



Research Infrastructures Policy and Horizon Europe WP 2023-2024

*European Commission
Directorate-General for Research & Innovation
Dir. A – ERA and Innovation*

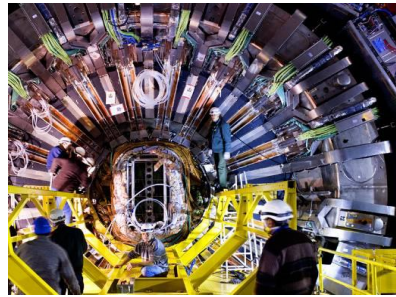
Research Infrastructures

Facilities providing resources and services for research communities to conduct research and foster innovation (single site, distributed, virtual). They provide **access to external users**.

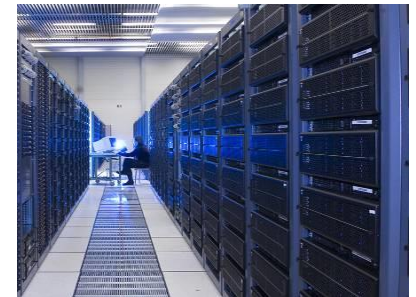
Knowledge-related facilities



Major scientific equipments



ICT infrastructures



e.g.: archives, collections, data infrastructures, telescopes, research vessels, FEL, computing systems, communication networks

Inter alia, RIs contribute to:

- ✓ Extend the frontiers of knowledge
- ✓ Exchange and transmit knowledge
- ✓ Train the next generation of top researchers
- ✓ Support industrial innovation

Approach

- A well-functioning European ecosystem of research infrastructures, integrating European large-scale research infrastructures and complementary national, mid- and small-sized research infrastructures allows to:
 - ensure scientific **excellence**;
 - address major scientific, environmental and societal **challenges** fostering public **services**;
 - underpin **industrial value chains**
- Challenge: a systemic approach at EU level to ensure economies of scale, avoid duplication of efforts, strengthen interoperability building on investments

Achievements

- A proven and exemplary experience of Member State cooperation and joint investment
- A uniquely rich research infrastructure landscape underpinning European leadership in the global context
 - **25** ERICs (facilitating establishment and operation of large European research infrastructures among Member States and Associated Countries); **41** ESFRI Landmarks (implemented research infrastructures with multi-country membership, providing services to researchers and industry); **22** ESFRI Projects (prioritised research infrastructures under preparation); **8** EIROs (international organisations established in Europe underpinning research infrastructures facilities); well-organised and interconnected networks and communities
- Well-established **EU framework** relying on mutually supporting activities
 - Strategic roadmapping ensured by **ESFRI**
 - Setting up dedicated “operators” enabled by the **ERIC** Framework Regulation,
 - Dedicated funding under the **framework programme**



**1st ESFRI
Roadmap cycle
(2006-2008-2010)**

- First Roadmap published in 2006, updated in 2008 and 2010
- In 2010 the Roadmap contained 48 Projects
- Required major financial investment (~20 b€) and long-term commitment for operation (~2 b€/year)

