



European  
Commission

# ERA Monitoring 2024

Second 18-months review of the implementation of  
the ERA Policy Agenda ('EU-level Report')

Independent  
Expert  
Report

Research and  
Innovation

## ERA Monitoring 2024 – Second 18-months review of the implementation of the ERA Policy Agenda ('EU-level Report')

European Commission  
Directorate-General for Research and Innovation  
Directorate A - ERA & Innovation  
Unit A.2 - ERA, Spreading Excellence and Research Careers  
Contact Magda De Carli, Head of Unit A.2  
Heiko Prange-Gstöhl  
Email [RTD-ERA-FORUM@ec.europa.eu](mailto:RTD-ERA-FORUM@ec.europa.eu)  
[RTD-PUBLICATIONS@ec.europa.eu](mailto:RTD-PUBLICATIONS@ec.europa.eu)  
European Commission  
B-1049 Brussels

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# **ERA Monitoring 2024**

## **Second 18-months review of the implementation of the ERA Policy Agenda ('EU-level Report')**

This report was prepared by Sophie Viscido, Viola Peter, Lennart Stoy, Izabella Martins Grapengiesser, Penelope Giorgi (Technopolis Group), and Alasdair Reid, Susanna Elena Pérez, Lyudmyla Tautiyeva (EFIS Centre)

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## ACRONYMS

AI	Artificial Intelligence
CP	Co-programmed (European) Partnership
CCC	Climate City Contract
CoARA	Coalition for Advancing Research Assessment
CoP	Community of Practice
CSA	Coordination and Support Action
DG	Directorate General
EARMA	European Association of Research Managers and Administrators
EEI	European Excellence Initiative
EIC	European Innovation Council
EIT	European Institute of Innovation and Technology
EIB	European Investment Bank
EMFAF	European Maritime, Fisheries and Aquaculture Fund
EMIN	European Mission Network
EOSC	European Open Science Cloud
EPO	European Patent Office
ERA	European Research Area
ERC	European Research Council
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Funds
ESOF	EuroScience Open Science Forum
ETP	European Technology Platform
EUCYS	EU Contest for Young Scientists
EUIPO	EU Intellectual Property Office
EUI	European Universities Initiative
EU	European Union
FP	Framework Programme
GBV	Gender-Based Violence
GEP	Gender Equality Plan
GERD	Gross Domestic Expenditure on R&D
H2020	Horizon 2020
HES	Higher or Secondary Education Organisation
HE	Horizon Europe
HLG	High-level Expert Group
IA	Innovation Actions
ICT	Information and Communication Technologies
INCITE	European Innovation Centre for Industrial Transformation and Emissions
IP	Institutionalised (European) Partnership
IPCEI	Important Projects of Common European Interest
IPR	Intellectual Property Rights
ITC	Inclusiveness Target Countries
JRC	Joint Research Centre
JU	Joint Undertaking

KIC	Knowledge and Innovation Community
KPI	Key Performance Indicator
LE	Large Enterprises
MSCA	Marie Skłodowska-Curie Actions
MLE	Mutual Learning Exercise
NCP	National Contact Point
NZIA	Net-Zero Industry Act
OITB	Open Innovation Test Bed
OSINT	Open-Source Intelligence Tool
PKH	Partnership Knowledge Hub
PRC	Private-for-profit Companies
R&D	Research and Development
R&I	Research and Innovation
ReICO	Research and Innovation Careers Observatory
REC	Research Organisation
RFO	Research Funding Organisation (research-funding organisation)
RIA	Research and Innovation Actions
RI	Research Infrastructure
RIMA	R&I and Cohesion Managing Authorities (Network)
RIS3	Research and Innovation Strategy for Smart Specialisation
RRF	Recovery and Resilience Facility
RRI	Responsible Research and Innovation
RTD	Directorate-General for Research and Innovation, European Commission
RTO	Research and Technology Organisation
RPO	Research Performing Organisation (research-performing organisation)
SDG	Sustainable Development Goals
SET	Sustainable Energy Technology
SPR	Secondary Publication Rights
SoE	Seal of Excellence
SME	Small and medium-sized enterprises
SRIA	Strategic Research and Innovation Agenda
S&T	Science and Technology
STE(A)M	Science, Technology, Engineering, (Arts), Maths
STI	Science Technology and Innovation
SWD	Staff Working Document
TDM	Text and Data Mining
TEI	Team Europe Initiative
TI	Technology Infrastructure
TRL	Technology Readiness Level
TWG	Temporary Working Group
WP	Work Programme

# EXECUTIVE SUMMARY

## Purpose of the report

This EU-level report is the second 18-months review of the European Research Area (ERA) Policy Agenda 2022-2024. Covering the period from July 2023 to December 2024, it assesses the implementation of the ERA actions as well as the progress toward the ERA's priorities outlined in the Pact for Research and Innovation. Building on the first EU-level Report of 2023, the report analyses achievements, challenges, and gaps in implementation, offering evidence-based insights to inform the evolution of the ERA Policy Agenda and underpin future policy-making.

## Key achievements

Significant progress has been made in implementing the ERA Policy Agenda and thereby achieving the ERA objectives across the four priorities, laying a foundation for a more cohesive, inclusive, and competitive research and innovation (R&I) ecosystem in Europe. These efforts have positioned the ERA to address critical global challenges, strengthen Europe's knowledge economy, and advance its societal and strategic priorities. However, persistent challenges require further action to fully realise the ERA's potential.

### ERA Priority 1 - Deepening a truly functional internal market for knowledge

Under ERA Priority 1, multiple actions and initiatives have significantly advanced the circulation and open sharing of knowledge across the EU, while also fostering an inclusive and resilient knowledge ecosystem.

Several milestones have strengthened the **open sharing of research outputs** (ERA Action 1). This is the case notably through the **European Open Science Cloud (EOSC)**, with the launch of the EU Node as the federation's cornerstone, along with a process to integrate additional candidate Nodes, the Federation Handbook, and the EOSC Observatory. Nonetheless, achieving long-term sustainability and seamless integration of national solutions into the EOSC remains a key challenge. Further to this, ERA Scoreboard 2024 data shows that **open publication rates** have risen, but disparities persist among Member States. Additionally, a study under ERA Action 2 pinpointed **barriers arising from EU legislation on copyright**, data, and digitalisation, proposing policy options to enhance access and reuse of research results.

In parallel, the transition from traditional knowledge transfer to a dynamic system of **knowledge valorisation** under ERA Action 7 has encouraged renewed collaboration with the European Patent Office (EPO) and the EU Intellectual Property Office (EUIPO). Guiding principles and codes of practice aim to promote innovative approaches across the R&I landscape. Wider adoption and more effective implementation of these practices could maximise the societal and economic impact of R&I outputs. **Researchers' careers and talent circulation** has been further strengthened through ERA Action 4 implementing initiatives like the ERA Talent Platform and the Research & Innovation Careers' Observatory, as well as a Horizon Europe pilot call to create Talent Ecosystems centred around early-career researchers, supporting inter-sectoral partners to implement the European Charter for Researchers and improving the working conditions and employability of researchers.

Fostering an **inclusive and resilient knowledge ecosystem** has likewise been central to this priority. Under Action 3, efforts to reform research assessment frameworks have broadened recognition of research contributions, promoted qualitative metrics, and driven CoARA's membership beyond 700 organisations. Yet deeper cultural and structural shifts are still needed to embed diversity and inclusion in assessment practices. In a similar vein, ERA Action 5 has **advanced gender equality** by tackling structural barriers and Gender-Based



Violence (GBV), supporting the adoption of Gender Equality Plans (GEPs), and integrating gender dimensions into R&I activities. Reinforced monitoring, evaluation, and capacity building remain crucial for sustained progress. On the resilience side, specific initiatives have been put in place to **strengthen the role of Research Infrastructures** (RIs) in the EU R&I ecosystem, supporting their sustainability and accessibility in the longer run through enhanced gap analysis and roadmapping processes, a revised Charter of Access and increased cooperation with ecosystem actors, including Industry (ERA Action 8). Future efforts could focus on addressing funding gaps and supporting long-term sustainability of RIs and their increased strategic alignment with EU priorities.

Finally, ERA Action 9 has **deepened international cooperation and science diplomacy** via multilateral dialogues, Team Europe initiatives, and the European Framework for Science Diplomacy, expanding the EU's global R&I footprint while safeguarding its strategic interests. Meanwhile, ERA Action 6 has focused on protecting research and preserving **academic freedom** through measures such as a European digital one-stop-shop platform to counter foreign interference. Moreover, a study to provide an evidence base for a potential legislative proposal on the promotion and protection of the freedom of scientific research in the EU has been conducted. Future efforts at global scale will strive to maintain a balance between scientific freedom and international collaboration with world leaders, while reinforcing research and economic security.

### **ERA Priority 2 - Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA:**

Under ERA Priority 2, multiple actions have significantly advanced the alignment of research and innovation with the EU policy objectives related to the twin transition, driving industrial and institutional transformations and promoting stakeholder engagement to meet the green and digital challenges.

A first set of **initiatives and instruments have been launched or strengthened to tackle the twin transition**. Under ERA Action 10, the **EU R&I Missions** have been for instance supported by initiatives such as the Mutual Learning Exercise on Missions and the five EU Mission Implementation Platforms. These have strengthened stakeholder engagement and community building, laying the groundwork for effective frameworks to implement Missions. Looking ahead, promoting diversified funding strategies beyond R&I, integrating governance and policy actions, and enhancing public engagement could maximise the long-term societal impact of Missions by 2030. Regarding **European Partnerships**, the Partnership Knowledge Hub and the expert group's 2024 Biennial Monitoring Report, amongst others, provide steering towards improved portfolio coordination, leveraging public and private co-investments, and enhancing alignment with EU and national policies.

In addition, ERA Action 12 has supported the **integration of R&I with sectoral industrial policies**, instrumental to address the twin transition challenges. These initiatives include the **Mutual Learning Exercises** on Industrial Decarbonisation and the Whole-of-Government Approach in R&I, the dissemination of the **technology roadmaps** for low-carbon and circular technologies, a mapping of more than 180 EU-funded clean technology demonstrators, as well as efforts to leverage the role of **Technology Infrastructures** in Europe and strengthen the Industry 5.0 Community of Practice. Furthermore, initiatives under ERA Action 11, including the **Green Hydrogen Pilot** and **revisions to the Strategic Energy Technology** (SET) Plan, have established a foundation for green energy transformation, backed by collaboration between policy-makers, industry, and academia to drive the adoption of low-carbon technologies. Despite the progress made, further efforts to improve the integration between R&I and industrial policy are needed, and barriers such as fragmented regulatory frameworks, insufficient cross-sector and multi-level coordination, still hinder the scaling-up of innovative technologies in Europe.

ERA Priority 2 has also sought to **increase society's participation in the ERA**. Under ERA Action 13, the **European Universities Initiative** has broadened cross-border academic collaboration, reaching 64 alliances that involve 560 universities and 2,200 associated

partners across 35 countries. Despite this progress, ensuring the sustainability of these alliances once EU project-based funding ends remains challenging. Meanwhile, ERA Action 14 has helped to **bring science closer to citizens** through initiatives such as Plastic Pirates and the European City of Science, fostering engagement and raising awareness of societal challenges, although limited national uptake and funding pose sustainability issues. Strengthening the European R&I ecosystem while bridging it with the European Education Area requires long-term support for cross-border university alliances, coordinated European and national funding schemes, and reinforced public engagement initiatives aligned with ERA objectives.

### **ERA Priority 3 - Amplifying access to Research and Innovation excellence across the Union**

Under ERA Priority 3, multiple actions have boosted efforts to **broaden access to R&I excellence across the EU**, with an emphasis on forging **synergies between Cohesion policy instruments and the Horizon Europe Programme**. Under ERA Action 16, the R&I and Cohesion Managing Authorities Network (**RIMA**) mapped synergy implementation across Member States, identifying good practices. Progress was also made through Horizon Europe **WIDERA Pathways to Synergies** programme and **Widening Actions**, including calls under the Excellence Hubs, Hop-on Facility, ERA Chairs, Twinning, and the Dissemination and Exploitation Support Facility. Additionally, the **Regional Innovation Valleys** initiative, involving 148 regions, has worked to reduce fragmentation by fostering collaboration aligned with smart specialisations. Although the Regional Innovation Valleys initiative and Excellence Hubs have laid groundwork for ecosystem development, these efforts remain relatively small in scale. According to the [ERA Scoreboard 2024](#), collaboration networks remain concentrated in only a few countries, such as Greece and Portugal, leaving others underrepresented.

Besides, while the RIMA network has catalysed some progress, its final report identifies critical challenges, including insufficient programme alignment and **limited managing authority capacity to align planning and execution of R&I and Cohesion policy programmes**. Moving ahead, streamlining administrative processes and enhancing communication about synergies' benefits are also deemed essential.

In parallel, ERA Action 17 has advanced the **promotion of excellent research management**, primarily through the Horizon Europe projects RM ROADMAP and CARDEA, which identified EU-level challenges, launched a mutual learning platform, and created a network of 116 Research Managers' Ambassadors. While professionalising research management has gained momentum, outreach to Widening Countries remains essential to strengthen capacity-building.

Moving ahead, addressing disparities in R&D intensity, strengthening collaboration networks, and further professionalising research management, while simplifying funding mechanisms and increasing institutional capacity, could bridge existing gaps and ensure more inclusive access to R&I excellence across the Union.

### **ERA Priority 4 - Advancing concerted Research and Innovation investments and reforms**

Under ERA Priority 4, some efforts have been made to **align and coordinate R&I investments across Europe**, notably through **whole-of-government dialogues** that encourage broader policy integration. Increased funding for R&D, reforms in research careers, and stronger research-industry linkages have all enhanced Europe's scientific and technological capacity. Yet, **reaching the 3% R&D investment target still calls for bolder measures**. Overcoming regulatory barriers, dedicating a larger share of national budgets to joint initiatives, and scaling innovation procurement as a driver for demand-driven solutions is deemed essential. Instruments such as the European Semester, Structural Funds, and Seal of Excellence projects could reinforce these efforts by boosting both public and private R&D spending.

In the future, **accelerating structural reforms, developing ambitious national RD&I plans backed by Structural Funds**, and ensuring a more attractive and competitive R&I environment might receive further attention. Strengthening the whole-of-government approach at both national and EU levels can help overcome institutional fragmentation and foster deeper policy coordination.

## Suggestions for future ERA policy initiatives

This review of the ERA policy cycle highlighted good practices that can be further expanded to enhance future policy initiatives, including:

1. **Strengthening co-creation between Member States, associated countries, the Commission and Stakeholders** by maintaining the positive momentum of the renewed ERA governance structure, promoting transparency, collaboration, and active participation through the ERA Forum, while addressing specific issues through tailored approaches such as dedicated expert groups, stakeholder involvement or targeted Policy Support Facility Mutual Learning Exercises for a more focused engagement geared towards action implementation.
2. **Scaling the impact of the ERA Policy Agenda** by focusing the ERA Actions on key objectives where ERA can act as a true driving force, improving communication and raising visibility while fostering stakeholder engagement. In addition, it would be beneficial to foster the long-term sustainability of ERA initiatives by shifting from FP-funding for the implementation of actions to longer-term initiatives, possibly self-sustainable and embedded in the Policy Agenda.
3. **Enhancing the scope and inclusivity of the ERA Policy Agenda** to better reflect the challenges and opportunities of the European R&I ecosystem. The ERA could further support the bridging of the gap between basic research, technology development, industrial applications, and societal uptake, fostering a comprehensive approach across the entire R&I spectrum. To that end, strengthening the active participation of stakeholders, including industry, research organisations, regional bodies, and civil society, is seen as essential.
4. **Addressing disparities among Member States and countries associated to the Framework Programme** by prioritising efforts to reduce inequalities in performance, especially for those facing challenges in meeting targets. Stakeholders emphasise the need for capacity-building initiatives and tailored actions that focus on less R&I-intensive regions, fostering regional inclusivity, reducing disparities, and enhancing cohesion across Member States and countries associated to the Framework Programme.

# INTRODUCTION

This EU-level Report is the second 18-month review of the first ERA Policy Agenda 2022-2024. Covering the period from July 2023 to December 2024, it assesses the implementation of the ERA actions as well as the progress toward the ERA's priorities outlined in the [Pact for Research and Innovation in Europe](#) (Pact for R&I).

Since the ERA was revamped in 2020, notable progress has been achieved, particularly through the co-creation and the implementation of the first ERA Policy Agenda<sup>1</sup> (2022-2024), through which Member States, Horizon Europe Associated Countries, stakeholders, and the European Commission work together on specific ERA Actions.

This report builds upon the first EU-level Report<sup>2</sup>, which constituted the baseline for all following monitoring exercises. It presents the ERA Policy Agenda's implementation status and progress made towards the four ERA priorities recommended by the Council in the Pact for R&I.

The report assesses the implementation and overall performance of the ERA Policy Agenda by examining how each ERA Action aligns and contributes to progress towards achieving the ERA priorities and areas for joint action. This includes an assessment of the achievement of milestones and outcomes for each action, highlighting key EU-level policies and initiatives, as well as good practices at the national level, as appropriate.

The report also seeks to identify remaining challenges and to elaborate on key trends in the implementation of the ERA Policy Agenda, drawing evidence-based conclusions from the entire 2022-2024 period.

The ERA Policy Agenda actions during this period are presented in the table below, organised according to the four priority areas identified in the Pact for R&I.

**Table 1 List of ERA priorities and actions**

ERA priorities	ERA Policy Agenda Actions
<b>Priority 1</b> – Deepening a truly functioning internal market for knowledge	<ol style="list-style-type: none"><li>1. Enable Open Science, including through the European Open Science Cloud (EOSC)</li><li>2. Propose an EU copyright and data legislative framework for research</li><li>3. Reform the assessment system for research, researchers and institutions</li><li>4. Promote attractive research careers, talent circulation and mobility</li><li>5. Promote gender equality and foster inclusiveness</li><li>6. Protect academic freedom in Europe</li><li>7. Upgrade EU guidance for a better knowledge valorisation</li><li>8. Strengthen research infrastructures</li><li>9. Promote international cooperation</li></ol>

<sup>1</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>2</sup> European Commission: [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level Report'\)](#).

ERA priorities	ERA Policy Agenda Actions
<b>Priority 2</b> – Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA	10. Make EU research and innovation 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
<b>Priority 3</b> –Amplifying access to research and innovation excellence across the Union	15. Build up research and innovation ecosystems to improve excellence and competitiveness* 16. Improve EU-wide access to excellence 17. Enhance public research institutions' strategic capacity
<b>Priority 4</b> – Advancing concerted research and innovation investments and reforms	18. Support the development of EU countries' national processes for the ERA implementation* 19. Establish an ERA monitoring system 20. Support research and innovation investments and reforms*

\* Note: ERA Actions 15, 18 and 20 of the ERA Policy Agenda 2022-2024 have either been submerged in other actions or have not been implemented.

The report is structured along the four ERA priorities. Following an introduction with the key findings at priority level, each of these sections is divided into subsections according to the ERA Actions.

For each ERA Action, the report addresses:

- the objectives and scope of the Action,
- the status of the implementation of the Action, particularly focusing on the new developments in the second 18-month period,
- the assessment of progress towards the Action's objectives, including the scope for further action.

The report's concluding section focuses on the lessons learned and outlook towards future ERA initiatives.

## ERA PRIORITY 1: Deepening a truly functional internal market for knowledge

This chapter summarises the findings on the implementation of ERA Actions 1 to 9, highlighting their contributions to ERA Priority 1 objectives. They provide a detailed overview of the specific objectives of each action, the initiatives undertaken during the review period, and an overall assessment of progress towards achieving these objectives.

### 1. Action 1: Enable the open sharing of knowledge and the reuse of research outputs, including through the development of the European Open Science Cloud (EOSC)

#### Key findings Action 1: Enable the open sharing of knowledge and the reuse of research outputs, including through the development of the European Open Science Cloud (EOSC)

During the review period, ERA Action 1 has made significant progress in fostering the open sharing and reuse of research outputs through the development of EOSC:

- **The EOSC EU Node** became operational in October 2024 as the first node of the EOSC Federation, providing services to researchers and capabilities enabling the interconnection with additional nodes.
- Processes for **integrating additional EOSC Nodes** were developed, including a dialogue initiated with 29 candidate nodes, encompassing thematic and national infrastructures.
- **The EOSC Federation Handbook** outlines the governance, operational structures, and rules of participation for EOSC Nodes.
- In 2024, the EOSC Association established **new Task Forces and Opportunity Area Expert Groups**, enhancing EOSC's capacity for technical and collaborative development.
- The **EOSC Observatory** integrates new data sources, while annual surveys provide comprehensive insights into national contributions to Open Science (OS) and EOSC.

These advancements reflect the continued commitment to OS principles and the operationalisation of EOSC as a federated infrastructure. Key challenges remain, including harmonising national contributions, increasing the uptake of EOSC by researchers and ensuring the sustainability of the EOSC Federation beyond 2027.

#### 1.1. Objectives and scope of ERA Action 1

##### Purpose of the action:<sup>3</sup>

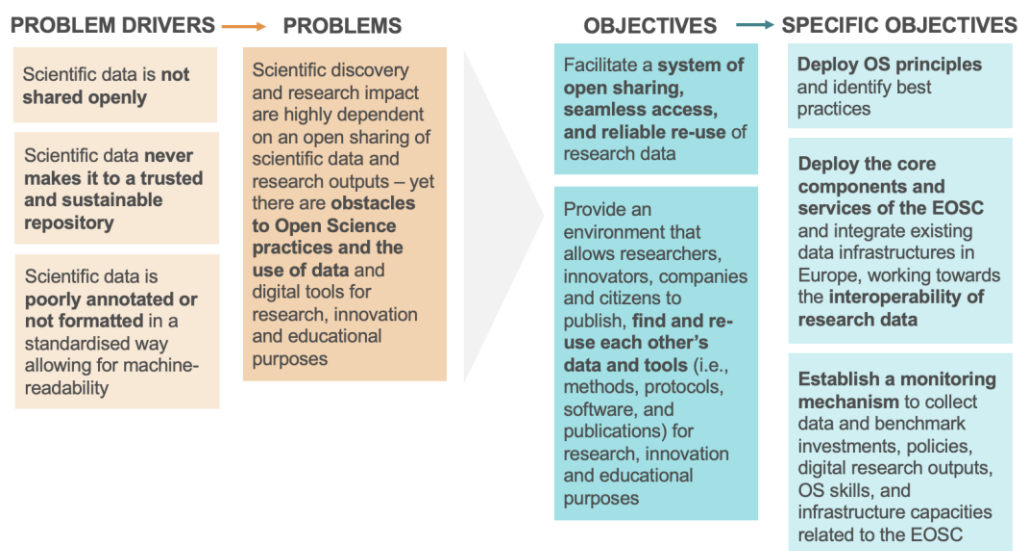
ERA Action 1 aims to promote the open sharing and reuse of research outputs by addressing key issues such as the lack of Open Access to scientific data, inconsistent storage practices, and the absence of data standardisation. To achieve this, the EOSC is being developed as a federated infrastructure, enabling seamless access to trusted and interoperable data. This action also enhances Open Science practices across Europe, helping researchers,

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<sup>3</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

innovators, and citizens share and reuse data and tools for research, innovation, and educational purposes.

**Figure 1 Objectives of ERA Action 1**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

## 1.2. Status of ERA Action 1 Implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>4</sup>

During the previous phase, significant progress was made. Key activities included:

- The **launch of the EOSC Observatory**, introduced as a policy intelligence tool to collect data on EOSC policy implementation and practices from over 30 countries.
- The **development of national Open Science strategies**, where Member States integrated Open Science practices and FAIR principles (findable, accessible, interoperable, and reusable) into national research funding programmes aligned with the EU-level objectives.
- **Procurement planning for the EOSC expansion**, including preparations to deploy managed services under the Horizon Europe Research Infrastructures Work Programme.
- **Support for research communities**, with initiatives such as workshops, consultations, and cascading grants at the national level, enabling smaller infrastructures to participate in the EOSC.
- The **preliminary implementation of EOSC Core Services**, deploying key components of the EOSC platform, including prototype services and interoperability frameworks, to facilitate seamless access and reuse of research data across Europe.

<sup>4</sup> European Commission: Directorate-General for Research and Innovation, [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



### 1.2.1. Deploy Open Science principles and identify best practices

Notable advances have been made towards mainstreaming OS principles and identifying best practices by the end of 2024. National research funding programmes have increasingly aligned with these principles.<sup>5</sup> Additionally, best practices in Open Science have been identified and disseminated through various projects, showcasing the application of Open Science across Europe.

According to the **OpenAIRE Open Science Observatory**, as of November 2024, 61.4% of publications, 33.7% of datasets, 53.2% of open-source software, and 44.7% of other types content in the OpenAIRE Graph are available in Open Access. Specifically:

- 6,901,970 Open Access publications out of 11,246,113 total
- 295,013 Open Access datasets out of 875,201 total
- 30,852 open-source software items out of 57,994 total
- 1,774,908 other Open Access items out of 3,973,487 total

Additionally, based on the **survey on national contributions to EOSC 2023**<sup>6</sup>, 87% of responding countries (21 out of 24) indicated that they have an open-access policy, and of these, 38% (8 out of 21) stated that their policy is mandatory; meaning it imposes legally binding requirements or regulations for Open Access.

Regarding the **identification of best practices in open science**, the May 2024 'Brochure of Use Cases on EOSC and Open Science', features 31 national examples of diverse EOSC implementations and Open Science practices, ranging from data management and citizen science to open-access publications and infrastructure improvements.<sup>7</sup>

### 1.2.2. Deploy core components and services of the EOSC and federate existing data infrastructures

During the review period, the development and operationalisation of **EOSC as a federated system of interconnected nodes** saw major advances. Central to these efforts was the **public launch of the EOSC EU Node**<sup>8</sup> in April 2024, followed in October by its full operational deployment during the EOSC Symposium.<sup>9</sup> The transition from previous EOSC portal and market (until March 2024 by the EOSC Future Project)<sup>10</sup> to the **EOSC Federation** marks a shift in both governance and technical approach.

Efforts to expand EOSC have included the integration of **additional Candidate EOSC Nodes**, with work focused on establishing the processes and criteria for their enrolment. A two-stage dialogue process with 29 potential candidate nodes has been launched to assess their interest and readiness for inclusion, leading to a first wave of Candidate Nodes that will build up a first operational EOSC Federation.<sup>11</sup> A cornerstone of the federation-building process is the **EOSC Federation Handbook**, which outlines the governance, operational

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<sup>5</sup> European Commission: European Research Executive Agency, [Q&A on what you should comply when applying for funding and implementing your project](#).

<sup>6</sup> O'Neill, G., & Seminaroti, E. (2024). Analysis of Survey on National Contributions to EOSC and Open Science 2023 (Draft version).

<sup>7</sup> Gareth O'Neill, Fleur Lebhardt, & Izabella Martins Grapengiesser. (2024). [Brochure of Use Cases on EOSC and Open Science \(Version V1\)](#).

<sup>8</sup> The EOSC EU Node is a platform that facilitates the creation of the EOSC Federation. More information is available at <https://open-science-cloud.ec.europa.eu/about/eosc-eu-node>

<sup>9</sup> European Commission: [Technical launch of the European Open Science Cloud \(EOSC EU node\) sets the stage for successful deployment](#), 2024.

<sup>10</sup> EOSC Future, [EOSC Future signs off](#).

<sup>11</sup> EOSC, [Building the EOSC Federation](#).



structure, and rules of participation for EOSC Nodes.<sup>12</sup> It will serve as the **reference document for the EOSC Federation**, guiding the enrolment and operation of additional nodes. The EOSC Association, in collaboration with the Tripartite Group, has drafted **requirements for candidate nodes** which specify the legal, technical, and operational standards needed to ensure interoperability and compliance within the Federation.<sup>13</sup>

Other ongoing work in EOSC is done through the [EOSC Association Task Forces](#). During the reporting period, four new Task Forces have been established: *FAIR Metrics and Digital Objects*, *EOSC Technical and Semantic Interoperability*, *Long-Term Data Retention*, and one addressing key technical challenges. These new Task Forces commenced activities in June and July 2024. In addition to the Task Forces, 2024 also saw the establishment of seven [Opportunity Area \(OA\) Expert Groups](#). These groups focus on specific domains such as *Persistent Identifiers*, *Metadata*, *Ontologies and Interoperability*, *FAIR Assessment and Alignment*, *User and Resource Environments*, *Open Scholarly Communication*, *Research Software*, and *Skills, Training, Rewards, and Recognition*. The OA Expert Groups serve as a platform for technical collaboration and co-creation, ensuring that the collective outputs of EOSC projects align with its long-term vision.

EU projects supporting the establishment of the EOSC Federation include [EOSC Beyond](#), which pilots the concept of EOSC Nodes, connecting national, regional, and thematic infrastructures to the EU Node. Additionally, the [OSCARS project](#) contributes through cascading grants to the growth of the EOSC ecosystem. Complementary initiatives such as [SIESTA](#), launched in January 2024, have addressed the **secure handling of sensitive data** within the EOSC framework. [EVERSE](#), which began in early 2024, aims to create a **unified framework for managing research software** in alignment with EOSC standards.

### 1.2.3. Establish a monitoring mechanism to track data, investments, and policies related to EOSC

Significant progress has been made in monitoring activities under ERA Action 1, conducted through two primary channels:

- **Monitoring the EOSC Partnership and SRIA Objectives:** The EOSC Association monitors progress against the Strategic Research and Innovation Agenda objectives. Biennial surveys on **key performance indicators** provide data for the European Commission's Horizon Europe Biennial Monitoring Report and offer a structured assessment of the Partnership's achievements.<sup>14</sup> The 2022 baseline survey identified key gaps, such as interoperability frameworks, which were further refined through a survey concluding in October 2024.<sup>15</sup>
- **Monitoring national contributions to EOSC and Open Science:** The [EOSC Observatory](#) in collaboration with the EOSC Steering Board annually tracks contributions from Member States and Associated Countries across eight categories: *Publications*, *Data*, *Software*, *Services*, *Infrastructure*, *Skills/Training*, *Assessment*, and *Engagement*. Initially developed under the EOSC Future project, the Observatory's monitoring activities transitioned to the [EOSC Track project](#) in December 2023. The most recent survey was concluded in October 2024 and external data sources such as the OpenAIRE Research Graph, EOSC Resource Hub, Eurostat, and the Coalition for Advancing Research Assessment (CoARA) were integrated into the Observatory.

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<sup>12</sup> EOSC Association, [EOSC Federation Handbook](#).

<sup>13</sup> EOSC Association, [Requirements for Candidate Nodes](#).

<sup>14</sup> EOSC Association, [EOSC Partnership Monitoring Framework](#).

<sup>15</sup> EOSC, [Biennial KPI survey for EOSC Partnership](#), 2024; European Commission: [Performance of European partnerships](#), 2024.

Besides these monitoring activities, ongoing projects such as [PathOS](#) develop methods to assess the impact of Open Science.

### 1.3. Assessment of the progress towards the ERA Action 1 objectives over the 2022-2024 period

#### 1.3.1. Assessment of progress towards specific objectives: main initiatives and outcome

The initiatives under ERA Action 1 have made significant advances, summarised in the table below.

**Table 2 Assessment of the progress towards Action 1 Specific Objectives: initiatives and outcome**

Specific objectives <sup>16</sup>	Main initiatives implemented	Main outcome
Deploy Open Science principles and identify best practices	<ul style="list-style-type: none"> <li>Implementation of Open Access and FAIR mandates under Horizon Europe across all funded projects</li> <li>Identification and dissemination of Open Science use cases (e.g., 'Brochure of Use Cases on EOSC and Open Science')</li> </ul>	<ul style="list-style-type: none"> <li>Increased alignment of national policies with Open Science principles</li> <li>Broader adoption of open access practices across member states</li> <li>Repository of Open Science use cases</li> <li>Enhanced capacity for Open Science through Horizon Europe support</li> </ul>
Deploy core components and services of the EOSC and federate existing data infrastructures	<ul style="list-style-type: none"> <li>Development of EOSC core services, exchange infrastructure, and interoperability framework</li> <li>Procurement for EOSC core components, including services, exchange infrastructure, and application services</li> <li>Designation of candidate nodes</li> <li>Drafting of the EOSC Federation Handbook to guide governance and technical standards</li> </ul>	<ul style="list-style-type: none"> <li>Full operationalisation of the EOSC EU Node (October 2024)</li> <li>Successful onboarding of over 25 national and thematic infrastructures</li> <li>Establishment of processes for integrating federated EOSC nodes by 2025</li> <li>Enhanced interoperability of research infrastructures across Europe</li> </ul>
Establish a monitoring mechanism to track data, investments, and policies related to EOSC	<ul style="list-style-type: none"> <li>Launch of the monitoring framework for national contributions to EOSC and Open Science</li> <li>Implementation of the EOSC Partnership Monitoring Framework</li> <li>Deployment of projects such as PathOS, GraspOS, SciLake contributing to the assessment Open Science impacts</li> <li>Integration of data sources such as the OpenAIRE Research Graph and Eurostat into the EOSC Observatory</li> </ul>	<ul style="list-style-type: none"> <li>Regular collection and public dissemination of data through the EOSC Open Science Observatory</li> <li>Identification of national trends and disparities in Open Science contributions</li> <li>Enhanced understanding of the social, economic, and academic impacts of Open Science</li> <li>Comprehensive tracking of EOSC and Open Science financial contributions</li> </ul>

<sup>16</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>16</sup>	Main initiatives implemented	Main outcome
	<ul style="list-style-type: none"> <li>Refinement of the monitoring mechanisms under EOSC Track</li> <li>Development of the EOSC Open Science Observatory</li> </ul>	

Source: Technopolis Group, based on data collected through desk research and interviews

The financing of EOSC is organised as a Co-Programmed European Partnership under a Tripartite Governance comprising the European Commission, Member States, and the EOSC Association. The European Commission has committed EUR 450 million through the Framework Programme. EOSC Association members pledged approximately EUR 500 million in in-kind and financial contributions.<sup>17</sup>

### 1.3.2. Challenges and opportunities towards future ERA initiatives

The full launch of the EU Node in October 2024 marks a significant milestone. In the short to mid term, **setting up EOSC Nodes is a priority, providing a major opportunity for researchers across Europe to access, share, and manage scientific data and services.**

**The success of ERA Action 1 is closely intertwined with other ERA Actions.** For instance, the reform of research assessment systems under ERA Action 3 is critical for incentivising Open Science practices, while ERA Action 4 plays a key role in fostering a skilled and dynamic research community to drive Open Science initiatives. Similarly, ERA Action 2 is deeply connected to the data management questions central to EOSC. Alignment and coordination between these ERA Actions are required to maximise their collective impact.

Despite increased national contributions to Open Science policies and infrastructures, **disparities among Member States remain a challenge.** The lack of uniformity in financial investments, policy adoption, and interoperability frameworks hinders seamless collaboration. Addressing these differences will require sustained efforts at both national and European levels to ensure equitable access to resources and harmonised standards.

While the monitoring frameworks have seen visible progress, the **limited longitudinal coverage of monitoring data** means that **conclusions about the impact of Open Science and EOSC remain difficult.** Continued long-term data collection, enhanced coordination between the two frameworks, and further refinement of methods could allow robust evaluations that can guide future policy and investment decisions effectively.

## 2. Action 2: Propose an EU copyright and data legislative and regulatory framework fit for research

### Key findings Action 2: Propose an EU copyright and data legislative and regulatory framework fit for research

During the review period, ERA Action 2 aimed to improve access to and reuse of publicly funded research and innovation results as well as publications and data for scientific purposes by providing evidence on legal and regulatory barriers and identifying policy options to overcome them:

- The study **‘Improving access to and reuse of research results, publications and data for scientific purposes’** (2024) evaluated the effects of EU copyright frameworks and research data legislation. It identified barriers such as the high cost of accessing

<sup>17</sup> EOSC, [Additional Activities: In-kind contributions to the EOSC Partnership](#).

and making research outputs available in Open Access as well as legal uncertainty about how research output can be used and shared. It proposed legislative and non-legislative policy options to address these issues.

- **Focused examination of an EU-wide Secondary Publication Right (SPR)**, analysing its potential benefits and the impact of the limitations attached to SPR, such as embargo periods, research outputs covered, use-requirements etc. affecting the way it has been implemented in Member States (i.e., Germany, France, Belgium, Austria, the Netherlands). Bulgaria introduced SPR during the study and was therefore not analysed.
- **Analysis of how the research exceptions to EU copyright rules have been implemented in Member States.** The study finds that the implementation is fragmented due to the voluntary and limited scope of the research exceptions, causing legal uncertainty about how the exceptions can be applied in research projects.
- **Investigation into EU data and digital legislation**, highlighting complexities in legal compliance for researchers due to inconsistent provisions across laws like the Open Data Directive, Data Governance Act, Data Act, Digital Services Act, Digital Markets Act and AI Act. Recommendations included standardising terminologies, integrating research considerations into regulations, and improving monitoring mechanisms.

Although no legislative proposals have been put forward so far, the findings provide a foundation for possible future policy measures.

## 2.1. Objectives and scope of ERA Action 2

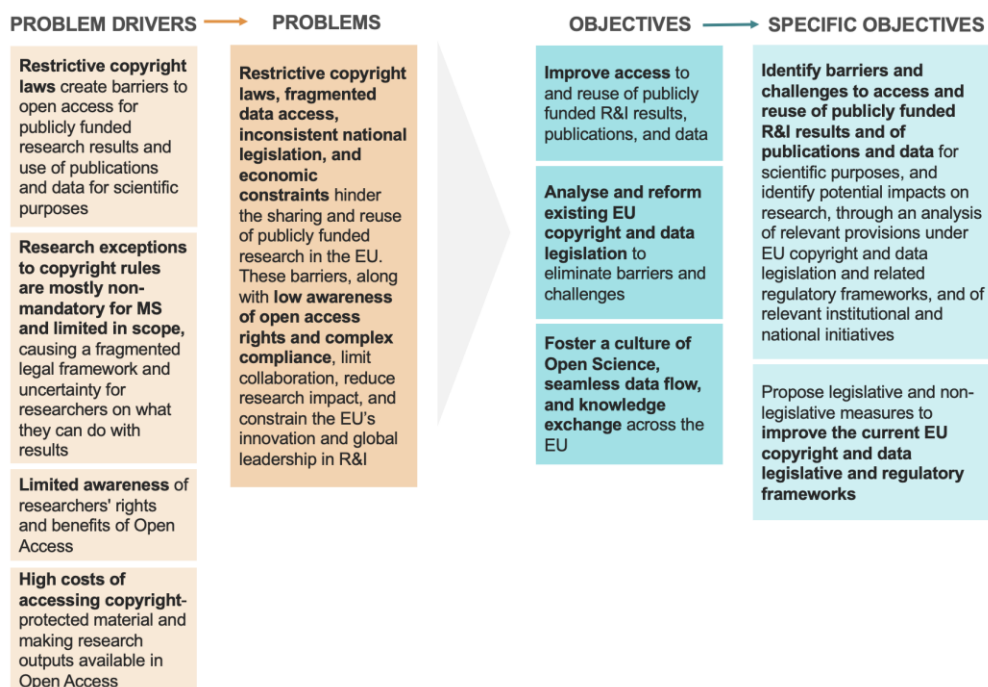
### Purpose of the action:<sup>18</sup>

ERA Action 2 aims to propose an EU copyright and data legislative/regulatory framework fit for research, improving **access and reuse of publicly funded R&I results, and use of publications and data for scientific purposes**. This improves the legal conditions for the circulation of scientific knowledge – also known as the ‘fifth freedom’ of the Single Market. The action supported this objective by delivering evidence on existing legal and regulatory barriers and by identifying policy options to address the detected barriers. The specific scope covers EU SPR, copyright and related rights, and data and digital legislation.

