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ERA Country Report 2024
France

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Research and Innovation

ERA Country Report 2024: France

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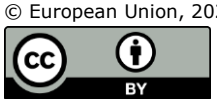

EUROPEAN COMMISSION

ERA Country Report 2024

France

This report was prepared by

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Key takeaways

- France integrates the objectives of the European Research Area (ERA) into its national strategies and investments plans through initiatives such as *France 2030* and the National Plan for Open Science. Although no dedicated national ERA action plan exists, these frameworks effectively support the implementation of ERA priorities across various sectors.

- Institutional reforms, including the *Act II of University Autonomy*, aim to empower universities as key actors in research and innovation at the regional level, supporting the overall objectives of ERA by strengthening governance and operational capacity.

- France demonstrates strong advancements in areas such as open science, with significant investments and national coordination efforts. Meanwhile, broader challenges persist in areas such as citizen engagement and private sector contributions to public R&D.

- The country actively contributes to ERA policy development at the EU level, participating in key initiatives and working groups, and plays a leading role in shaping discussions on research security and international cooperation.

1. National context

France is among the largest EU Member States, with a population of 68.2 million in 2023. France is categorised as a *strong innovator* in the 2024 European Innovation Scoreboard (EIS), reaching 114.4 percent of the EU average. While it lags behind the EU average in research and development (R&D) expenditure – as reflected in indicators such as GERD, GBARD, and BERD – it demonstrates above-average performance in R&D procurement as a percentage of GDP. In 2021, 30 percent of researchers were women, which was slightly below the EU's gender balance targets in research.

Table 1 Structural Key Indicators

Indicator	EU27	France		
	2023	2023	Average 2018-2020	Average 2021-2023
GDP in current prices, euro per capita	35 790.00	39 010.00	35 153.33	36 746.67
Gross Domestic Expenditure on R&D (GERD) as a share of GDP	2.22	2.19	2.22	2.22
Government Budget Allocations for R&D (GBARD) as share of GDP	0.73	0.65	0.66	0.67
Business Enterprise expenditure on R&D (BERD) as a share of GDP	1.52	1.44	1.46	1.46
Expenditure on R&D procurement as a percentage of GDP	0.06	0.07	/	0.07
Size of the population (million)	448.80	68.17	67.26	67.95
Researchers (in FTE) per million inhabitants	4 681.34	5 045.83	4 659.11	5 006.72
Share of female researchers, all sectors of performance (%)	33.71	/	/	/

Source: see Annex 1

2. Status of the Implementation of the ERA Policy Agenda

Chapter 3 briefly summarises **new developments in France since the publication of the 2023 ERA Country Report**, based on the commitments to ERA Actions. The findings are based on qualitative desk research and interviews.

France has pledged to support all ERA Actions (Table 2). Rather than a single comprehensive strategy, France's approach to implementing the ERA Policy Agenda relies on a combination of national policy initiatives. Among these, the French Recovery and Resilience Plan (RRP) and France 2030 play central roles in advancing ERA objectives, particularly in relation to the green and digital transitions.

France 2030 combines temporary funding instruments with strategic national policies, designed to act as an innovation accelerator[1]. It is structured around two complementary strands: a directional strand, focused on key strategic sectors such as decarbonisation, digital

[1] French Government (2023). Acceleration strategies for innovation, https://www.info.gouv.fr/organisation/secretariat-general-pour-l-investissement-sgpi/strategies-d-acceleration-pour-l-innovations

technologies, and sustainable mobility; and a structural strand, aimed at strengthening research-performing organisations, supporting businesses, and consolidating regional innovation ecosystems. The various lines of action under France 2030 are closely interlinked with several ERA priorities, notably *Make EU R&I Missions and Partnerships key contributors to the ERA, An ERA for Green Transformation,* and *Accelerate the Green/Digital Transition of Europe's Key Industrial Ecosystems*.

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 **National Plan for Open Science 2021-2024** remains a key framework guiding the expansion of open science practices, facilitating research data sharing, and promoting the release of source codes. The **Open Science Fund**[2] provides targeted support for projects aligned with these objectives. France has made continuous investments, the number of open-access publications is slightly above the EU average and projects funded by the National Agency for Research (ANR) are increasingly resulting in open-access publications. Challenges persist in securing sufficient funding, addressing data ownership rights, and ensuring more uniform implementation of EOSC across Europe. Nevertheless, France continues to play a key role in the **EOSC Tripartite Governance**.

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

France continues to build on the foundations established by the 2016 **Digital Republic Law**[3], which promotes the circulation of data and knowledge through open access to public and research data. Current discussions focus on the implications of recent European initiatives, including the Digital Services Act (DSA), the Digital Markets Act (DMA), and the Data Act. These reflections aim to assess their potential impact on the national framework and research ecosystem. So far, the impact of these regulations on France's research ecosystem cannot be judged.

[2] https://www.ouvrirlascience.fr/le-fonds-national-pour-la-science-ouverte
[3] Law 2016-1321 of October 2016 for a Digital Republic (LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique), Government Gazzette n° 0235 of 8 October 2016.

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

In 2023, the **national chapter of the Coalition for Advancing Research Assessment** (CoARA)[4] was officially launched, marking a step toward reforming research assessment in the country. Numerous French institutions have signed the CoARA charter and are actively engaged in initiatives to transform evaluation practices. France has a high level of engagement in this domain, with strong national policies supporting the open sharing of research outcomes since 2016. While 2024 has not brought significant changes or revisions compared to 2023, the reform of research assessment in France remains a high priority. While the country continues to play an active role in shaping the conversation on research assessment, further efforts will be needed to translate commitments into measurable outcomes.

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

France has continued its efforts to enhance career prospects for researchers, although 2024 has seen limited developments in this area. Recent measures include salary increases for doctoral candidates and postdoctoral researchers, aimed at improving the attractiveness of early research careers. Additionally, the **CIFRE programme** (*Conventions Industrielles de Formation par la Recherche*), which supports doctoral candidates conducting research within the private sector, has seen an increase in the number of funded theses. These initiatives build on the foundation established by the **research programming law** of 2020, which introduced measures such as junior professorships and enhanced remuneration for newly recruited lecturers, as well as the **COFRA programme**[5], launched in 2023 to connect research with public administration.

ERA Action 5) Promote gender equality and foster inclusiveness, taking note of the Ljubljana declaration

France's work builds on milestones such as the Fioraso Law of 2012, which made gender equality missions mandatory in all public universities, and the 2019 law requiring public bodies to develop **Gender Equality Plans (GEPs)**. These measures have enabled higher education and research institutions to implement structured policies and report annually on their progress to the Ministry and the High Council for the Evaluation of Research and Higher Education. In addition to the four mandatory pillars - equal access to professions and responsibilities, addressing pay gaps, work-life balance, and combating gender-based and sexual violence -, this new plan includes three additional pillars focused on governance, a culture of equality, and women's health. Additionally, new awards have been introduced to recognise and promote achievements in gender equality. The National Agency for Research (ANR), the main funding agency for R&I, has adopted gender mainstreaming as one of the evaluation criteria for its major national call for proposals. Policies are also subject to evaluation by the French *Cour des Comptes*, ensuring accountability and further refinement of equality measures.

[4] https://coara.eu
[5] https://www.enseignementsup-recherche.gouv.fr/fr/le-gouvernement-accroit-l-insertion-des-docteurs-ausein-des-administrations-d-etat-en-facilitant-la-84158

ERA Action 6) Deepening the ERA through protecting academic freedom in Europe

France continues to endorse the **Bonn Declaration** and the **Marseille Declaration** introduced during its Presidency of the Council of the EU in the first half of 2022. France continues its participation in the Horizon Europe Policy Support Facility (PSF) Mutual Learning Exercise (MLE) on foreign interference in R&I, contributing to knowledge exchange and best practices in research security. France is also committed to welcome at-risk researchers through programmes such as PAUSE. PAUSE and Campus France are taking part in the EU pilot project SAFE, which offers two-year scholarships to 60 international academics at risk to enable them to pursue their research in the European Union. The country also maintains awareness-raising efforts within the R&I community through its established network of security and defence officers in higher education and research institutions.

