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TURKEY in HORIZON 2020
COOPERATION. INNOVATION. COMPETITIVENESS

Technical Assistance for Turkey in Horizon 2020 Phase-II
EuropeAid/139098/IH/SER/TR

Turkey in Horizon 2020 II

'Research Infrastructures Calls of 2022'

Dimitrios Papageorgiou// TVP Solar SA

General and Information Training on Horizon Europe

08 November 2021

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Why participating in research Infrastructures?

- Cost-benefit for the research institutions:

  - **Costs**: investment cost; operating costs;

  - **Benefits**: enhancing research capacity; attracting R&I funding, researchers & students; enhanced networking & reputation

  More on social cost-benefit analysis of large-scale RI: here

Research Infrastructures: 2022 Call in figures

- **Calls**:
  - HORIZON-INFRA-2022-DEV-01;
  - HORIZON-INFRA-2022-EOSC-01 (4 topics)
  - HORIZON-INFRA-2022-SERV-01;
  - HORIZON-INFRA-2022-TECH-01

- **7 topics** for RI (6 RIA; 1 CSA)

- **Deadline**: 20 April 2022; 21 September 2022 for HORIZON-INFRA-2022-SERV-01)

- Overall indicative budget: 199.8M€

Note 1: Planned opening date: 19 January 2022; 01 June 2022 for HORIZON-INFRA-2022-SERV-01
Note 2: Applicants should use the official call documents (including Horizon Europe Research Infrastructures Workprogramme 2021-22; Admissibility conditions, eligibility conditions, financial & operational capacity and exclusion, award criteria, etc. The current presentation serves informative purposes.

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Overview of 2022 Call Topics

HORIZON-INFRA-2022-DEV-01-01

RI concept development

RIA; Available budget: **21.8M€**; 7 projects

HORIZON-INFRA-2022-EOSC-01-01

Services and tools to underpin a research assessment system that incentivises open science practices

RIA; Available budget: **6M€**; 3 projects

HORIZON-INFRA-2022-EOSC-01-02

Improving and coordinating technical infrastructure for institutional open access publishing across Europe

RIA; Available budget: **5M€**; 1 project

HORIZON-INFRA-2022-EOSC-01-03

FAIR and open data sharing in support of healthy oceans, seas, coastal & inland waters

RIA; Available budget: **16M€**; 2 projects

HORIZON-INFRA-2022-EOSC-01-04

Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications and software

CSA; Available budget: **3M€**; 1 project

HORIZON-INFRA-2022-SERV-01-01

Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS

RIA; Available budget: **38M€**; 1 project

HORIZON-INFRA-2022-TECH-01-01

R&D for the next generation of scientific instrumentation, tools and methods

RIA; Available budget: **110M€**; 11 projects

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Terminology (1/2)

HORIZON-INFRA-2022

❖ **Research infrastructures** (RIs): are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields.

❖**Technology Infrastructures** (TIs): are defined facilities, equipment, capabilities and support services required to develop, test and upscale technology to advance from validation in a laboratory up to higher TRLs prior to competitive market entry.

❖**Research Infrastructures of European interest**: A RI is of European interest when is able to attract users from EU or associated countries other than the country where the infrastructure is located.

❖**European Research Area** (ERA): is the ambition to create a single, borderless market for research, innovation and technology across the EU

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Terminology (2/2)

❖ **European Strategy Forum on Research Infrastructures** (ESFRI): Mission: to support a coherent & strategy-led approach to policy-making on research infrastructures in Europe, and to facilitate multilateral initiatives leading to the better use and development of research infrastructures, at EU and international level.

❖**European Research Infrastructure Consortium** (ERIC): is a specific legal form that facilitates the establishment and operation of RI with European interest. The ERIC allows the establishment and operation of new or existing RI on a non-economic basis.

❖**European Open Science Cloud** (EOSC): aims to build infrastructures to provide seamless access to FAIR data and interoperable services for the scientific community.

