



European
Commission

ERA Country Report 2024

Spain

Independent
Expert
Report

Research and
Innovation

ERA Country Report 2024: Spain

European Commission
Directorate-General for Research and Innovation
Directorate A — ERA & Innovation
Unit A2 — ERA, Spreading Excellence and Research Careers
Contact Magda De Carli, Head of Unit A.2
Heiko Prange-Gstoehl
Email RTD-ERA-FORUM@ec.europa.eu
RTD-PUBLICATIONS@ec.europa.eu
European Commission
B-1049 Brussels

Manuscript completed in June 2025

The European Commission shall not be liable for any consequence stemming from the reuse.

© European Union, 2025



The reuse policy of European Commission documents is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Unless otherwise noted, the reuse of this document is authorised under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated.

For any use or reproduction of elements that are not owned by the European Union, permission may need to be sought directly from the respective rightholders. The European Union does not own the copyright in relation to the following elements:

Image credits for cover page and throughout: © skypicsstudio # 286372753, © MicroOne # 288703015, © creativeteam # 323412491, © Viktoriia # 345410470, © Yurii # 372950117, 2022. Source: Stock.Adobe.com.

ERA Country Report 2024

Spain

This report was prepared by

Susana Elena-Pérez and Lyudmyla Tautiyeva, EFIS Centre

as part of the project 'Implementation of the ERA Monitoring Mechanism' for the European Commission, Directorate-General for Research and Innovation (RTD/2023/OP/0017)

Table of contents

Key takeaways	3
1. National context	4
2. Status of the Implementation of the ERA Policy Agenda	5
ERA Priority 1: Deepening a truly functioning internal market for knowledge	5
ERA Priority 2: Taking up together the green transition and digital transformation and other challenges with impact on society and increasing society's participation in the ERA	8
ERA Priority 3: Enhancing access to research and innovation excellence across the Union and enhancing interconnections between innovation ecosystems across the Union	9
ERA Priority 4: Advancing concerted research and innovation investments and reforms	10
3. Contribution of ERA Actions to national performance in reaching ERA objectives	10
4. Effects of ERA Action implementation on the national R&I system ...	20
5. Conclusion.....	20
6. References.....	22
Annex 1 – Full List of ERA Dashboard Indicators	24

Key takeaways

- Spain has actively integrated European Research Area (ERA) actions into its national strategies, demonstrated through the Spanish National Recovery and Resilience Plan (RRP) and the Spanish Strategy for Science, Technology, and Innovation (EECTI) 2021-2027. These serve as the core of Spain's research agenda.
- Spain has made significant strides in open science and research infrastructure, with substantial investment in the European Open Science Cloud (EOSC). However, challenges persist in increasing the number of repositories and achieving gender equity in leadership and science, technology, engineering and mathematics (STEM) fields.
- In the field of the green and digital transition Spain shows strong performance on environmental and digital R&D initiatives, supported by major investments, such as EUR 62 million for AI and digitalisation. Despite recent policy attention, collaboration between higher education institutions, research organisations, and businesses needs improvement.
- As for research management and monitoring, Spain has shown strong participation in Horizon Europe and effective use of mechanisms like the Seal of Excellence. The establishment of monitoring committees under EECTI and PEICTI underscores the country's focus on evaluating and coordinating R&D&I policies.
- Overall, Spain's structured and comprehensive approach to integrating ERA Actions demonstrates its alignment with European research priorities.

1. National context

Spain is among the largest EU Member States and categorised as a *Moderate Innovator* in the 2024 European Innovation Scoreboard (EIS)¹ with a performance at 98.9 percent of the average of the EU in 2024. In terms of expenditure on research, Spain continues to lag the EU average regarding gross expenditure on R&D (GERD), government budgetary appropriations for R&D (GBARD) and business expenditure on R&D (BERD) (Table 1).

The percentage of female researchers has increased, and they now represent around 41 percent of the research personnel in Spain, above the EU average. As for the presence of women in decision-making positions, the share of women university rectors increased by three points and now accounts for 25 percent. 50 percent of public research organisations have women as directors or presidents².

Table 1 Structural Key Indicators

Indicator	EU27	Spain		
	2023	2023	Average 2018-2020	Average 2021-2023
GDP in current prices, euro per capita	35 790.00	28 750.00	25 910.00	26 230.00
Gross Domestic Expenditure on R&D (GERD) as a share of GDP	2.27	1.44	1.30	1.43
Government Budget Allocations for R&D (GBARD) as share of GDP	0.73	0.60	0.55	0.60
Business Enterprise expenditure on R&D (BERD) as a share of GDP	1.52	0.81	0.73	0.80
Expenditure on R&D procurement as a percentage of GDP	0.06	0.07	/	0.07
Size of the population (million)	448.80	48.09	46.96	47.66
Researchers (in FTE) per million inhabitants	4 681.34	3 406.23	3 048.25	3 354.66
Share of female researchers, all sectors of performance (%)	33.71	/	41.19	/

Source: Annex 1

The Spanish strategy towards the implementation of the ERA actions involves various policy initiatives and ministries. The **Spanish National Recovery Plan and Resilience Plan (RRP)**³ and the **Spanish Science, Technology and Innovation Strategy (EECTI)**⁴ are the most important and comprehensive initiatives for the 2021-2027 period. For the first time, the reform of the Science Law, approved on 5 September 2022, included stable and growing public R&D and innovation funding that helps to converge to the EU average through the RRP. The Spanish government has set the goal to increase public investment on R&D to reach 1.25 percent of GDP by 2030.⁵

¹ See <https://projects.research-and-innovation.ec.europa.eu/en/statistics/performance-indicators/european-innovation-scoreboard/eis-2024#/eis/countries/ES>

² <https://www.ciencia.gob.es/InfoGeneralPortal/documento/f4f6bb28-cae5-4da2-85f4-067508c410eb>

³ To facilitate the deployment of investments, the Plan is based on four transversal axes: Ecological transition; Digital transformation; Territorial and social cohesion; and Gender equality. For more information see: <https://www.fondoseuropeos.hacienda.gob.es/sitios/dgpmrr/en-gb/paginas/plan.aspx>

⁴ <https://www.ciencia.gob.es/en/Estrategias-y-Planes/Estrategias.html>

⁵ For further analysis see the European Semester report at Commission Staff Working Document. 2024 Country Report – Spain. Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on the economic, social, employment, structural and budgetary policies of Spain {COM(2024) 609 final}.

The EECTI 2021-2027 is divided into two state plans: the State Plan 2021-2023, and the **State Plan for Scientific and Technical Research and Innovation (PEICTI) 2024-2027⁶**, currently being implemented. The latter is the main instrument of the administration for the development and achievement of the objectives of the EECTI. It was approved by the Council of Ministers on 7 May 2024 and allocates EUR 18.4 billion to promote science and knowledge through grants for projects in both public and private sectors.

2. Status of the Implementation of the ERA Policy Agenda

Chapter 2 briefly summarises **new developments in Spain since the publication of the 2023 ERA Country Report**, based on the commitments to ERA Actions (Table 2). Spain has committed to all ERA Actions, covering the four priority areas. The findings are based on qualitative desk research and interviews.

Table 2 Commitment to ERA Actions

1: Deepening a truly functioning internal market for knowledge								
1. Enable Open Science, including through EOSC	2. Propose an EU copyright and data legislative framework for research	3. Reform the Assessment System for research, researchers and institutions	4. Promote attractive research careers, talent circulation and mobility	5. Promote gender equality and foster inclusiveness	6. Protect academic freedom in Europe	7. Upgrade EU guidance for a better knowledge valorisation	8. Strengthen research infrastructures	9. Promote international cooperation
2: Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA					3: Amplifying access R&I excellence across the Union		4: Advancing concerted research and innovation investments and reforms	
10. Make EU R&I missions and partnerships key contributors to the ERA	11. An ERA for green transformation	12. Accelerate the green & digital transition of Europe's key industrial ecosystems	13. Empower Higher Education Institutions	14. Bring Science closer to citizens	16. Improve EU-wide access to excellence	17. Enhance public research institutions' strategic capacity	19. Establish an ERA monitoring system	

Source: European Commission (Note: Actions 15, 18 and 20 were not implemented)

ERA Priority 1: Deepening a truly functioning internal market for knowledge

ERA Action 1) Enable the open sharing of knowledge and the re-use of research outputs, including through the development of the European Open Science Cloud (EOSC)

The Law 17/2022, concerning Science, Technology, and Innovation includes Article 37 on ‘Open Science’, that sets out the obligation for all publicly funded research to archive a machine-readable copy of research outputs in an open access institutional repository. The Organic Law 2/2023 on the University System (LOSU)⁷ 24 includes Article 12, ‘Promotion of Open Science and Citizen Science’, which strengthens the mandate of open access of all research outputs in the university open institutional repository. The State Plan for Scientific and Technical Research and Innovation (PEICTI) also commits to open science as a horizontal objective. The National Strategy for Open Science (ENCA)⁸ 2023-2027 is based on all previous commitments related to open science adopted by different agents in the system. Nine Spanish centres are members of the EOSC Association, and 17 Spanish centres are observers. Spain participates in 11 out of 13 EOSC-A Working

{SWD(2024) 600 final}. https://economy-finance.ec.europa.eu/document/download/c683835d-4b44-45b1-bde9-057d53a4b7f3_en?filename=SWD_2024_609_1_EN_Spain.pdf

⁶ <https://www.ciencia.gob.es/InfoGeneralPortal/documento/6e566243-bcb5-45d8-ab77-5cfe533060f2>

⁷ <https://www.boe.es/buscar/act.php?id=BOE-A-2023-7500>

⁸ <https://www.ciencia.gob.es/InfoGeneralPortal/documento/c30b29d7-abac-4b31-9156-809927b5ee49>

Groups⁹. The interaction of the EOSC-A with the national community is being organised through the Spanish Network for e-Science.

