



European Innovation Scoreboard **2024** Country Profile **Spain**

European Innovation Scoreboard 2024 – Country profile Spain

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SPAIN

Moderate Innovator ●

Summary innovation index (relative to EU in 2017): **98.9**

Rank: **18**

Change vs 2023: ▲ 2 Change vs 2017: ▲ 9.4

Spain is a Moderate Innovator with performance at 89.9% of the EU average in 2024. Performance is above the average of the Moderate Innovators (84.8%). Performance is increasing less than the EU (+10%).

Indicator	Performance relative to the EU in 2024	Performance change 2017-2024	Performance change 2023-2024
SUMMARY INNOVATION INDEX	89.9	9.4	2.0
Human resources	124.3	1.1	5.1
New doctorate graduates	100.0	-23.2	0.0
Population with tertiary education	148.4	21.0	10.8
Population involved in lifelong learning	125.4	15.3	6.1
Attractive research systems	90.2	11.9	0.2
International scientific co-publications	93.5	34.2	2.1
Scientific publications among the top 10% most cited	89.8	-5.2	-2.1
Foreign doctorate students as a % of all doctorate students	88.3	29.3	4.3
Digitalisation	144.9	29.7	6.9
Broadband penetration	142.2	56.7	11.4
Individuals with above basic overall digital skills	148.7	2.6	2.6
Finance and support	103.9	28.8	2.0
R&D expenditure in the public sector	82.0	8.2	0.0
Venture capital expenditures	114.9	47.1	-0.5
Direct and indirect government support of business R&D	116.4	37.1	7.2
Firm investments	61.8	12.3	-2.7
R&D expenditure in the business sector	53.5	12.8	1.5
Non-R&D innovation expenditures	82.2	17.8	-2.5
Innovation expenditures per person employed	52.0	5.7	-7.7
Use of information technologies	89.3	1.9	3.5
Enterprises providing ICT training	90.3	-6.4	3.8
Employed ICT specialists	88.2	9.7	3.3
Innovators	53.6	13.7	-1.5
SMEs introducing product innovations	58.0	37.0	-3.7
SMEs introducing business process innovations	49.9	-8.3	0.5
Linkages	92.8	44.9	-4.4
Innovative SMEs collaborating with others	69.7	31.0	20.6
Public-private co-publications	116.4	40.1	-3.2
Job-to-job mobility of HRST	102.1	58.8	-26.5
Intellectual assets	81.3	-3.5	0.2
PCT patent applications	68.7	-0.6	4.7
Trademark applications	110.3	1.9	-5.1
Design applications	69.2	-11.8	-1.5
Employment impacts	61.3	-2.6	6.3
Employment in knowledge-intensive activities	80.9	6.0	2.4
Employment in innovative enterprises	44.6	-10.4	9.7
Sales impacts	79.0	12.6	6.9
Exports of medium and high technology products	66.5	-5.5	4.1
Knowledge-intensive services exports	33.5	8.5	-18.3
Sales of new-to-market and new-to-firm innovations	170.5	47.0	45.6
Environmental sustainability	96.8	-15.8	-0.2
Resource productivity	136.9	3.0	11.2
Air emissions by fine particulates	86.3	-7.4	2.9
Environment-related technologies	74.5	-43.3	-14.0

Relative strengths

- Sales of new-to-market and new-to-firm innovations
- Individuals with above basic overall digital skills
- Population with tertiary education

Relative weaknesses

- Knowledge-intensive services exports
- Employment in innovative enterprises
- SMEs introducing business process innovations

Strong increases since 2017

- Job-to-job mobility of HRST
- Broadband penetration
- Venture capital expenditures

Strong decreases since 2017

- Environment-related technologies
- New doctorate graduates
- Design applications