**2nd ESFRI
Roadmap cycle
(2016-2018-2021)**

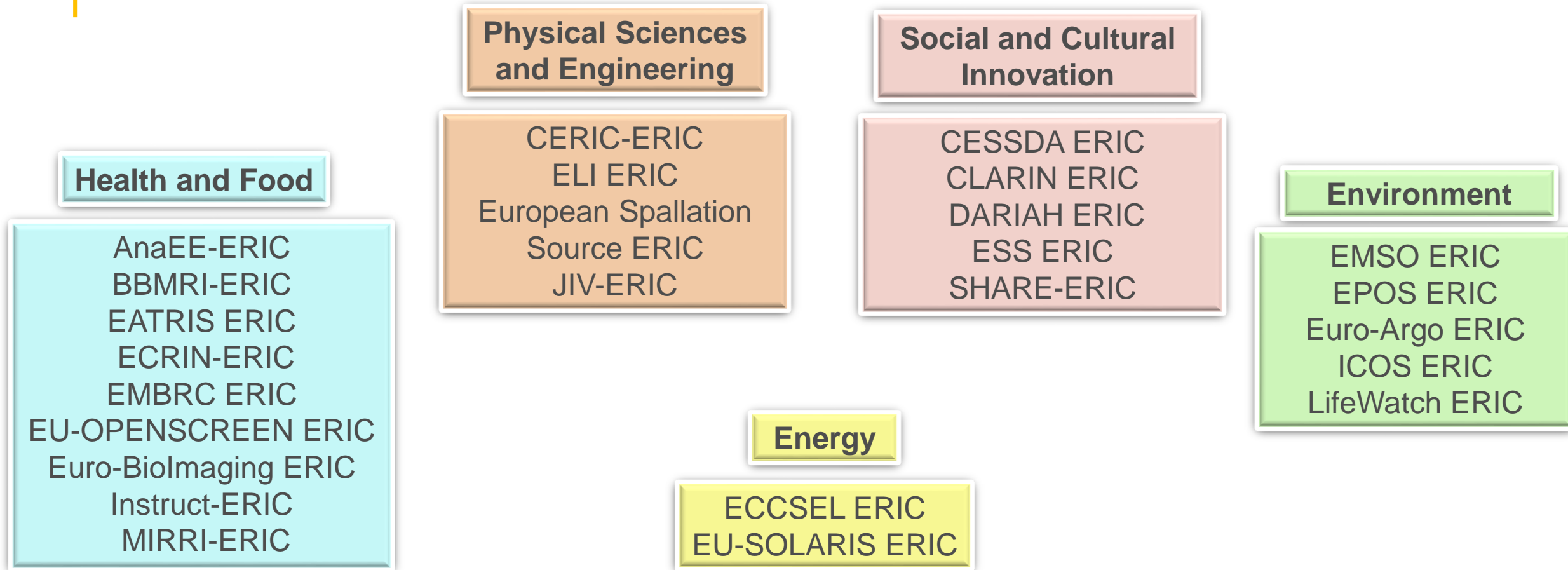
- New projects to complement the existing landscape
- Landmarks (Projects already implemented), Landscape Analysis, RI lifecycle concept and evaluation methodology
- ESFRI Roadmap 2021 will include 41 Landmarks and 22 Projects

ESFRI Work Plan Drafting Groups

Work of ESFRI 2022-23 Work Plan focused on drafting groups:

- Landscape analysis and the update of the roadmap methodology
- Monitoring Coordination Group
- Access to RIs and Charter on access to RIs
- The ERIC Report
- Stakeholder engagement strategy
- RI impact
- ESFRI Support Structure
- Industrial cooperation and synergies with Tis
- International cooperation
- RI funding
- Increasing the transparency and outreach of ESFRI
- Circular industrial technologies roadmap
- ERA industrial technology roadmap for low-carbon technologies in energy-intensive industries
- Energy crisis

The ERIC landscape: 25 established ERICs



Institutional context

- **Brno Declaration** presented at ICRI 2022 and endorsed by MS and EC: call for action to develop a **global research infrastructure ecosystem**
- **Council Conclusions on 2 Dec. 2022** setting out priority actions to advance the **European research infrastructure ecosystem**
- **ERA policy agenda** Action 8: commitment from 24 MS
- Upcoming **Commission Report** on the implementation of the **ERIC Regulation** (building on EGERIC assessment and further consultation)
- **SE Presidency event** (June 2022) on RIs: potential of **research data** for society
- **ES Presidency event** (Sep. 2022) on RIs: **RI sustainability** incl. synergies with smart specialisation strategies, **international cooperation**.
- Proposed revision of the European **Charter for Access** to Research Infrastructures (2023)

Research Infrastructures Work Programme 2023-2024

In a nutshell

- **5 Destinations:** packages of actions contributing to specific objectives with expected impacts
- **7 calls:** 4 calls in 2023 (deadline: 09/03/2023), and 3 calls in 2024 (deadline: 12/03/2024)
- **27 topics**
- **Other actions:**
 - **5 grants for identified beneficiaries:** ERIC monitoring, EOSC monitoring, 2 presidency events, enhanced depositing services;
 - **1 SGA** to the FPA for Research and Education Networks;
 - **External expertise:** reviewers; individual experts; ERICs evaluators.

~654 M€ total budget: ~320 M€ on topics/actions 2023, ~334 M€ on topics/actions 2024

Research Infrastructures Work Programme 2023-2024

Destinations

- **INFRADEV** : Developing, consolidating and optimising European RIs landscape, maintaining global leadership
- **INFRA SERV** : RI services to support health research, accelerate the green and digital transformation, and advance frontier knowledge
- **INFRA TECH** : Next generation of scientific instrumentation, tools and methods and advanced digital solutions
- **INFRA EOSC** : Enabling an operational, open and FAIR EOSC ecosystem
- **INFRA NET** : Network connectivity - enabler for collaboration without boundaries