ERA Action 2) Propose an EU copyright and data legislative and regulatory framework fit for research

The ENCA 2023-2027 has the mission of strengthening the quality, transparency, and reproducibility of scientific activity in Spain, improving dissemination among the scientific community and knowledge transfer to society, and designing how Spain responds to the challenges faced by the Spanish scientific community in this new global paradigm. Through the ENCA, the aim is to ensure that by 2027 the funding, execution, communication, and assessment processes of scientific research in Spain incorporate the principles of open science.

ERA Action 3) Advance towards the reform of the Assessment System for research, researchers and institutions to improve their quality, performance and impact

As of December 2024, CoARA had 81 Spanish members. In July 2023, the Steering Board of CoARA¹⁰ approved the proposal for a National Chapter submitted by Crue Universidades Españolas, the National Agency for Quality Assessment and Accreditation (ANECA) and the Spanish National Research Council (CSIC). In December 2024, the Institute of Health Carlos III (ISCIII) joined the above-mentioned initiative in the coordination board. The Spanish Chapter has set out to plan objectives to be achieved for the reform by 2030, to co-design possible evaluation systems, and to test the results of this reform in pilot projects in the different recipient institutions.

ERA Action 4) Promote attractive and sustainable research careers, balanced talent circulation and international, transdisciplinary and intersectoral mobility across the ERA

The PEICTI 2024-2027 has a vertical programme (OE 1 and OE 2) on human resources in R&I which aims to enhance Spain's capacity to attract and retain talent, incorporating human resource mobility actions for both researchers and technical staff. It also includes a sub-programme aimed at recruiting and training technical and management personnel¹¹. In February 2024, FECYT published the report *Researcher Career path in Spain at a glance!* (7th edition)¹², with information about research and teaching positions in the public academic Spanish system and exploring available positions and funding opportunities at each stage of the researcher career in the country. The National University Law of 2023 (LOSU)¹³ requires the publication of job offers for teaching and research position through EURAXESS. The State Research Agency has also launched a programme to facilitate the incorporation of consolidated research talent of recognised international prestige, as well as a programme to promote the consolidation of the careers of researchers, both national and foreign.

Spain continues addressing precarity with the Open-ended Contract for Scientific and Technical Activities. Spain participates in the MLE on [research careers](#) (April 2024-June 2025), which addresses key aspects of research career attractiveness.

⁹ <https://www.e-ciencia.es/en/eosc-en/>

¹⁰ <https://www.crue.org/en/2023/07/coara-aprueba-la-propuesta-de-reforma-de-crue-aneca-y-csic-para-espana/>

¹¹ This document outlines a series of regulatory reforms, new calls for proposals, and information and communication tools launched between June 2022 and December 2023, with the goal of fostering the return, retention, and attraction of scientific and innovative talent to Spain. See full document here: <https://www.ciencia.gob.es/InfoGeneralPortal/documento/f5ca8c39-53be-40b2-a658-431c6350a93b>

¹² <https://www.fecyt.es/es/publicacion/researcher-career-path-spain-glance-7th-edition>

¹³ Ley Orgánica del Sistema Universitario 2/2023, <https://www.boe.es/buscar/act.php?id=BOE-A-2023-7500>

- ERA Action 5)** Spain has developed several actions in line ERA Action 5, notably on the prevention of gender-based violence in academia through dedicated protocols¹⁴. The PEICTI makes a commitment to gender equality in its horizontal programme (EO 17) “*Promoting Equality and Diversity*”. In April 2024, CSIC launched the new [Protocol for Prevention and Intervention against Sexual and Gender-based Harassment](#), improving procedures and tools for training, prevention, detection, reporting, sanctioning, care for victims and monitoring of cases of sexual and gender-based harassment. It incorporates stronger measures for monitoring of equality plans and harassment protocols of external companies that have an employment relationship with the institution. The Women and Science Commission in CSIC launched a guide of [Recommendations for the inclusion of gender in research contents](#), which analyses the national and European calls for proposals, the information provided to evaluators and proposes specific examples of application for projects that do not research on humans. This was a contribution to the objectives of the 3rd Equality Plan and the HRS4S strategy of the CSIC. CSIC conducted a [research study about differences and bias in scientific careers and promotions between women and men researchers](#), the results were made public in January 2024.
- ERA Action 6)** Provisions related to academic freedom are included in both Spain's Constitution and Organic Law of Universities. The 2023 Organic Law of Universities stipulates that the principle of academic freedom, which manifests as freedom to teach, research and study, is the foundation of the universities' autonomy and activities.
- ERA Action 7)** The PEICTI 2024-2027 includes a vertical programme on knowledge transfer and valorisation (EO 5 and EO 6). Moreover, a broad vision of knowledge transfer and collaboration is addressed, which is open to different collaborative models and the creation of innovation ecosystems¹⁵. As part of the Plan, Spain established a Knowledge Transfer Offices Registry (OTC), with a wider perspective on contents, competences, capacities and functions of these entities. The Strategic Plan for Knowledge Transfer and Innovation is the main instrument to strengthen public and private sector links in R&I.¹⁶ Spain participated in the Horizon Europe Policy Support Facility (PSF) [MLE on Knowledge Valorisation](#) (March 2023-April 2024), which addressed key aspects of to boost knowledge valorisation through skills, intersectoral cooperation and incentive systems. The State Research Agency maintains its calls for proofs of concept for all fields; the 2024 call highlighted projects on knowledge transfer related to microelectronics and semiconductors.
- ERA Action 8)** The EECTI recognises that financing, maintenance, updating and continuous improvement of scientific-technical infrastructures are crucial to strengthen the research and innovation ecosystem. PEICTI includes the vertical programme “develop and strengthen scientific and technical infrastructures at national and international level” (EO 12). The 85th ES-FRI Forum Meeting took place on September 2023, in Tenerife, and was hosted by the Spanish Presidency. With the appointment of a

¹⁴ <https://genderaction.eu/the-amendment-to-the-spanish-law-on-ri-reinforces-the-gender-equality-agenda/>

¹⁵ PEICTI (2024-2027)

¹⁶ <https://www.ciencia.gob.es/InfoGeneralPortal/documento/c599474a-abc3-42db-ab3d-84ffdb27f4a9>

Spanish chair in the ESFRI board, Spain has been very involved in the discussions on the future of ESFRI.

In coordination with the Autonomous Communities, the EECTI plans to update and implement the ICTS Map, which will serve as a driving force for promoting excellence. The strengthening of the ICTS constitutes one of the fundamental elements of the Strategy and will favour the regional coordination and the cohesion of the Spanish research and scientific ecosystem with the EU.

ERA Action 9) Promote a positive environment and level playing field for international cooperation based on reciprocity

The EECTI (Action Line 13) is promoting i) participation in international programs such as Horizon Europe and its joint programming initiatives; ii) international collaboration with the support of scientific diplomacy; iii) international cooperation for sustainable development; iv) participation in international scientific and technological facilities and infrastructures. The State Research Agency maintains a programme of preparation and management of European projects to strengthen the management of international projects.

The Spanish Cooperation Master Plan for Sustainable Development and Global Solidarity 2024-2027¹⁷ supports other countries in the development of their RDI policies and actions through action and cooperation mechanisms. The [first European Science Diplomacy Conference](#), organised by the European Commission and the Spanish Presidency of the Council of the EU, took place in Madrid on 18-19 December 2023.

ERA Priority 2: Taking up together the green transition and digital transformation and other challenges with impact on society and increasing society's participation in the ERA

ERA Action 10) Make EU R&I missions (10.1) and partnerships (10.2) key contributors to the ERA

Spain is focused on being climate neutral by 2050 in line with the [National Innovation Pathway](#) (October 2024). Spain participates in almost all research partnerships as well as in the Partnership Knowledge Hub. Spain is devoting financial and human resources and coordinates the ERA4Health Partnership.

ERA Action 11) An ERA for green transformation

Spain has contributed actively to all activities related to the follow-up of the IWGs and SG meetings of the SET Plan, and in particular in the elaboration of the SET Plan Report 2024, as well as in the selection of task force members coming from the IWG on Concentrated Solar Technologies, which Spain is leading. In November 2023, the 17th SET Plan Conference was organised under the patronage of the Spanish Presidency of the EU Council. Spain is part of the Temporary Working Group Hydrogen established, and it has been working actively in the definition of the "Declaration of Intent" of this group.

ERA Action 12) Accelerate the green/digital transition of Europe's key industrial ecosystem

In 2023-24, Spain has continued several strategic programmes of public-private collaboration (PERTEs) to accelerate the twin transition in areas such as Industrial Decarbonisation, which was launched in 2023 with a total investment of EUR 3.1 billion. The PERTE on Circular

¹⁷ <https://www.cooperacionespanola.es/wp-content/uploads/2024/10/Spanish-Cooperation-Master-Plan-2024-2027.pdf>

Economy, launched 2022, boosted actions in the circular economy on textile and plastics sector with a budget of EUR 195 million in 2024¹⁸. Spain has actively participated in the 2023-2024 PSF [MLE on industrial decarbonisation](#) and has contributed to the workshop and study *Stock-taking of policies and programmes to address and support TIs on national levels*.