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<sup>18</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

**Figure 2 Identified problems and defined objectives of ERA Action 2**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

## 2.2. Status of ERA Action 2 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>19</sup>

The implementation of the first objective of Action 2 – identifying existing barriers – began with four independent studies published in 2022 covering:

- EU copyright and related rights and access to and reuse of data<sup>20</sup>
- EU copyright and related rights and access to and reuse of scientific publications, including Open Access – Exceptions and limitations, rights retention strategies and the secondary publication rights<sup>21</sup>
- Open Data Directive, Data Governance and Data Act and their possible impact on research<sup>22</sup>
- Digital Services Act and Digital Markets Act and their possible impact on research<sup>23</sup>

<sup>19</sup> European Commission: Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>20</sup> European Commission: Directorate-General for Research and Innovation and Senftleben, M., [Study on EU copyright and related rights and access to and reuse of data](#), 2022.

<sup>21</sup> European Commission: Directorate-General for Research and Innovation and Angelopoulos, C., [Study on EU copyright and related rights and access to and reuse of scientific publications, including Open Access – Exceptions and limitations, rights retention strategies and the secondary publication right](#), 2022.

<sup>22</sup> European Commission: Directorate-General for Research and Innovation and Eechoud, M., [Study on the Open Data Directive, Data Governance and Data Act and their possible impact on research](#), 2022.

<sup>23</sup> European Commission: Directorate-General for Research and Innovation and Lundqvist, B., [Study on the Digital Services Act and Digital Markets Act and their possible impact on research](#), 2022.

These studies identified key challenges in accessing and reusing scientific publications and data for research, for example how common copyright and licensing conditions in publishing agreements often restrict Open Access to scientific publications. Proposed solutions include rights retention strategies, harmonising copyright laws, and introducing an EU-wide SPR. Regarding data, challenges include ownership of data, lack of clear frameworks for data sharing, and issues with inconsistent standards, security, and licensing.

The study ‘Improving access to and reuse of research results, publications and data for scientific purposes’<sup>24</sup> represented the main next step under ERA Action 2. Besides evaluating the effects of the EU copyright framework on research and the potential impact of various policy options, it identifies and presents relevant provisions for research in EU data and digital legislation, with a focus on rights and obligations.

The findings highlight several key barriers faced by researchers, including limited access to publications, high cost of making research output available in Open Access, difficulties in obtaining copyright permissions, and fears of infringement. Research-performing organisations also struggle with copyright laws, particularly in accessing, reusing, and providing Open Access to publicly funded research.

### **2.2.1. An EU wide Secondary Publication Right**

Special attention was given to investigate the potential for an EU-wide SPR, based on existing legislation in a set of Member States with SPRs (Germany, France, Belgium, Austria Bulgaria, and the Netherlands). The study found that researchers reported moderate benefits, but many remain unaware of SPR, and research organisations find certain national provisions limiting. The study analysed several legislative and non-legislative policy options to remedy these shortcomings, including an EU-wide SPR, with different variations such as broad definitions of research outputs, lowering public funding requirements, applying SPRs to the ‘version of record’, lowering embargo periods, allowing commercial use, and remuneration schemes.

### **2.2.2. Challenges related to the EU copyright acquis**

The study also investigated how to reform and strengthen research exceptions available in EU copyright law, such as a “fully harmonised, mandatory, and general exemption of scientific research”. In addition, it highlighted the barriers faced by research-performing organisations from the requirement of lawful access, including lack of subscriptions to copyright-protected material and limitations to share such material in transnational research consortia. In the same vein, the study pointed to a need for actions against excessive technological protection measures, hindering the application of ‘research exceptions’.

Furthermore, the study highlighted the complexity of relying on non-commercial use exceptions, in particular for public-private research partnerships. To support lawful text and data mining (TDM), the study also found that stakeholders welcome clarifications on the practical use of TDM provisions. Finally, the study also investigated umbrella licensing solutions and remuneration regimes analogous to the investigation of SPRs.

### **2.2.3. EU data and digital legislation**

Additionally, the study examined the interplay of EU data and digital laws with research, identifying complexities and providing recommendations concerning the Open Data Directive, the Data Governance Act, Digital Services Act, Digital Markets Act, Data Act, AI Act, and EOSC. In these legal acts, the needs of research stakeholders are often not systematically

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<sup>24</sup> European Commission: [Improving access to and reuse of research results, publications and data for scientific purposes – Study to evaluate the effects of the EU copyright framework on research and the effects of potential interventions and to identify and present relevant provisions for research in EU data and digital legislation, with a focus on rights and obligations](#), 2024.

addressed. This complex landscape affects legal compliance and limits benefits for researchers and research organisations.

The key results of this study highlight the risk of losing consistency across legal acts, possible negative effects of complex access and reuse regimes, and inconsistent recognition of academic freedom as values underpinning also data and digital legislation.<sup>25</sup> In turn, actions such as standardising terminologies, integrating research into regulatory tools, and regularly monitoring compliance challenges could address these issues. Consistent provisions across legal acts could also reduce compliance burdens.<sup>26</sup>

### 2.3. Assessment of the progress towards the ERA Action 2 objectives over the 2022-2024 period

#### 2.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The studies conducted on EU copyright and related rights, access to scientific publications, and data reuse contributed to observed progress in ERA Action 2 objectives by providing a comprehensive analysis of the barriers and challenges faced by researchers in accessing, utilising, and sharing publicly funded research outputs. The table below summarises the main initiatives and outcomes delivering on the Action’s specific objectives.

**Table 3 Assessment of the progress towards Action 2 Specific Objectives: initiatives and outcome**

Specific objectives <sup>27</sup>	Main initiatives implemented	Main outcome
<ul style="list-style-type: none"> <li>Identify barriers and challenges to the access to and reuse of publicly funded R&amp;I results and of publications and data for scientific purposes, and identify potential impacts on research, through an analysis of relevant provisions under EU copyright and data legislation and related regulatory frameworks, and of relevant institutional and national initiatives</li> <li>Propose legislative and non-legislative measures to improve the current EU copyright and data legislative and regulatory frameworks</li> </ul>	<ul style="list-style-type: none"> <li>Study on EU copyright and related rights and access to and reuse of scientific publications, including Open Access</li> <li>Study on EU copyright and related rights and access to and reuse of data</li> <li>Study on the Open Data Directive, Data Governance and Data Act and their possible impact on research</li> <li>Study on the Digital Services Act and Digital Markets Act and their possible impact on research</li> <li>Study: Improving access to and reuse of research results, publications and data for scientific purposes</li> <li>Call in 2023-2025 Horizon Europe Work Programme on “Capacity building on Intellectual Property (IP) management to support Open Science” (IP4OS</li> </ul>	<ul style="list-style-type: none"> <li>Identification of copyright challenges on access to and reuse of research outputs</li> <li>Identification of barriers to access for researchers and institutions</li> <li>Analysis of the impact of legal acts on research</li> <li>Identification of policy options such as EU-wide SPR, harmonised and strengthened general research exception to EU copyright rules, horizontal data access rights of EU data and digital legislation etc.</li> </ul>

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

<sup>27</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.



Specific objectives <sup>27</sup>	Main initiatives implemented	Main outcome
	project) to be implemented in 2025-2026	

Source: Technopolis Group, based on data collected through desk research and interviews

Studies identified key obstacles such as legal uncertainty and fragmented implementation of research exceptions, issues over access and making research output available in Open Access, and the lack of awareness surrounding SPRs available at national level. Additionally, by examining the implications of several regulations and directives, the studies highlight how the current EU copyright and data legislative framework affects research collaboration, data access and sharing practices, and the need for attention to the needs of researchers and research organisations in EU copyright, digital and data legislation. A remaining challenge is the complexity of existing copyright, data and digital legislation. The findings can serve as a foundation for developing targeted measures underpinning the goals of ERA Action 2.

ERA Action 2 was largely implemented through stakeholder consultations and expert studies. A new Horizon Europe project, [IP4OS](#), addressing some of the ERA Action 2 objectives started in January 2025.

### 2.3.2. Challenges and opportunities towards future ERA initiatives

The studies have provided evidence, identified policy options and created a foundation for future ERA initiatives. The 2024 study employed a multicriteria analysis which suggests an overall positive social/scientific impact of the explored policy options in terms of accessing and reusing research results, collaboration opportunities and in general on advancing research and innovation. However, the economic impact assessment of the policy options is based on a small dataset and found mixed effects, as research-performing organisations will gain more resources while certain publishers will lose revenue. To better understand these effects, an in-depth economic impact analysis of the identified policy options is planned for the next ERA Policy Agenda.

## 3. Action 3: Advance towards the reform of the assessment system for research, researchers and institutions to improve their quality, performance and impact

### Key findings Action 3: Advance towards the reform of the assessment system for research, researchers and institutions to improve their quality, performance and impact

During the review period, ERA Action 3 initiatives supported the reform of the assessment system for researchers, including through the promotion of a broader recognition of research contributions, and enhanced and responsible use of qualitative assessment tools and metrics:

- **Expanded Coalition for Advancing Research Assessment (CoARA)**, which has grown to over 700 member organisations, established 13 working groups, and formed 16 national chapters. Over 150 institutional action plans have been developed and are now entering the implementation phase. CoARA Boost has provided significant support, including cascading grants to implement reform actions and fostering international collaboration.



- **Horizon Europe projects supporting reform**, such as OPUS, SciLake, GraspOS, and SECURE, piloting new assessment frameworks, building data infrastructure, enhancing career frameworks, and integrating Open Science practices into research evaluation.
- **Integration of reform into funding programmes**, including the European Universities Initiative and the European Excellence Initiative, have engaged Higher Education Institutions in research assessment reform, with some alliances developing strategies and piloting new approaches.

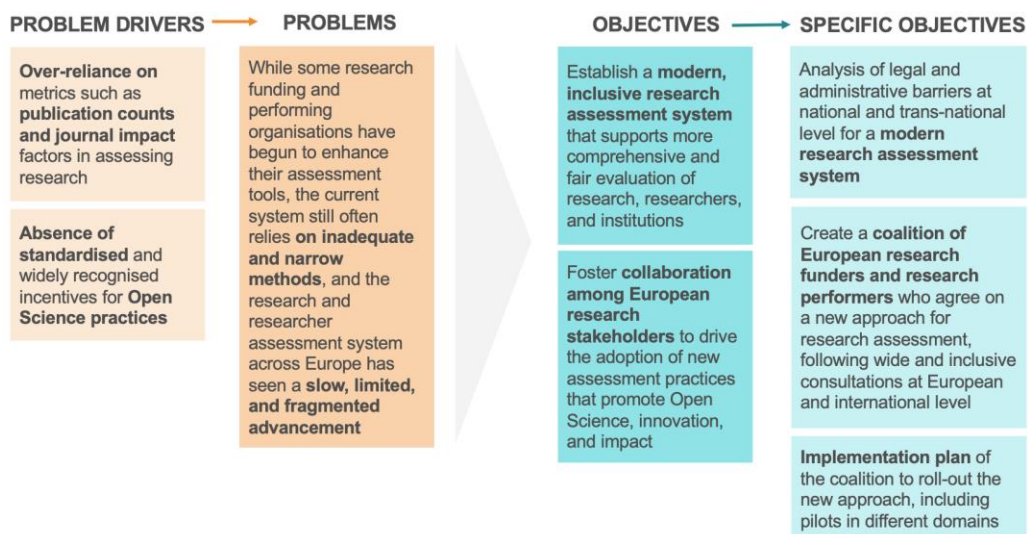
These achievements substantially contributed to advance ERA Action 3. However, challenges remain, such as fostering greater diversity and inclusion in assessment practices, addressing cultural and structural barriers, and ensuring consistent implementation across Member States.

### 3.1. Objectives and scope of ERA Action 3

#### Purpose of the action:<sup>28</sup>

ERA Action 3 aims to **reform the research assessment system** to better evaluate the quality and performance of researchers and institutions. The reformed system is being designed to be robust yet flexible, accommodating the diversity of countries and research cultures across Europe. A core principle is to reflect a broader range of research activities and outputs in research assessment procedures, the responsible use of metrics, and the application of more qualitative assessment tools. Key priorities include promoting **Open Science** practices, fostering greater **collaboration** and **knowledge-sharing**, and enhancing **data availability and exchange** for assessment. These efforts are intended to increase the efficiency, transparency, and fairness of assessment practices, ultimately improving research quality and impact.

**Figure 3 Identified problems and defined objectives of ERA Action 3**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

<sup>28</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

## 3.2. Status of ERA Action 3 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>29</sup>

A key achievement of the first phase was the finalisation of Agreement on Reforming Research Assessment (ARRA) in mid-2022 together with a core group of stakeholders, following a European Commission study released in November 2021.<sup>30</sup> Subsequently, the **Coalition for Advancing Research Assessment (CoARA)** was officially set up in late 2022, inviting stakeholder organisations to sign the Agreement and to become members of the Coalition. CoARA is based on ten commitments of the ARRA and establishes a common direction for research assessment reform. Besides the establishment of CoARA, several Horizon Europe calls and projects supporting research assessment reform were launched.

Between mid-2023 and late 2024, substantial advances were made in implementing ERA Action 3. This includes the expansion of work under the umbrella of CoARA, the implementation of several Horizon Europe projects supporting research assessment reform from different angles, and the continued efforts to mainstream assessment reform in other funding programmes.

#### 3.2.1. Coalition for Advancing Research Assessment

As of August 2024, over 700 organisations had signed the agreement on reforming research assessment. **CoARA has thus significantly grown in the past year** and has established a stable governance system including a General Assembly and a Steering Board. More than 150 organisations have put forward an action plan on how they intend to implement commitments contained in the agreement.<sup>31</sup>

Under the CoARA umbrella, **a range of working groups and national chapters have started operations**. So far, 13 working groups have been approved, and 16 national chapters have formed. The national chapters aim to identify potential legal and administrative barriers and come up with solutions, while working groups function as ‘communities of practice’ allowing CoARA members to work on common thematic areas. By participating in working groups, members can pilot new approaches to research assessment and contribute to collective progress. Member organisations benefit from: (1) Knowledge exchange: sharing best practices and lessons learned with peers; (2) Support for early reformers: organisations just beginning their reform journey can learn from those further along in the process; and (3) Innovative solutions: CoARA fosters an environment where new ideas for assessment can be developed and tested.

The 36-month **CoARA Boost project**, launched in October 2023, is an integral part of CoARA’s mission. It functions as a secretariat for various operations of CoARA. Its primary objectives are to enhance CoARA’s operational capacity, support the implementation of research assessment reforms, and assist working groups in exploring new models of research evaluation. Additionally, the project aims to expand the global reach of CoARA’s reform efforts by increasing its international membership and fostering stronger global cooperation in the evolution of research assessment practices.

Through the support of CoARA Boost, a cascading funding mechanism supports the implementation of CoARA action plans and research assessment reform. The first call received 72 applications out of which 25 proposals were successful.<sup>32</sup>

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<sup>29</sup> European Commission: Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>30</sup> European Commission: [Towards a reform of the research assessment system – Scoping report](#), 2021.

<sup>31</sup> See [https://zenodo.org/communities/coara\\_action\\_plans](https://zenodo.org/communities/coara_action_plans)

<sup>32</sup> <https://coara.eu/news/25-projects-selected-for-the-first-cascade-funding-call/>

### 3.2.2. European projects addressing research assessment reform

Several EU-level projects that support the objectives of the ERA Actions have commenced. Their contributions include:

- [Open and Universal Science](#) (OPUS), which supports research assessment system reforms by designing coordination and support measures, and incentivising Open Science. This initiative is moving away from the traditional impact factors in research assessment towards new methods that align with Open Science initiatives.
- [SciLake](#) aims to establish a “scientific lake” for research assessment where scientific knowledge is “contextualised, connected, interoperable, and easily accessible”. These services are tailored to scientific merit and include automated assessments of reproducibility, replication, and the scientific, societal, or economic impact of research.<sup>33</sup>
- [GraspOS](#) is contributing to research assessment reform. It is developing and piloting an Open Science-aware responsible research assessment framework, focusing on tools and services that support fair and transparent evaluation practices.
- **SECURE** aims to enhance sustainable research careers while addressing challenges in modern research assessment systems. It focuses on developing and implementing a common Research Career Framework that supports the recruitment, employment, training, career development, progression, and mobility of researchers. Other projects launched in previous years but active during the second phase of the ERA Agenda include [DocTalent4EU](#) and [GRANteD](#).

### 3.2.3. Contributions under other funding programmes

Along the same principle, the initiative of the **European University alliances**, and their activities in research assessment, represent an important vehicle to support higher education institutions in reforming research assessment. The network now encompasses 64 alliances, and it has expanded significantly, now comprising around 560 higher education institutions across Europe.<sup>34</sup> A 2024 study on the implementation of the University Alliances found that 16% of alliances had a strategy for reforming research assessment, while 49% reported it as being under development.<sup>35</sup> A detailed report on different instruments contributing to research assessment reform from March 2024 provides further analyses of different approaches within European University alliances.<sup>36</sup>

The [European Excellence Initiative](#) (EEI) is another instrument featuring a component for mainstreaming the reform of research assessments. From a call launched in early 2023, 12 proposals were selected and began operations in early 2024.

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<sup>33</sup> SciLake, [EOSC projects advancing the research assessment reform](#), 2024.

<sup>34</sup> On the European Universities initiative see: <https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative>

<sup>35</sup> European Commission: Directorate-General for Research and Innovation, O’Sullivan, F., Jefferies, I., Gautier, N. and Anwad, F., [Assessment of the Horizon 2020 support to the European University Initiative – Analytical report prepared within the study ‘Towards a European Excellence Initiative’](#), 2023.

<sup>36</sup> European Commission: European Research Executive Agency, Oancea, A. and Wilson, S., [Report on research assessment](#), 2024.

### 3.3. Assessment of the progress towards the ERA Action 3 objectives over the 2022-2024 period

#### 3.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The table below summarises the main initiatives and outcome delivering on the specific objectives of ERA Action 3.

**Table 4 Assessment of the progress towards Action 3 Specific Objectives: initiatives and outcome**

Specific objectives <sup>37</sup>	Main initiatives implemented	Main outcome
Analysis of legal and administrative barriers at national and trans-national level for a modern research assessment system	<ul style="list-style-type: none"> <li>• SECURE</li> <li>• GRANteD</li> <li>• SUPERA</li> <li>• GraspOS</li> <li>• ORION</li> <li>• OPUS</li> <li>• SciLake</li> <li>• DocTalent4EU</li> <li>• Support studies on research assessment reform</li> </ul>	<ul style="list-style-type: none"> <li>• Research career framework</li> <li>• Training on gender equality and gender-sensitive research assessment</li> <li>• Research Assessment Framework</li> <li>• Federated Open Infrastructure</li> <li>• Promotion of Open Science practices</li> <li>• Scientific Lake</li> </ul>
Create a coalition of European research funders and research performers who agree on a new approach for research assessment, following wide and inclusive consultations at European and international level	<ul style="list-style-type: none"> <li>• CoARA</li> <li>• Support through CoARA Boost</li> </ul>	<ul style="list-style-type: none"> <li>• A coalition of over 700 organisations committed to improving research assessment practices</li> <li>• CoARA working groups and national chapters</li> <li>• Increased operational capacity of CoARA</li> </ul>
Implementation plan of the coalition to roll-out the new approach, including pilots in different domains	<ul style="list-style-type: none"> <li>• Mainstreaming European Universities Initiative and European Excellence Initiative</li> <li>• Cascading grants in CoARA Boost</li> </ul>	<ul style="list-style-type: none"> <li>• More than 150 institutional action plans</li> <li>• Support for research assessment reform in EEI and European University Consortia</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

A major success of ERA Action 3 is the growth of CoARA in quantitative and qualitative terms. Individual projects such as GRANteD, SECURE's, OPUS, DocTalent4EU, or SciLake delivered individual outcomes relevant to ERA Action 3, such as infrastructure for Open Science research assessment or AI-assisted services for research evaluation.

Finally, the picture is completed through progress within the European Universities Initiative, including benchmarking exercises on a research assessment reform, reviewing alternative approaches to evaluation, developing recommendations, and raising awareness of new assessment paradigms.

These achievements overall underscore the progress of initiatives under ERA Action 3 in promoting research assessment reform. Notable is the diversity of stakeholders engaged in

<sup>37</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

CoARA, encompassing higher education institutions, research performing organisations, funders, evaluation agencies, research organisations and other bodies, all of which are crucial to enact a systemic reform of research assessment.

### 3.3.2. Challenges and opportunities towards future ERA initiatives

Work within ERA Action 3 and specifically CoARA has focussed on growing the stakeholder community and developing the overarching principles for research assessment reform. This work, for instance in Working Groups and National Chapters is now translating into action, meaning that the first direct effects on research assessment practices will only materialise in the coming years. There is also further potential to grow the participation in CoARA to a more balanced representation of Member States, as well as internationally.

Similarly, mainstreaming through the EU funding requirements – such as reform components within European universities and the European Excellence Initiative as well as within dedicated Horizon Europe projects – will require continued attention to deliver the anticipated long-term impacts.

As for thematic challenges, the *2024 Report on Research Assessment* identifies the limited focus on developing systematic approaches to qualitative evaluation as a shortfall. Important aspects such as diversity, socio-economic status, ethnicity, and the intersectional roles of researchers receive insufficient attention. Moreover, cultural and structural challenges continue to hinder full implementation, including issues such as limited access to funding and lack of coordination between institutions. Addressing these gaps in future agendas can be crucial for achieving a more inclusive and effective research assessment system.<sup>38</sup>

## 4. Action 4: Promote attractive research careers, talent circulation and mobility

### Key findings Action 4: Promote attractive research careers, talent circulation and mobility

During the review period, ERA Action 4 promoted attractive and sustainable research careers, balanced talent circulation, and improved inter-sectoral and interdisciplinary mobility, focusing on improved working conditions, supportive frameworks, and accessible resources for researchers:

- A new **Council Recommendation provides a European framework to attract and retain research, innovation and entrepreneurial talents in Europe**. It bundles the previous Charter and Code for researchers into a new **European Charter for Researchers**.
- The **ERA Talent Platform** bundles existing and new tools such as EURAXESS, the HR Excellence in Research award, RESAVER, ReICO, ResearchComp, and the Innovation Talent Platform under a single point of entry.
- The partnership on the **Research and Innovation Careers Observatory** (ReICO) between the European Commission and the OECD promises improved insights into the impact of these actions on researchers' careers.
- Two **Mutual Learning Exercises** (MLE) under the Horizon Europe Policy Support Facility (PSF) provide good practices for the implementation of the new framework and tools at national level.
- A **Horizon Europe pilot call will create Talent Ecosystems** centred around early-career researchers, supporting inter-sectoral partners to implement the European

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<sup>38</sup> European Commission: European Research Executive Agency, [Report on Research Assessment](#), 2024.

Charter for Researchers and improving the working conditions and employability of researchers. Other Horizon Europe projects provide important deliverables contributing to more attractive research careers.

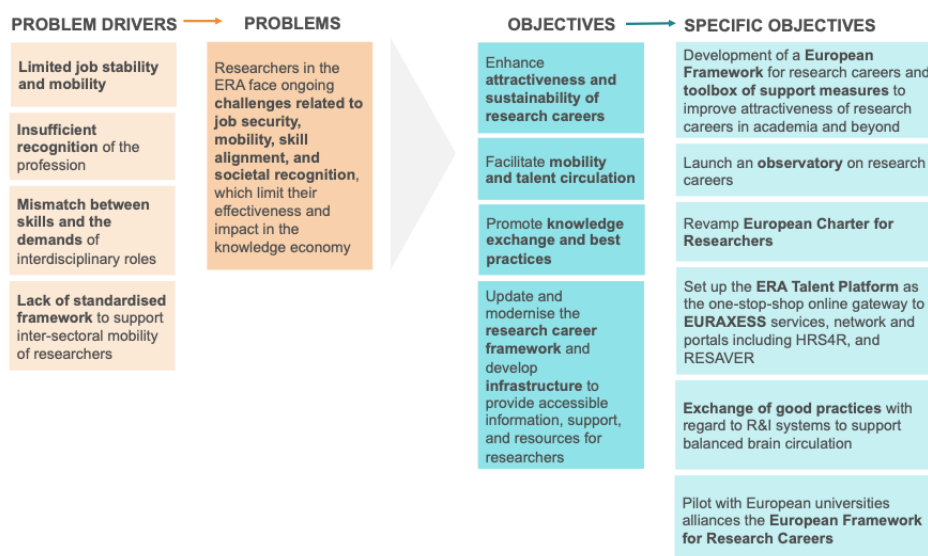
A challenge is to promote and support further implementation of the new measures beyond 2024, with a view to improving national R&I systems and making Europe an attractive destination for EU and international ‘top talents’.

#### 4.1. Objectives and scope of ERA Action 4

##### Purpose of the action:<sup>39</sup>

ERA Action 4 aims to **enhance the appeal and sustainability of research careers across Europe**, ensuring better working conditions and resources for researchers. The Action seeks to contribute to attracting researchers to and retaining them in Europe, as well as a balanced ‘talent circulation’ across Member States.

**Figure 4 Identified problems and defined objectives of ERA Action 4**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

<sup>39</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.



## 4.2. Status of ERA Action 4 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>40</sup>

The implementation of ERA Action 4 during the first phase built on the May 2021 Council Conclusions.<sup>41</sup> A key step was the preparation of the Commission proposal for a Council Recommendation on a European framework to attract and retain research, innovation and entrepreneurial talents in Europe, including the new European Charter for Researchers.<sup>42</sup> ResearchComp<sup>43</sup> was developed to support inter-sectoral mobility of researchers.

The period from mid-2023 to late 2024 was marked by several key milestones towards the achievements of the objectives of ERA Action 4, which operates in synergy with other ERA Actions such as 3, 5, 6, 13, and 17. Originally, the Action also included 'ERA4You', which was not implemented as a standalone initiative following feedback from the ERA Forum. Individual components of ERA4You were taken forward anyway, such as ResearchComp, the Talent Ecosystems call and a MLE on research careers contributing to a balanced circulation of talents.

#### 4.2.1. 2023 Council Recommendation and new European Charter for Researchers

Building on the Council conclusions of 2021, which highlighted the need for an "internal market for research"<sup>44</sup> and revisions to the 2005 Charter and Code for Researchers, a new framework was developed in 2023. Following the European Commission proposal in July 2023, the **Council Recommendation on a European framework to attract and retain R&I and entrepreneurial talent in Europe**<sup>45</sup> was adopted in December 2023, with a new **European Charter for Researchers**.<sup>46</sup> The revamped Charter combines the previous Charter and Code, with additional principles and responsibilities for researchers, employers, and funders to foster productive relationships and support working conditions and career development for researchers in all sectors. The Charter recognises researchers' diverse roles, including research, supervision, mentoring, and administration.<sup>47</sup> The adoption of the new Charter, via a Council Recommendation stemming from Member States, attributes a higher relevance compared to the old Charter and Code, which was embedded in a Commission Recommendation.

#### 4.2.2. Updated online presence

Following the launch of a new [ResearchComp website](#) in July 2023, the [ERA Talent Platform](#) went live in 2024. ResearchComp is a competence framework that helps researchers assess

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<sup>40</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>41</sup> Council of the European Union, [Council conclusions on "Deepening the European Research Area: Providing researchers with attractive and sustainable careers and working conditions and making brain circulation a reality"](#), 2021.

<sup>42</sup> [Proposal for a Council Recommendation on a European framework to attract and retain research, innovation and entrepreneurial talents in Europe](#), COM(2023) 436 final.

<sup>43</sup> European Commission: [ResearchComp: The European Competence Framework for Researchers](#).

<sup>44</sup> Council of the European Union, [Council Conclusions on "Deepening the European Research Area: Providing researchers with attractive and sustainable careers and working conditions and making brain circulation a reality"](#), 2021.

<sup>45</sup> [Council Recommendation C/2023/1640 of 18 December 2023 on a European framework to attract and retain research innovation and entrepreneurial talents in Europe](#).

<sup>46</sup> European Commission, [The European Charter for Researchers](#).

<sup>47</sup> Ibid.

and develop transversal skills, preparing them for non-academic careers. It also enables HEIs and training providers to align their offerings with researchers' needs and helps employers identify highly skilled talent. The ERA Talent Platform is an integrated gateway offering access to a comprehensive range of services, including EURAXESS, ResearchComp, RESAVER, the HR Excellence in Research process, and ReICO. Its mission is to increase the visibility and accessibility of the services and tools vis-à-vis the research stakeholder community.

Together with the update of the European Charter for Researchers, the [HR Excellence in Research Award](#) initiative, which supports research institutions and funding bodies in applying the Charter for Researchers, underwent updates. Revisions of the implementation mechanism and the online tool took place.

The ERA Talent Platform also covers the RESAVER initiative, which offers a pension solution to enhance researcher mobility across Europe and help organisations attract and retain top talent. From 2023 to 2024, RESAVER focused on expanding its geographical reach and continually improving its offerings in existing areas in order to better support researchers and research institutions.<sup>48</sup>

#### **4.2.3. Mutual Learning Exercises supporting researchers' careers**

Two Policy Support Facility MLEs supporting researchers' careers were launched between 2023-2024, one focusing on knowledge valorisation and inter-sectoral mobility<sup>49</sup> (joint initiative covering Action 4 and Action 7), and one focusing on research careers.<sup>50</sup> The MLEs support the exchange of good practices to ERA countries on the implementation of the new framework and the European Charter for Researchers.

#### **4.2.4. Research and Innovation Careers Observatory**

The Research and Innovation Careers Observatory was launched as a joint action between the OECD and the European Commission. It monitors researchers' skills and training needs, their career progress on, and their mobility. Data is scheduled to be accessible via the ERA Talent Platform as of the second quarter of 2025.

#### **4.2.5. Horizon Europe projects supporting research careers**

A Horizon Europe pilot Talent Ecosystems call for early-career researchers was launched in the WIDERA work programme 2023-2025, promoting attractive, sustainable working conditions and employability in line with the new European Charter for Researchers and the European Framework for Research Careers. Consortia are expected to collaborate across academic, private, and public sectors to create career pathways that meet the skills demands of today's labour market. Ten projects are expected to be funded with the aim of providing policy feedback to the European Commission and Member States.

The [SECURE](#) and [DocTalent4EU](#) projects made progress considered to be highly relevant to the implementation of the new European Framework. Notably, deliverables focus on a toolbox of options for research organisations in their efforts to undertake reforms, on Tenure-Track-Like models, on skills training, and on the development of Talent Management Centres.

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<sup>48</sup> European Commission: [RESAVER – Retirement Savings Vehicle for European Research Institutions](#), 2016.

<sup>49</sup> European Commission: [Mutual Learning Exercise on Knowledge Valorisation-Focus on Skills, Intersectoral Cooperation and Incentive Systems](#).

<sup>50</sup> European Commission: [Mutual Learning Exercise on Research Careers](#).



### 4.3. Assessment of the progress towards the ERA Action 4 objectives over the 2022-2024 period

#### 4.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The table below summarises the main initiatives and output/outcome delivering on the specific objectives of ERA Action 4.

**Table 5 Assessment of the progress towards Action 4 Specific Objectives: initiatives and outcome**

Specific objectives <sup>51</sup>	Main initiatives put in place	Main outcome
Development of a European Framework for Research Careers and toolbox of support measures to improve attractiveness of research careers	<ul style="list-style-type: none"> <li>2023 Council Recommendation on a 'European framework to attract and retain research, innovation and entrepreneurial talents in Europe'</li> <li>Horizon Europe projects (SECURE, DocTalent4EU)</li> </ul>	<ul style="list-style-type: none"> <li>Concrete recommendations to promote research careers and boost an 'Internal Market for Research'</li> <li>Toolbox of measures to support the implementation of the new Framework for Research Careers</li> </ul>
Launch an observatory on research careers	<ul style="list-style-type: none"> <li>Launch of the Research and Innovation Careers Observatory</li> </ul>	<ul style="list-style-type: none"> <li>Data on researchers' skills and trainings, their careers, and their mobility, to support evidence-based policy-making</li> </ul>
Revise Charter and Code for Researchers	<ul style="list-style-type: none"> <li>New European Charter for Researchers</li> </ul>	<ul style="list-style-type: none"> <li>755 organisations have obtained the HR Excellence in Research award based on the European Charter for Researchers</li> <li>Framework supporting researchers, regardless of their career stage, sector, or discipline</li> </ul>
Set up the ERA Talent Platform as the one-stop-shop online gateway to EURAXESS services, network and portals including HRS4R, and RESAVER	<ul style="list-style-type: none"> <li>ERA Talent Platform</li> <li>EURAXESS</li> <li>HR Excellence in Research</li> <li>RESAVER</li> <li>ResearchComp</li> <li>ReICO</li> <li>Innovation Talent Platform</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive online gateway for researchers and research and innovation institutions, providing direct access to a range of services</li> <li>Establishment of new initiatives (e.g., ResearchComp, ReICO).</li> <li>Revamp of initiatives (e.g., RESAVER, EURAXESS) adapting to evolving context and needs</li> </ul>
Exchange of good practices with regard to R&I systems to support balanced brain circulation	<ul style="list-style-type: none"> <li>Two PSF MLEs</li> </ul>	<ul style="list-style-type: none"> <li>Set of actionable practices and policy instruments to be used by policy-makers at national level</li> </ul>
Pilot with European universities alliances the European Framework for Research Careers	<ul style="list-style-type: none"> <li>Talent Ecosystems for early-career researchers</li> </ul>	<ul style="list-style-type: none"> <li>Ten projects expected to be funded under the call</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

<sup>51</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

### 4.3.2. Challenges and opportunities towards future ERA initiatives

Fostering attractive research careers, talent circulation and mobility will remain relevant beyond the duration of ERA Action 4. Exploiting the Framework and tools developed under the Action depends on support and activities such as exchanging good practices and lessons learned, for instance with the Horizon Europe Talent Ecosystems pilot call, fostering Communities of Practice, guidelines and recommendations, and further investments. In addition, a consolidated and sustainable ReICO will permit robust monitoring of researcher careers and subsequent evaluation of the effectiveness of current interventions.

## 5. Action 5: Promote gender equality and foster inclusiveness, taking note of the Ljubljana Declaration

### Key findings Action 5: Promote gender equality and foster inclusiveness, taking note of the Ljubljana Declaration

ERA Action 5, supported by the ERA Forum Subgroup on Inclusive Gender Equality in the ERA, has addressed the structural barriers to gender equality through the implementation of inclusive Gender Equality Plans (GEPs), and providing guidance on provisions tackling the Gender-Based Violence (GBV), and on integration the gender dimensions into R&I content and contexts.

- The introduction of **GEPs in Horizon Europe** as an eligibility criterion for research organisations, HEIs and public bodies in 2022 has strengthened or enhanced further development of new gender equality strategies, with spillover effects extending to the private sector and sustaining momentum in this reporting period.
- A **Zero-Tolerance Code of Conduct** was developed by the Subgroup to address **GBV** in R&I, supported by the GENDERACTIONplus and GenderSAFE projects. The publication followed up the debates of the two Presidency conferences focusing on 'Ending Gender-Based Violence in Academia', one of which was organised in the autumn of 2023 to foster safe and inclusive environments in academic and research institutions.
- The INSPIRE-project established a **Centre of Excellence on Inclusive Gender Equality**. It also launched Knowledge and Support Hubs to assist over 95 institutions with inclusive GEP implementation.
- A framework for the integration and evaluation of **inclusive gender analysis in R&I content** was developed by the Subgroup, supported by GENDERACTIONplus project.

During the reporting period, ERA Action 5 has further advanced the implementation of gender equality into R&I systems and fostered structural changes through inclusive GEPs and intersectional approaches. However, structural impacts are slow to materialise, and institutions often lack the capacity, skills, and leadership commitment needed to implement effective changes. **Enhanced monitoring and evaluation**, along with greater opportunities for **experience-sharing** and **capacity-building**, will be crucial to achieving the long-term objectives in this area.

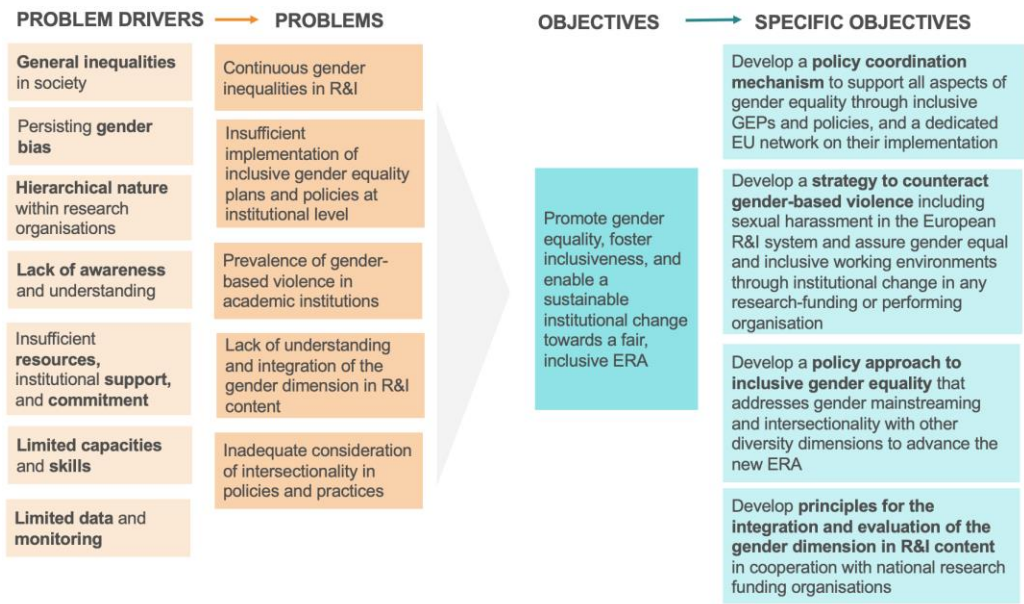
5.1. Objectives and scope of ERA Action 5

**Purpose of the action:**<sup>52</sup>

The purpose of ERA Action 5 is to promote inclusive gender equality within the ERA. This action

- fosters inclusive GEPs
- addresses inclusiveness by focusing on intersections of gender and other grounds of discrimination, such as race, ethnicity, disability, and sexual orientation, to promote a more inclusive R&I
- tackles gender-based violence, including sexual harassment, in the European R&I system to ensure safe working environments
- increases the excellence and societal relevance of research and innovation by incorporating the gender dimension in R&I content
- advances gender mainstreaming policies within R&I
- aims to bridge the gap between policy adoption and implementation

Figure 5 Identified problems and defined objectives of ERA Action 5



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

<sup>52</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

## 5.2. Status of ERA Action 5 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023).<sup>53</sup>

Several calls under ERA Action 5 launched in 2021-2022 and implemented throughout 2022/23 showed positive signs of delivering in 2024. Notable projects were GenderSAFE, GENDERACTIONplus, INSPIRE, or Gender-NET Plus. The various projects were instrumental in developing inclusive GEPs, setting up a community of practice, and developing guidelines and codes.

Furthermore, a dedicated subgroup on 'Inclusive Gender Equality in the European Research Area' was established in 2023 to support the implementation of ERA Action 5 of the ERA Policy Agenda 2022-2024.

#### 5.2.1. Develop a policy coordination mechanism to support gender equality through inclusive GEPs and policies

The [ERA Forum Subgroup on Inclusive Gender Equality in the ERA](#), established in 2023, met six times in the reporting period. It exchanged on the developments, provided advice to the Commission, facilitated coordination and cooperation, and promoted the collection of sex- and/or gender-disaggregated data, building on previous efforts to address gender-related challenges in the ERA. Two dedicated task forces were created to address key priorities: The Task Force on Counteracting Gender-Based Violence produced the *Zero-tolerance code of conduct – Counteracting gender-based violence, including sexual harassment, in the EU research and innovation system*. The Task Force on the Gender Dimension in R&I Content, authored the *Framework for the integration and evaluation of an Inclusive Gender Analysis in Research and Innovation Content*.

A series of Coordination and Support Actions (CSAs) have been pivotal: [GENDERACTIONplus](#) operates two Communities of Practice (CoPs) to support exchanges, capacity-building, and mobilisation of expertise across EU countries with a 'Policy Community of Practice' supporting national authorities, and the RFO Community of Practice. Additional networking initiatives were launched or implemented as a part of the [GenderNET Plus](#), [INSPIRE](#), and [GenderSAFE](#) projects.

