 2023



→ Greece's innovation system

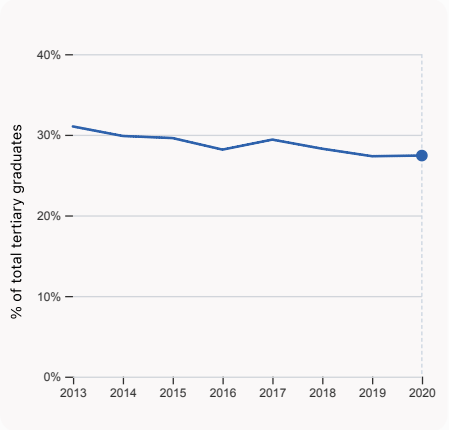
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Greece



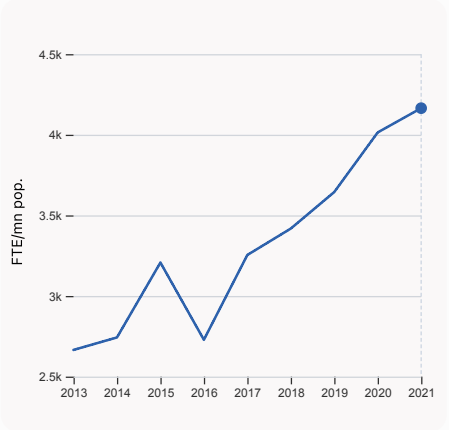
2.1.1 Expenditure on education, % GDP

was equal to 3.59% GDP in 2019, down by 0.01 percentage points from the year prior – and equivalent to an indicator rank of 86.



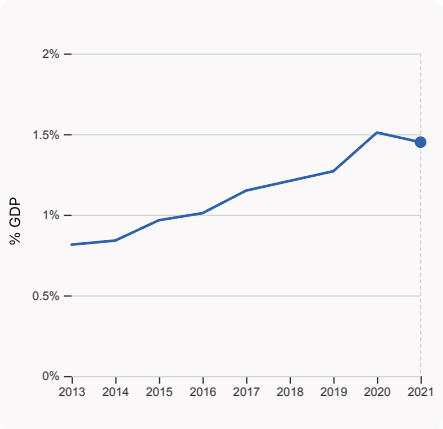
2.2.2 Graduates in science and engineering, %

was equal to 27.42% of total tertiary graduates in 2020, up by 0.08 percentage points from the year prior – and equivalent to an indicator rank of 32.



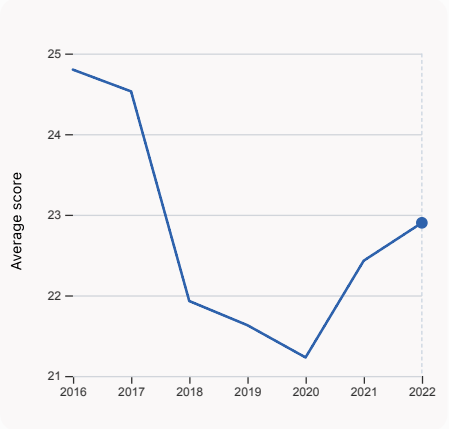
2.3.1 Researchers, FTE/mn pop.

was equal to 4,164.94 FTE/mn pop. in 2021, up by 3.75% from the year prior – and equivalent to an indicator rank of 26.



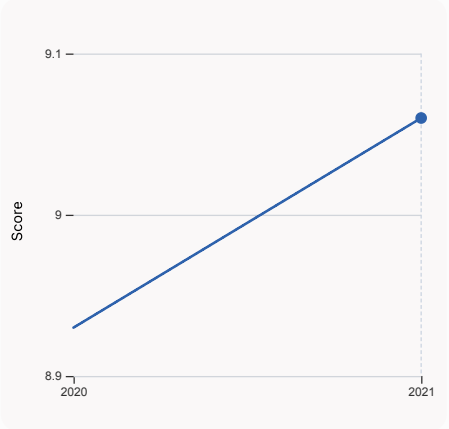
2.3.2 Gross expenditure on R&D, % GDP

was equal to 1.45% GDP in 2021, down by 0.06 percentage points from the year prior – and equivalent to an indicator rank of 28.