❖**FAIR data**: are data which meet principles of findability, accessibility, interoperability, and reusability.

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Destination: Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership (INFRADEV)

Challenges for the near future

- To consolidate and optimise the European RI and enhance its capacity to support frontier research
- To address the emerging & new scientific and societal objectives associated with the transition to a sustainable & resilient Europe.

Impact

Proposals for topics under this destination should set out a credible pathway to contributing to:

- Disruptive research and breakthrough science and innovation
- Strengthened scientific excellence and performance & efficiency of ERA
- Coordinated research infrastructure capacity
- Etc.

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Research infrastructure concept development (1/5)

HORIZON-INFRA-2022-DEV-01-01

RIA; Available budget: 21.8M€; 7 projects

Outcome

- Sound **science cases** for new RI, including expected scientific breakthrough, gap analysis 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);

- **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**.

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Research infrastructure concept development (2/5)

Scope   HORIZON-INFRA-2022-DEV-01-01

✓ Supporting the development of **new concepts for the next generation of RI of European interest**, 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

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

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Research infrastructure concept development (3/5)

Scope (continued 1)   HORIZON-INFRA-2022-DEV-01-01

✓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**.

Research infrastructure concept development (4/5)

Scope (continued 2)   HORIZON-INFRA-2022-DEV-01-01

✓Proposals should also provide evidence that the project will effectively:

- ✓ identify **technologies & develop RI architecture** (single site, distributed, …);

- ✓ 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.

Research infrastructure concept development (5/5)

Scope (continued)   HORIZON-INFRA-2022-DEV-01-01

- ✓ 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.

- ✓ Integration of the gender dimension (sex and gender analysis) in research and innovation content is **NOT** a **mandatory** requirement.

Destination: Enabling an operational, open and fair EOSC ecosystem (INFRAEOSC)

Aim

- 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 … leading to a "**Web of FAIR Data & 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

Impact

- Transforming the way researchers as well as the public and private sectors create, share and exploit research outputs
- Facilitating scientific multi-disciplinary cooperation
- Seamless access to and management of increasing volumes of research data following FAIR principles
- Etc.

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Services and tools to underpin a research assessment system that incentivises open science practices (1/6)

HORIZON-INFRA-2022-EOSC-01-01
RIA; Available budget: 6M€; 3 projects

Outcome

- Enable a **rewards and recognition system** based on a new generation of (qualitative or quantitative) **metrics and indicators**, leading to a culture and system change that increases the quality and impact, the creativity and the transparency of and trust in science;

- Establish a system of qualitative information based on **community-led curation and annotations** of research outcomes that feeds into a revamped rewards and recognition system;

- Contribute to the Horizon Europe **EOSC Partnership**

Open Science Indicators: monitoring, learning, and resource allocation

EC on Open Science:
https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/our-digital-future/open-science_en

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Services and tools to underpin a research assessment system that incentivises open science practices (2/6)

Relevant H2020 projects

- Integrating and managing services for the European Open Science Cloud
  https://cordis.europa.eu/project/id/777536

- OpenAIRE - CONNECTing scientific results in support of Open Science
  https://cordis.europa.eu/project/id/731011 ; https://www.openaire.eu/mission-and-vision

- National Initiatives for Open Science in Europe; https://cordis.europa.eu/project/id/857645

- EOSC Future https://cordis.europa.eu/project/id/101017536 Start date: 01/04/21

- European Open Science Cloud - Expanding Capacities by building Capabilities
  https://cordis.europa.eu/project/id/857647

- Fostering the practical implementation of Open Science in Horizon 2020 and
  beyond https://cordis.europa.eu/project/id/741839 CSA

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Services and tools to underpin a research assessment system that incentivises open science practices (3/6)

Scope   HORIZON-INFRA-2022-EOSC-01-01

✓ Changes in the **evaluation of research and researchers' performance** are necessary in order to incentivise higher quality research, collaboration and open science practices.