The outcomes of the study *Impact of Gender Equality Plans in the European Research Area*<sup>54</sup> underscored several positive and crucial impacts of the (inclusive) GEP implementations. The mandatory GEP requirement under Horizon Europe has driven public research institutions to strengthen existing gender-equality strategies or develop new ones. It has also led to spillover effects, with organisations not directly subject to the eligibility criterion – such as private research funders – voluntarily adopting GEPs. The introduction of a shared GEP definition has harmonised national and institutional efforts across the ERA, promoting access to shared tools, guidelines, and mutual learning opportunities. Furthermore, GEPs have improved the representation of women in leadership roles, addressed work-life balance issues, and facilitated the integration of gender dimensions into research content and design.

A benchmarking report by [GENDERACTIONplus](#) focused on the monitoring and evaluation of GEPs. Given that this poses challenges to Member States, the project developed guidelines for establishing [GEP monitoring systems](#) and [GEP impact evaluation system](#)

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<sup>53</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N., (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>54</sup> European Commission: [Impact of gender equality plans across the European Research Area, Main Report](#), 2025; [Policy briefs](#), 2024.

[guidelines](#). The report noted that EU-level guidance on monitoring and evaluating GEPs is needed.<sup>55</sup> This will be one of the tasks of the upcoming ERA Policy Agenda.

### **5.2.2. Develop a strategy to counteract gender-based violence and assure gender equal and inclusive working environments through institutional change in any research funding or performing organisation**

To address the pervasive issue of GBV in R&I, several initiatives have been undertaken to promote safe and inclusive environments. This includes a [Spanish Presidency conference on Ending Gender-Based Violence in Academia II](#) in October 2023. The publication '[Zero-Tolerance Code of Conduct on Counteracting Gender-Based Violence](#)' was discussed during the R&I Days in March 2024 and introduced at the [ERA Conference in September 2024](#).

At the project level, GENDERACTIONplus conducted analyses of existing policies on GBV.<sup>56</sup> The [GenderSAFE](#) project continues to provide support to research and HEIs in establishing safe, inclusive and respectful environments. Despite progress, there is still a lack of comprehensive policies at the national and institutional levels in the majority of EU Member States, with scarce and unsystematic activities and measures at the institutional level. This calls for additional efforts in advancing the agenda on ending GBV in the ERA.<sup>57</sup>

### **5.2.3. Develop a policy approach to inclusive gender equality that addresses gender mainstreaming and opening to intersectionality with other diversity dimensions**

The **integration of an intersectional perspective into the GEPs** is another facet of Action 5. Recognising that inequalities are often multi-dimensional and intersecting, this approach broadens the focus to other diversity dimensions, such as ethnicity, disability, and sexual orientation.

The [INSPIRE project](#) has **established a European Centre of Excellence focused on inclusive gender equality in research and innovation**.

To support the implementation of inclusive GEPs, the Horizon Europe WIDERA programme also funded in this reporting period projects on implementing inclusive GEPs through the call HORIZON-WIDERA-ERA-2024-01-11.<sup>58</sup> Furthermore, resources have been allocated to fostering transnational partnerships for policy enforcement, advancing intersectional research through Horizon Europe Cluster 2 (Culture, Creativity and Inclusive Society).

In addition, the [EU Award for Gender Equality Champions](#) includes a category on 'Inclusive Gender Equality Champions' to support organisations implementing their GEPs in broadening the scope of their gender equality policies. Inclusivity and intersectionality remain a challenge as evidenced by the fact that no organisation was able to pass the threshold to be awarded in the Inclusive Gender Equality Champions category in 2024.

### **5.2.4. Develop principles for the integration and evaluation of the gender dimension in R&I content in cooperation with national Research Funding Organisations (RFOs)**

To further support the development and incorporating of the intersectional perspective, the Task Force on Gender Dimension in R&I content of the ERA Action 5 subgroup drafted a

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<sup>55</sup> GENDERACTIONplus, [Position Paper, A new era for GEPs: an active role for the European Commission](#).

<sup>56</sup> See <https://genderaction.eu/gender-based-violence>

<sup>57</sup> GENDERACTIONplus, [Position Paper, Gender-based violence in the ERA: an endemic problem in need of a new cure](#), 2024.

<sup>58</sup> European Commission, [Transforming R&I organisations and advancing the ERA through gender equality and inclusiveness in SEE](#).

Framework for the integration and evaluation of an inclusive gender analysis in research and innovation content'.<sup>59</sup> This document provides guidance to national authorities and R&I funding organisations on policy measures to ensure the effective implementation and evaluation of the integration of the gender dimension in R&I content from an intersectional perspective.

Additionally, the GENDERACTIONplus project set up a community of practice of RFOs and developed an eLearning course on the gender dimension in R&I for Horizon Europe National Contact Points.<sup>60</sup>

The integration of a gender perspective in R&I content ensures that R&I outcomes meet the needs of a diverse population. It is also expected that it contributes to research quality. To ensure that the allocation of funding is not affected by gender biases in the selection process, the [GRANteD](#) project developed a framework to identify and address gender biases in research grant allocation. It is expected that CoARA under ERA Action 3 will build on this work.

### **5.3. Assessment of the progress towards the ERA Action 5 objectives over the 2022-2024 period**

#### **5.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome**

Given the problem drivers which manifest at a higher, societal level, the endeavour at EU-level through project funding under the Framework Programmes has so far mainly impacted participants in dedicated calls.

The GEP eligibility requirement in Horizon Europe has propelled the gender equality objective from the level of individual researchers and study groups to the attention of the management of research-performing institutions, and thus to a level which is decisive for institutional change.

However, there is a risk in the GEPs adopted being a tick-box exercise. This reinforces the need for a coordinated approach at EU level to monitor and evaluate GEPs more efficiently. The monitoring and assessment of the developments and effects of GEP implementation remains a challenge. As noted by the ERA Forum Subgroup on Inclusive Gender Equality, it is of concern that the activities of ERA Action 5 do not manifest in monitoring indicators such as the SHE Figures.<sup>61</sup>

Overall, each of the individual Action 5 actions are complex. The goals cannot be achieved through a single action or activity. Furthermore, it takes a long time before impacts are measurable. For the R&I system's necessary structural change, a joint agreement and commitment is needed by the various actors. Their implementation requires a continuous effort, involving numerous activities and initiatives, and it needs to be supported by an efficient monitoring scheme or platform.

The table below summarises the main initiatives and output/outcome delivering on the specific objectives of Action 5.

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<sup>59</sup> European Commission: [Framework for the integration and evaluation of inclusive gender analysis in research and innovation content](#), 2025.

<sup>60</sup> Horizon Europe NCP Portal, [Gender dimension in R&I for Horizon Europe NCPs](#).

<sup>61</sup> [Meeting summary](#) ERA Forum Subgroup 'Inclusive gender equality in the ERA', Extraordinary meeting 31 October 2023.

**Table 6 Overview of the progress towards Action 5 Specific Objectives: initiatives and outcome**

Specific objectives <sup>62</sup>	Main initiatives implemented	Main outcome
Develop a policy coordination mechanism to support all aspects of gender equality through inclusive Gender Equality Plans and policies, and a dedicated EU network on their implementation	<ul style="list-style-type: none"> <li>• Operation of the ERA Action 5 subgroup and creation of two task forces</li> <li>• Support the coordination with stakeholders to establish a policy community of practice (GENDERACTIONplus project): community of practice (CoP) of the national authorities</li> <li>• GenderSAFE project launched a call to set up CoP of national authorities focused on gender-based violence in R&amp;I</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinated policy efforts, promoting inclusive GEPs across Member States, fostering institutional implementation and alignment with ERA gender equality objectives</li> </ul>
Strategy to counteract gender-based violence including sexual harassment in the European R&I system and to assure gender equal and inclusive working environments through institutional change in any research funding or performing organisation	<ul style="list-style-type: none"> <li>• Spanish Presidency conference on: Ending Gender-Based Violence in Academia II (Bilbao 23-24 Oct. 2023)</li> <li>• GenderSAFE project launched to support implementation of the Zero-tolerance Code of Conduct</li> <li>• GENDERACTIONplus published report on preventive measures in and for RFOs and a template for a zero-tolerance policy on GBV in RFOs</li> <li>• GEP implementing projects include GBV among their thematic foci</li> <li>• GBV is a recommended policy area to be included in GEPs under the Horizon Europe GEP eligibility criterion</li> <li>• European R&amp;I Days, March 2024: Session on: <a href="#">Towards an ERA Free from Gender-based Violence in Science</a></li> </ul>	<ul style="list-style-type: none"> <li>• Standardised protocols and policies for safe, inclusive R&amp;I environments, creating a foundation for addressing and reducing gender-based violence in academic and research settings</li> <li>• Publication of the 'Zero-tolerance code of conduct'</li> </ul>
A policy approach to inclusive gender equality that addresses gender mainstreaming and opening to intersectionality with other diversity dimensions to advance the new ERA	<ul style="list-style-type: none"> <li>• Centre of Excellence on Inclusive Gender Equality in R&amp;I (INSPIRE project)</li> <li>• Support to gender and intersectional research (Horizon Europe Cluster 2)</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced gender mainstreaming in ERA policies with intersectional considerations, supporting fair and inclusive career progression within R&amp;I</li> </ul>

<sup>62</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.



Specific objectives <sup>62</sup>	Main initiatives implemented	Main outcome
	<ul style="list-style-type: none"> <li>Integration of intersectional perspectives into GEPs, including ethnicity, disability, and sexual orientation</li> <li><a href="#">Second edition</a> of the EU Award for Gender Equality Champions (May 2024)</li> <li>Coordination with other ERA Actions to foster synergies (Action 4, Action 3, Action 13, Action 19) within the subgroup</li> </ul>	
Develop principles for the integration and evaluation of the gender dimension in R&I content in cooperation with national Research Funding Organisations	<ul style="list-style-type: none"> <li>Development of a community of practice of RFOs (GENDERACTIONplus, Gender-NET Plus)</li> <li>Establishment of the Task Force on Gender Dimension in R&amp;I content under the ERA Forum subgroup on Inclusive Gender Equality</li> <li>Research project GRANted on gender disparities in research funding allocation</li> <li>Gender dimension in R&amp;I for Horizon Europe NCPs – an e-learning course created by GENDERACTIONplus project<sup>63</sup></li> </ul>	<ul style="list-style-type: none"> <li>Principles and guidelines for integrating the gender dimension in R&amp;I evaluations developed</li> <li>Framework established to support Member States in advancing inclusivity</li> <li>Framework for the integration and evaluation of inclusive gender analysis in R&amp;I content</li> </ul>

Source: Technopolis Group, based on data collected through desk research and interviews

### 5.3.2. Challenges and opportunities towards future ERA initiatives

Significant progress has been achieved over the years, the pursuit of gender equality requires however continuous efforts. The GEP eligibility criterion in Horizon Europe is having a positive impact at both organisational and national level, in addition to the EU funding made available to organisations through the projects.

There are still significant challenges to address, including a limited understanding of inclusive approaches to gender equality and GEPs, and how general gender equality principles can be translated into concrete actions. Human and financial resources at institutional level to implement and monitor gender equality are often insufficient. Furthermore, the commitment of top-level leadership of R&I institutions to achieving inclusive GEP objectives is often lacking, as is accountability for outcomes. The actions supporting inclusive GEPs are fragmented, and there is a lack of sustained political and policy support at national levels. A disproportionate burden placed on women to lead GEP development, sometimes with negative consequences for their research careers, and a limited focus on other vulnerable groups.<sup>64</sup>

<sup>63</sup> <https://horizoneuropencppportal.eu/academy/gender-dimension-ri-horizon-europe-ncps>

<sup>64</sup> [Ibid.](#)



Since structural and institutional changes happen only gradually and are often qualitative in nature, the monitoring and evaluation of gender equality policies remains a challenge. The ERA Forum Subgroup on Inclusive Gender Equality proposed to fill this gap and make this a priority in the next ERA Policy Agenda.

This Action shows that the impacts of activities manifest mainly in the long run and that a fit-for-purpose evaluation framework still needs to be developed.

## 6. Action 6: Protect academic freedom in Europe

### Key findings Action 6: Protect academic freedom

During the review period, ERA Action 6 sought to safeguard freedom of scientific research and protect R&I from domestic and foreign threats. Initiatives focused on developing tools to address foreign interference and promoting and protecting the freedom of scientific research:

- **Horizon Europe Policy Support Facility – Mutual Learning Exercise on tackling foreign interference** has been conducted in 2023-2024.
- **European digital one-stop-shop platform on tackling foreign interference** is being developed to consolidate resources and guidance and help researchers and institutions address foreign interference challenges while upholding academic freedom.
- Expert consultations revealed the complexity of establishing a **comprehensive EU monitoring mechanism for freedom of scientific research** due to the diverse threats and practical challenges.
- Study is ongoing to provide an **evidence base for a potential legislative proposal** on the promotion and protection of the freedom of scientific research in the EU.

ERA Action 6 initiatives have made significant progress to protect academic freedom in Europe. However, feasibility studies revealed challenges in implementing certain objectives, such as establishing a European monitoring mechanism and an Open-Source Intelligence Tool (OSINT), which, given the complicated nature, has taken more time to start but will move ahead in 2025.

### 6.1. Objectives and scope of ERA Action 6

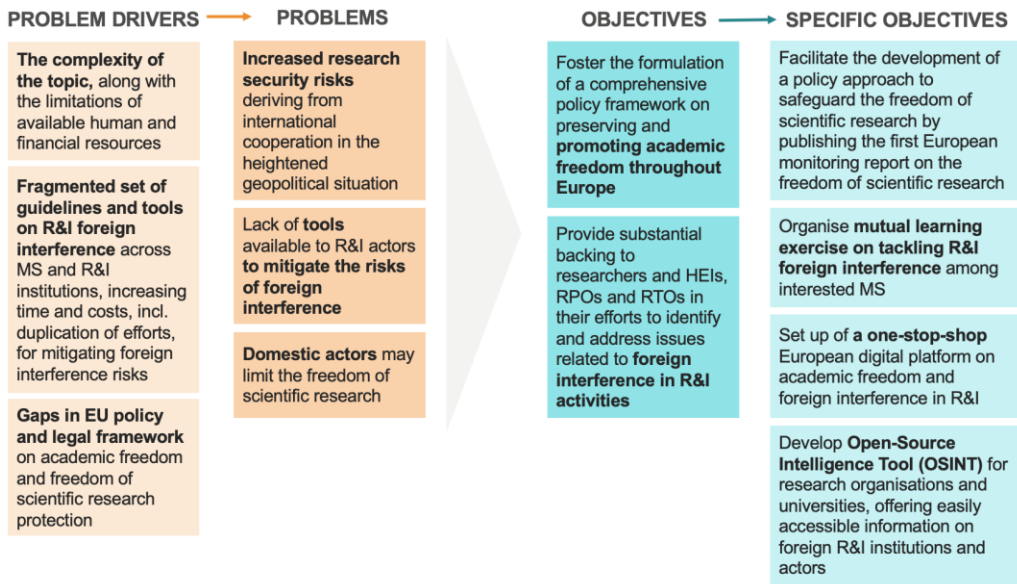
#### Purpose of the action<sup>65</sup>:

ERA Action 6 aims to protect academic freedom in general and freedom of scientific research in particular by protecting this freedom against domestic and foreign threats, including the development of tools to address foreign interference in research and innovation and supporting R&I institutions in safeguarding their academic freedom, integrity and institutional autonomy.

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<sup>65</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Figure 6 Identified problems and defined objectives of ERA Action 6



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

6.2. Status of ERA Action 6 implementation at EU level

Summary of the main initiatives during the first phase (2022 to mid-2023).<sup>66</sup>

On 18 January 2022, the European Commission released a Staff Working Document on Tackling Research and Innovation Foreign Interference which provides a comprehensive strategy for tackling foreign interference in EU HEIs and RPOs across four categories: values, governance, partnerships, and cybersecurity.

The European Commission published its European Strategy for Universities on 18 January 2022 to ensure academic freedom in HEIs at the heart of all higher education policies developed at the EU level, as well as the Bologna Process. On 6 April 2022, the EU ministers for higher education adopted Council conclusions and recommendations for strategic autonomy, emphasising freedom of scientific research across Europe. The future of science and technology initiative (STOA), or EP Forum for Academic Freedom, was launched in November 2022 with the annual Academic Freedom Monitor being the key outcome of the initiative.

The period from mid-2023 to late 2024 was marked by an important step towards a harmonised common EU approach on research security as the **Council adopted on 23 May 2024 a recommendation on enhancing research security**. In addition, following the EP Resolution on the Promotion and Protection of Freedom of Scientific Research, which

<sup>66</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

prompted a legislative proposal on this matter, the European Commission has been conducting a scoping study.

It identifies risks relating to the areas of undesirable transfer of knowledge, foreign interference, and ethical or integrity violations and offers guidance to assess risks and enhance research security when engaging in research cooperation with international partners. The Council issued recommendations to Member States on enhancing research security, such as creating or reinforcing support services to help actors in the R&I sector deal with risks related to international cooperation in research. The document also contains recommendations to the Commission on options for more structural support to R&I organisations, including the establishment of a **European Centre of Expertise on Research Security**. This Centre should serve as a hub for knowledge exchange among experts, practitioners and other stakeholders across the EU.

The PSF **MLE on Tackling Foreign Interference** was completed in April 2024 with the participation of 12 Member States. There was progress in developing the **one-stop-shop digital platform** on tackling foreign interference in R&I. The expert consultations on the **development of OSINT for European R&I organisations** took place with the lessons learned from this exercise promoting further assessment of relevance for the creation of such a tool.

The box below shows an exemplary set of initiatives and measures at national level.

#### **Dutch Research Council's (NWO) National Knowledge Security Guidelines**

The NWO published its National Knowledge Security Guidelines in January 2022.<sup>67</sup> The Guidelines aim to provide answers to questions about knowledge security in international scientific cooperation for its R&I community. In addition, the [Government's Contact Point for Knowledge Security](#) was established. The Contact Point is a collaboration between several Dutch ministries and is available to anyone working, researching or studying in a knowledge institution. It provides help with questions on opportunities, risks and practical considerations with regards to international cooperation (e.g., entering into partnerships with foreign knowledge institutions and companies).

#### **German KIWi Compass 'No red lines' Guidance**

Germany's DAAD Centre for International Academic Cooperation (KIWi) developed the criteria-based guide [KIWi Compass 'No Red Lines'](#) in 2020. It is destined to provide an informed and reflective basis for researchers and HEIs weighing up opportunities for and the risks of international partnerships in R&I. The list of criteria was developed to support decision-making processes. These criteria include such elements as the 'security situation', 'wider political imperatives', 'constitutional and socio-political imperatives', 'opportunities and risks of the respective academic system', 'quality of academic partner institutions', and 'integration into institutional strategies'. Sub-criteria are also defined and linked to 'sensitisation' questions and reference sources to take better account of the different cooperation conditions in each case.<sup>68</sup>

### **6.2.1. Facilitate the development of a policy approach to safeguard the freedom of scientific research by publishing the first European monitoring report**

The feasibility of a recurrent and comprehensive European monitoring report was explored by investigating parameters acceptable to Member States and stakeholders, ensuring

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<sup>67</sup> University of Netherlands, [National knowledge security guidelines](#), 2022.

<sup>68</sup> DAAD, [New KIWi Compass 'No red lines'](#).

sustainability over the long term. The feasibility of implementing such a mechanism seems to be constrained due to the complexity of potential threats to the freedom of scientific research, the inherent challenges in reaching consensus on monitoring parameters, and the practical difficulties associated with carrying out the monitoring process. Furthermore, concerns were raised regarding the specific role and added value of this mechanism, in relation to existing monitoring initiatives such as the EP Academic Freedom Monitor and the Academic Freedom Index.

A significant step forward was made following the adoption of the European Parliament resolution on the promotion and protection of the freedom of scientific research, which requested the Commission to put forward a legislative proposal on this matter. The Commission responded positively to this request and announced the launch of a study aimed at assessing the *de facto* and *de jure* protection of this freedom across the 27 Member States and five additional countries. Results are expected by mid-2025.

#### **6.2.2. Organise Mutual Learning Exercise on tackling R&I foreign interference among interested Member States**

A PSF MLE on Foreign Interference, gathering 12 countries, was concluded in April 2024. The MLE focused on three topics: 1) Awareness-raising and stakeholder engagement; 2) Identifying and understanding foreign interference threats, and 3) Measures to counter foreign interference.

#### **6.2.3. Set up of a one-stop-shop European digital platform on tackling foreign interference in R&I**

Over recent years, many different actors – including the Commission, the Member States, several associations, funding agencies and universities – have developed reports, guidelines and other tools to support the R&I community in tackling foreign interference. This has resulted in a highly fragmented supply of information, making it difficult and time-consuming for the end users (HEIs, individual researchers) to navigate through different sources. In addition, resource creators are not always aware of what already exists, sometimes resulting in duplication of efforts and increasing risks of conflicting information.

The overall objective of the one-stop-shop digital platform is to tackle the abovementioned fragmentation of information, streamline and facilitate access to reliable information on measures to countering foreign interference in R&I. The digital platform will be an online repository of all publicly available resources to support individual researchers and R&I organisations in tackling foreign interference.

#### **6.2.4. Develop OSINT for research organisations and universities in the EU on foreign R&I institutions, individuals, technologies, affiliations, research projects and universities**

The European Commission has been working on the OSINT concept and is ready to start developing it in 2025. The lessons learned during the process resulted in discussions on the need to develop such a tool and further explorations of other means to help safeguard researchers from foreign interference.

### 6.3. Assessment of the progress towards the ERA Action 6 objectives over the 2022-2024 period

#### 6.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

During the review period significant advancements were made on safeguarding R&I from foreign interference. The Council recommendation on research security was adopted in 2024. The European Commission started the preparatory work for a potential legislative initiative on the promotion and protection of freedom of scientific research with the launch of a study. The MLE on foreign interference was conducted with important lessons learnt for the twelve participating countries and the digital platform (one-stop-shop) on tackling R&I foreign interference reached advanced stages of development.

The table below summarises the main initiatives and outcome delivering on the specific objectives of ERA Action 6.

**Table 7 Assessment of the progress towards Action 6 Specific Objectives: initiatives and outcome**

Specific objectives <sup>69</sup>	Main initiatives implemented	Main outcome
Facilitate the development of a policy approach to safeguard the freedom of scientific research by publishing the first European monitoring report on the freedom of scientific research	<ul style="list-style-type: none"> <li>Carrying out the investigation, with experts in the field, on the establishment of a monitoring mechanism based on parameters acceptable to Member States and stakeholders, and that is sustainable over the long term</li> <li>The European Commission has launched a study to support work related to a legislative proposal on the promotion and protection of the freedom of scientific research</li> </ul>	<ul style="list-style-type: none"> <li>The Council adopted the recommendation on enhancing research security on 23 May 2024</li> <li>Parliament adopted a resolution on 17 January 2024 with recommendations to the Commission on promoting freedom of academic research in the EU, to which the Commission answered positively</li> <li>The feasibility study conducted on European monitoring mechanism on the freedom of scientific research with results pointing to limited feasibility given the complexity of the possible threats to this freedom, the challenges in achieving consensus on the parameters to be monitored, and the practical difficulties in conducting the monitoring itself</li> <li>The work is ongoing on a study to support the potential legislative proposal for promoting and protecting freedom of scientific research</li> </ul>
Organise MLE on tackling R&I foreign interference among interested Member States	<ul style="list-style-type: none"> <li>Running an MLE on tracking R&amp;I foreign interference</li> </ul>	<ul style="list-style-type: none"> <li>The MLE ran from in 2023-2024 and completed in April 2024</li> <li>12 MS took part in the exercise</li> </ul>
Set up of a one-stop-shop digital platform on tackling foreign interference in R&I	<ul style="list-style-type: none"> <li>The platform is under development</li> </ul>	<ul style="list-style-type: none"> <li>The platform launch is expected mid-2025</li> </ul>

<sup>69</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>69</sup>	Main initiatives implemented	Main outcome
Develop OSINT for research organisations and universities in the EU on foreign R&I institutions, individuals, technologies, affiliations, research projects and universities	<ul style="list-style-type: none"> <li>The discussions on development of such a tool were conducted</li> </ul>	<ul style="list-style-type: none"> <li>The European Commission has been working on the OSINT concept and is ready to start development in 2025</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

### 6.3.2. Challenges and opportunities towards future ERA initiatives

The feasibility efforts conducted for ERA Action 6 (i.e., conducting a first European monitoring report on the freedom of scientific research) revealed the complexity of the challenge and the need for further reflections. Thus, the Commission will explore the possibility of establishing a feasibility exercise on monitoring the freedom of scientific research at EU level.

## 7. Action 7: Upgrade EU guidance for a better knowledge valorisation

### Key findings Action 7: Upgrade EU guidance for a better knowledge valorisation

During the review period, ERA Action 7 strengthened the transition from traditional knowledge transfer to a dynamic system of knowledge valorisation, fostering collaboration across the R&I landscape and promoting innovative practices. Initiatives in place emphasised leveraging knowledge assets to address societal and economic challenges, enabling efficient value creation along complex knowledge value-chains.

- New collaboration has been established in 2024 between the European Commission and the **European Patent Office (EPO)** through a letter of intent, and the collaboration with the **EU Intellectual Property Office (EUIPO)** was also updated.
- Additional **Codes of Practice** on citizen engagement and industry-academia have been developed in 2024, providing strategic approaches and tools to enhance knowledge valorisation and supporting the implementation of the Guiding Principles for Knowledge Valorisation.
- A study on **citizen engagement in knowledge valorisation** was published in January 2024, accompanied by the expansion of the **EU Knowledge Valorisation Platform**.
- A **Mutual Learning Exercise on knowledge valorisation** was completed in 2024, focusing on skills, inter-sectoral cooperation, and incentive systems. The findings were summarised in a final report with a **policy toolbox** to guide implementation across the ERA.
- **Awareness-raising events** were conducted across Member States, supported by the **EU Knowledge Valorisation Talks** and the **Stakeholder Conference on knowledge valorisation**.
- **Several Horizon Europe projects** foster knowledge valorisation and efficient IP management. In addition, initiatives like the **Standardisation Booster** provide services to R&I actors.

ERA Action 7 has delivered on its objectives and introduced additional initiatives. Moving forward, the focus will need to further shift towards increasing stakeholder understanding and adoption of the guiding principles and codes of practice. Addressing challenges related to professionalising knowledge valorisation services, enhancing intermediaries, and fostering

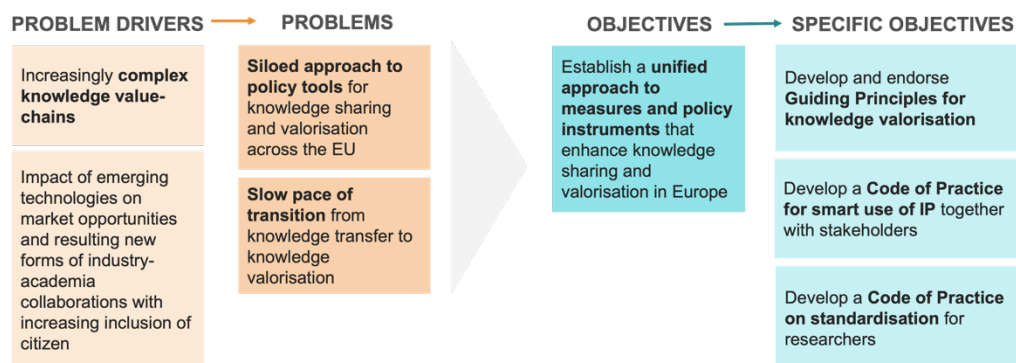
industry-research-science collaboration and citizen engagement will be critical in the next ERA Policy Agenda to maximise the societal and economic impact of R&I outputs.

## 7.1. Objectives and scope of ERA Action 7

### Purpose of the action:<sup>70</sup>

The purpose of the action is to catalyse a transition from the traditional knowledge transfer towards valorisation of knowledge assets while considering the rapid development of technologies, new forms of collaborations within R&I landscapes and increasingly more complex knowledge value-chains.

**Figure 7 Identified problems and defined objectives of ERA Action 7<sup>71</sup>**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

## 7.2. Status of ERA Action 7 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>72</sup>

On 22 December 2022, the Council of the EU adopted a Recommendation on the Guiding Principles for knowledge valorisation, which was enacted on 1 March 2023 and followed by the adoption of Codes of Practice on intellectual assets management *and* standardisation. To engage stakeholders and Member States in the implementation of the recommendations, the European Commission launched an awareness-raising campaign on knowledge valorisation in March 2023, which was well endorsed by Member States. In addition, the Mutual Learning Exercise on knowledge valorisation was launched in March 2023 to operationalise recommendations and deliver a policy toolbox with best practices and strategies for the guiding principles implementation.

Other instruments were deployed to support the implementation of recommendations, including the establishment of the EU Knowledge Valorisation Platform and the EU Knowledge Valorisation Week. Two Communities of Practice were launched in March 2023 to develop further guidance for R&I actors in the field of industry-academia collaboration and

<sup>70</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>71</sup> The objectives "Develop a Code of Practice for smart use of IP together with stakeholders" and "Develop a Code of Practice for researchers on standardisation" were achieved during the previous reporting period.

<sup>72</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



citizen engagement for knowledge valorisation. Furthermore, the EU launched a Standardisation Booster. The European IPR Helpdesk and IP Booster also support knowledge valorisation.

The period from **mid-2023 to late 2024** was marked by the development of additional **Codes of Practices (CoP) on citizen-engagement** and **industry-academia co-creation** endorsed by the Commission on 1 March 2024. In addition, the EU continued its campaign on knowledge valorisation with national events held across six countries throughout this period. An inaugural **European Standardisation Panel Survey** was conducted with the results and recommendations published in January 2024. The MLE on knowledge valorisation was successfully completed in 2024 with the final study published. To complement these efforts, the EC conducted a **study on fostering knowledge valorisation through citizen engagement** with valuable insights into practices across the EU. A new initiative in the framework of the EU Knowledge Valorisation Platform led to a series of **Knowledge Valorisation Talks** in 2024, which allowed the sharing the best practices across Member States in this field. The annual EU Knowledge Valorisation Week was held in April 2023 and a stakeholder conference took place in December 2024.

The Commission launched an open innovation competition for researchers and citizens across Europe to develop joint knowledge-based solutions for climate, demonstrating how knowledge valorisation supports policy objectives covered by the Horizon Europe missions on 'Climate-neutral and Smart Cities' and 'Adaptation to Climate Change' through, for example, the **European Citizens' Hackathon Championship 'EU Sparks for Climate'**.

To implement the action, the Commission ensured close collaboration with the Member States, especially through the MLE, and with other EU-wide organisations, such as EUIPO and the EPO with whom a memorandum of understanding (MoU) was signed earlier in 2024, to support the provision of training and expertise on knowledge valorisation.

The box below shows a selection of illustrative initiatives and measures at national level.

**CohWe (The Co-created Health and Wellbeing)** project in Finland was set up as a means to engage non-state actors into the creation of a solution with social value. It involved a co-creation process with companies, cities, research organisations and citizens to develop innovative health and wellbeing services. In particular, it engaged healthcare professionals, nurses and doctors, to develop and pilot the solutions, gathering feedback from patients as users of services.<sup>73</sup> The project completed 35 co-creation cases with companies with six cases piloted in Oulu, one of the major Finnish cities.

**Parkli (Participative Climate Research)** project in Germany is developing participatory 'early warning' systems to address local climate change. It actively engages with citizens to identify specific applications and technologies that could be easily incorporated into the everyday lives of citizens.<sup>74</sup>

**NOVA Research Impact Narratives Challenge** was launched in 2023 by NOVA University Lisbon to encourage researchers to better communicate the impact of their scientific projects. The contest rewards the best examples of 'narratives' appealing to the public.<sup>75</sup>

The Spanish project [DINA ITC](#) funded by NextGenerationEU, was designed as a large training programme with the purpose of encouraging the engagement of academic and research communities in knowledge valorisation processes. DINA-ITC supports the design and implementation of strategies for better knowledge valorisation in a variety of organisations.

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<sup>73</sup> University of Oulu, [Gaika: Co-Created Health and Wellbeing](#), 2018.

<sup>74</sup> Open science for open societies, [ParKli – Participative Climate Research](#).

<sup>75</sup> European Commission: [Nova Research Impact Narrative Challenge](#), 2024.

### 7.2.1. Develop and endorse Guiding Principles for knowledge valorisation

The Guiding Principles were developed and endorsed during the previous reporting period.

### 7.2.2. Develop a Code of Practice for smart use of IP together with stakeholders

Two Codes – i.e., CoP on citizen-engagement<sup>76</sup> and CoP on industry-academia co-creation for knowledge valorisation<sup>77</sup> – were developed by their respective Communities of Practice<sup>78</sup> and adopted as Commission Recommendations on 1 March 2024.

The Code on citizen-engagement introduces a new strategic approach for R&I actors to engage citizens to produce and valorise knowledge, and it provides guidance and relevant tools in this area. The Code covers such elements as creating an enabling environment for sustainable citizen engagement and managing citizen engagement for knowledge valorisation.

The Code on industry-academia co-creation for knowledge valorisation introduces a new strategic approach for industry and academia to seek common interests and produce and valorise knowledge jointly by providing practical guidance and tools for R&I actors. The tools build on input from the CoP on industry-academia collaboration for knowledge valorisation with over 210 participants from 25 EU and 11 non-EU countries.

### 7.2.3. Develop a Code of Practice on Standardisation for researchers

In the first reporting period, the CoP on standardisation in the ERA was developed and endorsed.<sup>79</sup> In this reporting period, the first European Standardisation Panel Survey was launched in 2023 with the final report containing an overview of survey responses and recommendations published in January 2024.<sup>80</sup> The survey aimed to identify the demand from industry and other stakeholders for standards as potential results of R&I projects, to assess how EU research framework programmes could tackle them, and generally to raise awareness of the importance of standardisation as a knowledge valorisation channel.

### 7.2.4. Additional initiatives implemented from mid-2023 to end 2024

As part of the **EU campaign to boost knowledge valorisation**, [Member States continued to host national events from mid-2023 to end-2024](#)<sup>81</sup> to raise awareness about the guiding principles and CoPs among all R&I actors in the respective ecosystems and across EU.

In addition, a **PSF MLE on knowledge valorisation** with a particular focus on skills, inter-sectoral cooperation and incentive systems was launched in March 2023.<sup>82</sup> The main findings

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<sup>76</sup> Commission Recommendation (EU) 2024/736 of 1 March 2024 on a [Code of Practice on citizen engagement for knowledge valorisation](#), OJ L 2024/746 5.3.2024.

<sup>77</sup> European Commission: [Code of Practice on industry-academia co-creation for knowledge valorisation](#).

<sup>78</sup> European Commission: [Communities of practice complete their work to co-create Codes of Practice for industry-academia collaboration and citizen engagement for knowledge valorisation](#).

<sup>79</sup> Commission recommendation (EU) 2023/498 of 1 March 2023 on a [Code of Practice on standardisation in the European Research Area](#).

<sup>80</sup> European Commission: Directorate-General for Research and Innovation, Blind, K., Baldan, F., Tardos, G., Kromer, L. et al. (eds.), [European standardisation panel survey – Final report](#), 2024.

<sup>81</sup> This included events in October 2023 in Ljubljana (Slovenia), November 2023 in Vienna (Austria) and Lisbon (Portugal), Athens (Greece), followed by the events in 2024: Dublin (Ireland) in April, the Hague (the Netherlands) in February, Zagreb (Croatia) in June, Budapest (Hungary) in September and Vienna (Austria) in November). Stakeholder events took place in October 2023 and in December 2024 in Brussels (Belgium).

<sup>82</sup> European Commission: [Mutual learning exercise on knowledge valorisation- focus on skills, inter-sectoral cooperation and incentive systems, research and innovation](#), 2023. The PSF MLE gathered 18 countries and provided the opportunity to discuss across four main topics, i.e., 'incentives and skills', 'intermediaries', 'networks and processes' as well as the horizontal topic 'intellectual asset management'. Policy dialogues took place in June 2023 in Austria dealing with 'research talent', followed by discussions in September 2023 in

of the PSF MLE were summarised in the final report of the project published in May 2024<sup>83</sup> and included a policy toolbox to promote knowledge valorisation. Follow-up initiatives by Member States were mainly aimed at improving the framework conditions, awareness-raising, training, intermediary support and financing of knowledge valorisation, including, for example, a new National Intellectual Property Strategy in Slovenia<sup>84</sup>, a new network of Knowledge Transfer Offices in Greece (METEX), and the further development of the Adapter Platform in Estonia.

In addition, to enhance citizen engagement in knowledge valorisation, the Commission conducted a study '[Fostering knowledge valorisation through citizen engagement](#)' (January 2024). The report provides analysis of citizen engagement for knowledge valorisation practices, building on 60 selected case studies from 37 countries, across the EU and beyond. It also outlines possible action points for R&I actors on effective participatory practices for knowledge valorisation.

To complement these efforts, the Commission launched the [European citizens' Hackathon Championship, 'EU Sparks for Climate'](#) in January 2024 with the aim of supporting new approaches to knowledge valorisation through innovative solutions that respond to the needs of citizens and communities from climate change.

The Commission also initiated [EU Knowledge Valorisation Talks](#) to showcase inspiring practices and foster the exchange of experiences among R&I actors. Since the launch of the initiative in 2024, three talks were held featuring issues with regards to AI and knowledge valorisation, fostering societal impact of research results, and successful models for academia-industry collaboration.

The **EIT KICs have a Knowledge Hub** to disseminate knowledge and practices from within the communities. In addition, several **Horizon Europe projects on knowledge valorisation** are ongoing, including the [INDUSAC](#) (the Quick Challenge-Driven, Human-Centred Co-Creation Mechanism for Industry-Academia Collaborations), the [EU.FFICIENT](#) (European Communities of Facilitators focused on Co-creation Training, Networking and Hands-on Learning), the [FUTURESILIENCE](#) (Creating future societal resilience through innovative, science-based co-creation labs), and [CO-VALUE](#). Furthermore, several Horizon Europe projects on **efficient strategies to manage intellectual assets** have been conducted, such as [ZOOM](#) – 3Os and IP awareness-raising for collaborative ecosystems (finished in September 2024), [IMPAC3T-IP](#) (new toolbox for sustainable IP licensing), and [The Impact Licensing Initiative](#) (societal impact with technology).

In line with this, the [Standardisation Booster](#) was implemented to connect project beneficiaries with standardisation experts and increase the impact of European standardisation resulting from Horizon 2020 and Horizon Europe projects by designing, launching, and managing a dedicated booster-type initiative.<sup>85</sup>

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Sweden with focus on 'intermediaries' and 'networks and process' in November 2023 in Finland. The final policy dialogue in January 2024 in Madrid was devoted to the 'policy and legal context, governance and funding'.

<sup>83</sup> European Commission: Directorate-General for Research and Innovation, Kosova, H. and Vanrie, P. (eds.), [Mutual learning exercise on knowledge valorisation: focus on skills, inter-sectoral cooperation and incentive systems: final report](#), 2024.

<sup>84</sup> The English version of the Strategy is available on About the Slovenian Intellectual Property Office, GOV.SI

<sup>85</sup> <https://hsbooster.eu/news>

### 7.3. Assessment of the progress towards the ERA Action 7 objectives over the 2022-2024 period

#### 7.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The implementation of most objectives under this action was completed in the first reporting period, such as development and endorsement of Guiding Principles along with the Code of Practice on standardisation in the ERA. During the second reporting period, the initiatives went beyond the initially outlined scope and included development of additional codes of conduct and other activities to enhance knowledge sharing and valorisation.

The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 7.

