EGI-InSPIRE

EGI.EU TRANSITION PLAN TO ERIC

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Abstract

This deliverable describes a Digital Research Infrastructure ERIC that focuses on the delivery of ICT services needed for the transnational coordination of e-Science resources for different research communities within ERA and a potential transition plan that outlines the necessary steps to move forward to such an entity that can be supported by EGI.eu on behalf of the EGI Community.

VIII. EXECUTIVE SUMMARY

The vision of the proposed Digital Research Infrastructure ERIC (DRI ERIC) is to provide the sustainable long-term integrated operation of a single uniform market of transnational ICT services needed by researchers in the digital European Research Area (ERA) to collaborate seamlessly across disciplines and across borders. The DRI ERIC will provide the European wide governance and funding structure that can sustain through national and domain representation the services needed by the various research communities to access large scale computing, storage, networking and data resources across Europe. This allows scientists from all fields of research to make the most out of the latest ICT for the benefit of their applied research activities.

The principles of subsidiarity in the organisation of the ERIC will be maintained: national funders would continue to fund national e-infrastructure. Services used by one particular type of researcher would continue to be technically specified by those researchers through individual Service Councils. The ERIC would focus on two technical aspects: the sustainable transnational uniform integration of the services coming from different national resource providers and the provision of services needed to support collaborative e-Research in the digital ERA. Therefore, the DRI ERIC will focus on a lightweight coordination role in that the majority of the resources it delivers to its consuming communities will be delivered through the national resources that remain under local control. The ERIC will have a central European hub (which is responsible for the integrated service delivery through the provision of coordinated services) and distributed national spokes (which coordinate the local national facilities) each of which will retain their own legal personality. A peer review process for the allocation of resources to support excellent science using resources will be operated using either centrally purchased resources or those contributed from national providers to supplement resources allocated through individual national peer review processes. The purchase and technical operation of any physical resources located in the national resource centres would continue to be fully funded by the members of the ERIC through their own local funding models.

The routine coordination activity of the ERIC will be funded partly by its members and the consumers of the coordination services it provides for its research communities. Additional funds for additional innovation or support actions co-funded with the EC may be available through Horizon 2020 project to the ERIC and its members. The ERIC's Business Model around additional income generation will be developed in the later advanced stages of the negotiation process between the ERIC's members. The operation of the services will be driven by the consumers of these services (drawn from various types of community, national and project based actors) through Service Councils (SCs) within the DRI ERIC. Those contributing to the cost of supporting the services they consume will be able to have input into how they are delivered. This would allow the DRI ERIC to act as an 'umbrella' organisation potentially including different e-Infrastructures and services serving many different research communities requiring transnational ICT services across Europe

The core functions provided by the DRI ERIC will include management and administration, strategy and policy, outreach, technical consultancy, operations and resource allocation. The domain specific services needed by different research communities are managed by the individual SCs and delivered through their respective operations units. Organisationally, these operation units are funded through the DRI ERIC and are able to draw upon its core functional units to support their work. These operational units ultimately should be fully integrated into the DRI ERIC, however a transitional mode of operation could see existing e-Infrastructure operations remaining as separate legal entities governed and financed directly through the DRI ERIC.

The governance of the DRI ERIC is undertaken by the full members in the Assembly (the senior decision-making and supervisory authority of the ERIC) which sets the overall strategy, policies, approves budgets and appoints the Director and members of Scientific Advisory Board, while the consumers of the services (majority of the current participant and associated participants in the EGI Council) alongside members sit in the SCs where they are able to 'buy-in' to the use of the service and its technical definition and operation. The members and observers of the Assembly will be represented in each SC which with the consumers of the services provided by that SC will define the technical specification and operation of these services by the relevant operations unit. It is expected that when compared to the current EGI Council that a smaller number of members of the DRI ERIC will engage as members, but that they will commit at a higher multi-year financial level.

