EN

Annex 3

Horizon Europe

Work Programme 2023-2024

3. Research Infrastructures

Table of contents

Introduction

The overall objective of the Research Infrastructures Programme under Horizon Europe is to empower Europe through world-class and accessible research infrastructures, as part of an integrated European research and technology infrastructures landscape.

Research infrastructures (RIs)[1], including the European Open Science Cloud (EOSC), and technology infrastructures (TIs) are crucial enablers of research and technological innovation and drivers of multidisciplinary and data-intensive science.

Europe will benefit from an integrated, inter-operable and effective ecosystem of RIs and TIs that helps covering the continuum of needs from fundamental knowledge creation to technology deployment and supports the implementation of Open Science policies as well as European technology leadership.

Previous European Framework Programmes have made a significant contribution towards a more efficient, open and effective use of national research infrastructures and have developed, with the European Strategy Forum on Research Infrastructures (ESFRI), a coherent and strategy-led approach to policy making and national investments on pan-European research infrastructures. The work with ESFRI triggered, so far, the development of 63 European research infrastructures, of which 41 have already been implemented, across all fields of science, mobilising close to €20 billion in investments[2].

Twenty-two of these research infrastructures have been established as European Research Infrastructure Consortia (ERIC) – a legal form enshrined in EU law and the only EU regulation in the European Research Area (ERA) framework – that enables joint funding and integration of resources from Member States (MSs) and Associated Countries (ACs) and secures their commitment to continuing support. The EU, its MSs and the ACs invest together in the research infrastructures also through the Cohesion Policy, building research capacities at regional/national level with a view to deploy research results into markets.

Europe has a rich landscape of research infrastructures. For the future, smart investments will be required to drive the development of new research infrastructures to fill knowledge gaps, support emerging needs and scientific breakthroughs, and respond to new challenges, notably in the field of health and in the context of the green and digital transitions. At the same time, efforts to optimise and consolidate the existing capacities, avoiding fragmentation and unnecessary duplications, will provide the ERA with a more effective and interlinked and well-functioning research infrastructure landscape. Such RIs landscape and its continuous evolution and upgrade will make the ERA increasingly attractive for researchers and talents from all over the world. It is therefore necessary to foster synergies between RI funding instruments (European and national) to align R&I investments, ensure access to excellence and translate research results for the benefit of the society and the economy. Increasing resilience of research

---

[1] Research infrastructures (RIs) are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. Their definition is given in art. 2 of the EU Regulation 2021/695 of 28 April 2021 establishing Horizon Europe.

[2] See https://roadmap2021.esfri.eu/.

infrastructures is also a relevant issue, particularly in the context of the recovery from the crisis related to the COVID-19 pandemic.

The new ERA policy agenda includes a specific action on strengthening the sustainability, accessibility and resilience of research infrastructures in the ERA. The ESFRI White Paper[3], also puts a new emphasis on the consolidation of a European research infrastructure ecosystem underpinning the ERA, on the role the existing facilities at European and national level can play to address the EU's broad policy priorities, together with scientific challenges, and on the needs to integrate new research infrastructures in strategic areas to enhance R&I capacities in Europe. RIs, as highlighted in the ESFRI White Paper, have the potential to contribute to local and regional socio-economic development by triggering the creation of and playing a central role in knowledge innovation hubs. In this context, closely interacting with local businesses and industry, RIs support regional research priorities and the implementation of the Smart Specialization Strategies (S3), thus contributing to the alignment of priorities at EU level.

In the RI landscape, the EOSC offers a horizontal, pan-European, inter-operable, federated ecosystem of standards, technologies and services, along with rules of engagement, which will enable and enhance seamless access to and reliable re-use of research outputs, i.e. data, software and other digital objects, included those generated or collected by research infrastructures, supporting the whole research data life-cycle from discovery and mining to analysis, storage and management. High-speed connectivity (GÉANT) underpins the development of EOSC and provides fast, trusted and reliable connectivity for researchers in Europe and beyond. Activities to deliver the EOSC as a trusted virtual environment supporting Open Science and data and service-driven research will be co-designed with MS/ACs and stakeholders in the framework of the proposed EOSC European partnership. Its further development is also required by a specific action, in the new ERA policy Agenda, for enabling the open sharing of knowledge and the re-use of research outputs. This will allow Europe to seize data-intensive research and innovation opportunities and enable breakthroughs at the crossroads of different disciplines by a broad interdisciplinary user community. The deployment of an EOSC will be ensured through a platform based on a federated core, enabling access to a wider ecosystem of data and services, as well as use of integrated High-Performance Computing (HPC), Cloud, data, networks and Artificial Intelligence (AI) resources.

EU Framework Programmes have so far fostered the opening at EU level of RIs to trans-national users, enabling all researchers in Europe and beyond to have access to the best RIs they need for their research. These efforts have radically transformed the availability of state-of-the-art facilities for researchers, reinforcing Europe's strong research performance and its ability to react rapidly, for example in providing reference materials worldwide to respond to the coronavirus outbreak. Up to now, this approach has been mainly science driven.

As European RIs have the potential to enhance society's long term and consistent problem-solving capacity, new efforts are now needed to maintain Europe at the forefront of science and to ensure the provision of customised, multidisciplinary, impact-oriented and integrated RI services and resources to accelerate the transition towards a socially inclusive green and digital

---

[3] https://www.esfri.eu/esfri-white-paper

future and to support an effective and responsive health system as well as evidence-based policy-making. In this regard, Research Infrastructures can substantially contribute to the objectives of Horizon Europe clusters, missions and partnerships in Pillar II as well as to support its innovation dimension.

The Research Infrastructures work programme under Horizon Europe will address the global environmental, social and economic challenges, in line with the renewed ERA, which requires an explicit contribution of research and technology infrastructures to Europe's wider policy objectives, thus maximizing the contribution of science and technology to the needs of the society and increasing Europe's competitiveness. Research infrastructures will also continue to support fundamental, curiosity-driven and disruptive research in order to secure the excellence of European research and achieve future technological progress.

To cope with new challenges and ensure leadership of Europe in frontier research, RIs need to be maintained at the forefront of science and technological developments. To this extent, the Research Infrastructures work programme will support the development of innovative cutting-edge scientific instrumentation, software and methods. These developments, carried out in cooperation and co-creation with industry, will advance the industrial technological level in Europe and lead to breakthrough technological and societal innovation.

Training for RI users, as well as strengthening the RI scientific, technical and managerial competencies of staff, will underpin all the activities implemented under the Research Infrastructures work programme, thus contributing to the education and employment opportunities of the next generation of researchers, technologists and high level science managers. A well-functioning RIs landscape and its continuous evolution and upgrade will make the ERA attractive for researchers and talents from all over the world.

The Research Infrastructures work programme is structured around the following five destinations:

- **Destination - Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (INFRADEV),** to contribute to a strong, excellent and impactful European Research Area, by reinforcing RI capacities in Europe, their role at the global level and the policy-making in this field;

- **Destination - Enabling an operational, open and FAIR EOSC ecosystem (INFRAEOSC)**, aiming at delivering a "Web of FAIR Data and Services" for Science: a trusted virtual environment supporting Open Science, based on key horizontal core functions, with their corresponding e-infrastructures, and service layers accessible to researchers across disciplines throughout Europe;

- **Destination - RI services to support health research, accelerate the green and digital transformation, and advance frontier knowledge (INFRASERV)**, with a focus on the provision of integrated RI services to enable R&I addressing major societal challenges, including health challenges, the green and digital transformation and the resilience to

crises, as well as to support curiosity-driven research and advancement of frontier knowledge in broad scientific domains;

- **Destination - Next generation of scientific instrumentation, tools and methods and advanced digital solutions (INFRATECH)**, to enable new discoveries and keep Europe's RIs at the highest level of excellence, while paving the way to innovative solutions to societal challenges and new industrial applications, products and services;

- **Destination - Network connectivity in Research and Education – Enabling collaboration without boundaries (INFRANET)**, providing high-bandwidth networks and network services to interconnect researchers, data and computing resources in a non-discriminatory way regardless of the location of the users and the resources to allow scientists to conduct excellent research.

Horizon Europe is the research and innovation support programme in a system of European and national funding programmes that shares policy objectives. Applicants should consider and actively seek synergies with, and where appropriate possibilities for further funding from, other R&I-relevant EU, national or regional programmes (such as ERDF[4], ESF+[5], JTF[6], EMFF[7], EAFRD[8] and InvestEU[9]), where appropriate, as well as private funds or financial instruments. The ERDF focuses amongst others on the development and strengthening of regional and local research and innovation ecosystems and smart economic transformation, in line with regional/national smart specialisation strategies. It can support building research and innovation capacities and uptake of advanced technologies and roll-out of innovative solutions from the Framework Programmes for research and innovation through the ERDF.

---

[4]   European Regional Development Fund; https://ec.europa.eu/regional_policy/en/funding/erdf/
[5]   European Social Fund; https://ec.europa.eu/regional_policy/en/funding/social-fund/
[6]   Just Transition Fund; https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/just-transition-mechanism/just-transition-funding-sources_en
[7]   European Maritime and Fisheries Fund; https://ec.europa.eu/fisheries/cfp/emff_en
[8]   European Agricultural Fund for Rural Development; https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/rural-development_en
[9]   InvestEU Programme; https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/whats-next-investeu-programme-2021-2027_en

DESTINATION – DEVELOPING, CONSOLIDATING AND OPTIMISING THE EUROPEAN RESEARCH INFRASTRUCTURES LANDSCAPE, MAINTAINING GLOBAL LEADERSHIP (INFRADEV)

Over recent years, the European Commission, Member States (MS) and Associated Countries (AC) have been closely collaborating, in particular within the European Strategy Forum on Research Infrastructures (ESFRI), to develop an integrated and efficient ecosystem of research infrastructures (RIs) in Europe, which encompasses single-sited facilities, distributed facilities integrating resources across the European Research Area, as well as networks of national facilities and which serves researchers and engineers in all S&T fields, from basic to applied research. To facilitate integration and pooling of resources for the development of new capacities, a legal instrument has also been developed at European level, the European Research Infrastructure Consortium (ERIC) that provides favourable conditions for the establishment and operation of large European infrastructures supported jointly by several MSs and ACs as well as by third countries. While Member States remain central in the development and financing of public RIs, the Union and ESFRI play a catalysing and leveraging role in driving the integration between national efforts.

The challenges for the near future are to consolidate and optimise the European Research Infrastructure landscape and enhance its capacity to support frontier research and address the emerging and new scientific and societal objectives associated with the transition towards a sustainable and resilient Europe. In addition, there is the need to define and implement an effective and sound RI strategy in Europe, in close cooperation with ESFRI, MSs and ACs, which is complemented by and interlocks with the long-term ambition of creating an integrated Technology Infrastructure (TI) landscape, the latter is supported in Pillar II of Horizon Europe Programme (HE). Such a strategy would also help in exploiting synergies between RI and TI financed from Horizon and massive investments in infrastructures from ERDF.

This destination aims to create a world-leading coherent, responsive, sustainable and attractive RI landscape in Europe, by reducing its fragmentation at European, national and regional level, ensuring coordination of efforts and fostering alignment of priorities among MSs and ACs, connecting RIs to the European Open Science Cloud (EOSC), and which is able to support national and regional R&I ecosystems. The support to a European strategy for Research Infrastructures as well as activities to enhance the role of RIs for international cooperation and science diplomacy will also be covered under this destination.

Expected impact

Proposals for topics under this destination should set out a credible pathway to contributing to one or several of the following impacts:

- Disruptive research and breakthrough science and innovation through cutting-edge, interconnected and sustainable Research Infrastructures;

- Strengthened scientific excellence and performance and efficiency of the European Research Area, increasing its attractiveness to researchers from all over the world;

- Coordinated research infrastructure capacity among countries and regions, also by exploiting possibilities given by the smart specialisation processes;

- Reinforced R&I capacities enabling systemic changes needed for a truly transformative societal and economic recovery and a strengthened resilience of critical sectors, as outlined in the Recovery Plan;

- Improved European response, in cooperation with international players, to emerging socio-economic and related scientific and technological challenges at global level.

The following call(s) in this work programme contribute to this destination:

Call	Budgets (EUR million)		Deadline(s)
	2023	2024	
HORIZON-INFRA-2023-DEV-01			15 Mar 2023
HORIZON-INFRA-2024-DEV-01			20 Mar 2024
Overall indicative budget			

Call - Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (2023)

HORIZON-INFRA-2023-DEV-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2023-DEV-01-01: Concept development for a new research infrastructure to manage, integrate and sustain large medical cohort studies

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [10].

Expected Outcome: Projects are expected to contribute to all the following expected outcomes:

- a sound science case for a new research infrastructures to manage, integrate and sustain large medical cohort studies, including expected scientific breakthrough, together with a gap analysis and a feasibility/design study, to support planning and decision making at the national level (e.g. funding bodies, governments) and at European level (e.g. ESFRI);

- ensuring stewardship and long term availability of data and samples related to existing and future large medical cohort studies for their re-use for secondary research;

- new services and access opportunities available to the research community, allowing to better tackle medical challenges;

---

[10] This [decision](#) is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

<u>Scope</u>: This topic aims at supporting the development of new concepts for a research infrastructure at European level, to manage, integrate and sustain large medical cohort studies. The alternative possibility to extend the scope of already existing infrastructures to cover this need should also be assessed. Such an infrastructure will also enable an appropriate exploitation of past investments by EU framework programmes or other European funders on the development of medical cohorts.

The numerous and diverse medical cohort studies in Europe, initiated at Member States level or in the context of EU-funded projects, require major resource investments to be set up, mature and serve multiple research queries over long period of times. The research potential (e.g. statistical power or geographical coverage) of individual cohorts can be scaled up, when similar, sufficiently compatible individual cohorts (e.g. in different EU countries) are harmonized and integrated. A research infrastructure could ensure the needed long term sustainability for cohorts and the technical platform for data integration across cohorts as well as a properly implemented data access governance. Proposals for the new RI concept development will tackle all key questions concerning the technical and conceptual feasibility of a new or reoriented fully fledged user facility.

In this respect, proposals should address all following aspects:

- demonstrate relevance in relation to ERA, including to the existing landscape, and the advancement with respect to the state-of-art of the new infrastructure;

- highlight the research challenges the new research infrastructures will make possible to address, including at global level;

- indicate the gaps in the research infrastructure landscape the new infrastructure will cover and the synergies with existing infrastructures at European and global level, including those co-financed from other EU instruments (e.g.: Cohesion policy);

- indicate, when relevant, the potential impact of the new research infrastructure at regional level.

Proposals should also provide evidence that the project will effectively:

- identify suitable IT technologies and the architecture (e.g. single site or distributed, …) for developing the research infrastructure;

- identify scientific user communities (and their related needs) that will benefit from access to RI services, including scientific data and instrumentation, and plan the research services to be offered to users;

- assess and identify suitable governance models and implement strategies for institutional/stakeholders' commitment and engagement;

- develop initial financial plans for the RI construction (or major upgrades) and operation as well as preliminary ideas for long-term sustainability, including synergies with other funds and programmes (e.g.: ERDF);

- develop plans for an efficient data curation and preservation and for the provision of GDPR compliant access to data managed by the future infrastructure, in line with the FAIR principles.

In order to demonstrate the concept, projects could pilot the harmonization of a limited number of European cohorts and the integration of their respective data sets for enabling cross-cohort queries.

When relevant, environmental (including climate-related) impacts as well as the optimisation of resource and energy use should be integrated in the concept development of the new research infrastructures.

HORIZON-INFRA-2023-DEV-01-02: Early phase implementation of ESFRI Projects which entered the ESFRI Roadmap in 2018

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 1.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [11].

---

[11] This decision is available on the Funding Wond Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

Expected Outcome: Project results are expected to contribute to several of the following expected outcomes:

- enhanced ERA excellence and attractiveness through the availability of additional capacities;

- consistent and well-structured research infrastructures ecosystem in Europe;

- solid Member States/Associated Country engagement in pan-European research infrastructures, leading to their full implementation;

- long-term perspective for investments in research infrastructures;

- synergies and complementarities between new and existing research infrastructures, including technology infrastructures and infrastructures financed by ERDF.

Scope: This topic targets the research infrastructure projects which entered the ESFRI Roadmap in 2018[12], due to their scientific excellence and organisational maturity as well as to their strategic importance for the European Research Area and the structuring of the European research infrastructure ecosystem.

The recent ESFRI Monitoring exercise carried out for the update of the ESFRI Roadmap 2021 assessed the overall progress towards implementation of ESFRI Projects and Landmarks, and highlighted a number of recurrent key aspects that could hamper full implementation and start of the operation phase.

Although these ESFRI Projects have received EU funding for their preparatory phase and initial commitment from Member States/Associated Countries, the early stages of the research infrastructure life-cycle are particularly challenging, also considering additional difficulties linked to the COVID-19 pandemic. Building on past and ongoing monitoring experience, proposals are expected to address the most critical issues that could prevent or delay the entering of these ESFRI Projects into the implementation phase.

Support can be provided for activities, such as enlargement of the membership; establishment of the governance structure and legal entity; securing the funding; finalisation of the distributed architecture; development of ICT and data management solutions (including possible open access to data); development of access policies and users' strategies; consolidation of the international dimension; addressing staff and procurement related issues. Proposals should focus on the activities addressing the identified bottlenecks.

Proposal consortia should involve all stakeholders necessary to move the project forward and ensure financial commitments (including national/regional ministries/governments, research councils or funding agencies).

---

[12] Projects eligible for support under this topic include: DiSSCo, EHRI, eLTER, EU-IBISBA and METROFOOD-RI.

Proposals should explain any synergies and complementarities with previous or current EU grants.

HORIZON-INFRA-2023-DEV-01-03: Consolidation of the RI landscape – Individual support for evolution and long term sustainability of pan-European research infrastructures

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 3.00 and 4.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply:
	The following additional eligibility criteria apply: due to the scope of this topic, consortia must include at least one of the ESFRI Landmarks or the other European Research Infrastructures Consortia (ERICs).
	Due to the scope of this topic, European Research Infrastructures Consortia (ERICs) established in non associated third countries are exceptionally eligible for Union funding.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply:
	The funding rate is 80% of the eligible costs in order to prove the endorsement by the RI funders, which should provide the remaining share, of the developments covered by the Grant Agreements and foster their sustainability.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- better structured and strengthened European research infrastructure landscape;

- new services available to the research community, allowing to better tackle scientific and societal challenges;

- increased capacity to address EU policy priorities and/or support EU industry;

- reinforced global competitiveness of the European Research Area;

- reduction of environmental (including climate-related) impacts as well as optimisation of resource and energy consumption integrated through the full life cycle of research infrastructures;

- increased long-term sustainability of European research infrastructures;

Scope: This topic targets the consolidation of the EU RI landscape through the support, together with member countries, to the strengthening, long-term sustainability, reorientation or evolution of ESFRI Landmarks or other European Research Infrastructure Consortia (ERICs). Possible activities aimed at ensuring long-term sustainability, include enlargement of the membership, international cooperation, revision of business/funding plan, and development of managerial skills for RI staff. Support can also be provided to the development of solutions helping the recovery from the COVID-19 pandemic consequences on service provision or on the management of the infrastructure itself. Activities for reorientation or evolution should fill gaps in the RI landscape, enabling the RI to address new research challenges and/or serve new research communities, increasing and improving service capacity ad/or integrating new resources. Proposals should explain any synergies and complementarities with previous or current EU grants.

Specific attention should be given to the greening of technologies used by the research infrastructure when appropriate, and to the interaction with industry/SMEs and the fostering of the innovation potential of the infrastructures.