2.3.4 QS university ranking, top 3

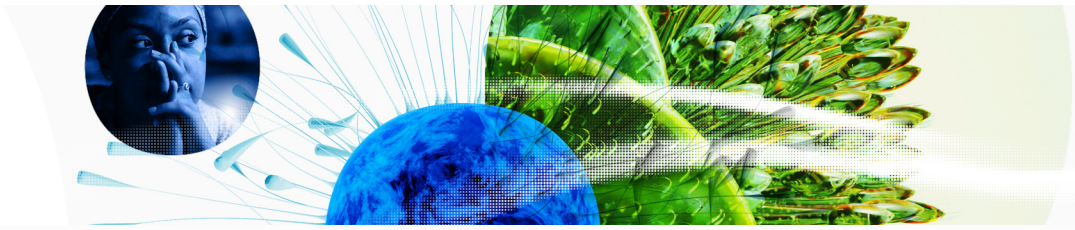
was equal to an average score of 22.9 for the top 3 universities in 2022, up by 2.095% from the year prior – and equivalent to an indicator rank of 47.

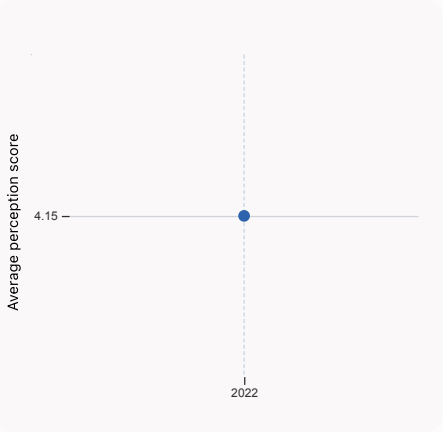


3.1.1 ICT access

was equal to a score of 9.06 in 2021, up by 1.46% from the year prior – and equivalent to an indicator rank of 48.

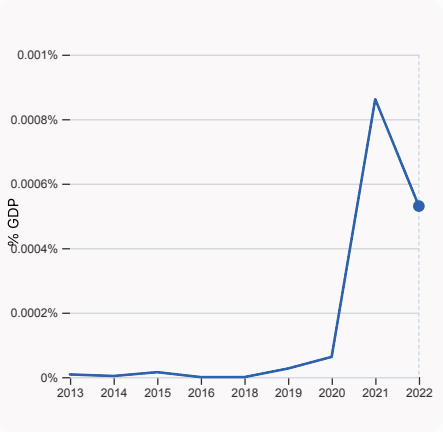
Global Innovation Index 2023





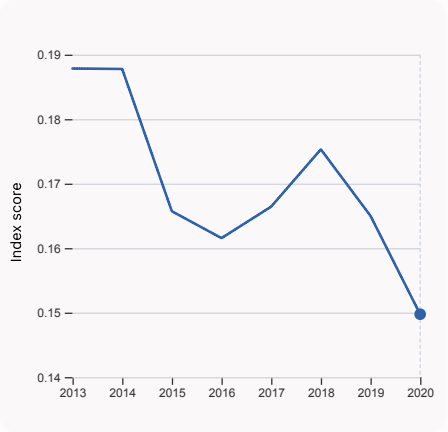
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 4.15 in 2022, equivalent to an indicator rank of 57.



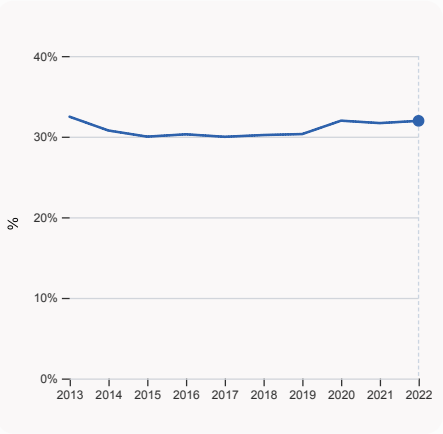
4.2.4 VC received, value, % GDP

was equal to 0.00053% GDP in 2022, down by 0.00033 percentage points from the year prior – and equivalent to an indicator rank of 64.



4.3.2 Domestic industry diversification

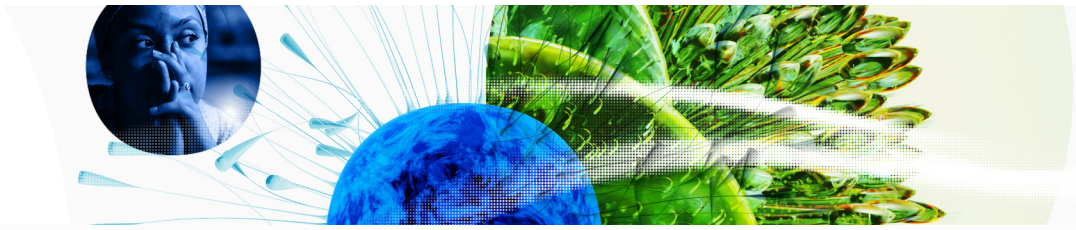
was equal to an index score of 0.15 in 2020, down by 9.24% from the year prior – and equivalent to an indicator rank of 47.