Red.es¹⁹, a public entity attached to the Ministry for Digital Transformation and the Civil Service, closes 2024 with the execution of more than EU 1.5 billion, an increase of more than 46 percent compared to 2023. The Ministry for Digital Transformation and the Civil Service has published the first call for the Artificial Intelligence Sandbox. Barcelona Supercomputing Centre has been selected to host an EU artificial intelligence factory, beginning deployment in 2025. The Spanish Government will invest nearly EUR 62 million in the AI factory.

ERA Action 13)
Empower Higher Education Institutions to develop in line with the ERA, and in synergy with the European Education Area

The LOSU is articulated in line with the European Higher Education Area. Among the main changes introduced by the law are: making life-long learning a basic function of universities (including micro-credentials, micro-modules and other short-term qualifications); providing teaching and research staff with security and guarantees, making academic career paths clearer and more predictable; incorporating new principles for the evaluation of professors.

ERA Action 14)
Bring Science closer to citizens

Citizen involvement in R&I is a transversal element of the EECTI and a key dimension of the Spanish National Strategy for Open Science (ENCA) 2023–2027. Spain participated in the 2023-2024 PSF [MLE “Public Engagement in R&I”](#) which aimed at exchanging success stories, experiences, and challenges in fostering meaningful public participation in R&I. Within Spain, “[Ciencia en el barrio](#)” expanded the number of cities in which it operates and organised the 1st Congress of Inclusive Science with the Universidad de Alcalá in October 2023.

The new National Office of Science Advice ([Oficina Nacional de Asesoramiento Científico, ONAC](#))²⁰ aims to create institutional mechanisms to strengthen the role of scientific knowledge in government decision-making. Spain is currently participating in the [MLE on Bridging the gap between Science and Policy](#).

ERA Priority 3: Enhancing access to research and innovation excellence across the Union and enhancing interconnections between innovation ecosystems across the Union

ERA Action 16)
Improve EU-wide access to excellence

PEICTI 2024-2027 supports SMEs’ participation in Horizon Europe and other European programmes. Moreover, the State Research Agency grants *EU Excellence* grants, which support researchers with successful proposals, but without funding, in ERC calls. The institutional strengthening sub-programme (SO 4) supports developing and

¹⁸ PERTE Industrial decarbonisation (<https://planderecuperacion.gob.es/como-acceder-a-los-fondos/pertes/perte-de-descarbonizacion-industrial>) and PERTE Circular Economy. (<https://planderecuperacion.gob.es/como-acceder-a-los-fondos/pertes/perte-de-economia-circular>).

¹⁹ <https://www.red.es/en>

²⁰ The National Office for Scientific Advice (ONAC) in Spain was established on February 8, 2024, through Royal Decree 158/2024

strengthening of high-level R&I, through the recognition and competitive funding of organisations and units for research excellence, directing aid towards the search for international leadership. In addition, the Spanish R&D&I Policy Network (RED IDI) supports stakeholders in designing policies related

ERA Action 17)
Enhance the strategic capacity of Europe's public research-performing organisations

The EECTI and the PEICTI acknowledges the role of research managers. Research managers are recognised as research personnel, together with researchers and technical and support personnel. Action 17 has been a catalyst for collaboration among Spain's research management (RM) support networks. PEICTI, which has an internationalisation sub-programme, supports actions for the implementation of research projects, as well as training of R&I personnel, talent attraction and capacity building of Spanish entities, including RPOs, promoting their scientific excellence and internationalisation. Transversal networks (Red OTRI, Red Transfer, red OE) serve as knowledge exchange platforms.

PEICTI consolidates the merger of the Spanish Institute of Oceanography (IEO), the National Institute of Agricultural and Food Research (INIA) and the Geological and Mining Institute (IGME), into the CSIC. The first CSIC management contract²¹ will allow the agency to adequately plan the objectives to be met and develop the best possible management of its personal, financial and material resources.

ERA Priority 4: Advancing concerted research and innovation investments and reforms

ERA Action 19)
Establish an efficient and effective ERA monitoring mechanism

To monitor and evaluate the EECTI as well as the deployment of the State Plan two monitoring committees have been established as central governance elements: the EECTI Monitoring Committee (CS_EECTI) and the PEICTI Coordination, Monitoring and Evaluation Committee (CCSE_PEICTI). An external and independent evaluation of the PEICTI and EECTI is scheduled for the second half of 2029.

3. Contribution of ERA Actions to national performance in reaching ERA objectives

This chapter provides a qualitative assessment of how the joint ERA Actions contributed to Spain's performance in achieving the ERA objectives as defined in the Pact for R&I during the period 2022-2024.

Implementation of actions under **ERA Priority 1** is largely on track and supported by dedicated investments. For instance, Spain has a strong performance in open science (ERA Dashboard Indicators 6-9) building on Government efforts under the Organic Law 2/2023 Article 12 ("*Promotion of Open Science and Citizen Science*"), progress on PEICITI (OE 16), and ENCA implementation. In particular, the country has ramped up its investments in open science and is among a few EU countries investing over EUR 20 million in EOSC (ERA Dashboard Indicator 9). Spain has committed 1.7 percent of its public budget on R&D to European **research infrastructures** (ERA Dashboard Indicator 10), action. It is also one of

²¹ https://www.boe.es/diario_boe/txt.php?id=BOE-A-2023-16872

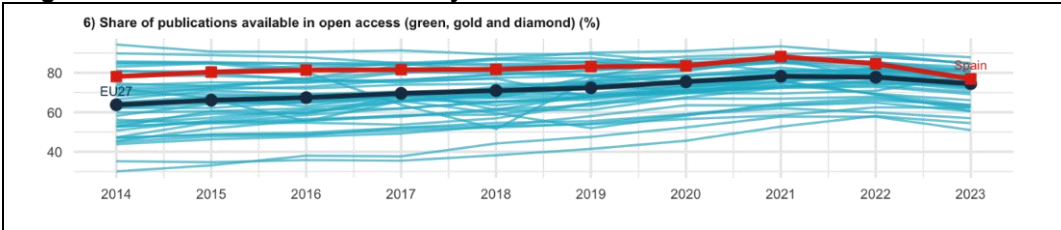
the most active countries when it comes to participation in the European RIs: in 2023, Spain participated in 39 (ERA Dashboard Indicator 11) placing it third after Italy and France.

Spain builds on an overall strong track record in **gender equality and inclusiveness in research** but lacks progress in some areas. While Spain performs above the EU average on the proportion of mixed gender teams, women authorship of the most cited publications and the share of women in STEM (ERA Dashboard Indicators 13-15), it is marked by an under-representation of women in rector positions (27 percent) and women tend to assume mostly teaching responsibilities at universities rather than funding and research responsibilities. In the area of **academic freedom**, the ERA Dashboard Indicator 27 places Spain above the EU average with the recent changes to the LOSU contributing to this result. Finally, another area where Spain performs well is the **international collaboration**, as the country is above the EU average on the share of international co-publications with non-EU partners (ERA Dashboard Indicator 30). Furthermore, recent legal reforms providing for direct aid to beneficiaries of projects that have participated in competitive international R&I is likely to further foster international research collaborations of Spanish institutions, along with the ongoing programme of the State Research Agency on management of European projects. In addition, strong international linkages are reflected in Spain's patenting activity, as in 2021, the share of patents with foreign co-inventors in Spain was double of that in the EU on average, i.e. 25 percent (ERA Dashboard Indicator 31).

