



Project Area 4: e-Infrastructures

Objective: Comprehensive ICT infrastructures aim to enable the complex, multi-disciplinary and globalised practice of modern science. The Project Area (PA) goal is to coordinate CNR participation in the development of innovative and more powerful ICT infrastructures at National and International level. In this role the PA intends to contribute to the European Cloud Initiative (Fig. 1), based on two pillars, i.e. EOSC (European Open Science Cloud), the environment to publish, find and re-use data and tools for research, innovation and educational purposes, and EDI (EU Data Infrastructure), the platform for HPC and high-speed connectivity. Specific attention is dedicated to the shaping and development of effective e-Infrastructures offering data management services fostering Findability, Accessibility, Interoperability and Reusability (FAIR). These new infrastructure services are expected to facilitate researchers and innovators in addressing a variety of societal challenges and business opportunities.

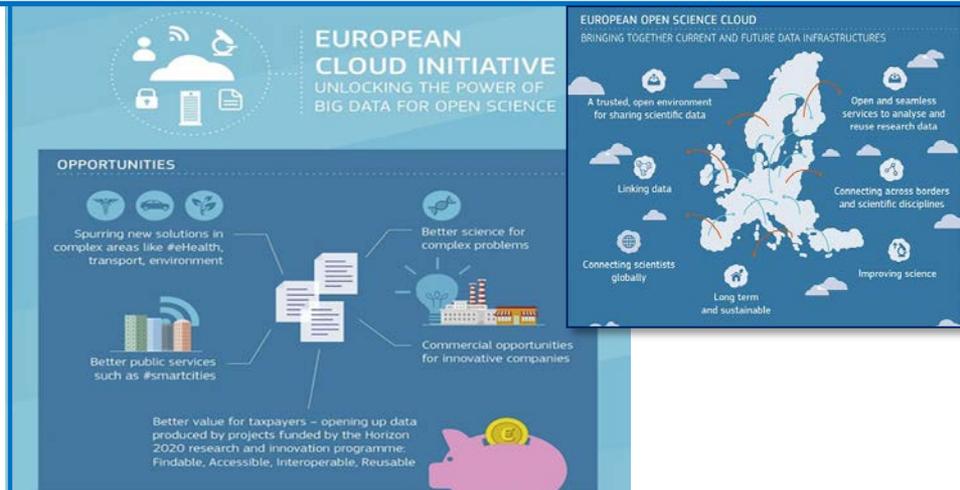


Figure 1: The European e-infrastructures dimension

Approach: The PA activities span across Network, Computing, and Data infrastructures. Institutes participating (i.e. ISTI, IIT, ICAR, IMATI, IREA) address complementary aspects of the infrastructure research and development that encompass the six action lines proposed in the “EC Staff Working Document on the Implementation Roadmap for the EOSC” (see first column in the table below). The topics addressed and the services developed serve many Research Infrastructures in different sectors like “Earth system and environmental sciences”, “Social sciences and humanities” and “Biomedical Science”.

	Network Infra	Computing Infra	Data Infra
Architecture	IIT	ISTI, ICAR	ISTI, IREA, IIT, ICAR
Data	IIT	ISTI, IREA, ICAR	ISTI, IREA, IMATI, IIT, ICAR
Services		ISTI, IREA, ICAR	ISTI, IREA, IMATI, IIT, ICAR
Access and Interface		ISTI	ISTI, IREA, ICAR
Rules	IIT	ICAR	ISTI, IREA, IIT, ICAR
Governance	IIT	ICAR	ISTI, IREA, IIT, ICAR

Scientific Impact/Results: The PA is in a relevant position for designing and building Network, Compute and Data infrastructure services tailored for public and private bodies, as well as to serve in consultancy, evaluation and promotion of initiatives in the field. It results from the effort of 83 researchers and technologists.

Its results include:

- participation/coordination of 25 ongoing international/national projects;
- more than 20 hw/sw facilities, including clusters, servers, portals, platforms, FAIR enabling services, networking enabling architectures and applications, made available inside and outside CNR;
- operation and management of internationally recognized infrastructures, like D4Science and OpenAIRE;
- unique national facilities such as the .it Registry and the P-SBAS DInSAR Processing Chain (for Civil Protection).

Through this PA, CNR also participates in ICDI (Italian Computing and Data Infrastructure), a forum of major Italian Research Infrastructures and e-Infrastructures representatives, promoting national synergies, harmonizing and facilitating the Italian contribution to European and global initiatives.