

Global Innovation Index 2023

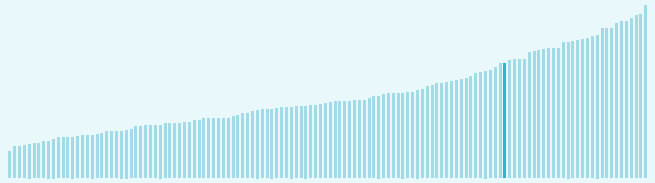


The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

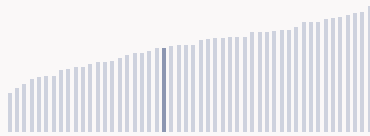
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation.**

Portugal ranking in the Global Innovation Index 2023

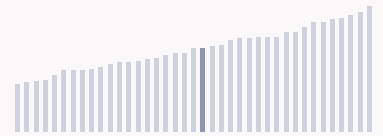
> Portugal ranks **30th** among the 132 economies featured in the GII 2023.



> Portugal ranks **29th** among the 50 high-income group economies.



> Portugal ranks **19th** among the 39 economies in Europe.



> Portugal GII Ranking (2020-2023)

The table shows the rankings of Portugal 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 Portugal in the GII 2023 is between ranks 30 and 31.

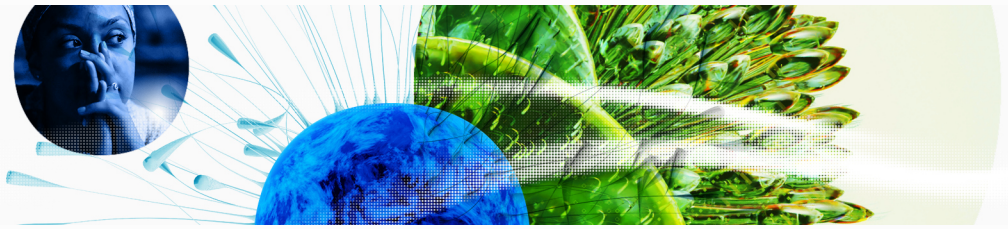
	GII Position	Innovation Inputs	Innovation Outputs
2020	31st	32nd	29th
2021	31st	32nd	30th
2022	32nd	32nd	31st
2023	30th	31st	29th

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

This year Portugal ranks 31st in innovation inputs. This position is higher than last year.

Portugal ranks 29th in innovation outputs. This position is higher than last year.

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→ Expected vs. observed innovation performance

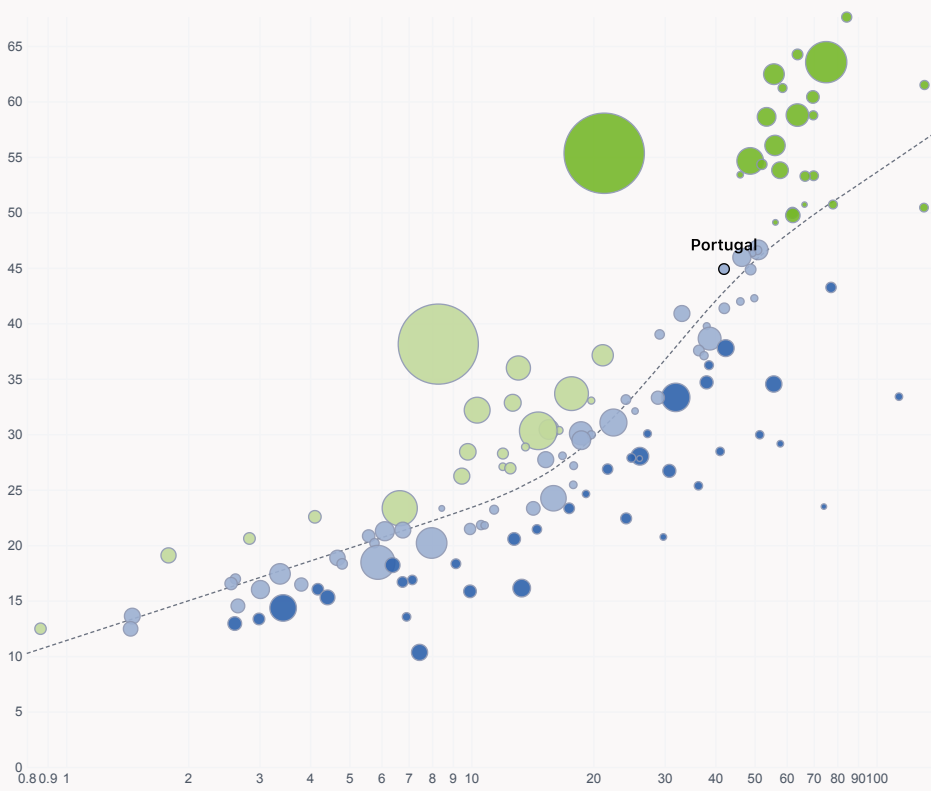
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected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



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

> Innovation overperformers relative to their economic development

↑ **GII Score**



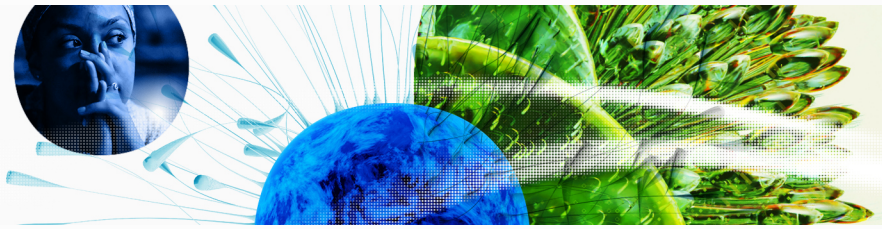
- Innovation leader
- Performing above expectations for level of development
- Performing at expectations for level of development
- Performing below expectations for level of development

Size legend (Population)