HORIZON-INFRA-2023-DEV-01-04: Consolidation of the RI landscape – development of complementarities, synergies and/or integration between a set of pan- European research infrastructures

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 2.00 and 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: due to the scope of this topic, consortia must include at least 2 different ESFRI Landmarks and/or European Research Infrastructures Consortia (ERICs). Due to the scope of this topic, European Research Infrastructures Consortia (ERICs) established in non associated third countries are exceptionally eligible for Union funding.

Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply:
	Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [13].

Expected Outcome: Project results are expected to contribute to several of the following expected outcomes:

- better structured, integrated and strengthened European research infrastructure landscape;

- solid concepts and/or comprehensive plans for the integrated research infrastructures, to support decision making at national and European level, leading to increased sustainability, operational and financial efficiency;

- increased synergies between research infrastructures;

- increased capacity to address EU policy priorities and/or support EU industry;

- reinforced global competitiveness of the European Research Area;

Scope: This topic targets the consolidation and improved functioning of the EU RI landscape through the support to the development of complementarities, synergies and/or integration between a set (two or more) of ESFRI Landmarks and/or other European Research Infrastructure Consortia (ERICs).

Proposals could address either a tighter operational integration between infrastructures, or instead the feasibility and the planning of a merging between infrastructures, which could be targeted in future by a specific topic. The rationale and the potential benefits of the planned consolidation action should be clearly spelled out in the proposals.

- When addressing an operational integration, projects will develop complementarities and/or synergies between infrastructures to optimise the functioning of the RI landscape. The development of complementarities (e.g. through service level agreements for the sharing of horizontal/common services/tools, including external ones) should lead to increased efficiency and prevent unnecessary duplications. Synergies should be exploited to address complex key research challenges and EU priorities and should be implemented through cooperation mechanisms ensuring sustainable and long term integration of

---

[13]   This decision is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

services and resources (e.g. common horizontal services, joint scientific services). The expected EU contribution for this first option should range between EUR 2 and 5 million.

- When addressing a merging between infrastructures, proposals should provide evidence that the project will effectively involve the funders of the different infrastructures, develop the concept of the merged infrastructure in all its dimensions, including governance, legal form and operation, and define the operational steps and the financial forecast for the actual merging process. The expected EU contribution for this second option should be around EUR 2 million.

Proposals should explain any synergies and complementarities with previous or current EU grants.

HORIZON-INFRA-2023-DEV-01-05: Preparation of common strategies for future development of RI technologies and services within broad RI communities

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.50 and 2.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action. Due to the scope of this topic, European Research Infrastructures Consortia (ERICs) established in non associated third countries are exceptionally eligible for Union funding.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [14].

---

[14] This [decision](#) is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

Expected Outcome: Project results are expected to contribute to all the following outcomes:

- More comprehensive analysis of research infrastructure services available to European scientists;

- Analysis of technology needs and service gaps in European research infrastructures at strategic level;

- Common long-term strategies for development of technologies and services in pan-European Research Infrastructures;

- More effective RI landscape in Europe;

- Increased capacity of European RIs to respond to emerging needs.

Scope: Proposals should analyse long-term scientific developments and trends in wide scientific domains, and how the enhance research capacities to support them. In particular proposals should identify the related research infrastructures technology or innovation future needs, as well as existing service gaps in relation to key scientific challenges and policy priorities, in the chosen domain. The objective is to define common roadmaps for future RI technology and services, and their long-term development pathways, taking into account the current state of the art and the international landscape.

Actions under this topic should be carried out by thematic consortia of research infrastructures. Closer collaboration with and involvement of ESFRI clusters and related research infrastructures is needed to ensure appropriate thematic coverage of the RI landscape, foster a coordinated development of these common roadmaps, reducing the risk of overlaps between future services, and improve the division of tasks among research infrastructures.

Proposals should plan for structured and long-term engagement with other relevant stakeholders and foresee dedicated activities to develop synergies and complementarities with the other projects selected under this topic, earmarking appropriate resources.

HORIZON-INFRA-2023-DEV-01-06: Strengthen the bilateral cooperation on research infrastructures with Latin America

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 1.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply:

	Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action.
	The following additional eligibility criteria apply: in order to achieve the expected objectives of the action, the consortium must include at least two ESFRI or ERIC infrastructures and at least two legal entities established in two different CELAC countries.
	Due to the scope of this topic, legal entities established in all countries of the CELAC region are exceptionally eligible for Union funding.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply:
	Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [15].

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- contribution to the EU-CELAC Strategic roadmap;

- help strengthening EU-CELAC bi-regional scientific collaboration. Discussion of project results within the EU-CELAC RI working group will allow for a monitoring of strengths and for further development of bilateral dialogue;

- enhanced Euro-LAC cooperation on research infrastructures in strategic areas;

- enhanced research capacities in the CELAC region and in the EU, notably through staff exchange and training, sharing of best practices and of data, co-development of research and innovation capacity (with attention to female and young researchers);

- establish a base for further scientific collaboration in the two regions.

Scope: Actions under this topic, in line with the EU-CELAC SOM[16] strategic approach[17], will build on the outputs of the EU-CELAC Research Infrastructure Working Group, and will:

---

[15] This decision is available on the Funding and Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

[16] The Senior Officials Meeting (SOM) on Science and Technology of the EU-CELAC Joint Initiative on Research and Innovation (JIRI)

[17] See Latin America and Caribbean | European Commission (europa.eu)

- Support the rollout of bi-regional cooperation in one or more of the priority areas identified by the EU-CELAC Research Infrastructure Working Group through the grant EU-LAC RESINFRA [18] (energy, health, biodiversity and climate change, food security and information and communication technologies);

- Implement specific actions aimed at enhancing RI performance and impact in both regions, such as joint initiatives in management and staff development, developing new services (in particular remote access), sharing data or supporting reciprocal access. Activities should take into account the Handbook and Sustainability Plan developed by the EU-CELAC Research Infrastructure Working Group through the grant EU-LAC RESINFRA.

Proposals should focus in particular on collaboration agreements in the long term that would remain open to potential new collaborations in the CELAC region.

Selected projects will be expected to report on their progress to the EU-CELAC Research Infrastructures Working Group.

HORIZON-INFRA-2023-DEV-01-07: Observatory on the implementation of the European Research Infrastructure Consortium (ERIC) legal framework

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 1.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action. The following additional eligibility criteria apply: consortia must include at least 3 European Research Infrastructures Consortia (ERICs) from different scientific domains to ensure that the observatory is able to monitor a wide range of ERICs. Due to the scope of this topic, European Research Infrastructures Consortia (ERICs) established in non associated third countries are exceptionally eligible for Union funding.

---

[18]   See [Towards a new EU-LAC partnership in Research Infrastructures | EU-LAC ResInfra Project | Fact Sheet | H2020 | CORDIS | European Commission (europa.eu)](#)

Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: make tools, standards, specifications and all other relevant outputs generated by the action available, through a well-defined mechanism, to the Commission and any other institution responsible for the continuity, beyond the lifespan of the Grant Agreement, of the Observatory on the implementation of the ERIC legal framework. Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [19].

Expected Outcome: Project results are expected to contribute to all the following outcomes:

- European and national authorities, funding agencies, ESFRI, research infrastructures, research organisations, higher education institutions, umbrella associations and other ERA stakeholders have access to updated and consolidated data and information on ERICs;

- impact and visibility of the ERICs and role of the ERIC Forum are enhanced; compliance with the ERIC Regulation can be further assessed and strengthened; assessment of the implementation of the ERIC Regulation is facilitated including in identifying possible need for revision;

- evidence-based strategy to further develops the ERICs, best practices, common approach for monitoring such as developed by ESFRI, identification of key performance indicators and indicators on impact are facilitated.

Scope: The European Research Infrastructure Consortium (ERIC)[20] legal framework facilitated the establishment and operation of more than twenty pan-European research infrastructures[21], enhanced trust among funding countries to jointly invest in these infrastructures and contributed in integrating and structuring the research infrastructure landscape. The Regulation requires

---

[19]   This decision is available on the Funding and Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

[20]   Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC) amended by Council Regulation (EU) No 1261/2013 of 2 December 2013: consolidated text

[21]   ERIC landscape

each ERIC to produce an annual report covering the scientific, operational and financial aspects of its activities. However, the level of details of these reports is not defined. The Commission expert group that published in October 2021 an assessment on the implementation of the ERIC Regulation[22] recommended, among others, to develop a structure 'allowing to specify the data to be acquired, curated and assessed to give a detailed overview of the ERIC system and of each ERIC, including all its operational sites, hubs and nodes'.

Proposals should address inter alia all following aspects:

- Collecting basic data and information on the ERICs (such as ERIC statutes, memberships, annual reports, links to Commission Decisions, to ERICs websites);

- Developing and making available an online platform reflecting the data and knowledge on the ERICs, compliant with FAIR principles with appropriate management of access rights; the platform should notably enable easy upload and update of relevant data and information by the ERICs or their members; the platform should provide effective and tailored access to data and information to the Commission, ESFRI and ERICs stakeholders and the general public;

- Identifying and collecting detailed data and information beyond the basic ones, taking into account the work of the above mentioned assessment by the Commission expert group, the EU priorities including the renewed ERA and appropriate consultation of stakeholders;

- Ensuring in particular synergies and compatibility with the activities and outcomes of the ERA Policy Agenda (Action 8) to 'strengthen sustainability, accessibility and resilience of research infrastructures in the ERA' including relevance to and interoperability with monitoring initiatives;

- Reporting on consistency and complementarity with ESFRI as relevant.

The proposals must ensure close coordination with the Commission and liaise with ESFRI and relevant stakeholders. They should actively involve ERIC Forum and its members, building strongly on their expertise.

Call - Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (2024)

HORIZON-INFRA-2024-DEV-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2024-DEV-01-01: Research infrastructure concept development

Specific conditions

---

[22]   [Assessment on the implementation of the ERIC Regulation](#)

Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [23].

Expected Outcome: Projects are expected to contribute to all the following expected outcomes:

- solid science cases for new research infrastructures, including expected scientific breakthrough, together with gap analyses and feasibility/design studies to support planning and decision making at the national level (e.g. funding bodies, governments) and at European level (e.g. ESFRI);

- a better alignment of the development of the research infrastructure landscape with the advancement of excellent science and frontier research;

- new services and access opportunities available to the research community, allowing to better tackle scientific and societal challenges;

- reduction of environmental (including climate-related) impacts as well as optimisation of resource and energy consumption integrated in the very early phase of development of new research infrastructures.

Scope: This topic aims at supporting the development of new concepts for the next generation of research infrastructures of European interest[24], single/multi sited, distributed or virtual, that none or few countries might individually be able to afford. All fields of research can be considered.

Major upgrades of existing infrastructures may also be considered if the end result is significantly transformative and equivalent to a new infrastructure concept.

---

[23] This decision is available on the Funding and Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

[24] A research infrastructure is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located.

Proposals for RI concept development will tackle all key questions concerning the technical and conceptual feasibility of new or upgraded fully fledged user facilities.

In this respect, proposals should address all following aspects:

- demonstrate relevance in relation to ERA, including to the existing landscape, and the advancement with respect to the state-of-art of the new infrastructure;

- highlight the research challenges the new research infrastructures will make possible to address, including at global level;

- indicate the gaps in the research infrastructure landscape the new infrastructure will cover and the synergies with existing infrastructures at European and global level, including those co-financed from other EU instruments (e.g.: Cohesion policy);

- indicate, when relevant, the potential impact of the new research infrastructure at regional level.

Proposals should also provide evidence that the project will effectively:

- identify technologies and the architecture (e.g. single site or distributed, …) for developing the research infrastructure;

- identify scientific user communities (and their related needs) that will benefit from access to RI services, including scientific data and instrumentation, and develop the planning of research services to users;

- identify governance options and strategic approaches for institutional/stakeholders' commitment and engagement;

- develop initial financial plans for the RI construction (or major upgrades) and operation as well as preliminary ideas for long-term sustainability, including synergies with other funds and programmes (e.g.: ERDF);

- develop plans for an efficient data curation and preservation and for the provision of access to data collected or produced by the future infrastructure, in line with the FAIR principles.

Proposals considering just a new component of a research infrastructure are not in scope of this topic.

When relevant, environmental (including climate-related) impacts as well as the optimisation of resource and energy use should be integrated in the concept development of new research infrastructures. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

HORIZON-INFRA-2024-DEV-01-02: Strengthen the bilateral cooperation on research infrastructures with Africa

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 1.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action. The following additional eligibility criteria apply: in order to achieve the expected objectives of the action, the consortium must include, as a beneficiary or as an associated partner, at least one legal entity established in an African country. Due to the scope of this topic, legal entities established in all member states of the African Union are exceptionally eligible for Union funding.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [25].

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- contribution to the new Commission strategy with Africa, notably to the following specific objectives: rapidly enhance learning, knowledge and skills, research and innovation capacities (with attention to female and young researchers);

---

[25] This decision is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

- enhanced research capacities in Africa;

- enhanced Euro-African cooperation in R&I.

Scope: This topic aims at fostering EU-Africa cooperation in Research Infrastructures, sharing of good practices and experiences to facilitate the development of a strategic approach for structuring RI capacities at pan-African level in fields other than those addressed by topic HORIZON-INFRA-2021-DEV-01-02. The participation of African partners is mandatory.

Proposals should build on existing cooperation activities between African and European countries and take into account the outcomes of previous and ongoing initiatives. The potential contribution to ongoing global initiatives, where relevant, should be taken into account.

HORIZON-INFRA-2024-DEV-01-03: Strengthening the international dimension of ESFRI and/or ERIC research infrastructures

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 1.00 and 1.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action. The following additional eligibility criteria apply: in order to achieve the expected objectives of the action, consortia must include, as beneficiary, at least one ESFRI Landmark and/or European Research Infrastructures Consortium (ERIC) and, as beneficiary or as associated partner, at least one legal entity established in a non-associated and non-European third country. Due to the scope of this topic, European Research Infrastructures Consortia (ERICs) established in non associated third countries are exceptionally eligible for Union funding.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the

	Research and Training Programme of the European Atomic Energy Community (2021-2025). [26].

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- new or enhanced, effective cooperation of European research infrastructures with key international partners;

- strengthened position of European RIs in the global RI landscape;

- increased opportunities for the development of global research infrastructures;

- increased capacity to address societal challenges with a global dimension such as climate change;

- reinforced global competitiveness and performance of the European Research Area.

Scope: This topic aims at supporting the cooperation of pan-European research infrastructures with their international (non-European) counterparts, and/or at fostering the international engagement of ESFRI and ERIC research infrastructures through their involvement in global research infrastructure initiatives.

Proposals should deal with shared objectives and governance, building on the criteria developed by the Group of Senior Officials on Global Research Infrastructures[27]. Proposals will look in particular at the following:

- the long-term sustainability of joint activities;

- opportunities (access and data sharing) available to European scientists in these research infrastructures;

- ensuring global interoperability and reach;

- reaching international agreements on the reciprocal use, openness or co-financing of infrastructures;

- launching pilot access initiatives;

---

[26]   This decision is available on the Funding and Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

[27]   Global Research Infrastructures should address the most pressing global research challenges, i.e. those frontiers of knowledge where a global-critical-mass effort to achieve progress is required. Science, technology, innovation, and advanced research training goals should be fully integrated throughout the infrastructure plans from their early development. (http://www.gsogri.org/wp-content/uploads/2019/12/gso_framework_criteria.pdf)

- exchanging good practices between user communities and managers of research infrastructures as regard for instance harmonisation of tests, standards, reference materials, interoperability and data handling.

While the main target of this topic is the cooperation between an individual pan-European infrastructure and its international counterparts in one or more third countries, proposals could also involve a set of pan-European infrastructures with their international counterparts if appropriate, in particular when cooperation is necessary for addressing complex phenomena with a global dimension.

DESTINATION – ENABLING AN OPERATIONAL, OPEN AND FAIR EOSC ECOSYSTEM (INFRAEOSC)

The European Open Science Cloud (EOSC) is an ecosystem of research data and related services. It encompasses rules of engagement, standards, abstractions, technologies, and services, which will enable and enhance seamless access to and reliable re-use of FAIR[28] research outputs (i.e. data and other digital objects), including those generated or collected by other research infrastructures, and covering the whole research data life cycle from generation or discovery and mining to storage, processing, management, analysis, and re-use. The EOSC will contribute to the European Strategy for Data, including its thematic common interoperable data spaces, and the provision of secure and FAIR-enabling European cloud services.

EOSC development has been supported through a series of Horizon 2020 projects and an interim EOSC governance structure preparing the next stage of EOSC development for the period after 2020. These projects have contributed to the creation of a pan-European access mechanism; coordination of national activities for EOSC on-boarding; connection of European research infrastructures (e.g. ERIC and other world-class RIs) and existing e-infrastructures; initial development and operationalisation of the FAIR principles and a FAIR-compliant certification scheme for research data; the EOSC portal providing access to a range of services, guidelines and training; and the development and provision of a number of research-enabling value-added services, including distributed data processing and management (both public and commercial). From 2021, the EOSC partnership will help ensuring directionality (common vision and objectives) and additionality (complementary commitments and contributions) of the stakeholders involved.

Building on this progress, the INFRAEOSC destination aims to continue to develop the EOSC in a more cohesive and structured manner so that it becomes a fully operational enabling ecosystem for the whole research data lifecycle. This ecosystem includes FAIR research data commons (e.g. data, services, tools), based on key horizontal core functions, with corresponding e-infrastructures and service layers accessible to researchers across disciplines throughout Europe, leading to a "Web of FAIR Data and Services" for Science. The EOSC ecosystem will contribute a data space for science, research and innovation articulated with the other data spaces described in the European Strategy for Data.

Expected impact

Proposals for topics under this destination should set out a credible pathway to contributing to one or several of the following impacts:

- Transforming the way researchers as well as the public and private sectors create, share and exploit research outputs (data, publications, protocols, methodologies, software, code, etc.) within and across research disciplines, leading to better quality, validation, more innovation and higher productivity of research;

---

[28]   Findable, Accessible, Interoperable, Reusable, https://www.go-fair.org/fair-principles/

- Facilitating scientific multi-disciplinary cooperation, leading to discoveries in basic research and solutions in key application areas;

- Seamless access to and management of increasing volumes of research data following FAIR principles (that are open as possible) and other research outputs stimulating the development and uptake of a wide range of new innovative and value-added services from public and commercial providers

- Improving trust in science through increased FAIRness, openness and quality of scientific research in Europe, supported by more meaningful monitoring and better facilitators for reproducibility, validation and re-use of research results, and by improving pathways for the communication of science to the public.

All software developed under this destination should be open source, licensed under a CC0 public domain dedication or under an open source licence as recommended by the Free Software Foundation[29] and the Open Source Initiative[30].

All projects that will be financed under this destination are expected to participate in concertation activities in the framework of the EOSC Partnership.