ERA Action 7) Upgrade EU guidance for better knowledge valorisation

France continues to advance its efforts through the France 2030 investment plan. In 2024, France strengthened the link between research and socio-economic actors through the deployment of 24 ***Pôles Universitaires d'Innovation*** **(PUI),** supported by EUR 165 million in funding[6]. These innovation hubs aim to accelerate the transfer of research results to society, encourage risk-taking, and foster collaboration with industry. In addition, the government seeks the creation of 500 deep tech startups per year by 2030 and achieving **100 unicorns**, reinforcing France's role in translating research into economic and societal impact. Recent figures show that 340 deep tech startups were created in 2023, and the number of unicorns reached 29 in 2024. National agencies such as Bpifrance and the French National Research Agency (ANR) continue to provide support to the implementation of these initiatives within the France 2030 framework.

ERA Action 8) Strengthen sustainability, accessibility and resilience of research infrastructures in the ERA

The updated national strategy on research infrastructures has been published at the end of 2021. This work is carried out regularly, in articulation with the ESFRI work on the European roadmap of research infrastructures and in coherence with the discussions at the European level shaping future directions. France remains a key player in European research infrastructures, participating in 50 out of the 63 infrastructures listed in the **2021 ESFRI roadmap**, and actively contributing to ESFRI governance and strategic reflections occupying currently its Vice-Chair position. The national roadmap[7], which encompasses 108 infrastructures, highlights growing interdisciplinarity and interdependence among research stakeholders at national and international levels. The ongoing initiatives also promote data sharing and interoperability in line with the **National Plan for Open Science** mechanisms.

[6] https://www.info.gouv.fr/upload/media/organization/0001/01/sites_default_files_contenu_piece-jointe_2023_07_20230711_cp_laureats_poles_universitaires_dinnovation.pdf

[7] Stratégie nationale des infrastructrues de recherche, available at https://www.enseignementsuprecherche.gouv.fr/fr/la-strategie-nationale-des-infrastructures-de-recherche-46112

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

In 2024, efforts in international R&I collaboration have increasingly focused on research security, particularly in strategic sectors. The national framework for the **Protection of Scientific and Technical Potential (PPST)**[8], established in 2011, plays a crucial role in ensuring that individuals involved in research projects comply with national security requirements. This includes stricter oversight of university collaboration agreements, with enhanced scrutiny of partnerships, particularly with China. These measures complement France's ongoing contributions to EU initiatives, such as co-chairing the **ERA Forum Standing Subgroup on the Global Approach** and participating in the European Science Diplomacy Framework. France also continues to support international mobility and collaboration through programs like the Hubert Curien partnerships[9], the International Scientific Cooperation Projects (PICS)[10], and the Associated International Laboratories (LIA)[11]. This is also covered by ANR's international cooperation activities (funding of transnational projects under bi- and multilateral agreements) as well as through participation in European networks through COST.

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

France supports European missions and partnerships through dedicated structures within the Ministry of Higher Education and Research. The country remains engaged in monitoring and supporting key missions, such as the "**Cities" Mission**[12]. France has established "mirror groups" which play crucial role in **tracking developments**, aligning national efforts with European priorities, and fostering collaboration between public and private entities. The level of activity within these mirror groups varies, reflecting the differing levels of stakeholder engagement across missions. France's long-term commitment to ecological transition, anchored by the 2019 **Law on Energy and Climate**[13] and the Innovating for Ecological Transition platform launched in 2021[14], continues to provide a foundation for collaboration with European initiatives.

ERA Action 11) An ERA for green transformation

The EUR 54 billion **France 2030** investment plan is the cornerstone of national efforts, targeting strategic sectors such as hydrogen, industrial decarbonisation, and advanced digital technologies[15]. Recent initia-

[8] https://www.sgdsn.gouv.fr/nos-missions/proteger/proteger-le-potentiel-scientifique-et-technique-de-la-nation
[9] Campus France, Hubert Curien Partnerships ('Partenariats Hubert Curien'), available at https://www.campusfrance.org/fr/phc
[10] https://fundit.fr/fr/calls/appel-projets-internationaux-cooperation-scientifique-pour-equipes-cnrs-pics
[11] Associated International Laboratory ('Laboratoire International Associé'), available at https://www.inrae.fr/laboratoire-international-associe-lia
[12] https://www.iledefrance-europe.eu/actualites-europeennes/detail-actualites-europeennes/article/mission-villes-faciliter-lacces-des-villes-au-financement/
[13] Law 2019-1147 of 8 November on Energy and Climate (OI n° 2019-1147 du 8 novembre 2019 relative à l'énergie et au climat), Government Gazzette n° 0261 of 9 November 2019.
[14] Innovate for the ecological transition ('Innover pour la transition écologique'), available at https://www.innoverpourlatransitionecologique.fr/fr
[15] Elysee (2021), Presentation of Plan France 2030 ('Présentation du plan France 2030), available at https://www.elysee.fr/emmanuel-macron/2021/10/12/presentation-du-plan-france-2030

tives now emphasise broader sustainability efforts within higher education institutions. Universities, research centres and other national bodies (e.g. RFOs) are increasingly implementing their own sustainability measures, building on the **Climate and Biodiversity Plan**[16] introduced by MENESR in 2022. These actions, decided at the institutional level, go beyond campus-level sustainability to include research programmes dedicated to environmental transitions, such as the **Graduate School for Energy and Environmental Innovation (GREEN)** at the University of Pau and Pays de l'Adour. In parallel, national strategies such as the 2020 **National Strategy for the Development of Carbon-Free Hydrogen**[17] and the **French Green Hydrogen Plan 2020-2030**[18] remain key drivers in advancing the country's green transformation agenda.

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

The France 2030 investment plan remains a central pillar and continues to support research, R&D, startups, and infrastructure development in key areas such as 5G, quantum computing, electronics, decarbonisation, recycling technologies, and new energy solutions. This is also reflected in national calls[19] with a focus on AI and quantum. To enhance regional involvement, "France 2030 and investment sub-prefects" are deployed to facilitate collaboration between industrial projects and local authorities[20]. A major development in 2024 is **the national strategy for artificial intelligence (AI)**[21], which builds on efforts initiated in 2018 following the Villani mission. With a EUR 2.5 billion budget, this strategy aims to establish a **long-term structure for the AI ecosystem**, covering all stages from research and development to market deployment and cross-sectoral applications. In September 2023, the Government launched the **Generative AI Committee**[22], bringing together stakeholders from various sectors—including culture, economy, technology, and research—to provide strategic guidance and position France as a leader in AI innovation.