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

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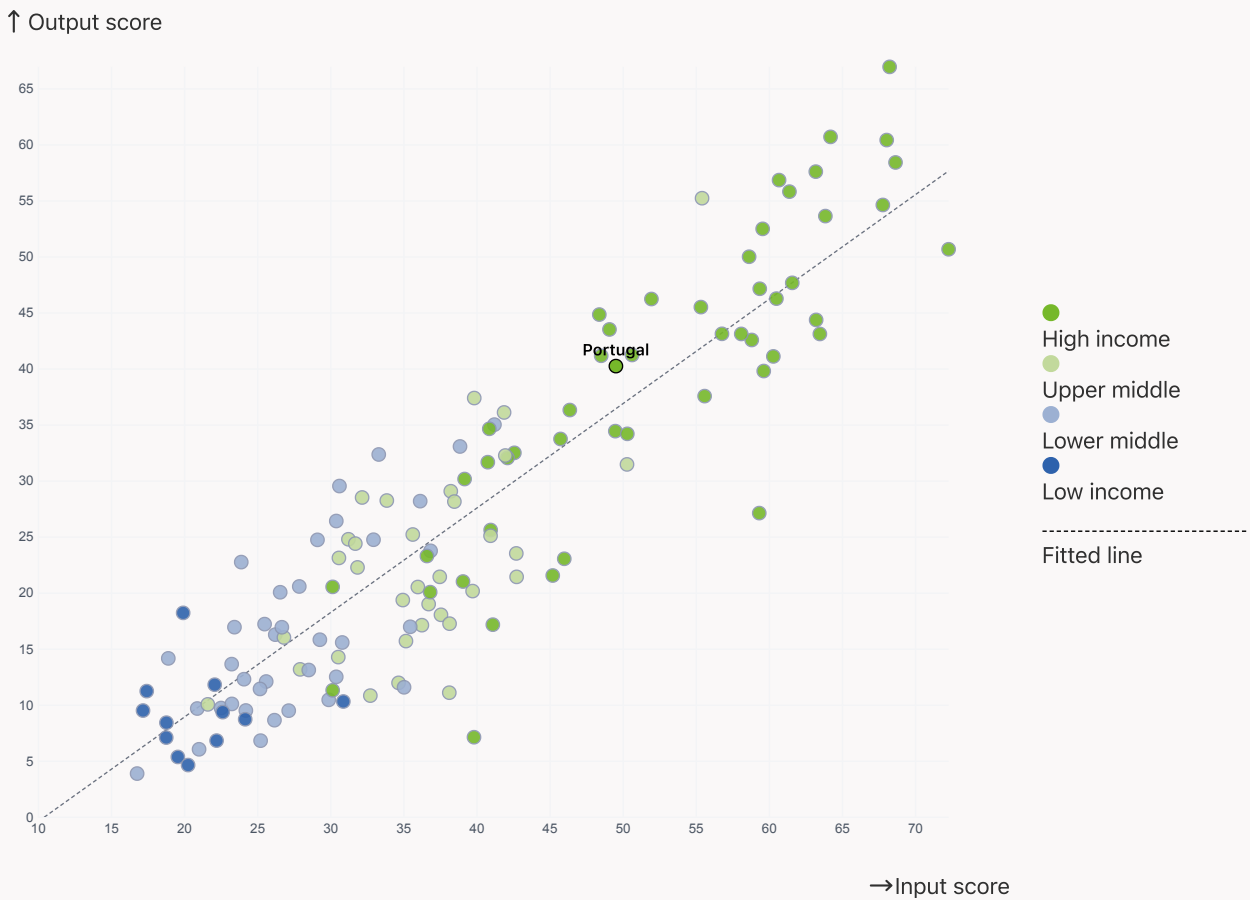
→ Effectively translating innovation investments into innovation outputs

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.

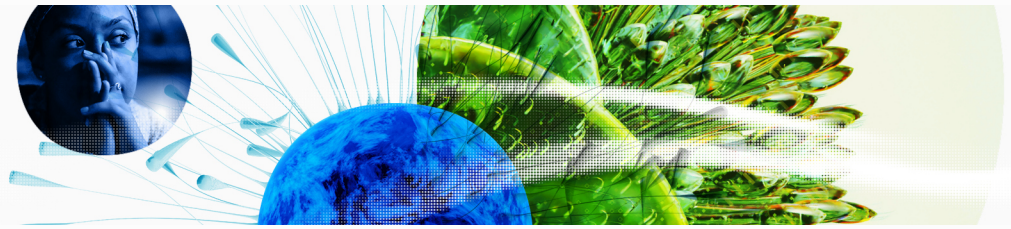


> Portugal produces more innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

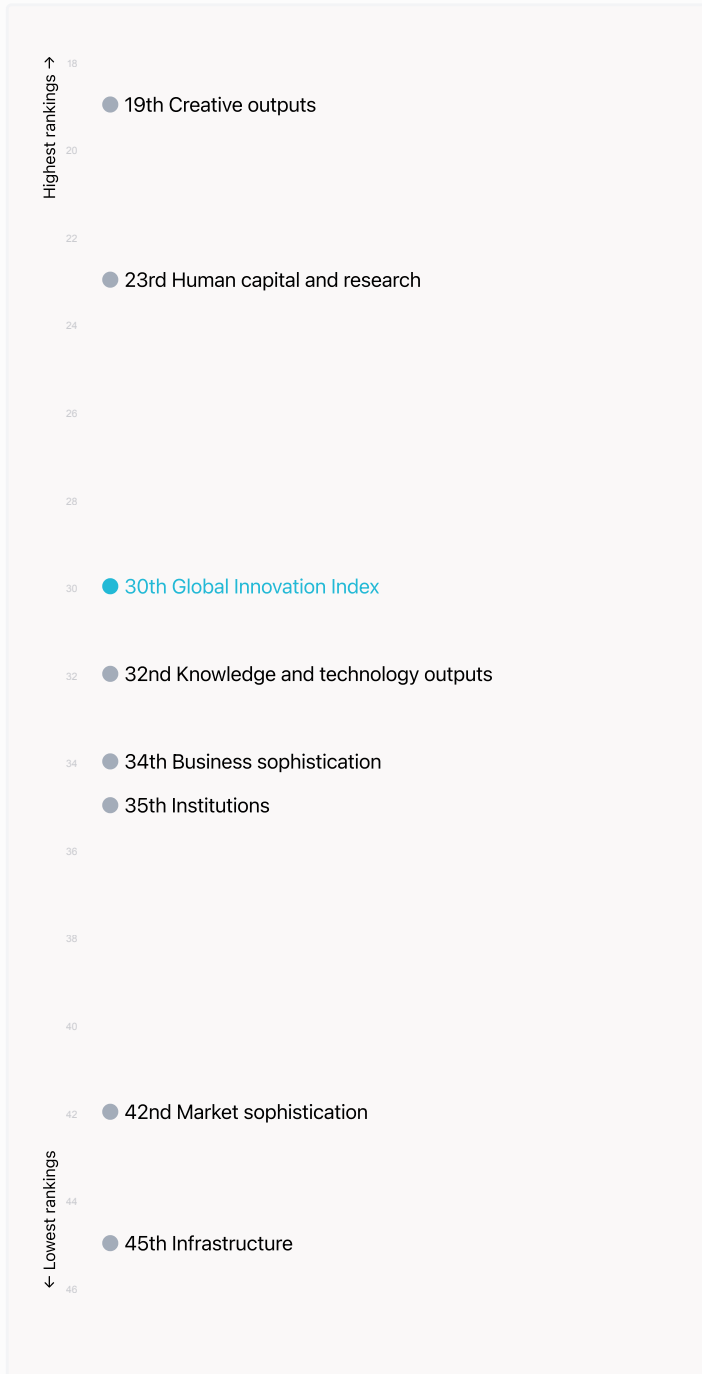


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→ Overview of Portugal's rankings in the seven areas of the GII in 2023

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



> Highest rankings



Portugal ranks highest in Creative outputs (19th) and Human capital and research (23rd).

