

# Le infrastrutture per la ricerca ambientale in Europa

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# Outline

- ❖ Research Infrastructures
- ❖ ESFRI
- ❖ ESFRI RIs Landscape in the ENV domain
- ❖ RIs in Horizon Europe and in ERA
- ❖ Lampedusa Observatory

# RESEARCH INFRASTRUCTURES

*European Research infrastructures are facilities that provide resources and services for the research communities to conduct top-level research and foster innovation in their fields.*

## A BROAD CONCEPT

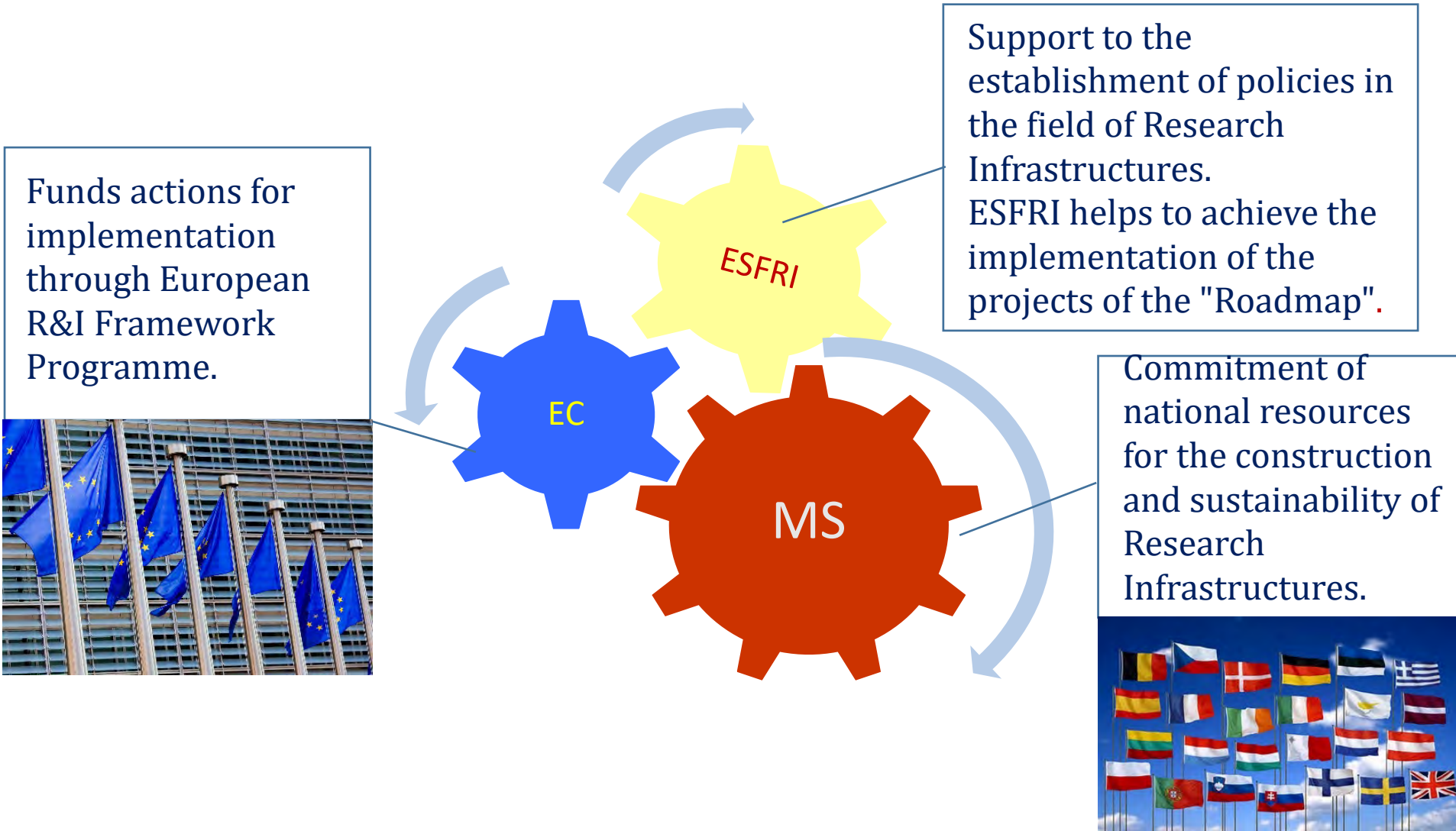
- Great scientific equipment or set of instruments.
- Scientific collections, archives and structured information.
- Electronic infrastructures (e-infrastructures).
- Any other entity of a unique nature necessary for research.