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

The **"Act II of University Autonomy"**[23] from March 2024 aims to strengthen universities' leadership roles within their territories, positioning them as key coordinators of research and innovation, particularly in relation to the newly established **Pôles Universitaires d'Innovation (PUI)** Universities will gain greater flexibility in decision-making while **remaining accountable through performance-based agreements with the state,** based on their external evaluation by an independent body: the High Council for the Evaluation of Research and Higher Education (Hcéres). A pilot phase has been launched, focusing on governance, financial autonomy, academic programs, and human resources management. These reforms build on previous components of

[16] https://www.enseignementsup-recherche.gouv.fr/fr/plan-climat-biodiversite-et-transition-ecologique-de-l-enseignement-superieur-et-de-la-recherche-91292

[17] https://www.economie.gouv.fr/presentation-strategie-nationale-developpement-hydrogene-decarbonefrance#

[18] French Green Hydrogen Plan 2020-2030, https://www.tresor.economie.gouv.fr/Articles/4a1ac560-a021-4358-a466-f5430928a1db/files/7d2fd0e2-8a3d-4ce8-bbb3-94cbd5b9c3d1

[19] https://anr.fr/fileadmin/documents/2024/ANR-PA-2025.pdf

[20] Ministry of Economy, Finance and Industrial and Digital Sovereignty (2022), France 2030: an investment plan for France available at https://www.economie.gouv.fr/france-2030

[21] https://www.economie.gouv.fr/actualites/strategie-nationale-intelligence-artificielle

[22] Ibid

[23] https://www.enseignementsup-recherche.gouv.fr/fr/discours-de-sylvie-retailleau-vers-l-acte-ii-de-l-autonomie-des-etablissements-d-enseignement-95499

the Investments for the Future programme (PIA)[24]**,** in particular the Initiatives d'Excellence (IDEX) and I-SITE schemes. These earlier initiatives aimed to strengthen the strategic capacity and international visibility of selected universities, and the current autonomy reforms continue in this direction — notably through the creation of Pôles Universitaires d'Innovation (PUI) and performance-based governance tools. The goal is to enhance institutional autonomy while aligning with national and European strategic objectives. French universities are also among the most represented in the European Universities initiative. With EUR 100 million of national funds mobilized over 10 years as part of the PIA3/France 2030 programme, national support for higher education establishments has made it possible to launch initiatives aimed at strengthening the Alliance to which they belong, particularly in terms of its research component (e.g. seed funding for research projects, scientific mobility, doctoral and post-doctoral grants).

ERA Action 14) Bring Science closer to citizens

France continues to deploy the measures introduced in 2021 as part of the **research programming law**[25]. These include the allocation of 1 percent of the National Research Agency's (ANR) intervention budget to support long-term initiatives fostering dialogue between science, research, and society. Additionally, the **Research Programming Act Prize for Participatory Research** continues to recognise and reward collaborative efforts between researchers and citizens in co-developing participatory research projects[26]. A public policy dedicated to science with and for society is undergoing, led by the ministry for higher education and research. Since 2021, 34 universities have been selected and supported by the ministry (almost EUR 30 million) to organise conferences, meetings, media training for researchers, science festivals, to enable different audiences, including students and scholars, to meet and exchange with researchers.

A national science festival "la fête de la science" is taking place each year since 1992, with 1 million participants. Science museums, research organisations, universities, non-profit organisations, and associations are strongly involved in this festival. France significantly outperforms the EU27 average in terms of direct and indirect government support through R&D incentives (ERA Dashboard Indicator 40), demonstrating a strong commitment to fostering innovation. To bring science closer to citizens, the National Research Agency's (ANR) spends several million euros each year to support citizen science research projects. Indeed, citizen engagement in visiting science and technology museums, or in watching documentaries, podcasts, reading science and technology-related publications, magazines, is 5 percent higher in France than in EU27.

[24] https://www.enseignementsup-recherche.gouv.fr/fr/lancement-du-4e-programme-d-investissements-davenir-en-janvier-2021-20-mdeu-dans-la-recherche-et-l-49317

[25] Ministry of Higher Education and Research (2021), Science with and for society: LPR measures ('Science avec et pour la société : les mesures issues de la LPR), available at https://www.enseignementsuprecherche.gouv.fr/fr/science-avec-et-pour-la-societe-les-mesures-issues-de-la-lpr-49218

[26] Ministry of Higher Education and Research (2022), Call for projects 'Associations 2022, available at: https://www.enseignementsup-recherche.gouv.fr/fr/appels-projets-associations-2022-46210

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

France's efforts continue to focus on **enhancing synergies between national, regional, and EU funding mechanisms**. Work is ongoing within the Ministry of Higher Education and Research, and with other ministries, to strengthen complementarities between EU, national and regional funds. This includes fostering collaboration with regional authorities and more effective deployment of resources to support participation in EU-funded R&I projects. The **national action plan to boost the access of French actors to EU R&I funding** adopted in 2021[27] remains a key framework. Initiatives stemming from this national action plan, such as the MRSEI call (Setting up Scientific European and International Networks)[28] and other schemes[29] funded by ANR and the Diagnostic Europe scheme managed by Bpifrance[30], continue to facilitate stakeholder involvement in European projects. Additionally, regional authorities are working on optimising the implementation of the Seal of Excellence through ERDF.

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

Progress has been made following the **ASDESR call**, which allocated EU 200 million to support the recruitment of new staff within HEIs to strengthen research management. A structured evaluation process is planned to assess the effectiveness of these initiatives and determine their long-term impact on enhancing the strategic capacity of research institutions. Meanwhile, **French Research Performing Organisations** (RPOs) participate in the RM Roadmap project[31], addressing the need for specialised training and professional development in this field.

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

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

France introduced in 2023 the **Contracts of Objectives, Means and Performance (COP)**, which introduce performance monitoring of institutions and allocate additional funding if objectives are met. However, this is not designed to track ERA action implementation.

[27] https://www.enseignementsup-recherche.gouv.fr/sites/default/files/content_migration/document/Plan_action_A5_09_1292035.pdf
[28] https://anr.fr/fr/detail/call/montage-de-reseaux-scientifiques-europeens-ou-internationaux-mrsei-2024-1/
[29] SRSEI, Access-ERC and T-ERC calls.
[30] https://www.bpifrance.fr/catalogue-offres/diagnostic-europe
[31] https://www.rmroadmap.eu/faqs

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 France's performance in achieving the ERA objectives as defined in the Pact for R&I during the period 2022-2024.

ERA Priority 1 is addressed through a range of initiatives focusing on **ERA Actions 1-9**. The implementation of these activities is largely on track and supported by dedicated investments, including through plans such as France 2030.

However, recent data related to **Action 1** on actual outputs remain scarce. The last available figure for ERA Dashboard Indicator 7 dates to 2018. France stands out as one of the European countries making the highest investments in open science (ERA Dashboard Indicator 9), with funding exceeding EUR 20 million. Despite the country's strong policy engagement in open science, it remains difficult to track the impact of these investments on research practices and EOSC adoption. However, the French Open Science Barometer[32] demonstrates France's engagement towards data openness.