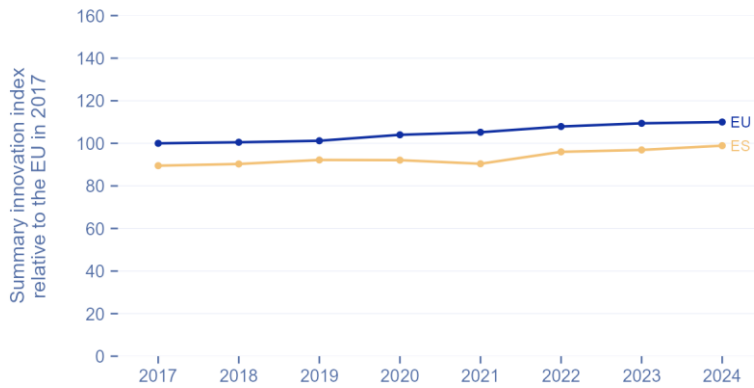
Strong increases since 2023

- Sales of new-to-market and new-to-firm innovations
- Innovative SMEs collaborating with others
- Broadband penetration

Strong decreases since 2023

- Job-to-job mobility of HRST
- Knowledge-intensive services exports
- Environment-related technologies

Footnote: The first data column shows scores relative to the EU in 2024, with colour codes indicating performance levels. The subsequent columns show performance changes over time, with scores relative to the EU in 2017, coloured in purple for positive change and red for negative change. As reference years differ between the first column (2024) and the last two columns (2017), scores cannot be directly compared or subtracted across these columns.



Summary innovation index

The line chart shows the evolution of the innovation performance of Spain over time, relative to the performance of the EU in 2017.

Footnote: All performance scores (SII and dimensions below) are relative to that of the EU in 2017.

Framework conditions

Since 2017, Spain has mostly made progress in its framework conditions, performing better than the EU average in human resources (124.3% of the EU average in 2024) and as an innovation leader in digitalisation (144.9% of the EU average in 2024). Although the number of new doctorate graduates in STEM has decreased (-23.2%-points), there has been an increase in the population with tertiary education and participation in lifelong learning, both performing significantly above the EU average (148.4% and 125.4% of the EU average respectively). The attractiveness of Spain towards students from abroad also strongly increased, with a 29.3%-point gain in foreign doctorate students.

Digitalisation has advanced significantly, especially in broadband penetration (+56.7%-points), supported by initiatives such as the Digital Spain Agenda 2025, which aims to enhance digital infrastructure and skills nationwide. Spain also performs well in individuals with above basic digital skills, with 148.7% of the EU average. Spain has improved its international scientific research collaboration through co-publications (+34.2%-points); however, there has been a slight decline in the citation impact of its publications (-5.2%-points).

Human resources



Attractive research systems



Digitalisation



Investments

The financial support for research and development (R&D) in Spain has grown significantly since 2017. There has been an increase in public sector R&D expenditure (+8.2%-points), showing growing government commitment to R&D. Nevertheless, R&D expenditure in the public sector stands at 0.6% of GDP. Direct and indirect government support for business R&D has seen substantial growth (+37.1%-points) since 2017, and stands at 116.4% of the EU average in 2024.

Spain exceeds the EU average in 2024 in venture capital spending, at 114.9% of the EU average. While firm investments in R&D have moderately increased, there are still challenges, with particularly low R&D expenditure in the business sector (53.5% of the EU average in 2024) and innovation expenditures per person employed (52.0% of the EU average in 2024).

Efforts to enhance digital skills within the workforce are evident, especially with initiatives like the National Digital Competencies Plan. The number of employed ICT professionals stands significantly above the EU average (148.7%), and digitalisation efforts are also visible through the increasing broadband penetration which has increased by 56.7%-points between 2017 and 2024.

Finance and support



Firm investments



Use of information technologies



Innovation activities

Since 2017, Spain's innovation landscape has shown mixed metrics even with the EECTI 2021-2027 as the Spanish strategy driving science, technology, and innovation. It is split into two state plans: the 2021-2023 State Plan and the 2024-2027 State Plan. The number of innovators has grown (+13.7%-points), particularly driven by the increasing share of SMEs introducing product innovations (+37.0%-points between 2017 and 2024). However, innovators are only 53.6% of the EU average in 2024.

