

## 5 Recommendations

*International user communities requiring e-Infrastructure services should organize themselves to be able to address the challenges in their future roles:*

- Driving the long term strategy for their e-Infrastructure needs;
- Using their purchasing power to stimulate the development of suitable, effective e-Infrastructure services;
- Participating in the innovation of e-Infrastructure services;
- Contributing to standards.

*International organizations of e-Infrastructures should join forces and share their common challenges towards serving the European user communities, thereby avoiding duplication of efforts (as far as possible) in such areas as:*

- Outreach to and involvement of user communities;
- Services registry, discovery and provisioning;
- Financial, legal, business development and procurement issues

### *Support for Open Science*

*Open Science includes Open Access (freely available results) and Open Data (access to the underlying data), but also Open Research, the sharing of research methods and software.*

*Open Science is seen as a huge step forward in making research results more reproducible, gaining transparency, and easing collaboration on existing research data.*

*Although the major challenge for Open Science is the change in scientific culture, e Infrastructures are fundamental instruments for Open Science.*

*European e-Infrastructures should contribute to Open Science through uniform authentication and authorisation mechanisms, persistent data storage services, and improved discovery processes. This will require new funding models, lasting beyond the lifetimes of individual projects.*

*Research organisations (in particular those running large research infrastructures) should provide data archives, and open them for use by a wider community. They should also ensure that data and metadata formats are standardised, in order to enable global use within the discipline, across disciplines, and even in completely new research settings.*

These organisations should establish a clear separation between responsibilities for strategy setting and community building, operations, and innovation. Working with the user communities, they should strive to establish the e-Infrastructure umbrella forum for strategy setting

in Europe, with sufficient user participation for community building, high-level strategy and coordination for the entire e-Infrastructure, with -again- a clear separation from operational responsibilities.

*National governments* should:

- Provide a basic funding level for their national e-Infrastructure, in particular devoted to its continuous innovation;
- Empower and fund their national user communities for the use of e-Infrastructure services, enabling them to influence the development of the national e-Infrastructure;
- Remove existing national regulatory or political constraints for accessing publicly funded e-Infrastructures for private research and public-private research ventures;
- Provide input for the strategy setting and coordination bodies for their national e-Infrastructures;
- Encourage the actors in their national e-Infrastructures to collaborate and join forces with their counterparts in other countries and at EU level, along the lines described above.

**The EU** should strengthen the actions of the national governments by:

- Establishing a European harmonised framework for the funding of e-Infrastructure innovation;
- Encouraging a sustainable e-Infrastructure offering in Europe through innovation programs such as Horizon 2020, using conditions designed to encourage multiple innovation efforts by different consortia;
- Empowering and funding European user communities, such as the ESFRI projects, to influence the development and use of transnational access to the e-Infrastructure;
- Enabling and promoting the use of Structural Funds for e-Infrastructure development in less favoured areas;
- Providing input for the European strategy setting and coordination bodies and their umbrella forum;
- Striving towards harmonisation so that regulatory conflicts can be avoided, both at the national and at the international level, with existing regulations for (among others) state aid or competition rules;
- Providing clear guidelines for ‘regulation proof’ participation of private research in the use of e-Infrastructure services.

*Existing e-Infrastructure Service Providers* will have to face the continuous challenge of service development and operation, funded through public schemes in the early and precompetitive phases, and through user fees thereafter.



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