**Table 8 Assessment of the progress towards Action 7 Specific Objectives: initiatives and outcome**

Specific objectives <sup>86</sup>	Main initiatives implemented	Main outcome
Develop and endorse Guiding Principles for knowledge valorisation	<ul style="list-style-type: none"> <li>Development and adoption of Guiding Principles for knowledge valorisation by the Council on 2 Dec. 2022</li> </ul>	<ul style="list-style-type: none"> <li>Guiding Principles for knowledge valorisation available for use by the R&amp;I stakeholders</li> </ul>
Develop a Code of Practice for smart use of IP together with stakeholders	<ul style="list-style-type: none"> <li>Co-creation of the CoP with the community of practice and the ERA Forum in 2022, adoption by the Commission on 1 March 2023</li> </ul>	<ul style="list-style-type: none"> <li>The CoP for smart use of IP available for use by the R&amp;I stakeholders</li> </ul>
Develop a Code of Practice for researchers on standardisation	<ul style="list-style-type: none"> <li>Scoping study followed by a co-creation process including ERA Forum, Standard Development Organisations, universities and practitioners, adoption by the Commission on 1 March 2023</li> </ul>	<ul style="list-style-type: none"> <li>The CoP on standardisation available for use by the R&amp;I stakeholders</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

#### 7.3.2. Challenges and opportunities towards future ERA initiatives

The implementation of ERA Action 7 was on time and delivered on the expected objectives and even beyond, i.e., producing additional two Codes of Practices.

The main challenges ahead is to increase understanding of knowledge-valorisation principles and practices among stakeholders through the enhanced uptake of the CoPs by R&I actors and ultimately full implementation.

In the future, actions on more effective promotion of the existing Codes could be envisaged together with measures to improve knowledge valorisation, including more focus on intermediaries, knowledge transfer offices, professionalisation of valorisation services, improving the understanding of IP and the use of standardisation of research results, as well as promotion of the industry-science collaboration.

<sup>86</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

## 8. Action 8: Strengthen sustainability, accessibility and resilience of research infrastructures

### Key findings Action 8: Strengthen sustainability, accessibility and resilience of research infrastructures

During the review period, ERA Action 8 initiatives have advanced the ERA by enhancing the role of research infrastructures (RIs) in the ecosystem, fostering cooperation, and addressing sustainability challenges.

- The 2024 **Strategic Landscape Analysis**, now decoupled from the ESFRI Roadmap, provided a comprehensive overview of the RI ecosystem, identifying synergies, gaps, and challenges, and aligning RIs with societal priorities such as the twin transition
- The **ESFRI Roadmap update** (2024-2026) introduced a call for new RI projects and upgrades, with a significant focus on financial sustainability of the RI ecosystem and introducing environmental considerations as additional key requirement. The **performance monitoring for ESFRI Landmarks** has also been conducted, reinforcing efforts to enhance RI resilience and adaptability and to maintain their world class position.
- The revised **European Charter of Access** (2024) seeks to improve RI accessibility and governance, promoting collaboration with socio-economic actors and championing open science. Horizon Europe funding for RIs also played an important role in supporting trans-national access to RIs.
- New opportunities for **cooperation between RIs and stakeholders** have been launched, including the ERIC Forum Meetups and ESFRI-EOSC Task Force. Initiatives like the RITIFI project and specific ESFRI activities seek to strengthen RI-Technology Infrastructure (TI) and RI-industry collaborations, addressing shared challenges.

These efforts have strengthened the role of RIs in EU R&I ecosystems, contributing to ensure a broader accessibility, enhancing their efficiency, and supporting long-term development. Nonetheless, challenges persist. Future efforts will focus on increased strategic alignment with EU priorities, enhancing resilience, fostering interaction with TIs and industry, addressing funding gaps and supporting long-term sustainability to maximise the impact of RIs.

### 8.1. Objectives and scope of ERA Action 8

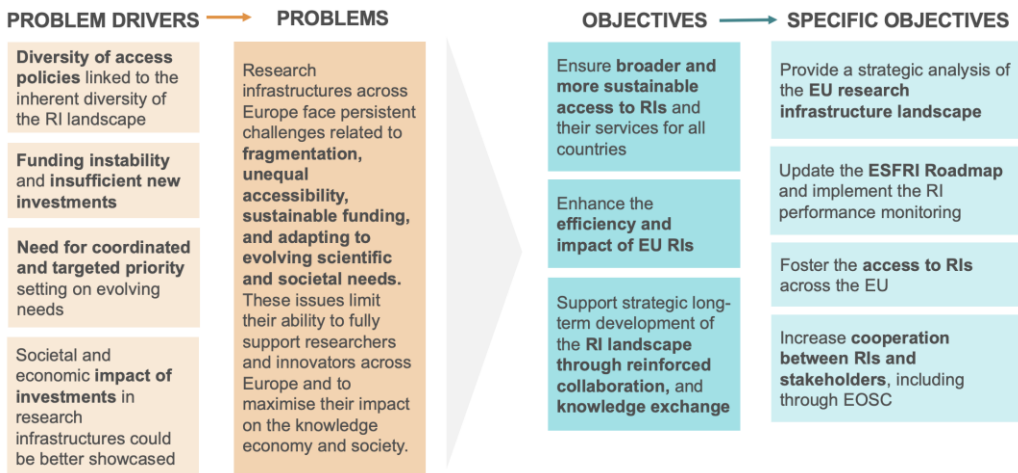
#### Purpose of the action:<sup>87</sup>

Action 8 aims to **strengthen the European research infrastructure ecosystem** to ensure sustainable excellence and competitiveness within the ERA. Key initiatives include preparing the framework for the next ESFRI Roadmap, conducting a strategic analysis of the European research infrastructure landscape to identify gaps, and piloting new funding models for infrastructure sustainability. Efforts will also focus on improving equitable access to research infrastructure services through the revision and update of the European Charter for Access. Additionally, a permanent monitoring framework for the ERIC Regulation will be proposed, reinforcing the impact and governance of European research infrastructures.

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<sup>87</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

**Figure 8 Identified problems and defined objectives of ERA Action 8**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

In addition to these objectives, the Action also delivered several activities that were not originally foreseen under the remit of ERA Action 8 but either fall within the larger remit of the European Commission or of the [European Strategy Forum on Research Infrastructures](#) (ESFRI). These have been clearly identified in the [ESFRI Activity report 2021-2023](#), published in December 2024.

**8.2. Status of ERA Action 8 implementation at EU level**

**Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>88</sup>**

- **Strategic analysis of the European research infrastructure landscape:**<sup>89</sup> ESFRI developed a new methodology for landscape analysis, incorporating surveys and strategic gap analysis based on user needs and impact. This ongoing work involved large domain-specific and cross-cutting assessments, with contributions from ESFRI working groups.
- **Broader and sustainable access to research infrastructures:** Two parallel surveys targeting RIs and RI stakeholders, implemented in May-June 2023, identified evolving challenges and needs for accessing research infrastructures. Key findings informed recommendations for the European Charter of Access to Research Infrastructures, aimed at improving legal, institutional, financial, and technical frameworks.<sup>90</sup>
- **Update of the ESFRI Roadmap and performance monitoring framework:** ESFRI completed in 2022 the first batch of performance monitoring for 12 ESFRI Landmarks, with subsequent batches in progress. Reports highlighted strong overall performance but underscored challenges in achieving sustainable funding.<sup>91</sup>

<sup>88</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>89</sup> ESFRI, [ESFRI Landscape Analysis 2024](#).

<sup>90</sup> ESFRI, [ESFRI Report on Access to Research Infrastructures and Charter on Access to RIs](#), 2024.

<sup>91</sup> See <https://www.esfri.eu/monitoring>



- **ERIC framework report:** The third Commission report on the ERIC Regulation, adopted in August 2023<sup>92</sup>, emphasised the growing number of ERICs as an important legal framework for integrating resources in the ERA. Recommendations focused on enhancing access to the ERIC programme, increasing funding synergies, engaging international partners, and addressing operational challenges.
- **Enhanced cooperation between research infrastructures and stakeholders:** New and reinforced collaboration channels were established, including the ESFRI Stakeholder Forum, which held its inaugural meeting in September 2022, and the ESFRI-EOSC Task Force, which convened for its first meeting in June 2023. These initiatives aim to reduce fragmentation in Europe's research data landscape, promote FAIR data productivity, and integrate ERICs into the ERA. A new Horizon Europe grant was awarded to the ERIC Forum to further these efforts.<sup>93</sup>

Between **mid-2023 and late 2024**, several key milestones were achieved in advancing the objectives of ERA Action 8. Pursuing the work carried out under the first phase, several tools and initiatives have been instrumental in advancing this action. A major focus for ESFRI under the second phase of the ERA Policy Agenda was the implementation of its updated [2024-2025 workplan](#), which includes the delivery of a comprehensive landscape analysis, updated ESFRI Roadmap, and ongoing monitoring of existing ESFRI projects.

### 8.2.1. Provide a strategic analysis of the EU research infrastructure landscape

From 2024 onward, ESFRI has decoupled the Roadmap from the [Landscape Analysis](#), making the latter a standalone document. Published in June 2024, the Analysis offers a detailed review of Europe's RI ecosystem, identifying synergies, complementarities, gaps, and challenges.

The findings from the analysis highlight the need for interdisciplinary collaboration, leveraging shared resources and digital technologies to address complex challenges. The report emphasises the need for sustainable funding strategies to ensure the resilience of RIs. In addition, the findings shed light on some of the shifts in the landscape, marked by interdisciplinary requirements and the incorporation of AI, which emphasises the need to enhance cross-domain collaboration and foster synergies within the ESFRI ecosystem.

The [ESFRI Portfolio](#) online tool offers concise, regularly updated summaries of RIs across all domains, serving as both part of the report and a standalone resource for the scientific community and stakeholders.

The 2023 **ESFRI report on energy and supply challenges**<sup>94</sup> examines the impact of the energy crisis and resource shortages on European RIs, particularly energy-intensive facilities like synchrotrons and computing centres. Exacerbated by the Russian aggression in Ukraine and rising inflation, these challenges threaten RI sustainability and operations. The report provides recommendations to ESFRI, Member States and the European Commission, including calls for increased funding, energy price caps, greening initiatives, and measures under the Critical Raw Materials Regulation. It also highlights the need to support the Ukrainian research community and enhance the resilience of RIs to future crises (see also the ESFRI Report on RIs' support to the Ukrainian Research Community<sup>95</sup>).

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<sup>92</sup> European Commission: [Third Report on the Application of Council Regulation \(EC\) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium \(ERIC\)](#).

<sup>93</sup> European Commission: [Second implementation project for the ERIC Forum](#).

<sup>94</sup> ESFRI, [Report on Energy and Supply Challenges of Research Infrastructures](#), 2023.

<sup>95</sup> ESFRI, [Report on the Support of Research Infrastructures to the Ukrainian Research Community](#), 2023.



By strategically analysing the challenges and gaps in the RI landscape, the insights from these analyses will shape the framework for future Roadmap updates and guide efforts to establish a more efficient and fully functional European RI ecosystem.

### 8.2.2. Update the roadmapping and monitor the development of the EU RI landscape

The [ESFRI Roadmap update](#), which builds on the Landscape Analysis, was launched in October 2024 and is expected to be concluded in 2026.<sup>96</sup> In parallel, ESFRI projects introduced with the 2016, 2018, and 2021 Roadmaps will undergo the ESFRI Roadmap monitoring exercise.

**ESFRI monitors the quality and performance of the Landmarks** through a systematic process. The monitoring framework includes KPIs, qualitative assessments, hearings, and site visits. Monitoring, conducted every five years, ensures regular dialogue, assesses individual Landmark quality, identifies challenges, and gathers insights into the broader RI ecosystem. The process, managed by the ESFRI Monitoring Committee, aims to enhance RI performance, address gaps in the European landscape, and guide future RI opportunities. All eligible **Landmarks have been monitored before the end of 2024**.

The [ESFRI policy brief on the assessment of impact of research infrastructures](#), published in July 2023, underlines the growing importance of assessing the societal, economic, and scientific impact of RIs to facilitate strategic planning, resource allocation, and enhance accountability and transparency. The report distinguishes impact assessments from performance-monitoring and offers recommendations to stakeholders, including governments and the European Commission, to adopt best practices, develop monitoring frameworks, and align RI policies with user and societal needs.<sup>97</sup>

### 8.2.3. Foster the access to RIs across the EU

In November 2024, an **updated European Charter of Access to Research Infrastructures**<sup>98</sup> was published. This update was based on two surveys developed in January 2024 by the ESFRI Drafting Group on Access<sup>99</sup> which produced outcomes and subsequent recommendations to enhance the governance and accessibility of research infrastructures, foster collaboration, and enhance workforce skills. The updated Charter further encourages engagement with diverse social and economic sectors – such as business, industry, and public services – to maximise the value of investments in RIs and promote innovation, competitiveness, and efficient resource use.

In addition, significant funding has been allocated to **RIs within Horizon Europe**.<sup>100</sup> The activities outlined in the Horizon Europe RI Work Programme (WP) are designed to enhance access to infrastructures and promote integration with initiatives like EOSC. Through Horizon

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<sup>96</sup> In this context a call for proposals for new research infrastructure projects and major upgrades had been launched in Spring 2025.

<sup>97</sup> In this context, the OECD Global Science Forum and ESFR held a workshop to examine research infrastructure (RI) funding data in July 2024, see <https://www.esfri.eu/esfri-events/oecd-esfri-workshop-expenditures-ris>

<sup>98</sup> European Commission: [European Charter for Access to Research Infrastructures – Principles and guidelines for access and related services](#), 2024.

<sup>99</sup> ESFRI, [Report on Access to Research Infrastructures and Charter on Access to RIs](#), 2024.

<sup>100</sup> European Commission: [Horizon Europe Work Programme 2023-2025: Research Infrastructures](#) (European Commission Decision C(2024) 2371 of 17 April 2024).

Europe support cooperation between ERA and international partners shall be increased and strategic priorities be advanced.

#### **8.2.4. Increase cooperation between RIs and stakeholders**

The cooperation between RIs and stakeholders has also been enhanced as part of the ERA Action 8 initiatives, especially through the establishment of the ESFRI **Stakeholder Forum Meetups**. These events, set to be organised bi-annually as of 2023, bring together RIs, policy-makers, socio-economic actors, research organisations, and higher education institutions, with the aim of raising awareness, fostering cooperation, facilitating mutual learning, and engaging diverse stakeholders in deliberation and co-design processes for RIs. The [Second ESFRI Stakeholder Forum Meetup](#) took place on 17 September 2023 and focused on Funding, Access, Industry, and Interaction with Technology Infrastructures (TIs).

**Cooperation between RIs and industry stakeholders**, including users, collaborators, and component providers, is also a key priority. The ESFRI Drafting Group on Industrial Cooperation was formed with the aim of exploring and better understanding these collaborations and identifying support needs. Two ESFRI reports on this topic were published in July 2023 and September 2023.<sup>101</sup> Those reports identify the need for strategic policy actions to enhance mutual benefits and optimise resource use. They highlight ESFRI's role in fostering RI cooperation between industry and TIs, and providing recommendations to strengthen these collaborations for greater societal and industrial impact. The [Research Infrastructures and Technology Infrastructures for Impact](#) (RITIFI) project brings together RIs and TIs from 19 European countries to enhance the integration and structure of the European R&I landscape, and to develop a functional framework and tailored guidelines for integrating RI and TI services to meet end-user needs.

In addition, several initiatives have been put in place to enhance collaboration between RIs and e-infrastructures. Specifically, the [ESFRI-EOSC Task Force](#) – established in June 2023 and running until the end of 2026 – is working to strengthen collaboration between the ESFRI Forum and EOSC Steering Board. This Task Force focuses on aligning collective interests to support an integrated ecosystem of RIs, with two primary goals: (1) Reducing fragmentation in Europe's research data landscape; and (2) [Increasing productivity of FAIR data](#).

### **8.3. Assessment of the progress towards the ERA Action 8 objectives over the 2022-2024 period**

#### **8.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome**

The initiatives under ERA Action 8 have driven significant progress in strengthening Europe's RI ecosystem. Key achievements include the standalone Landscape Analysis, enhanced monitoring frameworks, updated access policies, and the integration of RIs within Horizon Europe priorities (see above). Cooperation between RIs, industry, and e-infrastructures has been strengthened through initiatives like the ESFRI-EOSC Task Force and dedicated projects such as RITIFI. Networking events and funding mechanisms have further supported collaboration and strategic planning across the RI landscape.

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<sup>101</sup> ESFRI, [Report on Cooperation of ESFRI RIs with Industry](#), 2023; ESFRI, [Survey Report on Cooperation of ESFRI Research Infrastructures \(Landmarks\) with Industry](#), 2023.

The table below summarises the main initiatives and outcome delivering on the specific objectives of ERA Action 8.

**Table 9 Assessment of the progress towards Action 8 Specific Objectives: initiatives and outcome**

Specific objectives <sup>102</sup>	Main initiatives implemented	Main outcome
Provide a strategic analysis of the EU research infrastructure landscape	<ul style="list-style-type: none"> <li>• ESFRI Landscape Analysis 2024</li> <li>• ESRI RIs portfolio</li> <li>• ESFRI report on energy and supply challenges</li> </ul>	<ul style="list-style-type: none"> <li>• Improved understanding of RI gaps, synergies, and challenges</li> <li>• Enhanced resources for stakeholders and resilience strategies</li> </ul>
Update the ESFRI Roadmap and implement the RI performance monitoring	<ul style="list-style-type: none"> <li>• ESFRI Roadmap</li> <li>• European Research Infrastructure Consortium</li> <li>• Landmark Analysis</li> <li>• ESFRI policy brief on the assessment of impact of Research Infrastructures</li> <li>• OECD-ESFRI virtual workshop</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthened RI monitoring, planning, and policy alignment</li> <li>• Advanced integration and funding strategies</li> </ul>
Foster the access to RIs across the EU	<ul style="list-style-type: none"> <li>• Updated European Charter of Access to Research Infrastructures</li> <li>• Funding has been allocated to RIs within Horizon Europe</li> </ul>	<ul style="list-style-type: none"> <li>• Improved access to RIs and global collaboration</li> </ul>
Increase cooperation between RIs and stakeholders, including through EOSC	<ul style="list-style-type: none"> <li>• ESFRI Stakeholder Forum Meetups</li> <li>• ESFRI-EOSC Task Force</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced cooperation, data sharing, and RI-TI integration</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

The importance and role of research infrastructures in the EU R&I ecosystem have been highlighted in several **Council Conclusions** and featured in **EU Presidency declarations and events** throughout the three-year ERA Policy Agenda cycle.<sup>103</sup> Further to this, RIs have also featured in a few EU Presidency declarations and events, including the Tenerife Declaration on ‘Global Dimension and Sustainability of Research Infrastructures’ of September 2023.<sup>104</sup> The [ICRI Brisbane Statement](#) of December 2024 highlights the critical role of RIs in addressing global challenges, fostering international collaboration, integrating digital and Indigenous knowledge systems, and advancing interdisciplinary and translational research through sustainable governance and strategic investment.

Considerable **progress has been made in the context of ESFRI**, starting from the updates to the roadmapping process. This round introduces new requirements, including the integration of environmental considerations. Proposals must also emphasise the financial sustainability of the proposed infrastructure and provide a more detailed description of its role within the European RI Landscape. Additionally, there is an increased focus on data security

<sup>102</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>103</sup> For instance, the [Council Conclusion on Research Infrastructures of December 2022](#), but also the [Council Conclusions on Knowledge Valorisation of May 2024](#), and the Council Conclusions on ‘[Strengthening the competitiveness of the EU, reinforcing the ERA and overcoming its fragmentation](#)’ of November 2024, which both reference research and technology infrastructures.

<sup>104</sup> EOSC, [Tenerife Declaration on “Global Dimension and Sustainability of Research Infrastructures”](#), 2023.

and adherence to the Open Science principles to ensure alignment with current policy priorities.<sup>105</sup>

The [ESFRI Landscape Analysis 2024](#) has also developed an updated methodology, drawing from prior ESFRI experience and integrating a more prominent role for key stakeholders. This report allows ESFRI to pilot the new approach, which involves direct input from RIs and stakeholders, alongside contributions from external experts for a more comprehensive assessment of gaps and challenges. The methodology will be refined and adjusted for future Landscape Analysis reports.

Furthermore, **ERIC as a legal entity** is helping to recognise European RIs and facilitate their knowledge exchange, resource-sharing, and cross-border collaboration. By the end of 2024, there were 28 ERICs in place, including two additional ones that have been created since July 2023: [LOFAR](#) (the LOw Frequency ARray) and [INFRAFRONTIER ERIC](#) – both established in December 2023. In addition, two more ERICs were announced in the reporting period: [CTAO](#) (Cherenkov Telescope Array Observatory) and [EHRI](#) (European Holocaust Research Infrastructure) – both have since been created (January 2025).

Research infrastructures form a crucial component of one of the three key pillars of Horizon Europe. Notably, while the Work Programme 2021-22 devoted EUR 608 million over its two-year term<sup>106</sup>, the Work Programme 2023-24 dedicated EUR 662 million to RIs.<sup>107</sup>

### 8.3.2. Challenges and opportunities towards future ERA initiatives

Since its creation, **ESFRI has become a vital tool for promoting scientific integration across Europe**. However, the **landscape of RIs in Europe still faces some challenges**. According to the Landscape Analysis 2024, the RIs are at a “transformative crossroad”, marked by rapid technological advancements, evolving governance dynamics, and pressing societal challenges while facing constrained budgets. Many RIs struggle with operational and upgrade costs, and lack adequate support to provide access to a wide range of users. Ensuring sustainability and securing sufficient funding to maintain operations and remain state-of-the-art, despite budget constraints at both EU and national levels, is recognised as a crucial challenge.

There are also gaps in integrating emerging technologies, managing (FAIR) data, and advancing Open Science practices, which can affect the global competitiveness of European RIs. The Landscape Analysis 2024 also reveals pervasive challenges across disciplines, such as the need for a formalised assessment and management of risks associated with the overreliance on external products and technologies, but also talent retention and competence and skills gaps that would require RI-oriented training programmes. The report further mentions the need to strengthen synergies and interoperability among RIs and e-infrastructures through the development of solutions, standards, funding instruments, and best practices to ensure seamless data-sharing and management.

While the use of the **ERIC legal framework has proven successful in supporting European research infrastructures, challenges remain regarding their financial and operational sustainability**, but also linked to the legal framework itself (e.g., participation of international organisations, practical application of the TNA for instance for in-kind contributions, etc.). The [third report on the ERIC Regulation](#) highlights the need for enhanced efforts to strengthen access to ERIC programmes and improve the availability of their

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<sup>105</sup> European Commission: [Launch of Roadmap update for Research Infrastructures: environmental considerations now and additional key requirement](#), 2024.

<sup>106</sup> European Commission, [Horizon Europe Work Programme 2021-2022: Research Infrastructures \(Decision C\(2022\)2975 of 10 May 2022\)](#).

<sup>107</sup> European Commission, [Horizon Europe Work Programme 2023-2025: Research Infrastructures \(Decision C\(2024\) 2371 of 17 April 2024\)](#).

services. Additionally, **the report emphasises the importance of fostering greater synergies among different funding sources to address operational challenges and facilitate interactions with international partners.** The report also highlights that collecting comprehensive information about all components of the ERIC system and its activities would enable to further enhance the impact of the ERIC framework. This data would support the development of joint services aimed at advancing FAIR, green, and digital transitions, ensuring that ERIC continues to align with Europe's broader R&I objectives.

The **ESFRI Landmark Monitoring process has been positively received by most RIs.** Key observations include strong scientific excellence, pan-European and often global relevance, effective e-needs management, and impactful collaborations.

Many RIs are adapting to ESFRI's comprehensive KPI framework but face challenges in quantifying user data and demonstrating social or economic impacts. Sustainability remains a significant concern due to funding uncertainties and a lack of long-term membership commitments. Despite these challenges, RIs generally exhibit sound governance, management, and financial practices.

To address these challenges and gaps, the next cycles of ERA activities should further **enhance the strategic alignment of the EU RIs landscape with EU priorities.** While recurrent tasks such as roadmapping, landscaping, and stakeholder engagement will continue, critical areas like infrastructure financing, international cooperation, improving resilience and the greening of RIs, could take a more central role. Additionally, the Commission will present a comprehensive strategy for research and technology infrastructures (RIs and TIs).<sup>108</sup>

## 9. Action 9: Promote international cooperation

### Key findings Action 9: Promote international cooperation

The initiatives under ERA Action 9 have advanced the EU's strategic objectives for international cooperation in R&I, with several initiatives going beyond the set of objectives.

- The Commission continued coordinating the **Multilateral Dialogue on Principles and Values in International R&I Cooperation**, which featured a series of thematic workshops and a ministerial meeting adopting the 'Brussels Statement'. The Dialogue is bringing together countries and stakeholders to build a common understanding of key principles and values in R&I, including academic freedom, ethics, Open Science, and gender equality.
- The Commission launched the development of a structured **European Framework for Science Diplomacy**, supported by working groups consisting of scientists and diplomats and high-level conferences, which will enhance the EU's role as a global leader in science diplomacy.
- The Commission and Member States initiated pilot initiatives based on a [Team Europe](#) approach for the EU to become more strategic in its R&I relations with Africa and China, and undertook efforts to better coordinate European players in multilateral settings.

These efforts have strengthened EU leadership in global R&I, promoted shared values, and positioned science and technology as integral tools for international cooperation and strategic autonomy.

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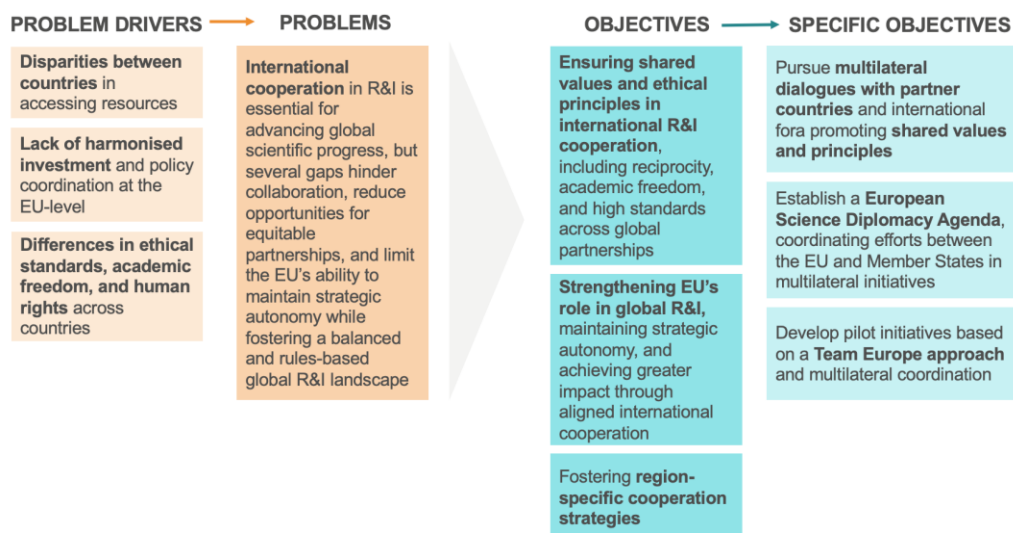
<sup>108</sup> European Commission: [Ekaterina Zaharieva - Mission letter](#), 2024.

## 9.1. Objectives and scope of ERA Action 9

### Purpose of the action:<sup>109</sup>

Action 9 aims at fostering a positive, balanced environment for international collaboration based on reciprocity, and it emphasises ethical values and standards, as well as academic freedom and human rights in R&I international cooperation. To implement the objectives sets out in the 2022-2024 ERA Policy Agenda for Action 9, the ERA Forum Standing Subgroup on a Global Approach to Research and Innovation has established its workplan. This Action promotes multilateralism, reciprocal openness, and bilateral relations in R&I, which align with European values and strategic autonomy when cooperating with countries outside of the EU.

**Figure 9 Identified problems and defined objectives of ERA Action 9**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

## 9.2. Status of ERA Action 9 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>110</sup>

- **ERA Forum Standing Subgroup on the Global Approach:** Established in February 2022 with a mandate echoing the ERA Policy Agenda, the subgroup convened nine times by October 2023 to advance international R&I cooperation initiatives.
- **European Science Diplomacy Agenda:** The development of a European Framework for Science Diplomacy started in late 2022 with the establishment of a Steering Team involving the key stakeholders.
- **Multilateral Dialogue on Principles and Values:** Initiated with an event in July 2022, following the Marseille Declaration and the Council Conclusions for Principles and Values

<sup>109</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>110</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



for International Cooperation in Research and Innovation, a series of thematic workshops addressed the principles and values in international R&I cooperation.

- **Pilot initiatives based on a Team Europe approach:** Drawing inspiration from the Team Europe Initiatives (TEI), pilot initiatives based on Team Europe Approach were launched focusing on specific regions or countries, most notably a pilot initiative on cooperation with China focusing on a level playing field and areas of mutual benefit, and a pilot initiative focusing on Africa.
- **Horizon Europe actions:** Strengthened international R&I cooperation with specific initiatives, including the first 'Africa Initiative' to address locally adapted solutions for Africa's challenges.

From **mid-2023 to late 2024**, the implementation of ERA Action 9 consisted of several initiatives aimed at enhancing international cooperation in R&I, reinforcing shared values, and promoting the EU's strategic autonomy in global R&I partnerships. It should be noted that ERA Action 9 does not cover the entire implementation of the [EU Global Approach strategy](#), which itself is monitored through specific implementation reports.

### **9.2.1. Promote a European strategy for international cooperation in a changing world, in the context of strategic autonomy and research security**

Following the policy developments in 2023 and the adoption of the Economic Security Strategy (January 2024), the [ERA Standing Subgroup on a Global Approach to Research and Innovation](#) decided to add research security as one of its priorities.

**The Council Recommendation on enhancing research security** was adopted in May 2024, providing guidance to Member States on enhancing research security, addressing risks such as undesirable knowledge transfer, foreign interference, and ethical violations. The Commission is encouraged to explore structural support options, including the potential establishment of a European Centre of Expertise on Research Security.

### **9.2.2. Pursue multilateral dialogues**

The **Multilateral Dialogue on Principles and Values for International Cooperation in R&I** was set out in the Global Approach to R&I aiming to identify commonalities, discuss differences, and learn from each other's experiences. Each Multilateral Dialogue, which includes key EU partners abroad, focuses on one principle or value. Since October 2022, eight workshops have taken place, including on academic freedom, ethics and research integrity, gender equality and inclusiveness, and Open Science.

In the period under review, four workshops were organised with each one focusing on a specific theme:

- [Research excellence](#) (1 June 2023) – workshop to share experiences and approaches on the understanding of research excellence in different parts of the world; including how policy-makers in different contexts apply the concept of excellence to the design and implement R&I policies.
- [Knowledge valorisation](#) (2 October 2023) – workshop focusing on policy developments, strategies and best practices in the field of intellectual assets management (including national IP strategies), and how to enhance collaborations between industry, and academia, and stakeholder engagement in R&I.
- [Research security](#) (7 December 2023) – workshop to provide a platform for open dialogue on distinctions and commonalities in the conceptualisation and application of research security in different national contexts.
- [Encouraging equitable R&I partnerships with low- and middle-income countries](#) (18 January 2024) – workshop focusing on best practices and key challenges in developing equitable partnerships in international research.



Moreover, an [international ministerial conference](#)<sup>111</sup> was held in February 2024 to reach broad consensus on the importance of shared principles and values in international R&I cooperation. The conference fostered a strong understanding of the different cultural contexts among participating countries, with political recognition given to the progress achieved. Apart from providing political recognition at international level of the work carried under the Multilateral Dialogue, the conference endorsed the Brussels Statement, a ministerial-level document on the principles and values underlying international cooperation in research and innovation.

### 9.2.3. Development of science diplomacy

An increasing number of recent EU policy documents in the foreign and security policy domain have made explicit or implicit reference to “science diplomacy” and the **need for foreign policy to be based on the best possible evidence**. The [first Biennial Report on the Global Approach to R&I](#) highlighted the lack of coordination and of an EU-wide approach to science diplomacy, leaving the EU vulnerable in a rapidly-evolving geopolitical and technological landscape, especially compared to more targeted approaches by other international actors. The urgency to act in this domain was emphasised by EU Research Ministers during their July 2023 meeting in Spain, where science diplomacy was discussed for the first time at a ministerial level.

With support of stakeholder communities, the Commission published a [European Framework for Science Diplomacy](#) in February 2025, which is built around four work strands:<sup>112</sup>

- How to use science diplomacy strategically to tackle geopolitical challenges in a fragmented, multipolar world?
- How to make European diplomacy more strategic, effective, and resilient through scientific evidence and foresight?
- How to strengthen science diplomacy in EU and Member State diplomatic missions and foster the EU's global science diplomacy outreach?
- How to build capacity for European science diplomacy?

To develop concrete recommendations for a European Framework for Science Diplomacy, the [Commission established five working groups](#), which delivered those recommendations in June 2024. Moreover, the Commission organised, together with the Union for the Mediterranean (UfM) and the Arab League, a [High-Level Meeting on Science Diplomacy](#) on 2 October 2024 in Cairo. This followed the first [EuroMed Science Diplomacy Conference](#) that was held at the UfM headquarters in October 2023.

### 9.2.4. Development of Team Europe pilot initiatives

One important element, drawing inspiration from the [Team Europe Initiatives](#), has been the development of pilot initiatives focusing on specific regions or countries to unify efforts for a more coordinated and effective strategy in international research cooperation.

A bilateral pilot initiative on cooperation with China focuses on establishing a level playing field and areas of mutual benefit, as well as outlining the main elements of the Joint Roadmap for the future of EU-China cooperation in science, technology and innovation, was under discussion between the EU and China during the reporting period.

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<sup>111</sup> The conference was attended by ministers/delegates from 57 countries, including the 27 EU Member States, 15 countries Associated or negotiating Association to Horizon Europe, 15 international cooperation partner countries, as well as representatives of the OECD, UNESCO, and the International Science Council. In addition, 16 stakeholder organisations representing the European academic and scientific communities were invited to attend the event in an online format.

<sup>112</sup> These issues were discussed at the first European Science Diplomacy Conference that was held on 18-19 December 2023 in Madrid, in cooperation with the Spanish Presidency of the Council of the EU.

The ERA Forum Standing Subgroup on the Global Approach to Research and Innovation adopted a recommendation regarding the development of a possible ARISE 2.0 programme in the context of the capacity building component of the African Union-EU Innovation Agenda. It underlined the need to pool Team Europe-Africa resources in the design and implementation of ARISE 2.0, enhancing synergies between relevant African Union, European Union, and respective Member State initiatives.

### 9.3. Assessment of the progress towards the ERA Action 9 objectives over the 2022-2024 period

#### 9.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The objectives of ERA Action 9 have been achieved and even exceeded in several areas:

- A **Council Recommendation** on enhancing Research Security was adopted in May 2024, providing guidance to the European Commission, Member States, and the various players in the European R&I ecosystem on how better to confront foreign interference in R&I.
- With the adoption of the [Brussels Statement](#) in February 2024, the EU has reached an important milestone in the development of the Multilateral Dialogue on Principles and Values in International R&I Cooperation. The statement provides a solid basis for taking the Multilateral Dialogue to the next global level.
- The EU has taken significant steps to develop a **European Framework for Science Diplomacy** through a thorough co-creation process leading to a set of recommendations on which future policy action can be built. These efforts aim to position science diplomacy as a critical tool for addressing geopolitical challenges and fostering international cooperation.
- The EU successfully launched two **pilot initiatives on China and Africa**, which will enable the EU to be much more strategic in engaging with international partners based on the Team Europe approach.

The table below summarises the main initiatives and outcome of the Action along the five specific objectives.

**Table 10 Assessment of the progress towards Action 9 Specific Objectives: initiatives and outcome**

Specific objectives <sup>113</sup>	Main initiatives implemented	Main outcome
Pursue <b>Multilateral Dialogues with partner countries</b> and international for promoting <b>shared values and principles</b>	<ul style="list-style-type: none"> <li>• Multilateral Dialogue on Principles and Values for International R&amp;I Cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• Ministerial (Brussels) Statement on principles and values for international cooperation in research and innovation</li> <li>• Enhanced global collaboration via thematic workshops on topics like academic freedom, research security, and gender equality</li> </ul>
Establish a <b>European Science Diplomacy Agenda</b> , coordinating efforts between the EU and Member States in multilateral initiatives	<ul style="list-style-type: none"> <li>• European Science Diplomacy Conference</li> <li>• EU Science Diplomacy Working Groups</li> </ul>	<ul style="list-style-type: none"> <li>• Development of recommendations for a European Framework for Science Diplomacy</li> </ul>

<sup>113</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Establish a coordinated approach towards <b>bilateral and regional cooperation through pilot initiatives and engagement in multilateral platforms</b>	<ul style="list-style-type: none"> <li>• Development of pilot initiatives based on a Team Europe approach</li> <li>• Discussion on coordinated engagement in multilateral platforms and initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Pilot initiative on cooperation with China focusing on a level playing field and areas of mutual benefit</li> <li>• Recommendation on a Team Europe-Africa approach to the development of a possible ARISE 2.0 programme</li> <li>• Mapping of bilateral and multilateral cooperation of ERA members and observers</li> <li>• Following discussions on coordinated engagement in multilateral platforms and initiatives, the ERA subgroup decided not to pursue this due to lack of added-value</li> </ul>
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Source: Technopolis Group, based on data collected through desk and interviews

### 9.3.2. Challenges and opportunities towards future ERA initiatives

The initiatives implemented helped to deliver on all promised action objectives. Significant progress was made in fostering institutional synergies, notably between Horizon Europe and the [Global Gateway](#), ensuring research and innovation benefits are integrated across initiatives. The action also strengthened science diplomacy through the development of a European Framework on Science Diplomacy and a network engaging Member States' foreign ministries. Moreover, it successfully implemented safeguards to maintain research as an open and safe endeavour, balancing openness with security in Horizon Europe. Stakeholder co-creation was emphasised, particularly with the academic community, to ensure broad support for sensitive issues such as research security.

However, some challenges remain in balancing the principles of openness and strategic autonomy. Future steps would also require a roadmap to guide implementation, enhanced communication strategies to address stakeholder concerns, and further development of science diplomacy to adapt to an evolving geopolitical context.

## Assessment of the ERA Actions under ERA Priority 1 – Deepening a truly functional internal market for knowledge

ERA Priority 1 focuses on deepening a truly functional internal market for knowledge while strengthening the European R&I ecosystem. The following analysis evaluates the progress made under each ERA Action associated with this priority.

### ➤ Circulation and open sharing of knowledge and research output and strengthening research careers

First, the circulation and open sharing of knowledge and research outputs has progressed through different actions.

**ERA Action 1 aimed to enable the open sharing of knowledge and the reuse of research outputs**, advancing the European Open Science Cloud. The EOSC EU Node became operational in October 2024, serving as the backbone of a federated Open Science framework. Key milestones included the EOSC Observatory, integration of FAIR principles into national strategies, and initiatives such as OSCARS and EOSC Beyond, which expanded infrastructure for smaller research communities. Monitoring tools like EOSC Track and PathOS yielded detailed insights into national contributions and socio-economic impacts, while open-access publications rose to 78.2% EU-wide in 2021 (dipping slightly to 77.7% in 2022), narrowing gaps between Member States. Horizon Europe mandates and the OpenAIRE Open Science Observatory further boosted the share of Open Access

publications to 61.4% by November 2024. Despite these gains, persistent challenges remain in harmonising commitments, ensuring financial sustainability, and addressing policy disparities, emphasising the need for ongoing coordination and investment to fulfil the potential of Open Science.

**As next step, the strengthening of the Open Science implementation and EOSC governance seems essential.** Future efforts should focus on harmonising policies, fostering sustained investments beyond the Horizon Europe framework, and expanding the EOSC Federation to address disparities in access and capacity. Enhanced synergies with complementary ERA actions, such as ERA Action 3 on research assessment and ERA Action 2 on copyright frameworks, will be essential to maximise the impact of Open Science practices in Europe.