✓ Development of **EOSC-federated services** and tools that allow the gathering and monitoring of information and data on the use and uptake of research outputs and of open science practices across borders and disciplines.

  ✓ Such tools and services are essential to collect the information to be used for next generation metrics, together with qualitative indicators, in an assessment system that valorises open science.

Services and tools to underpin a research assessment system that incentivises open science practices (4/6)

Scope (continued 1) HORIZON-INFRA-2022-EOSC-01-01

✓Services and tools should **collect data on:**
- ✓ the different usages of **research outputs** such as data sets, models, s/w, etc.,
- ✓ on the usage of **EOSC services**, RI, data platforms, etc., and
- ✓ on **open science practices** such as those identified in the context of the Open Science Policy Platform registry of pilots and implementations of responsible metrics and the RDA Interest Group on Open Science Graphs for FAIR Data.

✓Promote the adoption of **community-led curation and annotation systems** to foster qualitative aspects of a new generation research assessment system. Related **services should be developed**
- ✓ considering for example FAIRness evaluation and the use of machine learning algorithms and AI, to provide qualitative information that will enrich the meta-information of all research outputs.

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Services and tools to underpin a research assessment system that incentivises open science practices (5/6)

Scope (continued 2)   HORIZON-INFRA-2022-EOSC-01-01

✓ The tools and services may support research-performing and/or research-funding organisations in **measuring** the usage, relevance, quality and impact of research outputs, RI and open science practices, thereby **providing** the necessary data and information for next-generation metrics and indicators for the implementation of a new research assessment system.

✓ In developing the services and the tools, it is important to integrate a level of flexibility that allows research-performing and research-funding organisations to set their **own recruitment and evaluation policies**, respecting also the **differences among scientific disciplines**, taking into account the specificities of the **different career stages** and **allowing for diversity in practices**.

Services and tools to underpin a research assessment system that incentivises open science practices (6/6)

Scope (continued 3)　　　　HORIZON-INFRA-2022-EOSC-01-01

✓Take into account **existing services, tools and infrastructures** in order **NOT** to duplicate efforts, e.g. on data collection, on discipline based metadata schemas, on AAI and on Persistent Identifiers developed by projects resulting from the topic HORIZON-INFRA-2021-EOSC-01-03.

✓To ensure complementarity of outcomes:
　✓cooperate and align with activities of the **EOSC Partnership**
　✓coordinate with relevant initiatives and projects **contributing to** the development of **EOSC**

✓Integration of the gender dimension (sex and gender analysis) in research and innovation content is **NOT** a **mandatory** requirement

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Improving and coordinating technical infrastructure for institutional open access publishing across Europe (1/5)
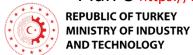
HORIZON-INFRA-2022-EOSC-01-02

RIA; 5M€; 1 project

Outcome:

- A robust **pan-European network of infrastructures**, with all necessary relevant **service-provision**,
  - that **brings together** already existing not-for-profit and no APC-based ('diamond') **open access publishing initiatives** in order to **become an integral part of EOSC** – in particular through effective support to the **FAIR** principles and sharing **common** technical infrastructure **standards**;

APC: Article processing charges

Indicative Open Access initiative:
Plan-S https://www.coalition-s.org/

Open Access Publications: Diamond, gold, bronze, green, etc. publications
https://blogs.openbookpublishers.com/green-gold-diamond-black-what-does-it-all-mean/

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Improving and coordinating technical infrastructure for institutional open access publishing across Europe (2/5)

Outcome *(continued):*   HORIZON-INFRA-2022-EOSC-01-02

- A comprehensive **toolbox** to implement common standards for technical infrastructure and service provision available in open source repositories and adopted within the network and beyond;

- **Interoperable data exchange** and **crosslinking** among the network and with FAIR-compliant data repositories and other open access infrastructures already used by the research community in order to foster the concept of "**single-point of access to services and content**";

