Recommendations on European e-Infrastructures for Research and Education

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e-IRG
e-Infrastructure
Reflection Group

Introduction

The European e-Infrastructures are dedicated to accommodating a digital ecosystem that supports the success of European students, educators, and researchers through innovative solutions and tailored support. e-Infrastructures coordinate access at pan-European level and provide a coordinated response to the most demanding needs of European communities with the ultimate goal of boosting excellence within the European knowledge and science economy. The e-Infrastructures are designed to overcome geographical barriers and offer a streamlined, effective framework for interoperability and collaborative efforts leveraging the investments and effort of funding agencies at local, national and regional level. This framework empowers not only individual users and public entities but also IT service-providing companies to work together harmoniously, guided by robust standards that ensure compatibility, deliver trust and address security in the field of research and education.

As we navigate through an era marked by constant evolution and challenges, in this document the e-Infrastructure Reflection Group (e-IRG) highlights the significance of the European e-Infrastructures in this dynamic landscape.

Landscape and position of e-Infrastructures

At the core of the e-Infrastructures concept lies a federated system, fundamental to the European landscape of research and education. Each member state within the European Union is supported by one or more non-profit organizations or agencies that are tasked with managing the national IT infrastructures and support staff dedicated to advancing research and education performed at institutional level. These entities have a deep understanding of their respective national contexts, are adhering to local regulations and responding to the specific needs and priorities of their country's research and educational users.

These national organizations are also key contributors to the European e-Infrastructure initiatives; they synchronize[1] research and educational IT requirements, develop and implement shared standards and provide expertise in seamlessly integrating diverse technological infrastructures across the continent.

e-Infrastructures provide the critical platform necessary for the European research and education sector and they enable a broad spectrum of innovative projects, from expansive EC-driven initiatives like Destination Earth to smaller-scale research endeavors within universities and institutes. Also the e-Infrastructures are fundamental in nurturing a robust,

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[1] This synergy results in what we call 'e-Infrastructures'; associations of professionals with profound expertise in cross-disciplinary cooperation and the development of research and educational digital tools.

self-reliant research and education environment throughout Europe, bridging European goals with the intricate knowledge of details from the inside of academic institutions.

The public foundation serving Research and Education

The collective of e-Infrastructures forms a 'public foundation' for solutions tailored to the research sector's needs. This foundation ensures that components crucial for research and education— such as trust and identity management, connectivity, computing, data and storage resources to practice open science —are designed to work in concert and are easily accessible and exchangeable. This is achieved through a combination of federated infrastructures, a rich set of digital skills, and consensus on standards. Such a setup empowers various educational and research entities to access and utilize an array of services ranging from sector specific data and computing services to project-tailored offerings, along with more generic services supplied by private sector partners.

For many years, e-Infrastructures have been playing a pivotal role in fostering and enhancing digital connectivity and interoperability specifically for the research and education sector within Europe. Their goals are in lockstep with the European Commission, positioning e-Infrastructures not merely as service providers but as vital partners of the Member States, the Associated Countries and the EC in shaping the R&E landscape. These partnerships are crucial for ensuring that the R&E sector's needs are met in a way that aligns with broader European objectives.

Operating from the demand side of the market, e-Infrastructures actively underline this engagement with the EC. Reflecting the needs and ambitions of the R&E community, they are establishing architectural standards and are conducting European tenders. The aim is to guarantee that solutions offered by the private sector are not only interoperable and secure but also cost-effective, thereby laying a solid and cohesive foundation for Europe's common research and educational infrastructure.

Sustainable financing the foundation for the ERA

A robust and fully integrated set of e-Infrastructures is a conditio-sine-qua-non for a flourishing European knowledge economy and scientific power. This demands a well-structured funding approach.

- The European Commission's recent approach of procurement tenders for elements similar to those supported by existing e-Infrastructures places these bodies in a precarious situation. e-Infrastructures, naturally playing on the demand-side market, are now in competition with commercial entities prioritizing profit, which could lead to

allegations of receiving unfair state aid due to their construction with public, member-state, or EC funding. The potential divide in supply sources threatens to undermine the foundations, leading to dispersed and less efficient resources for research and education.

- The request of co-funding to participate in programmes such as CEF and DEP does not match the capabilities and legal status of the coordinating nodes of e-Infrastructure coordinating, which by mission are owned and controlled by international groups of members and are not bound to the interests of a single country. Besides this, e-Infrastructures can extend beyond EU 27.

- The European Commission does not always speak with a unified voice, which contributes to the ambiguity surrounding the roles of DG-CNECT/DG-RTD in managing e-Infrastructures.

The e-Infrastructure Reflection Group (e-IRG) advises the member states, the associated countries and the EC to direct R&E initiatives towards utilizing established e-Infrastructures rather than acquiring separate components, and to devise financing strategies that support the sustainability of public foundations integral to these e-Infrastructures.

Colophon