In linkages, notable growth has been seen and is now 92.8% of the EU average of 2024, with innovative SMEs collaborating with others (+31%-points) and in public-private co-publications (+40.1%-points) expanding largely, while job-to-job mobility increasing the most at 58.8%-points. These improvements are supported by initiatives such as the Digitalisation of SMEs Plan 2021-2025. Despite these advancements, maintaining consistency in intellectual assets such as patent and trademark applications has proven challenging. While trademark applications are above the EU average (110.3%), design applications have faced a decline (-11.8%-points) and PCT patent applications remained stable below the EU average (68.7% of the EU average).

Innovators



Linkages



Intellectual assets



Impacts

Spain's economic landscape has undergone significant shifts from 2017 to 2024. Employment in knowledge-intensive activities has experienced an increase, however, employment in innovative enterprises has seen a notable decline and is now 44.6% of the EU average in 2024. Sales impacts have increased since 2017 (+12.6%-points), despite the slight decline of exports of medium and high technology products, and the low performance of knowledge-intensive services exports (33.5% of the EU average). This is in spite of the implementation of key initiatives such as the "Plan de Impulso de la Industria Conectada 4.0" (Plan to Boost Industry 4.0), which aims to enhance digital transformation in manufacturing. However, sales of new-to-market and new-to-firm innovations have grown substantially (+47%-points) and is now 170.5% of the EU average in 2024.

Environmental sustainability effort is buoyed by Spain's very high resource productivity (136.9% of the EU average in 2024). However, there has been a significant decline in the generation of patents based on environmentally related technologies (-43.3%-points), leading to a below-EU-average performance (74.5%).

Employment impacts**Sales impacts****Environmental sustainability****Structural differences****Performance and structure of the economy**

The country's GDP per capita is slightly below the EU average, but its average annual growth is double that of the EU. The majority of Spain's workforce is employed in the services sector (44.9%), with 23.7% working in knowledge-intensive services. Employment in the manufacturing sector and high/medium high-tech industries is lower than the EU average. Spain's small and medium-sized enterprises (SMEs) contribute a larger share of turnover compared to the EU average, but large enterprises in Spain generate less turnover than the EU average. Additionally, the value added from foreign-controlled enterprises in Spain is also below the EU average.

Business and entrepreneurship

Spain exhibits a higher rate of enterprise births (1.2% of total enterprises) compared to the EU average (0.8%), along with a particularly high Foreign Direct Investment (FDI) net inflow (3.5% of GDP). However, Spain falls below the EU average in terms of entrepreneurial activity, buyer sophistication and share of enterprises among the top R&D spenders globally.

Innovation profiles

Spain's innovation profile highlights untapped potential in the innovation, with 41.5% of firms non-innovators with potential to innovate. Spain has fewer in-house product innovators with market novelties compared to the EU average. Spain also maintains a higher percentage of innovators that do not develop innovations themselves, pointing to collaborative innovation models and technology transfer initiatives. The country benefits from a diverse ecosystem of public institutes like the Spanish National Research Council (CSIC) and technology centres that facilitate industry-academic partnerships and technology commercialisation.

Governance and policy framework

Spain is a parliamentary monarchy where the rule of law is slightly below the EU average, and a Corruption Perception Index of 60.3/100. Innovative procurement represents 8.0% of total public procurement, while advanced technology procurement is 3.2%, just below the EU average. Basic-school entrepreneurial education and training is slightly above the EU average.

Climate change

Spain lags behind the EU in terms of climate change performance. The country performs below the EU average for circular material use and its eco-innovation index. However, it does have a lower greenhouse gas emission intensity for energy consumption. Despite these challenges, recent initiatives such as the "Plan Nacional Integrado de Energía y Clima" (Integrated National Energy and Climate Plan) and the "Estrategia de Economía Circular" (Circular Economy Strategy) demonstrate Spain's ambition to reverse these trends.

Demography

Spain is one of the most populous countries in the European Union with 47.6 million inhabitants, and a population density of 94.5 inhabitants per km². Its diverse geographic landscape accommodates approximately 10% of the EU's population, and this share is expected to grow at a rate higher (0.7%) than that of the EU.

Structural indicators

The table below presents some structural differences between Spain and the EU.