## ACCESS

*Physical, Remote, Virtual*

## CENTRALIZED, DISTRIBUTED OR VIRTUAL

# Actors in the definition of policies in RI



# ESFRI

The European Strategy Forum on Research Infrastructures (ESFRI) was established in 2002 with a mandate from the Council of the European Union to:

- support a coherent and strategy-led approach to policy-making on research infrastructures in Europe
- facilitate multilateral initiatives leading to the better use and development of research infrastructures

ESFRI brings together representatives of Ministers of the 27 Member States, plus Associated States, and of the European Commission that are the decision makers and financiers of the ESFRI Research Infrastructures

- indicates strategies for the necessary major financial investment (~20 b€) and long-term commitment for operation (~2 b€/year, +15% of current effort)
- upon mandate of Competitiveness Council of the European Union, ESFRI has completed the ESFRI ROADMAP 2021.

[www.esfri.eu](http://www.esfri.eu)

# ESFRI ROADMAP 2021



22 ESFRI PROJECTS  
41 ESFRI LANDMARKS

The ESFRI Roadmap 2021 includes the *Landscape Analysis*. It provides an overview of the European RI ecosystem by identifying the main RIs operating transnational access in Europe, in all fields of research, and major new or ongoing projects, as well as an outlook to the global landscape of relevance.

<https://roadmap2021.esfri.eu/>

*With the Roadmap 2021 ESFRI updated the strategy on European RIs aimed at strengthening the competitiveness and value (excellence and impact) of European research*

[https://www.esfri.eu/sites/default/files/White\\_paper\\_ESFRI-final.pdf](https://www.esfri.eu/sites/default/files/White_paper_ESFRI-final.pdf)

# Landscape Analysis - ENV

**GEOSPHERE: FROM THE SURFACE TO THE INTERIOR OF THE EARTH, FROM GEOHAZARDS TO GEORESOURCES**  
(CURRENT STATUS, GAP, CHALLENGES AND FUTURE NEEDS)

**ATMOSPHERE: FROM NEAR GROUND TO THE NEAR SPACE ATMOSPHERE**  
(CURRENT STATUS, GAP, CHALLENGES AND FUTURE NEEDS)

**HYDROSPHERE**

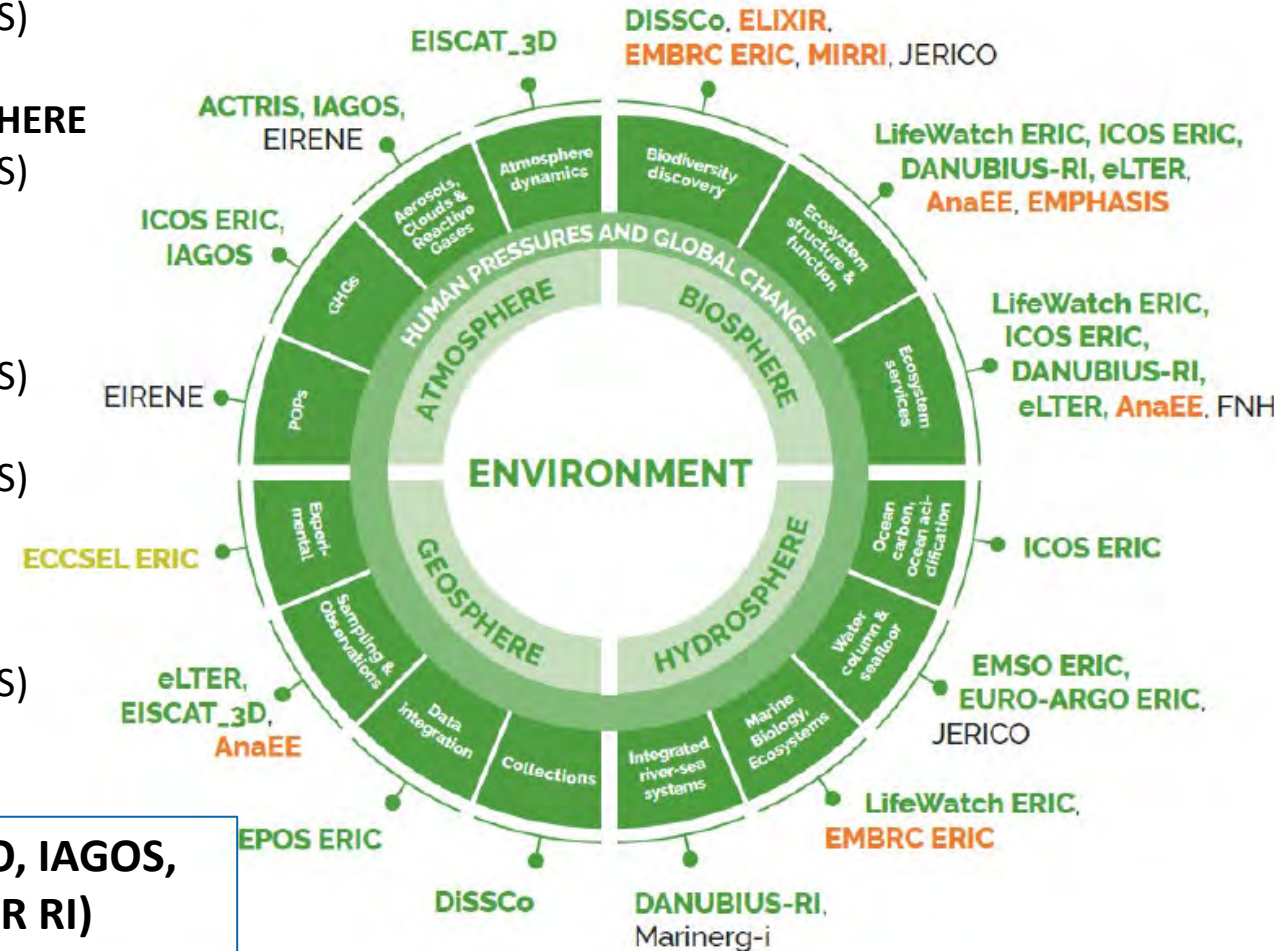
**FRESHWATER: ICE, GROUNDWATER, LAKES, RIVERS, ESTUARIES**  
(CURRENT STATUS, GAP, CHALLENGES AND FUTURE NEEDS)