> Lowest rankings

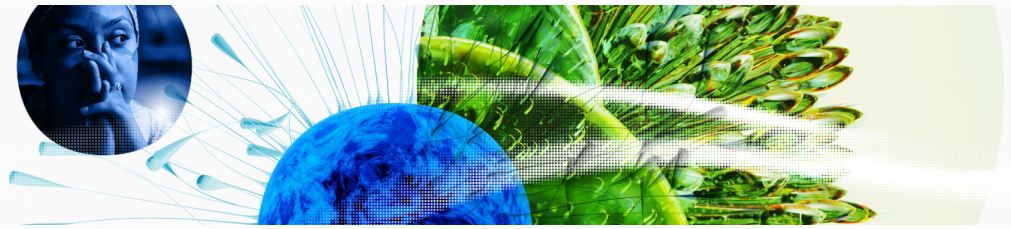


Portugal ranks lowest in Infrastructure (45th), Market sophistication (42nd) and Institutions (35th).



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

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

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

> High-Income economies

Portugal performs below the high-income group average in Knowledge and technology outputs, Business sophistication, Market sophistication, Infrastructure, Institutions.

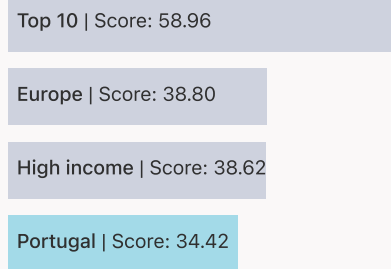


> Europe

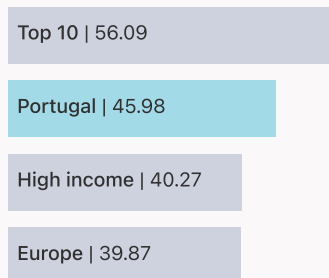
Portugal performs above the regional average in Creative outputs, Human capital and research, Institutions.



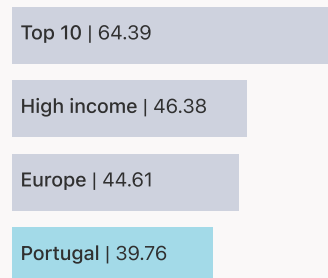
Knowledge and technology outputs



Creative outputs



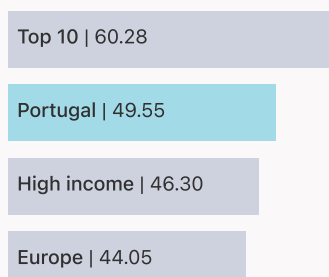
Business sophistication



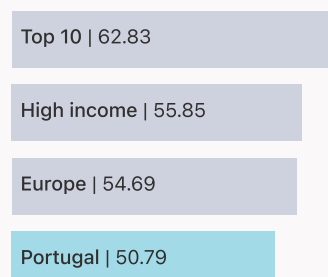
Market sophistication



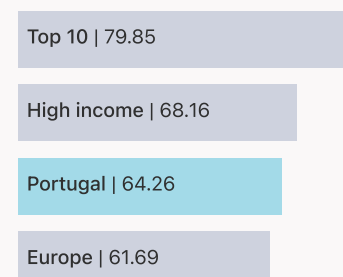
Human capital and research



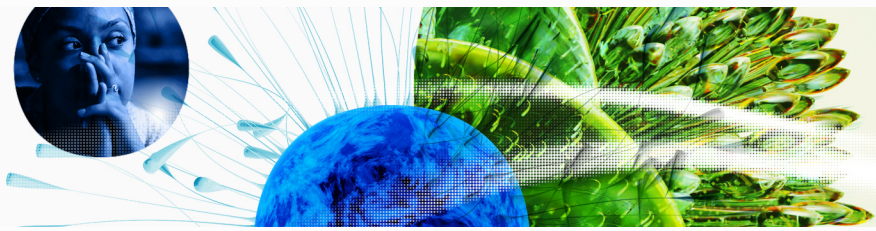
Infrastructure



Institutions



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→ Innovation strengths and weaknesses in Portugal

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



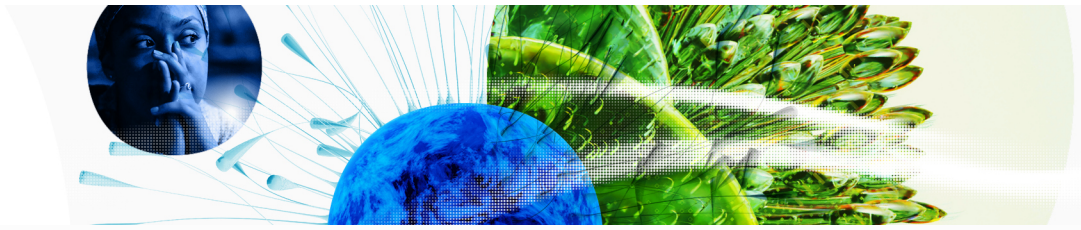
> Portugal's main innovation strengths are **Domestic industry diversification** (rank 1), **Software spending, % GDP** (rank 6) and **Scientific and technical articles/bn PPP\$ GDP** (rank 8).

Strengths

Weaknesses

Rank	Code	Indicator name	Rank	Code	Indicator name
1	4.3.2	Domestic industry diversification	95	3.2.3	Gross capital formation, % GDP
6	6.2.3	Software spending, % GDP	73	6.2.1	Labor productivity growth, %
8	6.1.4	Scientific and technical articles/bn PPP\$ GDP	72	1.3.1	Policies for doing business
11	7.3.2	Country-code TLDs/th pop. 15-69	69	1.2.3	Cost of redundancy dismissal
11	2.1.2	Government funding/pupil, secondary, % GDP/cap	59	5.1.2	Firms offering formal training, %
14	7.1.2	Trademarks by origin/bn PPP\$ GDP	53	4.2.4	VC received, value, % GDP
15	2.3.1	Researchers, FTE/mn pop.	48	6.2.2	Unicorn valuation, % GDP
17	1.1.1	Operational stability for businesses	48	6.1.3	Utility models by origin/bn PPP\$ GDP
18	3.3.1	GDP/unit of energy use	47	4.2.1	Market capitalization, % GDP
18	2.1.5	Pupil-teacher ratio, secondary	46	7.2.1	Cultural and creative services exports, % total trade