- Contribute to the Horizon Europe **EOSC Partnership**

Improving and coordinating technical infrastructure for institutional open access publishing across Europe (3/5)

Scope
HORIZON-INFRA-2022-EOSC-01-02

❖Addressed to not-for-profit institutions that run open access publishing initiatives for the public interest (non-commercial). In particular,.
- ✓ Institutions: universities, research centres, funders and other institutions supporting research and the dissemination of research outputs within national remits, e.g. national libraries
- ✓ Publishing activities of journals and/or publishing platforms, and which do not levy APCs

❖**Improve efficiency, coordination and technological alignment** among the network of institutional open access publishing infrastructures and to **develop and provide the technical specifications** to ensure interoperability, interconnection and improved quality of services

❖Proposals shall **build on already existing and operational publishing services** across Europe and embed the open access publishing network into the **EOSC ecosystem**

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Improving and coordinating technical infrastructure for institutional open access publishing across Europe (4/5)

Scope (continued 1)   HORIZON-INFRA-2022-EOSC-01-02

❖Proposals should cover each of the following activities:

- ✓ **improve the understanding of technologies and services** in such institutional not-for profit services across Europe and provide recommendations for further alignment and interoperability;

- ✓ coordinate the development and adoption of **common technical solutions** for interoperability, cross-referencing, cross-linking, and sharing metadata across the European Research Area and beyond;

- ✓ **support the implementation of technical specifications** required to provide services through the EOSC, and the adoption of the essential solutions and standards (e.g. APIs, PIDs, metadata frameworks, ontologies, AAI etc.) to improve findability, accessibility, interoperability and re-usability of digital objects within the network of publishing infrastructures and in the EOSC federation.

PIDs: Persistent identities (long-lasting digital references)
AAI: Authentication and Authorisation and Identification

Improving and coordinating technical infrastructure for institutional open access publishing across Europe (5/5)

Scope (continued 2)   HORIZON-INFRA-2022-EOSC-01-02

❖Projects under this topic should liaise with HE funded initiatives in the ERA Work Programme which address the non-technological aspects of institutional publishing under topics:

  ❖ HORIZON-WIDERA-2021-ERA-01-43: Capacity-building for institutional open access publishing across Europe and

  ❖HORIZON-WIDERA-2022-ERA-01-42: Supporting the development of aligned policies for open access books and monographs.

❖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**.

❖ Integration of the gender dimension (sex and gender analysis) in research and innovation content is NOT a mandatory requirement.

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (1/7)

HORIZON-INFRA-2022-EOSC-01-03

RIA; Available budget: 16M€; 2 projects

Additional evaluation sub-criterion (Impact): Incorporation of the necessary coordination efforts and resources with other relevant projects and the EOSC governance structure

Outcome

- **Seamless interactions** between EOSC, operational dataspaces or environments (e.g. EMODnet, Copernicus Marine Service, Global Ocean Observation System (GOOS), etc.), researchers and other stakeholders contributing **to restoring healthy oceans, seas, coastal and inland waters** 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

FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (2/7)

Relevant H2020 projects: HORIZON-INFRA-2022-EOSC-01-03

- Joint European Research Infrastructure network for Coastal Observatory – Novel European eXpertise for coastal observaTories
  https://cordis.europa.eu/project/id/654410

- SeaDataCloud - Further developing the pan-European infrastructure for marine and ocean data management
  https://cordis.europa.eu/project/id/730960

- Extending the Ocean Data Interoperability Platform
  https://cordis.europa.eu/project/id/654310

- Network of Leading Ecosystem Scale Experimental AQUAtic MesoCOSM Facilities Connecting Rivers, Lakes, Estuaries and Oceans in Europe and beyond https://cordis.europa.eu/project/id/871081

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (3/7)

Outcome (continued) HORIZON-INFRA-2022-EOSC-01-03

- **Open and FAIR data** is the new norm for research contributing restoring healthy oceans, seas, coastal and inland waters;

- **EU-wide sharing of research data** is shown to be a critical mechanism to facilitate ocean and water restoration across Member States and Associated Countries;

- **EOSC grows into a trusted** research and innovation **data space and service platform** in Europe that supports the interdisciplinary research community involved in this mission area;

- Contribute to the **HE EOSC Partnership** and other relevant partnerships related to restoring healthy oceans, seas, coastal and inland waters.