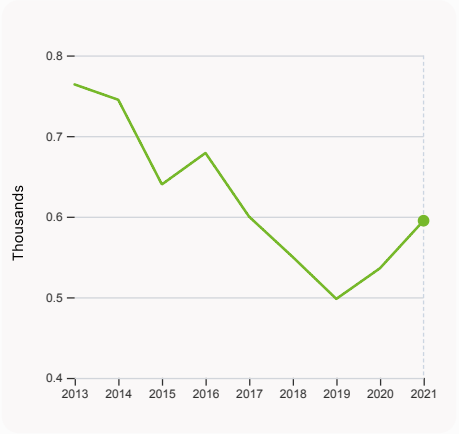
5.1.1 Knowledge-intensive employment, %

was equal to 31.96% in 2022, up by 0.28 percentage points from the year prior – and equivalent to an indicator rank of 46.

Global Innovation Index 2023

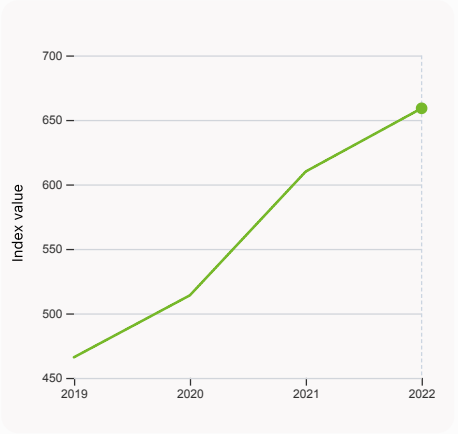


> Innovation outputs in Greece



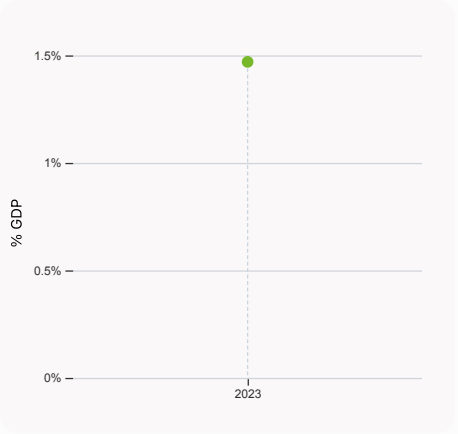
6.1.1 Patents by origin

was equal to 0.59 Thousands in 2021, up by 11.0075% from the year prior – and equivalent to an indicator rank of 40.



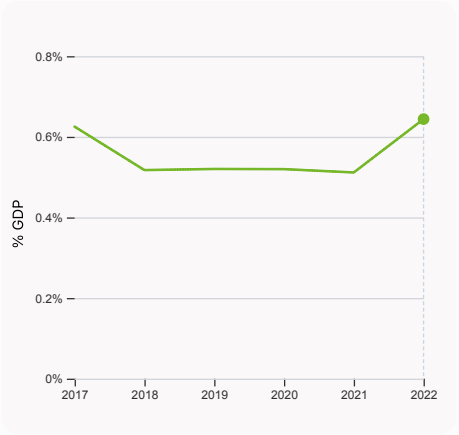
6.1.5 Citable documents H-index

was equal to an index value of 659 in 2022, up by 8.033% from the year prior – and equivalent to an indicator rank of 29.



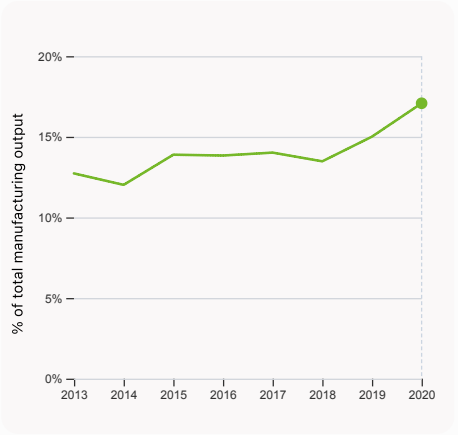
6.2.2 Unicorn valuation, % GDP

was equal to 1.47 % GDP in 2023 – and equivalent to an indicator rank of 29.