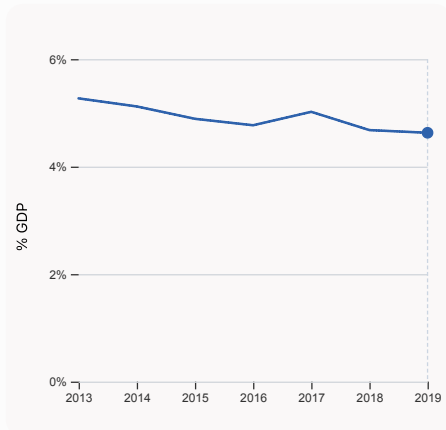
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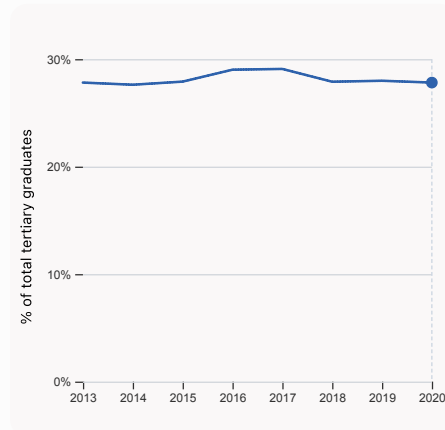
→ Portugal's innovation system

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

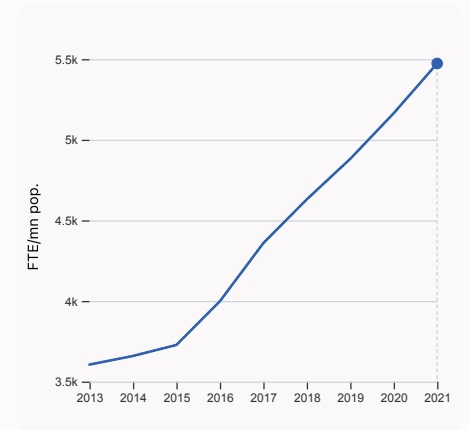
> Innovation inputs in Portugal



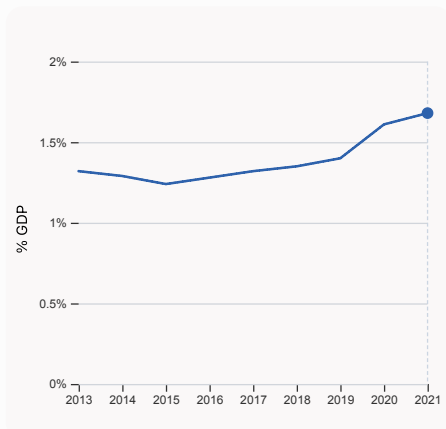
2.1.1 Expenditure on education, % GDP was equal to 4.63% GDP in 2019, down by 0.05 percentage points from the year prior – and equivalent to an indicator rank of 50.



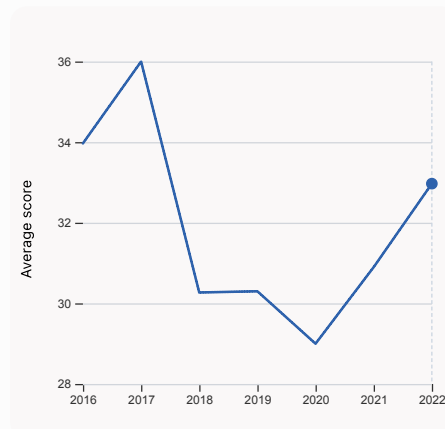
2.2.2 Graduates in science and engineering, % was equal to 27.82% of total tertiary graduates in 2020, down by 0.17 percentage points from the year prior – and equivalent to an indicator rank of 30.



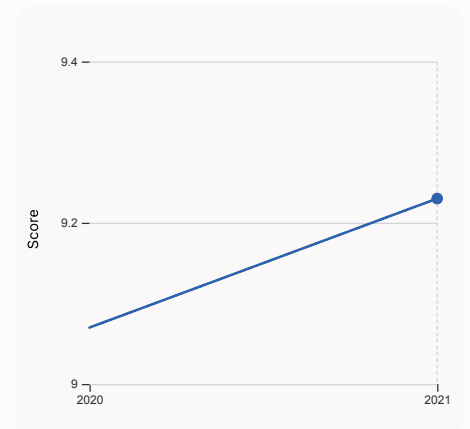
2.3.1 Researchers, FTE/mn pop. was equal to 5,473.26 FTE/mn pop. in 2021, up by 5.98% from the year prior – and equivalent to an indicator rank of 15.



2.3.2 Gross expenditure on R&D, % GDP was equal to 1.68% GDP in 2021, up by 0.07 percentage points from the year prior – and equivalent to an indicator rank of 23.

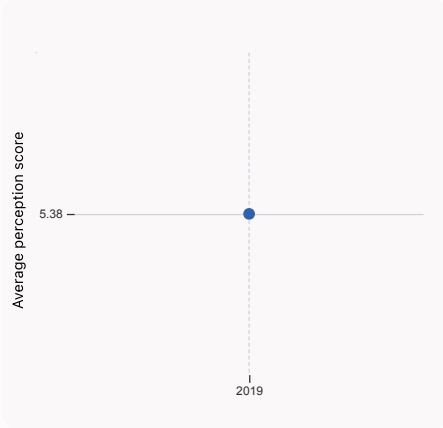
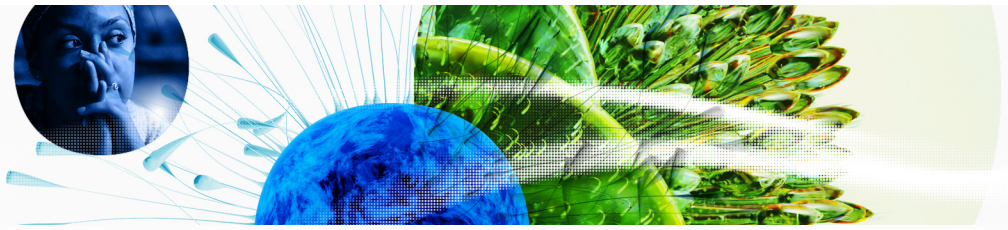


2.3.4 QS university ranking, top 3 was equal to an average score of 32.97 for the top 3 universities in 2022, up by 6.7% from the year prior – and equivalent to an indicator rank of 38.

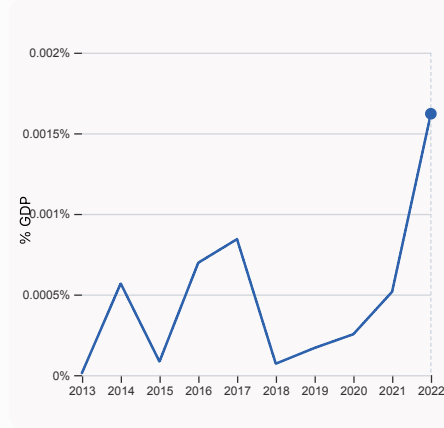


3.1.1 ICT access was equal to a score of 9.23 in 2021, up by 1.76% from the year prior – and equivalent to an indicator rank of 30.