**ERA Action 2 sought to propose an EU copyright and data legislative and regulatory framework fit for research.** Efforts under this action pinpoint barriers to accessing and reusing publicly funded research outputs while proposing legislative and non-legislative measures to strengthen EU copyright and data frameworks. Studies conducted between 2022 and 2024 highlighted key obstacles, including restrictive copyright laws, inconsistent implementation of research exceptions, and complex compliance requirements under existing digital and data legislation. To address these issues, a major study on ERA Action 2 identifies policy options on an EU-wide Secondary Publication Right, harmonised research exemptions to EU copyright rules, and standardisation across frameworks such as the Data Governance Act and Open Data Directive. Although no formal legislative proposals emerged, these findings informed discussions in the ERA Forum and laid the groundwork for future policy measures. The major ERA Action 2 study underscored the need for clearer legal frameworks and consistent recognition of researchers' rights. Balancing diverse stakeholder perspectives and navigating regulatory complexity remain critical challenges, which the next ERA Policy Agenda should address to foster a more open and collaborative research environment.

**To reduce legal barriers for knowledge circulation and support the broader adoption of Open Science practices across Europe,** expert studies recommend that future measures should streamline copyright and data legislation, including harmonised Research Exceptions and an EU-wide Secondary Publishing Right. This would enhance Open Access and reuse of publicly funded research results as well as publications and data for scientific purposes, aligning with broader Open Science and research assessment reforms.

**ERA Action 4 enabled to promote attractive research careers, talent circulation, and mobility,** improving the attractiveness and sustainability of research careers through a 2023 Council Recommendation on a European Framework for Research Careers, updating the European Charter for Researchers. Tools such as the ERA Talent Platform and ResearchComp offered integrated resources for career development, while a Mutual Learning Exercise supported balanced talent circulation. The share of foreign doctorate students in the EU-27 rose to 22.7% in 2022, despite persistent disparities. Developments like the upcoming Research and Innovation Careers Observatory and the 'Talent Ecosystems' initiative aided early-career pathways, yet challenges remain in integrating transversal skills, establishing structured mentorship, and ensuring data consistency. Further success under ERA Action 4 depends on continued investment in these initiatives and robust monitoring through RelCO to ensure long-term impact on researcher mobility and career stability.

To address the data gaps and challenges in integrating transversal skills and career, **structured mentorship programmes, the inclusion of transversal skills in evaluations, and the development of a training catalogue** linked to the Pact for Skills could be envisaged. Integrating ResearchComp into PhD curricula and advancing cross-sectoral mobility initiatives will strengthen the ERA's ability to attract and retain top talent.

**ERA Action 7 has advanced the shift from traditional knowledge transfer to comprehensive knowledge valorisation practices.** Guiding principles and codes of practice on intellectual asset management, standardisation, citizen engagement, and industry-academia collaboration have established a robust framework for R&I stakeholders. The EU Knowledge Valorisation Platform along with the Science Monitor and Knowledge Valorisation Talks have enhanced best practice-sharing across Member States. Mutual Learning Exercises and Horizon Europe projects have reinforced innovative approaches such as co-creation and citizen engagement, though challenges persist in ensuring the uptake of these practices among smaller institutions and less experienced stakeholders.

Greater **capacity-building and intermediary support services** will be vital to maintaining current momentum. Strengthened **dissemination strategies, targeted support for knowledge transfer offices**, and the promotion of industry-research-science collaboration will further enhance the valorisation and uptake of R&I results.

**ERA Action 8 has contributed to strengthen the European research infrastructure ecosystem.** The Landscape Analysis 2024 provided a comprehensive overview of RI gaps, synergies, and challenges, informing the update of the ESFRI Roadmap with a focus on sustainability and interdisciplinary collaboration. Monitoring of ESFRI Landmarks has improved RI performance assessment, while the updated European Charter of Access aims to widen access across the EU. Despite progress, disparities in national R&D expenditure persist, and securing sustainable funding remains challenging. The ESFRI-EOSC Task Force and initiatives like RITIFI advance collaboration with e-infrastructures, technology infrastructures, and industry, promoting FAIR data and digital integration. However, the financial and operational sustainability of ERICs and other RIs requires continued efforts, including stronger synergies between national and EU funding. Leveraging emerging technologies and aligning RIs with societal priorities could further enhance the impact and resilience of Europe's RI ecosystem.

To address persistent challenges in research infrastructures, Europe should **secure long-term sustainability through harmonised funding strategies**, and stronger synergies between RIs, technology infrastructures, and industry. Efforts should focus on further embedding RIs in EU priorities, fostering interdisciplinary collaboration and private-sector engagement, integrating emerging technologies, and addressing funding gaps to enhance resilience and global competitiveness. The development of a comprehensive and sustainable RI/TI strategy would ensure Europe's RIs/TIs remain innovative, sustainable, and impactful in terms of societal and policy objectives.

### ➤ **Fostering the inclusiveness and resilience of knowledge ecosystems**

Complementarily, the **inclusiveness and resilience of knowledge ecosystem** has also been a core focus to achieve the ERA Priority 1 objectives.

**Under ERA Action 3, efforts to reform the assessment system for research, researchers, and institutions** have centred on the Coalition for Advancing Research Assessment. By mid-2024, CoARA had expanded to over 700 members, with 150 organisations developing action plans under CoARA Boost's cascading grants. Working groups and national chapters facilitated knowledge exchange, while initiatives such as GraspOS, OPUS, and SciLake piloted new frameworks for qualitative assessment, Open Science, and AI-assisted evaluation. The European Universities Initiative and European Excellence Initiative also embraced assessment reforms. Despite marked progress, challenges persist in promoting diversity, ensuring systematic qualitative evaluation, and addressing cultural and structural barriers. Sustained efforts are vital to achieve inclusive, high-quality, and transparent research assessment across Europe.

**Strengthening national and international participation in CoARA, integrating diversity dimensions into assessment practices, and ensuring alignment with EU funding**

**instruments** like Horizon Europe could support more inclusive and comprehensive evaluation systems. Addressing structural barriers and fostering community-based learning, including on qualitative evaluation methods and inclusivity in assessment criteria, will amplify impact.

**ERA Action 5 enabled significant progress to promote gender equality and foster inclusiveness, taking note of the Ljubljana Declaration**, with Gender Equality Plans and intersectionality driving advances in tackling gender-based violence and enhancing women's leadership roles. Horizon Europe Projects such as GenderSAFE, GENDERACTIONplus, and INSPIRE have supported institutional reforms through guidelines, training, and monitoring. The proportion of women in Grade-A academic positions across the EU-27 rose from 19.7% to 27.3% during the 2010er years, although disparities remain. Mandatory GEPs under Horizon Europe have pushed public research institutions to reinforce gender strategies, influencing private funders to adopt similar plans. Challenges persist in fragmented national support, limited resources, and insufficient understanding of inclusive practices. The related ERA Forum Sub-group introduced frameworks like a Zero-Tolerance Code of Conduct, yet institutional capacity and political commitment must be strengthened to sustain progress. Further efforts are also needed to move beyond compliance to transformative change.

Moving forward, **enhanced capacity-building support, streamlined GEP guidelines, and the promotion of inclusive evaluation systems**, while fostering collaboration between research managers and policy-makers, could ensure sustained progress towards gender equality across the ERA.

**ERA Action 6 underpinned safeguarding academic freedom and addressing foreign interference in R&I.** The 2024 Council Recommendation on Enhancing Research Security provides a framework to mitigate knowledge transfer risks, foreign interference, and ethical violations. A Mutual Learning Exercise involving 12 Member States facilitated best-practice sharing and a common understanding of threats. Work is also progressing on a European one-stop-shop digital platform for tackling foreign interference, due in 2025. While these advancements highlight the EU's commitment, further efforts are needed to ensure effective implementation at national and institutional levels.

Future priorities should include **scaling the one-stop-shop platform, exploring alternative support structures for academic freedom, and strengthening international collaboration** to counter foreign interference. These efforts will ensure a secure and open research environment aligned with EU values.

Finally, the **ERA Action 9** has strengthened the EU's role in international R&I cooperation, combining strategic autonomy with shared values such as academic freedom and inclusiveness. The European Economic Security Strategy and the Council Recommendation on Enhancing Research Security underscore the balance of safeguarding research while maintaining openness. International co-publications rose to 342 per 1,000 public-sector researchers in 2022 (from 218 in 2010), although disparities persist among Member States. The Multilateral Dialogue on Principles and Values has promoted shared priorities, and developing a European Framework for Science Diplomacy has reinforced the EU's leadership in addressing geopolitical challenges. Balancing openness with strategic autonomy remains crucial, necessitating clear guidelines and robust stakeholder engagement.

Future efforts should **incorporate science diplomacy into broader EU external actions while ensuring coherence across international R&I initiatives.** These efforts should focus on balancing openness and strategic autonomy, aligning research and foreign policies, and anchoring science diplomacy and research security as important elements of the EU's international strategy.



## ERA PRIORITY 2: Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA

The following sections summarise the key findings on the implementation of ERA Actions 10 to 14, highlighting their contributions to ERA Priority 2 objectives.

### 10. Action 10: Make EU R&I missions and partnerships key contributors to the ERA

#### Key findings Action 10: Make EU research and innovation Missions and European Partnerships key contributors to the ERA

Progress has been made in achieving the objectives set out for this ERA Action. These initiatives have enhanced the critical role of Missions and Partnerships in advancing EU policy objectives and contributed to tackle the key challenges.

##### Advancing EU Missions:

- The [Mutual Learning Exercise on Missions](#) was implemented between May 2023 and November 2024, and supported the development of effective national frameworks for implementing EU Missions.
- Main work on EU Missions to share information, create awareness and build ownership of EU Missions at national level, regional and community level has been continuing the Working Groups of the Strategic Configuration of the Horizon Europe Programme Committee.
- The **five EU Mission Implementation Platforms**, Climate ADAPT (Climate Adaptation), NetZeroCities (Cities), Mission Ocean and Waters' platform (Oceans and Waters), the Mission Soil Platform (Soil), and Cancer Mission Implementation (Cancer), contribute to the achievement of the missions' objectives. Each serve as knowledge hubs, fostering strategic alignment between EU, national, and regional activities, stakeholder engagement and community management, coordination of relevant CSAs, knowledge dissemination and communication, support for the uptake and diffusion of solutions produced by the mission, etc.
- **Citizen-focused platforms**, including the Citizen Resilience Scan (Climate Adaptation Mission) and NetZeroCities (Cities Mission), engaged communities in participatory policy-making.
- **Two European Mission Forums** were held to enhance mission coordination and engagement.
- The **TRAMI project** (2022-2024) supported missions with the launch of tools like the Mission Data Platform (November 2023), enabling governance monitoring and facilitating mutual learning, also via the **European Mission Network (EMiN)** to connect key players from the business sector, academia, civil society organisations as well as governmental actors.
- The **2023 EU Missions Assessment Report and EC Communication** and Staff Working Document highlighted the importance of public awareness, governance and its ability to leverage other sources of funding, including private funding to enhance mission impact.



### Strengthening European Partnerships:

- The **Partnership Knowledge Hub** (PKH) offered an important coordination and cooperation platform to strengthen the partnership landscape, enabling the exchange of views between the EC and the Member States and Associated Countries, including through regular workshops focusing on relevant topics such as the administrative burden or the phasing out strategy, and the development of an Opinion Report (2023) that further shape the partnership landscape.
- A dedicated **expert group** supported the monitoring and evaluation efforts, producing a **Biennial Monitoring Report** (2024) that assessed Partnership alignment with EU objectives. It states that “European Partnerships continue to be a cornerstone of ERA by aligning R&I agendas, improving skills and increasing the absorption capacities of European businesses. The European Partnerships allow the EU to team up with public and private partners to help speed up the development of new solutions for the green and digital transitions and to strengthen Europe’s resilience.”
- **Annual European Partnership Stakeholder Forums** facilitated knowledge-sharing with the stakeholder community and provided actionable insights to enhance governance and strategic alignment.

Next, Missions will continue to diversify funding strategies beyond R&I programmes, while addressing challenges related to governance, and alignment with policy actions, and enhancing citizen engagement and work on the monitoring framework to maximise their long-term societal impact by 2030. European Partnerships seek to improve portfolio coordination, better alignment with EU and national policies, while further improving performance measurement and monitoring framework, to maximise their impact and address strategic priorities effectively and further leverage co-investments.

## 10.1. Objectives and scope of ERA Action 10

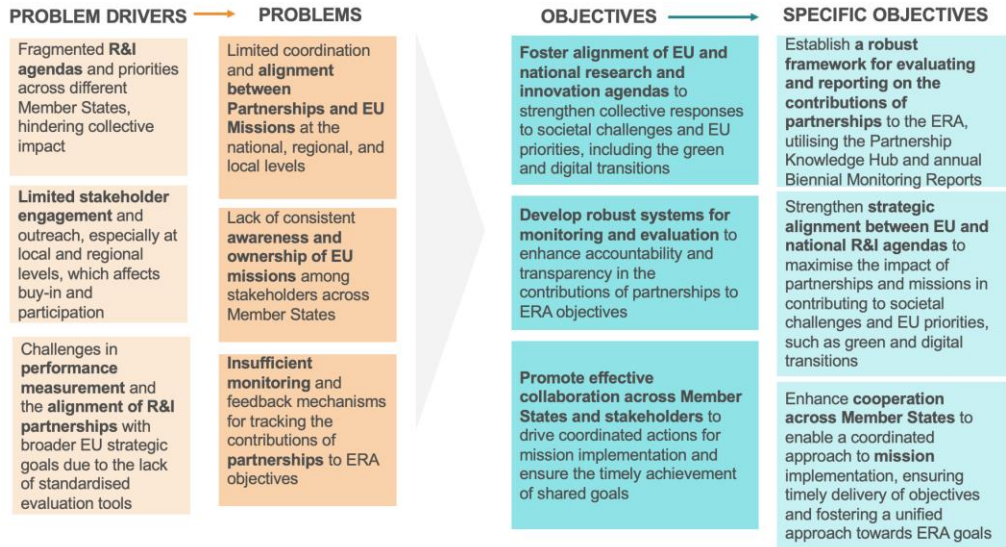
### Purpose of the action:<sup>114</sup>

Action 10 focuses on the EU Missions and European Partnerships connected with Horizon Europe. It aims to implement these initiatives in a way that maximises their impact, establishes them as key contributors to the ERA, and ensures that they support the twin green and digital transition.

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<sup>114</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

**Figure 10 Identified problems and defined objectives of ERA Action 10**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

## 10.2. Status of ERA Action 10 implementation at EU level

### Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>115</sup>

The previous phase of ERA Action 10 saw progress in both raising awareness and building ownership of EU R&I Missions at various governance levels, as well as in monitoring the performance of European Partnerships to ensure their alignment with ERA values and principles. Key initiatives included:

- **Five EU R&I Missions** were launched under the Horizon Europe Framework Programme, addressing five priority areas: climate resilience, cancer, oceans and waters, smart cities, and soil health. These Missions have been integrated into major EU policies, such as the European Green Deal and Beating Cancer Plan, providing opportunities for advancing ERA Action 10 objectives.
- **TRAMI** project supported the Missions by fostering knowledge exchange and mutual learning, as well as developing tools like the Mission Data Platform to monitor governance and implementation structures. Supported by TRAMI, EMiN was established, bringing together over 100 members from the private sector, academia, civil society, and government. EMiN facilitates cooperation, the exchange of best practices, and alignment of Mission goals with national and regional priorities.
- **Partnership Knowledge Hub** produced its first biennial monitoring report, providing critical insights into the performance of European Partnerships. The PKH also played a pivotal role in structured consultations for selecting new partnerships under Horizon Europe's Strategic Plan 2025-2027.

<sup>115</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

- Annual **European Partnership Stakeholder Forum** events offered a platform for the Partnership community to connect, share knowledge, and address key challenges. These events facilitated the exchange of insights to improve partnership performance and alignment with EU priorities.

#### 10.2.1. Share information, create awareness and build ownership of EU R&I Missions at national level, regional and community level

The **Mutual Learning Exercise on Missions** ran from May 2023 to November 2024, involving 17 countries and focusing on four key areas: establishing national governance structures, developing mission portfolios, securing funding and creating synergies, and fostering citizen engagement. Through discussions, workshops and country visits (Austria, Sweden, Czechia, and Belgium), the MLE produced five reports that offer valuable insights for building effective national frameworks and ensuring that time-bound, ambitious EU Missions lead Europe towards smart, inclusive, and sustainable growth. MLEs covered four main topics of interest, namely the creation of national governance structures, mission portfolios, securing funding and creating synergies, and citizen engagement.

These efforts sit within a broader landscape of initiatives designed to engage Member States and Associated Countries. The **five EU Mission Implementation Platforms**, Climate ADAPT (Climate Adaptation), NetZeroCities (Cities), Prep4Blue (Oceans and Waters), the Mission Soil Platform (Soil), and Cancer Mission Implementation (Cancer), each serve as knowledge hubs, fostering strategic alignment between EU, national, and regional activities. They offer digital toolboxes and resources, share data and best practices, promote peer-learning and -twinning, and encourage broader outreach and citizen engagement. They also collect data to support monitoring, ensuring sustained momentum towards mission objectives.

In addition, during the review period, the **Transnational Cooperation on the Missions Approach** project concluded, having been active from April 2022 to March 2024.<sup>116</sup> The project delivered several outputs, including mappings of governance structures and actors, a Missions Playbook synthesising best practices, various mutual learning events and workshops as well as the creation of EMiN, which brings together key players from the private sector, academia, civil society organisations, and governments.

Another **European Mission Forum** was held in March 2024 to enhance coordination and engagement. It provided updates on Mission policies, governance structures, and the implementation of tools such as the Mission Playbook and Citizen Observatory. The event consolidated EMiN as a network for collaboration, improving alignment of strategies across governance layers to address systemic challenges. The event underscored the importance of fostering transdisciplinary collaboration, enhancing citizen involvement, and promoting knowledge-sharing to ensure the success and inclusivity of EU Missions.<sup>117</sup>

In September 2023, the **EU Missions Assessment Report** was published, providing a comprehensive review of the progress and relevance of Horizon Europe's five Mission areas. Key conclusions include the importance of interdisciplinary approaches, fostering synergies among missions, and ensuring sustainable governance structures and alignment between

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<sup>116</sup> For a description of the project, including its objectives and results see <https://www.trami5missions.eu/https://cordis.europa.eu/project/id/101056814/results>

<sup>117</sup> Trami, [Transnational Cooperation on the missions approach - Report on 1<sup>st</sup> European Mission Forum EMiF](#), 2023; Trami, [Transnational Cooperation on the missions approach - Report on 2<sup>nd</sup> European Mission Forum EMiF](#), 2024.

research, policy, and citizens. The report also calls for increased focus on monitoring and recommends enhanced stakeholder participation to build trust in mission outcomes.<sup>118</sup>

To match the strategic nature of the review and assessment exercise, a **Commission Communication** was adopted in July 2023, accompanied by a Staff Working Document that presents the technical evidence of the EU Missions assessment and the review of mission areas. Challenges remain, including increasing public awareness, improving governance, and leveraging additional funding, esp. private. This Communication proposes funding beyond Horizon Europe, and several actions to address the issues encountered so far, with the aim for the Mission approach to achieve its transformative potential.

Several initiatives have been launched and are currently running to **foster citizen engagement** across various domains, mainly through the Mission Implementation Platforms. The Climate Mission involves citizens at local and regional levels, supported by tools such as the Citizen Resilience Scan. Many cities, for example, are using the Climate City Contract (CCC) process to bring together local industry, utility providers, universities, NGOs, chambers of commerce, supermarkets, and even football clubs. The Cancer Mission engages patients, caregivers, and families, ensuring tailored approaches through national Mission hubs. The Ocean Mission fosters broad public participation and ocean literacy via 'Plastic Pirates', the EU4Ocean Coalition, 'Choose your fish' campaigns, and targeted outreach to young people, consumers, and artists. The Cities Mission supports participatory policy-making via the NetZeroCities platform, empowering communities to co-design climate-neutral solutions. Lastly, the Soil Mission has created a community of 'soil guardians' and is testing novel engagement activities such as rural trekking and involving prison inmates in soil protection and restoration, alongside local dialogues and citizen science. These approaches demonstrate the breadth of public interest in EU Missions and the value of co-creation to ensure alignment with local priorities. The Horizon Europe Work Programme 2023-2024 also contains cross-cutting activities that aim to support the Missions' implementation transversely.

#### **10.2.2. Monitor the performance of Partnerships and how they contribute to the new ERA and its set of values and principles**

In June 2023, the **Partnership Knowledge Hub** published an opinion feeding into the selection process for additional Partnerships, as well as featuring lessons learned from the selection process under the first Strategic Plan (2021-2024), and ways to enhance synergies, transparency, and better alignment with EU objectives in the upcoming Partnerships.<sup>119</sup> The European Commission proposed 10 new co-funded or co-programmed candidate European Partnerships for the second half of Horizon Europe<sup>120</sup>, out of which nine were included in the second Horizon Europe Strategic Plan<sup>121</sup>: co-funded Partnerships on brain health, forests and forestry, raw materials, cultural heritage resilience, and social transformations, and co-programmed partnerships targeting innovative materials, solar photovoltaics, textiles, and virtual worlds.

The **Biennial Monitoring Report** (BMR) serves as the **cornerstone for monitoring and reporting** on European Partnerships. The BMR has been supporting the strategic

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<sup>118</sup> European Commission: Directorate-General for Research and Innovation, Angelis, J., Reid, A., Griniece, E., Hallersjö Hult, E. et al., [Study supporting the assessment of EU missions and the review of mission areas – Mission areas review report](#), 2023.

<sup>119</sup> European Commission: [Opinion of the Partnership Knowledge Hub on the European partnerships under the Second Strategic Plan](#), 2023.

<sup>120</sup> European Commission: [Co-funded and co-programmed European Partnerships under the second Horizon Europe Strategic Plan: Draft concept papers for proposed candidate partnerships](#), 2023.

<sup>121</sup> European Commission: [The second Horizon Europe strategic plan 2025-2027](#).

coordinating process for European Partnerships, launched for this purpose. It covers the 49 partnerships of the first Horizon Europe strategic plan, and highlights their progress in leveraging co-investment, achieving policy objectives, and fostering synergies with EU Missions and other programmes. In addition to addressing the partnerships' contributions to the green and digital transitions, and resilience at the partnerships' role, the **second BMR, published in 2024**, also focused on technological sovereignty and international positioning of European R&I.<sup>122</sup>

Furthermore, **ERA-LEARN** complemented these efforts by revising its [RIPE toolkit](#), now R2IPE, to meet Horizon Europe's monitoring requirements and offering updated guidance on evaluation practices. Two annual Partnership Stakeholder Forums were co-organised with the European Commission in 2023 and 2024:

- The [Partnership Stakeholder Forum 2023](#) brought together over 250 stakeholders to address key challenges such as fostering international collaboration, improving governance, and addressing administrative complexity, providing actionable insights to refine and enhance European Partnerships.
- The **Partnership Stakeholder Forum 2024** marked two decades of European Partnerships, celebrating their impact in fostering collaboration across borders, pooling resources, and tackling pressing societal challenges. Held in December 2024, discussions centred on enhancing governance, strengthening synergies across initiatives, and encouraging greater investment, including from private stakeholders, to ensure long-term impact.

### 10.3. Assessment of the progress towards the ERA Action 10 objectives over the 2022-2024 period

#### 10.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

Progress under ERA Action 10 has been notable in advancing European Partnerships and Missions to align with ERA values and principles. The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 10.

**Table 11 Assessment of the progress towards Action 10 Specific Objectives: initiatives and outcome**

Specific objectives <sup>123</sup>	Main initiatives put in place	Main outcome
Share information, create awareness and build ownership of EU R&I missions at national level, regional and	<ul style="list-style-type: none"> <li>• Mutual Learning Exercise on Missions</li> <li>• Five EU Mission Implementation Platforms, Climate ADAPT (Climate Adaptation), NetZeroCities (Cities), Prep4Blue (Oceans and Waters), the Mission Soil Platform (Soil), and Cancer Mission Implementation (Cancer), each serving as knowledge hubs, fostering strategic alignment between EU, national, and regional activities</li> </ul>	<ul style="list-style-type: none"> <li>• Increased awareness and ownership of EU R&amp;I missions among Member States and stakeholders.</li> <li>• Enhanced cooperation between national and regional stakeholders on mission-related activities.</li> <li>• Promotion of best practices via the Mission Playbook and citizen observatories.</li> <li>• Increased citizen engagement and participatory policy-making</li> </ul>

<sup>122</sup> European Commission: [Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe](#), 2024.

<sup>123</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

community level	<ul style="list-style-type: none"> <li>• Two European Mission Forums were held to enhance mission coordination and engagement</li> <li>• TRAMI project to support missions and improve collaboration</li> <li>• Launch of citizen-focused mission-related initiatives, often through the mission implementation platforms</li> </ul>	<ul style="list-style-type: none"> <li>• Recommendations for strengthening the impact of the Missions</li> </ul>
Monitor the performance of partnerships and how they contribute to the new ERA and its set of values and principles.	<ul style="list-style-type: none"> <li>• Creation of the Partnership Knowledge Hub as a central monitoring platform (already in 2021)</li> <li>• Expert groups to support the EC with monitoring an evaluation resulting with Biennial Monitoring Reports to assess partnership alignment with EU priorities</li> <li>• European Partnership Stakeholder Forums to facilitate knowledge sharing and collaboration among European Partnerships</li> <li>• Dedicated expert group to support the EC with monitoring and evaluation</li> <li>• Launch of thematic Partnerships (e.g., Sustainable Blue Economy Partnership, FutureFoodS Partnership) and inclusion of nine new Partnerships in Strategic Plan 2025-2027.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved monitoring and reporting mechanisms for partnerships, supporting ERA objectives</li> <li>• Regular performance assessments through PKH to inform policy adjustments and improvements</li> <li>• Improved policy alignment between EU partnerships and multi-level policies and enhanced stakeholder investments, including private-sector contributions</li> <li>• Most of the partnerships (across all types) mobilised further public investment at the national level to scale-up project results, or follow-up projects with additional EU/national/regional funding</li> <li>• Recommendations for further improving, streamlining and strengthening the impact of European Partnerships</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

The EU Missions are structured to include direct grants, co-funding from Member States and Associated Countries, and contributions from private stakeholders. Missions also draw on synergies with other EU funding programmes, such as the LIFE Programme, Digital Europe, CEF, CAP, Euratom, EU4Health, EMFAF and Cohesion policies, to enhance resource mobilisation and alignment with broader EU policy objectives. Funding is allocated based on the EU Mission Work Programmes, with calls for proposals targeting key priorities aligned with the European Green Deal, the Biodiversity Strategy, and other strategic goals.

During the review period, based on the Horizon Europe Work Programme 2023-2024, significant financial resources were allocated across the five EU Missions (up to 10% from the Horizon Europe Pillar 2).

European Partnerships receive funding from Horizon Europe's budget, with additional contributions from Member States, Associated Countries, and private partners. According to the BMR 2024, the total estimated EU commitment to partnerships under Horizon Europe amounts to EUR 24.9 billion, while the estimated commitment from other sources exceeds EUR 38.6 billion. This total funding represents approximately 26% of Horizon Europe's overall budget and 39.8% of the Pillar 2 budget.

### 10.3.2. Challenges and opportunities towards future ERA initiatives

EU Missions, designed as long-term endeavours with a 2030 horizon, have already achieved significant progress. Building on the European Commission's 2023 Communication on Missions, three challenges remain central: the need for a stronger governance system and political steer, deeper co-investment and alignment of Member State programming (including greater private and philanthropic engagement), and enhanced visibility through citizens' and



stakeholders' participation. These efforts will be reinforced in the Horizon Europe Work Programmes (2025-2027).

Mission Platforms, mutual learning activities, and the Strategic Programme Committee subgroups will remain pivotal for EU Missions. Similarly for Partnerships, PKH and BMR offer capacity-building, awareness-raising, and performance measurement. The next BMR is scheduled for 2026, and new Partnerships, stemming from the second Horizon Europe Strategic Plan, will be launched in 2025 and 2026. Building on these foundations will help strengthen engagement, improve coordination, and guide portfolio and resource interventions, ensuring a solid framework for future Missions and Partnerships across Europe.

## 11. Action 11: An ERA for green energy transformation

### Key findings Action 11: An ERA for green transformation

ERA Action 11 has advanced the EU's green energy transition by prioritising investments in research and innovation to support climate objectives and sustainable growth:

- The revision of the **Strategic Energy Technology (SET) Plan** aligned its objectives with the European Green Deal and REPowerEU. Providing a policy framework for Green Energy, the plan now focuses on digitalisation, circularity, and skills development, with enhanced monitoring and reporting mechanisms.
- The **ERA pilot on green hydrogen** resulted in a Strategic Research and Innovation Agenda (SRIA), supported by the Temporary Working Group (TWG) under the SET Plan and the Horizon Europe SET4H2 project. These initiatives promote collaboration, infrastructure scaling, and cross-sector partnerships.
- **Three EC Staff Working Documents** outlined strategies for hydrogen valleys, solar energy innovation, and broader clean energy objectives, reinforcing the EU's position in global energy innovation.
- The **ERA4FutureWork initiative** aims to guide R&I funding for the future of work, producing a SRIA through workshops and consultations that emphasise ethical, adaptive, and collaborative environments in digital and AI-driven workplaces.

The initiatives under ERA Action 11 have strengthened cooperation among policy-makers, industry, and academia to drive the adoption of low-carbon technologies and establish Europe as a global leader in green energy innovation. Yet, the green energy transformation still faces challenges in ensuring coherence among Member State efforts, aligning national and EU priorities, and fostering synergies with the Clean Hydrogen JU. Regulatory hurdles and delays in the permit process remain a bottleneck for hydrogen deployment. Sustained Member State engagement, streamlined governance, and enhanced stakeholder participation are essential to maximise the transformative potential of these efforts.

### 11.1. Objectives and scope of ERA Action 11

#### Purpose of the action:<sup>124</sup>

Action 11 aim to prioritise **investments in R&I**, to drive the green transition. Its objectives include enhancing access to excellence, translating R&I outcomes into economic impact, and strengthening policies that promote the free circulation of knowledge. Initiatives linked to this

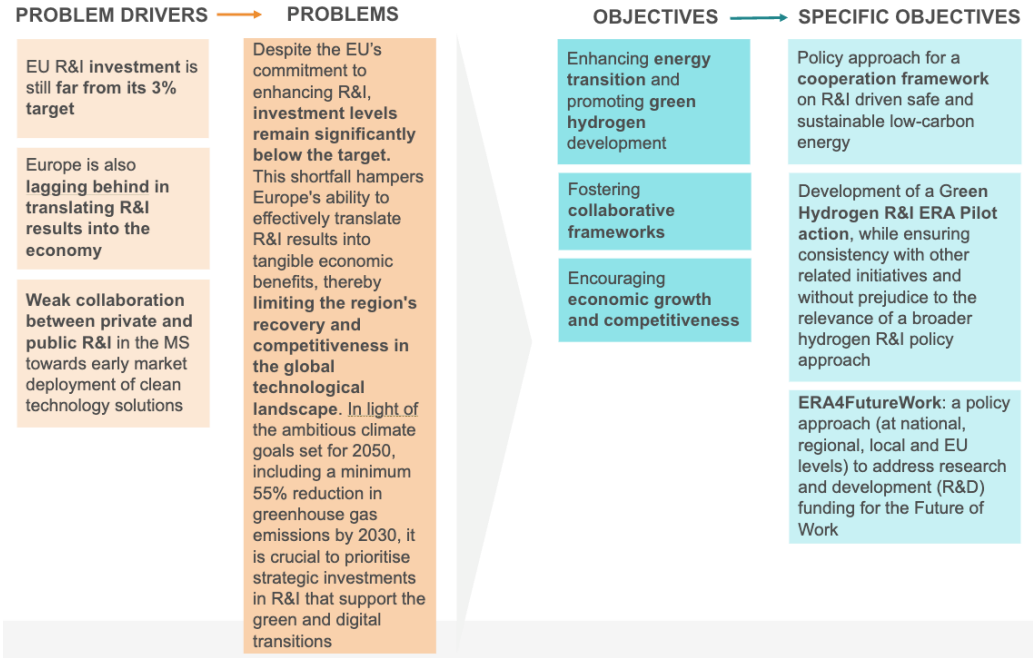
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<sup>124</sup> European Commission: [ERA policy agenda – Overview of actions for the period 2022-2024](#), 2022.



action aim to bolster **collaboration between private and public R&I** sectors across MS, supporting the EU’s ambitious targets for sustainable growth and climate objectives.

**Figure 11 Identified problems and defined objectives of ERA Action 11**



Source: Technopolis Group, based on European Commission’s European Research Area policy agenda – Overview of actions for the period 2022-2024

### 11.2. Status of ERA Action 11 implementation at EU level

**Summary of the main initiatives during the first phase (2022 to mid-2023):**<sup>125</sup>

- Agenda process on the ERA Pilot on Green Hydrogen:** Launched following the Council Conclusions of 1 December 2020, the ERA pilot on green hydrogen focused on identifying urgent research and innovation needs. The agenda process included three thematic workshops (on transport, infrastructure, market stimulation, and production) throughout 2021, culminating in the publication of a Strategic Research and Innovation Agenda (SRIA) for green hydrogen on 18 March 2022.
- Building a European Research Area for clean hydrogen – The role of EU R&I investments to deliver on the EU’s hydrogen strategy:** The EC’s Staff Working Document (2022) outlines how the Commission, alongside the Clean Hydrogen Joint Undertaking, will actively support the implementation of the ERA Pilot on Green Hydrogen, ensuring alignment with the EU’s Hydrogen Strategy.
- Temporary Working Group on hydrogen:** In 2023, the TWG was established to implement the SRIA of the ERA Pilot on green hydrogen, coordinating hydrogen-related

<sup>125</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

research and innovation activities. It is supported by a Horizon Europe Coordination and Support Action – **SET4H2** project – to ensure effective functioning.

- **European Strategic Energy Technology Plan (SET Plan):** The SET Plan, a key instrument for accelerating clean energy technologies, has been revised to better align with the European Green Deal, REPowerEU, and the Green Deal Industrial Plan. Its role has been reinforced in the frame of the Net-Zero Industry Act, and its Steering Group elevated in legal status. The revision aimed to enhance R&I efforts, strengthen EU energy independence, and accelerate renewable energy deployment, with a focus on long-term clean energy research.

From **mid-2023 to late 2024**, the implementation of ERA Action 11 included several key initiatives focused on advancing the green energy transition.

### **11.2.1. Policy approach for a cooperation framework on R&I driven safe and sustainable low-carbon energy**

2023 and 2024 have seen the **revision of the [SET Plan](#)**. It has become one of the components to boost the transition towards a climate-neutral energy system by developing low-carbon and cost-competitive technologies. The Plan, reinforced by the [Net-Zero Industry Act](#), now has an elevated Steering Group with legal status, enhancing cooperation among policy-makers, industry, academia, and investors to strengthen Europe's leadership in low-carbon technologies.<sup>126</sup>

### **11.2.2. The ERA Pilot on Green Hydrogen**

The ERA Pilot on Green Hydrogen was set up in 2022 and has led to the definition of the SRIA. The aim is to identify common research and innovation priorities.

In this context of this initiative, additional strategic documents have been published to further build a European Research Area for clean hydrogen, including the deployment of Hydrogen Valleys across Europe and advancing solar energy solutions.<sup>127</sup>

The goal of the [SET4H2](#) project is to advance hydrogen research and innovation, foster synergies with other renewable energy technologies, and enhance European cooperation through an integrated and systematic approach, building on the achievements of the ERA pilot initiative on Green Hydrogen.

The **SRIA 2021–2027 of the Clean Hydrogen Joint Undertaking** outlines the EU's roadmap for advancing hydrogen technologies to support a sustainable energy transition. It prioritises research and development in green hydrogen production, efficient storage and distribution, and innovative applications across sectors such as industry, transport, and energy. The agenda aims to reduce hydrogen production costs, scale up infrastructure, and foster cross-sector partnerships, aligning with EU goals for climate neutrality by 2050. By funding and guiding targeted projects, the SRIA seeks to position Europe as a leader in the global hydrogen economy.

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<sup>126</sup> European Commission: [SET Plan Progress Report 2024 – Scaling up research, innovation and competitiveness in clean energy technologies](#), 2024.

<sup>127</sup> European Commission: [‘Building a European Research Area for clean hydrogen – the role of EU research and innovation investments to deliver on the EU’s Hydrogen Strategy’](#) SWD(2022) 15 final, 2022; European Commission: [Towards a roadmap for accelerating the deployment of Hydrogen Valleys across Europe: challenges and opportunities](#), SWD(2024) 159 final, 2024; European Commission: [Solar energy joint research and innovation agenda with Member States in the context of the European Research Area \(ERA\)](#), SWD(2024) 160 final, 2024.

### 11.2.3. ERA4FutureWork: a policy approach (at national, regional, local and EU levels) to address research and development (R&D) funding for the Future of Work

The ERA Action on the future of work, [ERA4FutureWork](#), was set up to inform policies and guide R&I funding via a new SRIA. During the reporting period further work has been conducted in this direction through workshops and consultations.

The action aimed to address the transformative changes affecting the nature, execution, and location of work, as well as the challenges faced by workers and employers in navigating these shifts and underscored the role of R&I in addressing these complexities.

A milestone in this regard has been the finalisation of the study on [Research Perspectives for the Future of Work](#) in September 2024.<sup>128</sup> The project included thematic workshops with ERA4FutureWork stakeholders to foster dialogue between R&I, employment policy-makers, and social partners, while identifying best practices, addressing gaps, and recommending priorities for future R&I investment in the future of work.

## 11.3. Assessment of the progress towards the ERA Action 11 objectives over the 2022-2024 period

### 11.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

ERA Action 11 has advanced efforts toward a sustainable energy transition. Key achievements include the establishment of the ERA Pilot on Green Hydrogen, which defined a new SRIA. Within the context of the SET Plan enhancing hydrogen R&I and European cooperation is accelerated with support from Horizon Europe and the SET4H2 project. The revision of the SET Plan in 2024 has strengthened collaboration among stakeholders to promote low-carbon technologies. Furthermore, ERA4FutureWork was launched to guide R&I funding for the future of work, producing a SRIA that highlights research gaps and opportunities through extensive consultations and workshops.

The table below summarises the main initiatives and outcomes for ERA Action 11.

**Table 12 Assessment of the progress towards Action 11 Specific Objectives: initiatives and outcome**

Specific objectives <sup>129</sup>	Main initiatives implemented	Main outcome
Policy approach for a <b>cooperation framework on R&amp;I driven safe and sustainable low-carbon energy technologies</b>	<ul style="list-style-type: none"> <li>ERA pilot on Green Hydrogen</li> <li>Revision of the SET Plan</li> <li>SET4H2</li> </ul>	<ul style="list-style-type: none"> <li>Revision of the plan to make Europe a leader in the clean energy transition</li> <li>Support provided to initiatives in the hydrogen sector</li> </ul>
Development of a <b>green hydrogen R&amp;I ERA pilot action</b> , while ensuring consistency with other related initiatives and without prejudice to the	<ul style="list-style-type: none"> <li>Building a European Research Area for clean hydrogen – the role of EU research and innovation investments to deliver on the EU's Hydrogen Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Identification of common research and innovation priorities</li> <li>Identification of four domains where action is needed: skills, hydrogen technology</li> </ul>

<sup>128</sup> See <https://www.epc.eu/en/projects/An-EU-Strategic-RI-Agenda-for-the-future-of-work-57ca9c>

<sup>129</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

relevance of a broader hydrogen R&I policy approach	<ul style="list-style-type: none"> <li>• Towards a roadmap for accelerating the deployment of Hydrogen Valleys across Europe: challenges and opportunities</li> <li>• Solar energy joint research and innovation agenda with Member States in the context of the European Research Area</li> </ul>	<p>infrastructures, monitoring and tutorials</p> <ul style="list-style-type: none"> <li>• Hydrogen Observatory launched in 2024 and evolving into a broader Hydrogen Knowledge Hub</li> </ul>
<b>ERA4FutureWork:</b> a policy approach (at national, regional, local and EU levels) to address research and development (R&D) funding for the Future of Work	<ul style="list-style-type: none"> <li>• EC report Towards an ERA4FutureWork initiative</li> <li>• Study on Research Perspectives for the Future of Work (SRIA)</li> </ul>	<ul style="list-style-type: none"> <li>• Call for advanced R&amp;I methods to design ethical, adaptive, and collaborative environments to meet the evolving demands of AI-driven and digital workplaces</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

The SET Plan was revised in October 2023 and November 2024 to better align with the evolving context and strategic objectives. The revision incorporates critical new priorities, such as digitalisation, circularity, materials substitution, and the development of skills – all of which will be integrated into the Plan's ongoing work. Additionally, monitoring and reporting mechanisms have been strengthened starting in 2023 to ensure enhanced tracking of progress and outcomes.<sup>130</sup>

The two Commission's SWDs also highlight significant progress in the EU's efforts to advance clean energy technologies. One underscores the collaborative work to accelerate solar energy innovation and deployment, calling for enhanced partnerships among EU Member States, industry, and research institutions to align efforts in solar energy R&I and support a joint research agenda. The other one outlines the steps taken to establish a robust hydrogen economy, including increasing the number of 'Hydrogen Valleys', expanding funding for hydrogen infrastructure, and launching initiatives to develop skills and knowledge within the hydrogen sector. Both documents reflect the EU's commitment to strengthening clean energy systems, increasing resilience, and supporting the European Green Deal through targeted research, funding, and cross-sector collaboration.