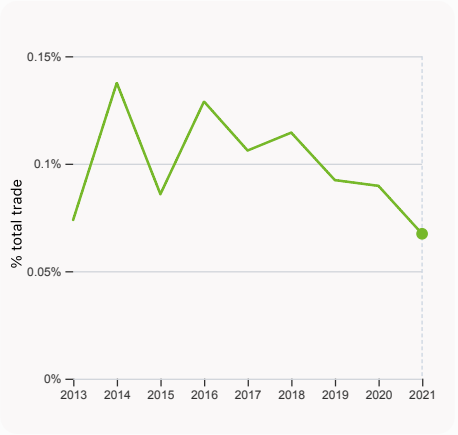
6.2.3 Software spending, % GDP

was equal to 0.644% GDP in 2022, up by 0.13 percentage points from the year prior – and equivalent to an indicator rank of 13.



6.2.4 High-tech manufacturing, %

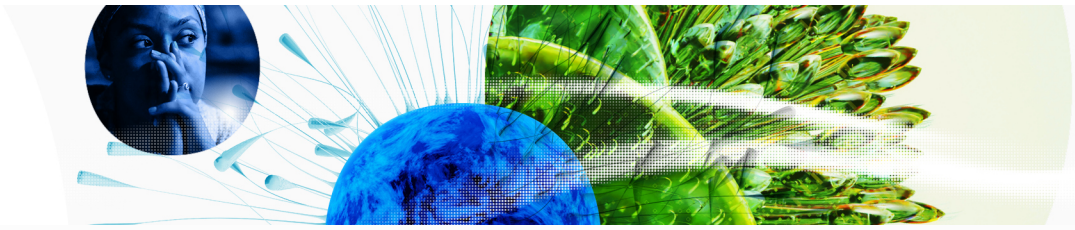
was equal to 17.08% of total manufacturing output in 2020, up by 2.07 percentage points from the year prior – and equivalent to an indicator rank of 71.

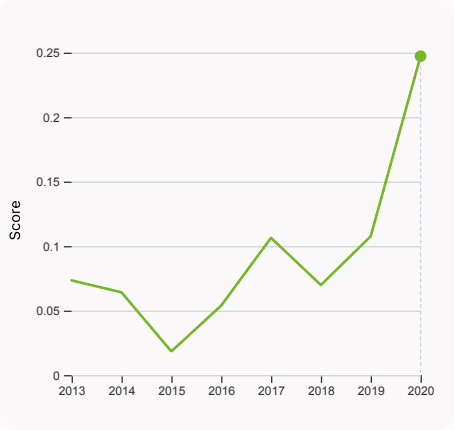


6.3.1 Intellectual property receipts, % total trade

was equal to 0.067% total trade in 2021, down by 0.022 percentage points from the year prior – and equivalent to an indicator rank of 62.

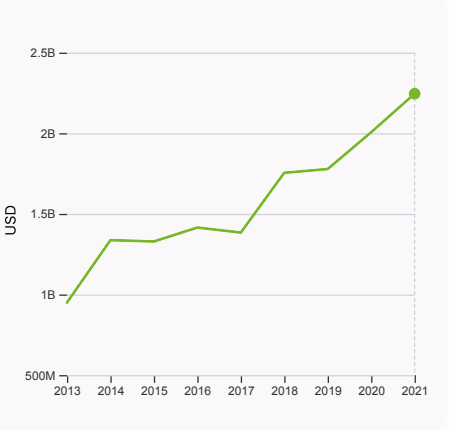
Global Innovation Index 2023





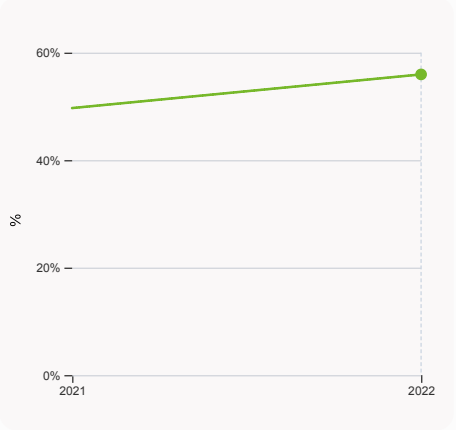
6.3.2 Production and export complexity

was equal to a score of 0.247 in 2020, up by 129.71% from the year prior – and equivalent to an indicator rank of 50.



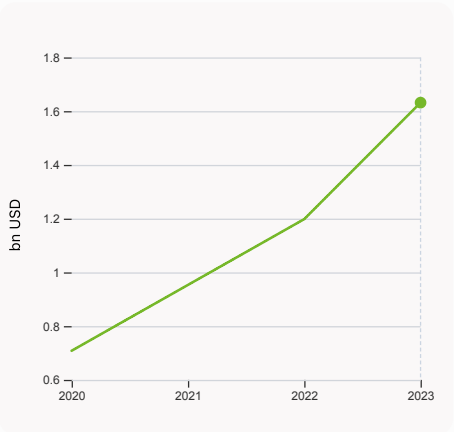
6.3.3 High-tech exports

was equal to 2,245,313,001 USD in 2021, up by 11.91% from the year prior – and equivalent to an indicator rank of 54.