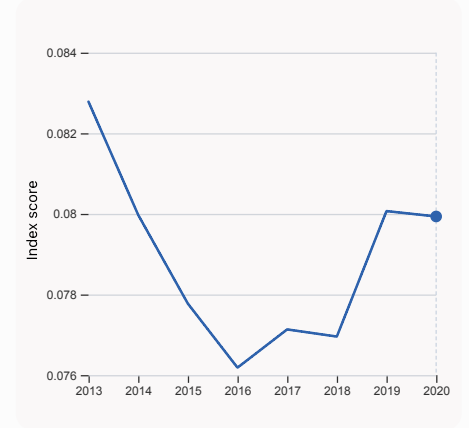
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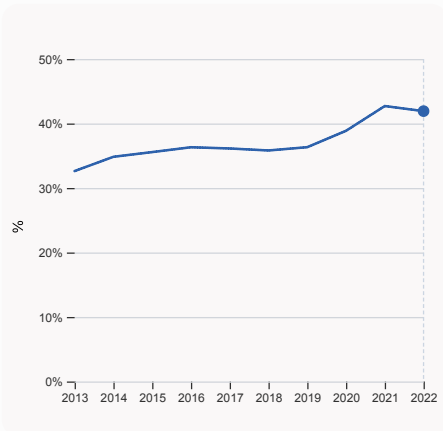
4.1.1 Finance for startups and scaleups was equal to an average perception score of 5.38 in 2019, equivalent to an indicator rank of 20.



4.2.4 VC received, value, % GDP was equal to 0.00162% GDP in 2022, up by 0.0011 percentage points from the year prior – and equivalent to an indicator rank of 53.



4.3.2 Domestic industry diversification was equal to an index score of 0.08 in 2020, down by 0.17% from the year prior – and equivalent to an indicator rank of 1.

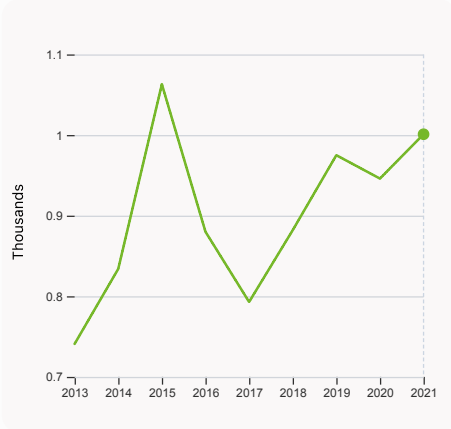


5.1.1 Knowledge-intensive employment, % was equal to 41.92% in 2022, down by 0.79 percentage points from the year prior – and equivalent to an indicator rank of 26.

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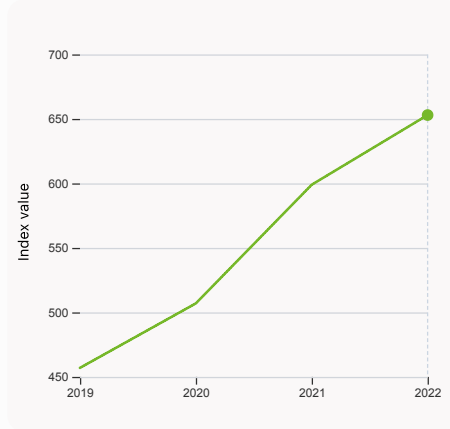


> Innovation outputs in Portugal



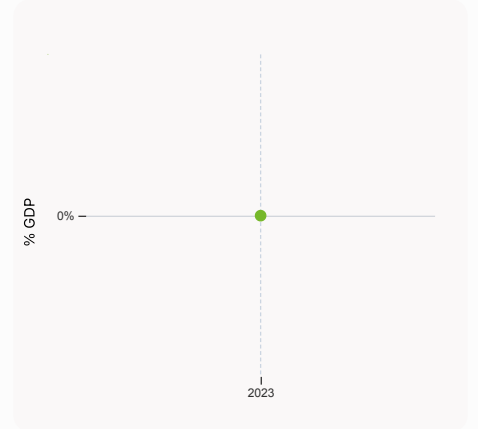
6.1.1 Patents by origin

was equal to 1.001 Thousands in 2021, up by 5.81% from the year prior – and equivalent to an indicator rank of 27.



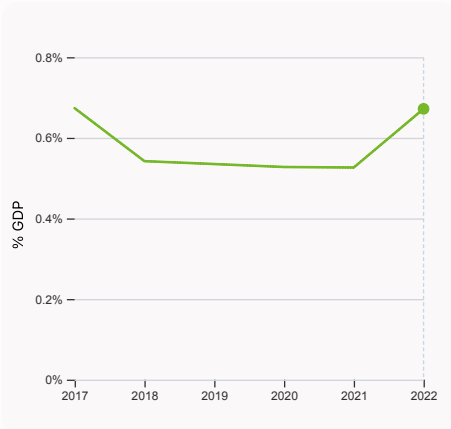
6.1.5 Citable documents H-index

was equal to an index value of 653 in 2022, up by 9.015% from the year prior – and equivalent to an indicator rank of 30.



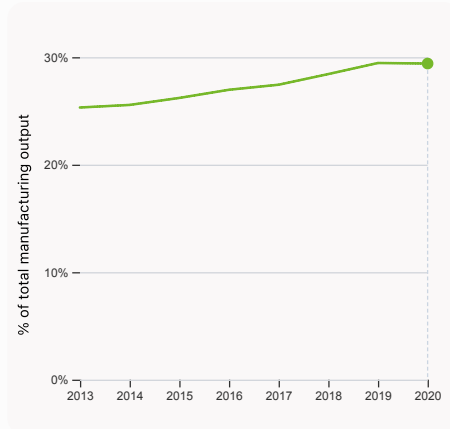
6.2.2 Unicorn valuation, % GDP

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



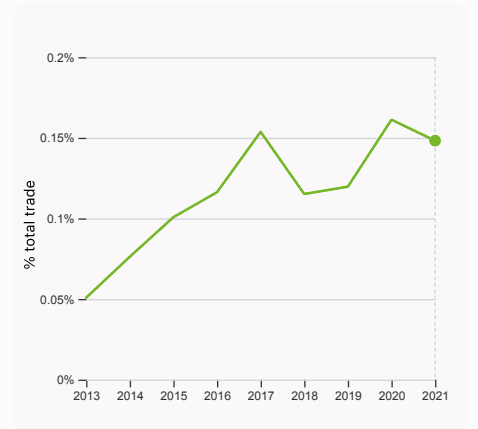
6.2.3 Software spending, % GDP

was equal to 0.672% GDP in 2022, up by 0.15 percentage points from the year prior – and equivalent to an indicator rank of 6.