**MARINE: FROM COAST TO DEEP OCEANS AND ICE CAPS**  
(CURRENT STATUS, GAP, CHALLENGES AND FUTURE NEEDS)

**BIOSPHERE: BIODIVERSITY AND ECOSYSTEMS**  
(CURRENT STATUS, GAP, CHALLENGES AND FUTURE NEEDS)

**VISION and PERSPECTIVES**

**8 Landmarks (ACTRIS, EISCAT\_3D, EMSO, EPOS, EURO-ARGO, IAGOS, ICOS, LifeWatch) and 3 Projects (DANUBIUS-RI, DiSSCo, eLTER RI)**



# ESFRI ENV RIs in Italy

- Italy contributes to almost all ENV ESFRI RIs: ACTRIS, DANUBIUS, DiSSCo, eLTER RI, EMSO, EPOS, EURO-ARGO, ICOS, LIFEWATCH.
- Relevant role in ESFRI Landmarks:
  - Hosting the EMSO and EPOS ERICs
  - Hosting the Service Center of LifeWatch ERIC
  - Hosting the ACTRIS ERIC SAMU, CARS, CAIS and Aerosol Remote Sensing Data Center
  - Hosting the ICOS Ecosystem Thematic Centre
  - Coordinating the Mediterranean and Black Sea Argo Regional Centre in Euro-Argo
  - Contribution with advanced Observational Sites



# RIs in Horizon Europe



## Pillar I

EXCELLENT SCIENCE

- European Research Council
- Marie Skłodowska-Curie
- **Research Infrastructures**



## Pillar II

GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

6 Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment
- Joint Research Centre



## Pillar III

INNOVATIVE EUROPE

- European Innovation Council
- European Innovation Ecosystems
- European Institute of Innovation & Technology

### WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

- Widening participation & spreading excellence
- Reforming & Enhancing the European R&I system

### Partnerships, Missions

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

# ERA Policy Agenda: Research Infrastructures

*Deepening a truly functioning internal market for knowledge*

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

## Set of foreseen activities

- **Strategic analysis** of the European Research Infrastructure **landscape**;
- Broader and more sustainable **access** for all countries to European research infrastructures and their services and revision of the European Charter of Access to Research Infrastructures;
- Update of the ESFRI **Roadmap** and implementation of the research infrastructures performance **monitoring** framework;
- Report on the **ERIC Framework**;
- Increased **cooperation** between research infrastructures, e-infrastructures and stakeholders, including through EOSC;

# Funding opportunities for RIs

- HEU: INFRADEV, INFRAEOSC, INFRASERV, INFRATECH, INFRANET MISSIONS, Partnerships, Pillar 2
- Structural Funds
- National funding
- Regional Funding
- Private sector
- Next generation EU

# Lampedusa Observatory

The RIs southernmost observing site in Europe (Northern Hemisphere)

Participation in ESFRI Landmarks: ACTRIS, EMSO and ICOS

Towards an integrated ecosystem of RIs in Europe:

Co-location between different env subdomains (atm and sea)

Co-location of instruments for the atm observations (aerosol, clouds, carbon, etc.)

What next?

- ACCESS to be further promoted
- Many opportunities (national, EU, ..): relevant for Climate Change studies and for the Mediterranean area in particular
- Long term sustainability (high level observations, human resources)

25 ANNI DELL'OSSERVATORIO CLIMATICO ENEA DI LAMPEDUSA

Roma 6 dicembre 2022