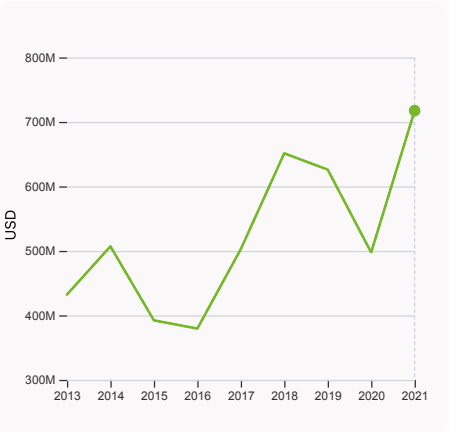
7.1.1 Intangible asset intensity, top 15, %

was equal to 55.95% in 2022, up by 6.26 percentage points from the year prior – and equivalent to an indicator rank of 42.



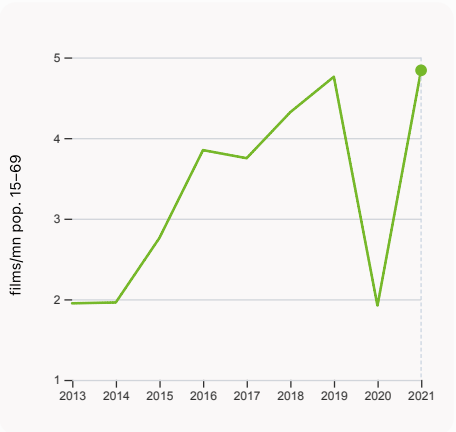
7.1.3 Global brand value, top 5,000

was equal to 1.632 bn USD in 2023, up by 36.17% from the year prior – and equivalent to an indicator rank of 57.



7.2.1 Cultural and creative services exports

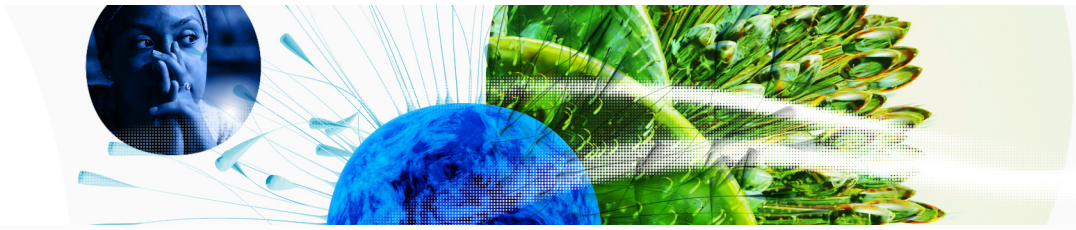
was equal to 717,437,000 USD in 2021, up by 44.16% from the year prior – and equivalent to an indicator rank of 41.

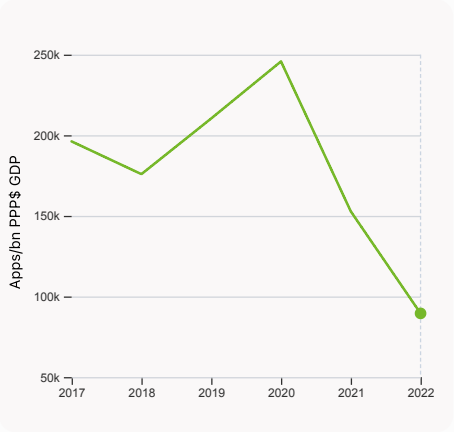


7.2.2 National feature films/mn pop. 15-69

was equal to 4.84 films/mn pop. 15–69 in 2021, up by 152.083% from the year prior – and equivalent to an indicator rank of 24.

Global Innovation Index 2023

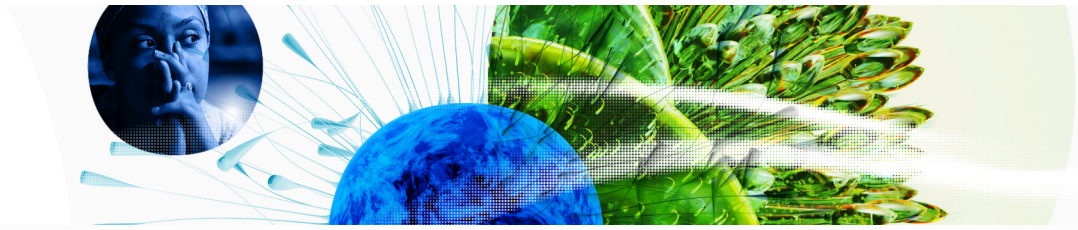




7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 89,527.81 Apps/bn PPP$ GDP in 2022, down by 41.41% from the year prior – and equivalent to an indicator rank of 66.