	ES	EU
Performance and structure of the economy		
GDP per capita	85.7	100
Average annual GDP growth (2021-2023 average)	4.1	1.9
Employment share Manufacturing	12.2	15.8
Employment share High and Medium high-tech	32.6	37.9
Employment share Services	44.9	39.8
Employment share Knowledge-intensive services	23.7	28.6
Turnover share SMEs	14	12.6
Turnover share large enterprises	43.9	49.6
Foreign-controlled enterprises – share of value added	11.7	13.3
Business and entrepreneurship		
Enterprise births	1.2	0.8
Total Entrepreneurial Activity	6.1	6.8
FDI net inflows	3.5	1.9
Top R&D spending enterprises	2.7	8.4
Buyer sophistication	3.3	3.6
Innovation profiles		
In-house product innovators with market novelties	7.2	11.7
In-house product innovators without market novelties	8.9	13.7
In-house business process innovators	8.4	17.6
Innovators that do not develop innovations themselves	5.9	6.1
Innovation active non-innovators	3	4.2
Non-innovators with potential to innovate	41.5	17.8
Non-innovators without disposition to innovate	25.1	30.6
Governance and policy frameworks		
Corruption Perceptions Index	60.3	64
Basic-school entrepreneurial education and training	2.8	2.6
Government procurement of advanced technology products	3.2	3.4
Rule of law	0.8	1
Innovation procurement as a share of total public procurement	8	9.2
Climate change		
Circular material use rate	7.7	11.5
Greenhouse gas emissions intensity of energy consumption	79.7	82.8
Eco-Innovation Index	116.4	121.5
Demography		

	ES	EU
Population size (in millions)	47.6	447
Average annual population growth (2021-2023 average)	0.7	0.3
Population density	94.3	109

References

The country's relative strengths and weaknesses for each indicator, compared to other EU Member States and neighbouring countries, can be found in [Annex B](#).

Spanish Government, "Digitalisation of SMEs Plan 2021-2025", Accessed 2nd July 2024, https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/210127_plan_digitalizacion_pymes.pdf

Spanish Government, "EECTI 2021-2023", Accessed 2nd July 2024, [https://www.ciencia.gob.es/en/Estrategias-y-Planes/Planes-y-programas/PEICTI.html#:~:text=State%20Plan%20of%20scientific%20and,and%20Innovation%20Strategy%20\(EECTI\)](https://www.ciencia.gob.es/en/Estrategias-y-Planes/Planes-y-programas/PEICTI.html#:~:text=State%20Plan%20of%20scientific%20and,and%20Innovation%20Strategy%20(EECTI))).

Spanish Government, "EECTI 2024-2027", Accessed 2nd July 2024, [https://www.ciencia.gob.es/en/Estrategias-y-Planes/Planes-y-programas/PEICTI.html#:~:text=State%20Plan%20of%20scientific%20and,and%20Innovation%20Strategy%20\(EECTI\)](https://www.ciencia.gob.es/en/Estrategias-y-Planes/Planes-y-programas/PEICTI.html#:~:text=State%20Plan%20of%20scientific%20and,and%20Innovation%20Strategy%20(EECTI))).

Spanish Government, "Estrategia de Economía Circular", Accessed 2nd July 2024, <https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/economia-circular/estrategia.html>

Spanish Government, "National Digital Competencies Plan", Accessed 2nd July 2024, https://portal.mineco.gob.es/RecursosNoticia/mineco/prensa/noticias/2021/210127_np_digital.pdf

Spanish Government, "Plan de Impulso de la Industria Conectada 4.0", Accessed 2nd July 2024, <https://www.industriaconectada40.gob.es/Paginas/index.aspx>

Spanish Government, "Plan Nacional Integrado de Energía y Clima", Accessed 2nd July 2024, <https://www.miteco.gob.es/es/prensa/pniec.html>

Spanish Government, "The Digital Spain Agenda 2025", Accessed 2nd July 2024, https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/210127_plan_digitalizacion_administraciones_publicas.pdf

This report provides the Country profile from the 2024 European Innovation Scoreboard for Spain

Studies and reports