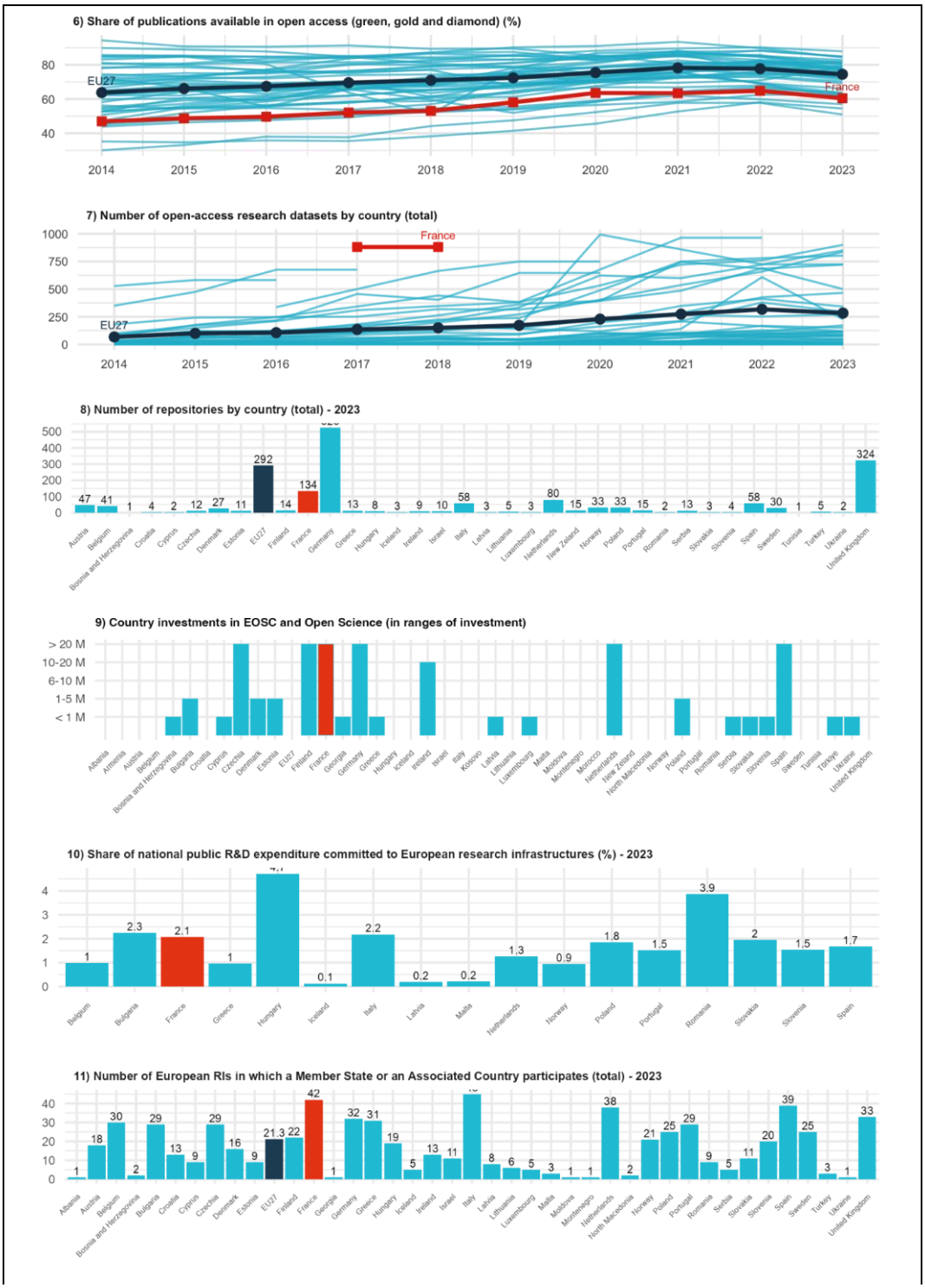
Another long-standing ERA priority, embedded in France's R&I policies, is **gender equality** in research and innovation. The related ERA Dashboard Indicators 12-15 show an overall positive trend in recent years, particularly in terms of the proportion of mixed-gender teams and women in Grade A among academic staff and researchers. Nevertheless, the latest edition of *Key Figures on Equality 2025*, published on 7 March 2025 by the French Ministry of Higher Education and Research, highlights the low representation of women in STEM fields at all levels of education, despite efforts to improve gender diversity. While women make up 56% of higher education students, they remain underrepresented in these fields due to stereotypes influencing career choices. After progressing until the late 2000s, their share in STEM studies has stagnated over the past decade. The "leaky pipeline" phenomenon illustrates the gradual decline in the number of girls choosing these fields after high school. This underrepresentation also continues into STEM careers.

In the area of **knowledge valorisation**, ERA Dashboard Indicators 19 and 21-24 confirm that France is performing well compared to the EU27 average and continues to show progress, particularly in the traditional aspects of knowledge and technology transfer and business-academia cooperation. However, the country lags in aspects such as public R&D financed by businesses, and best practice examples and methodologies for knowledge valorisation available on the Knowledge Valorisation Platform. Public-private co-publications have been stagnant.

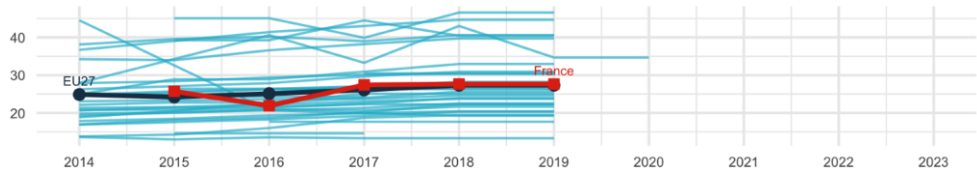
France's **top 10 universities** perform strongly in patents by universities and public research organisations (ERA Dashboard Indicator 25), leading European rankings since 2014. Additionally, government budget allocations for R&D as a percentage of the total GBARD have increased in recent years and now rank as the highest within the ERA. However, France's scientific publications impact (ERA Dashboard Indicator 26) remains below EU average.

[32] https://barometredelascienceouverte.esr.gouv.fr

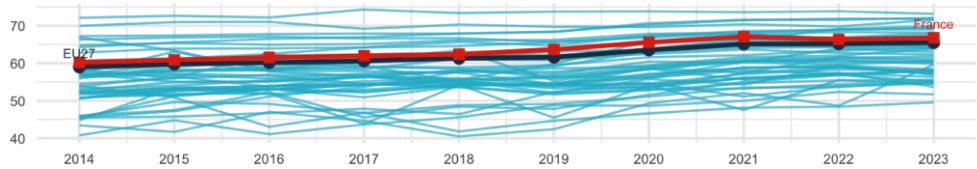
Figure 3-1 Indicators for ERA Priority 1



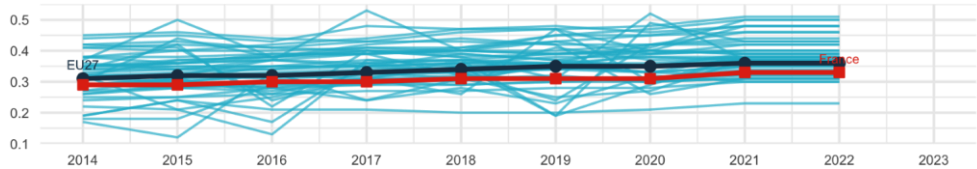
12) Proportion of women of Grade A among academic staff/researchers (%)



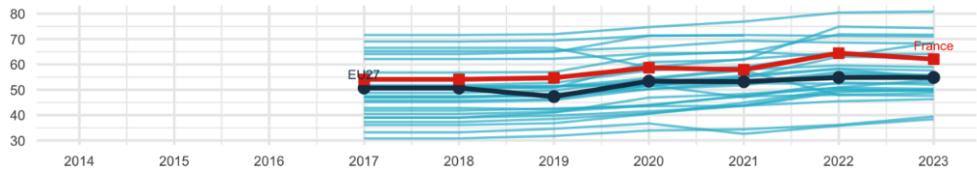
13) Proportion of mixed-gender teams (%)



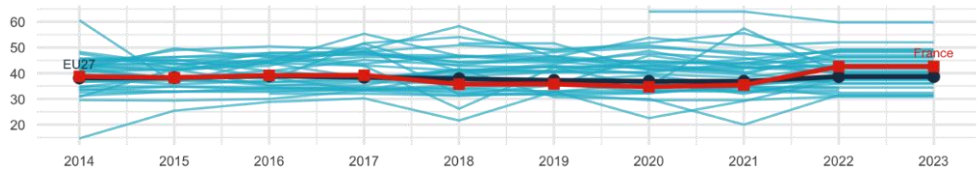
14) Proportion of women in authorships of the top 10% most cited publications (%)



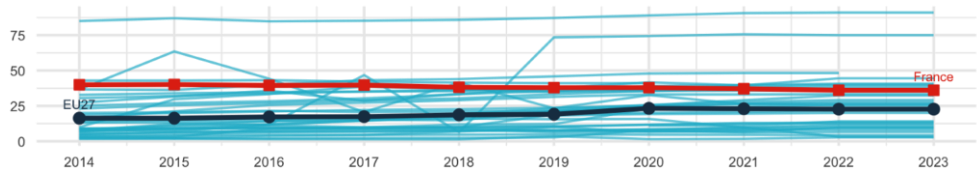
15) Women in Digital index (0-100)