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (4/7)

Scope   HORIZON-INFRA-2022-EOSC-01-03

❖ **Overall objective**: to accelerate research and innovation under this mission area 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 marine and maritime domains that are less familiar with EOSC

✓ This should be achieved through cross-domain, strategic **use cases** of direct **relevance to the Digital Twin of the Ocean**, the **mission areas** and the **European Partnerships supporting this mission area** on healthy oceans, seas, coastal and inland waters.

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (5/7)

Scope (continue 1) HORIZON-INFRA-2022-EOSC-01-03

❖ 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 MS and AC, leveraging European research infrastructures and e-Infrastructures.

    ✓ provide feedback to the EOSC Partnership on the desired future evolution of EOSC.

❖ **Special attention**: data harmonisation, data quality assurance, integration of data collection, data privacy and security, big-data analysis and machine learning methods, data and model validation, as well as on the socio-economic dimension of the use.

❖ 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.

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (6/7)

HORIZON-INFRA-2022-EOSC-01-03

Scope (continue 2)

✓ Provide for activities to **collaborate** with relevant European Partnerships. Synergies with HE Cluster 6 activities and other relevant initiatives, including actions stemming from Cohesion policy programmes, are welcome.

✓ Research and innovation should **build on results** of Horizon 2020 (e.g. the Blue Cloud project, the Odyssea project) and support the development of the Digital Twin of the Ocean.

✓ Proposers should **consider already established ESFRI** research infrastructures and efforts by relevant ESFRI cluster projects.

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FAIR and open data sharing in support of healthy oceans, seas, coastal and inland waters (7/7)

Scope (continue 3)   HORIZON-INFRA-2022-EOSC-01-03

❖ 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.

   ✓ In particular, in areas such as **data interoperability**, **metadata** and **vocabularies**, the use of **persistent identifiers** or AAI, proposals should coordinate and establish a feedback mechanism with projects 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.

❖ Integration of the gender dimension (sex and gender analysis) in research and innovation content is NOT a mandatory requirement.

Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications & software (1/4)

HORIZON-INFRA-2022-EOSC-01-04

CSA; 3M€; 1 project

Outcome

- Project results are expected to contribute to:
  - ✓ **standards, recommendations and methodologies** essential for putting FAIR principles into practice and supporting the development of the EOSC ecosystem **are developed in alignment with international efforts and practices**;
  - ✓ contribute to the Horizon Europe EOSC Partnership.

Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications & software (2/4)

Relevant H2020 projects   HORIZON-INFRA-2022-EOSC-01-04

- Fostering FAIR Data Practices in Europe
  https://cordis.europa.eu/project/id/831558

- Towards a FAIR and open data ecosystem in the low carbon energy research community https://cordis.europa.eu/project/id/883823 Turkish partner: Ismir University of Economics

- ENVironmental Research Infrastructures building Fair services Accessible for society, Innovation and Research
  https://cordis.europa.eu/project/id/824068

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Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications & software (3/4)

Scope   HORIZON-INFRA-2022-EOSC-01-04

✓**Support the community-driven processes** that involve the research community and other stakeholders from **across the world** to foster the development, adoption and maintenance of generic and/or domain specific research data solutions suited to the EOSC context as well as to similar initiatives being built by other **international** partners.

   ✓(support) directly or in combination with financial support to third parties

✓Proposals should facilitate and promote the participation of European stakeholders in such international processes.