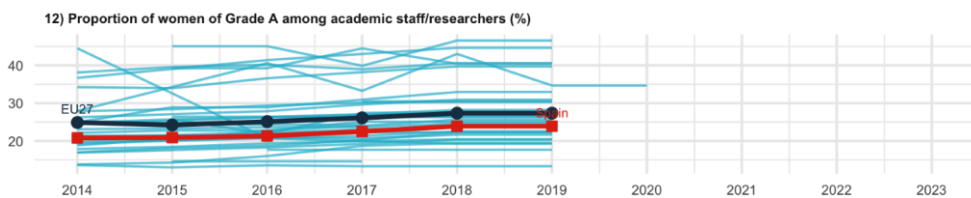
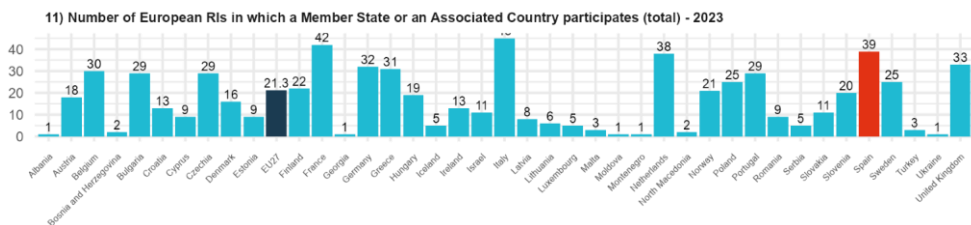
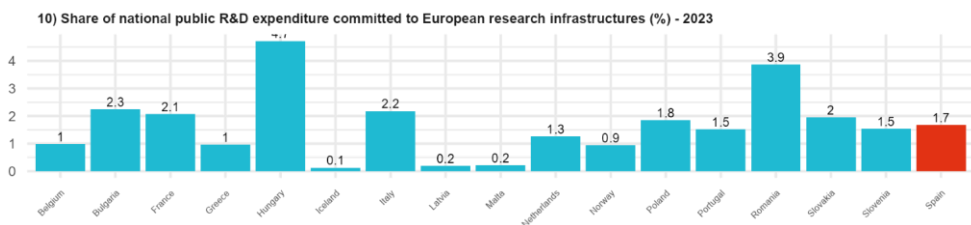
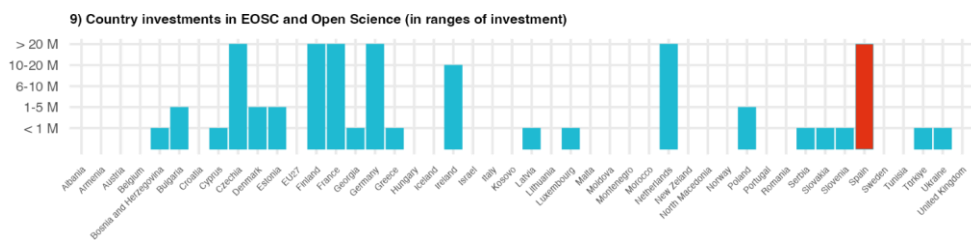
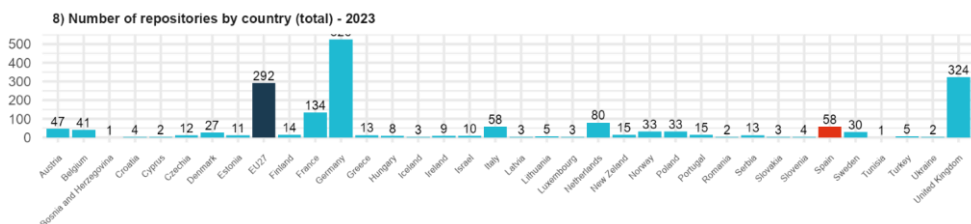
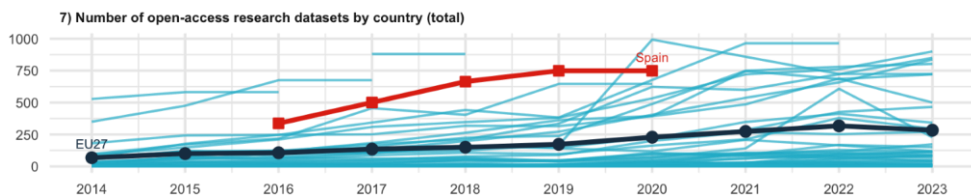
In other ERA Priority 1 areas, such as **knowledge valorisation**, Spain performs below the EU average on most ERA Dashboard Indicators (19-24). Spain faces difficulties in boosting collaboration between innovative firms and HEI/PROs (ERA Dashboard Indicator 23), while the share of business enterprise researchers remains relatively low (ERA Dashboard Indicators 23, 24) compared to the EU27. This is also due to the structural characteristics of the Spanish business sector which consists in a high volume of micro-enterprises that on average have less capacities to invest in R&D&I²². The Spanish Plan for Knowledge Transfer and Collaboration (2022) aims to strengthen links between the public and private sectors in R&I to tackle existing challenges while Spain's participation in PSF MLE on Knowledge Valorisation builds knowledge and networks with EU peers.

In addition, despite having an above average number of publications on best practices and methodologies on knowledge valorisation (ERA Dashboard Indicator 20), the share of PCT patent applications (ERA Dashboard Indicator 21) and public-private co-publications (ERA Dashboard Indicator 19) remains below the EU average. Finally, Spain's GBARD is lower than the EU average – a problem that the Government is tackling through the new Science Law which included the RRP guarantees to help reach GERD/GDP of 1.25 percent by 2030.

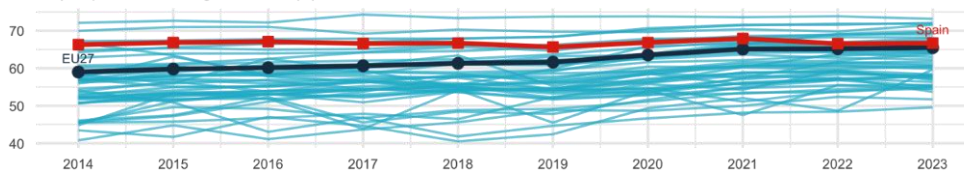
Figure 3-1 Indicators for ERA Priority 1



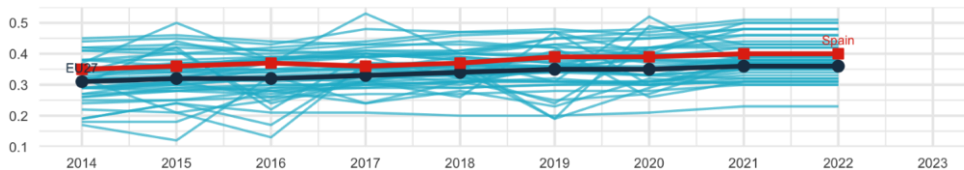
²² [Spain ERA Monitoring Report 2023](#).



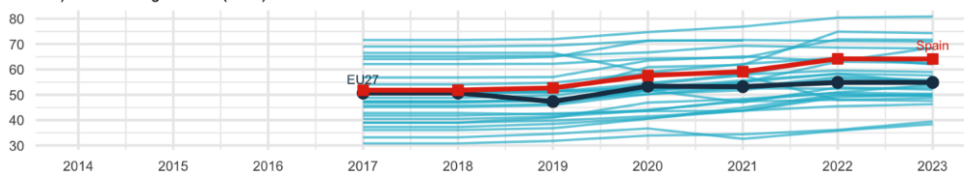
13) Proportion of mixed-gender teams (%)



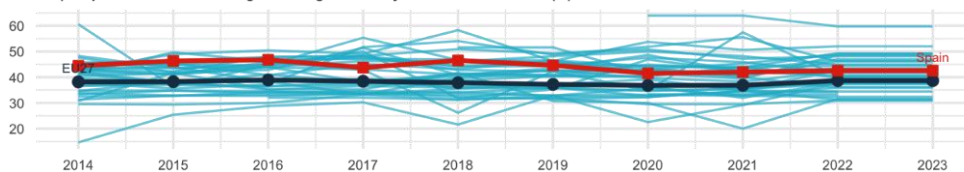
14) Proportion of women in authorships of the top 10% most cited publications (%)



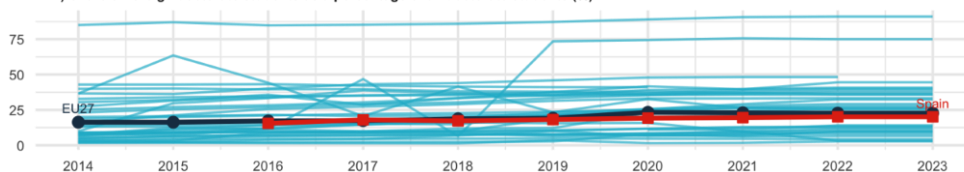
15) Women in Digital index (0-100)



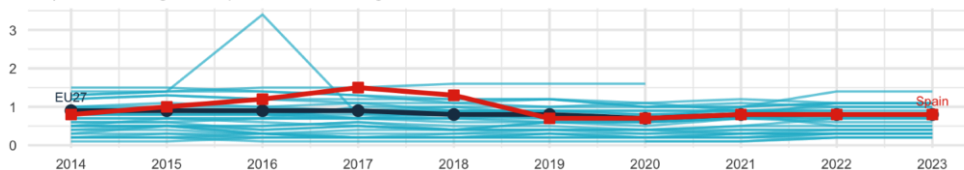
16) Proportion of women among doctoral graduates by narrow fields of STEM (%)



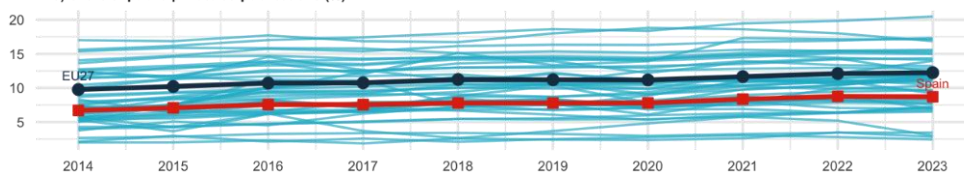
17) Share of foreign doctorate students as a percentage of all doctorate students (%)



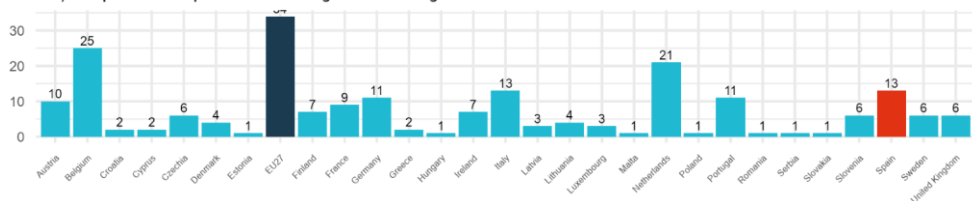
18) New doctorate graduates per 1,000 inhabitants aged 25-34