The following call(s) in this work programme contribute to this destination:

Call	Budgets (EUR million)		Deadline(s)
	2023	2024	
HORIZON-INFRA-2023-EOSC-01			15 Mar 2023
HORIZON-INFRA-2024-EOSC-01			20 Mar 2024
Overall indicative budget			

---

[29]

[30]   https://opensource.org/licenses

Call - Enabling an operational, open and FAIR EOSC ecosystem (2023)

HORIZON-INFRA-2023-EOSC-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2023-EOSC-01-01: Build on the science cluster approach to ensure the uptake of EOSC by research infrastructures and research communities

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 24.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries may provide financial support to third parties. The support to third parties can only be provided in the form of grants. Given that the financial support to third parties is a primary aim of the action, at least EUR 18 million of the EU contribution for this topic should be used in this scope. Due to the nature of the work to be supported and the cross-RI, cross-domain nature of the intended open science projects and services, the EU contribution to each grant for third parties will be sized between EUR 10 000 and EUR 250 000 for a duration of 12 to 18 months. The selection of the third parties to be

	supported under each grant will be based on an external independent peer review of their proposed work.
	Beneficiaries will be subject to the additional access rights: Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud.
	Beneficiaries must deposit the digital research data generated in the action in a trusted repository federated in the European Open Science Cloud (EOSC) in compliance with EOSC requirements.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Support all researcher communities across Europe to contribute to and benefit from a user-oriented EOSC;

- Populate EOSC Exchange with FAIR data and services of relevance in several scientific domains;

- Develop and demonstrate through cascading grants concrete scientific benefits of open science and FAIR practices through cross-disciplinary use cases;

- Increased alignment of operation of ESFRI and international RIs at the subdomain, domain and interdisciplinary levels in function of the progressive deployment of the EOSC Core, EOSC Exchange and EOSC sustainability models;

- Provide feedback and requirements for the evolution of the EOSC ecosystem.

Scope: This topic aims to extend the level of cross-domain collaboration and EOSC alignment initiated in Horizon 2020 with the science cluster projects[31]. It also capitalises on the experience gained by these cluster projects in enabling open science practices, FAIR implementation and managing open calls for disciplinary and multi-disciplinary science projects to involve smaller or less structured communities with less experience in open science, and to support communities lacking relevant competence centres.

Proposals should cover the following two activities:

---

[31] The science cluster projects result from the H2020 topic call INFRAEOSC-04-2018: "*Connecting ESFRI infrastructures through Cluster projects*": ENVRI-FAIR (grant 824068), EOSC-LIFE (grant 824087), ESCAPE (grant 824064), PANOSC (grant 823852), SSHOC (823782). These five science cluster projects address the following large thematic research domains: Biomedical Science, Environment and Earth Sciences, Physics and Analytical, Facilities, Social Science and Humanities and Astronomy.

1) Consolidate common EOSC approaches between the RI communities involved in the five science clusters, help to sustain composable EOSC-onboarded services from and across RIs participating in these clusters and support community-based competence centres for continued EOSC-alignment and extended outreach towards new or underrepresented user communities.

This activity shall contribute to firmly install the connection to the EOSC ecosystem (including the EOSC onboarding of digital resources), the implementation of open science practices and the management of FAIR research digital objects into the core operation of ESFRI projects and landmarks and other relevant world class research infrastructures with a European dimension. The activity shall increase the use and impact of RI resources especially through increased customisation and composability of services, higher amount of FAIR and open data for reuse and strengthened exploitation of the EOSC-Exchange.

Through pilots, the activity shall test models by which services intended for users of one infrastructure are made available cross-border to a wider audience via the EOSC Exchange, as well as financial models for cross-RI service provision through the EOSC.

This activity shall also further develop and extend existing networks of competence centres on FAIR and open practices and EOSC resources provisioning, enhancing relevant support to all research communities. Focus shall be put on aligning and networking those competence centres to also support and train less-engaged, less-structured communities. The activity shall establish a mechanism to collect operational needs coming from the user communities and to interact with future operator(s) of the EOSC platform.

2) Demonstrate and pilot the use of EOSC resources by multiple research communities through cross-RI and/or cross-domain open science projects and services.

This activity aims to engage with multiple research communities (academic and industry) to address multi-disciplinary questions of high societal relevance and to accelerate their uptake of RI and EOSC resources (data, services, policies, interoperability framework). Targeted user communities for these open science projects and services shall extend beyond the RI communities involved in the H2020 science clusters. Special attention shall be put on involving user group(s) also from outside the H2020 INFRAEOSC community including - when relevant - citizen scientists and "the long tail" of science. Proposals shall demonstrate how the project plans to reach out to multiple scientific communities. The role of University Associations or Learned Societies to trigger community engagement in this activity shall be explored.

This activity shall be implemented through open calls for cross-RI and/or cross-domain science projects and services through a cascading grant mechanism. The activity shall build on the experience already gained by the science clusters in calling for expressions of interests, implementing open calls and carrying out science projects. The financial support to third parties related to these open calls shall be sized between 100 and 250 K€ for a duration of 12 to 18 months. The open calls shall encourage, where applicable cross-RI and/or cross-domain collaborations. They shall foresee the use of data and services already on-boarded to the EOSC platform and/or bring new research digital objects and RI services to the EOSC Exchange. The proposals shall support the FAIR principles and take up relevant FAIR metrics and EOSC

policies. The open calls under this activity should respect the rules and conditions laid out in Part K of the General Annexes, including transparency, equal treatment, conflict of interest and confidentiality".

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with relevant initiatives and projects contributing to the development of EOSC including relevant actions awarded under topic HORIZON-INFRA-2021-SERV-01-01, HORIZON-INFRA-2022-EOSC-01-06, HORIZON-INFRA-2022-EOSC-01-03. To this extent, proposals should provide for dedicated activities and earmark appropriate resources.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

HORIZON-INFRA-2023-EOSC-01-02: Development of community-based approaches for ensuring and improving the quality of scientific software and code

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 8.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights:

	• Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. • Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use. Beneficiaries must deposit the digital research data generated in the action in a trusted repository federated in the European Open Science Cloud (EOSC) in compliance with EOSC requirements.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- A framework of community curation is established and promoted that ensures quality of software and code across the different disciplines.

- Infrastructure, tools and services are deployed that allow researchers to properly develop, describe with proper metadata, version, archive, share and reuse research software.

- The notion of software quality is defined in the context of EOSC and builds upon established practices by the FAIR and other communities.

- Baseline quality indicators along the notion of "minimum quality" are defined for the different types of digital objects targeted (software, code, etc), taking into account the concept of "fit for purpose".

- The quality of research software, both from the technical and organizational point of view for research software is improved, both in general (e.g. software for data analysis) and in particular for software used in the services offered through EOSC.

- Software is developed in a sustainable way and its reuse is maximised.

Scope: Research software and code are digital objects that are becoming increasingly important for the EOSC ecosystem and beyond. The overall objective of this topic is to improve the quality of software and code, as well as the quality of other digital objects based on code such as workflows, computational models, etc. Software sustainability is being mainstreamed across Europe and quality software is key for improving the reproducibility of research and can also

represent a first-class research output on par with publications and datasets. Preservation and sustainability of software are vital areas of development in the EOSC ecosystem and best practices from various communities need to be aligned to maximise software reuse.

Proposals should therefore cover the following activities:

- Foster alignment of existing initiatives by promoting coherence and developing community guidelines.

- Promote the use of already existing common technical specifications, standards or infrastructure, endorsed by the various scientific communities.

- Define software delivering and packing best practices towards software reusability, including deployment descriptions, packaging methodologies, integration on problem solving collaborative environments such as notebooks.

- Ensure integration of infrastructure, tools and services not just for software but also for computational models, workflows and anything that is code-based. This should include a Continuous Integration & Continuous Deployment (CI/CD) setup for codes and live testing on relevant data.

- The systems and services developed within the scope of the topic should be flexible and scalable in their deployment by making use of cloud technologies, such as containers, to allow an easy integration with the future EOSC Core infrastructure.

- Define a baseline of Source Code quality based on coding principles and coding best practices, including API and documentation. Provide tools for the automatic testing of conformance.

- Develop minimum quality certification frameworks through automated checks, pipelines and digital badges. Provide indication of code maturity within the software life cycle.

- Allow for the integration of automatic testing for security vulnerability and license infringements.

- Ensure optimal and sustainable software archival practices and mainstream software citation and correct attribution for inclusion in novel research assessment frameworks.

- Incentivise open, community-driven and sustainable software development, involving labs as well as individuals (long-tail of science). Establish software green houses which nurture and support new codes and integrate with software quality tools.

- Develop FAIR metrics frameworks for digital objects such as software, code, computational models, workflows, etc.

- Develop or align pre-existing training materials for software development skills, digital badges, etc.

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with relevant initiatives and projects contributing to the development of EOSC. Proposals should also take into account the work of the EOSC Synergy project with its Software Quality as a Service approach.

In addition, proposals should take into account and collaborate with the resulting projects from the topics HORIZON-INFRA-2023-EOSC-01-03 and HORIZON-INFRA-2024-EOSC-01-04, aligning common elements of quality between data and software, as well as adopting novel metrics for assessing research impact. Synergies should also be developed with the resulting project from the topic HORIZON-INFRA-2021-EOSC-01-05, especially with potential metrics and indicators to assess the FAIRness of digital objects.

HORIZON-INFRA-2023-EOSC-01-03: Planning, tracking, and assessing scientific knowledge production

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 10.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each

	beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud.
	• Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use. Beneficiaries must deposit the digital research data generated in the action in a trusted repository federated in the European Open Science Cloud (EOSC) in compliance with EOSC requirements.

<u>Expected Outcome</u>: Project results are expected to contribute to all the following expected outcomes:

- Data Management Plans (DMPs) are standardised across disciplines to the extent possible. Their machine-actionability is supported by their integration in pertinent automated workflows, and by a pervasive and comprehensive use of Persistent Identifiers for a wide array of digital objects (e.g., publications, data, software, workflows, storage, organisations, projects, funders, services, researchers, facilities, companies, etc.) creating an underlying interconnected graph of research objects that DMPs can exploit.

- The evaluation of DMPs (assessing their completeness and adequacy) is increasingly automated relying on, for example, semantic web technologies, and building on existing and new evaluation metrics.

- Scientific Knowledge Graphs (SKGs) promote the interconnection of FAIR digital objects through interoperable common models, metadata formats, protocols to share metadata about digital objects and research activities (e.g. preprints, publications, open peer-reviews, data, software, workflows, storage, organisations, projects, funders, services, researchers, facilities, companies, patents, etc.). SKGs enable a transparent research ecosystem, promoting provenance tracking and reproducibility of research, and facilitating an increasing consideration to diverse research outputs in research assessment.

- Policies, models, licencing frameworks, workflows, and tools enable a cross-country and cross-discipline collaborative implementation of metrics to assess and improve the FAIRness of a wide range of digital objects beyond publications and data, including software, workflows, etc.

<u>Scope</u>: Scientific knowledge production rapidly increases, and coherent methodologies, workflows and tools are needed to carefully plan research activity, track its impact and

contribution, and assess its compliance with the FAIR principles to ensure a maximised gain from previous efforts.

Data Management Plans (DMPs) have become essential companions to the research practice to ensure adequate planning and anticipate and overcome hurdles linked, for example, to the production and storage of data. However, DMPs are heterogeneous and limited efforts have taken place to promote their machine-actionability or to automatise their evaluation.

Science Knowledge Graphs (SKGs) are essential and flexible tools to monitor and track events of science linked to provenance, publishing, citation, data processing, data and software usage, service consumption. SKGs provide an underlying interconnected graph of science events that DMPs can link to, but their application goes far beyond this, and related impact services can allow SKGs to visualise the research activity, through open science indicators, bibliometrics, quality, performance, impact, popularity, etc.

Evolving practices on the assessment of research give increasing value to open science contributions, to the diversity of research activities and outputs beyond publications and data, and to their potential impact. A wide range of digital objects beyond publications and data, including preprints, software, code, workflows, and processes, such as open peer-reviews, require an enhanced traceability. In addition, coherent and comprehensive metrics are required to assess and improve the FAIRness of a wide range of digital objects.

Proposals should address all the following activities, aimed at improving:

- Planning of research activities

  o Contribute to the standardisation and homogenisation of domain-agnostic elements in DMPs, building on previous efforts (e.g., Science Europe guidelines, HE DMP template, etc.), develop guidance on how DMPs can be made FAIR (including through deposition, publication, etc.) and seek integration in pertinent automated workflows;

  o Ensure the pervasive and comprehensive use of PIDs for preprints, publications, open peer-reviews, data, software, workflows, storage, organisations, projects, funders, services, researchers, facilities, companies, patents, etc., and their interconnection with DMP standards;

  o Develop use cases and proof of concept instances of machine-actionability of DMPs, in alignment with developments of Scientific Knowledge Graphs (SKGs) to maximise the interconnection between the different elements in the research ecosystem;

  o Automate, to the extent possible, the evaluation of DMPs (assessing their completeness and adequacy) through, e.g., semantic web technologies, building on new and existing DMP evaluation metrics (e.g., Science Europe evaluation rubric);

- Tracking research contributions and their impact

- o Develop and implement comprehensive interoperable SKGs at international, national, regional, cross-border, and cross-discipline level, and promote the development of a variety of value-added applications including, for example, the adaptation and adoption of next generation metrics to assess research and measure impact, monitoring and accounting, tracking events of science and enhancing their discovery and reproducibility;

- o Enhance the interoperability across SKGs, by developing common models including agreed metadata formats, protocols to share metadata about research-related entities and scientific organisations. Develop common tools relying on Artificial Intelligence, Full-Text Mining and Natural Language Processing to best exploit SKGs;

- o Enhance the traceability of digital objects linked to SKGs by connecting them to established researcher identifiers (e.g., ORCID) to track and expose their scientific career, activities, results, participation in projects at national and international level, etc. Pilot this approach within the EOSC context by developing EOSC user profiles;

- Assessing compliance with the FAIR principles

  - o Extend FAIR metrics guidance, tools, and models, (e.g., FAIR Data Maturity Model) to meet the needs of thematic domains, and to cover a wide range of digital research objects;

  - o Define a trusted governance to measure successful compliance with metrics/tests and identify mechanisms by which adherence to trusted community-specific standards (e.g., minimal information requirements, representation schemas, terminologies, etc.) can be objectively and transparently measured. Encourage community endorsement of the mechanisms by which FAIRness of digital objects is measured;

  - o Define minimum levels of FAIRness for a wide spectrum of digital objects;

  - o Explore the relevant boundary conditions, mechanisms, and requirements through which services, processes and activities can be FAIR-inducing, and lead to FAIR-by-design digital objects and investigate their impact in mainstreaming FAIR across the research practice.

Proposals should acknowledge, and collaborate with, relevant Working and Interest Groups (WG, IG) of the Research Data Alliance (e.g., FAIR Data Maturity Model IG, Data Management Plan WG, etc.).

Additionally, complementarities should be sought with the resulting project from the topic HORIZON-INFRA-2021-EOSC-01-05, and with the ESFRI clusters, especially concerning the implementation of metrics to measure the FAIRness of digital objects. Synergies should be exploited with the resulting projects from the topic HORIZON-INFRA-2022-EOSC-01-01 in what regards the development of SKGs, which should build on the information provided through the services and tools that will gather and monitor information and data on the use and

uptake of research outputs, and of open science practices across borders and disciplines. Synergies and collaboration should also be developed with the resulting projects from topics HORIZON-WIDERA-2021-ERA-01-45 and HORIZON-WIDERA-2023-ERA-X that are expected to pilot and implement new metrics for rewarding open science practices and for the broader research assessment.

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with relevant initiatives and projects contributing to the development of EOSC.

HORIZON-INFRA-2023-EOSC-01-04: Next generation services for operational and sustainable EOSC Core Infrastructure

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 10.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud.

	• Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Next generation of enabling infrastructure and services for EOSC Core, beyond the current Minimum Viable EOSC platform[32].

- Enhanced design of the EOSC Core functionalities, including resource registry and catalogues, data and service management system, publishing workflow, persistent identifiers, AAI federation, order management, configuration management, monitoring, accounting and helpdesk, and taking into account the need of the data-driven scientific use cases and multi-disciplinary research projects.

- Advanced integration and composability of data sources, software tools, research outcomes and other assets within the EOSC execution framework that is enabled and supported by the next-generation of EOSC Core infrastructure.

- Sustainable service incubation and technology testbed infrastructure for developing and testing the next generation of the EOSC Core functionalities integrated and staged into the operational EOSC Core platform in production.

Scope: The EOSC-Core and EOSC-Exchange provide the technological backbone of the federated EOSC ecosystem, supported by the EOSC Interoperability Framework and guidelines, allowing users to discover, share, and exploit resources on the EOSC platform. Data-driven user experience is a fundamental aspect for further development of the EOSC Core, allowing user feedback for the continuous improvement of the EOSC platform's functionality in an open manner.

Proposals are expected to cover one or several of the following activities:

- Improve the EOSC Core execution framework by enhanced composability and interoperability of cross-domain data, services, tools and other research objects and resources: by using ontologies (or a collection of controlled vocabularies), EOSC Core should make it easier for various scientific users communities to understand and exchange data and services across disciplines by facilitating better data interoperability. EOSC Core

---

[32] The Minimum Viable EOSC (MVE) platform for production, procured through the HE RI WP 21-22, represents the baseline of EOSC functions. They are necessary for forming the added-value and opportunities that EOSC will continue to provide over time.

should develop towards applying Digital Rights Vocabulary to clearly express IPR inflation over digital objects.

- Design and develop components of a comprehensive EOSC Integration Service suite as part of the next-generation EOSC Core that supports seamless integration and composability of applications, tools and services. The EOSC Integration Service should, at the minimum, include a library of predefined adapters, connectors and APIs according to the types of scientific and research data, applications, tools and services on which integrations can be performed. An event/messaging hub, based on the publish-subscribe principle, can be provided at the core of the Integration Service suite for asynchronous data/metadata exchange. A user-friendly visual mapper interface can enable the mapping of connections between applications by dragging source connectors onto target adapters.

- Provide open Application Programming Interface (API) registry, management, development and testing workflow, platform and tools for EOSC Core service users. A data-driven API monitoring tool should oversee security, compliance, and performance. It should send alerts towards the EOSC Core monitoring function as well as support built-in integrations with messaging services. An end-to-end API testing solution for testers and developers should facilitate an approach where test cases are in natural languages that helps the conveyance between scientific users and research tool/service providers.

- Support custom-made front-end portal development environment for various scientific communities, utilizing the EOSC Core portal back-end functions via integration services. A potentially low-code development environment for community portal services should offer seamless integration with the EOSC Core functions and other service integration functionalities with the EOSC Exchange applications and services out-of-the-box. Personalization and AI-driven recommendation software should support the ultimate user experience.

- Facilitate an independent EOSC service incubator and technology development environment that can serve as an open experimentation "testbed" for the EOSC stakeholders proposing the next-generation of tools and services for EOSC Core and Exchange in production.

- Ensure financial sustainability assurance and readiness assessment processes, tools, workflows and services applied for the next-generation of EOSC Core and horizontal services to ensure seamless end-user experience and frictionless DevOps cycles.

The activities need to demonstrate alignment with those of the EOSC Partnership and the EOSC MVE platform operators. Proposals should involve and be driven by one or more representatives of the relevant actors of the field, in particular those directly involved in the EOSC Partnership.

The proposals for the next generation of EOSC Core infrastructure services are expected to leverage the functionalities of the Smart Middleware Platform (SMP) developed through the Digital Europe Programme (DEP) for common data spaces.

HORIZON-INFRA-2023-EOSC-01-05: EOSC Architecture and Interoperability Framework

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [33].

---

[33]   This decision is available on the Funding and Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link:

<u>Expected Outcome</u>: Project results are expected to contribute to all the following expected outcomes:

- Robust governance structure, coordination and maintenance of the EOSC Interoperability Framework and guidelines to support operations.

- Well-established design, specification and review processes for the EOSC architectural building blocks that compose the EOSC Interoperability Framework.

- Independent, multi-stakeholder Architecture Board collecting feedback and functional requirements from cross-community use cases to share, access, analyse and re-use resources via services.