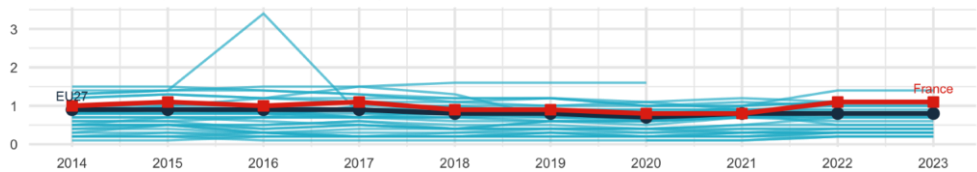
16) Proportion of women among doctoral graduates by narrow fields of STEM (%)



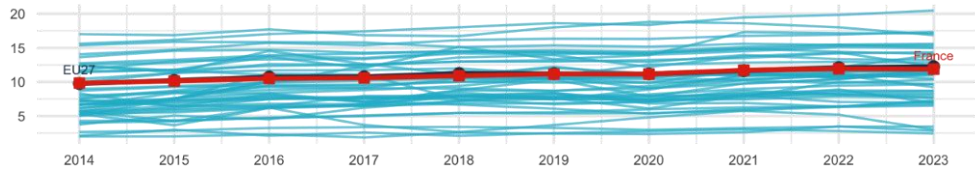
17) Share of foreign doctorate students as a percentage of all doctorate students (%)



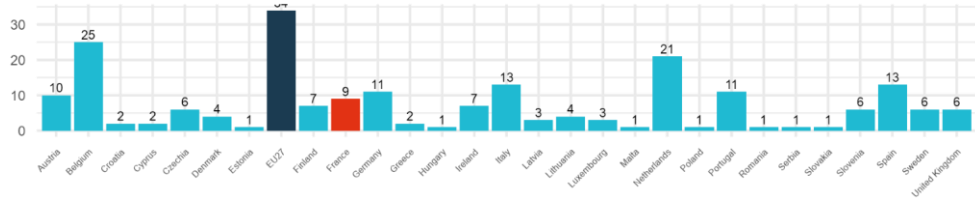
18) New doctorate graduates per 1,000 inhabitants aged 25-34



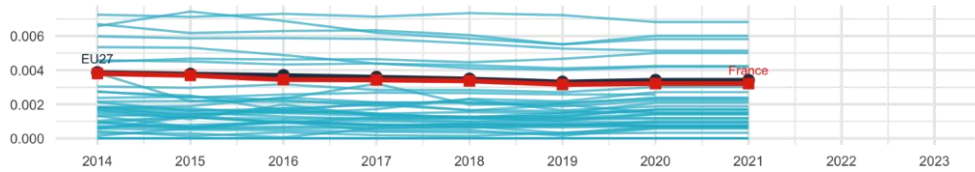
19) Share of public-private co-publications (%)



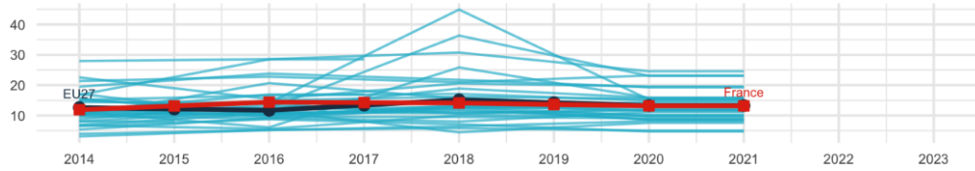
20) Best practice examples and methodologies for knowledge valorisation - 2023



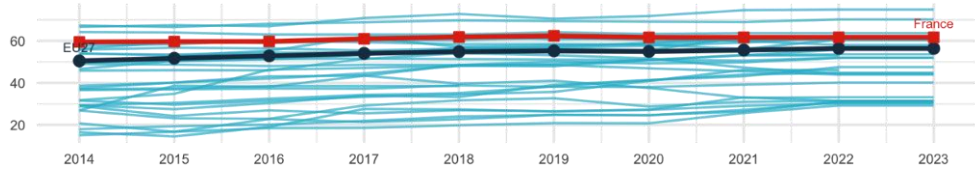
21) Number of PCT patent applications divided by GDP in million Euros/Dollars



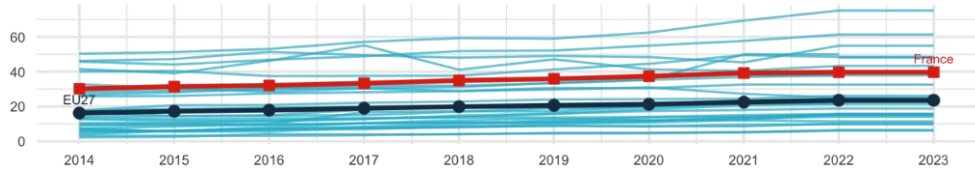
22) Share of innovating firms collaborating with HEI/PRO out of all innovative firms

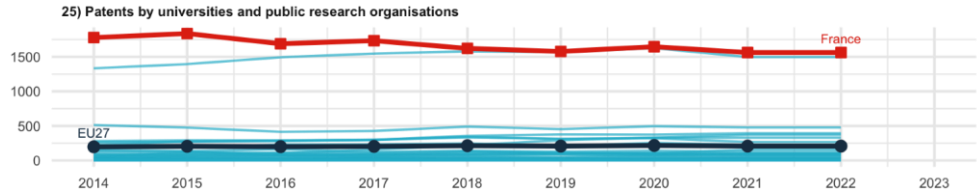


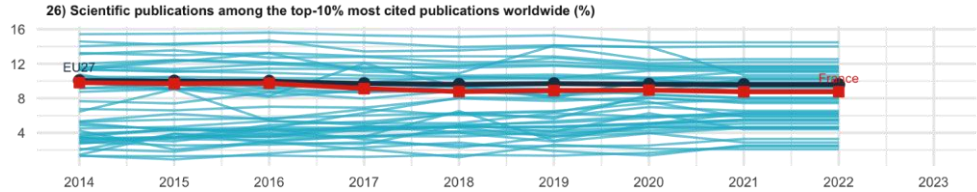
23) Business enterprise researchers as % of total researchers (%)

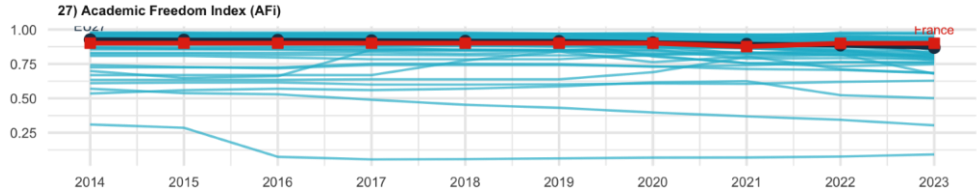


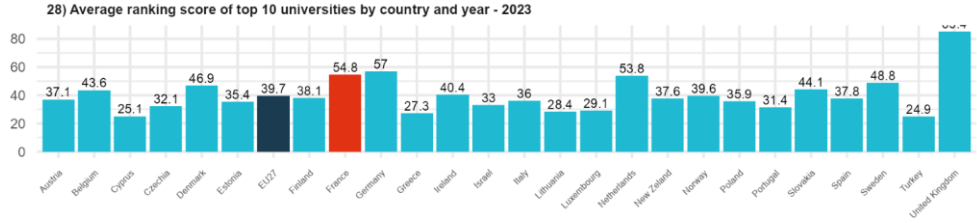
24) Business enterprise researchers in full-time equivalent per thousand employment in industry

