



# A summary of consistent characterization of existing and planned Research Infrastructures



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**The ENVRIplus Theme 2 aims to present the design, development and implementation of an e-Infrastructure in terms of the methods, services and tools that will help research infrastructures to fully exploit and manage their data more easily.**

The first corresponding deliverable (5.1) takes stock of the progress achieved, setting out and updating all information regarding environmental Research Infrastructures (RIs) involved in ENVRIplus and available ICT technologies in order to clarify requirements, identify issues and highlight opportunities.

Key aspects of the report consist of 6 pillars and 3 cross-cutting mechanisms (see Figure 1), as identified by the team behind Theme 2. All findings and recommendations will be integrated to future planning instruments in order to inform subsequent efforts within the ENVRIplus project.

The resulting report runs up-

wards of 200 pages, in order to serve the following purposes:

- The report examines how to pass the newly collected information onto the user community. The aim is to develop and disseminate a consensual approach to Research Infrastructure researcher-user requirements, RI asset offerings and available technology, now and in the near and further future.

The document primarily

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addresses the RIs participating in ENVRIplus and their communities, but it should also enable other RIs delivering similar services in any scientific or application domain;

- It constitutes a valuable step towards the ENVRIplus

project review;

- It provides input into how to improve the ENVRI Reference Model;
- It shares specifications for IT developments in each RI and their harmonisation and coordination.

The first part of the report contains a synthetic overview of current requirements from all RIs involved in ENVRIplus. The feedback provided by the RIs tends to demonstrate there are more differences than commonalities between RIs. Nevertheless, the main conclusions regarding requirements common to all RIs hint at:

- A clear drive to achieve data harmonisation, i.e., consistency of representation, interpretation and access, both within and between RIs;
- A need to learn from one another and pool efforts in order to accelerate and harmonise the delivery of data services and working practices to



efficiently support each stage of the scientific data lifecycle, from data acquisition to the delivery of actionable information;

- A call for support in facing the challenge of sustainably and immediately delivering data services to meet current RI priorities, while taking into account longer-term issues and technology trends.

The second part of the report provides an overview of the pillars and cross-cutting issues from Figure 1. Eventually, the report sets out 25 recommendations for ENVRIplus to make the best possible use of the present analysis, increase awareness of the commonalities between RIs, mobilise fur-

ther training efforts, increase the uptake of the corresponding results and sustain the sustainability of its progress.

*The sharing and governance of data are essential to RI operations and value for science and both need to be considered as paramount when setting up, governing and allocating sufficient resources and attention to developing Research Infrastructures.*

Most importantly, the diversity within and between the RIs and their respective complexities, require effective communication and collaboration. The sharing and governance of

data are essential to RI operations and value for science and both need to be considered as paramount when setting up, governing and allocating sufficient resources and attention to developing RIs.

This would require further staff training opportunities and educational efforts targeting future scientists. Finally, shared developments in sustainable software and platforms for performing data-driven (environmental) science provide a promising pathway into minimizing costs and increasing the sustainability of RIs.

**Figure 1** | The 6 pillars of Theme 2 and the 3 corresponding cross-cutting mechanisms.