- Support for standards development, adoption and certification. EOSC cannot enable FAIR and support interoperability without standards to describe and understand digital objects.

- Scientific and research community engagement for the EOSC Interoperability Framework.

<u>Scope</u>: The EOSC Architecture and Interoperability Framework coordination and governance seeks to ensure that interoperability is built, encouraged and maintained with structure, fairness and transparency.

Achieving interoperability is essential in order to federate services, integrate data and enable interoperation with applications or workflows for analysis, storage and processing. The EOSC Interoperability Framework (EOSC IF) provides the procedures and services required to support a flexible framework of standards and guidelines that facilitate the interoperability and composability of EOSC resources in the EOSC-Exchange via the EOSC-Core. The overall EOSC architecture should be overseen by an independent Architecture Board.

Proposals are expected to cover the following activities:

- Provide structure to manage, update, circulate and promote the EOSC Interoperability Framework and guidelines to support and enable interoperability within EOSC. Such a governance structure should include:

  o A high-level body that has the oversight and the responsibility for the EOSC IF, is formally responsible for endorsing new and/or deprecating guidelines into the EOSC IF.

  o Independent sub-groups that can assess that requests for inclusion into the EOSC IF are compliant with a minimum set of requirements namely: maturity, community uptake, the existence of a group that maintains the item that has been proposed for inclusions and some governing model that allows for its evolution.

---

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

- Coordinate the establishment of IFs and the making of existing IFs available through a library/repository, support the dialogue on establishing IFs. The EOSC Interoperability Framework governance should define:

  o A process for submitting, consulting and accepting guidelines/other frameworks.

  o A structured proposal template and library providing information about the EOSC IF and guidelines.

  o Community consultation to achieve ratification.

  o A registry/repository for accepted guidelines and frameworks, where artefacts will be curated using an agreed EOSC profile.

  o Publicity, documentation and training about EOSC IF.

- Support communities in making their IFs available through EOSC IF library.

- Provide organizational framework for establishing an independent, multi-stakeholder Architecture Board that can collect feedback and recommendations from the stakeholders, oversee and advice the EOSC MVE deployment and operation.

- Define processes and guidelines to enable EOSC Core delivery and to ensure openness of EOSC so that it can adapt with the evolving requirements of the EOSC stakeholders.

The activities need to demonstrate alignment with those of the EOSC Partnership and the EOSC MVE platform operators. Proposals should involve and be driven by one or more representatives of the relevant actors of the field, in particular those directly involved in the EOSC Partnership.

Activities should be aligned with those of the scientific communities, many of which have already their interoperability practices in place. The Architecture Board must work in close cooperation with the EOSC MVE platform operators and act as advisory function to the architecture deployment.

The proposers are expected to work closely with the national Competence Centres, liaise with the EOSC Association working groups and task forces producing interoperable specifications and align to relevant community governance (e.g., RDA, IETF, Science Clusters, etc.), to ensure that a sustainable governance framework is adopted that collaborates with the other relevant bodies in the field.

HORIZON-INFRA-2023-EOSC-01-06: Trusted environments for sensitive data management in EOSC

Specific conditions

Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 8.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. • Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

• Expansion of EOSC's access to resources provided by public authorities, including national agencies, in highly sensitive areas, like the health sector, governmental statistics or geo-spatial applications, that ensures the opening of these valuable data sets for novel

research through a standard set of methods able to effectively enable sensible data sharing/processing;

- Emergence of trusted environments for management and sharing of sensitive data in order to facilitate new ways of using sensitive data sets;

- Demonstration that FAIR data workflows with sensitive data are securely possible and can benefit both the data providers and the wider science community.

Scope: The data sets of public authorities are often very sensitive and therefore restricted. Sensitive data is not only offered by public authorities, but also commercial data can be sensitive. It is vital for EOSC to enable its users to engage with such sensitive data sources.

Safe rooms, safe pods and secure remote access environments all present challenges to physical and logical security even within a single discipline, whilst transdisciplinary norms and transnational legislation present additional challenges. The providers of the sensitive data need environments with high standard of security that these datasets require. At the same time the solutions must enable easy access for users and offer practical solutions for working at large scale.

The aim of this topic is to develop and implement a standard set of methods, practices and environments to effectively enable sensible data sharing/processing. They should be general enough to be applicable in a certain country/region and in cross-border scenarios. Proposals should take into account the existing and forthcoming work and policies in the area (e.g. Medical Informatics Platform[34], European Health Data Space[35]) but also engage with additional challenges, for example where governmental statistical data or location and time sensitive data are required for analytics.

Proposals are expected to cover the following activities:

- Explore the possibility of creating specific Public Authorities' Government Zones in EOSC, providing tailored access control and engaging closely with public authorities to establish safe and secure access to their data for FAIR data processing.

The proposed work should include:

- exploring possible solutions to move all or parts of a workflow on sensitive data to a secure data storage so that the users to receive only aggregated and desensitised results;

- support for publishing anonymised data into repositories that are compliant with the EOSC Interoperability Framework;

- exploration and demonstration of possible solutions and approaches for data anonymization;

---

[34] https://ebrains.eu/service/medical-informatics-platform/
[35] https://ec.europa.eu/health/ehealth-digital-health-and-care/european-health-data-space_en

- data processing workflows that keep sensitive data encrypted throughout on disk and memory, including assessment of the cost of the encryption;

- investigation on data protection legislations on national and European level on the impact of using sensitive data in cloud hosted workflows across computer centres in different countries/regions.

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership. They need to coordinate with relevant EOSC initiatives and projects EOSC concrete plans and sustainable solutions on how to integrate the solutions with the operational EOSC setup to benefit future users. The proposals should engage with public authorities, and if appropriate also private sector, to showcase the benefit of this data-sharing for their own research and data analytics.

The proposed work should demonstrate how the impact of developed solutions on data governance and stewardship is documented. They should highlight good practices for providing sensitive data in a cloud environment and provide solutions on how a high-level of security can be maintained in a fast changing (cloud) technology landscape. Appropriate handling of sensitive data through third-party security audits and approaches and standards to record access to sensitive data for monitoring purposes should be considered. Links to related projects from relevant calls, e.g. HORIZON-HLTH-2022-IND-13-02[36] should be established.

Call - Enabling an operational, open and FAIR EOSC ecosystem (2024)

HORIZON-INFRA-2024-EOSC-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2024-EOSC-01-01: FAIR and open data sharing in support of the mission adaptation to climate change

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 6.00 and 8.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic:

---

[36] Scaling up multi-party computation, data anonymisation techniques, and synthetic data generation

	Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. Beneficiaries must deposit the digital research data generated in the action in a trusted repository federated in the European Open Science Cloud (EOSC) in compliance with EOSC requirements.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

• Seamless interactions between EOSC, operational data spaces or environments (e.g. the DRMKC Risk Data Hub, the European Climate Adaptation Platform (Climate Adapt), relevant Copernicus Services, the GEOSS Portal, the EOSC platform, etc.), researchers and other stakeholders contributing to adaptation to climate change to store, share, access, analyse and process research data and other research digital objects from their own discipline, across research infrastructures, disciplines and national borders;

• Open and FAIR data is the new norm for research contributing to adaptation to climate change;

• EU-wide sharing of research data relevant to this area is shown to be a critical mechanism to facilitate climate adaptation across Member States and Associated Countries with involvement of the regions and local authorities;

• EOSC grows into a trusted research and innovation data space and service platform in Europe that articulates with the Green Deal data space and supports the interdisciplinary research community involved in mission climate adaptation;

• Contribute to the Horizon Europe EOSC Partnership and other relevant partnerships related to adaptation to climate change.

Scope: Reuse of research data within and across disciplines and borders require openness, infrastructure capacity, better handling, careful management, machine actionability and

seamless access to services all along the data life cycle. The Horizon Europe mission areas recognise upfront that providing access to data, knowledge and digital services through federated infrastructures is a key enabling condition for success. In addition, European Partnerships tackling complex societal challenges through multi-disciplinary approaches are facing important challenges in the European R&I systems, including poor data interoperability. In recent years, different scientific communities have started developing 'thematic clouds' or 'data spaces' within their domain of research and innovation. The EOSC provides the enabling framework to share, connect and upscale best practices and services by the communities to implement FAIR principles for (open, where possible) data sharing and management. Access to an initial EOSC federation of research infrastructures and their services is being consolidated and concepts such as FAIR data management and FAIR-by-design digital research outputs (data, publications, software, code, protocols, etc.) become more prominent.

The overall objective of this topic is to accelerate research and innovation under the mission climate adaptation through better access, management, interoperability, reuse and citation of digital information, to be achieved by using and integrating EOSC resources ranging from EOSC federated infrastructures, services and data to guidelines, best practices, tools and metrics for the management of FAIR and open data, and to extend these resources to the relevant climate adaptation domains that are less familiar with EOSC.

This should be achieved through cross-domain, strategic use cases of direct relevance to the implementation plan of the mission climate adaptation and its objective to support at least 150 European regions and communities to become climate resilient by 2030.

The use cases should demonstrate the value of sharing FAIR and open research data, help to establish data sharing and management practices within the involved communities and across the Member States, the Associated Countries and their involved regions, leveraging European research infrastructures and e-Infrastructures. The use cases should provide feedback to the EOSC Partnership on the desired future evolution of the EOSC platform. Special attention shall be put on aspects of data harmonisation, data quality assurance, integration and validation of data collections and models, data privacy and security, big-data analysis and machine learning methods, as well as on the socio-economic dimension. Proposals should also foster the creation of user environments that researchers in this field can then use to seamlessly interact with digital information in the framework of the EOSC ecosystem.

Proposals should provide for activities to collaborate with relevant European Partnerships. Synergies with Horizon Europe Cluster 5 activities and other relevant initiatives, including actions stemming from Cohesion policy programmes, are welcome. Research and innovation should build on results of Horizon 2020 in the field of climate adaptation and, where relevant, support the Destination Earth initiative. Proposers should consider already established ESFRI research infrastructures and efforts by relevant ESFRI cluster projects (e.g., ENVRI-FAIR).

To ensure complementary of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with relevant initiatives and projects contributing to the development of EOSC. In particular, areas such as data interoperability, metadata and vocabularies, the use of persistent identifiers or AAI, proposals should coordinate

and establish a feedback mechanism with the awarded proposal/s from the topic HORIZON-INFRA-2021-EOSC-01-05 in order to ensure alignment with EOSC policies and to identify common useful tools and resources as well as relevant data repositories that comply with EOSC guidelines. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

HORIZON-INFRA-2024-EOSC-01-02: Supporting the EOSC Partnership in further consolidating the coordination and sustainability of the EOSC ecosystem

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 4.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply:
	Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action.
Award criteria	The criteria are described in General Annex D. The following exceptions apply:
	The following additions to the general award criteria apply due to the scope of this topic:
	Additional sub-criterion for Impact:
	• The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply:
	The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply:
	Beneficiaries may provide financial support to third parties. The support to third parties can only be provided in the form of grants. Given that the financial support to third parties is a primary aim of the action, at least EUR 2.5 million of the EU contribution of this topic should be used in this scope. Due to the nature of the work to be

<table>
<tr><td></td><td>supported, the EU contribution to each grant for third parties will go beyond EUR 60 000 and shall not exceed EUR 100 000 for activities under Enhancing the EOSC coordination to targeted investments and contributions, and will not exceed EUR 50 000 for activities under Strengthening collaboration and alignment within the portfolio of EU-funded projects, activities conducted by the EOSC Association and its members and other initiatives contributing to the objectives of the EOSC SRIA. The selection of the third parties to be supported under each grant will be based on an external independent peer review of their proposed work.

Beneficiaries will be subject to the additional access rights: Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud.

Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [37].</td></tr>
</table>

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- EOSC increases the level of coordination of national and European initiatives, creating mechanisms of mutual learning, replication of best practices and joint activities. This expected outcome will be achieved mainly through financial support to third parties in the form of cascading grants;

- EOSC increases the level of coordination and directionality among EOSC-related initiatives and Horizon Europe funded actions, ensuring a more proactive and impactful approach towards attaining the SRIA objectives. This expected outcome will be achieved through targeted financial support to third parties in the form of cascading grants;

- Step forward towards a more sustainable EOSC that enables smooth transnational access to data and services, trough the test and implementation of coherent business models;

---

[37] This decision is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

- Facilitated access to information to and from all EOSC stakeholders across countries, institutions, networks and initiatives is increasingly enabled.

<u>Scope</u>: Support the further implementation of an effective pan-European cooperation framework and a thriving EOSC ecosystem in which stakeholders from all parts of the European Research Area pull together in a strategic and coordinated manner to ensure the achievement of the EOSC Partnership objectives. This support will take the form of a combination of lump sum funding and cascading grants.

The investments on EOSC federated resources, the support to enlarge the portfolio of generic services and to stimulate specific communities in populating EOSC with data and services, are non-exhaustive examples of national and institutional contributions that are planned and need effective coordination. Proposals should support the EOSC community at large by reinforcing the coordination mechanisms that link the EOSC partnership with:

- the Member States and their actions and programmes on supporting EOSC, Open Science and other digital related initiatives that could contribute to and enable the "Web of FAIR data" and to pull resources towards shared and heterogeneous digital infrastructures,

- and the network of providers and users' representatives that commonly work on technical solutions, standards and support the change of culture towards Open Science.

It is also important to actively support coordination mechanisms and enhance synergies between activities by the EOSC Association and its members, initiatives and EU-funded projects working under the EOSC umbrella to deliver on the priorities set forth in the Strategic Research and Innovation Agenda of the EOSC European partnership.

In the context of coordination and harmonisation of a pan-European federated infrastructure, the sustainability of EOSC requires further development and implementation, notably the identification and testing of cost models and business models are needed to support the federated access to institutional, national and European capacity.

Proposals are expected to cover the following activities:

- Enhancing the EOSC coordination to targeted investments and contributions: this activity should aim at establishing a more dynamic and responsive interconnection of national nodes forming an effective EOSC coordination network. National nodes should act as EOSC national hubs to sensitise government and governmental agencies to enhance the connection of EOSC to digital infrastructures, beyond scientific infrastructures. Several countries have already implemented a network or a consortium that represents all the national stakeholders, the proposals should promote and support the creation of such structures in countries where those are not yet implemented. National nodes will have to promote funding synergies and foster collaboration with public authorities and the private sector, encouraging private investments to further develop the EOSC ecosystem. National nodes should also strengthen the connection of the EOSC related national initiatives to the

"Green and Digital transition"[38]. The nodes should foster collaboration, mutual learning and joint activities and the network should proactively interact with the EOSC Association, sharing best practices and inform of investments that could be replicated or aggregated. To address this activity, the proposals should enhance the existing coordination actions implemented by the EOSC Association with the Member States and with the international organisations (RPOs and providers) that are already members and that can catalyse investments in EOSC related initiatives. Additionally, EUR 1.50 million should be foreseen to support third parties through cascading grants to:

- o Kick-start of the coordination nodes in countries where similar structure that could act as nodes have not yet been established;

- o Promote and or coordination of joint actions and investments between countries or distributed infrastructures;

- o Coordinate international initiatives that aim at further strengthen the EOSC ecosystem.

- Strengthen collaboration and alignment within the portfolio of EU-funded projects, activities conducted by the EOSC Association and its members and other initiatives contributing to the objectives of the EOSC SRIA. Activities should maximise the added value of joint work and cross-project endeavours to accelerate EOSC deployment and evolution. This activity should allocate maximum EUR 1 million to support third parties through cascading grants with fixed amounts of up to EUR 50 000 to promote actions related to, but not limited to:

  - o Supporting additional collaborative activities amongst EU-funded projects and the EOSC Association contributing to the EOSC implementation (e.g. cross-project strategic analyses, syntheses and policy feedback, joint engagement strategies, common exploitation strategies to accelerate EOSC deployment) that would benefit from pooling expertise, and bring clear added value as compared to what individual projects or initiatives might accomplish;

  - o Building strategic and operational synergies within and beyond the EOSC ecosystem, including with other European partnerships or projects from outside the INFRAEOSC destination, such as for example, international or national projects contributing to the twin green and digital transitions, as appropriate;

- Implementation of clear financial models to support for long term financial sustainability of the main building blocks of EOSC as defined in the FAIR Lady report "Solutions for a Sustainable EOSC" to ensure federated access to existing capacity. This activity is key element to strengthen the governance framework of EOSC and it will simplify and amplify access to resources and avoid fragmentation. It is therefore important to:

---

[38]   https://digital-strategy.ec.europa.eu/en/policies/green-digital

o Capitalise on the results of the topic HORIZON-INFRA-2021-EOSC-01-02 and on the work of the EOSC Task Force on sustainability, and coordinate the piloting of financial models for the EOSC-Core;

o Evaluate and build upon existing financial models and the accounting mechanisms for data and IT services to ensure sustainability of the EOSC-Exchange and the federated cross-border and/or cross-disciplinary data and service provision; taking into account of the different types of organisations (public vs private) and resources (e.g. rivalrous vs non-rivalrous);

o Consequently, adopt the most adequate solution to ensure smooth access to transnational resources in EOSC.

To implement the last point, the proposals should also capitalise on (1) the existing financial and accounting practices of the European Research Infrastructures and other initiatives that function in a distributed and transnational framework, and on (2) the virtual access mechanism based on the projects funded under the topic H2020-INFRAEOSC-07-03. Collaboration should be established with projects funded under the topic HORIZON-INFRA-2023-EOSC-01-01.

The selected project will be expected to align with the EOSC Partnership. Proposals should involve and be driven by one or more representatives of the relevant actors of the field, in particular those directly involved in the EOSC Partnership.

HORIZON-INFRA-2024-EOSC-01-03: Enabling a network of EOSC federated and trustworthy repositories and enhancing the framework of generic and discipline specific services for data and other research digital objects

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Coordination and Support Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: Legal entities established in non-associated third countries may exceptionally participate in this Coordination and support action.
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic:

	Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries may provide financial support to third parties. The support to third parties can only be provided in the form of grants. The maximum amount to be granted to each third party is EUR 60 000. Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. • Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use. Eligible costs will take the form of a lump sum as defined in the Decision of 7 July 2021 authorising the use of lump sum contributions under the Horizon Europe Programme – the Framework Programme for Research and Innovation (2021-2027) – and in actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025). [39].

---

[39] This decision is available on the Funding Wand Tenders Portal, in the reference documents section for Horizon Europe, under 'Simplified costs decisions' or through this link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/ls-decision_he_en.pdf

Expected Outcome: Project results are expected to contribute to all the following outcomes:

- A European network of trustworthy repositories is established that will enhance the EOSC ecosystem, contribute to the consolidation of Open Science practices and support European researchers.

- The concept and requirements of trustworthy repositories are harmonised and therefore support the European funders in better addressing the Open Science provisions in their programmes

- Data depositing ecosystem in Europe are adequately supported, providing a common voice for research digital repositories to better interact with the research and innovation policy making and to respond in a more coordinated and cohesive manner to the need of the European researchers.

Scope: Providing access to data is one of the key elements of Open Science that promotes sound, and reproducible scientific research. Implementation of FAIR data principles throughout the research data life cycle is a key goal of the European Open Science Cloud and digital repositories are the first line of implementation of such principles. For many funding programmes in Europe, researchers have the obligation to deposit their data in repositories that ensure provision of Persistent and Unique Identifiers (PID), community accepted metadata schemas, data access and usage licences, that in sum are trustworthy. There is currently no generally accepted list of such repositories, whereas general registries of repositories list more than 2,000 of them. However, the maturity and trustworthiness of these repositories is difficult to assess. Identifying an appropriate repository can therefore be a challenging task for researchers, their organisations, and funding organisations. In some disciplines, researchers work with discipline-specific repositories which already have certain policies and standards in place that meet the needs of the specific community. Other repositories serve a more general research public, and their policies and standards are necessarily more generic as well. Some repositories have been certified as trustworthy repositories by one of several acknowledged certification bodies.

