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EOSC-ES-Prep
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CSIC Digital Science Use Cases towards EOSC

Helena Lozano

28/10/2026

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CSIC

124 institutes around Spain



17.471 employees (2025)

8.871
8.600

Multidisciplinary

CSIC PTI
CSIC HUB

MATTER
SOCIETY
LIFE

ICTS
INFRAESTRUCTURAS CIENTÍFICAS Y TÉCNICAS SINGULARES

ESFRI
European Strategy Forum on Research Infrastructures

Distributed infraestructure, services, ICTS, ESFRI

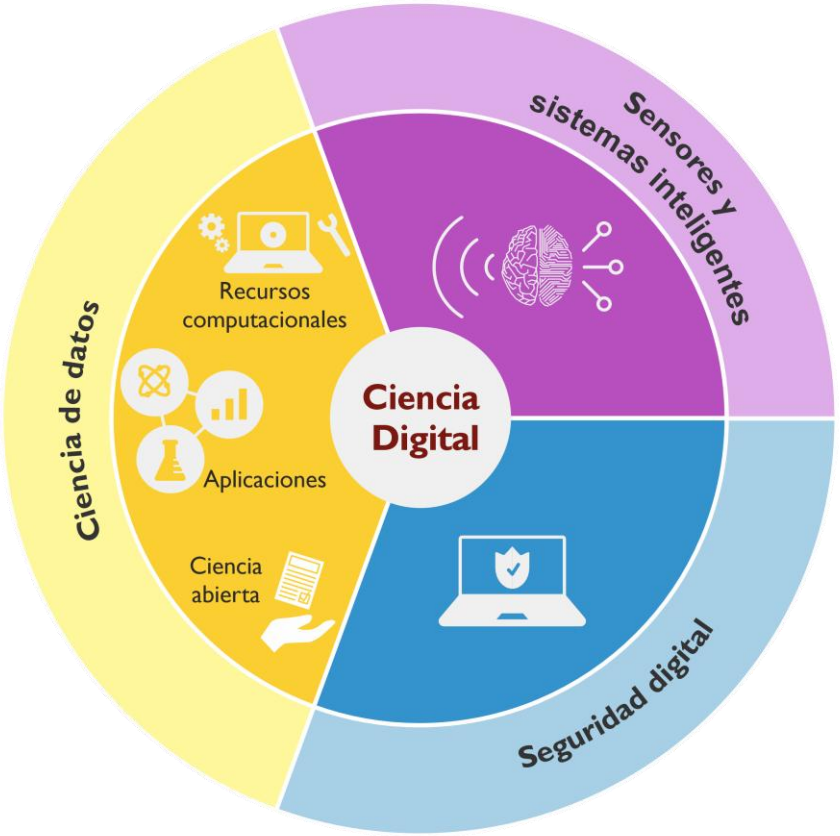
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Interdisciplinary Thematic Platform in Digital Science
PTI Digital Science

Thematic areas



Who

189 Investigadores

130 Grupos de investigación

58 Centros de investigación

What do we do

eosc

FAIR, Open Science, Data Science, AI and Digital Infrastructures

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https://www.csic.es/es/internacional/eosc

eosc

CSIC in the national node

EOSC: Open, multidisciplinary environment where researchers, innovative sectors, business community, and general public can publish, search for, find, and reuse interoperable publications, data, tools, and services, thereby raising the visibility and enhancing their research work. Using the FAIR principles

Co-programmed partnership through a tripartite collaboration

- **European Commission**, on behalf of the European Union
- **EOSC Association** (EOSC-A), on behalf of the research community
- Member countries, represented by the **Steering Board**

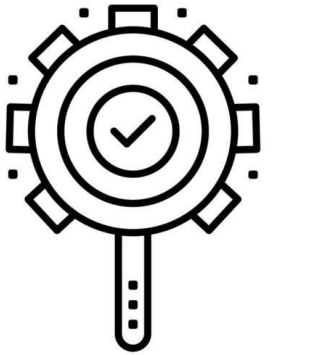
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- Founding member of the EOSC Association
- Mandated organization, responsible for national coordination
- Coordinates EOSC activities through PTI Ciencia Digital
- Participates in EOSC working groups
- Use cases task leader in EOSC-ES-Prep