2023-2024 – overview of topics

Destination INFRADEV	Type of action	Budget per GA	Topic budget
Concept development for a research infrastructure to manage, integrate and sustain large medical cohort studies	RIA	1 - 3	3
Early phase implementation of ESFRI Projects entering the ESFRI Roadmap in 2018	CSA	1 - 1.5	7.5
Consolidation of the RI landscape – Individual support for evolution and long term sustainability of pan-European research infrastructures	RIA	3 - 4	40
Consolidation of the RI landscape – development of complementarities, synergies and/or integration between a set of pan- European research infrastructures	RIA	2 - 5	20
Preparation of common strategies for future development of RI technologies and services within broad RI communities	CSA	1.5 - 2.5	12.5
Strengthen bilateral cooperation on RIs with Latin America	CSA	0.75 - 1.5	3.75
Strengthening the international dimension of ESFRI and/or ERIC RIs	CSA	1 - 1.5	7.8
Preparatory phase of new ESFRI research infrastructure projects	CSA	~3	3
RI concept development (2024)	RIA	1 - 3	14
Strengthen the bilateral cooperation on RIs with Africa (2024)	CSA	1 - 1.5	1.5
Consolidation of the RI landscape – Individual support for evolution, long term sustainability and emerging needs of pan-European RI (2024)	RIA	2 - 4	8

2023-2024 – overview of topics

Destination INFRAEOSC	Type of action	Budget per GA	Topic budget
Build on the science cluster approach to ensure the uptake of EOSC by RIs and research communities	RIA	~ 25	25
Development of community-based approaches for ensuring and improving the quality of scientific software and code	RIA	~ 8	8
Planning, tracking, and assessing scientific knowledge production	RIA	~ 8	8
Next generation services for operational and sustainable EOSC Core Infrastructure	RIA	~ 10	10
EOSC Architecture and Interoperability Framework	CSA	~ 3	3
Trusted environments for sensitive data management in EOSC	RIA	~5	15
FAIR and open data sharing in support of the mission adaptation to climate change	RIA	6 - 8	16
Supporting the EOSC Partnership in further consolidating the coordination and sustainability of the EOSC ecosystem	CSA	~ 4	4
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	CSA	~ 5	5
Long-term access and preservation infrastructure development for EOSC, including data quality aspects	RIA	~ 8	8
Innovative and customizable services for EOSC Exchange	RIA	~ 7	28

2023-2024 – overview of topics & areas

Destination INFRASERV	Type of action	Budget per GA	Topic budget
RI services to enable R&I addressing main challenges and EU priorities	RIA	8 - 14.5	116
- <i>RI services to enable research linking environmental factors to human health</i>			
- <i>RI services for improving clinical research in the paediatric area</i>			
- <i>RI services for climate-change risks</i>			
- <i>RI services for sustainable Arctic/polar regions</i>			
- <i>RI services for healthy ocean and waters</i>			
- <i>RI services for sustainable aquaculture, fisheries and blue economy</i>			
- <i>RI services for renewable energy technologies and systems</i>			
- <i>RI services for innovative applications of nanoscience and nanotechnology</i>			
- <i>RI services to enhance the EU capacity for the development of semiconductors</i>			
- <i>RI services for shaping the future generation society</i>			
RI services advancing frontier knowledge	RIA	8 - 14.5	29
- <i>RI services in Biosphere: terrestrial biodiversity and ecosystems, including forest</i>			
- <i>RI services in Astronomy and Astroparticle physics</i>			
- <i>RI services in Arts and Humanities</i>			
RI services advancing frontier knowledge: co-fund pilots with pan-European RIs and/or national RIs	COFUND	2 - 5	12

2023-2024 – overview of topics

Destination INFRATECH	Type of action	Budget per GA	Topic budget
R&D for the next generation of scientific instrumentation, tools, methods, solutions for RI upgrade	RIA	5 - 10	62
New technologies and solutions for reducing the environmental and climate footprint of RIs	RIA	~ 5	25
Development of tools, solutions, modules to enable R&I on the social aspects of the green transition	RIA	~ 5	5
New digital twins for Destination Earth	RIA	~ 15	45
AR/VR-empowered digital twins for modelling complex phenomena in new RI application areas	RIA	~ 12	24