6.2.4 High-tech manufacturing, %

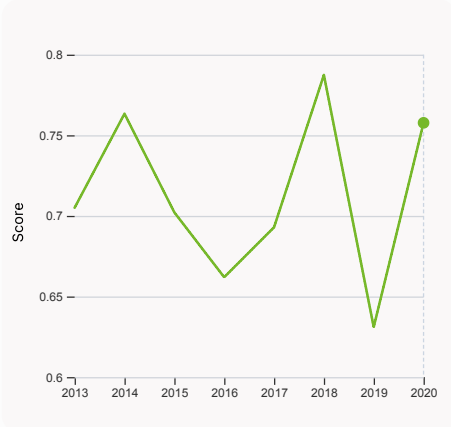
was equal to 29.41% of total manufacturing output in 2020, down by 0.05 percentage points from the year prior – and equivalent to an indicator rank of 41.



6.3.1 Intellectual property receipts, % total trade

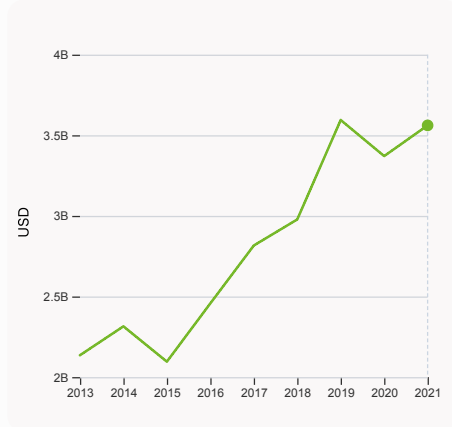
was equal to 0.148% total trade in 2021, down by 0.013 percentage points from the year prior – and equivalent to an indicator rank of 47.

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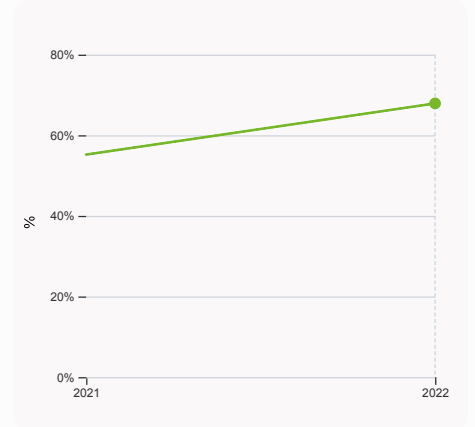
6.3.2 Production and export complexity

was equal to a score of 0.758 in 2020, up by 20.072% from the year prior – and equivalent to an indicator rank of 34.



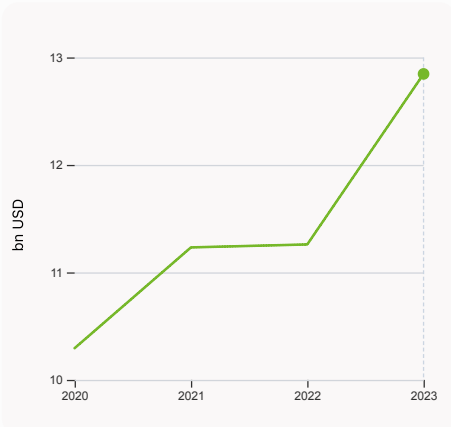
6.3.3 High-tech exports

was equal to 3,561,355,804 USD in 2021, up by 5.65% from the year prior – and equivalent to an indicator rank of 44.



7.1.1 Intangible asset intensity, top 15, %

was equal to 67.9% in 2022, up by 12.69 percentage points from the year prior – and equivalent to an indicator rank of 22.



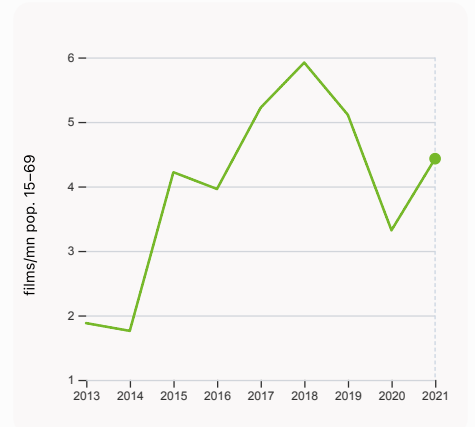
7.1.3 Global brand value, top 5,000

was equal to 12.85 bn USD in 2023, up by 14.09% from the year prior – and equivalent to an indicator rank of 33.



7.2.1 Cultural and creative services exports

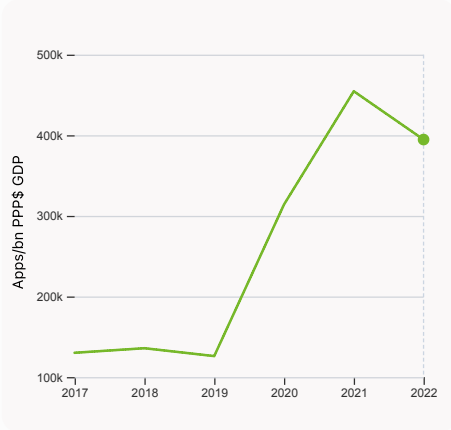
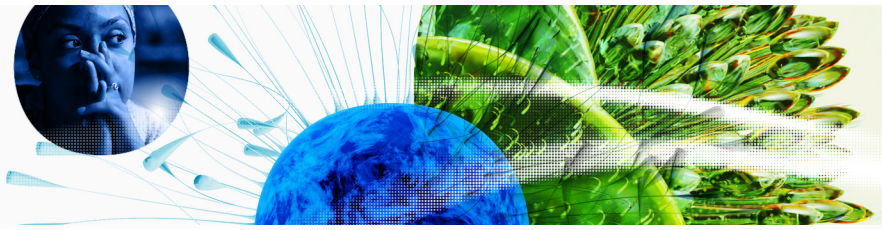
was equal to 694,816,000 USD in 2021, up by 30.26% from the year prior – and equivalent to an indicator rank of 46.



7.2.2 National feature films/mn pop. 15-69

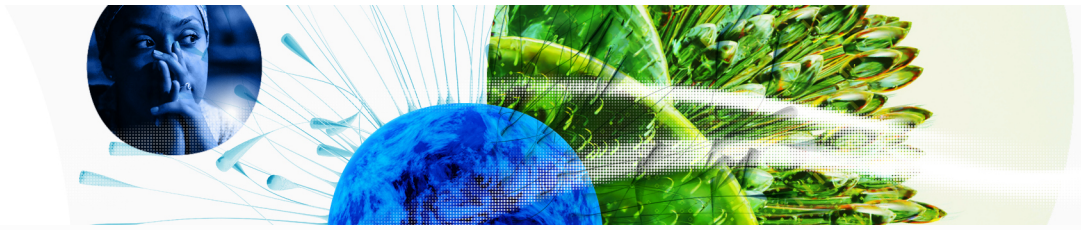
was equal to 4.43 films/mn pop. 15-69 in 2021, up by 33.43% from the year prior – and equivalent to an indicator rank of 26.