In Horizon Europe the Commission has introduced the definition of trusted repositories[40]; such definition is in line with the commonly accepted definition of trustworthy repository.

EOSC, among its objectives, aims at federating European trustworthy repositories to enhance access and use of research data. While the federated environment provides a technical interconnection, the creation of a collaborative network of trusted repositories will be able to enhance the quality and responsiveness of the entire EOSC ecosystem as piloted by the Horizon 2020 project FAIRsFAIR. Such network could build upon existing initiatives that already highlight a sizeable list of repositories such as those that are certified CoreTrustSeal or NestorSeal, that are part of thematic or geographical coordination network like CLARIN, SSHOC, CESSDA or national open science clouds.

---

[40] https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

This network could also make use of the current effort of technology providers, within EOSC and beyond, that offer technology solutions that support digital preservation, develop innovative services and improve the technical connection among the repositories. The mutual learning and peer-to-peer support that the network should promote and implement, may strongly affect the adoption of FAIR practices and services and establish common programmes for training. Moreover, repositories differently from libraries, have not yet consolidated a European wide representation that could be achieved though the European network of trustworthy repositories.

The proposals under this topic should address the following actions, and could use the support to third party granting mechanism where such support would be an added value:

- Create a European network of trustworthy digital repositories following FAIR-enabling principles with disciplinary and geographical spread to:

  o Foster the harmonisation of the definition of trusted repositories generically and per discipline

  o Support repositories to achieve such status and be a recognised authoritative source of quality data

  o Assist new repositories with consolidated requirements and peer to peer support

- Build a lean governance for the network to moderate, coordinate and provide common directionality and a common legal understanding within the repositories and a common voice with stakeholders and policymaker ecosystems e.g. to secure adequate funding, stronger representation in the EOSC environment, etc.

- Enhance the technical federation with standards, APIs and solutions that could enhance the access to resources, including machine to machine interaction e.g. to ensure users can access data in one repository through another, to allow repositories in the network to offer each other back up services, etc.

- Increment the framework of services of repositories in the network notably for storage, curation and also for innovative solutions (such as on-demand or in-house provisioning of digital repositories as a service) that will support institutions and communities;

- Promote stable general and discipline-oriented initiatives to support consolidation of metadata schemas and vocabularies, standards in formats and services and to foster interoperability.

To ensure complementarity of outcomes, proposals are expected to cooperate and align with activities of the EOSC Partnership and to coordinate with relevant initiatives and projects contributing to the development of EOSC. Notably, synergies and complementarities should be sought with projects funded under the topics HORIZON-INFRA-2021-EOSC-01-05, and should continue to build on outcomes from the Horizon 2020 project FAIRsFAIR. Close

cooperation is also expected with the projects funded under the topics HORIZON-INFRA-2023-EOSC-01-01, and HORIZON-INFRA-2024-EOSC-01-04.

HORIZON-INFRA-2024-EOSC-01-04: Long-term access and preservation infrastructure development for EOSC, including data quality aspects

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 8.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Procedure	The procedure is described in General Annex F. The following exceptions apply: The granting authority can fund a maximum of one project.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. • Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in

	Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Practices, standards and tools for long-term preservation are mainstreamed in the EOSC ecosystem.

- The emergence of a European distributed infrastructure for long-term preservation and access is adequately supported.

- The sustainability of long-term preservation among the European scientific community is significantly enhanced.

Scope: In the digital and data driven paradigm promoted by Open Science, data is at the core of the scientific process and its production grows at ever increasing rates. The volume of data currently is many-fold larger compared to just two years ago. In science there are many intermediate data objects being created through the phases of research activities and they are managed within the research data lifecycle in which curation and preservation are key elements to make accessible data that are interoperable and reusable. Costs and physical limitations of storage and service capacity lead to the difficult question of what is worth long term preserving narrowing the selection to data and other digital objects that will have long-term benefits to science and society.

Coordination to harmonise practices and standards within and across the different scientific fields and adequate infrastructures are necessary to implement the level of curation and preservation needed and to offer the related services that differ in practice and effort per discipline ant type of data.

Considering that European Open Science Cloud (EOSC) aims at addressing many of the challenges faced when dealing with ensuring the long-term preservation of data along with the growing uptake of FAIR principles, the proposals under this topic are expected to:

- Establish a minimum set of practices and a general framework to identify what data is candidate to long term preservation based on their use, benefit and quality

- Support the creation of long-term preservation and access strategies and processes among the different scientific disciplines

- Engage and collaborate with domain specific networks, creating new ones where necessary, that will consolidate practices and standards, such as metadata and ontologies, that will strengthen long-term access and preservation and support reproducibility, integrity and validity

- Build upon existing services and enrich EOSC with tools to store and access digital data for long periods, automate and federate certain specialised curation and preservation tasks

- Create an expert curation networks (discipline oriented) that will enhance and facilitate the curation process and the digital preservation actions to ensure data remain accessible as technology changes

- Identify within EOSC and consolidate a network of repositories and archives for long-term preservation to address economy of scale and better support the European science ecosystem. Such network will have to be a superset of the network of trusted repositories of which the development and coordination will be supported under the topic HORIZON-INFRA-2024-EOSC-01-03.

- Capitalise on the results of the ARCHIVER project and address sustainability solutions to ensure long-term preservation services in the EOSC ecosystem.

Within the action of establishing "a minimum set of practices and a general framework to identify what data is candidate to long term preservation" the quality of the data is a factor that plays a pivotal role in developing strategies that will support the decision of what is worth to preserve for long-term. The technical quality of data is related to the structure of the information objects, their adherence to standards, the use of commonly identified formats and the completeness of metadata that describes it. On a deeper level, quality is also the assessment of its "fitness" for the intended scope, uses also beyond its original destination. Technical soundness is a necessary but not sufficient discriminant and other quality assessments need to be based on set of evaluation principles and indicators that need to be developed and largely adopted by the different scientific disciplines. Therefore, the proposals under this topic are additionally expected to:

- Coordinate disciplinary networks where wide representations of universities, research performing organisations, digital repositories, building on existing practices, will

  o Develop, and promote guidelines to produce high quality data

  o Agree on standards to assess the quality of data and

  o Widely promote the above among the European research ecosystem;

- Define, with experts from the disciplinary networks common requirements for data quality that are valid across disciplines.

The selected proposals will be expected to align with the EOSC Partnership and to coordinate an collaborate with the projects funded under the topic HORIZON-INFRA-2024-EOSC-01-03 with regards to the interconnection of repositories and other archiving infrastructure, and with the projects funder the topic HORIZON-INFRA-2023-EOSC-01-02, especially with regards to the quality dimension explored under that topic.

HORIZON-INFRA-2024-EOSC-01-05: Innovative and customizable services for EOSC Exchange

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply due to the scope of this topic: Additional sub-criterion for Impact: • The extent to which the proposed work incorporates the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure in the context of the EOSC Partnership.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Beneficiaries will be subject to the additional access rights: • Each beneficiary must grant royalty-free access to its results to the EOSC Association for monitoring and developing policies and strategies for the European Open Science Cloud. Each beneficiary must also provide directly to the EOSC Association the information the beneficiary deems necessary for monitoring and developing policies and strategies for the European Open Science Cloud. • Each beneficiary must grant royalty-free access to its intellectual property rights which are part of the results and are needed for further developing the European Open Science Cloud to legal entities identified by the granting authority and established in Member States or countries associated to the Horizon Europe Framework Programme. Such access rights are limited to non-commercial use.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Next generation EOSC provides researchers with the means to easily access complete datasets and analysis platforms and provide services that support reproducibility, as well as ensuring long-term preservation and long-term availability of these research data and tools.

- Ecosystem of novel tools and services, as many new FAIR-by-design datasets as possible, whereby researchers are able to deliver much more rapidly the outputs of each part of the research lifecycle, including data and software, with the same level of precision as they deliver publications today.

- Enhanced services and tools for researchers to lower the bar and underpin the initial research planning and preparation phase (i.e. entry phase) of the research lifecycle.

Scope: The aim is to provide researchers with a set of highly innovative new services via the EOSC Exchange. These would exploit, in a structural way, the cloud-based EOSC Core technologies and horizontal European compute and data management capacities that are part of the Minimum Viable EOSC platform in production.

To be production grade, customizable and scalable, all developments should be tested against 2-3 real life use cases from a variety of scientific domains. The proposals should cooperate with the EOSC Testbed facility (to be funded under HORIZON-INFRA-2023-EOSC-01-04) as well as other relevant and related projects and e-Infrastructures and large user communities. Joint use cases and testing across individual project boundaries are encouraged.

Proposals are expected to cover the following activities in the order of priorities from high to low:

- Improve the TRL of the EOSC Exchange components in testing, development and staging. Add new features based on the evolving requirements from research communities, where possible, prioritizing open source software and tools for wide availability and uptake.

- Further develop the ecosystem of research data and related services, covering the whole data lifecycle, from discovery and mining to storage, management, analysis and reuse.

- Facilitate the collection and analysis of heterogeneous and/or large-scale data sets right from the sources where they are produced.

- Support automatic production of FAIR data at the research instruments and support infrastructures by metadata atomization tools and techniques available via EOSC Exchange.

- Add layers to the federated EOSC Data Lake that collects unstructured, semi-structured and structured data sets in order to provide customizable Data Warehouse and Data Mart services used by researchers to prepare for data analytics.

- Support data streaming and real-time data management and analytics integration into EOSC Exchange. Provide an integrated workflow for historical batch data and real-time streaming data management and analytics.

- Propose scalable and reliable messaging/even hubs, based on the publish-subscribe principle, for real-time data sources to be integrated into EOSC.

The prosed services should be integrated in the EOSC Exchange service platform and proposals should include sufficient provisions to address the integration, including appropriate IPR and licence agreements. The resources that the services will offer should be clearly identified in the proposals. The sustainability model for the long-term availability of services can rely on EOSC. Participation of the private sector, in particular SMEs, is recommended for both the development and further exploitation of the project results.

DESTINATION – RESEARCH INFRASTRUCTURE SERVICES TO SUPPORT HEALTH RESEARCH, ACCELERATE THE GREEN AND DIGITAL TRANSFORMATION, AND ADVANCE FRONTIER KNOWLEDGE (INFRASERV)

Inclusive access to the services provided by research infrastructures in the European Research Area is essential both for the quality of the research produced and for the training of researchers. Easy access to high-quality resources, based on clear conditions and with appropriate funding, is an important and attractive feature of the EU research and innovation system, allowing researchers to move within or from outside Europe to perform their research. An open landscape of RIs in Europe contributes to the circulation of skills and attraction of talents and promotes European cohesion.

The support under past Framework Programmes of trans-national and virtual access to RIs has opened to research communities across Europe state-of-the-art services and resources for their scientific activities. RIs are key players in the generation of knowledge and drivers of scientific excellence in Europe. In conjunction with the European Open Science Cloud and Technology Infrastructures, they are crucial enablers of research and innovation. The provision of services at EU level has been so far mainly organised per types of infrastructures or disciplines. The complexity and urgency of the socio-economic and environmental transition that Europe is facing requires interdisciplinary approaches and a new challenge-driven provision of customised services able to accelerate the pace of the research cycle and the delivery of solutions.

Actions under this destination will provide efficient and customised research infrastructure services to drive and enable the transition toward a sustainable Europe and a prosperous economy. RI services (e.g. access to unique scientific tools and facilities, samples provision, processing and analysis, data and modelling services) will be directed to support R&I addressing main challenges and EU priorities, including an effective and responsive health system and to accelerate the transition towards a green and digital future. Specific alignments and synergies with priorities in Pillar 2 will be developed and research infrastructure support will duly contribute to the identified missions and partnerships under Horizon Europe. At the same time, research infrastructures, which are key players in the generation of fundamental knowledge and drivers of scientific excellence in Europe, will also continue enabling the advancement of frontier knowledge in areas complementary to those addressed through a challenge-driven approach.

Proposals for topics under this destination should set out a credible pathway to contributing to several of the following impacts:

- Reinforced research infrastructures capacity to provide at scale and across the EU services to support excellent research to address societal challenges, and Horizon Europe missions and partnerships' objectives;

- Enhanced and increased society's long-term and consistent problem-solving capacity and evidence-based policy making in areas linked to health, and the green and digital transition, including a better understanding of socio-economic implications, through the provision of innovative, customised and efficient RI services;

- New discoveries and knowledge breakthroughs enabled by access provision to the best and in some cases unique state-of-the-art RIs;

- A new generation of researchers trained to optimally exploit all the essential and advanced tools for their research;

Cross-fertilisation and a wider sharing of knowledge and technologies across disciplines and between academia and industry and businesses.

The following call(s) in this work programme contribute to this destination:

Call	Budgets (EUR million)	Deadline(s)
	2023	
HORIZON-INFRA-2023-SERV-01		15 Mar 2023
Overall indicative budget		

Call - Research infrastructure services to support health research, accelerate the green and digital transformation, and advance frontier knowledge (2023)

HORIZON-INFRA-2023-SERV-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2023-SERV-01-01: Research infrastructures services to enable R&I addressing main challenges and EU priorities

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 8.00 and 14.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Admissibility conditions	The conditions are described in General Annex A. The following exceptions apply: As proposals need to give information on the research infrastructures providing access, the page limit of the application is 100 pages.
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: given the specific nature of this topic, access provision activities must be included in the proposal. Please read carefully the provisions under the section "Specific features for Research Infrastructures" at the end of this work programme part before preparing your application. Considering the Union's interest to make accessible to its researchers the most advanced research infrastructures, wherever they are in the world, legal entities established in Australia, Brazil, Canada, Chile, India, Japan, Mexico, New Zealand, Republic of Korea, Russia, Singapore, Switzerland, United Kingdom and USA, which provide, under the grant, access to their research infrastructures to researchers from Member States and Associated Countries, are exceptionally eligible for funding from the Union under this topic. The Joint Research Centre (JRC) may participate as member of the consortium selected for funding.
Award criteria	The criteria are described in General Annex D. The following exceptions apply:

	The following additions to the general award criteria apply: *For the 'Excellence' criterion*, in addition to its standard sub-criteria, the following aspects will also be taken into account: • The extent to which the access activities (trans-national and/or virtual access) will offer access to the state-of-the-art infrastructures of European interest in the field, high quality services, and will enable users to conduct excellent research. • The extent to which the project will contribute to facilitating and integrating the access procedures, to improve the services the infrastructures provide and to further develop their on-line services.
Documents	The documents are described in General Annex E. The following exceptions apply: Applicants are not required to include in their proposal a plan for the exploitation and dissemination of the results as the main objective of these actions is the service provision.
Procedure	The procedure is described in General Annex F. The following exceptions apply: To ensure a balanced portfolio covering different areas for service provision, grants will be awarded to applications not only in order of ranking but at least also to those that are the highest ranked within set areas, provided that the applications attain all thresholds.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs may take form of unit costs for trans-national and virtual access to research infrastructures as defined in the [Decision authorising the use of unit costs for the actions involving trans-national and virtual access](#) (see Annex 2 of the Horizon Europe Model Grant Agreement).

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

All areas:

• provision of innovative, customised and efficient RI services enhancing and increasing society's long-term and consistent problem-solving capacity and evidence-based policy making;

RIs services to enable research linking environmental factors to human health

- better risk assessment tools and data evidence to anticipate and mitigate negative environmental implications on human health;

- evidence to inform policy making and public health bodies with respect to assessment and management of environmental risks for human health;

- wider access to specialised RI services to underpin the competitiveness of the European industry and of biotech SMEs active in the field of risk assessment and management of environmental impact on human health.

RIs services for improving clinical research in the paediatric area

- advancement of paediatric medicines and other therapeutic and diagnostic approaches for this population group to markets and towards clinical use;

- accelerated availability of solutions and products to paediatric patients in need;

- wider access to rationally designed RI services across Europe to underpin the competitiveness of the European industry and of biotech SMEs developing paediatric medicines and treatment and diagnostic devices;

- joining forces of research infrastructures and paediatric competence networks in EU Member States and Associated Countries, to facilitate paediatric research in the context of pertinent EU regulatory environment;

- availability of innovative tools to conduct paediatric clinical trials, for the re-use of population and historical data, and for enhanced data sharing across actors at different care levels and across regions in Europe.

RIs services for climate-change risks

- enhanced and integrated cross-disciplinary R&I capacities addressing climate related-risks in Europe and in particular support relevant R&I objectives of Horizon Europe clusters, missions or partnerships;

- harmonisation of data policies and management of IPRs and ethical issues; interoperability across disciplines and with risk management platforms;

- researchers in the environment and climate change able to optimally exploit the research infrastructure services relevant for their research.

RI services for sustainable Arctic/Polar Regions

- enabling/facilitating science for understanding and predicting key processes in Polar Regions in the context of climate change;

- enhanced and further integrated R&I capacities in Polar Regions in support of EU Arctic Policy, European Green Deal and international climate initiatives.

RIs services for healthy ocean, seas and rivers

- enabling/facilitating research and innovation for clean oceans, seas and rivers environment and for climate action;

- enhanced and further integrated R&I capacities in support of the development phase of the Mission "Restore our Ocean, seas and waters by 2030", European Green Deal and international climate initiatives.

RIs services for sustainable aquaculture, fisheries and blue economy

- enabling/facilitating research and innovation for sustainable aquaculture, fisheries and the blue economy;

- enhanced and further integrated R&I capacities in support the Common Fisheries Policy, the Farm to Fork Strategy and a sustainable blue economy and the European Green Deal.

RIs services for renewable energy and smart grids

- enabling research and innovation to increase energy efficiency and foster a wider use of renewable energy, supporting the objective of the European Green Deal of a climate neutrality by 2050, the 'Fit for 55' energy targets and the SET-Plan actions on photovoltaics, bioenergy and smart grids;

- wider access for academic and industrial researchers to enhanced and further integrated RI services in support of the green transition.

RIs services for innovative applications of nanoscience and nanotechnology

- enabling research and innovation on innovative nanoscience and nanotechnology applications to support European scientific and industrial competitiveness;

- wider access for academic and industrial researchers to enhanced and further integrated RI services for fostering the application of nanoscience and nanotechnology to address emerging socio-economic needs.

RIs services to enhance the EU capacity for the development of semiconductors

- enabling research and innovation in support to the competitiveness and autonomy of the European semiconductor industry and to the European Chip Act;

- wider access for academic and industrial researchers to enhanced and further integrated RI services in the field.

RIs services for shaping the future generation society

- scientific evidence for the successful implementation of Next Generation EU;

- insight on the ways different societal groups, including the young people, can get actively involved and contribute to the development of EU missions;

- contribution to the definition and support to the development of the EU Youth strategy;

- provision of evidence on specific patterns and skills to foster active inclusion of various societal groups as active citizens and actors of positive change.

Scope: This topic aims at providing trans-national access (on-site or remote) and/or virtual access to integrated and customised RI services for challenge-driven research and innovation in each of the areas listed below, offered by a wide range of complementary and interdisciplinary top level research infrastructures.

Access also includes ad hoc users' training and scientific and technical support. Training courses for using the infrastructures may also be supported. Training courses and ad hoc users' training will prepare the new generations of researchers to properly exploit leading-edge RIs, and should provide them with appropriate skills for data stewardship.