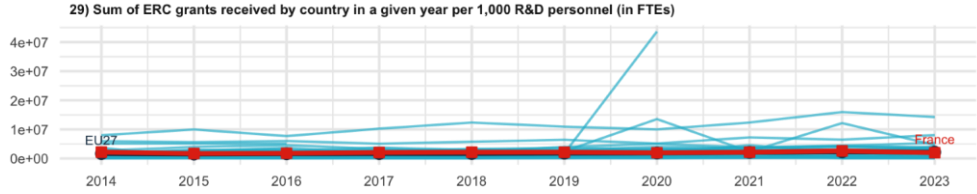


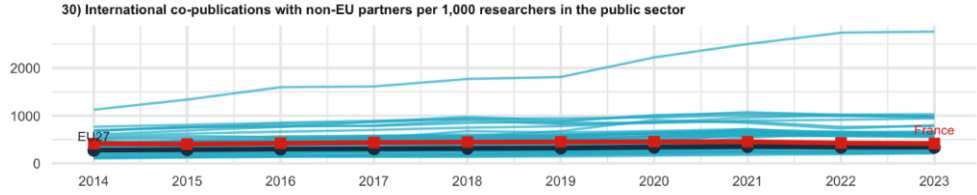

25) Patents by universities and public research organisations
France
EU27
1500
1000
500
0
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

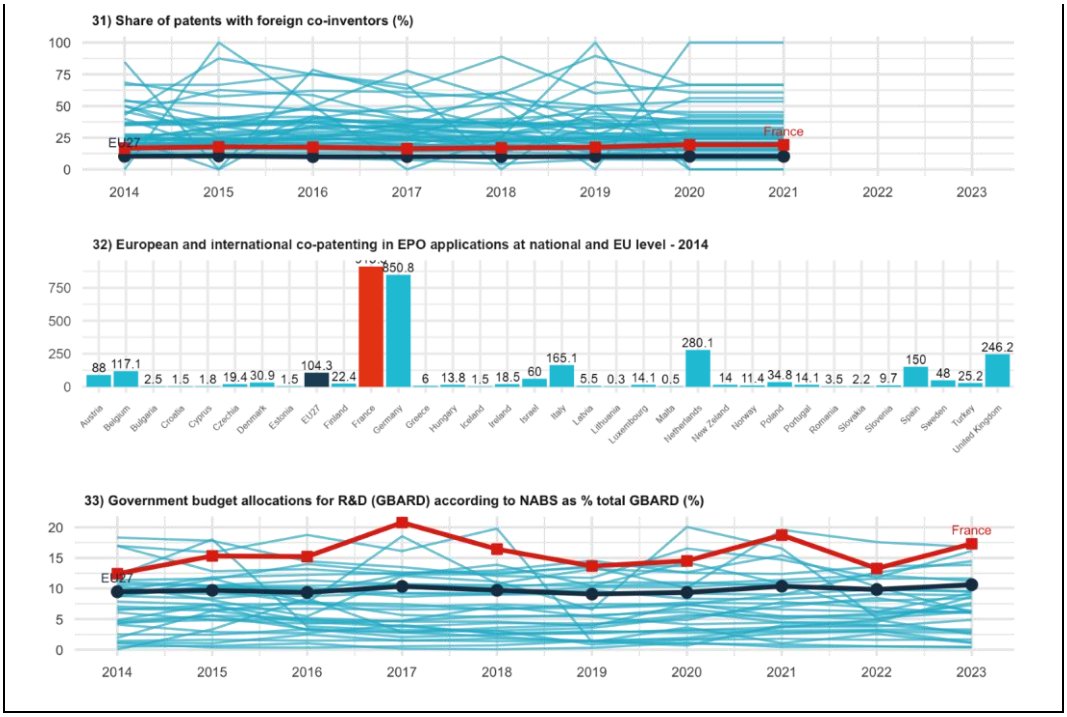

26) Scientific publications among the top-10% most cited publications worldwide (%)
16
12
8
4
EU27
France
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023


27) Academic Freedom Index (AFi)
1.00
0.75
0.50
0.25
France
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023


28) Average ranking score of top 10 universities by country and year - 2023
80
60
40
20
0
37.1
43.6
25.1
32.1
46.9
35.4
39.7
38.1
54.8
57
27.3
40.4
33
36
28.4
29.1
53.8
37.6
39.6
35.9
31.4
44.1
37.8
48.8
24.9
Austria
Belgium
Cyprus
Czechia
Denmark
Estonia
EU27
Finland
France
Germany
Greece
Ireland
Israel
Italy
Lithuania
Luxembourg
Netherlands
New Zealand
Norway
Poland
Portugal
Slovakia
Spain
Sweden
Turkey
United Kingdom


29) Sum of ERC grants received by country in a given year per 1,000 R&D personnel (in FTEs)
4e+07
3e+07
2e+07
1e+07
0e+00
EU27
France
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023


30) International co-publications with non-EU partners per 1,000 researchers in the public sector
2000
1000
0
EU27
France
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

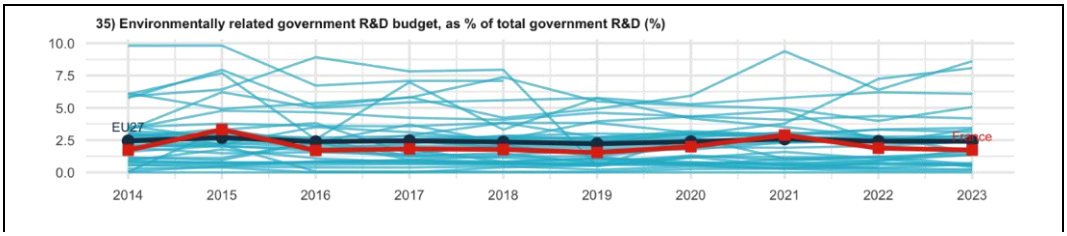


Source: Annex 1

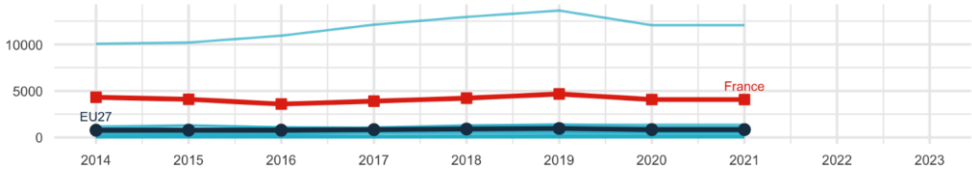
ERA Priority 2 is being addressed through various activities and measures implemented via national initiatives across all ERA Actions, including Missions, Partnerships, Green Transformation, the Green/Digital Transition of Industrial Ecosystems, and Science to Citizens. Regarding **challenge-based ERA actions**, ERA Dashboard Indicators 35-37 present a mixed picture. France tends to perform better than the EU27 average. However, recent trends indicate a decline (ERA Dashboard Indicator 37 on patents in environmental technology).

Nonetheless, France provides higher than average direct and indirect government support through R&D incentives (ERA Dashboard Indicator 40), demonstrating a strong commitment to fostering innovation, although the innovation performance is not on par with this high level of public support for business R&I. On the other hand, France lags behind in bringing science closer to citizens. ERA Dashboard Indicator 42 reveals that public perception of science remains more sceptical than other European countries.