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7.3.4 Mobile app creation/bn PPP\$ GDP

was equal to 394,691.27 Apps/bn PPP\$ GDP in 2022, down by 13.18% from the year prior – and equivalent to an indicator rank of 45.



→ Portugal's innovation top performers

> 2.3.3 Global corporate R&D investors from Portugal

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
1399	ENERGIAS DE PORTUGAL	Electricity	103	-7	1
1747	BIAL	Pharmaceuticals & Biotechnology	78	67	25

Source: European Commission's Joint Research Centre (<https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard>).
 Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

> 2.3.4 QS university ranking of Portugal's top universities

Rank	University	Score
274	UNIVERSITY OF PORTO	37.10
335	UNIVERSITY OF LISBON	31.90
369	UNIVERSIDADE NOVA DE LISBOA	29.90

Source: QS Quacquarelli Symonds Ltd (<https://www.topuniversities.com/university-rankings/world-university-rankings/2023>).
 Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 7.1.1 Top 15 intangible-asset intensive companies in Portugal

Rank	Firm	Intensity, %
1	EDP - ENERGIAS DE PORTUGAL SA	37.00
2	JERONIMO MARTINS SGPS SA	76.03
3	GALP ENERGIA SGPS SA	50.24

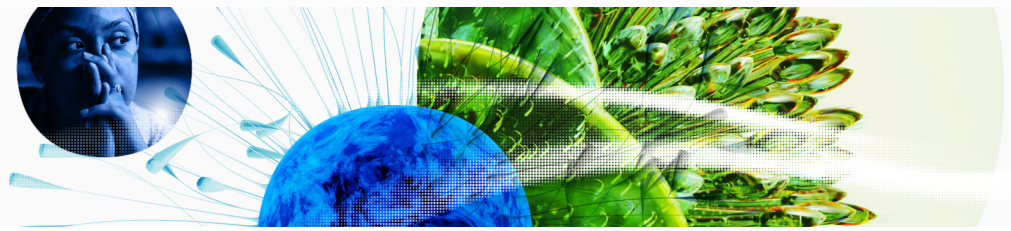
Source: Brand Finance (<https://brandirectory.com/reports/gift-2022>).
 Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Portugal with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	EDP	Utilities	2,508.7
2	GALP ENERGIA	Oil & Gas	2,043.1
3	PINGO DOCE	Retail	1,224.8

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

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GII 2023 rank

30

Portugal

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$
29	31	High	EUR	10.3	432.1	42,066.5
Score / Value Rank				Score / Value Rank		
Institutions 64.3 35				Business sophistication 39.8 34		
1.1 Institutional environment 69.6 25				5.1 Knowledge workers 49.8 30		
1.1.1 Operational stability for businesses* 75.0 17 ●◆				5.1.1 Knowledge-intensive employment, % 41.9 26		
1.1.2 Government effectiveness* 64.1 32				5.1.2 Firms offering formal training, % 29.0 59 ○		
1.2 Regulatory environment 74.6 35				5.1.3 GERD performed by business, % GDP 1.0 22		
1.2.1 Regulatory quality* 61.2 41				5.1.4 GERD financed by business, % 52.2 24		
1.2.2 Rule of law* 72.9 23				5.1.5 Females employed w/advanced degrees, % 21.2 29		
1.2.3 Cost of redundancy dismissal 17.0 69 ○				5.2 Innovation linkages 29.7 40		
1.3 Business environment 48.6 59 ○				5.2.1 University-industry R&D collaboration+ 61.0 34		
1.3.1 Policies for doing business* 45.4 72 ○				5.2.2 State of cluster development+ 46.7 52		
1.3.2 Entrepreneurship policies and culture* ● 51.8 32				5.2.3 GERD financed by abroad, % GDP 0.1 35		
Human capital and research 49.5 23				5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP 0.0 45		
2.1 Education 63.7 17 ●◆				5.2.5 Patent families/bn PPP\$ GDP 0.6 30		
2.1.1 Expenditure on education, % GDP ● 4.6 50				5.3 Knowledge absorption 39.8 46		
2.1.2 Government funding/pupil, secondary, % GDP/cap 28.5 11 ●◆				5.3.1 Intellectual property payments, % total trade 0.9 40		
2.1.3 School life expectancy, years 17.0 19				5.3.2 High-tech imports, % total trade 9.1 51		
2.1.4 PISA scales in reading, maths and science 492.0 26				5.3.3 ICT services imports, % total trade 1.7 48		
2.1.5 Pupil-teacher ratio, secondary 8.5 18 ●◆				5.3.4 FDI net inflows, % GDP 3.0 46		
2.2 Tertiary education 43.4 25				5.3.5 Research talent, % in businesses 44.0 32		
2.2.1 Tertiary enrolment, % gross 70.4 37				Knowledge and technology outputs 34.4 32		
2.2.2 Graduates in science and engineering, % 27.8 30				6.1 Knowledge creation 31.9 30		
2.2.3 Tertiary inbound mobility, % 11.6 22				6.1.1 Patents by origin/bn PPP\$ GDP 2.6 27		
2.3 Research and development (R&D) 41.5 26				6.1.2 PCT patents by origin/bn PPP\$ GDP 0.5 32		
2.3.1 Researchers, FTE/mn pop. 5,473.3 15 ●◆				6.1.3 Utility models by origin/bn PPP\$ GDP 0.2 48 ○		
2.3.2 Gross expenditure on R&D, % GDP 1.7 23				6.1.4 Scientific and technical articles/bn PPP\$ GDP n/a n/a		
2.3.3 Global corporate R&D investors, top 3, mn US\$ 45.7 37				6.1.5 Citable documents H-index 33.9 30		
2.3.4 QS university ranking, top 3* 33.4 38				6.2 Knowledge impact 37.9 35		
Infrastructure 50.8 45				6.2.1 Labor productivity growth, % 0.8 73 ○		
3.1 Information and communication technologies (ICTs) 80.9 37				6.2.2 Unicorn valuation, % GDP 0.0 48 ○◇		
3.1.1 ICT access* 88.6 30				6.2.3 Software spending, % GDP 0.7 6 ●◆		
3.1.2 ICT use* 85.4 39				6.2.4 High-tech manufacturing, % 29.4 41		
3.1.3 Government's online service* 77.4 40				6.3 Knowledge diffusion 33.5 45		
3.1.4 E-participation* 72.1 32				6.3.1 Intellectual property receipts, % total trade 0.1 47		
3.2 General infrastructure 32.6 47				6.3.2 Production and export complexity 68.4 34		
3.2.1 Electricity output, GWh/mn pop. 4,771.7 47				6.3.3 High-tech exports, % total trade 3.3 44		
3.2.2 Logistics performance* 59.1 37				6.3.4 ICT services exports, % total trade 3.6 32		
3.2.3 Gross capital formation, % GDP 20.6 95 ○				6.3.5 ISO 9001 quality/bn PPP\$ GDP 11.1 24		
3.3 Ecological sustainability 39.0 34				Creative outputs 46.0 19 ●◆		
3.3.1 GDP/unit of energy use 16.6 18 ●◆				7.1 Intangible assets 55.2 16 ●◆		
3.3.2 Environmental performance* 53.4 41				7.1.1 Intangible asset intensity, top 15, % 67.9 22		
3.3.3 ISO 14001 environment/bn PPP\$ GDP 2.8 32				7.1.2 Trademarks by origin/bn PPP\$ GDP 97.8 14 ●◆		
Market sophistication 43.4 42				7.1.3 Global brand value, top 5,000 4.9 33		
4.1 Credit 52.6 25				7.1.4 Industrial designs by origin/bn PPP\$ GDP 4.9 22		
4.1.1 Finance for startups and scaleups+ ● 67.5 20				7.2 Creative goods and services 23.1 45		
4.1.2 Domestic credit to private sector, % GDP 101.0 29				7.2.1 Cultural and creative services exports, % total trade 0.6 46 ○		
4.1.3 Loans from microfinance institutions, % GDP n/a n/a				7.2.2 National feature films/mn pop. 15-69 4.4 26		
4.2 Investment 11.0 52 ○				7.2.3 Entertainment and media market/th pop. 15-69 33.1 22		
4.2.1 Market capitalization, % GDP ● 29.1 47 ○				7.2.4 Creative goods exports, % total trade 1.5 34		
4.2.2 Venture capital (VC) investors, deals/bn PPP\$ GDP 0.1 32				7.3 Online creativity 50.5 25		
4.2.3 VC recipients, deals/bn PPP\$ GDP 0.1 40				7.3.1 Generic top-level domains (TLDs)/th pop. 15-69 22.5 29		
4.2.4 VC received, value, % GDP 0.0 53 ○				7.3.2 Country-code TLDs/th pop. 15-69 66.9 11 ●◆		
4.3 Trade, diversification, and market scale 66.5 26				7.3.3 GitHub commits/mn pop. 15-69 41.0 25		
4.3.1 Applied tariff rate, weighted avg., % 1.5 20				7.3.4 Mobile app creation/bn PPP\$ GDP 71.4 45		
4.3.2 Domestic industry diversification 100.0 1 ●◆						
4.3.3 Domestic market scale, bn PPP\$ 432.1 49						