Activities to facilitate and integrate the access procedures, to further develop the remote or virtual provision of services and to improve, customise and harmonise the services the infrastructures will also be supported, including for better serving the needs of open EU industrial research and innovation.

While the main goal of this topic is access provision to existing services, limited development of new services, relevant to the challenges, can also be supported, including joint/cross-RI services, provided that the resulting services are opened and offered already under the actions (short term R&D) and that the long term sustainability of such services is ensured by the participant RIs. The long term R&D for new instrumentation, tools, methods and advanced digital solutions will continue to be supported under destination INFRATECH.

Proposals should adhere to the guidelines and principles of the [European Charter for Access to Research Infrastructures](#)[41].

Data management (and related ethics issues), interoperability, as well as the connection of digital services (e.g. data services) to the European Open Science Cloud, should be addressed where relevant.

Proposals should duly take into account major European or international initiatives relevant in the domain. Whenever appropriate, they should foster the use and deployment of (open) global standards.

Proposals should make available to researchers a very wide and comprehensive portfolio of complementary research infrastructures services, including data services, and customised workflows to enable R&I addressing the set challenge. To this extent, they should involve, as beneficiaries, affiliated entities, third parties, or external providers of purchased services, the

---

[41] https://ec.europa.eu/info/sites/default/files/research_and_innovation/2016_charterforaccessto-ris.pdf

necessary interdisciplinary set of research infrastructures of European interest[42] that provide such services. The inclusiveness of the portfolio of services offered by the proposal will be taken into account in the Excellence score. Proposals including only few of the research infrastructure services relevant to the scope will be scored lower.

Access could also be open, under certain conditions, to third countries' researchers to work on global challenges. Research infrastructures from third countries [43] may be involved when appropriate, in particular when they offer complementary or more advanced services than those available in Europe.

Proposals should consider the inclusion of infrastructures that can facilitate a rapid transition of research findings to innovations and therefore, to society.

Proposals should include an outreach and engagement plan to actively advertise their services to targeted research communities and, if applicable, to relevant industries, including SMEs.

Proposals are expected to exploit synergies and to ensure complementarity and coherence with other EU grants supporting access provision.

Proposals will include the list of services/installations[44] opened by research infrastructures for trans-national or virtual access and the amounts of units of access made available for users. Further conditions and requirements relating to access provisions that applicants should fulfil when drafting a proposal are given in the "Specific features for Research Infrastructures" section of this Work Programme. Compliance with these provisions will be taken into account during evaluation.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

In 2023, this topic will target the following scientific challenges and EU priority areas:

RIs services to enable research linking environmental factors to human health;

Human health is strongly dependant from environmental exposure (including socio-economic and lifestyle factors). Proposals should integrate and give access to a wide range of monitoring and experimental RI services to investigate the effect of environmental exposure. They should support user projects aiming to characterize environmental risk factors (e.g. of chronic health conditions) and/or to develop innovative tools and methods for deciphering the causal pathways and the prevention of associated diseases. Integration of multiple types of data reaching from environmental exposure measurements to granular human omics, analytical and clinical data

---

[42] A research infrastructure is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located. This includes ESFRI and ERIC infrastructures.

[43] See the Eligibility conditions for this topic.

[44] "Installation" means a part or a service of a research infrastructure that can be used independently from the rest. A research infrastructure consists of one or more installations.

including also socio-economic and lifestyle data is key for this type of research at the interface of environmental and health research.

Types of services to be offered to users of the infrastructures would include, amongst others: collecting samples and data on environmental risk factors including on socio-economic, occupational and life style factors; high throughput measurements to quantify substances of concern including not targeted measurements of chemical mixtures (or other pollutants) as well as exposure markers; integration of diverse data types including human omics data to develop exposure markers; harmonisation and access to advanced bioinformatics tools to investigate the environmental and human health interactions; support for experimental work such as state of the art research models to test for stressor and outcome correlations; access to relevant data available from population cohorts; access to available and relevant data bases on environmental factors (e.g. pollutants, temperature, noise); GDPR-compliant access to relevant sensitive human data including from human biomonitoring i.e. measurements in biosamples;

Appropriate links and complementarities should be ensured with relevant ongoing initiatives and resources, such as pertinent ESFRI roadmap efforts, e.g. EIRENE, the European Human Exposome cluster, the IPCHEM database and other H2020 and Horizon Europe relevant cluster of projects on the Environment and Health area.

RIs services for improving clinical research in the paediatric field

Paediatric healthcare in EU and worldwide is often hampered by an enduring lack of specific medicines and therapies tailored for use in paediatric population. Proposals should integrate and give access to RI services to enable and accelerate R&I towards innovative biomedicinal products and therapies for children, including new-borns. They should support in particular, but not limited to, clinical R&I projects addressing therapeutic, diagnostic and prevention measures for paediatric disease management and help these projects to meet regulatory requirements for licensure and clinical use of paediatric medicines and medical devices.

Due to the peculiarities of paediatric clinical research with study subjects often dispersed across Europe, RI services offered should include innovative trial designs and novel monitoring tools, including the necessary support at local level. GDPR compliant and regulatory acceptable access and re-use of relevant population, historical and real world care data should be facilitated, as should be the harmonisation of respective ethics reviews across Europe.

As paediatric research is often faced with locally dispersed case incidences, wider geographical outreach and international collaboration beyond Europe, including with LMIC (Low-to-Middle-Income Country) is strongly encouraged.

Appropriate links and alignment should be ensured with EU level initiatives such as EnprEMA, proposed Horizon Europe partnerships such as the Innovative Health Initiative, the Transforming Health and Care Systems partnership, a Personalised Medicine, an ERA for Health Research, and the planned partnership on Rare Diseases research.

Data management should duly cater for interoperability of data services, while contributing to GDPR compliant access modalities as required in the European Health Data Space. Metadata,

statistical and anonymised data sets should duly be FAIRificated to become accessible under the European Open Science Cloud.

RIs services for climate-change risks

Climate change and land use are increasing the occurrence and severity of natural hazards notably floods, storm surges, landslides, droughts, desertification, cryosphere melting and fires in Europe and their negative impacts. Research to advance the understanding of the interlinked processes and to develop new knowledge and tools necessary to better predict, mitigate and adapt to these risks requires an unprecedented integrated and strongly cross-disciplinary approach and access to very diverse research infrastructures (such as observatories, experimental facilities, modelling capacities or data infrastructures).

Proposals will bring together key complementary and possibly heterogeneous national and European research infrastructures to provide effective access to an integrated wide range of RI services (e.g.: observations, models and experimental platforms) necessary for highly cross-disciplinary research and innovation addressing climate-related multi-hazards risks in Europe including their social dimension. Actions will in particular offer, when appropriate, fit-for-purpose access modalities facilitating the joint selection and or coherent scheduling of cross-disciplinary user project(s) by several research infrastructures, ad-hoc support and training of (new) users, customised RI data, data products, scientific services including joint services by complementary infrastructures. Actions will develop interoperability among the research infrastructures as well as with relevant initiatives and programmes and facilitate the use of external data and services, such as Copernicus services, to further develop their portfolio of multi- and cross-disciplinary scientific services.

Actions should design customised and/or new RI services taking into account the needs of ongoing research in the field and of existing disaster risk management knowledge platforms and networks (e.g. the JRC Disaster Risk Management Knowledge Centre). Due attention to the latest development of Horizon Europe priorities, its Missions and Partnerships will ensure appropriate links and complementarities. Actions should provide for a flexible approach to address ad-hoc R&I specific requests and to respond to long-term or recurrent needs.

Proposals could consider, for their inclusion in the service portfolio, relevant services and expertise offered by the European Commission's Joint Research Centre (JRC), and in particular by its Molecular Ecotoxicology and Microbiology laboratory [45], for the detection of antimicrobial resistance genes, viral RNA in water by quantitative PCR, metagenomics analysis of water samples, as well as in-house bioassays systems for detection of chemical pollutants' mixture analysis.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

RI services for sustainable Arctic/Polar Regions

---

[45]   For the participation of the JRC see General Annex B.

Polar Regions are facing rapid changes and new challenges due to climate change, biodiversity loss and increasing economic interest. Major research efforts are ongoing to understand and predict these changes including their impact on other regions, identify solutions and provide evidenced-based information such as needed by the European Green Deal and the EU Arctic policy. However, extreme conditions and low density of population make difficult the collect of data, the monitoring of complex processes and limit the opportunities to access in-situ platforms.

Proposals should provide access to a wide portfolio of complementary research infrastructures and their services needed to address the scientific challenges of Polar Regions. Building on past integration of access to terrestrial stations, fixed and mobile observing platforms, research vessels operating in Polar Regions including icebreakers, cores repositories and data infrastructures, proposals should further integrate, customise or combine services and adapt modalities of access to facilitate interdisciplinary research on complex processes in Polar Regions. Proposals should ensure appropriate links with relevant European and international initiatives and with projects developing under Horizon Europe and ongoing coordination efforts such as in the EU Polar Cluster. When appropriate, research infrastructures services should take benefit from Copernicus, GEOSS and EMODNET initiatives. Similarly, relevant data generated by the projects should be made available to these same initiatives.

Complementarity and synergies with relevant other areas under this topic should be considered.

RIs services for healthy ocean, seas and rivers

The Mission Restore our Ocean and waters by 2030 aims to deliver on precise targets for protecting and restoring ecosystems and biodiversity, for zero pollution, and for moving towards climate-neutrality, within the EU's ocean, seas and waters. Research and innovation underpinning the solutions and technologies to reach these ambitious objectives will mobilise R&I capacities in Europe and beyond and will require complementarity and synergies between national and European efforts, including from other parts of Horizon Europe and for access to the most needed and unique research infrastructures.

Proposals should provide access to a wide portfolio of complementary research infrastructures and their services in support of the research and innovation contributing to the implementation plan of the Mission and of the European Partnership for a climate neutral, sustainable and productive Blue Economy. Building on past integration of access to facilities such as marine and freshwater experimental facilities, analytical platforms, fixed and mobile observing platforms, research vessels, proposals should further integrate, customise or combine services and adapt modalities of access to facilitate the development phase of the Mission and relevant research and innovation activities for clean environment and for climate actions. Proposals should ensure appropriate links with relevant European and international initiatives and with projects developing under Horizon Europe. When appropriate, research infrastructures services should take benefit from Copernicus, GEOSS, EMODNET and the European Twin of the ocean initiatives. Similarly, relevant data generated by the projects should be made available to these same initiatives.

Complementarity and synergies with relevant other areas under this topic should be considered.

RIs services for sustainable aquaculture, fisheries and blue economy

Sustainable fisheries and aquaculture are part of the Farm to Fork Strategy and also contribute to the Sustainable Blue Economy Strategy. At the same time, advances in biotechnology tools (e.g. -omics, bioinformatics) increasingly exposed the potential of aquatic bioresources. However, research and innovation is needed to ensure sustainability and resilience of the blue economy as well as to unlock its potential.

Proposals should provide access to a wide portfolio of complementary research infrastructures and their services needed to address the scientific challenges in support of the Common Fisheries Policy, the Farm to Fork Strategy and the Sustainable Blue Economy Strategy. Building on past integration of access to facilities such as aquaculture experimental platforms, marine biological resources and analytical platforms, relevant marine data and observing platforms, proposals should further integrate, customise or combine services and adapt modalities of access to facilitate interdisciplinary research addressing EU priorities. Proposals should ensure appropriate links with relevant European and international initiatives, with projects developing under Horizon Europe and with the European Partnership for a climate neutral, sustainable and productive blue economy. When appropriate, research infrastructures services should take benefit from Copernicus, GEOSS, EMODNET and the European Twin of the ocean initiatives. Similarly, relevant data generated by the projects should be made available to these same initiatives.

Complementarity and synergies with relevant other areas under this topic should be considered.

RIs services for renewable energy and smart grids

Increased energy efficiency and wider use of renewable energy play a key role in achieving, the European Green Deal goal of a climate neutrality by 2050 and the 'Fit for 55' energy targets. The wide and concerted efforts that researchers and innovators are devoting in finding new solutions to accelerate the green transition, must be supported and enabled by the most advanced research and testing facilities.

Under previous Framework Programme research infrastructures for various types of renewable energy, for energy efficiency and smart grids have served their respective communities enabling advanced R&D. Building on these experiences these different facilities and testing platforms should now make a further step and integrate their services to create a unique entry point to a wide and integrated catalogue of complementary services for all researchers and innovators working for a more green and efficient energy.

Proposals should integrate services provided by the key research infrastructures in Europe in the fields of solar power, hydrogen, biofuels, offshore renewable energy (ORE) and integrated grids, including energy storage. Broader access at EU level should be provided to services for research, development and testing of renewable energy systems including grid integration across a range of TRLs. Services can also be customised and combined for an integrated and

interdisciplinary support to R&I, along the entire value chain, from materials, technology development to applications.

The provision of effective and integrated RI services will help academic and industrial researchers to address the challenges of the green transition towards higher shares of renewable energy and a more decentralised and low-intensity energy supply. It will also enhance research in areas relevant to the EU missions on Climate change and Emission-free cities, as well as to the SET-Plan actions on photovoltaics, bioenergy and smart grids.

Proposals should ensure appropriate links with relevant European and international initiatives, including the two above mentioned missions.

RIs services for innovative applications of nanoscience and nanotechnology

The advancements in nanoscience and nanotechnology have demonstrated the potential of working at nanoscale for applications in a wide range of industrial sectors, such as electronic, food, and packaging, just to mention few. Nanotechnologies are also crucial for the development of medical devices, including drug delivery systems and biosensors. To enlarge the array of applications and push further the use of nanoscience and nanotechnology for finding effective solutions to emerging socio-economic needs, researchers and innovators need the most advanced research and testing facilities.

The research infrastructures in the field (e.g. experimental installations for micro- and nanofabrication, analytical and modelling/simulation facilities, …), building on past integration of access to their facilities in previous Framework Programme, should now reach an higher and more interdisciplinary level of integration and offer access to a coherent and complementary set of services, customising and combining them when necessary, to support academic and industrial research teams,. Safety issues of nanoparticles should be taken into account.

RIs services to enhance the EU capacity for the development of semiconductors

The creation of a competitive European ecosystem for the design and the production of semiconductors is a major EU priority, as underlined by EC President Von der Leyen in her State of Union address. Semi-conductors are nowadays the engine of almost anything we use for economic activities, mobility and leisure and the undoubtedly basis of the digital transition. The recent production crisis caused by the shortage of semi-conductors demonstrated the worrying dependency of Europe from Asia. The new European Chips Act, announced by the Commission, should precisely address the lack of competitiveness and technological sovereignty of Europe in this field. One of the foreseen actions is to link together and strengthened world-class research, design and testing capacities in Europe.

Waiting for new capacities to be built, the existing research infrastructures including the ones (e.g, nano-electronics infrastructure, printing facilities for electronics, …) which in previous Framework Programme have already integrated and opened their services at EU level, should now come together and create a unique entry point, for academic and industrial researchers, to a wide and integrated catalogue of complementary services enabling R&D on leading-edge semiconductors and new innovative way to produce them. In order to better serve this EU

priority and facilitate interdisciplinary research, services should also be customised and combined as necessary.

Proposals should ensure appropriate links and synergies with relevant activities in other parts of Horizon Europe and other initiatives at EU level in this field.

RIs services for shaping the future generation society

Proposals should provide effective access to an integrated, wide range of RI services providing insights into the transformation towards a future European society in line with the goals envisaged by Next Generation EU. Research infrastructures, such as relevant surveys and social data archives, will make available and integrate existing data on the perceptions of various societal groups of the main problems and challenges facing the EU in the next decades and the way these groups can be better represented in the decision-making process and involved in the formulation of policies and actions at EU level, as well as in the implementation of the EU Missions action plans. The specific needs of Young people in Europe, from different backgrounds and belonging to different groups, will be particularly taken into account. Development of specific skills and competences to attain these goals will also be in the scope of the services provided by research infrastructures within this topic. By providing services to researchers in this field, research infrastructures will help the implementation of the Next Generation EU priorities and will contribute to the dialogue on the EU Youth strategy.

HORIZON-INFRA-2023-SERV-01-02: Research infrastructures services advancing frontier knowledge

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 8.00 and 14.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Admissibility conditions	The conditions are described in General Annex A. The following exceptions apply: As proposals need to give information on the research infrastructures providing access, the page limit of the application is 100 pages.
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: given the specific nature of this topic, access provision activities must be included in the proposal. Please read carefully the provisions under the section "Specific features for Research Infrastructures" at the end of this work programme part before preparing your application.

	Considering the Union's interest to make accessible to its researchers the most advanced research infrastructures, wherever they are in the world, legal entities established in Australia, Brazil, Canada, Chile, India, Japan, Mexico, New Zealand, Republic of Korea, Russia, Singapore, Switzerland, United Kingdom and USA, which provide, under the grant, access to their research infrastructures to researchers from Member States and Associated Countries, are exceptionally eligible for funding from the Union under this topic.
Award criteria	The criteria are described in General Annex D. The following exceptions apply: The following additions to the general award criteria apply: *For the 'Excellence' criterion*, in addition to its standard sub-criteria, the following aspects will also be taken into account: • The extent to which the access activities (trans-national and/or virtual access) will offer access to the state-of-the-art infrastructures of European interest in the field, high quality services, and will enable users to conduct excellent research. • The extent to which the project will contribute to facilitating and integrating the access procedures, to improve the services the infrastructures provide and to further develop their on-line services.
Documents	The documents are described in General Annex E. The following exceptions apply: Applicants are not required to include in their proposal a plan for the exploitation and dissemination of the results as the main objective of these actions is the service provision.
Procedure	The procedure is described in General Annex F. The following exceptions apply: To ensure a balanced portfolio covering different scientific domains for service provision, grants will be awarded to applications not only in order of ranking but at least also to those projects that are the highest ranked within each scientific domain, provided that the applications attain all thresholds.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply: Eligible costs may take form of unit costs for trans-national and virtual access to research infrastructures as defined in the Decision authorising

	the use of unit costs for the actions involving trans-national and virtual access (see Annex 2 of the Horizon Europe Model Grant Agreement).

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- wider, simplified, and more efficient access to the best research infrastructures available to researchers to conduct curiosity-driven research, irrespective of location;

- breakthrough and leading-edge research enabled by advanced research infrastructure services made available to a wider user community;

- improved and harmonised RI services and broader use of RI resources across Europe deriving from the exploitation of synergies and complementarities;

- a new generation of researchers trained to optimally exploit all the essential tools for their research;

- cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across scientific fields fostered by closer interactions between researchers active in and around research infrastructures;

- better management, including implementing FAIR data principle, of the continuous flow of data collected or produced by research infrastructures.

Scope: This topic aims at providing trans-national access (on-site or remote) and/or virtual access to integrated and customised RI services for curiosity-driven research in wide scientific domains, offered by a wide range of complementary and interdisciplinary top level research infrastructures. Scientific domains are identified on the basis of a Multi-Annual Priority Setting (MAPS) exercise aiming at achieving a balanced coverage of scientific disciplines addressed under the INFRASERV destination as well as complementarities with Horizon 2020 ongoing grants offering access provision. Within identified domains, emerging areas of research can also be served. The MAPS follows the taxonomy used in the ESFRI Roadmap.

In 2023, the scientific domains called under this topic are:

- Biosphere: terrestrial biodiversity and ecosystems, including forest;

- Astronomy and Astroparticle physics;

- Arts and Humanities.