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How we searched for EOSC use cases

- Step 1: Mapping large infrastructures and data-intensive initiatives
- Step 2: Engagement with scientific communities
- Step 3: Coordination with external initiatives
- Step 4: Use cases proposal
- Step 5: Use case prioritization



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Step 1: Mapping large infrastructures and data-intensive initiatives

ESFRI:



Others:

SOCIB Sistema de Observación y Predicción Costero de las Illes Balears

UTM Unidad de Tecnología Marina

ICTS DOÑANA

- ICTS
- Spanish Virtual Observatory (SVO)
- Digital.CSIC
- PTI Clima
- European Solar Telescope (EST)
- BCB HUB
- GBIF
- EGDI
- SILICE
- ….

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Step 2: Engagement with scientific communities

PROCESS

1. Scientific communities consulted
2. Interviews & requirements gathering
3. Analysis of tools, data and workflows
4. Identification of common needs
5. Definition of use cases and priorities



COMMON NEEDS IDENTIFIED

DATA

- Heterogeneous repositories
- Distributed infrasestructure

STANDARDS

- EML
- SeaDataNet
- INSPIRE
- IVOA

SERVICES

- Authentication
- Discovery
- Publication

SUPPORT

- Training
- User Guidance

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Step 3: Coordination with external initiatives



- Hosted by CESGA and co-led by CSIC
- Driven by EuroHPC JU and dedicated to One Health domain
- It aims to position Europe as a global leader in trustworthy AI for life sciences by creating a ""one-stop shop"" for researchers, SMEs, and startups. It integrates three core components:
  - a sovereign EuroHPC AI-optimized supercomputing node,
  - a federated One-Health dataspace, and
  - a regulation-ready trust sandbox for validating high-risk AI models.
- **Interesting to connect this initiative with EOSC**

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Step 4: CSIC Use cases proposal



Geo Health (CSIC)



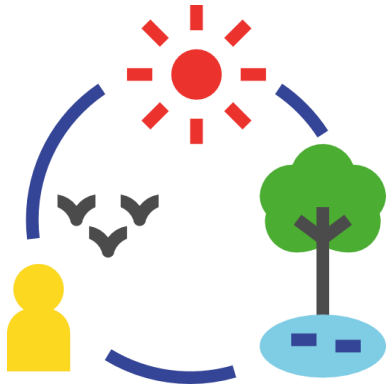
Ocean Health (CSIC)



Plant Health (CSIC)



Animal Health (CSIC)



Ecosystem Health (CSIC)

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Step 5: Use case priorisation

OCEAN HEALTH:

Can AI trained on long CSIC time series give early warning of extreme marine events or ecosystem change, combining Spanish, and EU-level data?



- **Why this use case?**
  - ✓ Mature ecosystem and existing resources
  - ✓ Long CSIC observation time series (since the 1930s) and CSIC network on ocean observations
  - ✓ Strong alignment with EOSC services and projects (ex: AI4EOSC)
  - ✓ Existing collaboration with NEREIDAS and European initiatives (ex: European Digital Twin of the Ocean Node)
  - ✓ Potential to involve multiple national stakeholders
- **Expected outcome**:
  - Long-term multidisciplinary observations transformed into AI-driven decision support.

Keyassets

Data: Physical | Chemical | Biological | Geological
Interoperability: EMODnet | Copernicus Marine | Euro-Argo | EMSO

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Conclusions

- Complex organisations require a systematic approach to identify community needs
- Common requirements emerge across disciplines: interoperability, discovery, access and support
- Existing initiatives and partnerships are critical to build sustainable EOSC use cases
- Ocean Health was selected as a mature and scalable demonstrator for the Spanish National Node
- The approach is transferable to other national and thematic EOSC nodes.
- Coordination between researchers, infrastructures and EOSC-related initiatives is key to avoid duplication and maximise impact.



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Thanks

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