Greek Participation to the HE INFRA WP

- As of today, participation in **+40 projects**, with an EU contribution around **EUR 21 million** (out 73 INFRA projects signed or under preparation)
- Participation covers **all destinations** (INFRADEV, SERV, TECH, EOSC)
- EL budget per project is on average EUR 0.5 million (0.3 million per EL organisation).
- Close to half of EU budget to EL participants under EOSC destination (9 projects)
- 4 projects with EU contribution to individual EL organisation > EUR 1 million:
ARGOS-CDS and **StR-ESFRI3** (INFRADEV)
FAIRCORE4EOSC and **RAISE** (INFRAEOSC)
- Also INFRA SERV: strong EL participation in **ERIES** project (engineering – georesources, geohazards) with EUR 1.7 million to EL (2 beneficiaries)
- INFRA TECH: **BIOINDUSTRY 4.0** and (under preparation, cable ocean obs.) **SUBMERSE**

For further information

[European Strategic Forum for Research Infrastructures \(ESFRI\)](#)

[ESFRI Roadmap 2021](#)

[European Research Infrastructure Consortium \(ERIC\) Framework](#)

[EGERIC Assessment](#)

[ERIC Forum](#)

[International conference on research infrastructures \(ICRI 2022\)](#)

[Horizon Europe Research Infrastructures](#)



Horizon Europe Research Infrastructures Work Programme 2023-2024

The INFRAEOSC Destination

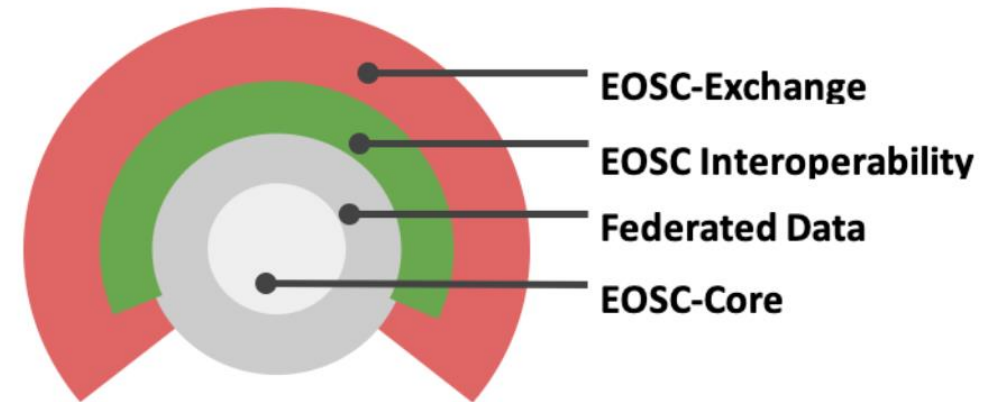
Heraklion

19 January 2022

What is the European Open Science Cloud?



- A federation* of research infrastructures to enable open sharing of scientific results and FAIR research management practices
- Vision: a “web of FAIR data and services for science”



* Identifiers, rules for participation, authentication/authorisation infrastructures, APIs, interoperability framework, search engines, EOOSC ‘exchange’, helpdesk...

INFRAEOSC Destination

Co-programmed European Partnership



Strategic Research & Innovation Agenda



INFRAEOSC Destination

EN
Annex 5
Memorandum of Understanding for the
Co-programmed European Partnership for the
European Open Science Cloud (EOSC)

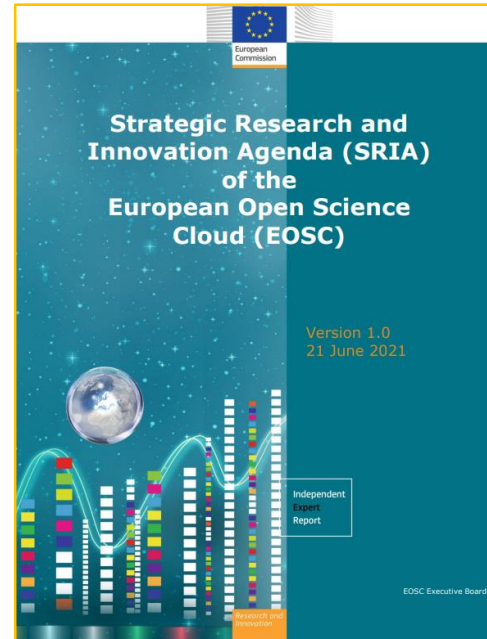
The European Open Science Cloud Association, representing the partners other than the Union (its constituent entities¹), the registered offices of which are in Rue du Trône 62, 1050 Bruxelles, hereafter referred to as the "Partners other than the Union", and the European Union, represented by the European Commission, (jointly hereinafter referred to as "the Partners").

