

## **EMSODEV and EPOS-IP: key findings for effective management of EU research infrastructure projects**

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EMSO (European Multidisciplinary Seafloor and water-column Observatory, <http://www.emso-eu.org>) and EPOS (European Plate Observing System, <https://www.epos-ip.org>) are pan-European Research Infrastructures (RIs) in the ESFRI 2016 Roadmap. EMSO has recently become an ERIC (European Research Infrastructure Consortium), whilst EPOS application is in progress. Both ERICs will be hosted in Italy and the “Representing Entity” is INGV. EMSO consists of oceanic environment observation systems spanning from the Arctic through the Atlantic and Mediterranean, to the Black Sea for long-term, high-resolution, real-time monitoring of natural and man-induced processes such as hazards, climate, and marine ecosystems changes to study their evolution and interconnections. EPOS aims at creating a pan-European infrastructure for solid Earth science to support a safe and sustainable society. EPOS will enable innovative multidisciplinary research for a better understanding of Earth’s physical and chemical processes controlling earthquakes, volcanic eruptions, ground instability, tsunamis, and all those processes driving tectonics and Earth’s surface dynamics.

Following the conclusion of their Preparatory Phases the two RIs are now in their Implementation Phase still supported by the EC through the EMSODEV and EPOS-IP projects, both run by dedicated Project Management Offices at INGV with sound experience in EU projects.

EMSODEV (H2020 project, 2015-2018) involves 11 partners and 9 associate partners and aims at improving the harmonization among the EMSO ERIC observation systems through the realization of EMSO Generic Instrument Modules (EGIMs), and a Data Management Platform (DMP) to implement interoperability and standardization. The DMP will provide access to data from all EMSO nodes, providing a unified, homogeneous, infrastructure-scale and user-oriented platform integrated with the increased measurement capabilities and functions provided by the EGIMs.

EPOS IP (H2020 project, 2015-2019) is a project of 47 partners, 6 associate partners and several international organizations for a total of 25 countries involved. EPOS IP is a key step in EPOS’ mission of a pan-European Earth science integrated platform. It will deliver not only a suite of domain-specific and multidisciplinary data and services in one platform, but also the legal, governance and financial frameworks to ensure the infrastructure future operation and sustainability (EPOS ERIC).

INGV experience over the years indicates that effective management of EU RIs projects should contain 5 basic elements:

1. Defined life cycle and milestones: Map of phases, deliverables, key milestones and sufficiency criteria for each group involved in the project using project management tools and software.
2. Shared organization, systems, roles: Defined roles for team members and responsibilities for functional managers are crucial. Similarly, a system of communication and team involvement is essential to success. Leadership and interpersonal/organizational skills are also important.
3. Quality assurance: Quality dimension should be aligned to the project objectives and specific criteria should be identified for each phase of the project.
4. Tracking and variance analysis: Regular reports and periodic meetings of the teams are crucial to identify when things are off target. Schedule slips, cost overruns, open issues, new risks and problems must be dealt with as early as possible.
5. Impact assessment by monitoring the achievement of results and socio-economic impact.