Global Innovation Index 2023



→ Greece's innovation top performers

> 2.3.4 QS university ranking of Greece's top universities

Rank	University	Score
422	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	27.30
591-600	UNIVERSITY OF CRETE	21.00
601-650	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS	20.40

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 Greece

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	VIVA WALLET	Fintech	Athens	2
2	PEOPLECERT	Internet software & services	Athens	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 Greece

Rank	Firm	Intensity, %
1	HELLENIC TELECOMMUNICATIONS ORGANIZATION SA	80.13
2	OPAP SA	112.11
3	TERNA ENERGY SA	61.13

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 Greece with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	OTE	Telecoms	361.2
2	COSMOTE GROUP	Telecoms	340.6
3	ALFA BETA VASSILOPOULOS	Retail	305.7

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

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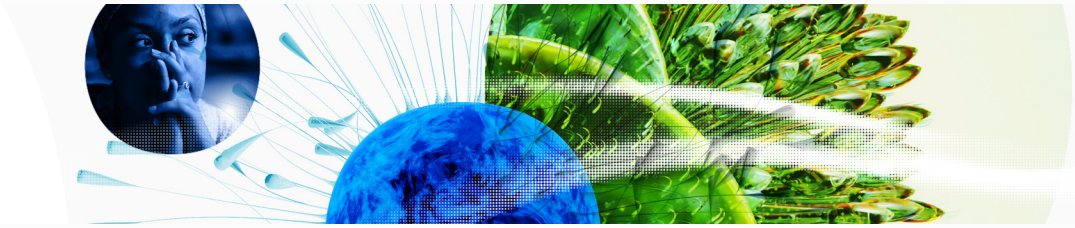

Greece

GII 2023 rank **42**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
41	42	High	EUR	10.4	387.8	36,465.5

	Score / Value	Rank	
Institutions	**50.9**	**63**	◇
1.1 Institutional environment	**53.3**	**49**	◇
1.1.1 Operational stability for businesses*	57.6	53	
1.1.2 Government effectiveness*	49.0	47	◇
1.2 Regulatory environment	**68.1**	**48**	
1.2.1 Regulatory quality*	53.6	50	◇
1.2.2 Rule of law*	50.0	49	◇
1.2.3 Cost of redundancy dismissal	15.9	67	
1.3 Business environment	**31.3**	**97**	◇
1.3.1 Policies for doing business†	42.9	77	
1.3.2 Entrepreneurship policies and culture†	19.7	69 ○	◇
Human capital and research	**45.1**	**29**	
2.1 Education	**58.6**	**42**	
2.1.1 Expenditure on education, % GDP	3.6	86	
2.1.2 Government funding/pupil, secondary, % GDP/cap	20.1	53	
2.1.3 School life expectancy, years	20.1	3 ●	
2.1.4 PISA scales in reading, maths and science	453.5	43	
2.1.5 Pupil-teacher ratio, secondary	8.4	15 ●	
2.2 Tertiary education	**53.6**	**6**	
2.2.1 Tertiary enrolment, % gross	150.9	1 ●	
2.2.2 Graduates in science and engineering, %	27.4	32	
2.2.3 Tertiary inbound mobility, %	2.8	71	
2.3 Research and development (R&D)	**23.1**	**41**	
2.3.1 Researchers, FTE/mn pop.	4,164.9	26	
2.3.2 Gross expenditure on R&D, % GDP	1.5	28	
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40 ○	◇
2.3.4 QS university ranking, top 3*	23.2	47	
Infrastructure	**53.7**	**38**	
3.1 Information and communication technologies (ICTs)	**76.9**	**44**	
3.1.1 ICT access*	85.9	48	
3.1.2 ICT use*	86.0	33	
3.1.3 Government's online service*	75.2	48	
3.1.4 E-participation*	60.5	55	
3.2 General infrastructure	**36.2**	**40**	
3.2.1 Electricity output, GWh/mn pop.	4,987.3	45	
3.2.2 Logistics performance*	72.7	18 ●	
3.2.3 Gross capital formation, % GDP	18.3	109 ○	◇
3.3 Ecological sustainability	**47.9**	**24**	
3.3.1 GDP/unit of energy use	14.7	27 ●	
3.3.2 Environmental performance*	63.2	28 ●	
3.3.3 ISO 14001 environment/bn PPP$ GDP	5.6	18 ●	
Market sophistication	**34.7**	**66**	
4.1 Credit	**35.7**	**51**	
4.1.1 Finance for startups and scaleups†	41.1	57	◇
4.1.2 Domestic credit to private sector, % GDP	82.3	39	
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**5.4**	**74**	
4.2.1 Market capitalization, % GDP	23.7	55	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.1	48	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	86 ○	
4.2.4 VC received, value, % GDP	0.0	64	
4.3 Trade, diversification, and market scale	**63.0**	**43**	
4.3.1 Applied tariff rate, weighted avg., %	1.5	20	
4.3.2 Domestic industry diversification	90.3	47	
4.3.3 Domestic market scale, bn PPP$	387.8	53	