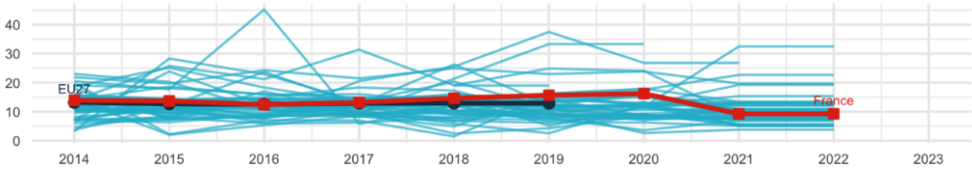
Figure 3-2 Indicators for ERA Priority 2



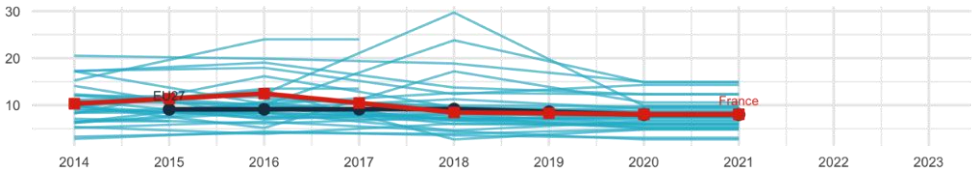
36) National public and private investments as suggested in the SET Plan progress report 2021 ((EUR million))



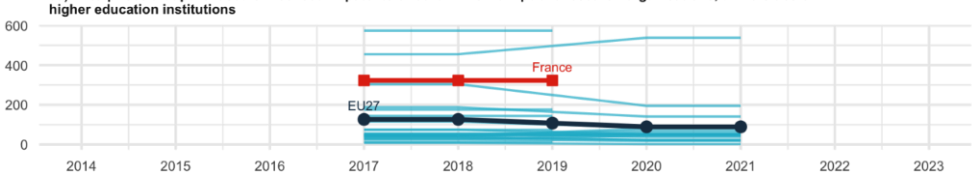
37) Patents on environmental technology (%)



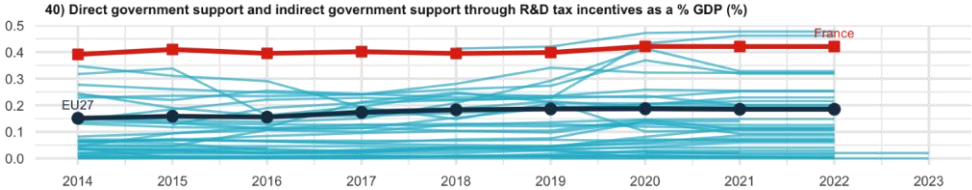
38) Share of innovative firms cooperating with higher education institutions or public/private research institutions (%)



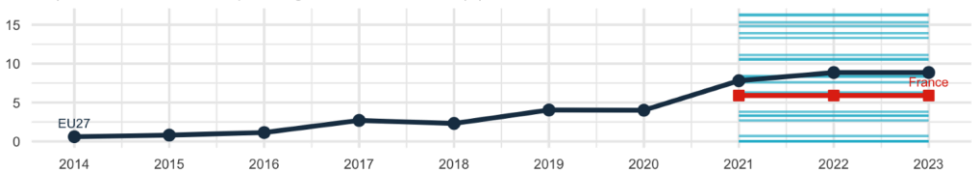
39) Enterprises that purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions



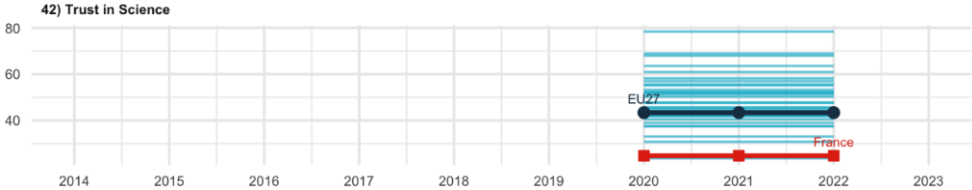
40) Direct government support and indirect government support through R&D tax incentives as a % GDP (%)

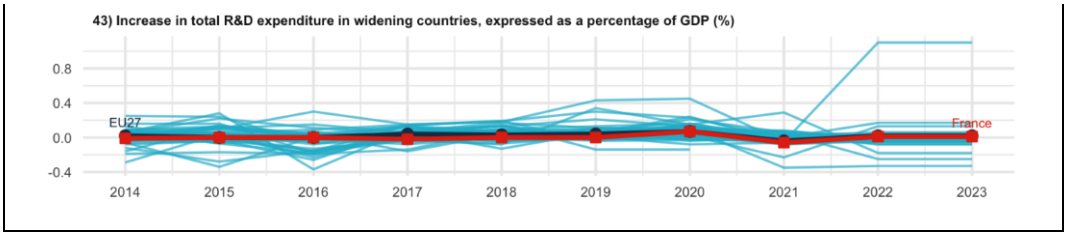


41) Green bond issuance as a percentage of total bond issuance (%)