Considering that:

- Parts of Horizon Europe – the Framework Programme for Research and Innovation ("Horizon Europe")² – may be implemented through Co-Programmed European Partnerships, on the basis of a Memorandum of Understanding between Partners determined to support the development and implementation of research and innovation activities of strategic importance to enable the Union to address global challenges and maintain its competitiveness in line with EU priorities, including the Sustainable Development Goals;
- The Strategic Plan for Horizon Europe³ has identified a candidate for a Co-Programmed European Partnership for the European Open Science Cloud (EOSC) considered instrumental to deliver scientific, economic and societal impact in line with the Horizon Europe objectives;
- The proposal received from the Partners other than the Union has been positively assessed by the European Commission in that it fulfils the new ambition and the selection criteria referred to in Article 10 and Annex III of Regulation (EU) 2021/695 of the European Parliament and of the Council⁴ ("Horizon Europe");
- The implementation, monitoring and evaluation of the European Partnerships will comply with the criteria referred to in Annex III of Horizon Europe, including an alignment with Horizon Europe monitoring and evaluation provisions, set out in Article 50 and Article 52, as well as Annex V on Key Impact Pathways;
- The multi-annual Strategic Research and Innovation Agenda (SRIA) agreed by the Partners will provide the basis for the development of the co-operation under this

¹ Constituent entities are the members of the Association.
² Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination (OJ L 170, 12.5.2021, p. 1–68).
³ <https://op.europa.eu/en/web/op/en-iss-and-publications/publication-detail/-/publication/3e6ff074-8ac3-11eb-b85c-01aa75c071a1>
⁴ OJ L 170, 12.5.2021, p. 1–68.