Another part linked to the ERA is the aspect of data management. A **New Hydrogen Observatory** was launched in 2024 and is evolving into a Hydrogen Knowledge Hub.

### 11.3.2. Challenges and opportunities towards future ERA initiatives

The progress described the sections before illustrates the great opportunities and potential the ERA offers in the area of the green energy transformation. The establishment of a technology platform on green hydrogen within the SET Plan is another good example.

On the other hand, challenges remain, including the coordination of national level activities on hydrogen R&I. Other challenges include ensuring a continuous high-level interest of Member State and their participation in the SET Plan bodies. The aim is to convince Member States and regions to take additional responsibility and become more energy resource independent in the long run. To this end, Member States are also encouraged to introduce regulatory sandboxes.

<sup>130</sup> European Commission: [SET plan progress report 2023 – Coordinated energy research and innovation for a competitive Europe](#), 2023.

As the creation of Hydrogen Valleys continues to be driven by regions, a Hydrogen Facility has been set up within the Clean Hydrogen Joint Undertaking. It represents a significant opportunity because it is designed to provide project development assistance to go from concept to investment and implementation. While not explicitly part of this ERA Action, this could be considered an important development relevant to ERA Action 11.

## 12. Action 12: Accelerate the green/digital transition of Europe's key industrial ecosystem

### Key findings Action 12: Accelerate the green/digital transition of Europe's key industrial ecosystems

The initiatives under ERA Action 12, implemented during the monitoring period, have driven significant advancements in accelerating the green and digital transitions of Europe's industrial ecosystems:

- Two **Mutual Learning Exercises** on Industrial Decarbonisation and the Whole-of-Government Approach in R&I produced actionable recommendations for decarbonisation strategies, stakeholder engagement, and cross-sector collaboration.
- The **ERA technology roadmaps on low-carbon and circular technologies and business models** have been widely disseminated, supported by a digital interactive map of over 180 EU-funded clean technology demonstrators, and alongside the launch of the R&I Deployment Agenda to accelerate industrial decarbonisation investments of energy-intensive industries.
- Several initiatives and studies have enabled to **enhance the understanding on the role, opportunities and challenges of Technology Infrastructures** in Europe, preparing the evidence basis for a common European approach to TIs as well as to strengthen their alignment with EU industrial strategies.
- Jointly with stakeholders, the Commission has taken action to foster **synergies and exchange on R&I needs for industrial transformation**.
- The **Industry 5.0 Community of Practice** engaged over 200 members and published its first report, while the **Human-Centric ERA Technology Roadmap** has also enabled to support human centric industry transformation.

These efforts have enhanced the coordination and dialogue between public authorities and industrial stakeholders, increasing the uptake of iR&I results to accelerate industrial transformation, and thus contributing to Europe's competitiveness and strategic autonomy in achieving the green and digital transitions. Meeting the ambitious objectives of ERA Action 12 requires sustained industry engagement and tackling barriers to R&I uptake. Increasing alignment amongst Member States and with private stakeholders remains crucial.

### 12.1. Objectives and scope of ERA Action 12

#### Purpose of the action:<sup>131</sup>

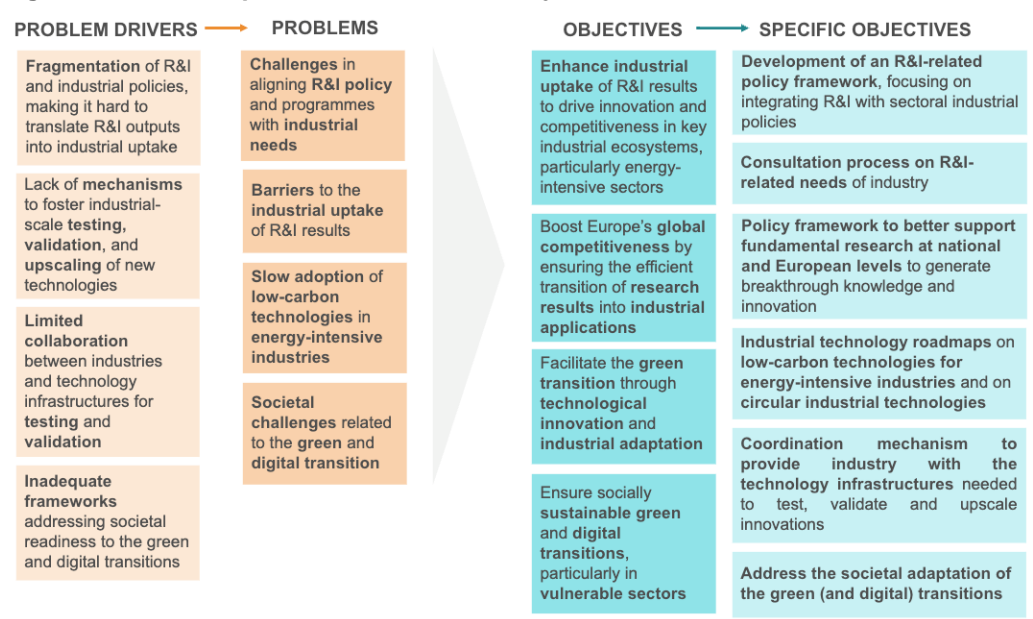
The purpose of ERA Action 12 is to develop and implement key R&I policy tools that link research and innovation with industrial innovation strategies and industrial strategy, especially in the context of the green and digital transitions. These transitions demand

<sup>131</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

substantial R&I investments, largely from industry, along with the systematic and rapid transfer, scaling and commercialisation of results into EU industrial ecosystems, particularly benefiting SMEs and start-ups. ERA Action 12 aims to overcome the EU's challenges in translating world-class research into marketable innovations by boosting public and private investments in essential R&I sectors.

Furthermore, ERA Action 12 aims to reinforce collaboration between universities and industrial ecosystems, support skills development, and promote technological sovereignty. It strives to create tools and strategies through engagement with policy-makers, industry leaders, and R&I stakeholders, thereby enhancing Europe's industrial resilience and global competitiveness.

**Figure 12 Identified problems and defined objectives of ERA Action 12**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda - Overview of actions for the period 2022-2024

### 12.2. Status of ERA Action 12 implementation at EU level

#### Summary of the main initiatives during the first phase (2022 to mid-2023).<sup>132</sup>

Several key initiatives were undertaken during the first phase of ERA Action 12:

- The **ERA industrial technology roadmap on low-carbon technologies** was published in **April 2022**, providing strategic guidance for decarbonising energy-intensive industries, with a focus on bridging the innovation gap between EU countries and better exploiting research and innovation results. The **ERA industrial technology roadmap on circular technologies and business models in textile, construction and energy-intensive**

<sup>132</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



**industries**, released in **January 2023**, analysed technologies and business models across key industrial ecosystems.

- As a follow-up to the first roadmap, the EC published the report ‘Scaling up innovative technologies for climate neutrality’ mapping close to **180 EU-funded demonstration projects** in these industries.<sup>133</sup>
- The PSF **Mutual Learning Exercise on Industrial Decarbonisation**, launched in April 2023 with 10 Member States and two Associated Countries, ran until April 2024. It facilitated the exchange of knowledge and experience on: 1) National industrial technology roadmaps and strategies; 2) Policies and financing for R&I investments in low-carbon technologies; 3) Actors’ engagement; and 4) Framework conditions.
- The PSF **Mutual Learning Exercise on the “whole-of-government” (WGA) approach in R&I** was launched in **November 2022** with five Member States and ran until April 2024, facilitating knowledge exchange and sharing best practices in green transition (one of the components of the MLE) among participating Member States.
- A **hybrid workshop** in March 2023, which took place in Munich, brought together about 450 representatives of government, business, research and academia to discuss ways to better leverage the **deep-tech green transition and digital solutions** to transform EU industrial ecosystems.
- A **workshop in Brussels** in June 2023, brought together about 100 representatives of government, business, research and academia to discuss ways of **accelerating R&I and deployment**: industrial technology roadmaps and other best practices to bring green innovation to the market.

The period from **mid-2023 to late 2024** was marked by several key milestones towards the achievements of the objectives of ERA Action 12.

### **12.2.1. Development of an R&I-related policy framework, focusing on integrating R&I with sectoral industrial policies**

Two MLEs have been initiated under the Policy Support Facility (PSF) funded under Horizon Europe to foster cross-country knowledge exchange and collaboration on R&I policy approaches related to the green transition and industrial decarbonisation.

The PSF [Mutual Learning Exercise \(MLE\) on Industrial Decarbonisation](#), which ran from April 2023 to April 2024, involved 12 countries and provided a platform to discuss national decarbonisation strategies, R&I investment policies for low-carbon technologies, actor engagement, and regulatory frameworks. On top of the seven recommendations stemming from these exchanges, the MLE identified a strong need for a framework action plan and the establishment of a Community of Practice.

Similarly, the PSF [MLE on the “whole-of-government” \(WGA\) approach in R&I](#) (green transition component) explored policy recommendations to integrate R&I with other sectoral policies for sustainable socio-economic transformations, addressing governance structures and cross-sectoral engagement strategies. It highlighted the WGA’s importance in addressing transformative challenges like the UN Sustainable Development Goals (SDGs), bridging government silos and enhancing stakeholder engagement. This Mutual Learning Exercise collaborated with the MLE on industrial decarbonisation by providing know-how on the institutional set-up for designing, implementing and monitoring industrial technology roadmaps. The MLE report lists tools for various policy contexts and acknowledges

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<sup>133</sup> European Commission: [Scaling up innovative technologies for climate neutrality](#), 2023.



challenges in fostering cross-sector collaboration and guidance on aligning national R&I strategies with broader environmental and industrial goals.

Several **PSF country-specific reports** have been developed to provide tailored support to individual Member States to address challenges in their R&I systems, including for [Finland](#), [Bulgaria](#), and [Czechia](#).

In June 2023, the European Commission released a report entitled ‘Scaling up Innovative Technologies for Climate Neutrality’, mapping about 180 EU-funded demonstration projects that aim to advance climate-neutral technologies within energy-intensive industries.<sup>134</sup> In September 2023, an interactive tool was launched, allowing users to access a comprehensive, searchable map of clean technology demonstrators across Europe, showcasing projects primarily supported through EU programmes like Horizon Europe, Horizon 2020, and the Innovation Fund.<sup>135</sup>

### **12.2.2. Consultation process on R&I-related needs of industry**

On 25 January 2024, the Commission organised a meeting to foster synergies between the ERA Action 12 and the work of the Industrial Forum. Participants from government, industry, research and innovation communities, and members of the two groups exchanged ideas and knowledge during the event.

### **12.2.3. Industrial technology roadmaps on low carbon technologies for energy-intensive industries and on circular technologies and business models**

#### **Low-carbon technologies**

Following up on the first ERA industrial technology roadmap for low-carbon technologies in energy-intensive industries, the Commission organised a workshop in June 2023 with participants from industry, government and the R&I community on topic: ‘Accelerating R&I and deployment: industrial technology roadmaps and other best practices to bring green innovation to the market’. Also during this reporting period, the Commission continued its work on the **R&I Deployment Agenda for energy-intensive industries**, which constitutes a package of policy measures for boosting industrial R&I demonstrators and mobilising engagement and investments in industrial decarbonisation technologies, from R&I to deployment, thus contributing to the EC’s Clean Industrial Deal priority (2024-2029).

#### **Circular technologies and business models**

As a follow-up to the [ERA industrial technology roadmap for circular technologies and business models](#) of January 2023, a workshop took place in Brussels in March 2023 focused on: ‘Multiplying the Rs in industrial innovation: rethinking, redesigning, reusing, repairing and recycling’. The analysis confirmed that it is crucial to take a life-cycle approach for technology development to generate the desired impact, and digital technologies and business models play a key role in the transition of all three industrial ecosystems to the circular economy.

The **ERA industrial tech roadmap’s** data and analysis served as a tool to help set up the ‘Textiles of the Future’ partnership of Horizon Europe. The Partnership was created in March 2024 by the Commission in support of the textile sector, particularly SMEs, in implementing a comprehensive R&I programme.

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<sup>134</sup> European Commission: [Scaling up innovative technologies for climate neutrality](#), 2023.

<sup>135</sup> European Commission: [Demonstrators scaling up innovative technologies for climate neutral-industries around Europe](#), 2023.

## Roadmaps and Transition Pathways

The roadmaps provide the first steps towards **Transition Pathways for relevant EU industrial ecosystems** under the updated Industrial Strategy.<sup>136</sup> During the review period, several EU industrial ecosystems continued to progress in their transition, providing structured guidance for achieving green and digital transformations aligned with the EU 2050 climate neutrality goals. The technology roadmaps have also been quoted in relevant industrial pathways (chemicals, construction, textile, metals).

### 12.2.4. Coordination mechanism to provide industry with the Technology Infrastructures needed to test, validate and upscale innovations

In the scope of ERA Action 12, the European Commission is developing a [European approach to Technology Infrastructures \(TIs\)](#)<sup>137</sup> in close collaboration with Member States, and in line with the Draghi, Letta and Heitor reports which all refer to TIs as vital for EU competitiveness and innovation capacity. A key objective is to establish a robust ecosystem of world-class facilities and services, enhancing synergies between research and technology infrastructures while addressing specific challenges.

The study '[Policy landscape supporting Technology Infrastructures in Europe](#)' (2024) offers a detailed analysis of the policies, strategies, and funding programmes that support TIs at national, regional, and EU levels, including through country-level reports covering the 27 EU Member States.<sup>138</sup> The study also addressed the gaps, challenges and fragmentation of TI policies and funding support schemes across Europe, and highlighted the need for a more coordinated approach at EU level.

Moreover, two reports on the **Open Innovation Test Beds** (OITB) in Horizon Europe have also been published in June and July 2023, i.e. '[Open Innovation Test Beds for Advanced Materials](#)' and '[Open Innovation Test Beds: Improving Access to Knowledge to Accelerate European Innovation](#)'. In addition, a session entitled '**Empowering Research Infrastructures and Technology Infrastructures as strategic assets and knowledge hubs in Europe**' was organised during the ERA Conference 2024, leveraging the experience of users and hosts of TIs and RIs, as well as Member States representatives.

On a sectorial dimension, an **in-depth analysis of the TI sector in the field of aviation** has been carried out under the [RINGO project](#) and further developed by the Commission in collaboration with stakeholders. A gap analysis for the update/construction of aviation RIs and TIs (April 2024) has been performed, and a roadmap for the update/construction of aviation research and technology infrastructures at EU level was published. Furthermore, the '[Mapping of Technology Infrastructures supporting clean and renewable energy industries in Europe](#)' (2024) contributes to the analysis of the TI landscape in this specific field, mapping technology centres that provide advanced TIs for industry.

In terms of ongoing initiatives, several projects within Horizon Europe are directly targeting TIs such as RITIFI, Convert2Green, Exploit4InnoMat, CLEANHYPRO, and H2SHIFT.<sup>139</sup>

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<sup>136</sup> Communication COM/2021/350 from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions, [Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery](#).

<sup>137</sup> Since February 2024, a [Commission Expert Group supports shaping the EU's approach to the coordination and development of TIs](#).

<sup>138</sup> European Commission: [Policy landscape supporting Technology Infrastructures in Europe - Annex III - Country Reports](#), 2024.

<sup>139</sup> See for a project overview: [https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/technology-infrastructures\\_en#projects-and-results](https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/technology-infrastructures_en#projects-and-results)

**12.2.5. Address the societal adaptation of the green (and digital) transitions**

The [Industry 5.0 Policy Framework](#) focuses on transforming European industry by aligning technological advancements with human-centric, sustainable, and resilient values.<sup>140</sup> The [Industry 5.0 Community of Practice](#) (CoP) was launched in November 2023 to connect pioneers and advocates of Industry 5.0 across Europe’s innovation ecosystem. It now includes more than 200 members. In its first phase, spanning up to May 2024, the CoP produced a final report introducing the Industry 5.0 concept, and an analysis entitled ‘[Industry 5.0 as a Transformative Agenda for Industrial R&I and the Prototype Industry 5.0 Learning and Assessment Tool](#)’ to help industries effectively implement Industry 5.0 principles.<sup>141</sup>

The [ERA Industrial Technology Roadmap on Human-Centric Research and Innovation for the Manufacturing Sector](#) was published in July 2024. It analyses how the manufacturing sector can take a leading role in achieving human-centric outcomes in technology development and adoption. Policy actions recommended include adopting human-centricity considerations in education and training, R&I funding and in-company training and innovation strategies.

**12.3. Assessment of the progress towards the ERA Action 12 objectives over the 2022-2024 period**

**12.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome**

The initiatives under the ERA Action 12 have enabled further integration of R&I with industrial and sectoral policies, driving the green and digital transitions. Key progress includes the launch of two MLEs on industrial decarbonisation and the whole-of-government approach in R&I, facilitating cross-country knowledge exchange and collaborative efforts. The development of national roadmaps, such as those on low-carbon technologies and circular technologies and business models, has provided a structured approach for industrial transformation. The establishment of the Industry 5.0 Community of Practice has further supported R&I in industry. Additionally, new initiatives, including the preparatory work towards a European approach to Technology Infrastructures, have the potential to strengthen Europe’s capacity to test and upscale innovations, fostering a more resilient and sustainable industrial ecosystem.

The table below summarises the main initiatives and outcomes delivering on the specific objectives ERA Action 12.

**Table 13 Assessment of the progress towards Action 12 Specific Objectives: initiatives and outcome**

Specific objectives <sup>142</sup>	Main initiatives implemented	Main outcome
<ul style="list-style-type: none"><li>Development of an R&amp;I-related policy framework, focusing on integrating R&amp;I with</li></ul>	<ul style="list-style-type: none"><li>PSF Industrial Decarbonisation Mutual Learning Exercise</li></ul>	<ul style="list-style-type: none"><li>Policy frameworks and reports guiding integration of R&amp;I with sectoral policies and climate neutrality</li></ul>

<sup>140</sup> See also [ESIR expert group report on Industry 5.0](#).

<sup>141</sup> European Commission: [Industry 5.0 Community of Practice \(CoP 5.0\)](#), 2024. For CoP discussions on potential further directions see [https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/industry-50-community-practice-discuss-future-directions-achieve-its-goals-2024-10-16\\_en](https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/industry-50-community-practice-discuss-future-directions-achieve-its-goals-2024-10-16_en)

<sup>142</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>142</sup>	Main initiatives implemented	Main outcome
sectoral industrial policies	<ul style="list-style-type: none"> <li>on the whole-of-government approach in R&amp;I</li> <li>Scaling up innovative technologies for climate-neutrality reporting</li> </ul>	
<ul style="list-style-type: none"> <li>Consultation process on R&amp;I-related needs of industry</li> </ul>	<ul style="list-style-type: none"> <li>Commission initiates collaboration between ERA Action 12 and the work of the Industrial Forum.</li> </ul>	<ul style="list-style-type: none"> <li>Strengthened synergies between research and industry needs, fostering innovation and market uptake</li> </ul>
<ul style="list-style-type: none"> <li>Policy framework to better support fundamental research at national and European levels to generate breakthrough knowledge and innovation</li> </ul>	<ul style="list-style-type: none"> <li>Workshop on "Leveraging the Deep Tech Green Transition and Digital Solutions to Transform EU Industrial Ecosystems"</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced policy support for breakthrough research, particularly in deep tech and green innovation</li> </ul>
<ul style="list-style-type: none"> <li>Industrial technology roadmaps on low-carbon technologies for energy-intensive industries and on circular industrial technologies</li> </ul>	<ul style="list-style-type: none"> <li>ERA Industrial Technology Roadmap for Low-Carbon Technologies in Energy-Intensive Industries</li> <li>ERA Industrial Technology Roadmap for Circular Technologies and Business Models in the Textile, Construction and Energy-intensive Industries</li> <li>Defence industry pathway, guided by the European Defence Industrial Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Roadmaps and best practices to accelerate the deployment of low-carbon and circular technologies</li> <li>Workshop on 'Accelerating R&amp;I and deployment: industrial technology roadmaps and other best practices to bring green innovation to the market'</li> <li>Stakeholder consultation on 'Multiplying the Rs in industrial innovation: rethinking, redesigning, reusing, repairing and recycling'</li> <li>Report on 'Scaling up innovative technologies for climate neutrality'</li> </ul>
<ul style="list-style-type: none"> <li>Coordination mechanism to provide industry with the technology infrastructures needed to test, validate and upscale innovations</li> </ul>	<ul style="list-style-type: none"> <li>Preparatory work towards a European approach to Technology Infrastructures</li> <li>Expert Group on Technology Infrastructures</li> <li>Study 'Policy Landscape Supporting Technology Infrastructures in Europe'</li> <li>Two reports on the Open Innovation Test Beds' instrument in Horizon Europe</li> <li>In-depth analysis of the TI sector in the field of aviation</li> <li>Report 'Mapping of technology infrastructures supporting clean and renewable energy industries in Europe'</li> <li>Workshop on Access Conditions to Technology Infrastructures</li> <li>Session 'Empowering research infrastructures and TIs as strategic assets</li> </ul>	<ul style="list-style-type: none"> <li>Progress towards a common understanding of the term Technology Infrastructures as a policy topic</li> <li>Better understanding of the policy landscape supporting TIs in Europe, including funding instruments</li> <li>Preparation of pilot calls to support TIs under Horizon Europe</li> <li>Laying the foundations towards a European approach to Technology Infrastructures</li> </ul>

Specific objectives <sup>142</sup>	Main initiatives implemented	Main outcome
<ul style="list-style-type: none"> <li>Address the social adaptation of the green (and digital) transitions</li> </ul>	<ul style="list-style-type: none"> <li>and knowledge hubs in Europe'</li> <li>Industry 5.0 Community of Practice</li> <li>IERA Industrial Technologies roadmap on Human-centric Research and Innovation for the Manufacturing Sector</li> <li>ESIR Group report on Industry 5.0</li> </ul>	<ul style="list-style-type: none"> <li>Increased knowledge, understanding and buy-in of the Industry 5.0 concept by stakeholders</li> <li>Raised awareness towards human-centric approaches to industrial transitions, with a focus on social adaptation</li> </ul>

Source: Technopolis Group, based on data collected through desk and interviews

### 12.3.2. Challenges and opportunities towards future ERA initiatives

The **objectives of this ERA Action have been achieved during this period**, with numerous and successful initiatives being implemented under the majority of the specific objectives. Collaboration with Member States through targeted instruments (i.e., MLEs and expert groups), for instance the approaches from TIs and aviation, were particularly effective in gathering interest and commitment from Member States. These instruments focus on specific tasks with clear objectives, such as site visits, enabling countries to actively participate and progress faster towards the ERA Action objectives.

Further possible initiatives to pursue the Action's objectives are already being implemented or planned. This could include a comprehensive mapping of the policy tools supporting industrial R&I and guidance on a policy toolbox of specific applications and practices.

Following the report of the expert group on Technology Infrastructures, the European Commission will continue its efforts to agree on a European approach to TIs and implement actions identified in the prospective European Strategy for Research and Technology Infrastructures. Moreover, the development of pilot areas for TIs in the next Horizon Europe Work Programme is planned. To gather additional evidence, several new studies are also considered, including a European Investment Bank (EIB) study on TI funding needs.

Furthermore, activities building on the knowledge and expertise in national industrial technology roadmapping to decarbonise energy-intensive industries have already started. For instance, the Net-Zero Industries Innovation Mission 2.0 Mutual Learning was launched in mid-2023. In June 2023, the European Innovation Centre for Industrial Transformation and Emissions ([INCITE](#)) was set up by the Commission

With regard to potential future initiatives, the Heitor Report recommends establishing a European Technology and Industrial Competitiveness Council to provide strategic guidance on EU industrial policy, strengthen synergies across EU programmes, and ensure the Framework Programme aligns with Europe's strategic needs, including the green and digital transitions. By fostering collaboration between public and private sectors, the Council would encourage long-term investments in emerging technologies, enhance the uptake of innovations, promoting Industry 5.0, and reduce risks associated with industrial R&D. With regard to technology infrastructures, the Heitor Report highlights challenges in funding, coordination, and integration of these infrastructures across Europe and advocates for strategic investment through Horizon Europe and its successor Framework Programme (FP10). Key recommendations include aligning national, EU and structural funds for long-term financing, and fostering collaboration between RIs and TIs to enhance accessibility and services.

In the future, the focus could be on integrating existing tools at European, national and regional levels; implementing the envisaged European approach on Technology

Infrastructures, including the selected pilot actions, devising a governance framework and possible funding schemes; and developing, testing and implementing the policy toolbox approach for accelerating decarbonisation of energy-intensive industries as well as advancing the circular economy.

## 13. Action 13: Empower Higher Education Institutions

### Key findings Action 13: Empower Higher Education Institutions

ERA Action 13 seeks to empower European universities to lead the green and digital transitions. This action strengthens universities' roles as innovation hubs, fosters collaboration with non-academic organisations, and supports the development of institutional frameworks for research excellence and impact:

- The **European Universities Initiative** has expanded to 65 alliances involving 570 higher education institutions and almost 2,200 partners, fostering cross-border academic collaboration, strengthening research careers, and promoting institutional reform.
- Launched to enhance collaboration between universities, particularly in Widening Countries, the **European Excellence Initiative** focuses on research careers, knowledge valorisation, Open Science, and shared infrastructures. A total of 12 new projects started in 2024, with additional calls planned for 2025.
- The **ERA Forum sub-group on 'Universities for ERA'** developed an action plan to improve coordination between Member States and the EU, aligning Horizon Europe and Erasmus+ initiatives to boost research capacity and excellence.
- The **Digital Education Action Plan** and **ESTEAM fests** were developed to enhance digital competencies and increase female participation in STEM.
- Launched in 2024, the **Talent Ecosystem Pilot** connects universities with private sector organisations to equip researchers with skills for careers beyond academia.

ERA Action 13 has advanced cross-border collaboration through dedicated initiatives such as the European Universities Initiative and the European Excellence Initiative. However, sustaining these efforts beyond EU project-based funding remains a challenge, as does ensuring stronger engagement from Member States in collaborative programmes. Enhancing mutual learning and exploring diverse funding mechanisms will be critical to sustaining institutional reforms.

### 13.1. Objectives and scope of ERA Action 13

#### Purpose of the action:<sup>143</sup>

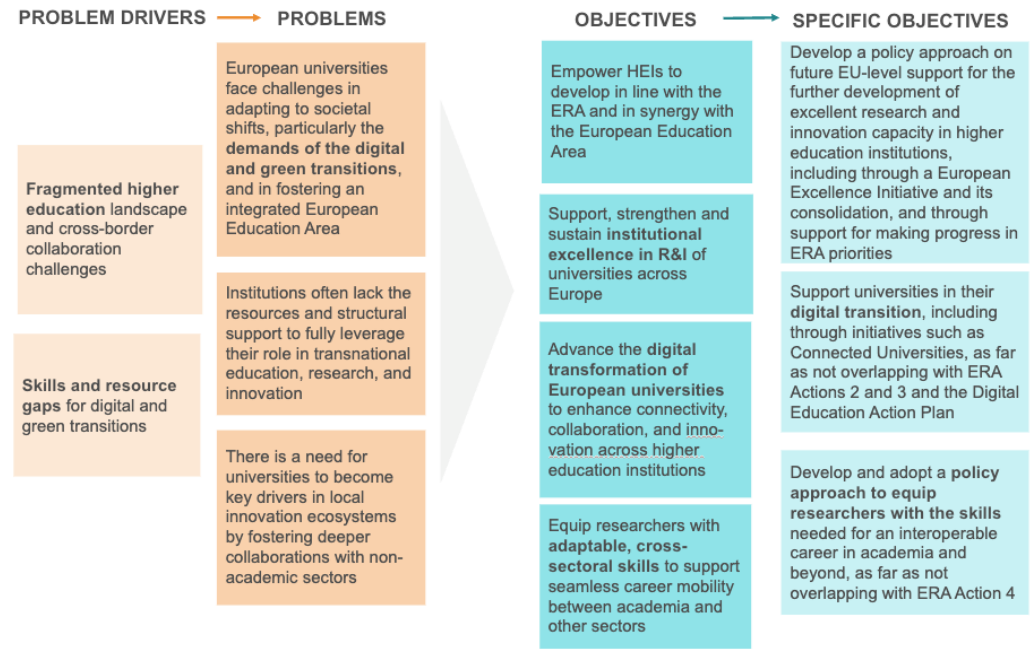
Action 13 aims to empower European universities to lead the **green and digital transitions**, supporting the EU's goal of achieving the European Education Area by 2025. This action focuses on equipping universities and researchers with the **resources and collaborative frameworks** needed to drive innovation and strengthen Europe's global leadership in research and innovation.

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<sup>143</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

A key objective is to establish a distinctly European dimension in higher education, positioning universities at the centre of innovation ecosystems and promoting close **collaboration with non-academic organisations**. The action also seeks to mainstream a **culture of excellence** across institutions, supporting them in making progress in ERA priorities, fostering sustained quality and impact in research.

**Figure 13 Identified problems and defined objectives of ERA Action 13**



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024 and interview with European Commission

**13.2. Status of ERA Action 13 implementation at EU level**

**Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>144</sup>**

The focus of the first phase was on the **development on a policy approach** to support European universities through a European Excellence Initiative and the consolidation of the European Universities Initiative. Other specific objectives were mainly addressed through other ERA Actions.

The **establishment of a dedicated working group** to provide direction for developing policy actions at both EU and MS-levels was key. The developed Action Plan served as a basis for various actions launched in the current phase.

Next to the policy developments, **implementation of the European University Initiative** continued with its second wave and a call in September 2022 leading to an increase to 50

<sup>144</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



funded alliances. Nine projects selected in 2021 under the **European Excellence Initiative** started running in 2022.

### **13.2.1. Policy approach on future EU level support for higher education institutions**

In terms of policy alignment, the work of the **ERA Forum sub-group on ‘Universities for ERA’** was key. The sub-group, established to provide direction and drive the implementation of ERA Action 13, has developed an Action Plan with specific recommendations for short-, medium- and long-term initiatives. These recommendations aim to enhance coordination between Member States and the EU, ultimately fostering excellence in higher education and research.

As the sub-group included research and education stakeholders, Member States’ representatives as well as relevant Commission services, it provided a forum to exchange, align, and plan individual activities as needed. The work of the sub-group and its recommendations have guided the funding and policy decisions at the EU-level, including bringing synergies to Horizon Europe and Erasmus+ calls for proposals. They are typically included in the 2023-2025 Horizon Europe Work Programme. Twelve projects were selected in 2023, and their activities have started in the first quarter of 2024.<sup>145</sup>

The **European Universities Initiative** has expanded significantly since 2023, now comprising 64 alliances and more than 560 HEIs across Europe.<sup>146</sup> The support showed considerable progress made in several priorities in the ERA.<sup>147</sup>

More initiatives and activities were organised by other institutions, such as the European University Association. For instance, a webinar in November 2023 on [‘A new ERA for universities’](#) discussed the empowerment of HEIs in synergy with ERA and the European Education Area.

### **13.2.2. Support universities in their digital transition**

The **Digital Education Action Plan** indicates policy initiatives between 2021 and 2027 focusing on high-quality, inclusive, and accessible digital education across Europe. In synergy with ERA priorities on gender and research careers, the Plan’s Action 13 supports young female students in developing digital competencies, thereby encouraging greater participation in STEM studies and careers, and promoting their inclusion in the digital economy. Multiple Girls and Women Entrepreneurship, Science, Technology, Engineering, Arts, and Mathematics Fests (ESTEAM) have been organised in the past two years.<sup>148</sup>

### **13.2.3. Develop and adopt a policy approach to equip researchers with the skills needed for an interoperable career in academia and beyond**

A range of initiatives led by other ERA priority areas are also supporting this priority, such as the call for **Talent Ecosystems Pilot Initiative**, launched in March 2024 and starting in summer 2025. It aims to connect universities with private-sector companies, allowing for

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<sup>145</sup> European Commission: [European Excellence Initiative: new projects to empower higher education institutions and widen cooperation](#), 2024. The relevant call topic was HORIZON-WIDERA-2023-ACCESS-03-01: European Excellence Initiative. The initial budget of this call was EUR 54 million.

<sup>146</sup> European Commission: [New funding for additional European Universities alliances will boost cooperation in higher education](#), 2024.

<sup>147</sup> European Commission: [Progress of University Alliance Projects](#), 2023.

<sup>148</sup> European Commission: [Digital Education Action Plan - Action 13](#).

developing researcher careers beyond academia and rendering them fit for the labour market.<sup>149</sup>

**13.3. Assessment of the progress towards the ERA Action 13 objectives over the 2022-2024 period**

**13.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome**

The European Universities Initiative, launched in 2019, has seen significant growth, expanding the number of participating universities across Europe and enhancing cross-border collaboration.

In this reporting period the number of alliances and involved universities increased. In 2023 30 alliances were selected based on a call in September 2022, while in 2024, another 14 followed. There are now 65 alliances and 570 universities from 35 countries involved, supporting the further uptake of the ‘fifth freedom’. They also include almost 2,200 associated partners, thus contributing to the goal of becoming local knowledge hubs.

Their sustainability beyond the EU project-based funding through transfer in national funding schemes is however not secured. An investment pathway for European University Alliances still needs to be developed. A positive development and result of the ERA Forum subgroup work is a change in the Erasmus+ funding, which can now also be used by the universities to build capacities in research.

The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 13.

**Table 14 Assessment of the progress towards Action 13 Specific Objectives: initiatives and outcomes**

Specific objectives <sup>150</sup>	Main initiatives implemented	Main outcomes
Policy approach on future EU-level support for the further development of Horizon Europe institutions, including through a European Excellence Initiative and the consolidation of the European Universities Initiative	<ul style="list-style-type: none"><li>European Universities Alliances (2020)</li><li>European Excellence Initiative (2021, 2023, 2025)</li><li>Acceleration Services in Support of Universities (2022)</li><li>Talent Ecosystems (2024)</li></ul>	<ul style="list-style-type: none"><li>Strong network of in the meantime 65 alliances involving over 570 European higher education institutions, fostering cross-border academic collaboration</li><li>Strengthened institutional frameworks fostering research excellence and innovation within European universities</li><li>Improved capacity of participating universities in ERA priorities (i.e. research careers, knowledge valorisation, Open Science) and development of stronger collaborative critical mass in R&amp;I</li></ul>

<sup>149</sup> HORIZON-WIDERA-2024-ERA-02-03 Talent ecosystems for attractive early research careers – pilot. This action has a budget of EUR 20 million.

<sup>150</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>150</sup>	Main initiatives implemented	Main outcomes
Support universities in their digital transition, including through initiatives such as Connected Universities	<ul style="list-style-type: none"> <li>• Communication on a European strategy for universities (2022)</li> <li>• ERA Forum s-ubgroup on 'Universities for ERA' (2022)</li> </ul>	<ul style="list-style-type: none"> <li>• Unified, strategic framework to guide the transformation of European universities</li> <li>• Action plan with short-, medium-, and long-term recommendations to improve coordination between MS and the EU in fostering research excellence</li> <li>• Expanded support for researcher mobility within Europe through resources such as job listings, funding opportunities, and relocation assistance</li> </ul>
Develop and adopt a policy approach to equip researchers with the skills needed for an interoperable career in academia and beyond	<ul style="list-style-type: none"> <li>• Digital Education Action Plan (2021-2027)</li> </ul>	<ul style="list-style-type: none"> <li>• Initiatives to increase female participation in STEM</li> <li>• Development of approaches/tools to enable sharing of infrastructures and equipment between universities</li> </ul>

Source: Technopolis Group, based on data collected through desk research and interviews

ERA Action 13 offers a range of links to other ERA priorities such as gender equality, Open Science, research assessment etc., as well as policy areas such as digitalisation. Direct funding of digitalisation priorities is achieved through EOSC (ERA Action 1). Initiatives such as the Digital Education Action Plan, Girls and Women Fests and other events were organised in several countries, promoting digital skills and encouraging women's participation in STEM fields. This outreach is part of a broader effort to support gender inclusivity in digital education.<sup>151</sup>

At the EU-level, the WIDERA Work Programme of Horizon Europe included most actions envisaged for 2024 in the Action Plan of the ERA Forum subgroup on universities. Member States had agreed on specific topics of interest – which then made it into the Work Programme. Yet, for one agreed topic, no proposal was obtained.

Greater synergies with the European Education Area were achieved through aligned calls, the Erasmus+ opportunities for research as well as the range of topics under the WIDERA 2024 Work Programme. Erasmus+ funded European University Alliances remain one of the target groups under the European Excellence Initiative in Horizon Europe. Conversely, research and innovation capacity-building was integrated in the Erasmus+ call for the European Universities Initiative's consolidation phase.

At the end of 2024, reflections on remaining gaps emphasise several areas to strengthen ongoing European University Alliances under the ERA Policy Agenda. Ensuring the sustainability of institutional changes beyond the EU project funding is a key priority. The limited uptake of national funding organisations to test programme-level collaboration in the 2024 WIDERA Work Programme represents an unrealised opportunity at national level to explore potential coordination synergies.

The European Excellence Initiative officially kicked-off its project activities in the first quarter of 2024.

<sup>151</sup> [https://eisma.ec.europa.eu/esteam-fests-and-communities-girls-and-women\\_en](https://eisma.ec.europa.eu/esteam-fests-and-communities-girls-and-women_en)

### 13.3.2. Challenges and opportunities towards future ERA initiatives

Making best practices and key outcomes accessible and openly available to a wider audience is needed. Future university alliances could focus on implementing targeted, impactful objectives linked to specific deliverables and milestones to maximise their influence.

Additionally, ongoing engagement and mutual learning between the existing alliances are crucial, as is the need to explore diverse funding sources to support the sustainability and further development of institutional reforms. Addressing these areas in future ERA policy initiatives could enhance the depth and continuing progress across European research institutions.<sup>152</sup>

## 14. Action 14: Bring science closer to citizens

### Key findings Action 14: Bring science closer to citizens

ERA Action 14 seeks to enhance public engagement in research and innovation, fostering trust, collaboration, and societal uptake of scientific solutions. The Action promotes co-creation, outreach initiatives, and citizen science projects to connect individuals and communities with the research ecosystem.

- The **Plastic Pirates – Go Europe!** initiative has been expanded to 13 countries, involving over 16,000 students and 800 schools sampling more than 350 rivers and coasts. The initiative generated open-access data, scientific publications, and widespread public awareness of plastic pollution. A handbook of lessons learned and a Coastal Booklet were developed to support further scaling.
- The **European City of Science 2024** (Katowice, Poland) featured a year-long programme of events, including the European Contest for Young Scientists (EUCYS), the European Union Contest for Early-Career Researchers (EU TalentOn) and the EuroScience Open Forum (ESOF), which attracted broad participation, with over 3,500 attendees and 130 sessions highlighting science's societal impact.
- **The Mutual Learning Exercise on Public Engagement in R&I**, launched in January 2024 and concluded in January 2025. It involved eight countries in discussions to identify best practices, challenges, and framework conditions for public engagement. Four thematic reports were produced.