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Support for initiatives helping to generate global standards, specifications and recommendations for open sharing of FAIR research data, publications & software (4/4)

Scope (continued 1)　　　　　HORIZON-INFRA-2022-EOSC-01-04

✓ 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.

　　✓ In particular, actions funded under this topic should coordinate with projects under the topic HORIZON-INFRA-2021-EOSC-01-05 (Enabling discovery and interoperability of federated research objects across scientific communities) and the future procurement activity under Other Actions.

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Destination: Research infrastructure services to support health research, accelerate the green & digital transformation, and advance frontier knowledge (INFRASERV)

Aim

- Provide efficient and customised research infrastructure services to drive and enable the transition to a sustainable Europe & a prosperous economy
- RI services will be directed to support an effective and responsive health system and to accelerate the transition towards a green and digital future.

Impact

- Reinforced research infrastructures capacity
- Enhanced and increased society's long-term and consistent problem-solving capacity and evidence-based policy making in areas linked to health
- Etc.

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Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (1/7)

HORIZON-INFRA-2022-SERV-01-01

RIA; 38M€; 1 project

Outcome

- Integrated multi-disciplinary **collaborative tools and services** widely serving the **European neuroscientific community**, providing them with FAIR data indexing and archival, multilevel data mining and modelling/simulation of brain functions, and empowering workflows for reproducible research;

- A rich collection of **multilevel human brain models, atlases & workflows**, directly supporting the research and development for **personalised** brain medical **treatments** e.g. target binding drugs, precise neuro-stimulation positioning and guided surgery, regarding brain diseases such as epilepsy, Parkinson, consciousness disorders, or rare or multi-factor diseases

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Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (2/7)

Relevant H2020 projects

- Interactive Computing E-Infrastructure for the Human Brain Project
  https://cordis.europa.eu/project/id/800858 … Turkish participant: SABANCI University

- Human Brain Project Specific Grant Agreement 2
  https://cordis.europa.eu/project/id/785907 … Turkish participant: SABANCI University

Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (3/7)

Outcome (continued 1)

- A comprehensive set of **cognitive brain model scaffolds** and **associated** modular / large-size neuromorphic and neurorobotic **facilities** for assisting the design and validation of applicative cognitive technologies benefitting from neurosciences latest knowledge,
  - As enablers for autonomous and adaptive robotics approaches that use fast sensory processing and decision-making capabilities;
- Supplementary population of **EBRAINS facilities with multidisciplinary services/applications** that answer well-identified new neuroscience related S&T needs
  - in correlation with national and European research priorities for neuroscience, brain medicine and cognitive-technologies;

Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (4/7)

Outcome (continued 2)

- Integration of EBRAINS with EOSC and linkage with common European data spaces in the life science and health sector;
- Better-aligned national investments in neuroscience across Europe, building on the Member States' and Associated Countries' specialised competence centres, which in turn will help creating additional synergies and enabling further research activities around the EBRAINS services

Implementing digital services to empower neuroscience research for health & brain inspired technology via EBRAINS) (5/7)

Scope

HORIZON-INFRA-2022-SERV-01-01

1. To implement a **user-friendly service infrastructure** along the principles of Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) to widely **serve the research communities** in neurosciences, brain medicine and brain-inspired cognitive technologies. This includes :

✓ Establishing in-depth **collaboration** with other European research and testing infrastructures and of EOSC, to **ensure efficiency and harmonisation**, e.g. regarding AAI, PID, discovery ontologies and API for both services and data.

✓ Directly **interfacing** with the European **HPC capacities** towards exascale, deployed in EuroHPC and capitalising on the FENIX developments for big-data integration and interactive use.

✓ **Delivering an efficient** Europe-wide **service to researchers**, based on promoting excellence and innovation, and supporting users' digital experiments …, and guiding communities in developing novel software solutions that build on the EBRAINS base offering.