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 Portugal.



> Portugal has missing data for one indicator and outdated data for four indicators.

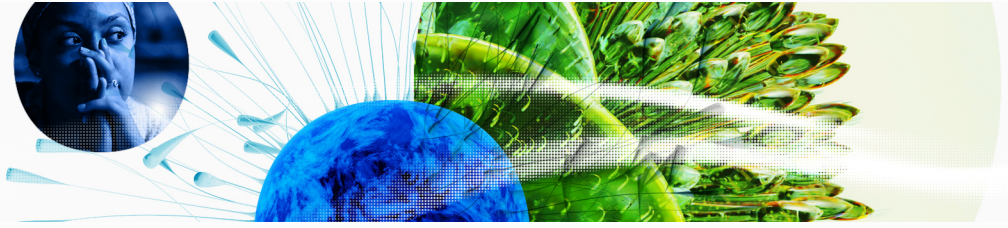
> Missing data for Portugal

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)

> Outdated data for Portugal

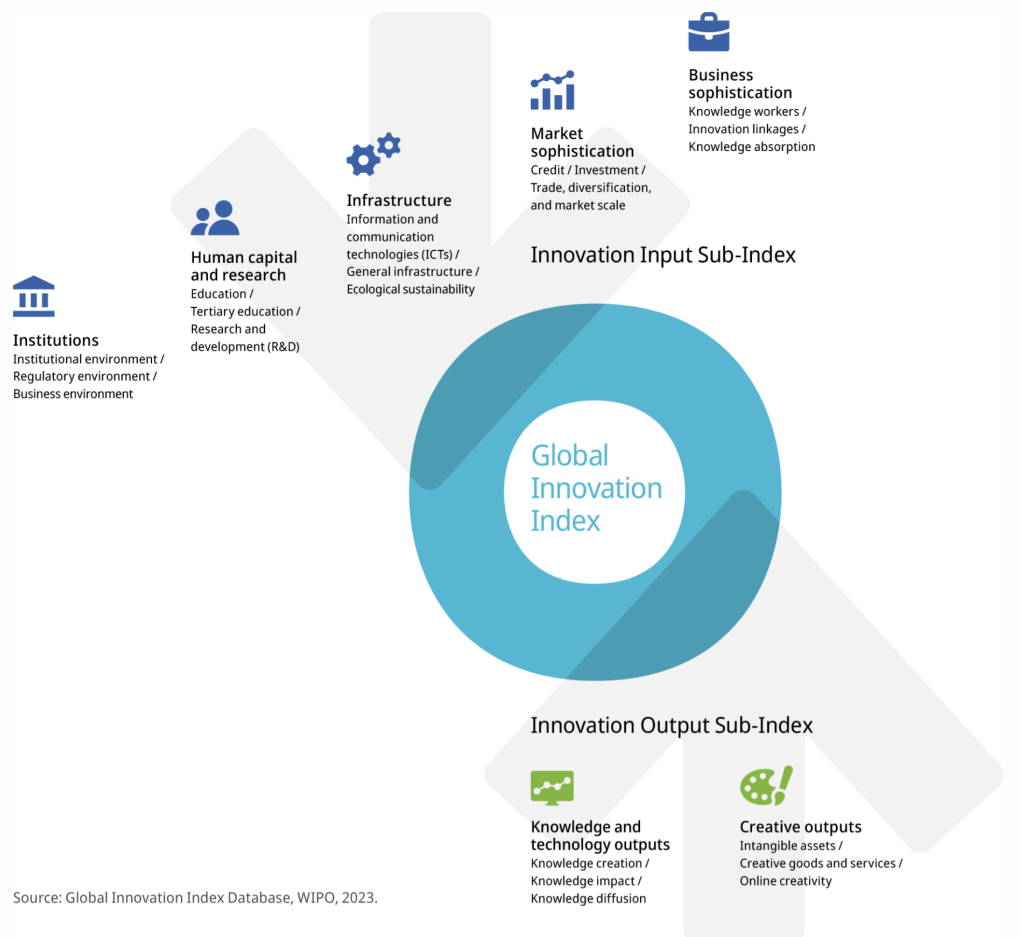
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2019	2022	Global Entrepreneurship Monitor
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2019	2022	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	2018	2020	World Federation of Exchanges; World Bank

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.



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.