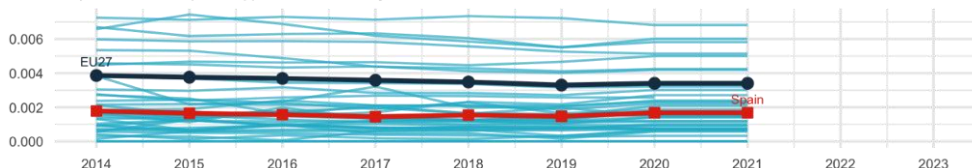
19) Share of public-private co-publications (%)



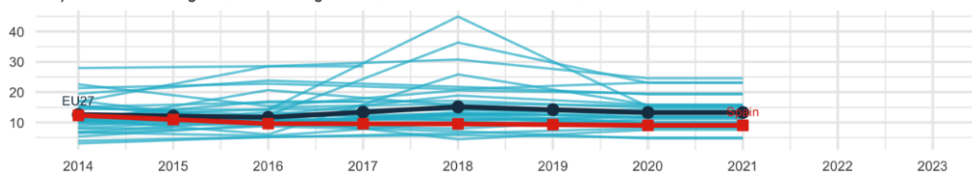
20) Best practice examples and methodologies for knowledge valorisation - 2023



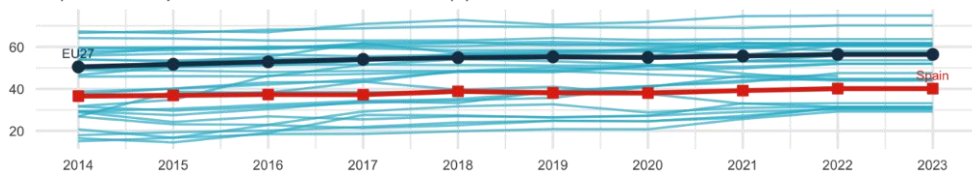
21) Number of PCT patent applications divided by GDP in million Euros/Dollars



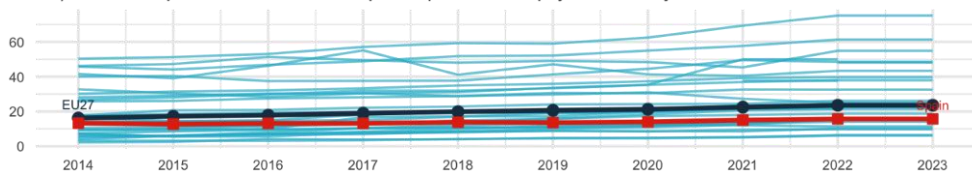
22) Share of innovating firms collaborating with HEI/PRO out of all innovative firms



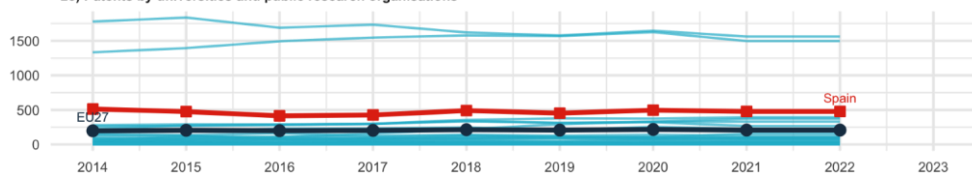
23) Business enterprise researchers as % of total researchers (%)



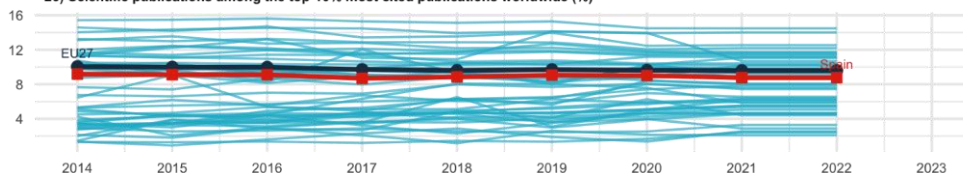
24) Business enterprise researchers in full-time equivalent per thousand employment in industry



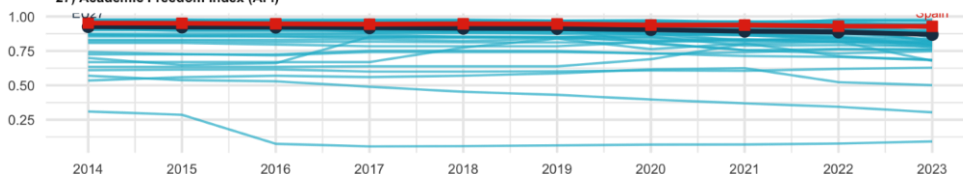
25) Patents by universities and public research organisations



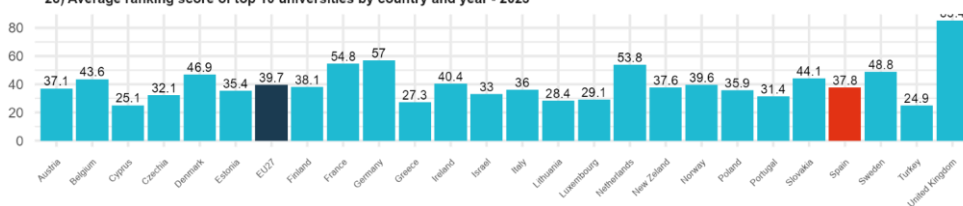
26) Scientific publications among the top-10% most cited publications worldwide (%)



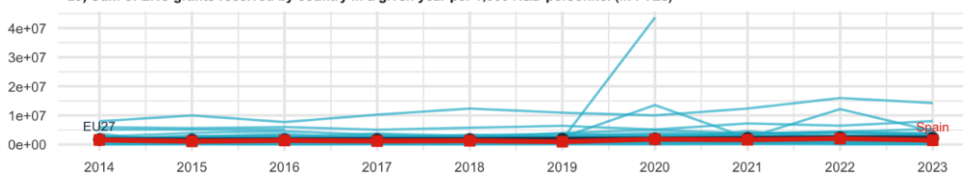
27) Academic Freedom Index (AFi)



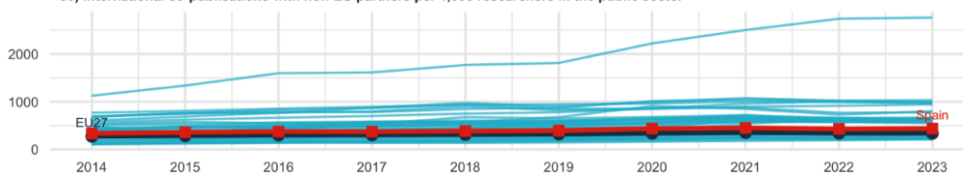
28) Average ranking score of top 10 universities by country and year - 2023



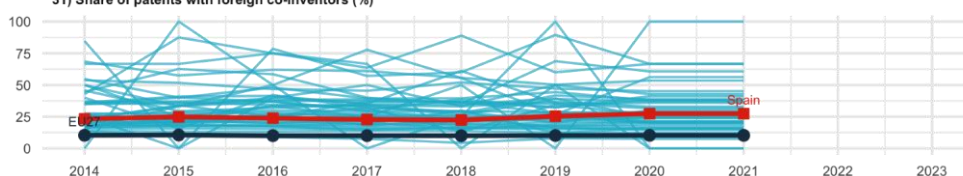
29) Sum of ERC grants received by country in a given year per 1,000 R&D personnel (in FTEs)

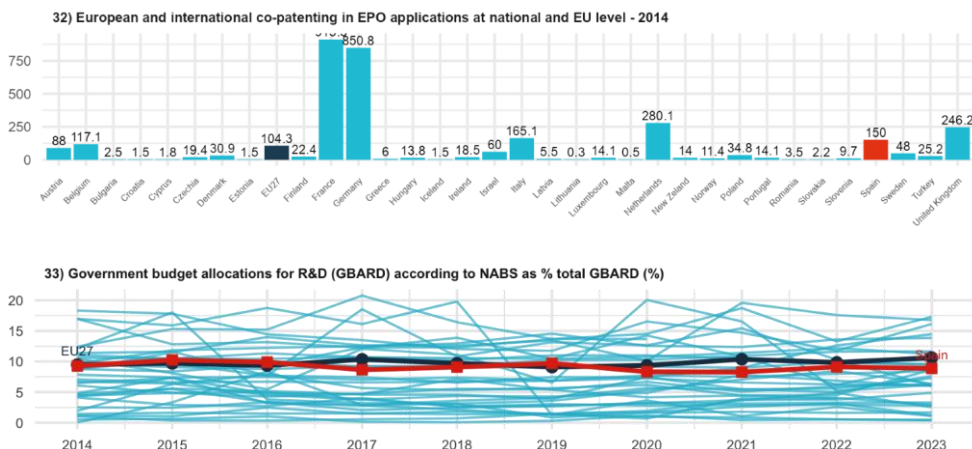


30) International co-publications with non-EU partners per 1,000 researchers in the public sector



31) Share of patents with foreign co-inventors (%)