ERA Action 14 advanced public participation in science through initiatives like Plastic Pirates and the European City of Science. However, challenges remain, including the uncertain sustainability of initiatives like Plastic Pirates. Addressing these gaps, integrating lessons learned, expanding engagement with Widening Countries and ensuring sustainable funding for impactful projects are key opportunities to enhance the reach and impact of public engagement in science.

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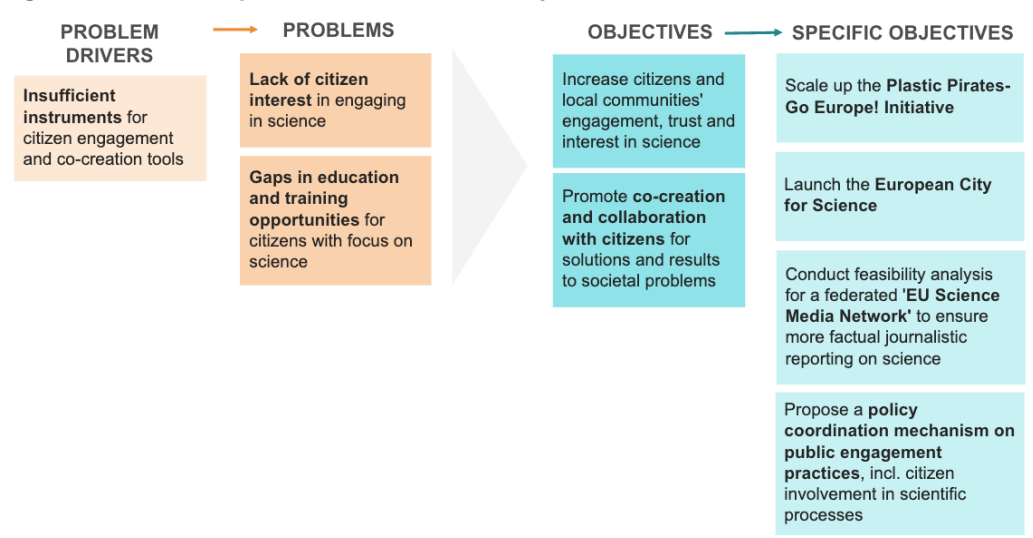
<sup>152</sup> European Commission: [Report on good practices from European University Alliances Projects \(pilot II\)](#), 2024.

14.1.Objectives and scope of ERA Action 14

**Purpose of the action:**<sup>153</sup>

ERA Action 14 aims to empower citizens and local communities to promote their engagement, trust and interest in science. It also promotes co-creation and collaboration with citizens in view of ensuring the societal uptake of the developed solutions and results.<sup>154</sup>

Figure 14 Identified problems and defined objectives of ERA Action 14



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

14.2.Status of ERA Action 14 implementation at EU level

**Summary of the main initiatives during the first phase (2022 to mid-2023):**<sup>155</sup>

In 2022, the European Commission launched new flagship initiative **Researchers at Schools** as part of the European Year of Youth with calls launched under Horizon Europe WIDERA to support citizen science. In addition, the Mutual Learning Exercise on 'Citizen Science initiatives – Policy and Practice' was held.

The first European City of Science was Leiden (The Netherlands). It served as a pilot to test the feasibility and framework of the programme. This included a year-long programme of events on science, including the organisation of EU TalentOn, EUCYS and ESOF.

The Plastic Pirates – Go Europe! citizen science initiative expanded to 11 countries and launched successful pilot phases with a minimum of 15 citizen samples involving more than

<sup>153</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>154</sup> European Commission: [Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA](#).

<sup>155</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

5,000 young citizens as active participants and adding up to a collection of over 300 datasets. In addition, education material on plastic pollution was developed in ten languages.

The period from **mid-2023 to end-2024** marked several advancements for the ERA Action 14. In fact, the Plastics Pirates initiative scaled up with two additional countries (13 Member States) involved in 2024, and a handbook with lessons learned based on the current experience was developed to support further implementation. The Mutual Learning Exercise on Public Engagement in R&I took place from January 2024 until January 2025, providing an overview of public engagement in R&I, exploring success factors and challenges and sharing examples and best practices from MLE participating countries. The MLE covered essential elements of the public engagement framework for R&I, reviewed existing practices, successes and challenges, building a solid ground for strengthening the policy of public engagement in R&I across the EU. For the 2024 edition, the title 'European City for Science' was awarded to the city of Katowice, Poland. The programme generated interest and participation from more than 30 Member States and Third Countries. The activities on science communication are covered by the Horizon Europe project [COALESCE](#), therefore it has been decided not to pursue the feasibility study on the EU Science Media Network.

The box below shows a selected set of illustrative initiatives and measures at national level:

### **The Dutch Open Science NL**

In line with EU efforts to promote Open Science, the Dutch adopted its own Open Science NL programme. It envisages support for various forms of public engagement, mobilising funds, fostering collaboration, and supporting capacity-building and infrastructure. Its broad goal is to create a more open and participatory research environment, including through dialogue and citizen science. As part of The Netherlands Research Council, Open Science NL is guided by the NPOS2030 Ambition Document and Rolling Agenda, a strategic framework that outlines the vision for Open Science in the country, and it provides a roadmap for achieving it.

### **The German Impact Unit on science communication**

The Impact Unit is a joint project of Wissenschaft im Dialog (WiD) and the Berlin-Brandenburg Academy of Sciences<sup>156</sup>. It aims to enhance the evaluation and impact orientation of science communication, bridging the gap between theory and practice. The Impact Unit conducts research on various issues of science communication and develops practical tools and resources for practitioners to evaluate their science communication activities (e.g., online evaluation platforms and workshops). It also fosters collaboration between researchers, practitioners, and policy-makers through regular networking activities and other events.

#### **14.2.1. Scale-up the Plastic Pirates-Go Europe! initiative**

[Plastic Pirates – Go Europe!](#) is a citizen science initiative on plastic waste pollution which expanded to 13 participating countries in 2024 (versus 11 in 2023). The initiative is an important element of the EU Mission 'Restore our Oceans and Waters by 2030' as it contributes to reducing macro- and microplastics by 2030, including through the mobilisation of the public. In this framework, Plastic Pirates actively pursues synergies with other projects like the Network of [European Blue Schools](#), the [EU4Ocean Coalition](#), [INSPIRE project](#), [SHORE project](#), [ERASMUS MARIS](#), [OTTERS](#), and others.

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<sup>156</sup> Adapted from European Commission: Directorate-General for Research and Innovation and Mazzonetto, M., [Public engagement in R&I and framework conditions – Mutual learning exercise on public engagement in R&I. Third thematic report](#), 2024.

By July 2024, over 16,000 students from more than 800 schools across Europe had sampled some 350 rivers and coasts across Europe. They gathered in excess of 93,000 plastic items of which more than 51,000 were made of single-use plastics. In addition, a network of 26 research institutions processed the samples in the participating countries to make them available as open and accessible data for all European researchers.

The initiative also produced a paper gathering 12 lessons learned from the experience in its implementation across Europe. A dedicated publication (Coastal Booklet) was developed to support schools and youth groups in sampling at coasts and beaches. The booklet serves as a step-by-step guide to collect scientific data on plastic pollution at beaches.

Furthermore, on 5-6 November 2024, the Plastic Pirates Summit 2024 took place in Brussels. It gathered students, teachers, partners, scientists, and policy-makers to review the outcomes, results, insights, and lessons learned from expanding this citizen science initiative across Europe.

#### **14.2.2. Launch of the European City for Science**

In 2023, **Katowice was awarded the European City of Science 2024** based on efforts by the local government and seven public universities under the consortium 'Katowice City of Science'. Katowice is the first city in Central Europe to have been awarded this title. In line with the blueprint of the European City of Science laid out by Leiden in 2022, the programme consisted of four main components.

First, it included a **year-long programme of science events** drawing attention to 50 Polish and global science issues and structured around five thematic streams, including 50 Weeks of Science for the Society – a programme of strategic urban, regional and academic events – [Youth in the City of Science](#), [Teachers for Teachers Educational Programme](#), and special events programming.

Second, the organisation and hosting of the 35<sup>th</sup> edition of the [European Contest for Young Scientists](#) targeting 14-20-year-olds with a passion for STE(A)M. The contest took place in Katowice on 9-14 September 2024 and saw the participation of 143 young scientists from 37 EU and non-EU countries. The winning projects shared a total of EUR 62,000 in prize money, including four 1st prizes of EUR 7,000, four 2nd prizes of EUR 5,000, four 3rd prizes of EUR 3,500.

Third, the [European Union Contest for Early-Career Researchers \(EU TalentON\)](#), which took place on 9-14 September 2024. This hackathon-like competition targets 21-35 early-career researchers and is based on the five EU Missions. In this second edition of EU TalentOn, 108 participants from 38 countries took part, including female participation of more than 60%. The winning projects shared a total of EUR 75,000 in prize money, including a first and second prize per Mission area, complemented by an Alumni Award and a Community award (a total of 12 winning teams).

Fourth, the [EuroScience Open Science Forum](#) took place on 12-15 June 2024 in the International Congress Centre in Katowice. It gathered 3,500 participants from 40 countries and featured several hundred speakers from Poland, Europe, and the world, 130 thematic sessions, and six side events.

#### **14.2.3. MLE on Public Engagement in Research and Innovation**

The initial objective of the activity – i.e., proposing a policy coordination mechanism on public engagement practices, including citizen involvement in scientific processes – was reformulated around the MLE on Public Engagement in Research and Innovation. The MLE was launched in January 2024 and completed in January 2025 with the final report scheduled



for release in March 2025. Eight countries are participating, including Belgium, Germany, Ireland, Lithuania, Netherlands, Norway, Slovenia, and Sweden.<sup>157</sup>

The MLE aims at exchanging success stories, experiences, and challenges in fostering meaningful public participation in R&I.<sup>158</sup> Project outcomes include reports providing 1) an overview of public engagement in R&I in the EU, 2) summary of successes and challenges of public engagement based on the experience across the EU MS, and 3) specific three framework elements for public engagement in R&I, and 4) public engagement in R&I in the ERA. Four thematic reports were produced, covering the overview of public engagement in R&I, successes and challenges drawing on the Member States experiences, outlining framework conditions for the public engagement in R&I, and public engagement in the ERA.<sup>159</sup> The final report<sup>160</sup> consolidates the lessons learned and presents a solid ground for policy actions on strengthening the citizens engagement in science in the EU.

### 14.3.Assessment of the progress towards the ERA Action 14 objectives over the 2022-2024 period

#### 14.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The initiatives under ERA Action 14 have contributed to increased citizen engagement in the research ecosystem across the EU. The Plastic Pirates – Go Europe! initiative and the European City of Science promoted citizen engagement in science, fostered youth participation and interest in R&I, and allowed citizen participation in tackling development challenges and contributing to science in this area (e.g., the challenge of plastic pollution in seas and rivers around Europe). The MLE on Public Engagement in R&I gathered practices and outlined a framework for citizen involvement in scientific processes that can provide a solid base for policy action on strengthening public participation in science across the EU.

The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 14.

**Table 15 Assessment of the progress towards Action 14 Specific Objectives: initiatives and outcome**

Specific objectives <sup>161</sup>	Main initiatives implemented	Main outcomes
Scale up the Plastic Pirates – Go Europe! initiative	<ul style="list-style-type: none"> <li>Promotion of the initiative across the Member States, showcasing its results and successes</li> </ul>	<ul style="list-style-type: none"> <li>Two additional states took up the initiative</li> <li>More than 16,000 students from over 800 schools have sampled some 350 rivers and coasts across Europe</li> <li>Three scientific publications by local partners published, with two more in the making, based on the samplings gathered from the rivers and seas</li> </ul>

<sup>157</sup> See <https://projects.research-and-innovation.ec.europa.eu/en/statistics/policy-support-facility/psf-challenge/mutual-learning-exercise-public-engagement-ri>

<sup>158</sup> Ibid.

<sup>159</sup> European Commission: Directorate-General for Research and Innovation and Mazzonetto, M., [Public engagement in R&I and framework conditions – Mutual learning exercise on public engagement in R&I. Third thematic report](#), 2024.

<sup>160</sup> European Commission: Directorate-General for Research and Innovation and Mazzonetto, M., [Mutual learning exercise on public engagement in R&I – Final report](#), 2025.

<sup>161</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>161</sup>	Main initiatives implemented	Main outcomes
		<ul style="list-style-type: none"> <li>• A paper gathering 12 lessons learned from the implementation of the initiative in Europe published</li> <li>• A Coastal Booklet developed (available in English and German) to support schools and youth groups in sampling at coasts and beaches</li> </ul>
Launch the European City of Science	<ul style="list-style-type: none"> <li>• Implementation of the initiative based on the Leiden blueprint, including four components, namely the year-long programme of events, conducting EUCYS, EU TalentOn, and ESOF</li> </ul>	<ul style="list-style-type: none"> <li>• Katowice became the 2024 European City of Science</li> <li>• The programme included 50 Weeks of Science for the Society</li> <li>• EUCYS final competition with the participation of 143 young scientists from 37 EU and non-EU countries and a total of EUR 62 000 in prize money</li> <li>• EU TalentOn second edition with 108 participants from 38 countries and a total of EUR 75 000 in prize money for 12 winning teams</li> <li>• ESOF gathered 3,500 participants from 40 countries featuring several hundreds of speakers from Poland, Europe, and the world across 130 thematic sessions and six side events.</li> </ul>
Conduct a feasibility analysis for a federated 'EU Science Media Network' to ensure more factual journalistic reporting on science	<ul style="list-style-type: none"> <li>• Feasibility study by the European Commission on EU Science Media Network</li> </ul>	<ul style="list-style-type: none"> <li>• The activities on science communication are covered by the Horizon Europe project COALESCE, therefore it has been decided to not pursue the feasibility study on the EU Science Media Network</li> </ul>
Propose a policy coordination mechanism on public engagement practices, incl. citizen involvement in scientific processes	<ul style="list-style-type: none"> <li>• Exploring practices and means of better public engagement in R&amp;I through an MLE on Public engagement in R&amp;I</li> </ul>	<ul style="list-style-type: none"> <li>• MLE on Public engagement in R&amp;I launched in January 2024 until January 2025</li> <li>• Four thematic reports produced covering the overview of public engagement in R&amp;I, successes and challenges drawing on the MS experiences, outlining framework conditions for public engagement in R&amp;I and the ERA</li> <li>• Final report published in March 2025 with lessons learned and policy recommendations to strengthen citizen involvement in science across the EU</li> </ul>

Source: Technopolis Group, based on data collected through desk research and interviews

#### 14.3.2. Challenges and opportunities towards future ERA initiatives

The sustainability of some initiatives under this Action requires attention. Thus, the future of the Plastic Pirates initiative, despite its success, is uncertain. Only six out of 13 participating states committed national funding to continue Plastic Pirates in their respective countries beyond the pilots. The Mission Ocean and the Sustainable Blue Economy Partnership were approached to explore the continuation of the initiative, and several options are on the table for the initiative's inclusion in some form in ERA Policy Agenda 2025-2027.

The European City of Science Programme will change its scope in 2026 to include a minimum of three cities across three EU Member States and Associated Countries under the new initiative 'Science Comes to Town'. It would be important to make sure that the new project builds on lessons learned from the European City of Science for its increased effectiveness and impact on the society.

Lastly, closer engagement of Widening Countries could be considered to ensure extended policy learning and balanced development across the EU.

## Assessment of the ERA Actions under ERA Priority 2 – Taking up together the challenges posed by the twin green and digital transition, and increasing society’s participation in the ERA

ERA Priority 2 focuses on addressing the twin green and digital transitions while increasing societal uptake of R&I results. ERA Priority 2 has made significant progress in supporting the twin transitions and enhancing societal participation in science. Actions under this priority have strengthened the alignment of R&I with EU policy objectives, advanced stakeholder engagement, and supported industrial and institutional transformations. However, challenges such as fragmented governance, insufficient funding diversification, and limited stakeholder participation in certain regions remain. The following analysis evaluates the progress made under each ERA Action associated with this priority.

### ➤ Tackling the challenges of the twin green and digital transition

**ERA Action 10 advanced European Partnerships and Missions’ alignment with ERA principles to drive green and digital transitions.** The European Mission Network coordinated governance, while TRAMI’s Mission Data Platform improved monitoring and learning. Citizen initiatives such as the Citizen Resilience Scan and NetZeroCities fostered participatory policy-making. The 2023 EU Missions Assessment Report stressed that the EU Missions face challenges with governance complexity, limited funding diversity, and insufficient public engagement.

Funding remains overly reliant on Horizon Europe, and EU Missions should transition beyond the R&I programmes through **diversified funding strategies to deliver their intended impact**. Further **integration with policy actions also beyond R&I, greater visibility and inclusiveness** through improved public engagement would also maximise their long-term societal impact by 2030. The Heitor Report also recommends placing missions under high-level political ownership for better accountability and integration into broader policy goals.

With regard to European Partnerships, the Partnership Knowledge Hub hosted several workshops geared towards improving the impact of the Partnership landscape, while the 2024 Biennial Monitoring Report assessed their alignment with EU objectives. Despite their key role in the R&I ecosystem and contributions to the green and digital transitions, European Partnerships still face challenges, including the fragmentation of the landscape including limited integration with the Missions, and gaps in co-investment leverage and lifecycle planning.

To overcome these barriers and maximise their impact, suggestions for the next phase **focus on the optimisation of the coordination and synergies between European Partnerships**. This includes improving portfolio coordination, fostering relevant horizontal synergies and multi-level policy alignment to prevent silos, and streamlining the performance measurement process.

**Further to this, ERA Action 11 has promoted the green energy transformation by aligning R&I investments with climate neutrality targets.** The updated Strategic Energy Technology (SET) Plan now reflects the European Green Deal and REPowerEU, emphasising digitalisation, circularity, and skills. The ERA Green Hydrogen Pilot produced a Strategic Research and Innovation Agenda and scaled infrastructure through the Horizon Europe SET4H2 project, while the Commission further outlined strategies for hydrogen valleys, solar innovation, and clean energy. Nonetheless, regulatory bottlenecks, delays with permits, and limited Member State coherence remain significant challenges. Environment-

related government R&D budgets at 2.41% in 2022 are below EU ambitions, showcasing the need for streamlined governance and enhanced Member State engagement.

Moving forward, **enhanced coordination and the scaling up of joint actions between Member States and industry stakeholders**, alongside mechanisms like the European Hydrogen Bank and regional Hydrogen Valleys, are seen as critical to accelerating deployment and achieving the ambitious EU's clean energy objectives.

**ERA Action 12 has underpinned Europe's industrial green and digital transitions** through its initiatives. Two Mutual Learning Exercises (see above)) provided recommendations for decarbonisation and collaboration. ERA technology roadmaps on low-carbon and circular technologies were widely shared, alongside a digital map of 180 EU-funded clean-tech demonstrators. Efforts to enhance TIs, included expert groups, studies, and pilots, aligning TIs with EU industrial strategies. The Industry 5.0 Community of Practice published the Industry 5.0 Agenda, while forums fostered cross-sector R&I collaboration and guided ecosystem transition pathways. Despite progress, challenges remain in industry engagement, R&I uptake, and Member State alignment, requiring stronger MLEs, expert groups, and coordinated TI strategies to fully realise the transformative potential of this Action's initiatives.

Future efforts should focus on establishing a **European Strategy for research and technology Infrastructures**, fostering **cross-sector and cross-country collaboration** to support the market and societal uptake of technology, and **addressing skills gaps** through targeted initiatives like the Industry 5.0 Community of Practice.

#### ➤ **Increasing society's participation in the ERA**

**With the aim to empower Higher Education Institutions**, ERA Action 13 has positioned European universities to lead the green and digital transitions while contributing to the European Education Area by 2025. The European Universities Initiative now includes 64 alliances, involving 560 institutions and fostering cross-border academic collaboration and institutional reform. The European Excellence Initiative supports shared infrastructures, knowledge valorisation, and Open Science, with 12 new projects launched in 2024. The Talent Ecosystem Pilot, launched the same year, connects universities with private organisations to equip researchers with industry-ready skills. Reliance on project-based funding and limited Member State engagement remain challenges.

To address this, **an investment pathway** could be developed to integrate these alliances into national funding schemes, ensuring continuity and institutional reform. **Enhancing synergies between the European Education Area and ERA**, particularly through initiatives like the European Excellence Initiative and Erasmus+, is also seen as essential to support capacity-building in research and innovation. Additionally, fostering mutual learning between alliances, linking other research organisations and industry initiatives, and scaling best practices will be essential to maximising the long-term impact of these networks for the consolidation of Europe's R&I landscape.

**Further to this, ERA Action 14 has fostered public engagement in R&I** through participatory initiatives such as Plastic Pirates – Go Europe! This programme engaged over 16,000 students across 13 countries, raising awareness of plastic pollution and generating open-access data. Events like the European City of Science 2024 in Katowice featured broad outreach, attracting over 3,500 participants to highlight science's societal impact. The Mutual Learning Exercise on Public Engagement identified best practices across eight countries. However, sustainability challenges for initiatives like Plastic Pirates persist.

**Strengthened coordination of public engagement practices**, informed by outputs from the MLE on Public Participation in R&I, and further embedded into the ERA objectives, would be essential to ensure inclusive and impactful citizen involvement in the green and digital transitions.

## ERA PRIORITY 3: AMPLIFYING ACCESS TO RESEARCH AND INNOVATION EXCELLENCE ACROSS THE UNION

This chapter summarises the key findings on the implementation of ERA Actions 15, 16 and 17, highlighting their contributions to ERA Priority 3 objectives.

### 15. Action 15: Build up regional and national R&I ecosystems to improve regional/national excellence and competitiveness

This action has not been implemented as it did not reach the sufficient number of Member State commitments. However, the European Commission pilots this Action through two Coordination and Support Actions funded through Horizon Europe.<sup>162</sup>

### 16. Action 16: Improve EU-wide access to excellence

#### Key findings Action 16: Improve EU-wide access to excellence

During the review period, ERA Action 16 initiatives sought to improve access to excellence across the EU's research and innovation ecosystem, with a particular emphasis on enhancing synergies between Cohesion policy instruments and the Horizon Europe Programme:

- The **ERA Forum sub-group on 'Access to Excellence'** facilitated the creation of synergies among various authorities at national level dealing with R&I and Cohesion policies as well as between Horizon Europe and ERDF programmes. During its mandate period of 18 months it acted as a platform of exchange, collecting information on synergy implementation in Member States (backed by a survey), providing policy updates, sharing good practices on building synergies across programmes, monitoring the roll-out of synergic initiatives and defining activities aimed at boosting scientific and innovation excellence throughout Europe.
- Targeted support was implemented through **Horizon Widening Actions**, with multiple calls under the Excellence Hubs, Hop-on Facility, ERA Chairs, Twinning, and Dissemination and Exploitation Support Facility, funding over 200 projects in 2024, with combined investments exceeding EUR 315 million. These actions supported the development of R&I capabilities across less research-intensive regions.
- The Horizon Europe **WIDERA Pathways to Synergies** programme led to the selection of 16 proposals in 2023.

These efforts have helped to improve access to excellence across the EU's R&I system, including low R&I performing countries. Despite progress, important challenges remain in effectively implementing synergies. The RIMA report highlights the need for user-friendly guidelines, enhanced training for managing authorities, streamlined processes, and better communication on the benefits of synergy. Coordination between stakeholders at EU, national and regional levels also requires improvement to align planning and execution of R&I and Cohesion policy programmes.

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<sup>162</sup> See projects [COOPERATE](#) and [ERA FABRIC](#).

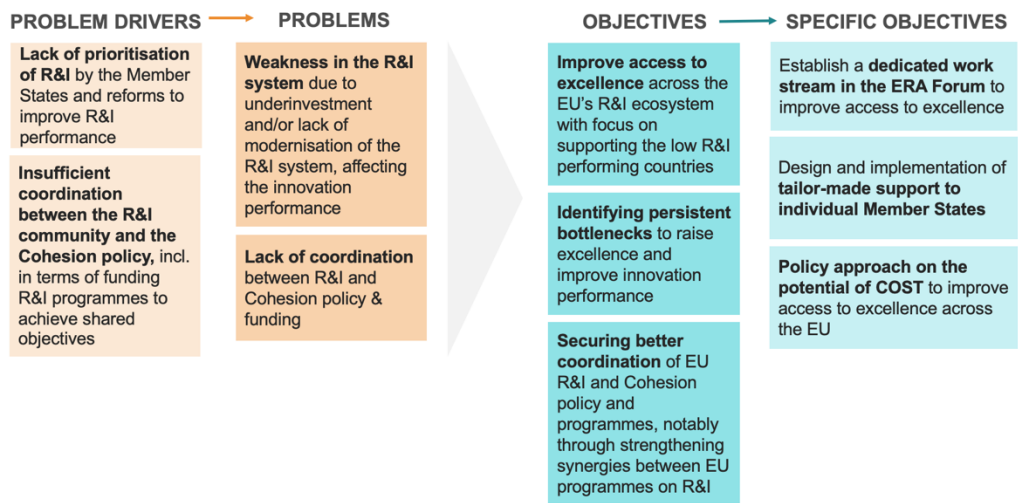
16.1.Objectives and scope of ERA Action 16

**Purpose of the action:**<sup>163</sup>

ERA Action 16 aims at improving access to excellence across the EU's R&I system and specifically support low R&I performing countries through increased coordination between Cohesion policy instruments and the Horizon Europe programme. Action 16 was developed to complement and strengthen national R&I strategies and interdependent Cohesion policy programmes and national, regional, and private investments.

Action 16 also covers parts of the objectives of previous Action 18, 'Support the development of EU countries' national processes for the ERA implementation', which was not directly supported as a stand-alone action.

Figure 15 Identified problems and defined objectives of ERA Action 16



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

16.2.Status of ERA Action 16 implementation at EU level

**Summary of the main initiatives during the first phase (2022 to mid-2023):**<sup>164</sup>

In 2023, the ERA Forum subgroup 'Access to excellence' – 'R&I and Cohesion Managing Authorities' Network was set up. Its aim is to build a stronger dialogue and coordination between a) the European Commission (DG REGIO and DG RTD) and Member States and b) different communities within the Member States. Examples of the latter include R&I-related bodies but also managing authorities of Cohesion policy programmes who address practical experiences linked to the design and implementation of R&I policies at national and regional levels, promote synergies, and boost scientific excellence throughout Europe.

<sup>163</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>164</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.



The first meeting of RIMA was held in June 2023 and served to identify existing synergies between Cohesion funding and Horizon Europe, as well as needs and data gaps.

The Horizon Europe WIDERA programme has been used to support EU-wide access to excellence for Widening Countries. Several actions are currently in the Action's package under Horizon Europe, including Teaming, Twinning, and Excellence Hubs, Hop-on Facility, COST, ERA Chairs, and the calls launched in 2023 under the 'Pathways to Synergies' and 'Dissemination and Exploitation Support Facility'.

RIMA produced a draft report on the results and challenges of synergies between the Horizon Europe programme and European Structural and Investment Funds (ESIF), including recommendations on moving forward. Under Horizon WIDENING sub-programme, the Pathways to Synergies programme aimed at better coordination and use of EU-level funding for R&I selected 16 proposals in 2023 with signature of grant agreements in May 2024. Other achievements include ongoing calls under the Excellence Hubs, Hop-on Facility, ERA Chairs, Dissemination and Exploitation Support Facility, and Seal of Excellence (SoE) funding.

The box below showcases examples of good practices on synergies at national level:

#### **The transfer of funds from ERDF to Horizon Europe by Malta and Lithuania<sup>165</sup>**

Malta has been the first Member State to make use of the possibility, foreseen in the 2021-2027 programming period, to transfer funds (EUR 5 million in total) from the European Regional Development Fund (ERDF) to Horizon Europe. The transfer is organised in instalments of EUR 1 million per year for a period of five years. Implementation of the transfer started in 2023, and the first grants were signed in February 2024. In the first two years of the transfer, six ERA fellowships and one MSCA global fellowship project with Maltese beneficiaries have been funded and are currently ongoing.

In the case of Lithuania, EUR 18.5 million has been transferred from the ERDF to Horizon Europe (2024-2025) to support projects under Pillar 1 as well as Pillars 3 and 4. The transfer process involved three ministries with the lead taken by the Ministry of Finance. Currently, there are eight projects in Pillar 3 (grants) and ERA fellowships with all funds earmarked for 2024 well absorbed. It is estimated that the transfer contributed to a 15% increase in incentives to participate in Horizon Europe projects – a direct contribution to strengthening Lithuania's R&I system.

#### **Seal of excellence – the case of Bulgaria and France**

Bulgaria has been providing support to the European Innovation Council's (EIC) SoE-holders mobilising funds from the Recovery and Resilience Facility (RRF). After 2024, it plans to continue funding under the 'Research, Innovation and Digitalisation for Smart Transformation' operating programme. In France, Sorbonne University funds up to five contracts per year for MSCA Postdoctoral Fellowship Seals of Excellence, and the Haut de France region is planning to fund the holders of the same SoE through the ERDF funds.

### **16.2.1. Establishing a dedicated work stream in the ERA Forum to improve access to excellence**

The ERA Forum sub-group 'Access to excellence – RIMA' launched in June 2023 conducted three meetings throughout 2023 and 2024, with the first held in June 2023. Following the first meeting exchanges, in view of the lack of complete information on what types of synergies

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<sup>165</sup> RIMA, [Report on the European Synergies of Funds](#), 2025.



are used and with which sources, the group decided to carry out a mapping of ongoing practices in Member States and regions in implementing ERDF-Horizon synergies.

In September 2023, RIMA disseminated a survey among its members to enhance the understanding of current activities of Member States on synergies. Out of 16 responding states, 14 implement synergies with Horizon Europe with the majority of funds coming from Cohesion Funds, followed by RRF. However, the survey also indicated a reluctance of Member States to use transfer mechanisms for synergies, and the overall underutilisation of synergies across the Union due to lack of experience and good practices.

In December 2023, RIMA conducted its second meeting which discussed access to tools to promote excellence and the interplay of synergies and smart specialisation. Delegates also discussed amendments to the General Block Exemption Regulation, and Member State practices in synergies (showcasing Germany and Portugal). Among the main outcomes of the meeting were the need to streamline the SoE award process, promote communication about successfully implemented transfers, and find ways to address barriers restricting the use of ERDF in financing European Partnerships and remove bottlenecks in their implementation.

The third RIMA meeting took place in September 2024, focusing on the future of R&I and Cohesion policies. It featured two case studies on fund transfers (Malta and Lithuania) and included discussions on RIMA's activities report. The report<sup>166</sup> examines the challenges of fostering synergies between Horizon Europe and ESIF, offering recommendations for future improvements. It further identifies four key challenges in implementing synergies:

- Aligning programmes and regulations at EU, national and regional levels
- Improving access to information on instruments and opportunities
- Enhancing training and capacity-building to leverage synergies effectively
- Strengthening coordination among stakeholders, including programming bodies and beneficiaries

The insights from RIMA activities provide a strong foundation for policy development, with targeted recommendations to guide future actions.

#### **16.2.2. Design and implementation of tailor-made support to individual Member States**

The main tool to support individual Member States in implementing synergies is the guidance outlined in the 2022 **Commission's Notice on Synergies between Horizon Europe and ERDF programmes** (2022/C 421/03).

Member States also have access to various other instruments that support and enable synergies implementation. Some examples are listed below:

- Through the **Pathways to Synergies programme instrument**, 16 proposals were selected for funding in 2023 with the signing of grant agreements completed in May 2024.<sup>167</sup> A total of 11 selected projects focus on upstream synergies between different European funding programmes, including human resource development and internationalisation, while five projects work on downstream synergies between European funding opportunities, with a focus on advancement and commercialisation of research results.

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<sup>166</sup> RIMA, [Report on European Synergies of Funds](#), 2025.

<sup>167</sup> European Commission: [Pathways to Synergies: new projects bridging the gap between local and EU funding](#), 2024.

- The call under **Excellence Hubs** launched in September 2023 resulted in the selection of 12 proposals in November 2024, while the **Teaming for Excellence** initiative selected 13 projects for funding in March 2024. The **ERA Chairs** call complemented this effort with 38 projects obtaining funding in 2024<sup>168</sup> and an overall investment of EUR 315 billion under the three actions during 2024. The **Dissemination and Exploitation Support Facility** action launched a call in April 2023 with 13 projects funded.
- The **Hop-On Facility** deadline was extended by a year until September 2024 with 109 proposals submitted. The [Twinning](#) action allowed for the selection and funding of 96 proposals in 2024.

In terms of assessing how well synergies have been implemented, the **Network of Marie Skłodowska-Curie Actions National Contact Point (MSCA-NET)** carried out a study into the synergies between its work and various EU programmes and instruments on R&I. The study covers the MSCA SoE scheme<sup>169</sup> funded by ESIF and the European Research and Development Fund projects funded through the COFUND programme and focused on research aligned with the Research and Innovation Strategy for Smart Specialisation (RIS3).

### 16.2.3. Policy approach on the potential of COST to improve access to excellence across the EU

COST Actions focus, inter alia, on promoting excellence and inclusiveness through:

- Ensuring equal opportunities and gender-friendly career advancement
- Empowering young talents at the beginning of their careers to acquire the necessary recognition and leadership
- Increasing brain circulation between peripheral regions to research-intensive territories

On the latter, COST developed a [list of Inclusiveness Target Countries](#) (ITCs) which includes less research-intensive COST Members. Currently, half of the COST budget is invested in activities across these objectives with a focus on engaging researchers in ITCs.

## 16.3. Assessment of the progress towards the ERA Action 16 objectives over the 2022-2024 period

### 16.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 16.

**Table 16 Assessment of the progress towards Action 16 Specific Objectives: initiatives and outcome**

Specific objectives <sup>170</sup>	Main initiatives implemented	Main outcomes
Establish a dedicated work	<ul style="list-style-type: none"> <li>• The ERA Forum sub-group 'Access</li> </ul>	<ul style="list-style-type: none"> <li>• A structured dialogue ('RIMA expert group') between the European Commission and R&amp;I-</li> </ul>

<sup>168</sup> European Commission: [Boosting research and innovation in Widening countries with Teaming, Excellence Hubs, and ERA Chair actions](#), 2024.

<sup>169</sup> MSCA-NET, [Policy Brief: Synergies](#), 2023.

<sup>170</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Specific objectives <sup>170</sup>	Main initiatives implemented	Main outcomes
stream in the ERA Forum to improve access to excellence	to excellence' – 'R&I and Cohesion Managing Authorities' Network launched in June 2023	<p>related bodies in Member States and managing authorities of Cohesion policy programmes on was set up to address practical experiences linked to the design and implementation of R&amp;I policies at national and regional levels that help to promote synergies and boost scientific excellence and innovation.</p> <ul style="list-style-type: none"> <li>• Three RIMA meetings conducted from June 2024 until December 2024 covering policy updates and exchange of experiences on synergy implementation at national level, organisation of synergy governance within Member States, State aid-related issues, Regional Innovation Valleys, Mutual Learning Workshop on synergies, Smart Specialisation (S3) Community of Practice, new combined Framework Programme-Cohesion Fund database to streamline matchmaking between projects and beneficiaries</li> <li>• Mapping of Member States' synergy implementation status, as set out in a dedicated Notice on Synergies between Horizon Europe and ERDF programmes, through a survey of RIMA members</li> <li>• RIMA report covering challenges of synergies between Horizon Europe and ESIF, including good practices and recommendations on moving forward</li> </ul>
Design and implementation of tailor-made support to individual Member States	<ul style="list-style-type: none"> <li>• The guidelines on synergies published by the Commission in the Commission Notice on Synergies between Horizon Europe and ERDF programmes 2022/C 421/03</li> <li>• Other instruments under Horizon WIDENING sub-pro-gramme supporting synergy imple-mentation</li> </ul>	<ul style="list-style-type: none"> <li>• Malta transferred EUR 5 million from its ERDF allocation to Horizon Europe (six ERA fellowships and one MSCA global fellowship project with Maltese beneficiaries funded)</li> <li>• Lithuania transferred EUR 18.5 million from ERDF to Horizon Europe to support projects under Pillars 1, 3, and 4, incentivising participation in HE and strengthening its R&amp;I system capabilities</li> <li>• Pathways to Synergies yields 16 funded proposals signed in May 2024</li> <li>• The call under Excellence Hubs resulted in 12 successful proposals signed in November 2024</li> <li>• The Teaming for Excellence initiative selected 13 projects for funding in March 2024</li> <li>• The ERA Chairs call gathered 38 funded projects in 2024 with overall investments of EUR 315 billion</li> <li>• The Dissemination and Exploitation Support Facility launched a call in April 2023 with 13 projects funded</li> <li>• The Hop-On Facility deadline was extended until September 2024 with 109 proposals submitted</li> <li>• The Twinning action led to 96 funded proposals in 2024</li> </ul>
Policy approach on the potential of COST to improve access to excellence across the EU	<ul style="list-style-type: none"> <li>• Current COST policy on excellence and inclusiveness includes objectives related to support to less research-intensive members</li> </ul>	<ul style="list-style-type: none"> <li>• No additional study was conducted to explore how COST can further improve access to excellence across the EU</li> </ul>

### 16.3.2. Challenges and opportunities towards future ERA initiatives

Despite available guidelines on synergy implementation, the RIMA report highlights the need to improve the user-friendliness of guidelines and disseminate them more broadly through the managing authorities. The report also highlights the need to develop better mechanisms for exploiting synergies, such as 1) training and capacity-building for the managing authorities, 2) improved governance mechanisms, 3) better communication on the benefits and administration process, 4) streamlining of the implementation rules, 5) provision of legal clarity, and 6) inclusion of synergies in long-term planning – i.e., how Cohesion policy programmes and R&I programmes are being drafted.

Implementation of the dedicated recommendations of the RIMA report could address the existing bottlenecks, enhance coordination between Cohesion policy and Horizon Europe funding, and further promote synergies across the whole R&I ecosystem.

## 17. Action 17: Enhance public research institutions' strategic capacity

### Key findings Action 17: Enhance public research institutions' strategic capacity

During the monitoring period, ERA Action 17, especially implemented through the Horizon Europe projects RM ROADMAP and CARDEA, has advanced the promotion of excellent research management across Europe:

- Insights into the EU-level **research management landscape** and **current challenges** have been identified.
- The umbrella term '**Research Manager and Administrator**' has been picked and adopted in national and organisational contexts.
- A comprehensive **Career and Competence Framework** outlining career paths and skills for research managers has been developed.
- A **network of 116 Research Managers' Ambassadors** has been established, fostering collaboration across 40 EU and Associated Countries.
- A **mutual learning platform** and several training opportunities have been launched.