Access also includes ad hoc users' training and scientific and technical support. Training courses for using the infrastructures may also be supported. Training courses and ad hoc users' training will prepare the new generations of researchers to properly exploit leading-edge RIs, and should provide them with appropriate skills for data stewardship.

Activities to facilitate and integrate the access procedures, to further develop the remote or virtual provision of services and to improve, customise and harmonise the services the infrastructures will also be supported.

While the main goal of this topic is access provision to existing services, limited development of new services, relevant to the specific scientific challenges, can also be supported, including joint/cross-RI services, provided that the resulting services are opened and offered already under the actions (short term R&D) and that the long term sustainability of such services is ensured by the participant RIs. The long term R&D for new instrumentation, tools, methods and advanced digital solutions will continue to be supported under destination INFRATECH.

Proposals should adhere to the guidelines and principles of the [European Charter for Access to Research Infrastructures](#)[46].

Data management (and related ethics issues), interoperability, as well as the connection of digital services (e.g. data services) to the European Open Science Cloud, should be addressed where relevant.

Proposals should duly take into account major European or international initiatives relevant in the domain. Whenever appropriate, they should foster the use and deployment of (open) global standards.

Proposals should make available to researchers a very wide and comprehensive portfolio of complementary research infrastructures services, including data services, which are relevant for frontier research in the domain. To this extent, they should involve, as beneficiaries, affiliated entities, third parties, or external providers of purchased services, the necessary interdisciplinary set of research infrastructures of European interest [47] that provide such services. The inclusiveness of the portfolio of services offered by the proposal will be taken into account in the Excellence score. Proposals including only few of the research infrastructure services relevant to the scope will be scored lower.

Access could also be open, under certain conditions, to third countries' researchers to work on global scientific challenges. Research infrastructures from third countries[48] may be involved when appropriate, in particular when they offer complementary or more advanced services than those available in Europe.

Proposals should include an outreach and engagement plan to actively advertise their services to the research communities in the specific domains.

Proposals are expected to exploit synergies and to ensure complementarity and coherence with other EU grants supporting access provision.

---

[46]   https://ec.europa.eu/info/sites/default/files/research_and_innovation/2016_charterforaccessto-ris.pdf

[47]   A research infrastructure is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located. This includes ESFRI and ERIC infrastructures.

[48]   See the Eligibility conditions for this topic.

Proposals will include the list of services/installations[49] opened by research infrastructures for trans-national or virtual access and the amounts of units of access made available for users. Further conditions and requirements relating to access provisions that applicants should fulfil when drafting a proposal are given in the "Specific features for Research Infrastructures" section of this Work Programme. Compliance with these provisions will be taken into account during evaluation. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

HORIZON-INFRA-2023-SERV-01-03: Research infrastructures services advancing frontier knowledge: co-fund pilots with pan-European RIs and/or national RIs

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 2.00 and 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Programme Co-fund Action
Admissibility conditions	The conditions are described in General Annex A. The following exceptions apply: As proposals need to give information on the research infrastructures providing access, the page limit of the application is 100 pages.
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: given the specific nature of this topic, access provision activities must be included in the proposal. Please read carefully the provisions under the section "Specific features for Research Infrastructures" at the end of this work programme part before preparing your application. Considering the Union's interest to make accessible to its researchers the most advanced research infrastructures, wherever they are in the world, legal entities established in Australia, Brazil, Canada, Chile, India, Japan, Mexico, New Zealand, Republic of Korea, Russia, Singapore, Switzerland, United Kingdom and USA, which provide, under the grant, access to their research infrastructures to researchers from Member States and Associated Countries, are exceptionally eligible for funding from the Union under this topic.

---

[49] "Installation" means a part or a service of a research infrastructure that can be used independently from the rest. A research infrastructure consists of one or more installations.

Award criteria	The criteria are described in General Annex D. The following exceptions apply:
	The following additions to the general award criteria apply:
	For the 'Excellence' criterion, in addition to its standard sub-criteria, the following aspects will also be taken into account:
	- The extent to which the access activities (trans-national and/or virtual access) will offer access to the state-of-the-art infrastructures of European interest in the field, high quality services, and will enable users to conduct excellent research. - The extent to which the project will contribute to facilitating and integrating the access procedures, to improve the services the infrastructures provide and to further develop their on-line services.
Documents	The documents are described in General Annex E. The following exceptions apply:
	Applicants are not required to include in their proposal a plan for the exploitation and dissemination of the results as the main objective of these actions is the service provision.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G. The following exceptions apply:
	The funding rate is 70% of the eligible costs as the provision of trans-national access is an activity at strong European added value that is not usually supported by national funders.
	Beneficiaries may provide financial support to third parties. The support to third parties can only be provided in the form of grants. Depending of the type of research infrastructure to which access is provided, the EU contribution to each grant for third parties could in some case go beyond EUR 60 000 and shall not exceed EUR 100 000. The selection of the third parties to be supported under each grant will be based on an external independent peer review of their proposed work.
	Eligible costs may take form of unit costs for trans-national and virtual access to research infrastructures as defined in the [Decision authorising the use of unit costs for the actions involving trans-national and virtual access](#) (see Annex 2 of the Horizon Europe Model Grant Agreement).

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- wider, simplified, and more efficient access to the best research infrastructures available to researchers to conduct curiosity-driven research, irrespective of location;

- the access programmes to research infrastructures in Europe enhance their openness at European level, embracing the support, with national funding, to a share of trans-national users in their normal operation;

- breakthrough and leading-edge research enabled by advanced research infrastructure services made available to a wider user community;

- improved and harmonised RI services and broader use of RI resources across Europe deriving from the exploitation of synergies and complementarities;

- a new generation of researchers trained to optimally exploit all the essential tools for their research;

- cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across scientific fields fostered by closer interactions between researchers active in and around research infrastructures;

- better management, including implementing FAIR data principle, of the continuous flow of data collected or produced by research infrastructures.

Scope: This topic aims at piloting the co-funding, with Member States and Associated Countries, of programmes of access to research infrastructures at EU level. The programme should provide trans-national access (on-site or remote) and/or virtual access to services offered by a set of similar or complementary advanced national or pan-European research infrastructures, to enable curiosity-driven interdisciplinary research. Proposals can address all scientific domains.

Proposals will explain how the EU funding in support of the common access programme will be complemented by other national or international funding sources providing the remaining 30%, and pool the necessary financial resources to implementing joint calls for the provision of access to research infrastructures.

The access programme to research infrastructures may be implemented either directly by the consortium, with the provision of trans-national and virtual access by beneficiaries, third parties or external providers of purchased services, or through the mechanism of financial support to third parties. Proposals should clearly specify which of the two options they will use to implement the co-fund action.

In the latter case, beneficiaries in the action would mainly be national or international access programme managers, including the legal entities of distributed European RI. The applicants to the calls launched by the action should be the users together with the needed research infrastructures they need, including nodes of distributed ESFRI or ERIC infrastructures. The cascade granting should cover the costs incurred by the infrastructures/nodes to provide access (actual costs, calculated on the basis of unit costs, or a combination of the previous two), the

travel and subsistence of users if visits are needed to use the infrastructures, plus specific work from RI staff and users to customise the RI services, if necessary.

Access also includes ad hoc users' training and scientific and technical support for preparing and running the user projects. Training courses for using the infrastructures may also be supported. Training courses and ad hoc users' training will prepare the new generations of researchers to properly exploit leading-edge RIs, and should provide them with appropriate skills for data stewardship.

Activities to facilitate and integrate the access procedures, to further develop the remote or virtual provision of services and to improve, customise and harmonise the services the infrastructures may also be supported.

While the main goal of this topic is access provision to existing services, limited development of new services, relevant to the specific scientific challenges, can also be supported, including joint/cross-RI services, provided that the resulting services are opened and offered already under the actions (short term R&D) and that the long term sustainability of such services is ensured by the involved RIs. The long term R&D for new instrumentation, tools, methods and advanced digital solutions will continue to be supported under destination INFRATECH.

Proposals should adhere to the guidelines and principles of the [European Charter for Access to Research Infrastructures](#)[50].

Data management (and related ethics issues), interoperability, as well as the connection of digital services (e.g. data services) to the European Open Science Cloud, should be addressed where relevant.

Proposals should duly take into account major European or international initiatives relevant in the domain. Whenever appropriate, they should foster the use and deployment of (open) global standards.

Proposals should make available to researchers a wide and rich portfolio of research infrastructures services, including data services, which are relevant for frontier research in the chosen scientific area. To this extent, they should involve the necessary interdisciplinary set of research infrastructures of European interest[51] that provide such services. The relevance of the service portfolio will be taken into account in the Excellence score.

Access could also be open, under certain conditions, to third countries' researchers to work on global scientific challenges. Research infrastructures from third countries[52] may be involved when appropriate, in particular when they offer complementary or more advanced services than those available in Europe.

---

[50]   https://ec.europa.eu/info/sites/default/files/research_and_innovation/2016_charterforaccessto-ris.pdf
[51]   A research infrastructure is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located. This includes ESFRI and ERIC infrastructures.
[52]   See the Eligibility conditions for this topic.

Proposals should include an outreach and engagement plan to actively advertise their services to the research communities in the chosen area.

Proposals are expected to exploit synergies and to ensure complementarity and coherence with other EU grants supporting access provision.

Proposals will include the list of services/installations[53] made available by the action for trans-national or virtual access and the amounts of units of access made available for users. Further conditions and requirements relating to access provisions that applicants should fulfil when drafting a proposal are given in the "Specific features for Research Infrastructures" section of this Work Programme. Compliance with these provisions will be taken into account during evaluation. In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

---

[53] "Installation" means a part or a service of a research infrastructure that can be used independently from the rest. A research infrastructure consists of one or more installations.

DESTINATION – NEXT GENERATION OF SCIENTIFIC INSTRUMENTATION, TOOLS AND METHODS AND ADVANCED DIGITAL SOLUTIONS (INFRATECH)

Scientific communities cannot adequately respond to current research challenges without having access to state-of-the-art scientific instruments and tools. Their constant adaptation, upgrading and innovation, as the underlying technologies develop at a very rapid pace, is critical for providing the optimal conditions for scientific advancements and discoveries in Europe.

The aim of this destination is the development of ground-breaking RI technologies, including scientific instruments, tools, methods, and advanced digital solutions, to enable new discoveries and keep Europe's RIs at the highest level of excellence in science, while paving the way to innovative solutions to societal challenges and new industrial applications, products and services. New instruments and tools (such as advanced sensors, imaging devices, light source detectors, high-tech developments for accelerators, robots/automated solutions) and advanced digital solutions (e.g. digital twins, data analytics and AI tools, etc.) for RI upgrade, will enable solutions to be found even for the most demanding scientific and societal challenges.

Proposals for topics under this destination should set out a credible pathway to contributing to one or several of the following impacts:

- Enhanced global competitiveness and technological excellence of Europe in an extremely fast-moving environment through investments into the development, of forward-looking technical instruments and tools for European RIs.

- Enhanced competitiveness of European industry through co-development with industrial actors of advanced RI technologies and technology transfer;

- Opening up of new areas of research and development of new industrial applications/products;

- Development of skills of RI staff aligned with the advancements of the RI technologies;

- Transdisciplinarity, cross-fertilisation and a wider sharing of knowledge and technologies between academia and industry;

- Wider use of AI in research and enhanced data-based research across Europe.

The following call(s) in this work programme contribute to this destination:

Call	Budgets (EUR million)	Deadline(s)
	2024	
HORIZON-INFRA-2024-TECH-01		20 Mar 2024

Overall indicative budget		

Call - Next generation of scientific instrumentation, tools and methods, and advanced digital solutions for RIs (2024)

HORIZON-INFRA-2024-TECH-01

Proposals are invited against the following topic(s):

HORIZON-INFRA-2024-TECH-01-01: R&D for the next generation of scientific instrumentation, tools, methods, solutions for RI upgrade

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 10.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply:
	The following additional eligibility criteria apply: consortia must include at least 3 different research infrastructures, each of them being an ESFRI infrastructure, and/or a European Research Infrastructures Consortium (ERIC) or another research infrastructure of European interest (i.e. a research infrastructure [54] which is able to attract users from EU or associated countries other than the country where the infrastructure is located).
	The specific conditions for actions with PCP/PPI procurements in section H of the General Annexes apply to grants funded under this topic.

Expected Outcome: Project results are expected to contribute to several of the following expected outcomes:

- enhanced scientific competitiveness of European research infrastructures

- foundations for the development of innovative companies;

- increase of the technological level of industries through the co-development of advanced technologies for research infrastructures and creation of potential new markets;

- integration of research infrastructures into local, regional and global innovation systems.

---

[54] See definition in footnote 1 of this Work Programme part.

Scope: The aim of this topic is to deliver innovative scientific instrumentation, tools, methods and solutions which advance the state-of-art of European RIs, and show transformative potential in RIs operation. The related developments, which underpin the provision of improved and advanced services, should lead research infrastructures to support new areas of research and/or a wider community of users, including industrial users.

Cutting-edge technologies will also enhance the potential of RIs to contribute addressing EU policy objectives and socio-economic challenges.

Proposals should ensure complementarity with actions funded under the previous 2022 call (topic HORIZON-INFRA-2022-TECH-01-01 in the 2021-2022 Work Programme), targeting different instrumentation, tools, methods and solutions.

Proposals should address all the following aspects:

- Research and development of new scientific instrumentation, tools and methods for research infrastructures taking into due account resource efficiency (e.g. energy consumption) and environmental (including climate-related) impacts;

- their technology validation and prototyping;

- training of RI staff for the operation and use of these new solutions;

- the innovative potential for industrial exploitation of the solutions and/or for the benefits of the society.

Consortia must be built around a leading core of at least 3 world-class research infrastructures, being ESFRI infrastructures, European Research Infrastructures Consortia (ERICs) and/or other world-class research infrastructures of European interest[55] and can include a wider set of RIs. Other technological partners, including industry and SMEs, should also be involved, thus promoting innovation and knowledge sharing through co-development of new technical solutions for research infrastructures.

Proposals may include PCP[56] subcontracting activities as described in part H of the General Annexes of the Work Programme. This option encourages the use of public procurements for the competitive development of new specific solutions, whilst opening market opportunities for

---

[55]   A research infrastructure is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located.

[56]   *'Pre-commercial procurement'* is defined as procurement of R&D services involving *risk-benefit sharing under market conditions* and *competitive development in phases*. PCP focuses on the R&D phase before wide commercialisation.
    'Risk-benefit sharing under market conditions' refers to the PCP approach in which procurers share with suppliers at market price the risks and the benefits related to the IPR resulting from the R&D.
    'Competitive development in phases' refers to the competitive approach to buy the R&D from several competing R&D providers in parallel and to compare and identify the best value for money solutions on the market to address the PCP challenge. To reduce the investment risk for the procurer, reward the most competitive solutions and facilitate the participation of smaller innovative companies, the R&D is also split into phases (solution design, prototyping, original development and validation / testing of the first products), with the number of competing R&D providers being reduced after each phase.

industry and researchers active in Europe. By establishing the procurement process in consecutive phases, the PCP activity can support the development of competing designs, prototypes, and solution testing. This ensures that investment risks do not prevent tackling specific scientific and technological issues, and allows to approach a problem from different angles and to test different solutions.

In this topic the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

HORIZON-INFRA-2024-TECH-01-02: Development of tools, solutions, modules to enable R&I on the social aspects of the green transition *<placeholder>*

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of up to EUR 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions

Expected Outcome: under development

Scope: under development

HORIZON-INFRA-2024-TECH-01-03: New topical digital twins for Destination Earth

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 15.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: Co-design approach with the intended user communities is required due to the specific nature of this topic.
Technology Readiness Level	Activities are expected to achieve TRL 6 or higher by the end of the project – see General Annex B.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Emergence of new topical digital infrastructures, leading to new science-based digital twins to be gradually integrated in Destination Earth[57];

- Establishment of new digital standards for software (including simulation and simulation-observation data fusion) and data for Destination Earth;

- Standards- and science-based approach for modelling, predicting and assessing the Earth systems and their socio-economic impact.

Scope: Destination Earth, for which the operational capacity building is funded from the Digital Europe Programme, aims to develop a high precision digital model of the Earth to model, monitor and simulate natural phenomena and related human activities. As part of European Commission's Green Deal and the Digital Strategy, Destination Earth (DestinE) will contribute to achieving the objectives of the twin transition, green and digital.

As part of the build-up of Destination Earth, continuous preparatory scientific and technical developments need to be carried out to ensure integration of new digital twins, covering new topical areas, into the Destination Earth digital twin framework.

The aim is develop such topical digital twin infrastructures that the core simulation, data fusion and supporting software infrastructures for high-performance computing and data handling can be seamlessly integrated with the Destination Earth platform components. These infrastructures should optimally support the scientific and technical performance of the entire digital twin ecosystem of Destination Earth.

The intended integration can be at performed at multiple levels: (i) directly integrated in the existing Destination Earth simulation and data fusion system (i.e. full integration mode), (ii) integrated in a sequential workflow where new digital twins operate their own simulation and data fusion tasks interfacing with the existing Destination Earth digital twins (i.e. coupling mode), and (iii) as data post-processing applications without own Earth-system component simulation tasks (i.e. post-processing mode).

Project results are expected to contribute to the following outcomes towards the establishment and improvement of enhanced digital twins of the Earth system:

- development of additional and/or improved, advanced, very high-resolution, complex Earth-system model components representing atmosphere, ocean, land surface and hydrology, cryosphere and biosphere in the Earth-system simulation framework of Destination Earth;

- collecting advanced Earth observation data from satellites, established airborne and ground-based observatories as well as novel technologies (UAV[58], drones, buoys, IoT sensors) linked for use in the simulation-observation data-fusion framework of Destination Earth;

---

[57]   https://digital-strategy.ec.europa.eu/en/policies/destination-earth
[58]   Unmanned Aerial Vehicle

- ensure appropriate representation of uncertainty to produce reliable estimates of both monitored and predicted states of the new components;

- development of scientific components of impact models associated with the new topical components for the management of renewable energy, food, water and health;

- development of software and data handling infrastructures that use and enhance the extreme-scale computing and data handling infrastructure of the Digital Twin Engine; support and enhance both the workflow management established by the existing Digital Twin Engine and its operation through the DestinE Core Service Platform and the data handling established by the existing Digital Twin Engine and its operation through the DestinE Data Lake.

Proposals should take advantage of the opportunities and developments offered by existing Horizon Europe research and innovation actions developing new simulation and observation capabilities, emerging ICT infrastructures (e.g., EuroHPC), research infrastructures and related projects, and HPC Centers of Competence and Excellence (such as ESiWACE for weather and climate prediction and ChEESE for solid Earth applications). The proposals need to demonstrate how they intend to collaborate with the implementing entities of Destination Earth (European Space Agency (ESA), European Centre for Medium-Range Weather Forecasts (ECMWF) and European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)) and other key organisations in the field (e.g. Mercator Ocean).

HORIZON-INFRA-2024-TECH-01-04: AR/VR-empowered digital twins for modelling complex phenomena in new RI application areas

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 12.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: The following additional eligibility criteria apply: Co-design approach with the intended user communities is required due to the specific nature of this topic.
Technology Readiness Level	Activities are expected to achieve TRL 6 or higher by the end of the project – see General Annex B.

Expected Outcome: Project results are expected to contribute to all the following expected outcomes:

- Availability of advanced modelling and prediction capabilities aimed at industrial, scientific or policy end users on complex and socio-economically relevant real-life phenomena, including consideration of the possibility to replace, where appropriate, the need for physical experiments and interventions by using digital twins.