	Score / Value	Rank	
Business sophistication	**28.7**	**62**	◇
5.1 Knowledge workers	**39.0**	**50**	
5.1.1 Knowledge-intensive employment, %	32.0	46	
5.1.2 Firms offering formal training, %	21.6	76 ○	◇
5.1.3 GERD performed by business, % GDP	0.7	34	
5.1.4 GERD financed by business, %	38.4	45	
5.1.5 Females employed w/advanced degrees, %	20.1	34	
5.2 Innovation linkages	**17.7**	**87**	◇
5.2.1 University-industry R&D collaboration†	19.9	118 ○	◇
5.2.2 State of cluster development†	15.5	120 ○	◇
5.2.3 GERD financed by abroad, % GDP	0.2	20 ●	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	38	
5.2.5 Patent families/bn PPP$ GDP	0.3	38	
5.3 Knowledge absorption	**29.4**	**80**	◇
5.3.1 Intellectual property payments, % total trade	0.4	76	
5.3.2 High-tech imports, % total trade	6.5	99 ○	
5.3.3 ICT services imports, % total trade	1.0	85	
5.3.4 FDI net inflows, % GDP	2.3	66	
5.3.5 Research talent, % in businesses	29.8	44	
Knowledge and technology outputs	**31.2**	**43**	
6.1 Knowledge creation	**25.4**	**38**	
6.1.1 Patents by origin/bn PPP$ GDP	1.7	40	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.4	34	
6.1.3 Utility models by origin/bn PPP$ GDP	0.0	64 ○	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	34.3	29	
6.2 Knowledge impact	**36.6**	**39**	
6.2.1 Labor productivity growth, %	-0.6	109 ○	◇
6.2.2 Unicorn valuation, % GDP	1.5	29	
6.2.3 Software spending, % GDP	0.6	13 ●	
6.2.4 High-tech manufacturing, %	17.1	71	◇
6.3 Knowledge diffusion	**31.6**	**50**	
6.3.1 Intellectual property receipts, % total trade	0.1	62	
6.3.2 Production and export complexity	57.7	50	
6.3.3 High-tech exports, % total trade	2.4	54	
6.3.4 ICT services exports, % total trade	1.5	70	
6.3.5 ISO 9001 quality/bn PPP$ GDP	20.6	11 ●	
Creative outputs	**33.7**	**39**	
7.1 Intangible assets	**41.7**	**39**	
7.1.1 Intangible asset intensity, top 15, %	56.0	42	
7.1.2 Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.3 Global brand value, top 5,000	0.7	57	
7.1.4 Industrial designs by origin/bn PPP$ GDP	3.3	31	
7.2 Creative goods and services	**20.7**	**48**	
7.2.1 Cultural and creative services exports, % total trade	0.8	41	
7.2.2 National feature films/mn pop. 15-69	4.8	24	
7.2.3 Entertainment and media market/th pop. 15-69	22.9	26	
7.2.4 Creative goods exports, % total trade	1.1	44	
7.3 Online creativity	**30.8**	**39**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	15.3	34	
7.3.2 Country-code TLDs/th pop. 15-69	22.2	30	
7.3.3 GitHub commits/mn pop. 15-69	21.1	42	
7.3.4 Mobile app creation/bn PPP$ GDP	64.5	66	

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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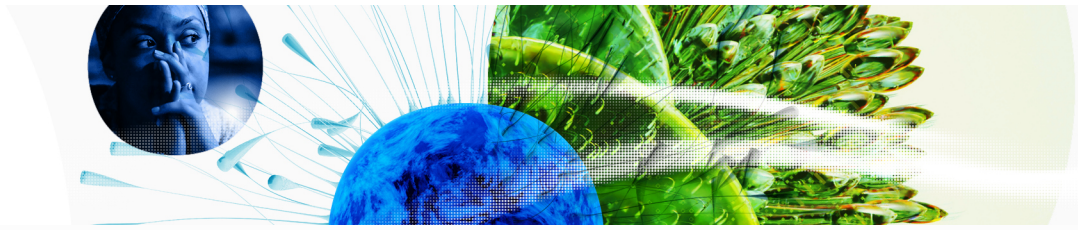

→ Data availability

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

> Greece has missing data for two indicators and outdated data for two indicators.