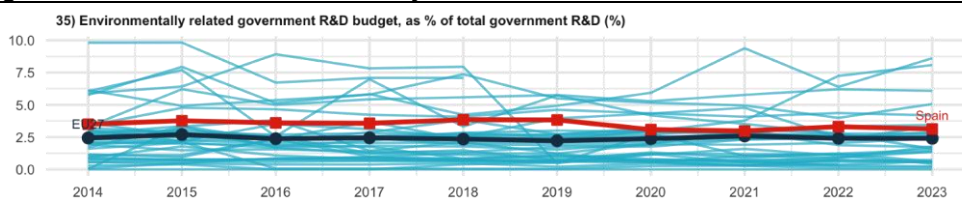




Source: Annex 1

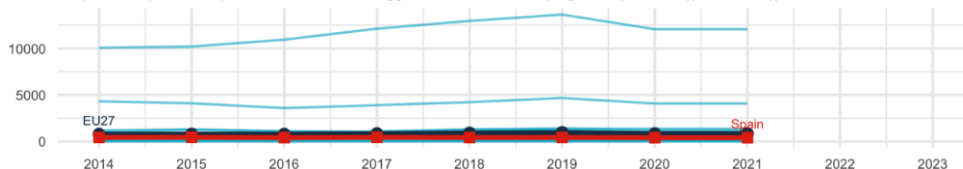
ERA Priority 2 is addressed through activities under ERA Actions 10-14 which focus on tackling the challenges in green and digital transition and citizen participation in science. In fact, Spain has a strong performance in participation in European Research partnerships, taking part in almost all of them and devoting significant human and financial resources to Cluster 1 (Health). The implementation of these actions falls under the EECTI 2021-2027 (notably its thematic clusters Climate, Energy and Mobility and the OE7 focused on citizen engagement in science) and PEICTI 2024-2027 identifies industrial decarbonisation and circular economy among R&I priorities. Spain is above the EU average on ERA Dashboard Indicator 35, i.e. collaboration on R&D projects. Furthermore, Spain is ramping up its investments in digital technologies with the expected EUR 62 million²³ to create an AI factory and a 46 percent increase in financing of digitalisation. At the same time, the weaknesses in HEI/PRO and business enterprise sector cooperation have negative impact on tackling environment-related challenges and ensuring the twin transition of the industrial ecosystem in Spain (ERA Dashboard Indicators 36-39), despite Spain's strong and above EU average performance on support through R&D tax incentives (ERA Dashboard Indicator 40). Trust in science in Spain was double the average of the EU27 in 2022 (ERA Dashboard Indicator 42).

Figure 3-2 Indicators for ERA Priority 2

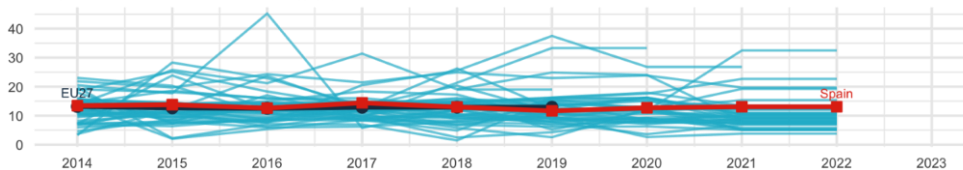


²³ <https://www.lamoncloa.gob.es/lang/en/gobierno/news/paginas/2024/20241210-ai-factory.aspx>

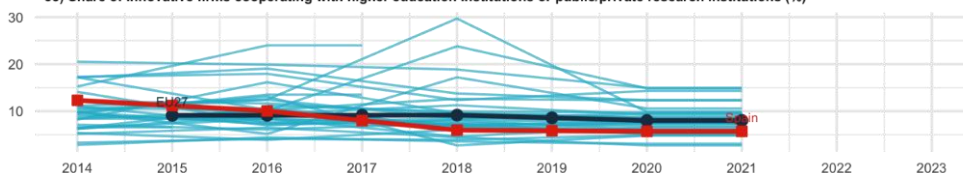
36) National public and private investments as suggested in the SET Plan progress report 2021 ((EUR million))



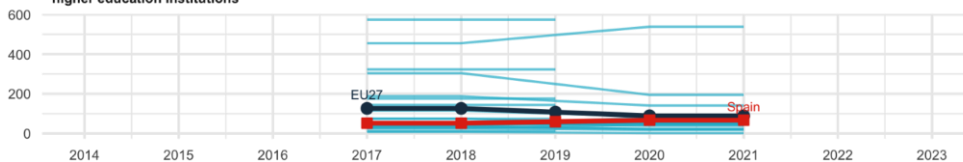
37) Patents on environmental technology (%)



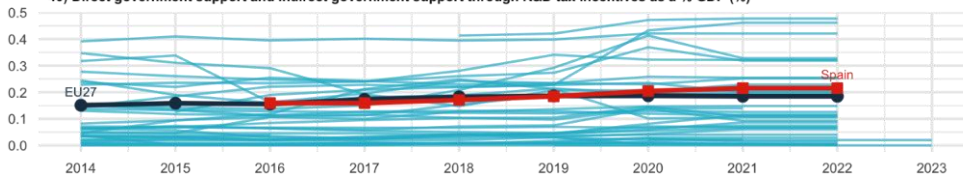
38) Share of innovative firms cooperating with higher education institutions or public/private research institutions (%)



39) Enterprises that purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions



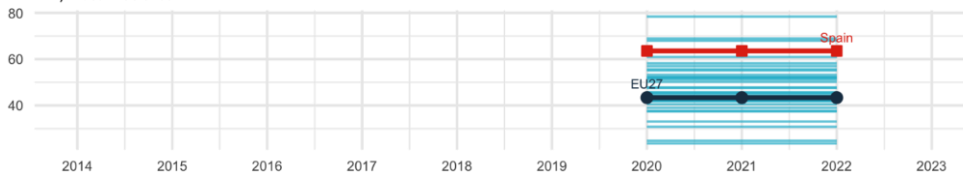
40) Direct government support and indirect government support through R&D tax incentives as a % GDP (%)

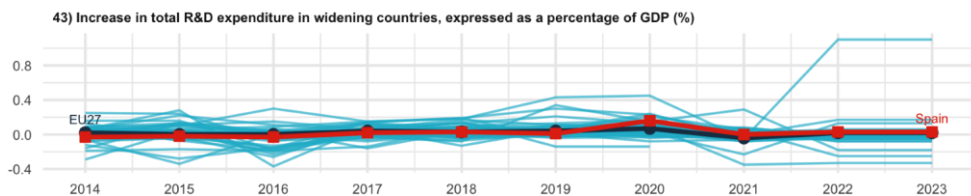


41) Green bond issuance as a percentage of total bond issuance (%)



42) Trust in Science

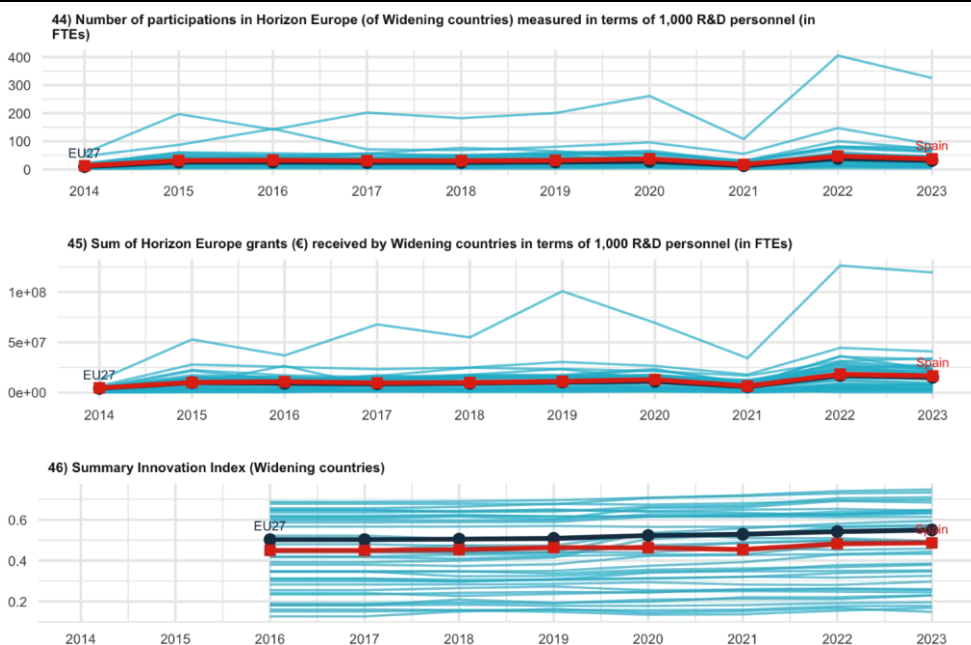




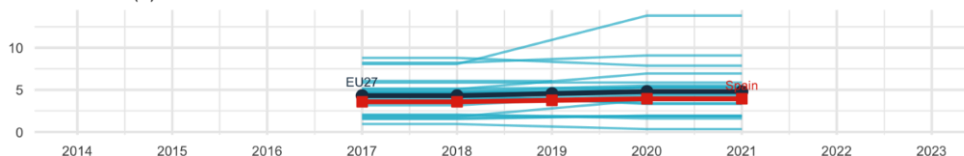
Source: Annex 1

ERA Priority 3 is addressed through ERA Actions 16 and 17 with measures implemented under PEICTI 2024-2027. As the ERA Dashboard Indicators 44 and 45 show, Spain performs above the EU average on participation in the Horizon Europe Widening programme, the State Research Agency's programme on management of European projects has contributed to these outcomes. The country has also a strong track record with above EU average performance in effective use of the Seals of Excellence mechanism to fund promising research (ERA Dashboard Indicator 48), including due to the efforts of the State Research Agency. Finally, the private sector is relatively active in investing in public R&D projects (ERA Dashboard Indicator 53), even though there is room for improvement in using Structural Funds for R&D projects by firms (ERA Dashboard Indicator 47). The ongoing consolidation of research organisations under PEICTI and the recent recognition of the research management professionals by the Law 17/2022 are likely to contribute to further strengthening of Spain's position on these indicators.