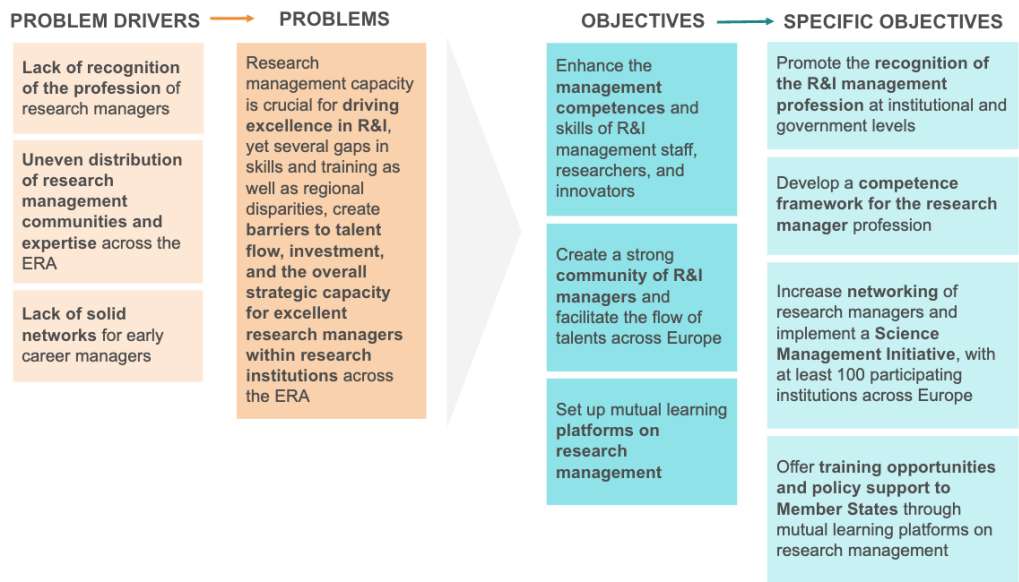
These efforts have strengthened the European research ecosystem and advanced the **recognition and development of Research Management as a profession**. An awareness campaign promoting the profession and supporting capacity-building in less R&I-intensive regions is being prepared. In the longer term, reflecting on the sustainability of these achievements beyond the duration of project-based initiatives and strengthening capacity-building towards Widening Countries is considered necessary.

17.1. Objectives and scope of ERA Action 17

**Purpose of the action:**<sup>171</sup>

ERA Action 17 aims to pave the way towards greater **recognition and professionalisation of the Research Management profession**. The action supports the development of a European network of R&I managers, explores certification and training programmes, and provides policy support to Member States via mutual learning platforms. These efforts will strengthen research management, ensure excellence across the ERA, and facilitate the flow of talent and investments in research.

Figure 16 Identified problems and defined objectives of ERA Action 17



Source: Technopolis Group, based on European Commission's European Research Area policy agenda – Overview of actions for the period 2022-2024

17.2. Status of ERA Action 17 implementation at EU level

**Summary of the main initiatives during the first phase (2022 to mid-2023):**<sup>172</sup>

Two Coordination and Support Actions were initiated in 2022 under the Horizon Europe call 'Towards a Europe-wide training and networking scheme for research managers':<sup>173</sup>

- **CARDEA**, coordinated by the University College Cork, aims to professionalise research management as a valued career choice within the European Research Area through the

<sup>171</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>172</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

<sup>173</sup> European Commission: [Towards a Europe-wide training and networking scheme for research managers](#).

development of a careers and competences framework for research managers at European level.

- **RM ROADMAP**, led by the European Association of Research Managers and Administrators (EARMA), seeks to connect existing European networks through an innovative community platform for research management. The project started in September 2022, the call to select the 40 Ambassadors was completed in March 2023, and a Research Management Helix was launched in April 2023.

Additional initiatives funded under Horizon Europe have also been set-up, including the **EOSC Strategic Research and Innovation Agenda**, which sets a vision to establish an operational 'Web of FAIR data and services' for science; but also the **RITrainPlus** project focusing on developing the skills and competences of Research Infrastructure managers. Horizon Europe's **Responsible Research and Innovation (RRI)** programme also promotes the integration of RRI principles into research management. Building on the foRMAtion project, the [foRMAtion Alliance for the Educational Module](#) focused on developing essential skills and competencies needed in the research management profession, aligning with the goals of Action 17.

From **mid-2023 to late-2024**, the implementation of ERA Action 17 made significant strides through various key initiatives aimed at strengthening research management across Europe. These activities focus on increasing the recognition of the profession and developing and improving access to training activities for research managers. Those activities also aim at strengthening capacity-building, especially in less R&I-intensive regions of Europe. Most of these activities were funded through Horizon Europe.

### **17.2.1. Promoting the recognition of the research management profession**

#### **Co-creating a common definition of 'Research Manager and Administrator'**

Under the RM ROADMAP project, a survey targeting the research community has been launched in November 2023 and closed in May 2024 with the aim to establish a common umbrella term to align the definition of the profession. As a result of the survey<sup>174</sup>, which had a sample of 2,212 contributions from the R&I community, 'Research Manager and Administrator' was selected as the preferred term.

#### **Identifying the main challenges related to the research managers' profession**

As another result of the first RM ROADMAP survey, the top challenges identified in research management were described as an "unclear career framework and job architecture" (73% of respondents) and "low professional recognition" (67% of respondents). Other major challenges identified by more than 50% of respondents include a "lack of institutional policies" and a "lack of professional identity", as well as a "lack of opportunities for professional development".

A separate survey was implemented in 2023 by the CARDEA project, revealing similar challenges for research managers in their work environments.<sup>175</sup> That extensive survey of 97 questions received responses from 855 research managers. It explored the demographics, employment conditions, skills, education, motivation, satisfaction, professional networks, and mobility of research managers to understand the professional contexts, challenges, and opportunities they face within and beyond the EU.

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<sup>174</sup> The results of the survey are available in the [RM ROADMAP project website](#).

<sup>175</sup> The results of the CARDEA survey are available on the [project's website](#).

## **Developing a first set of policy recommendations to increase the recognition of the research managers' profession**

A first set of policy implications and recommendations<sup>176</sup> for targeted actions at national and European levels was developed under the RM ROADMAP project (August 2023), in line with the ERA Action 17 objectives, to increase the recognition of the profession and the range and accessibility of research managers' training activities. These recommendations focus on four key areas: 1) Upskilling, by expanding training opportunities for research managers; 2) Recognition, to establish research management as a vital profession within the R&I ecosystem; 3) Networking, through mapping and promoting opportunities with adequate funding; and 4) Capacity-building, by creating a flexible European-level value proposition adaptable to national and regional contexts.

### **17.2.2. Developing a competence framework for the research manager profession**

Developed by the CARDEA and RM ROADMAP projects, the [European Competence Framework for Research Managers](#) (RM COMP) is a structured set of desirable skills and competencies of research managers at different career stages across various sectors. The project seeks to validate career assessment methodologies; it defines four profiles for research managers, from entry-level (RM 1) to senior leadership (RM 4), across eight competence areas, including technical proficiency and relationship management. It outlines 42 competencies with 672 learning outcomes, ensuring flexibility for career progression without qualification barriers.

### **17.2.3. Increasing networking of research managers and implement a Science Management Initiative, with at least 100 participating institutions across Europe**

By bringing together stakeholders from 40 European countries, [RM ROADMAP](#) aims to build a more inclusive and interconnected research management community. The project fosters collaboration and the sharing of best practices through a co-creation process involving 116 [research managers' ambassadors](#) recruited from 40 countries in Europe.

The RM dashboard also lists existing research managers' networks covering their geographical scope, objectives, areas covered and relevant activities. It also lists 43 networking opportunities.

### **17.2.4. Raising awareness and offering training opportunities and mutual learning platforms on research management**

#### **European Commission awareness-raising campaign**

In June 2024, the European Commission collected 75 success stories from research managers through a survey to highlight their critical contributions to scientific advancements and innovation. These stories will be used to create dissemination materials for an awareness campaign to promote and support the research management profession across the European research ecosystem.

#### **Successful cases in research management linked to ERA Action 17**

- **Overcoming fragmentation at Ca' Foscari University of Venice** (Italy): A cross-functional working group of 20 staff members, officially appointed by decree, was

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<sup>176</sup> RM Roadmap, [European Policy Brief - A Roadmap for Research Management \(RM\) to strengthen the European Research Area \(ERA\)](#), 2023.



established to enhance research management by sharing knowledge, experiences, and best practices within the university.

- **Joining forces for Research Infrastructure staff recognition:** Heads of RIs from EU-LIFE's 15 member institutes collaborated to share best practices, enhance capacity-sharing, and raise visibility for core facilities and small- to medium-scale research infrastructures.

Source: Example of success stories collected through the Commission survey (2024)

## Mutual learning platforms and training opportunities

This [RM professional opportunity development dashboard](#) has been developed as a collaborative endeavour between the CARDEA and RM ROADMAP projects, and serves as a comprehensive hub for RM professionals seeking professional development opportunities. It offers easy access to data collected under the RM ROADMAP project, showcasing a wide range of opportunities across Europe, including training, mobility, networking, and funding options tailored to research managers.

The [CARDEA Academy](#), an integral part of the **CARDEA online hub**, supports research managers through tailored training aligned with the CARDEA Research Managers Competency Framework:

- Launching a micro-credential programme in November 2024, the CARDEA Academy focuses on essential skills for early-career professionals (RM1). Special emphasis is placed on engaging research managers from Widening Countries and leveraging networks like EURAXESS to broaden accessibility.
- The Academy also offers a diverse range of professional development opportunities, including workshops, webinars, and virtual conferences, to convey – *inter alia* – project management and leadership skills as well as addressing career trends, best practices, and policy updates.
- Additionally, the CARDEA Hub provides open-access online resources, including recorded sessions on project management, leadership, data management, and career development.

Under the [RITrainPlus](#) seven courses on research management were organised until the end of 2024. This Management Training Programme focuses on effective research Infrastructure management and public engagement. The continuous professional development courses provide insights into best practices, facilitate discussions on ethical, legal, and socio-economic challenges, and encourage innovative solutions.

## 17.3. Assessment of the progress towards the ERA Action 17 objectives over the 2022-2024 period

### 17.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome

The initiatives implemented in the scope of the ERA Action 17 have enabled some progress towards the promotion of excellent research management across Europe. The RM ROADMAP and CARDEA large-scale surveys have enabled a better understanding of the landscape across Europe, including the challenges faced by research managers. This has been complemented by the development of a comprehensive Competence Framework outlining career paths and skills for research managers. Networking initiatives have brought together stakeholders from 40 EU and Associated Countries, fostering collaboration and inclusivity. Training opportunities and the development of a mutual learning platform through the CARDEA Academy and RITrainPlus, enhanced professional development. Moreover, the

selection of the umbrella term ‘Research Manager and Administrator’ by the stakeholders’ community fosters improved recognition of the profession.

The table below summarises the main initiatives and outcomes delivering on the specific objectives of ERA Action 17.

**Table 17 Assessment of the progress towards Action 17 Specific Objectives: initiatives and outcome**

Specific objectives <sup>177</sup>	Main initiatives implemented	Main outcomes
Promote the recognition of the R&I management profession at institutional and government levels	<ul style="list-style-type: none"> <li>Two projects under the Horizon Europe call ‘Towards a Europe-wide training and networking scheme for research managers’:               <ul style="list-style-type: none"> <li>- RM ROADMAP</li> <li>- CARDEA</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Identification of the main challenges related to the research managers’ profession</li> <li>Selection of a common term to define the profession of ‘research managers’</li> <li>Improved understanding of the research management landscape in Europe</li> <li>First set of policy recommendations to increase the recognition of the research managers’ profession</li> </ul>
Develop a competence framework for the research manager profession	<ul style="list-style-type: none"> <li>RM ROADMAP</li> <li>CARDEA</li> </ul>	<ul style="list-style-type: none"> <li>Development of a European Career and Competence Framework for research managers</li> </ul>
Increase networking of research managers and implement a Science Management Initiative, with at least 100 participating institutions across Europe	<ul style="list-style-type: none"> <li>RM ROADMAP</li> <li>CARDEA</li> </ul>	<ul style="list-style-type: none"> <li>Establishment of a network of 116 RM Ambassadors</li> <li>Networking events and opportunities for stakeholders from 40 European countries</li> </ul>
Offer training opportunities and policy support to Member States through mutual learning platforms on research management	<ul style="list-style-type: none"> <li>RM ROADMAP</li> <li>CARDEA</li> <li>EIT’s HEI Initiative</li> <li>RITrainPlus</li> <li>BESTPRAC</li> </ul>	<ul style="list-style-type: none"> <li>Development of platforms and tools to support professional development and networking for research managers</li> <li>Implementation of tailored training programmes, including microcredentials and workshops, to enhance skills and competencies of research managers</li> <li>Awareness campaigns and dissemination of best practices to promote the research management profession</li> </ul>

Source: Technopolis Group, based on data collected through desk research and interviews

<sup>177</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

Considerable progress has been made particularly through the CARDEA and RM ROADMAP projects. During this reporting period, key areas of collaboration include the development of an online dashboard and the creation of a comprehensive training catalogue<sup>178</sup>.

The initiatives in place, leveraged by existing networks such as EARMA (European Association of Research Managers and Administrators), leading the RM ROADMAP project, enabled a considerable outreach towards the RM stakeholder community.

The surveys launched by RM ROADMAP and CARDEA, as well as the one implemented in 2024 by the European Commission to collect best practices, obtained a considerable response rate and coverage, enabling to provide a comprehensive overview of the current research manager landscape across Europe.

An awareness-raising campaign has been planned to promote and improve the recognition of the profession. It also aims to contribute to capacity building, particularly in less R&I-intensive regions, and advancing the European research ecosystem.

### **17.3.2. Challenges and opportunities towards future ERA initiatives**

In order to promote best practices related to research management awareness raising campaigns will continue to be core of this initiative. The activities of the two Horizon Europe projects RM ROADMAP and CARDEA will carry on until mid-2025 and mid-2026, respectively, with both contributing to a more comprehensive set of policy recommendations based on the learnings.

A new Horizon Europe project, called RM Framework, started its work in February 2025. The long-term sustainability and possible expansion of the RM ROADMAP's ambassador's network, covering 40 EU and Associated Countries, could be further explored before the end of the project. The uptake of the Competence Framework could also be monitored, and feedback could be collected to keep refining it and ensure its relevance over the longer term.

Beyond the continuation of the current activities, additional support would be needed to further promote and enhance recognition of the research management profession in Widening Countries, including training and networking, to expand capacity-building opportunities.

## **Assessment of the ERA Actions under ERA Priority 3 – Amplifying access to R&I excellence across the Union**

ERA Priority 3 focuses on amplifying access to R&I excellence across the Union, addressing disparities and ensuring that all Member States can both contribute to and benefit from advances.

Widening Countries have shown some convergence with the EU-27 in R&D expenditure as a percentage of GDP, particularly during the 2017-2020 period, but progress has slowed. The [ERA Scoreboard 2024](#) highlights notable negative growth rates in R&D investment since 2017 in Hungary, Cyprus, Malta, and Lithuania, while Ireland and Croatia demonstrate positive outlier performance. Sustained and strategic investments are required to prevent further divergence and promote balanced growth.

This priority's actions have delivered measurable progress, though disparities persist.

**ERA Action 15 aimed to build robust regional and national R&I ecosystems to improve competitiveness and foster cross-sectoral collaboration, leveraging synergies to drive**

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<sup>178</sup> European Commission, [CARDEA - Career Acknowledgement for Research \(Managers\) Delivering for the European Area](#).

**excellence.** While this action has not been implemented as initially designed due to limited Member State commitments, related initiatives have advanced its objectives. For example, under the ‘widening’ component of Horizon Europe, **25 Excellence Hubs** have been created, strengthening regional innovation ecosystems in Widening Countries by creating linkages between academia, research organisations, businesses, local governments, and civil society. The **Regional Innovation Valleys** initiative, involving 148 regions, has aimed to reduce fragmentation by fostering collaboration aligned with smart specialisations. A **pilot of the ERA Hubs concept** was launched in 2022, testing multi-level governance frameworks to address societal challenges.

Addressing these disparities will require targeted support to build networks in less connected regions. Promoting greater openness in R&I cooperation network across disciplines, sectors, and geographies can further enhance cross-border and cross-sectoral collaboration.

**ERA Action 16 has supported the objective to improve access to excellence by fostering synergies between Horizon Europe and ESIF.** The establishment of RIMA in 2023 facilitated enhanced coordination between national and regional authorities, and further seeks to support the streamlining of synergies. With investments exceeding EUR 1 billion, **Horizon Europe Widening Actions** have been pivotal in supporting the centres of excellence through **Teaming initiatives**, establishing ERA Chairs, and strengthening regional innovation ecosystems via **Excellence Hubs**. By 2024, the Widening Countries had received 14% of the Horizon Europe budget compared to 8% under Horizon 2020. The 2024 Scoreboard highlights significant progress, with some Widening Countries closing the **R&D intensity gap**, while some persistent disparities remain. The **Pathways to Synergies** programme enabled countries like Lithuania to transfer EUR 18.5 million from the ERDF to Horizon Europe, boosting participation and strengthening national R&I capabilities. Malta and Spain adopted similar models. **COST** remained a vital tool, yet further exploration of COST’s potential to expand access to excellence is needed.

The interim evaluations of Horizon Europe also suggests that the operationalisation of synergies across different programmes should be embedded into the programme design, including coordination for long-term planning, aligned processes and co-creation mechanisms. Expanding Seal of Excellence (SoE) initiatives and facilitating their uptake across all Widening Countries could unlock additional potential. Data from the ERA Scoreboard indicates that while Cyprus leads in SoE project uptake, other countries lag, reinforcing the need for broader engagement. Lastly, improving the accessibility and dissemination of information on available support mechanisms at EU, national and regional levels through streamlined and efficient structures is also critical.

Finally, **ERA Action 17 has sought to strengthen research management to build institutional capacity** through advancing the professionalisation of research management in Europe. The adoption of the umbrella term **Research Manager and Administrator** has enhanced the recognition of the profession and created a foundation for capacity-building. Through the CARDEA and RM ROADMAP projects, the development of a comprehensive **Competence Framework** outlining career paths for research managers has been a key milestone. A **network of 116 Research Managers’ Ambassadors** across 40 EU and Associated Countries has fostered collaboration and shared best practices. **Training initiatives** such as the CARDEA Academy have offered micro-credentials and tailored opportunities, particularly for stakeholders in ‘widening’ regions. However, the ERA Scoreboard 2024 highlights disparities in collaboration networks among RPOs in Widening Countries where R&I management capacities remain underdeveloped.

Building on the CARDEA and RM ROADMAP projects, sustained support for ambassador networks and training platforms can deepen the impact. Efforts should also focus on embedding the RM COMP framework into institutional practices across all regions.

## ERA PRIORITY 4: ADVANCING CONCERTED RESEARCH AND INNOVATION INVESTMENTS AND REFORMS

This chapter summarises the key findings on the implementation of the ERA Action under ERA Priority 4.

### 18. Action 18: Facilitate a national process of ERA policy vehicle preparation for identification of running or planned measures contributing to the implementation of the ERA

ERA Action 18 has not been implemented as a stand-alone action, but has been embedded into ERA Actions 16 and 19.

### 19. Action 19: Establish an ERA monitoring system

#### Key findings Action 19: Establish an ERA monitoring system

During the review period, the Action's priorities and objectives have advanced, ensuring a comprehensive assessment framework for EU and national-level policy-making:

- Published in November 2023, the first **EU-level Report**, provides an accurate state of play of the implementation of the ERA Policy Agenda including progress made towards the ERA objectives (as set out in the Pact for R&I) at EU-level during the period 2022 to mid-2023.
- Launched in January 2024, the **ERA Policy Platform** serves as a repository of ERA policies, activities, and achievements, featuring public and secure areas for data exchange and reporting. It includes dedicated country and EU reports tracking progress on ERA actions.
- Published in March 2024, the **ERA Scoreboard and Dashboard 2023** provide EU-level and national assessments and detailed data on ERA priorities and national progress, offering insights into R&D trends and investments.
- Published in April 2024, the **ERA Country Reports 2023** document Member States' and select Associated Countries' progress in implementing the ERA Policy Agenda.

While these achievements mark progress, challenges remain. Limited data availability, gaps in indicator alignment with ERA priorities, and incomplete metrics constrain the effectiveness of the system. Future efforts should refine the indicator framework, enhance data quality, and promote the ERA's achievements.

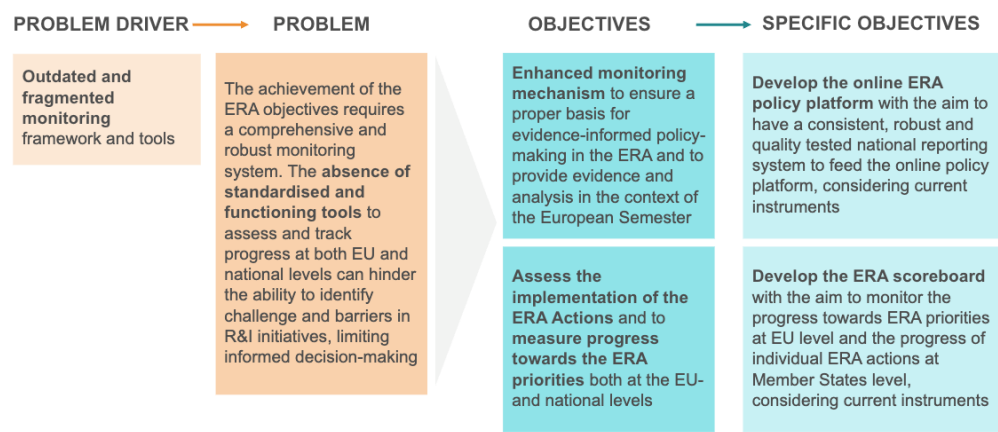
19.1.Objectives and scope of ERA Action 19

Purpose of the action:<sup>179</sup>

Action 19, developed following the Council’s conclusions on the future governance of the ERA, aims to design a robust **monitoring mechanism to assess progress towards ERA objectives** and inform policy-making at both the EU and national levels. The goal of the framework is to align research and innovation initiatives with the priorities set out in the Pact for Research and Innovation.

This action focuses on developing a set of tools to facilitate exchanges among actors, track the overall progress of implemented initiatives, and identify challenges, barriers, and areas for improvement.

Figure 17 Identified problems and defined objectives of ERA Action 19



Source: Technopolis Group, based on European Commission’s European Research Area policy agenda – Overview of actions for the period 2022-2024

19.2.Status of ERA Action 19 implementation at EU level

Summary of the main initiatives during the first phase (2022 to mid-2023):<sup>180</sup>

The ERA Monitoring Mechanism was established in the first phase. The European Commission organised the development of all required monitoring products, including the online ERA Policy Platform. Thus, the platform includes – among other information and features – both ERA Scoreboard and Dashboard, as well as the EU-level Report and individual ERA Country Reports for Member States and Associated Countries.

<sup>179</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>180</sup> European Commission: Directorate-General for Research and Innovation, Andriescu, M. and Collier, N. (eds.), [ERA monitoring 2023 – 18-month review of the implementation of the ERA policy agenda \('EU-level report'\)](#), 2023.

### **19.2.1. Develop the online ERA policy platform with the aim to underpin a consistent, robust and quality tested national reporting system**

The [ERA Policy Platform](#) was launched in January 2024<sup>181</sup>, serving primarily as a repository of current ERA policies, activities, and achievements. The platform has a public front-end and a closed (login protected) area, serving as a space for storing non-public information and data. This information is also used to feed the reporting requirements.

### **19.2.2. Develop the ERA Scoreboard and ERA Dashboard with the aim to monitor the progress towards ERA priorities at EU and national levels**

The ERA Scoreboard 2023 contains an EU-level assessment on the progress made towards achieving the ERA priorities through 18 established R&I indicators, while the ERA Dashboard 2023 complements the Scoreboard by providing more detailed data and information on progress towards ERA objectives at the national level through 55 established R&I indicators.

The [ERA Scoreboard](#) and [ERA Dashboard](#) 2023 were published in March 2024.

### **19.2.3. Development of the EU-level Report and the ERA Country Reports to regularly assess the state-of-implementation of the ERA Policy Agenda**

The first [ERA EU-level Report 2023](#) provided an 18-month review of the progress towards the four ERA priority areas at EU-level. It monitored the period January 2022 to mid-2023. It is conceived as benchmark report for further monitoring at EU-level.

The ERA EU-level Report is complemented by the annual [ERA Country Reports](#). Dedicated reports have been produced for all EU Member States and for several countries associated to Horizon Europe.

## **19.3. Assessment of the progress towards the ERA Action 19 objectives over the 2022-2024 period**

### **19.3.1. Assessment of progress towards Specific Objectives: main initiatives and outcome**

The continuous developments of the various monitoring tools reflect a commitment to making these tools dynamic and comprehensive for assessing the progress of ERA priorities and supporting the research community across Europe.

While the indicator framework benefits from being slightly refined, the overall attempt to reuse data from other sources (such as EUROSTAT, the OECD, the European Innovation Scoreboard or EOSC) provides for coherence and efficiency.

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<sup>181</sup> European Commission: [Launch of the European Research Area Policy Platform: a new gateway for the ERA](#), 2024.



**Table 18 Assessment of the progress towards Action 19 Specific Objectives: initiatives and outcomes**

Specific objectives <sup>182</sup>	Main initiatives implemented	Main outcomes
Develop the <b>online ERA Policy Platform</b> with the aim to have a consistent, robust and quality tested national reporting system to feed the online policy platform, considering current instruments	<ul style="list-style-type: none"> <li>• Development of the ERA Policy Platform</li> <li>• ERA Country Reports</li> <li>• EU-level Report</li> </ul>	<ul style="list-style-type: none"> <li>• Tools to track progress and assess impacts of ERA actions</li> <li>• Information basis for evidence-based policy-making</li> </ul>
Develop the <b>ERA Scoreboard and Dashboard</b> with the aim to monitor the progress towards ERA priorities at EU level and at Member States level, considering current instruments	<ul style="list-style-type: none"> <li>• ERA Scoreboard</li> <li>• ERA Dashboard</li> </ul>	<ul style="list-style-type: none"> <li>• Up-to-date monitoring of EU countries alignment with ERA objectives</li> <li>• Tracking of R&amp;D trends, investments, areas of improvement</li> </ul>

Source: Technopolis Group, based on data collected through desk research

### 19.3.2. Challenges and opportunities towards future ERA initiatives

The challenges that were encountered during the 2023 ERA monitoring cycle mainly related to the indicator framework for the ERA Scoreboard and Dashboard.

While for a few indicators no data was available, for several indicators only a few data points were available. Moreover, a few indicators did not fully reflect the objectives of ERA sub-priorities. Such data limitations could have a negative impact on the reliability of the ERA monitoring instruments.

For the 2024 ERA monitoring cycle a scrutiny process within the ERA Forum has been followed to improve the indicator framework. This process resulted in a refinement of the framework using additional indicators with more reliable data.<sup>183</sup>

However, it remains important to continue working towards higher data availability and quality by collaborating with key data providers, and continuously assessing and updating the indicator framework to ensure better alignment with ERA sub-priorities.

## 20. Action 20: Support to the prioritisation, coordination and direction of R&I investments and reforms

This action was not implemented.

<sup>182</sup> European Commission: [European Research Area policy agenda – Overview of actions for the period 2022-2024](#), 2022.

<sup>183</sup> See European Commission, [Report on methods to improve the Scoreboard and the Dashboard](#), 2024

## Assessment of the ERA Actions under ERA Priority 4 – Advancing concerted R&I investments and reforms

The **ERA Policy Platform**, **Scoreboard**, and **Dashboard** as well as the **ERA Country Reports** and the first **EU-level Report** have all been central in monitoring and assessing developments across the ERA Policy Agenda. The ERA Scoreboard 2023, which analysed 18 indicators, and the ERA Dashboard, covering 55 indicators, highlight substantial progress in areas such as R&D investment, Open Science, gender equality, global engagement, and synergies with industrial and sectorial policies.

The ERA Scoreboard 2023 illustrates a **steady increase in Gross Domestic Expenditure on R&D (GERD)** for the EU-27, which rose from 1.97% of GDP in 2010 to 2.27% in 2022. This growth indicates progress, **albeit below the 3% target**. Furthermore, a narrowing of the interquartile range for GERD values (from 1.39% in 2010 to 1.15% in 2022) shows **reduced disparities across Member States**, signalling improved cohesion and a more balanced ERA. On the other hand, while the number of researchers per million inhabitants (FTE) has steadily increased across the EU-27, rising from 3,055 in 2010 to 4,681 in 2022, the spread of the indicator between countries has increased over time, highlighting diverging performance among Member States.

To further advance on the objectives of ERA Priority 4, the European Commission has worked closely with Member States on targeted actions, including the **Horizon Policy Support Facility**. Mutual Learning Exercises have helped to foster collaboration among EU Member States and Associated Countries on pressing R&I challenges linked to ERA priorities. Through project-based exchanges of best practices and lessons learned, these exercises address topics ranging from industrial decarbonisation and AI in science to public engagement in R&I, and bridging the gap between science and policy-making.

To maximise impact, ensure coherence and facilitate coordinated actions and multi-level synergies, a notable development is the introduction of **Enhanced Dialogues** initiated in 2022 between the European Commission and Member States. By engaging 12 Member States, this approach has facilitated better alignment of national and EU R&I policies and improved coordination across departments managing R&I. It fosters a more integrated and coherent strategy to address shared challenges, pool resources effectively, and create synergies between various national and European frameworks. This initiative underpins the ERA's goal of creating a unified and robust internal market for knowledge.

Despite these advances, key challenges remain that demand continued action to fully realise ERA Priority 4 objectives. The ERA Scoreboards 2023 and 2024 as well as the ERA Dashboards 2023 and 2024 reveal areas of limited growth, including challenge-based ERA actions, scientific leadership, and increased R&I investments in underperforming regions. In 2022, **R&D intensity in the EU stood at 2.3% of GDP, below the 3% target** and behind global competitors such as the US, Japan, and South Korea. Additionally, only five Member States reached the 3% R&D investment target, reflecting significant disparities across the EU.

- **Driving greater public- and private-sector engagement and cross-border collaboration:** Private-sector investment in R&D remains insufficient, hindered by Europe's medium-technology trap and regulatory barriers that restrict innovation. **Public R&D investment, while essential, remains fragmented**, with 90% of spending focused on national priorities and only 10% allocated to cross-border collaborations through Horizon Europe. The absence of progress toward directing 5% of national R&D budgets to joint cross-border programmes further underscores the need for enhanced cooperation.
- **Leveraging innovation procurement for accelerated scaling-up:** Expenditure on total innovation procurement (R&D and innovative solutions) as a percentage of GDP

highlights further limitations. For the EU-27, this expenditure averages 1.58%, with significant variation across Member States. While Finland and Sweden lead in innovation procurement, Cyprus and Romania lag considerably. **Expenditure on R&D procurement is particularly low**, averaging only 0.06% of GDP across the EU-27, pointing to an underutilisation of public procurement as a driver for innovation. The development of an **innovation procurement programme**, as recommended in the Heitor Report, could stimulate faster scaling-up of innovations by industry, leveraging demand to drive transformative progress in R&I across the EU.

- **Advancing structural reforms and supportive regulations:** The pursuit of structural reforms and supportive regulations are required to address institutional fragmentation, improve the attractiveness of research careers, and streamline innovation processes. Regulatory hurdles, such as complex permitting procedures, and limited incentives for knowledge transfer between academia and industry should also be addressed. Building on the efforts made so far, the Heitor Report also suggests that fostering an attractive and inclusive R&D and innovation (RD&I) ecosystem will require Member States to develop **ambitious national plans and investments in these areas**. This could be further enhanced by leveraging tools like the European Semester process and Structural Funds, increased co-funding of initiatives such as research and technology infrastructures and Seal of Excellence projects, alongside targeted support for Member States with lower success rates in FP initiatives to capitalise on excellence across the Union.
- **Enhancing the monitoring framework for better alignment:** The ERA monitoring framework also requires further refinement. The 2023 monitoring cycle highlighted persistent data gaps, limited growth metrics, and incomplete alignment of indicators with ERA priorities. Enhanced collaboration with data providers and updates to the indicator framework are essential for better monitoring and achieving ERA objectives.<sup>184</sup>
- **Scaling the whole-of-government approach for greater impact:** Looking ahead, greater policy coordination at both national and EU levels as well as between them remains critical to align priorities, pool investments, and foster cross-border collaborations. The **whole-of-government approach** could be expanded to ensure seamless integration of R&I policies across Member States and with EU priorities. By putting R&I at the heart of the economy, Europe can boost competitiveness and lead the clean and digital economy transition. Strengthening European market integration through the 'fifth freedom', entailing the free movement of research, innovation, knowledge, and education, is seen as key to enhancing the continent's attractiveness for talent and RDI investments.

Thus, sustained R&I investments, alongside targeted reforms to promote inclusivity and address regional disparities, will strengthen the ERA's cohesion and effectiveness. The **25th anniversary of the ERA in 2025** offers an opportunity to showcase its achievements, promote its long-term vision, and mobilise broader stakeholder support for its future agenda. A strong RD&I framework across the entire research, technology, and innovation spectrum remains essential for establishing a robust 'Research and Innovation Union'.

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<sup>184</sup> Most of the issues with the 2023 indicator framework were addressed in the [ERA Scoreboard 2024](#) and the [ERA Dashboard 2024](#).

## CONCLUSIONS

The implementation of the ERA Policy Agenda has made significant progress, thus significantly contributing to achieving the ERA's objectives across the four priorities. These efforts have positioned the ERA to better address critical global challenges, strengthen Europe's knowledge economy, and advance its societal and strategic priorities. However, persistent challenges require further action to fully realise the ERA's potential.

### **ERA Priority 1 – Deepening a truly functional internal market for knowledge**

Through the ERA Policy Agenda the open sharing of knowledge and research outputs has advanced reflected by initiatives such as the European Open Science Cloud (EOSC), identification of barriers and challenges to access and reuse research results emerging from EU legislation on copyright, data, and digitalisation as well as policy options to address the issues, improved research assessment frameworks, and enhanced gender equality strategies. Key achievements include the operationalisation of EOSC, growth in Open Access publications, the establishment of the Coalition for Advancing Research Assessment (CoARA), mandatory Gender Equality Plans under Horizon Europe, the framework for research careers and ERA Talent Platform, a strengthened international strategy, and an improved roadmapping for research infrastructures. Despite these achievements, some actions have proven to require more long-term effort to make significant advances, and disparities across the EU remain in several areas. Addressing these gaps and fostering synergies across ERA Actions will ensure the development of a more inclusive and resilient knowledge ecosystem.

### **ERA Priority 2 – Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA**

Significant efforts have been made to align R&I initiatives with the twin green and digital transition objectives. These include advancing EU Missions and Partnerships, integrating education, R&I, and industrial policy, promoting clean energy solutions, and fostering citizen engagement. Key instruments, such as the updated Strategic Energy Technology (SET) Plan, instruments that support the integration of European ecosystems and value-chains such as the development of a European Strategy for Research and Technology Infrastructures, and regional innovation initiatives, hold considerable potential to drive transformative progress. However, governance fragmentation, funding constraints, and uneven engagement from Member States and stakeholders continue to limit the full impact of these efforts. To effectively address the challenges of the green and digital transitions, ambitious initiatives must be supported by strengthened coordination, diversified and sustainable funding strategies, and broader public and stakeholder engagement.

### **ERA Priority 3 – Amplifying access to Research and Innovations excellence across the Union**

Efforts have improved access to R&I excellence, particularly focusing on Widening Countries, through mechanisms such as Excellence Hubs, Seal of Excellence projects, and targeted Horizon Europe initiatives. The creation of regional innovation ecosystems and the professionalisation of research management have also fostered institutional capacity-building. However, disparities in R&D intensity, access to collaboration networks, and professionalisation of research management remain. Expanding effective synergies, streamlining funding mechanisms, and strengthening institutional capacity will help bridge these gaps, promoting balanced growth across Member States.

## ERA Priority 4 – Advancing concerted Research and Innovation investments and reforms

Efforts have been made in aligning and coordinating R&I investments through tools such as the Enhanced Dialogues and the renewed ERA monitoring mechanism. Increased investments in R&D and innovation ecosystems, as well as reforms in research careers and research-industry linkages, have contributed to strengthen Europe's scientific and technological capacity. However, reaching the 3% GDP R&D investment target and addressing regulatory bottlenecks require sustained efforts. Scaling innovation procurement, enhancing monitoring frameworks, and fostering a coordinated Europe-wide R&I investment push would be pivotal for future success.

### Suggestions for improving future ERA policy initiatives

While the ERA has achieved notable milestones, systemic challenges should be addressed to consolidate its impact. Based on the evidence gathered in this report, the following is suggested for improving future ERA policy initiatives:

1. **Strengthening co-creation between Member States, associated countries, the Commission and Stakeholders** by maintaining the positive momentum of the renewed ERA governance structure, promoting transparency, collaboration, and active participation through the ERA Forum, while addressing specific issues through tailored approaches such as dedicated expert groups, stakeholder involvement or targeted Policy Support Facility Mutual Learning Exercises for a more focused engagement geared towards action implementation.
2. **Scaling the impact of the ERA Policy Agenda** by focusing the ERA Actions on key objectives where ERA can act as a true driving force, improving communication and raising visibility while fostering stakeholder engagement. In addition, it would be beneficial to foster the long-term sustainability of ERA initiatives by shifting from FP-funding for the implementation of actions to longer-term initiatives, possibly self-sustainable and embedded in the Policy Agenda.
3. **Enhancing the scope and inclusivity of the ERA Policy Agenda** to better reflect the challenges and opportunities of the European R&I ecosystem. The ERA could further support the bridging of the gap between basic research, technology development, industrial applications, and societal uptake, fostering a comprehensive approach across the entire R&I spectrum. To that end, strengthening the active participation of stakeholders, including industry, research organisations, regional bodies, and civil society, is seen as essential.
4. **Addressing disparities among Member States and countries associated to the Framework Programme** by prioritising efforts to reduce inequalities in performance, especially for those facing challenges in meeting targets. Stakeholders emphasise the need for capacity-building initiatives and tailored actions that focus on less R&I-intensive regions, fostering regional inclusivity, reducing disparities, and enhancing cohesion across Member States and countries associated to the Framework Programme.

As the ERA celebrates its 25<sup>th</sup> anniversary in 2025, ambitions need to remain high, underpinned by an actionable forward-looking agenda. Building on and expanding existing initiatives, fostering greater inclusivity, and addressing persistent gaps will enable Europe to remain a global leader in R&I. Sustained and ambitious investments and reforms combined with broad stakeholder engagement are essential to fully realise the European Research Area.

## ANNEX 1 – Methodology and data sources

Covering the period from mid-2023 to end-2024, the second **ERA EU-level Report** provides a comprehensive assessment of the implementation of the ERA Policy Agenda and the progress made towards the objectives outlined in the Pact for Research and Innovation. It assesses achievements across the four ERA priorities and 17 ERA actions, which have been implemented since 2022.

### Data collection and integration

The Report's development was supported by an extensive data collection process.

- The qualitative analysis focuses on the implementation, milestones, and outcomes of the ERA actions. Key data sources include documents available on the ERA Policy Platform, and those available online. Insights were also derived from the European Commission's public consultation, 'The New ERA 4 Years On: Achievements, Lessons Learned, and the Way Forward', as well as interviews conducted with action owners<sup>185</sup> to understand the progress and challenges of each action. Information from the ERA Country Reports<sup>186</sup> was incorporated to provide national-level examples of effective practices. The sources of the public information consulted is available in the bibliography of Annex 2.
- The quantitative analysis evaluates progress toward the ERA priorities and objectives using data from the 2024 ERA Scoreboard. Key performance indicators (KPIs) tracked trends and disparities at both EU and Member State levels, while a portfolio and composition analysis of Horizon Europe projects (CORDIS database) assessed their contribution to ERA actions.

### Validation process

With regard to the validation process, the draft report was reviewed in writing by action owners to verify findings. The validation process also entailed a workshop with the ERA Forum representatives, including R&I stakeholders, in February 2025, where conclusions and recommendations were discussed in view of re-fining the report.

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<sup>185</sup> So-called 'Action Owners' are persons (in the European Commission or at national level) or organisations that have accepted to take the lead in organising the implementation of an ERA action.

<sup>186</sup> [ERA Country Reports](#) are published on the ERA Policy Platform.

## ANNEX 2 – BIBLIOGRAPHY

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This EU-level report is the second 18-months review of the progress towards the priority areas for joint action in the European Research Area (ERA), as laid down in the Pact for Research and Innovation in Europe, and of the implementation of the ERA Policy Agenda. It covers the period from July 2023 and December 2024. It is part of the ERA Monitoring Mechanism (EMM), which also includes the ERA Policy Platform, the ERA Dashboard and ERA Scoreboard as well as ERA Country Reports. In the context of the renewal of the ERA governance since 2021, the monitoring will allow for evidence-informed policy-making.

*Research and Innovation policy*