42) Trust in Science

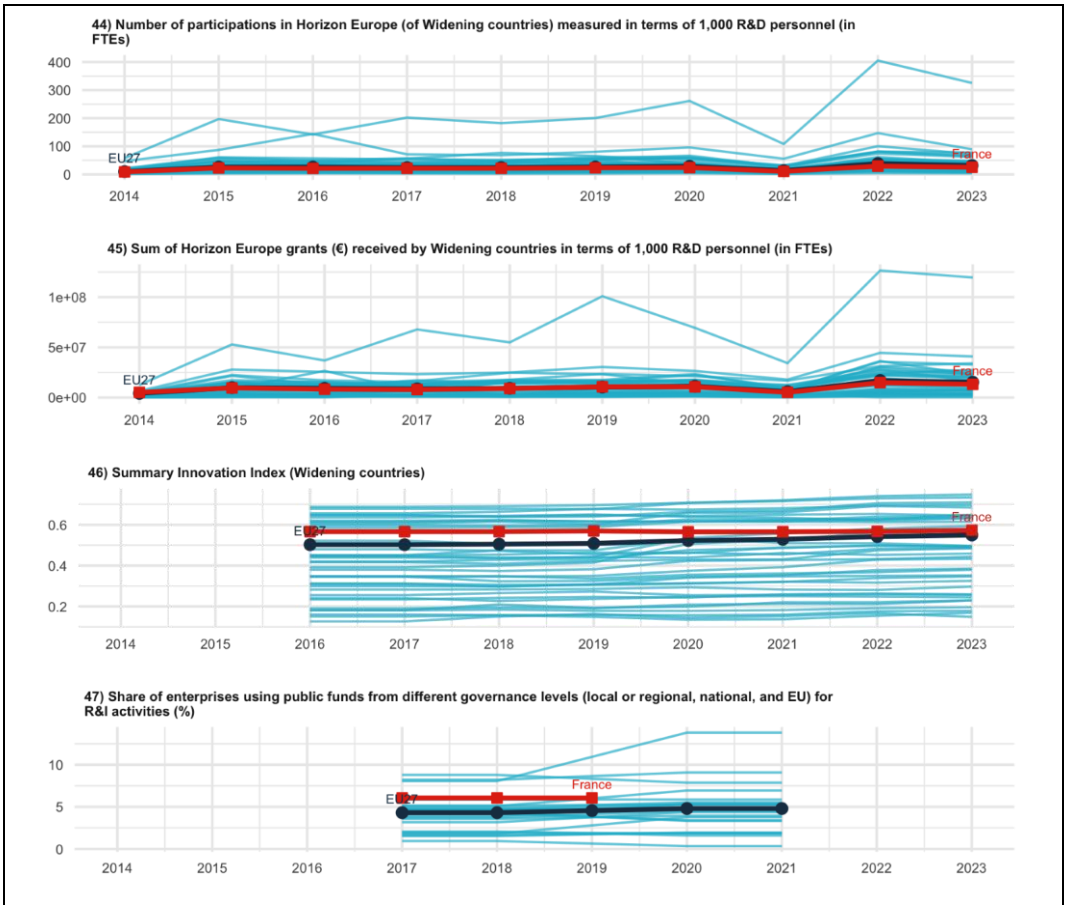


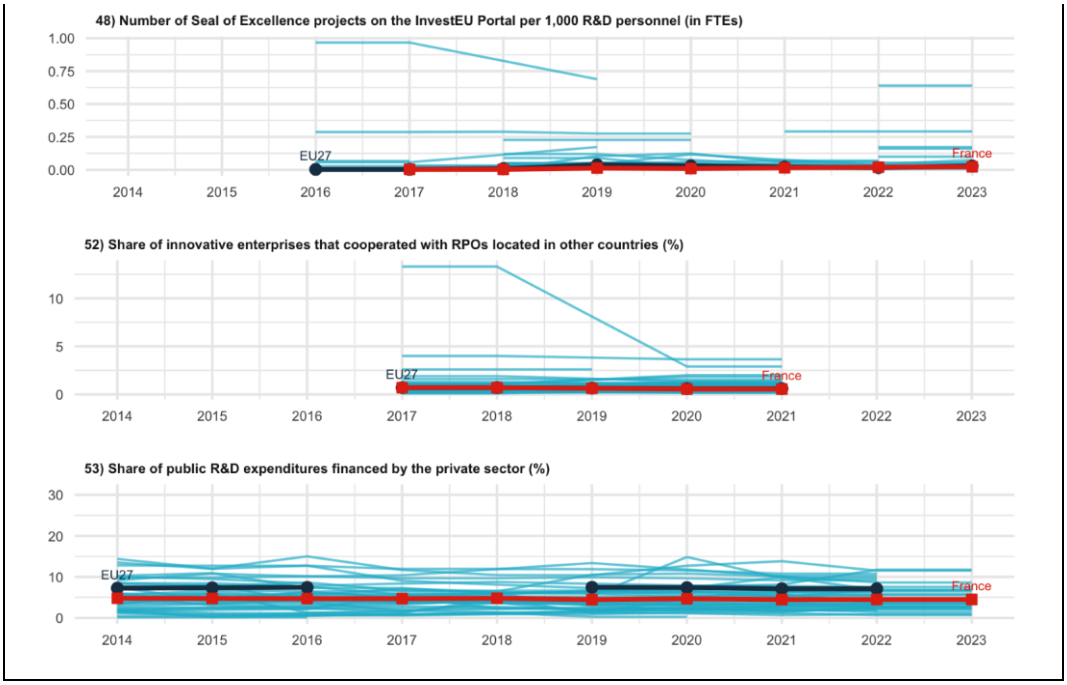


Source: Annex 1

ERA Priority 3 is addressed through a strong commitment to enhancing the strategic capacity of Europe's public research-performing organisations. Efforts are particularly focused on improving the **interface between industry, business, and academia**. ERA Dashboard Indicator 47 shows France performing above the EU27 average, although the most recent data is not yet available. For other indicators, France aligns closely with the EU27 average, with one notable exception, i.e. the share of public R&D expenditures financed by the private sector (ERA Dashboard Indicator 53), on which France continues to lag behind.

Figure 3-3 Indicators for ERA Priority 3





Source: Annex 1

The only Action (19) implemented under **ERA Priority 4** aimed at implementing an efficient and effective ERA monitoring mechanism. France does not have a dedicated national ERA action plan but supports ERA-related actions through its broader national development strategies, such as France 2030. However, this approach does not provide a systematic mechanism for tracking France's progress in ERA implementation.

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

This chapter presents a **qualitative assessment of the ERA Action commitments** of France and their effects on the national R&I system. As stated above, France does not have a dedicated national ERA action plan; however, its national R&I strategies and investments plans, such as France 2030 and the National Plan for Open Science, align with several ERA priorities and create synergies with European objectives. While France has made progress in several ERA priority areas, challenges remain in terms of monitoring, long-term implementation, and impact assessment.

France's commitment to **ERA Priority 1** is reflected in its strong emphasis on open science and research data sharing. The **National Plan for Open Science** plays a key role, and the country continues to invest in open science infrastructure with funding exceeding EUR 20 million annually. While France remains slightly above the EU27 average in open-access scientific publications, the latest available data on open-access research datasets dates to 2018, making it difficult to assess recent progress. Challenges remain in terms of ensuring long-term financial sustainability and fostering cultural change among researchers to embrace open practices fully. Additionally, the lack of a dedicated monitoring mechanism specific to ERA actions limits the ability to systematically track implementation and effectiveness.

Concerning **ERA Priority 2**, France has invested significantly in the green and digital transition through **France 2030**, which allocates EUR 54 billion to sectors such as hydrogen, decarbonisation, and digital transformation. These efforts align well with ERA objectives in advancing sustainability and resilience. Despite strong funding commitments, patents in environmental technology have declined in recent years; however, this trend may reflect a time lag between investment and measurable innovation outcomes, rather than the immediate effectiveness of current policies. Furthermore, citizen engagement in science remains a challenge, with public trust in research below the EU27 average.

Regarding **ERA Priority 3**, France actively supports participation in EU-funded R&I projects through national instruments such as the MRSEI call and the 'Diagnostic Europe' scheme. These initiatives help strengthen synergies between national and EU funding. While France is not eligible for most widening actions under Horizon Europe, its outermost regions are and face specific structural challenges in fully accessing and benefiting from these opportunities. Efforts are ongoing to improve coordination and the deployment of funding in these territories, although their long-term effects remain to be assessed.

On **ERA Priority 4**, the Act II of University Autonomy represents a significant national reform that aligns with ERA's goal of enhancing institutional capacity. With universities increasingly taking on leadership roles in research and innovation, disparities in implementation between institutions present a challenge. In parallel, strengthening cooperation with the private sector remains a broader issue, as France continues to lag behind its European counterparts in terms of the share of public R&D expenditure financed by private sources.

5. Conclusions

France has committed to all Actions of the ERA Policy Agenda. National R&I strategic policy documents align with the ERA priorities transversally and support their implementation through broader national initiatives.

As shown in Chapters 2 and 3, **France is making progress in key ERA areas**, particularly in open science, where the country performs above the EU27 average. However, progress remains uneven across ERA priorities. Differences in implementation capacity across institutions, gaps in monitoring mechanisms, and the limited regional scop of some national initiatives – in the outermost regions – continues to pose challenges.

Despite these difficulties, the analysis of relevant ERA Dashboard indicators underlines that France is **progressing towards both ERA and national R&I objectives**. Further efforts are needed to are needed to ensure more consistent implementation and measurable impact across the system.

It is also worth noting that 2024 was a particularly challenging year for France's R&I landscape, marked by **political instability and budgetary constraints**, resulting in the postponement of new initiatives.

6. References

France 2030: https://www.economie.gouv.fr/files/files/2021/France-2030.pdf

French Government (2023), Acceleration strategies for innovation, https://www.info.gouv.fr/organisation/secretariat-general-pour-l-investissement-sgpi/strategies-d-acceleration-pour-l-innovations

Law 2016-1321 of October 2016 for a Digital Republic (LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique), Government Gazzette n° 0235 of 8 October 2016

Stratégie nationale des infrastructrues de recherche, available at https://www.enseignementsuprecherche.gouv.fr/fr/la-strategie-nationale-des-infrastructures-de-recherche-46112

Law 2019-1147 of 8 November on Energy and Climate (OI n° 2019-1147 du 8 novembre 2019 relative à l'énergie et au climat), Government Gazzette n° 0261 of 9 November 2019

Innovate for the ecological transition ('Innover pour la transition écologique'), available at https://www.innoverpourlatransitionecologique.fr/fr

French Green Hydrogen Plan 2020-2030, https://www.tresor.economie.gouv.fr/Articles/4a1ac560-a021- 4358-a466-f5430928a1db/files/7d2fd0e2-8a3d-4ce8-bbb3-94cbd5b9c3d1

Ministry of Higher Education and Research (2021), Science with and for society: LPR measures ('Science avec et pour la société : les mesures issues de la LPR), available at https://www.enseignementsuprecherche.gouv.fr/fr/science-avec-et-pour-la-societe-les-mesures-issues-de-la-lpr-49218

Ministry of Higher Education and Research (2022), Call for projects 'Associations 2022, available at: https://www.enseignementsup-recherche.gouv.fr/fr/appels-projets-associations-2022-46210

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

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- via the following form: european-union.europa.eu/contact-eu/write-us_en.

FINDING INFORMATION ABOUT THE EU

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.

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