Participation in each SC is determined by the Assembly and may be open to service consumers beyond those that are already members or observers of the DRI Assembly. However, these consumers may have to pay the designated participation fee decided by the Assembly in order to have a vote in the relevant SC on the service policy and to propose policies for consideration by the Assembly. Possible SCs include those relating to Core Services, High Throughput Resource Providers, High Performance Resource Providers, Collaborative Data Infrastructure Providers, Open Data Infrastructure, Networking Infrastructure and Cloud Infrastructure.

Sustainability of the DRI ERIC has been improved over stand-alone generic e-Infrastructure and research infrastructures *just* providing ICT services in four ways:
- It provides a variety of core generic services that can be delivered consistently for all research communities across the *whole* of the digital ERA.
- It provides integrated technical management across both core and sets of domain specific services that can be delivered to individual research communities to enable their use of national and domain specific resources in the digital ERA.
- Integration of these operational functions within a single organisation will allow consistent service delivery, one stop location for training, consultancy and dissemination and economic benefits by eliminating duplicate functions.
- Governance of European e-Infrastructure for the benefit of all stakeholders within the ERA can be driven by representatives of the member states and cooperating EIROs working with in a single organisation.

A timeline for the establishment of the DRI ERIC is provided. The first part of the timeline is under the direct control of the EGI Council and relates to the establishment of a mandate for EGI.eu to support the e-Infrastructure and research infrastructure community in the preparation of the DRI ERIC application. The second part of the timeline relates to preparation of the DRI ERIC application working with those national representatives and research communities that wish to be involved.

Evolving EGI into the DRI ERIC as a clearly technology and research community neutral European organisation capable of delivering transnational ICT and other services needed to support e-Research within the digital ERA will place it in a position to not only continue to serve its current community of researchers, but to engage with other research communities to host and the complete range of transnational services needed to support their research work. Such a change would provide a significant organisation evolution with a tighter more committed membership as to what has been achieved with EGI.eu and to support research communities across Europe and around the world needing integrated services across HTC, HPC, Data, Network and Cloud technologies.

APPENDIX B: SCIENTIFIC AND TECHNICAL DESCRIPTION OF THE DIGITAL RESEARCH INFRASTRUCTURE ERIC

Vision

The Digital Research Infrastructure ERIC vision is to provide the sustainable long-term operation of all the integrated transnational services needed by researchers in the digital European Research Area to collaborate seamlessly across disciplines and across borders.

Overview

The digital researcher is becoming increasingly dependent on different distributed technologies, frequently used within international collaborations to produce excellent world class science. Many of the physical resources to undertake this work are hosted by national research centres and funded by the relevant national funding bodies. The cost effectiveness of this national investment is assured by promoting its controlled and secure use within international collaborations at a European level through integrating transnational services. Such integrating transnational services and organisation have been developed or are being developed over the last decade and include capabilities such as networking, high-throughput and high-performance computing and data. To provide the integration called for within the European Research Area the integrated service delivery and sustainable governance of these services must be assured.

The Digital Research Infrastructure ERIC would therefore host the complete range of transnational services needed by researchers in the digital European Research Area to collaborate with researchers from different disciplines in different countries to use the different nationally provided resources (HTC, HPC, Data, Network, Cloud and others) in Europe and around the world they need for their research activities.

The principles of subsidiarity in the organisation of the ERIC would be maintained: national funders would continue to fund national e-infrastructure. Services used by one particular type of researcher would continue to be technically specified by those researchers. The ERIC would focus on two technical aspects:
- the sustainable transnational uniform integration of the services coming from different national resource providers,
- the provision of services needed to support collaborative e-Research in the digital European Research Area.

This would allow the DRI ERIC to deliver an integrated uniform single market of ICT services for its members and other service consumers in different research communities across the whole of the European Research Area. The DRI ERIC will provide European wide governance and funding structure that can sustain the services needed by the different research communities that it supports.

Technical Services for the Researcher

The technical services provided to the researcher are located at:
1. National resource centres affiliated to the DRI ERIC through its members or observers that provide services to different research communities which may include access large scale computing, storage and data resources across Europe.

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2. Services provided through the DRI ERIC for the direct use by particular research communities, or by the national resource centres to provide the integrated uniform service offering expected across Europe for a particular research community.
3. Services provided through the DRI ERIC for the use of researchers across all disciplines within the digital ERA.