> Missing data for Greece

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)
7.1.2	Trademarks by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

> Outdated data for Greece

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
5.1.2	Firms offering formal training, %	2018	2019	World Bank Enterprise Surveys

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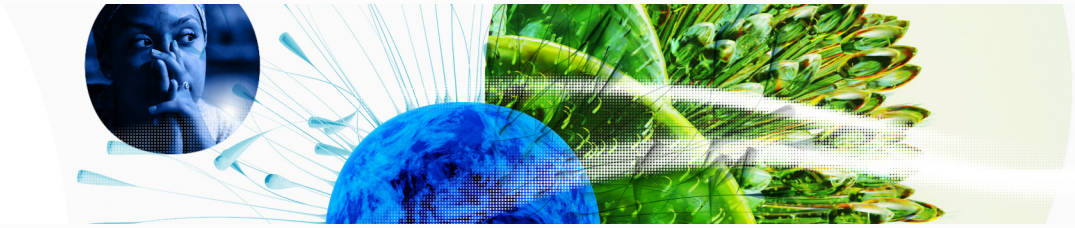
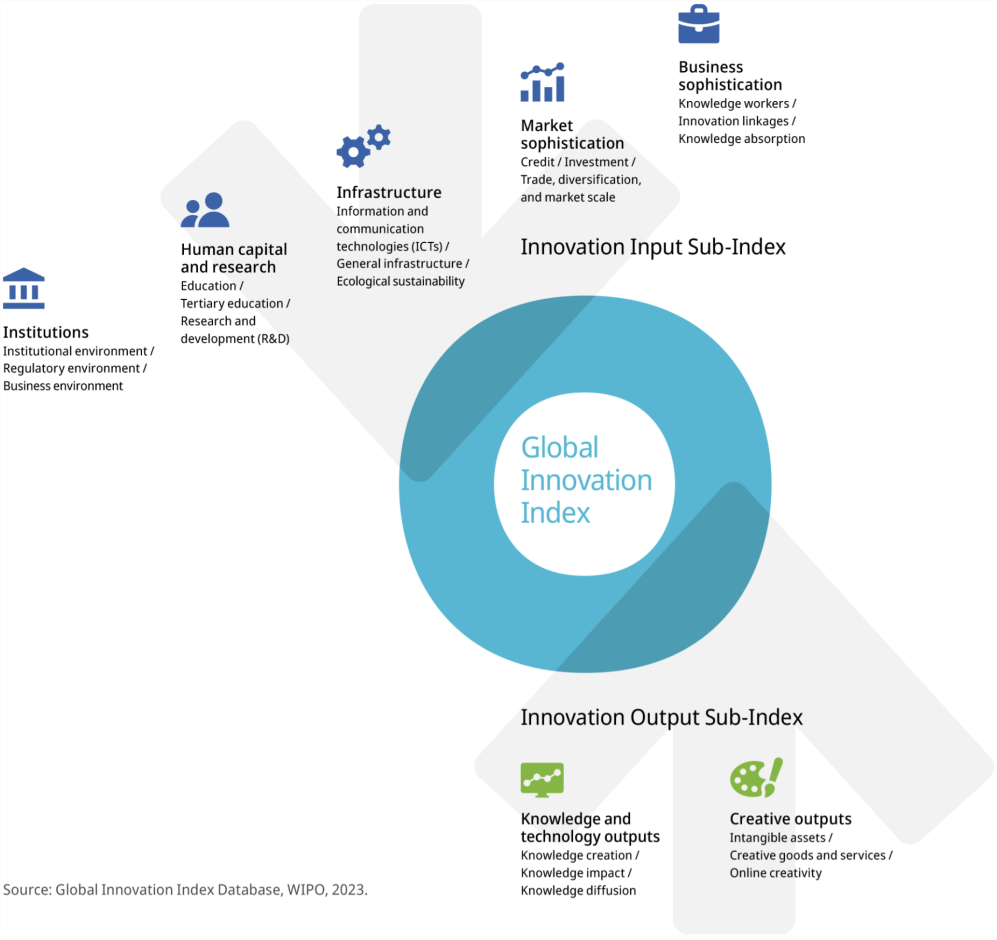


About the Global Innovation Index

- 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.