- Enhanced competitiveness and improved effectiveness of European RIs;

- Better integration of RIs into local, regional and global innovation and decision support systems.

Scope: The aim of this topic is to deliver digital twin solutions which advance the state-of-art of European RIs and show transformative potential in RI operations. The solutions should pave way for new ways to conduct experiments by the RIs through AR/VR (augmented reality/virtual reality) empowered digital twins. Mixed reality (XR) technologies can also be considered. The focus is on newer application areas, such as healthcare, safety and security, to understand complex real-world systems, particularly in application areas constrained by specific physical limitations (like radiation, pressure or temperature). The related developments, which underpin the provision of improved and advanced services, should lead RIs to support new areas of research and/or a wider community of users, including clearly identified and involved industrial, scientific or policy end users and enhance the potential of the RIs in addressing EU policy objectives and socio-economic challenges.

Proposals should address all of the following aspects:

- development of digital twin solutions for RIs that take advantage of AR/VR technologies for interactive visualisation, bring together the available relevant data resources in the specific topical area;

- include technology validation and prototyping activities to cope with a large and representative application area to test the relevance of the solutions with the needs of relevant industrial, scientific or policy end users;

- prepare for take-up of the developed solutions by clearly identified and involved industrial, scientific or policy end users, and include relevant training for the operation and use of these new solutions.

Consortia should include at least 3 world-class RIs, like ESFRI infrastructures, European Research Infrastructures Consortia (ERICs) and/or other world-class RIs of European interest. Relevant technological partners from the industry and SMEs should be involved to the activities and to promote innovation and knowledge sharing through co-development of new technical solutions for RIs.

Clearly identified industrial, scientific and/or policy end users should be involved through an iterative digital twin development process. Clearly defined use cases should demonstrate the potential of these new solutions within the involved communities and beyond. If appropriate, links to the EU Destination Earth (DestinE) initiative could be established, either by

contributing directly to future application areas of DestinE or by making use of DestinE model/data resources.

DESTINATION – NETWORK CONNECTIVITY IN RESEARCH AND EDUCATION - ENABLING COLLABORATION WITHOUT BOUNDARIES (INFRANET)

The way scientific research is conducted has dramatically changed over the last years. Network, storage and computing services provide the foundation to conduct modern scientific research.

Today the data for research is generated from countless sources and large instruments across the globe (e.g. CERN/Copernicus/Galileo/ESO[59]/SKA[60]) and stored in data repositories. In this context, a key element of the on-going research evolution is the availability and findability of data outside the specific scientific communities. With the advances in virtualization technologies, AAI and automation, data and resources can be easily combined on the cross-disciplinary basis to complement scientific research processes.

Allowing scientists to conduct excellent research requires high-bandwidth networks and network services to interconnect researchers, data and computing resources in a non-discriminatory way regardless of the location of the users and the resources.

The federation of National Research and Education Networks shape a fundamental building-block of Europe's e-infrastructure landscape, delivering a pan-European network for scientific excellence, research, education and innovation by providing an integrated catalogue of services for connectivity, collaboration, security and trust-and-identity that ensure Europe remains at the forefront of research.

The target of the Destination under this work programme is to carry on building upon the Framework Partnership Agreement's expected outcomes, delivering state of the art network connectivity, above-net innovative services and operational excellence for the National Research & Education Networks (NRENs) and their researchers.

The Specific Grant Agreements (SGAs) implementing the FPA action plan are included under "Other actions". Therefore there is no call for topics under this Destination.

Proposals for SGAs under this destination should set out a credible pathway to contributing to all the following impacts:

- Further increase core R&E's network capacity towards delivering Terabit connectivity, where is technically and economically feasible.

- Evolve the service catalogue to offer tailored combination of services to the scientific communities, to address new challenges in online education, such as data handling and educational connectivity beyond institutions.

---

[59]   European Southern Observatory
[60]   Square Kilometer Array

- Leverage Trust and Identity Services: this should include contributions to national, European, and global standardisation and regulation, and interoperable frameworks to facilitate data-centric collaboration and FAIR data principles.

- Take the pan-European R&E network and partners security to the next level, for example by installing frameworks and processes for fast, federated and coordinated responses to computer security incidents across European's NRENs and communities.

- Develop collaboration in new fronts: for example, by further provisioning services through a pan-European procurement framework, or extending the NRENs' federation leveraging open platforms and doing proof-of-concepts of advanced technologies and services to support international and cross-disciplinary research like Metrology and Quantum Communication Infrastructures.

Other Actions not subject to calls for proposals

Grants to identified beneficiaries

1. International Conference on Research Infrastructures – ICRI 2024

Expected outcomes: Projects are expected to contribute to all the following outcomes:

- Contribution to address global challenges with a global dimension;

- Increased capacity of Europe to respond, in cooperation with international players, to emerging challenges at global level;

- Development of further cooperation with ongoing key international partners for research infrastructures;

- Enhanced role of the Union in international organisations and multilateral fora;

- Progress towards the development of global research infrastructures.

Scope:

The International Conference on Research Infrastructures (ICRI) is organised alternatively in EU and in a Third Country, in cooperation with the European Commission. ICRI 2024 will contribute to the objectives of the INFRADEV destination.

The next ICRI Conference is planned in xxxx, under the xxx Presidency, in the second semester 2024.

The objectives of the conference are (1) to provide an international forum for the discussion on the development of global research infrastructures, in particular, on issues of common interest such as the long-term sustainability of research infrastructures and their innovation potential; (2) to facilitate strategic international cooperation between European research infrastructures and their International counterparts; (3) to address the role of RIs to tackle global challenges and to contribute to the SDGs; (4) to analyse the resilience and adaptability of RIs in times of crisis.

This grant will be awarded without a call for proposals according to Article 195(e) of the Financial Regulation and Article 20(4) of the Horizon Europe Framework Programme and Rules for Participation to the legal entities identified below, as they have been designated by the Czech Republic and include the ministry responsible for the event.

Legal entities:

XXXXXXXX, yyyyyyyyy

Form of Funding: Grants not subject to calls for proposals

Type of Action: Grant to identified beneficiary according to Financial Regulation Article 195(e) - Coordination and support action

The general conditions, including admissibility conditions, eligibility conditions, award criteria, evaluation and award procedure, legal and financial set-up for grants, financial and operational capacity and exclusion, and procedure are provided in parts A to G of the General Annexes.

Indicative timetable: Last quarter of 2023

Specific Grant Agreements to FPA

1. SGA to the FPA for Research and Education Networks (2024)

The consortium of the selected Framework Partnership Agreement (FPA) for Research and Education Networks, is invited to submit one proposal for a Specific Grant Agreements (SGA) for the second period of the partnership (2023-2024). Activities to be carried out under the SGAs should be in line with the objectives defined in the Framework Partnership Agreement (FPA) action plan. The proposals will be assessed according to the evaluation criteria described in the specific conditions of the action and the requirements listed in the invitation letter from the Commission.

Expected Outcomes:

The concrete expected outcomes per area of activities should be:

Increase core network capacity and coverage:

- Progress towards delivering Terabit capacity, meeting the huge growth in secure network capacity demands and challenges for a paradigm shift in the digital science and computational infrastructures planned over the next 10 years;

- Further develop the fibre optic based network infrastructure to the edges of Europe, where technically and economically feasible, including very high-speed-terabit capable services to serve the intensive, point-to-point data flows. That should cover transfer of large volumes of data which are routinely required by international scientific endeavours;

Improve and expand connectivity and collaboration service catalogue offering:

- Improve the offering on above-the-net-services, including the use of the underlying connectivity infrastructure and its core building blocks, security and authentication and authorisation Infrastructure (AAI);

- Advance by designing and implementing new demand-driven, reliable, secure and multi-domain services for GEANT's R&E community;

- Further develop and expand GÉANT's Trust &Identity services, eduRoam and eduGAIN, which form the foundation for access to academic resources worldwide. And also address

the next challenges in online education, such as data handling and educational connectivity beyond institutions;

- Evolve the federation using open platforms to implement proofs-of-concept for advanced research initiatives, technologies, and services (like distributed acoustic sensing service for submarine cables, or others);

Leverage Trust and Identity Services:

- Extend the interoperability to public and private digital identity platforms, including support for the eIDAS national identity platform (enhanced service offering with advanced group access rights management);

- Contribute to national, European and global standardisation and regulation of trust and identity services to maximise the impact of privacy-by-design, and sustainable solutions that are developed in the R&E community;

- Collaborate with emerging Trust & Identity Services and standards in the public sector to build interoperable services and a pan-European privacy-preserving trust fabric;

- Build upon comprehensive and interoperable frameworks and services to facilitate data-centric collaboration and data sharing based on findable, accessible, interoperable, and reusable (FAIR) data principles;

Take GEANT's network and partners security to the next level:

- Analyse best practices and put in place the necessary tools (either via tailored off-the-shelf or in-house developed products) to secure GEANT's high speed networks across different NRENs;

- Install the necessary framework and processes for fast, federated and coordinated responses to computer security incidents across European's NRENs and GÉANT infrastructures and communities. Also extend this by cooperation with the worldwide community of Computer Emergency Response Teams (CERTs) and Computer Security Incident Response Teams (CSIRTs), and develop effective and innovative responses to threat management, wherever feasible;

- Assist partner organisations to improve their security posture and address threats in a timely matter. Collaborate by providing adequate knowledge, awareness, experience and expertise with an extensive training program, both for basic and expert levels. Finally, related to tools, provide a security dashboard for NRENs to show actual compliance with standards;

- Ensure security-by-design across activities, and investment on keeping pace with methodological developments in the industrial and commercial sector, as well as with new challenges;

- Ensure GEANT's network is secure enough for processing of sensitive data and GDPR compliant data;

Develop collaboration in new fronts:

- Analyse architectural and operational models for global connectivity and data orchestration that enable international and cross-disciplinary research to exploit world-class computing facilities (like the ones by EuroHPC and consortium partners' national initiatives);

- Align to project-wide best practices for software service releases, based on industry standards for quality, maintenance, and deployment, along with defining interface specifications for all delivered services;

- Provide the necessary for safe, secure, and cost-effective provision of services through pan-European procurement frameworks (where externally sourced). Including an up-to-date collectively procured, and managed portfolio of commercial infrastructure-cloud platforms made available to European R&E institutions;

- Leverage NRENs federation to become an open pan-European platform for development, proof of concepts, testing, and deployment of advanced research technologies and services (i.e. Metrology and Quantum Communication Infrastructure);

Specific conditions:

7-years Framework Partnership Agreement for Research and Education Networks with identified beneficiary and specific grants awarded to identified beneficiary for Research and Innovation Action under the Framework Partnership Agreement.

In this action the integration of the gender dimension (sex and gender analysis) in research and innovation content is not a mandatory requirement.

Purchases of equipment, infrastructure, services or other assets used for the action should be declared as depreciation costs.

The standard evaluation criteria, thresholds, weighting for award criteria and the maximum rate of co-financing for this type of action are provided in parts D and G of the General Annexes with the following exceptions for the evaluation criteria:

For the criterion Excellence the following sub-criteria apply:

- Clarity and pertinence of the project's objectives, including their relevance to the overarching goals of the FPA. Extent to which the proposed work is ambitious, and goes beyond the state-of-the-art.

- Soundness of the proposed methodology, including the business model approach on service delivery and provision of innovative services and the related metrics.

- Effectiveness and agility in developing new services according to the needs of a wide user base across multiple disciplines for excellent science and research.

Form of Funding: Grants not subject to calls for proposals

Type of Action: Specific grant agreement awarded without call for proposals in relation to a Framework Partnership Agreement

Indicative timetable: First quarter of 2024

Expert contract actions

1. External expertise 2023

This action will support:

1. The use of appointed independent experts for the monitoring of running actions (grant agreement, grant decision, public procurement actions, financial instruments) funded under Horizon Europe and previous Framework Programmes for Research and Innovation, and where appropriate including ethics checks.

2. The use of individual experts to advise on, or support, the design and implementation of EU policies on research infrastructures. The activities carried out by the experts will be essential to the development and monitoring of the Union policy and initiatives in this area. The individual experts' tasks will include attending bilateral meetings with Commission services, remote drafting and possible preparatory work. The experts will be highly qualified, specialised, independent experts selected on the basis of their competence and knowledge of the field. A special allowance of EUR 450/day will be paid to the experts appointed in their personal capacity who act independently and in the public interest. This amount is considered to be proportionate to the specific tasks to be assigned to the experts, including the number of meetings to be attended and possible preparatory work.

3. The use of individual experts for the assessment of ERIC applications, as required under the ERIC Regulation[61]. The experts will be highly qualified independent experts selected on the basis of their specific competence. The experts will provide a report for each of the assessed ERIC application. A special allowance of EUR 450/day will be paid to the experts appointed in their personal capacity who act independently and in the public interest. This amount is considered to be proportionate to the specific tasks to be assigned to the experts.

Form of Funding: Other budget implementation instruments

Type of Action: Expert contract action

---

[61] Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community Legal Framework for a European Research Infrastructure Consortium.

2. External expertise 2024

This action will support:

1. The use of appointed independent experts for the monitoring of running actions (grant agreement, grant decision, public procurement actions, financial instruments) funded under Horizon Europe and previous Framework Programmes for Research and Innovation, and where appropriate including ethics checks.

2. The use of individual experts to advise on, or support, the design and implementation of EU policies on research infrastructures. The activities carried out by the experts will be essential to the development and monitoring of the Union policy and initiatives in this area. The individual experts' tasks will include attending bilateral meetings with Commission services, remote drafting and possible preparatory work. The experts will be highly qualified, specialised, independent experts selected on the basis of their competence and knowledge of the field. A special allowance of EUR 450/day will be paid to the experts appointed in their personal capacity who act independently and in the public interest. This amount is considered to be proportionate to the specific tasks to be assigned to the experts, including the number of meetings to be attended and possible preparatory work.

3. The use of individual experts for the assessment of ERIC applications, as required under the ERIC Regulation[62]. The experts will be highly qualified independent experts selected on the basis of their specific competence. The experts will provide a report for each of the assessed ERIC application. A special allowance of EUR 450/day will be paid to the experts appointed in their personal capacity who act independently and in the public interest. This amount is considered to be proportionate to the specific tasks to be assigned to the experts.

Form of Funding: Other budget implementation instruments

Type of Action: Expert contract action

---

[62]   Council Regulation (EC) No 723/2009 of 25 June 2009 on the Community Legal Framework for a European Research Infrastructure Consortium.

Specific Features for Research Infrastructure

This section provides further conditions and requirements on access provision that applicants must comply with, for different topics under the INFRASERV destination and for the 'Research Infrastructure services for rapid research responses to COVID-19 and other infectious disease epidemics' action of the Research Infrastructures Work Programme. Compliance with these provisions will also be taken into account during evaluation.

Trans-national and/or virtual access[63] activities.

Trans-national access activities

Trans-national access provision must be implemented as follows:

Trans-national access to infrastructure services offered under the grant is provided 'free of charge' to selected researchers or research teams (user-groups) including from industry. Access activities should be implemented in a coordinated way so as to improve the overall service provision to the research community. Access may be made available to external users, either **in person** ('hands-on'), when the user visits the infrastructure to make use of it, or through the provision to the user of **remote** scientific services, such as the provision of reference materials or samples, the remote access to a high-performance computing facility, the performance of sample analysis or sample deposition.

The research infrastructures must publicise widely the access offered under the grant agreement to ensure that researchers who might wish to have access to the infrastructures are made aware of the possibilities open to them. They must open specific calls to invite researchers to apply for access. The research infrastructures must promote equal opportunities in advertising the access and take into account gender issues when defining the support provided to visitors. They must maintain appropriate documentation to support and justify the amount of access reported. This documentation must include records of the names, nationalities, and home institutions of the users within the research teams, as well as the nature and quantity of access provided to them. To this extent, a unit of access to each infrastructure service/installation[64] needs to be identified and precisely defined in the proposal.

The selection of researchers or research teams must be carried out through an independent peer-review evaluation of the research projects (user projects) they wish to carry out at the infrastructure. The research team, or its majority, must work in countries other than the country(ies) where the infrastructure is located (when the infrastructure is composed of several research facilities, operated by different legal entities, this condition must apply to each facility) except when access is provided by an International organisation, the Joint Research Centre (JRC), an ERIC or similar legal entities with international membership. User teams where all or the majority of users work in third countries can be supported as long as the cumulative access provided to them is below 20% of the total amount of units of access provided under the

---

[63] See Annex 5 (Article 18) of Horizon Europe Model Grant Agreement
[64] "Installation" means a part or a service of a research infrastructure that can be used independently from the rest. A research infrastructure consists of one or more installations.

grant. In exceptional and well justified cases a higher percentage of access to third-country user teams can be set out in the proposal.

Only user groups that are allowed to disseminate the results they have generated under the action may be eligible for access (unless the users are working for SMEs).

The duration of stay at a research infrastructure must normally be limited to three months, unless otherwise provided for in the proposal.

The EU financial support to trans-national access will cover the *access costs*[65] incurred by the access provider in providing access to the selected researchers, as well as the travel and subsistence costs incurred in supporting visits to the infrastructure of these researchers.

The *access costs* charged to the grant will not include capital investments (including depreciation costs of equipment, infrastructure or other assets) nor internally invoiced goods and services, unless otherwise specified in the Work Programme, while they may cover the running costs of the infrastructure as well as the cost for the logistical, technological and scientific support for users' access. This includes costs for ad-hoc training users need to use the infrastructure and for preparatory and closing activities that may be necessary to carry out users' work on the infrastructure.

Virtual access activities

Virtual access provision must be implemented as follows:

Virtual access to research infrastructure is provided through communication networks to users complying with the RI's access policy, without selecting them. Examples of virtual access activities are provision of access to databases available via Internet, or data deposition services.

The research infrastructures must publicise widely the access offered under the grant agreement to ensure that researchers who might wish to have access to the infrastructures are made aware of the possibilities open to them.

The EU financial support to virtual access will cover the *access costs*[66] incurred by the infrastructure in providing access under the project, including the technological and scientific

---

[65]   Access costs will be supported through the reimbursement of the eligible costs specifically incurred by a research infrastructure for providing access to the research teams selected for support under the project, or on the basis of unit costs calculated according to the methodology indicated in the Decision authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructures actions under the Horizon Europe Programme. In the latter case the access costs will be calculated multiplying the unit cost by the quantity of access provided under the grant. The cost of the unit of access to the infrastructure, i.e. the unit cost, must then be indicated in the proposal. A combination of the two methods mentioned above will also be possible.

[66]   Access costs will be supported through the reimbursement of the eligible actual costs specifically incurred by a research infrastructure for providing virtual access to identified users under the project, or on the basis of unit costs calculated according to the methodology indicated in the Decision authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructures actions under the Horizon Europe Programme. In the latter case, the access costs will be calculated multiplying the unit cost by the quantity of access provided under the grant. The cost of the unit of access to the

support researchers need to effectively use the services. Capital investments (including depreciation costs of equipment, infrastructure or other assets) as well as internally invoiced goods and services will not be eligible costs unless otherwise specified under the specific call or topic, in which case only the portion used to provide virtual access under the project can be eligible. A unit of access to each research infrastructure service must be identified and precisely defined in the proposal. The provision of virtual access during the project lifetime will be measured through the units of access defined in the grant agreement and must be periodically assessed by an external board. Eligibility criteria (e.g. affiliation to a research or academic institution) for users can be defined in the proposal, to take into account the access policies of the different RIs.

---

research infrastructure, i.e. the unit cost, must then be indicated in the proposal. A combination of the two methods mentioned above will also be possible.