✓ Deploying an open metrics framework to assess the EBRAINS performances reached, the efficiency of the facilities offered ….,

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Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (6/7)

Scope (continued 1)   HORIZON-INFRA-2022-SERV-01-01

2. To develop, integrate in EBRAINS, and operate:

✓ Constantly **improving open science services/applications** that respond to up-to-date and upcoming identified needs of the neuroscientific community, with a co-design approach and in-depth engagement with scientific, medical and industrial stakeholders and the establishment of an appropriate and transparent prioritisation mechanism. This includes:

   ✓ ensuring openness to other research groups and new applications; reaching out to scientific and industrial communities, including with tailored training and skills development programmes.

✓ The deployment of complementary S&T services from regional or national competence nodes, supporting and enriching the cloud-based deliveries and facilitating the sharing of produced data and use of national resources.

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COMPETITIVE SECTORS PROGRAMME

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Implementing digital services to empower neuroscience research for health and brain inspired technology via EBRAINS) (7/7)

Scope (continued 2)　　　HORIZON-INFRA-2022-SERV-01-01

✓ EBRAINS should open its approaches to other communities, **going beyond neuroscience**, for example by supporting compute-intensive simulation to identify candidate drugs addressing new disease targets **in other explicit medical domains** where this approach is justified.

✓ The **financial support to third parties** mechanism (see specific call conditions) can be used to design and develop new services (under item 2) and/or to facilitate the co-design approaches and/or the targeted involvement of broader stakeholders, user communities and competence nodes.

Destination: Next generation of scientific instrumentation, tools and methods and advanced digital solutions (INFRATECH)

Aim
- 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

Impact
- Enhanced global competitiveness and technological excellence of Europe in an extremely fast-moving environment
- Enhanced competitiveness of European industry
- Opening up of new areas of research and development of new industrial applications/products
- Etc.

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COMPETITIVE SECTORS PROGRAMME

TÜBİTAK

R&D for the next generation of scientific instrumentation, tools and methods (1/5)

HORIZON-INFRA-2022-TECH-01-01

RIA; 110M€; 11 projects

Additional eligibility criteria: consortia with **at least 3 different RI**, each of them being an ESFRI infrastructure, and/or ERIC, or another research infrastructure of European interest

Outcome

- 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 RI into local, regional and global **innovation systems**.

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R&D for the next generation of scientific instrumentation, tools and methods (2/5)

Relevant initiatives

- The European Intergovernmental Research Organisation forum, EIROForum, brings together eight of Europe's largest research organisations.
  - It is the mission of EIROforum to combine the resources, facilities and expertise of its member organisations to support European science in reaching its full potential.
  - The EIROforum organisations work together on the **development of new scientific instrumentation** and to define future needs in this area.
- https://www.eiroforum.org/activities/instrumentation/

R&D for the next generation of scientific instrumentation, tools and methods (3/5)

Scope   HORIZON-INFRA-2022-TECH-01-01

- **Aim**: to deliver **innovative scientific instrumentation**, tools and methods, 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 RI 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.

R&D for the next generation of scientific instrumentation, tools and methods (4/5)

HORIZON-INFRA-2022-TECH-01-01

Scope (continued 1)

Proposals should address **all** following aspects:

- ✓ **R&D** of new scientific instrumentation, tools and methods for RI 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**.

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R&D for the next generation of scientific instrumentation, tools and methods (5/5)

Scope (continued 2)   HORIZON-INFRA-2022-TECH-01-01

✓Consortia must be built around a leading core of at least 3 world-class RI, being ESFRI infrastructures, European Research Infrastructures Consortia (ERICs) and/or other world-class RI of European interest 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 subcontracting activities.

   ✓for the competitive development of new specific solutions, whilst opening market opportunities for industry and researchers active in Europe.

   ✓can support the development of … designs, prototypes & solution testing.

✓Integration of the gender dimension in R&I content is NOT a mandatory requirement

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