RTD	DATE
ARES	2020/08/21
ARRIVES	505A 504
	CODE DOSSIER



2021: 6 topics | 59 M€

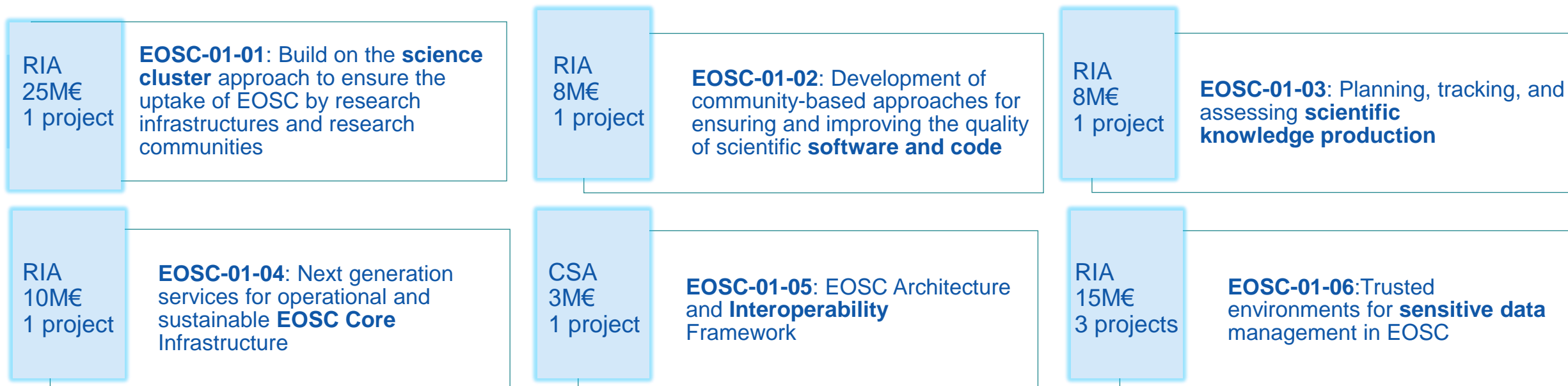
2022: 4 topics + Pu Pr | 65 M€

2023: 6 topics + 2 GIB | 70 M€

2024: 5 topics | 61 M€

INFRAEOSC – 2023 Call

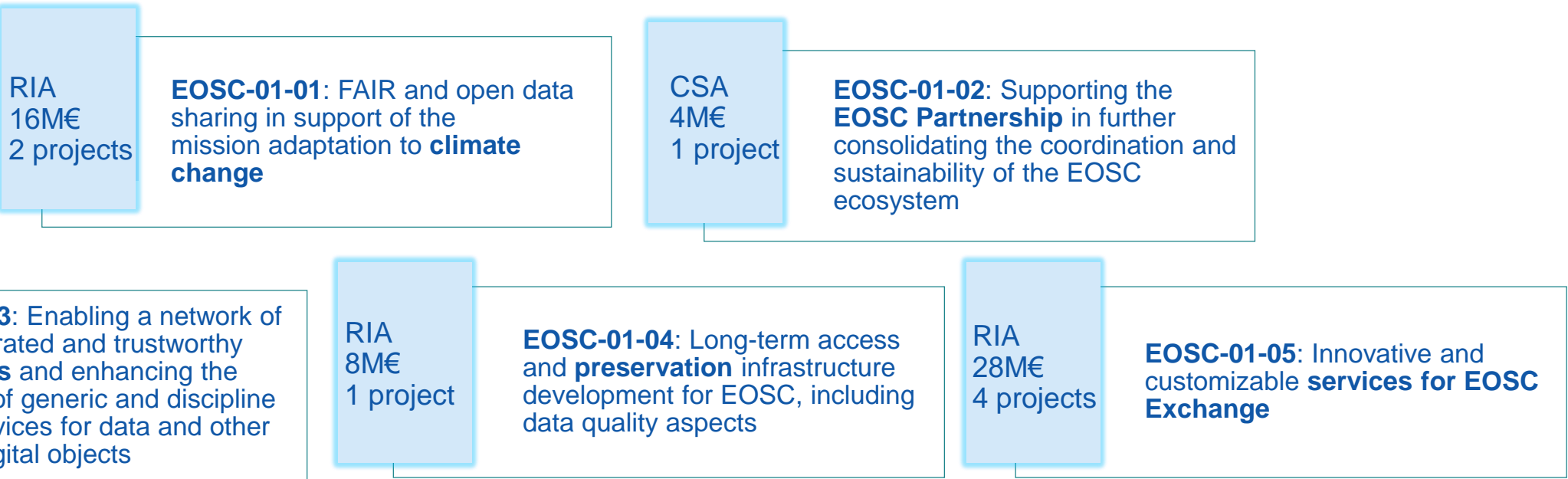
6 topics / 69 M€ / opened 6 December / deadline **9 March 2023**



+ 0.4 M€ GIB HE repository + 0.6 M€ GIB EOSC monitor

INFRAEOSC – 2024 Call

5 topics / 61 M€ / opening 6 December 2023 / deadline 12 March 2024



INFRAEOSC 2021-2022 calls

2021 / 6 topics / 59 M€

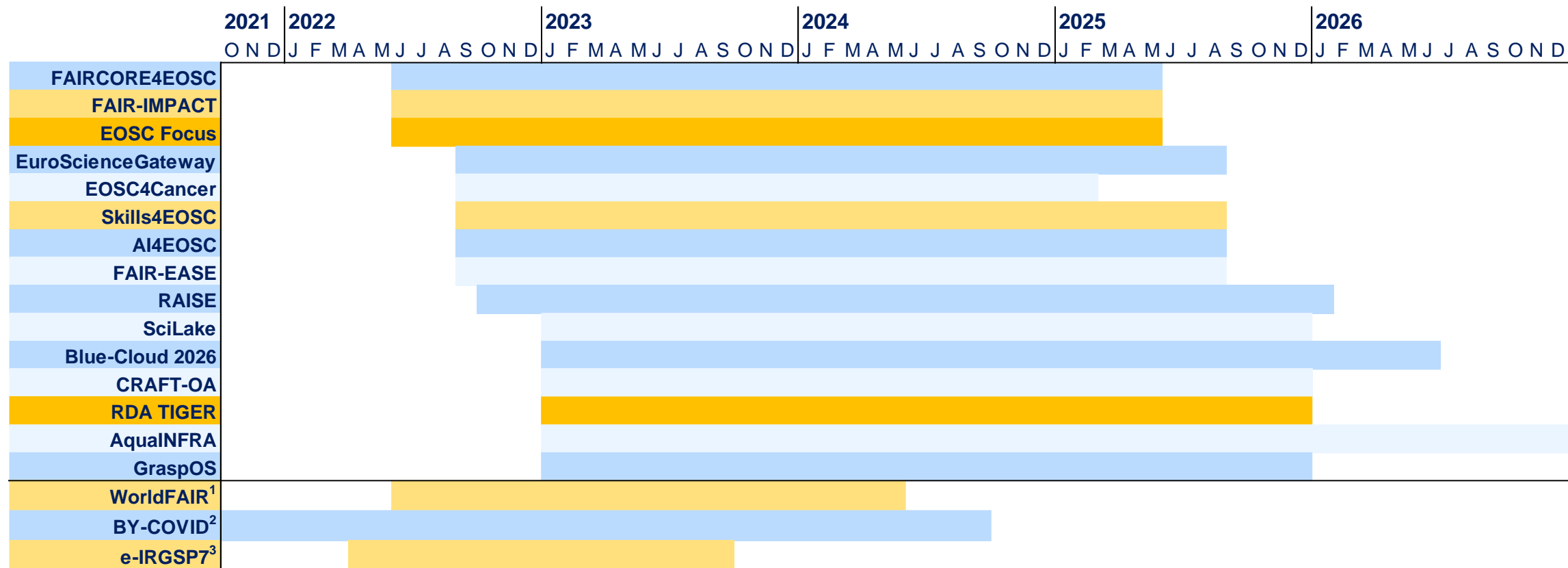
- 1: Supporting an EOSC-ready digitally skilled **workforce**
- 2: Supporting the development and coordination of activities of the **EOSC Partnership**
- 3: Deploying EOSC-**Core** components for FAIR
- 4: Innovative and customizable **services** for EOSC
- 5: Enabling discovery & **interoperability** of federated research objects across sc. communities
- 6: FAIR and open data sharing in support of **cancer** research