Services in (1) and (2) are defined by the individual Service Councils (SCs) that are specific to particular research communities. Services in (2) and (3) are hosted by the DRI ERIC (either directly or through partnership). The partnerships may include subsidiary organisations that are directly funded through the DRI ERIC. Services in (3) are for the benefit of all research communities and could include core capabilities such as Authentication and Authorisation, Persistent Data Identifiers, File movement, Service Monitoring, Service Registry & Discovery, etc. Services in (1) and (2) will vary from one research community to another but could for particular communities include:

- High Throughput Computing: Service Operation, Workload management, batch job submission, accounting, etc.
- High Performance Computing: Service Operation, Batch job submission etc.
- Data: Data registries, meta-data browsers etc.
- Network: Operations Centres, performance monitoring etc.
- Cloud: Provisioning, billing, virtual machine image conversion etc.

Delivering Excellent Science
The DRI ERIC will identify the application, assessment and allocation process that will be implemented to support peer reviewed science on European level on resources pooled from the resource providers.

Consolidated Headquarters Functions
Integration and consolidation across different functions could produce economies of scale across:

- Management
- Representation at national and European levels
- Strategy and Policy
- Marketing
- Communications
- Events
- Administration
- Legal
- Procurement
- Technical Support
- Consultancy
- Technology Watch

ERIC Assessment Criteria
The scientific and technical case needs to demonstrate the following five conditions imposed in Article 4 of ERIC Regulation in order to be considered eligible for ERIC:

1. Necessary for European research programmes and projects

DRI ERIC connects researchers from all disciplines with the reliable and innovative transnational ICT services they need to undertake their collaborative world-class and world-spanning research through the exploration of new computing and data processing models that address scientific grand challenges facing society. Providing a digital infrastructure that is a foundation for European research

infrastructures is aligned with the EC's vision for Europe in 2020 and the establishment of the digital ERA and the generation of a substantial socio-economic impact for European society.

2. Open and effective access, in accordance with the rules established in its Statutes, is granted to the European research community

DRI ERIC establishes a single uniform market for accessing national distributed computing, data and storage resources across Europe. The integration of national resources, a proportion of which are available for international use, is supplemented by dedicated centrally purchased resources hosted at national resources centres. Both of which can be accessed following an open peer review process ensures the most effective return on Europe's e-Infrastructure investments to perform excellent science.

3. Added value in the development of the ERA and significant improvement in relevant S&T fields at international level

DRI ERIC provides improvement to individual researchers and research groups (national, European and international) who need to process, share and analyse large data sets generated from their research through the integrated delivery of different Digital Research Infrastructures. An integrated Digital Research Infrastructure provides added value to the development of the ERA by providing a single access point for all the e-Infrastructure needs of research infrastructures.

4. Contribution to mobility of knowledge and researchers within the ERA and increases the use of intellectual potential throughout Europe

The DRI ERIC will provide training and consultancy on the leading edge services and technologies that it operates enabling faster scientific results and avenues of multi-disciplinary research than otherwise possible. This will develop the education and skills of the human capital in the applied research community on services that are deployed uniformly across Europe enable the movement of knowledge within both people and applications across Europe.

5. Contribution to the dissemination and optimisation of the results of the activities in Community research, technological development and demonstration.

DRI ERIC will promote the scientific results from the researchers supported through the peer reviewed use of the resources under its direct management and those contributed by its national partners, alongside the innovation and development work undertaken by its resource providers to deliver a world-class Digital Research Infrastructure needed to support world-leading science.

Summary

The DRI ERIC will allow scientists from all fields of research to use an integrated Digital Research Infrastructure comprising the latest integrated technologies and resources for the benefit of their applied research activities. The use of dedicated resource purchased and managed by the DRI ERIC and integrated with federated national resources (a proportion of which will be contributed to the ERIC), will be allocated through an open peer review process to ensure the support of excellent science. Common services such as authentication, authorisation and accounting will enable the integration of different e-Infrastructure technologies that will lower the technical barriers to collaboration between researchers from different fields of science.