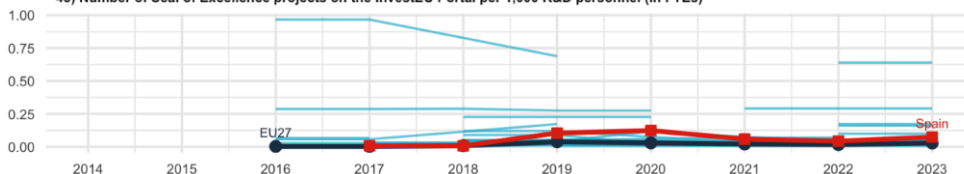
Figure 3-3 Indicators for ERA Priority 3



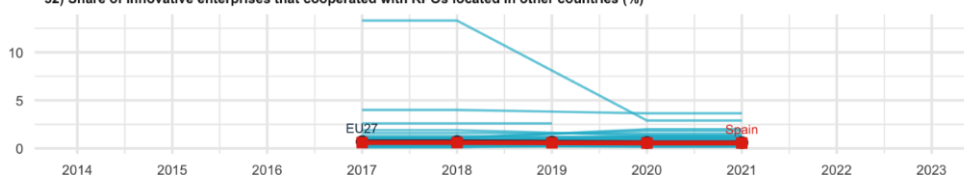
47) Share of enterprises using public funds from different governance levels (local or regional, national, and EU) for R&I activities (%)



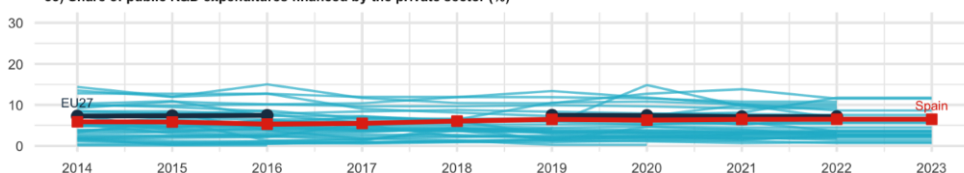
48) Number of Seal of Excellence projects on the InvestEU Portal per 1,000 R&D personnel (in FTEs)



52) Share of innovative enterprises that cooperated with RPOs located in other countries (%)



53) Share of public R&D expenditures financed by the private sector (%)

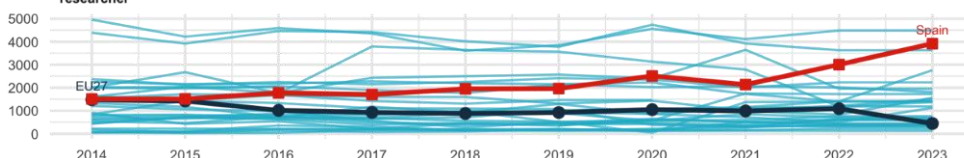


Source: Annex 1

ERA Priority 4 is addressed mainly through ERA Action 19 which is reflected in Spain through the establishment of the two monitoring committees under EECTI and PEICTI respectively. In addition, Spain has significantly increased its GBARD for Europe-wide transnational, bilateral and multilateral public R&D programmes, performing well above the EU average in 2023 (ERA Dashboard Indicator 54).

Figure 3-4 Indicators for ERA Priority 4

54) GBARD allocated to Europe-wide transnational, as well as bilateral or multilateral, public R&D programmes per FTE researcher



Source: Annex 1

4. Effects of ERA Action implementation on the national R&I system

This chapter presents a qualitative assessment of the ERA Action commitments of Spain and their effects on the national R&I system, including the quantitative performance in the ERA Dashboard. As stated above, national R&I strategic policy documents are well aligned with the ERA policy agenda – the EECTI is interlinked to the different ERA Priorities and ERA Actions to which Spain has committed.

The adoption of the PEICTI 2024-2027 as the main instrument for the achievement of the EECTI objectives was a key development in the reporting period, positively contributing to the achievement of ERA Priorities.

Under **ERA Priority 1**, Spain's implementation of ERA Action 4 contributes to meeting the PEICTI plan on enhancing human resources in R&I. The implementation of Spain's Plan for Knowledge Transfer and Collaboration (2022) contributes to the ERA Action 7 together with country's active participation in the MLE on knowledge valorisation together with the amended Law granting direct aid to beneficiaries of projects that have participated in competitive international R&I calls. Progress on ERA Action 8 enhances Spain's capabilities in PEICTI programme on research infrastructures (EO 12). Finally, the implementation of Action 5 is to contribute to strengthening more equitable women representation in Spanish research and education system, as outlined by PEICTI EO 7.

In **ERA Priority 2**, the implementation of ERA Actions 11 and 12 contributes to Spain's green and digital transformation as outlined under PNIEC and PERTEs and reflected in ERA Dashboard 34 and 35. In addition, Spain's participation in the MLE on Public engagement in R&I and the MLE on Bridging the gap between science and policy contributes to implementation of EECTI (OE 7) and may strengthen trust in science in the country.

Under **ERA Priority 3**, Spain's implementation of Action 17 facilitated collaboration among Spain's Trans-institutional and Intra-institutional Research Management (RM) support networks with important advances made in 2024 to support career recognition and development of research management professionals. Systematic and successful leveraging of the Seal of Excellence to support promising R&D project contributes to improving the overall standing of Spanish R&I ecosystem and stakeholders in the EU, as outlined in the PEICTI.

The recently established monitoring committees for EECTI and PEICTI are a case in point in improving the R&I policy monitoring and coordination (**ERA Priority 4**).

5. Conclusion

Spain has demonstrated a strong commitment to the ERA Actions, integrating them into its national strategies to bolster research, innovation, and scientific advancement. This alignment is evident through the Spanish National Recovery and Resilience Plan (RRP) and the Spanish Strategy for Science, Technology, and Innovation (EECTI) 2021–2027, which serve as the backbone of the country's research agenda. The reform of the Science Law in 2022, ensures stable and growing public funding for R&D&I, targeting 1.25 percent of GDP by 2030.

The EECTI operates through two state plans, with the PEICTI 2024–2027 being the primary instrument to achieve its objectives. This plan allocates EUR 18.4 billion to support research and innovation across public and private sectors.

In implementing ERA Priority 1, Spain has made substantial progress in open science and research infrastructure, including by notable investments in the EOSC. However, challenges remain in increasing the number of repositories and addressing gaps in gender equity, particularly in leadership roles and STEM fields. Despite these hurdles, Spain's efforts in academic freedom and international collaboration are noteworthy, with strong performance in co-publications with international partners and patents featuring foreign co-inventors.

Under ERA Priority 2, Spain shows strong performance in green and digital transitions, leveraging significant resources to support environmental and digital R&D projects. Initiatives like the PERTEs and a EUR 62 billion investment²⁴ in AI and digitalisation illustrate the country's focus. Yet, cooperation between higher education institutions, public research organizations, and businesses remains an area for improvement, especially in driving innovation for environmental challenges. Meanwhile, Spain actively promotes citizen engagement in science, with strong public trust in scientific initiatives exceeding EU averages

ERA Priorities 3 and 4 focus on enhancing research management and improving monitoring of ERA Action implementation. Spain's robust participation in Horizon Europe and effective use of mechanisms like the Seal of Excellence underline its strategic approach to maximising the impact of European research programs. Furthermore, the establishment of monitoring committees under the EECTI and PEICTI exemplifies Spain's commitment to ensuring the effective coordination and evaluation of R&D&I policies.

Overall, Spain's comprehensive and structured approach to integrating ERA Actions reflects a deep commitment to aligning national R&I strategies with European priorities. While challenges remain, the framework established by the EECTI and PEICTI, along with significant policy reforms and investments, positions Spain as a proactive and engaged contributor to the ERA.

²⁴ <https://www.bsc.es/news/bsc-news/bsc-host-one-seven-european-ai-factories-drive-its-development-the-business-ecosystem>

6. References

Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC), “Protocolo de prevención e intervención frente al acoso sexual y por razón de sexo en el csic”, available at: <https://www.csic.es/sites/default/files/2024-07/csic-protocolo-prevencion-acoso-2024-v2.pdf>

Cruz Castro, L (coord.), Martínez, C., Sanz Menéndez, L., Alva, K., & Casado, C. (2023). La promoción interna en las escalas científicas en el CSIC (OEP 2016-2020), La promoción interna en las escalas científicas en el CSIC (OEP 2016-2020): diferencias por sexo, Madrid: CSIC. Digital.CSIC Available at: <https://digital.csic.es/handle/10261/342260>

European University Association (2024), University Autonomy in Europe IV: Country Profiles (III), available at <https://www.eua.eu/publications/reports/university-autonomy-in-europe-iv-country-profiles-iii.html>

European Commission (2024) *2024 Country Report – Spain. Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on the economic, social, employment, structural and budgetary policies of Spain* {COM(2024) 609 final}-{SWD(2024) 600 final}. https://economy-finance.ec.europa.eu/document/download/c683835d-4b44-45b1-bde9-057d53a4b7f3_en?filename=SWD_2024_609_1_EN_Spain.pdf