2022 / 4 topics + 1 Pu Pr / 65 M€

- 1: Services & tools to underpin a **research assessment** system that incentivises OS practices
- 2: Improving & coordinating technical infrastructure for institutional OS **publishing** across Europe
- 3: FAIR and open data sharing in support of healthy oceans, seas, coastal and inland **waters**
- 4: Support for initiatives helping to generate **global** standards, specifications & recommendations for open sharing of FAIR research data, publications and software
 - Public procurement on EOSC **Core & services**

Running WP21-22 INFRAEOSC projects

15 projects / 87 M€ / 221 unique participants / 330 participations



¹2021-ERA-01-41; 1.9 M€; 19 participants

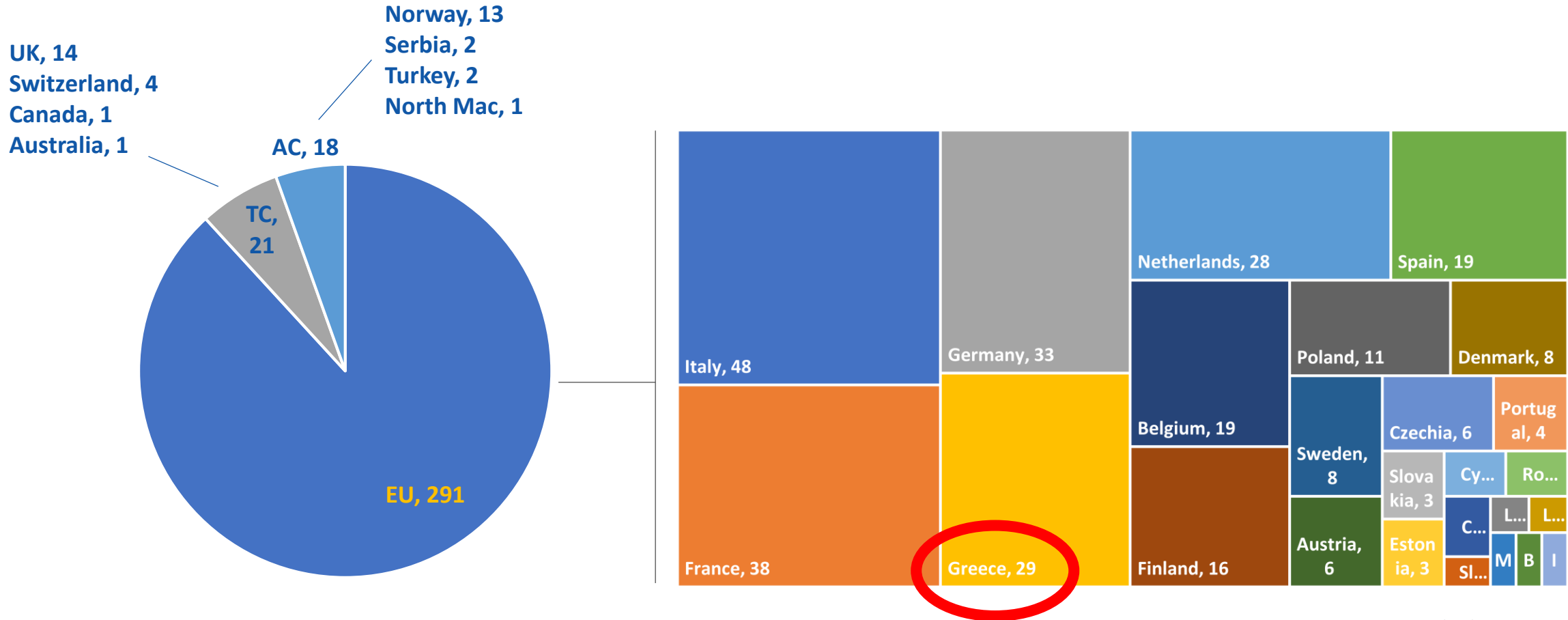
²2021-EMERGENCY-01; 12 M€; 53 participants

³2021-DEV-01-05; 0.3 M€; 4 participants

RIA CSA

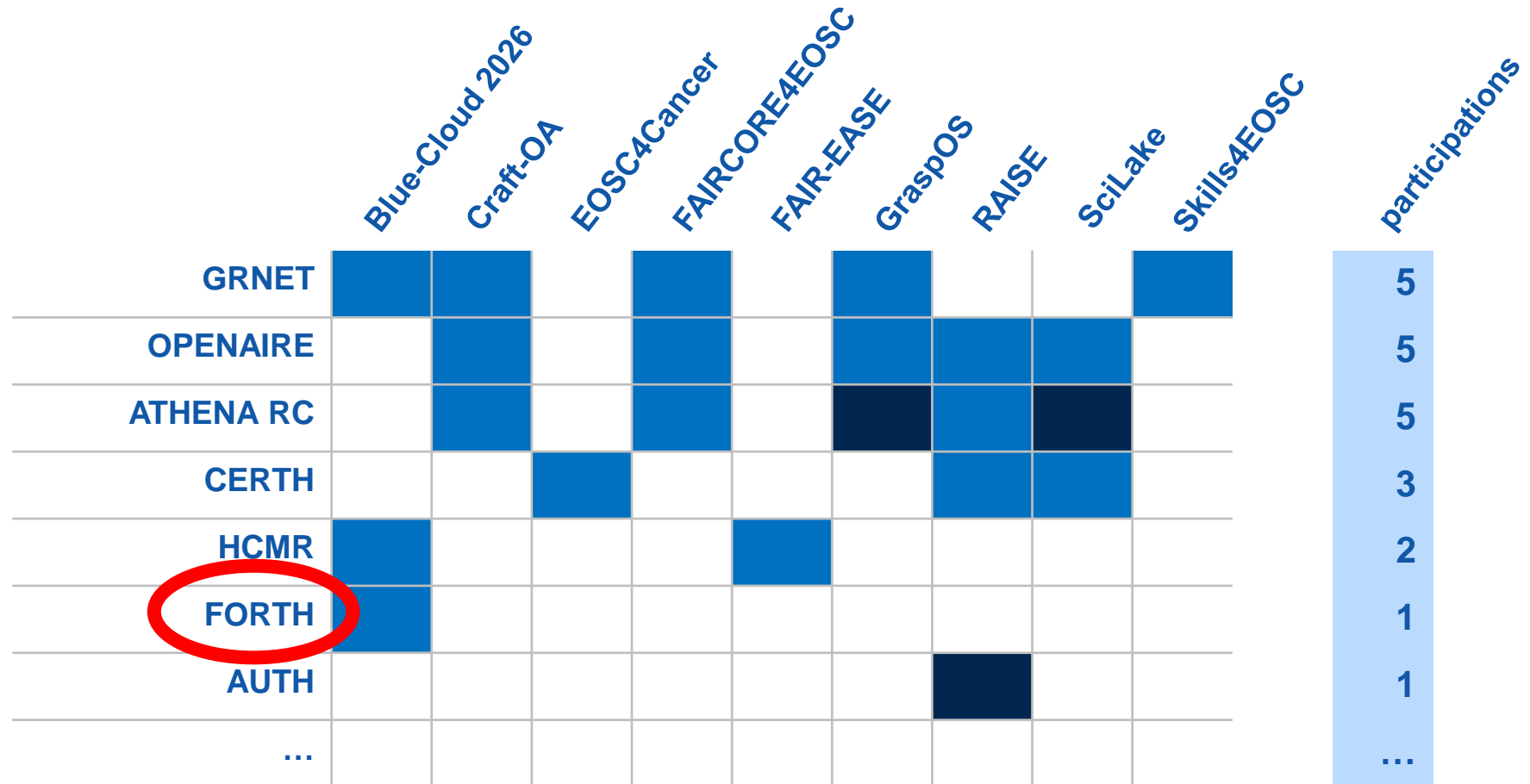
Running WP21-22 INFRAEOSC projects

15 projects / 87 M€ / 221 unique participants / 330 participations



Running WP21-22 INFRAEOSC projects

Top participants established in Greece



Thank you



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