FECYT (2022), Researcher Career path in Spain at a glance! (7th edition), available at: <https://www.fecyt.es/es/publicacion/researcher-career-path-spain-glance-7th-edition>

Ley Orgánica 2/2023, de 22 de marzo, del Sistema Universitario, avalarle at: <https://www.boe.es/buscar/act.php?id=BOE-A-2023-7500>

Ministry of Ecologic Transition and Demographic challenge (202), PERTE Circular Economy, available at <https://planderrecuperacion.gob.es/como-acceder-a-los-fondos/pertes/perte-de-economia-circular>

Ministry of Foreign Affairs European Union and Cooperation (2024), Spanish Cooperation Master Plan for Sustainable Development and Global Solidarity 2024-2027, available at <https://www.cooperacionspanola.es/wp-content/uploads/2024/10/Spanish-Cooperation-Master-Plan-2024-2027.pdf>

Ministry of Industry, Trade and Tourism (202) PERTE Industrial decarbonisation, available at: https://www.mintur.gob.es/es-es/recuperacion-transformacion-resiliencia/Documentos/Memoria_PERTE_Descarbonizacion.pdf

Ministry of Science and Innovation (2023), NATIONAL STRATEGY FOR OPEN SCIENCE (ENCA) 2023-2027, available at: <https://www.ciencia.gob.es/InfoGeneralPortal/documento/e5b759a4-d756-4af9-89b0-a8cf5fd28e20>

Ministry of Science and Innovation (2022), Plan de atracción y retención de talento científico e innovador a España, available at: <https://www.ciencia.gob.es/InfoGeneralPortal/documento/f5ca8c39-53be-40b2-a658-431c6350a93b>

Ministry of Science and Innovation (2022), Plan de transferencia y colaboración: I a ciencia y la innovación al servicio de la sociedad, available at: <https://www.ciencia.gob.es/InfoGeneralPortal/documento/c599474a-abc3-42db-ab3d-84ffdb27f4a9>

Ministry of Science and Innovation (2023), Científicas en Cifras 2023, available at : <https://www.ciencia.gob.es/InfoGeneralPortal/documento/f4f6bb28-cae5-4da2-85f4-067508c410eb>

Ministry of Science, Innovation and Universities, Plan Estatal de Investigación Científica, Técnica y de Innovación 2024-2027, available at: <https://www.ciencia.gob.es/InfoGeneralPortal/documento/6e566243-bcb5-45d8-ab77-5cfe533060f2>

Plan de Recuperación, Transformación y Resiliencia (2021), available at: https://www.lamondcloa.gob.es/temas/fondos-recuperacion/Documents/160621-Plan_Recuperacion_Transformacion_Resiliencia.pdf

Annex 1 – Full List of ERA Dashboard Indicators

The indicators used in the report are taken from the ERA Dashboard 2024. The full ERA Dashboard Report and the supporting Data Replication Package can be downloaded at <https://european-research-area.ec.europa.eu/era-monitoring-reports>. However, *GDP (in million €)*, *Size of the population (million)*, and *Share of female researchers, all sectors of performance (%)* were added to provide additional context and directly retrieved from the Eurostat website. EU and country averages are for 2023, except *Share of female researchers, all sectors of performance (%)* (2021).

Table 1 Structural Key Indicators:

Indicator number	Indicator	Source
/	GDP in euro per capita, current prices	Eurostat https://doi.org/10.2908/TEC00001
1	Gross Domestic Expenditure on R&D (GERD) as a share of GDP	Eurostat
2	Government Budget Allocations for R&D (GBARD) as share of GDP	Eurostat
4	Business Enterprise Expenditure on R&D (BERD) as a share of GDP	Eurostat
5.2	Expenditure on R&D procurement as a percentage of GDP	EC/European Innovation Procurement Observatory
/	Size of the population (million)	Eurostat, https://doi.org/10.2908/TPS00001
3	Researchers (in FTE) per million inhabitants	Eurostat
/	Share of female researchers, all sectors of performance (%)	Eurostat, https://doi.org/10.2908/TSC00005

Figure 3.1 Indicators for ERA Priority 1

Indicator number	Indicator	Source
6	Share of publications available in open access (green, gold, and diamond)	OpenAIRE
7	Number of open-access research datasets by country	OpenAIRE
8	Number of repositories by country	EOSC - Re3data
9	Country investments in EOSC and Open Science (in ranges of investment)	EOSC Observatory
10	Share of national public R&D expenditure committed to European research infrastructures	ESFRI
11	Number of European RIs in which a Member State or an Associated Country participates	ESFRI
12	Proportion of women of Grade A among academic staff/researchers	Women in Science - She Figures
13	(Corrected) Proportion of mixed-gender teams	EC_Scopus
14	(Corrected) Proportion of women in authorships of the top 10% most cited publications	EC_Scopus
15	Women in Digital index (0-100)	EC-Women in Digital Scoreboard
16	Proportion of women among doctoral graduates by narrow fields of STEM	Eurostat

17	Share of foreign doctorate students as a percentage of all doctorate students	Eurostat
18	New doctorate graduates per 1,000 inhabitants aged 25-34	Eurostat
19	Share of public-private co-publications	EC_Scopus
20	(Cumulative number of) Best practice examples and methodologies for knowledge valorisation	Knowledge Valorisation Platform
21	Number of PCT patent applications divided by GDP in million Euros/Dollars	OECD, Eurostat & World Bank
22	Share of innovating firms collaborating with HEI/PRO out of all innovative firms	Eurostat CIS (own calculations)
23	Business enterprise researchers as % of total researchers	OECD
24	Business enterprise researchers in full-time equivalent per thousand employment in industry	OECD
25	Patents by universities and public research organisations	EPO PATSTAT - Fraunhofer ISI calculations
26	% of scientific publications among the top-10% most cited publications worldwide	EC_Scopus
27	Academic Freedom Index (AFi)	V-Dem Varieties of Democracy
28	Average ranking score of top 10 universities by country and year	QS World University Ranking
29	Sum of ERC grants received by country in a given year per 1,000 R&D personnel (in FTEs)	EC-ERC
30	International co-publications with non-EU partners per 1,000 researchers in the public sector	EC_ScienceMetrix and Eurostat/OECD
31	Share of patents with foreign co-inventors	OECD
32	European and international co-patenting in EPO applications at national and EU level	Eurostat
33	Government budget allocations for R&D (GBARD) according to NABS as % total GBARD	Eurostat

Figure 3.2 Indicators for ERA Priority 2

Indicator number	Indicator	Source
34	Note: The ERA Dashboard Indicator 34 was removed from the Dashboard in January 2025. As a consequence, the indicator has also been omitted from the Country Report, while, however, keeping the original numbering of the indicators.	
35	Environmentally related government R&D budget, as % of total government R&D	Eurostat
36	National public and private investments as suggested in the SET Plan progress report 2021 (EUR million)	SETIS R&I data
37	% Patents on environmental technology	OECD
38	Share of innovative firms cooperating with higher education institutions or public/private research institutions	Eurostat CIS
39	Enterprises that purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions	Eurostat CIS
40	Direct government support and indirect government support through R&D tax incentives as a % GDP	OECD

41	Green bond issuance as a percentage of total bond issuance	Eurostat - EEA
42	Trust in Science	Eurobarometer 95.2
43	Increase in total R&D expenditure in widening countries, expressed as a percentage of GDP	Eurostat, OECD, UNESCO

Figure 3.3 Indicators for ERA Priority 3

Indicator number	Indicator	Source
44	Number of participations in Horizon Europe (of Widening countries) measured in terms of 1,000 R&D personnel (in FTEs)	Cordis - Eurostat
45	Sum of Horizon Europe grants (€) received by Widening countries in terms of 1,000 R&D personnel (in FTEs)	Cordis - Eurostat
46	Summary Innovation Index (Widening countries)	EC_EIS
47	Share of enterprises using public funds from different governance levels (local or regional, national, and EU) for R&I activities	Eurostat CIS
48	Number of Seal of Excellence projects on the InvestEU Portal per 1,000 R&D personnel (in FTEs)	EC - Invest EU
49	Number of collaboration networks of RPOs in Widening countries with other EU countries	Cordis - Horizon Dashboard
50	Average number of partners from non-widening countries per institution from a Widening country participating in the Horizon programme each year	Cordis - Eurostat
51	Share of patents registered by a Widening country together with partners from other EU countries	OECD
52	Share of innovative enterprises that cooperated with RPOs located in other countries	Eurostat CIS
53	Share of public R&D expenditures financed by the private sector	Eurostat

Figure 3.4 Indicators for ERA Priority 4

Indicator number	Indicator	Source
54	GBARD allocated to Europe-wide transnational, as well as bilateral or multilateral, public R&D programmes per FTE researcher	Eurostat

In person

All over the European Union there are hundreds of Europe Direct centres. You can find the address of the centre nearest you online (european-union.europa.eu/contact-eu/meet-us_en).

On the phone or in writing

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696,
- via the following form: european-union.europa.eu/contact-eu/write-us_en.

Online

Information about the European Union in all the official languages of the EU is available on the Europa website (european-union.europa.eu).

EU publications

You can view or order EU publications at op.europa.eu/en/publications. Multiple copies of free publications can be obtained by contacting Europe Direct or your local documentation centre (european-union.europa.eu/contact-eu/meet-us_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (eur-lex.europa.eu).

EU open data

The portal data.europa.eu provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.



ERA Monitoring 2024: ERA Country Report Spain.

Research and Innovation policy