

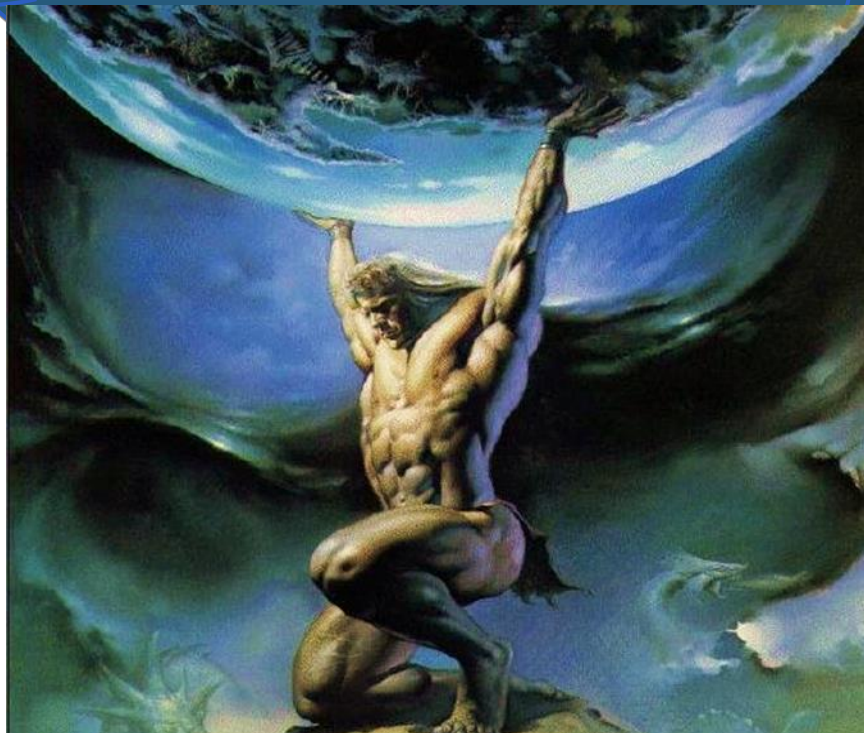


Supporting European Open Science Cloud through Research Infrastructure WP2016-2017 (including e-Infrastructures)

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The European Cloud Initiative



Digital Single Market Technologies and Public Service Modernisation Package - DSM

- **Digitising European Industry**
 - Advancing the Internet of Things
- **European Cloud Initiative**
 - High-Performance Computing
 - Quantum Technologies
- **Priorities for ICT Standardisation**
- **E-Government Action Plan**

European Cloud Initiative (highlights)

- **European Open Science Cloud (EOSC)**
 - Integration and consolidation of e-infrastructures
 - Federation of existing research infrastructures and scientific clouds
 - Development of cloud-based services for Open Science
 - Connection of ESFRIs to the EOSC
- **European Data Infrastructure**
 - Development and deployment of large-scale European HPC, data and network infrastructure
- **Widening access and building trust**
 - SMEs, Government as a Service, Standards

e-Infra WP2016-17 consists of 3 themes and 5 topics

**Integration and
consolidation of
e-infrastructure
platforms**

**Prototyping
innovative e-
infrastructure
platforms and
services**

**Support to
policies and
international
cooperation**

Theme 1 - Integration and consolidation

Covers

- **Coordination** of **operations** and funding (regional, national & European levels)
- Exploiting **synergies** between operational e-Infrastructures
- Continuous **upgrades** of infrastructure without service disruption

Features

- TRL8 or above
- Transnational and virtual access cost reimbursement
- Documentation of services on an open **Service Catalogue**
- Services to be assessed by an **external board** (approved by the EC)
- Projects to conclude **written** collaboration agreements

Relevant topic

- **EINFRA-12-2017**

Theme 2 – Prototyping innovative platforms and services

Covers

- **Evolution** through **innovative actions**
- **Platform-driven** innovation. **Push** from the supply side
- **User-driven** innovation. **Pull** from the demand side

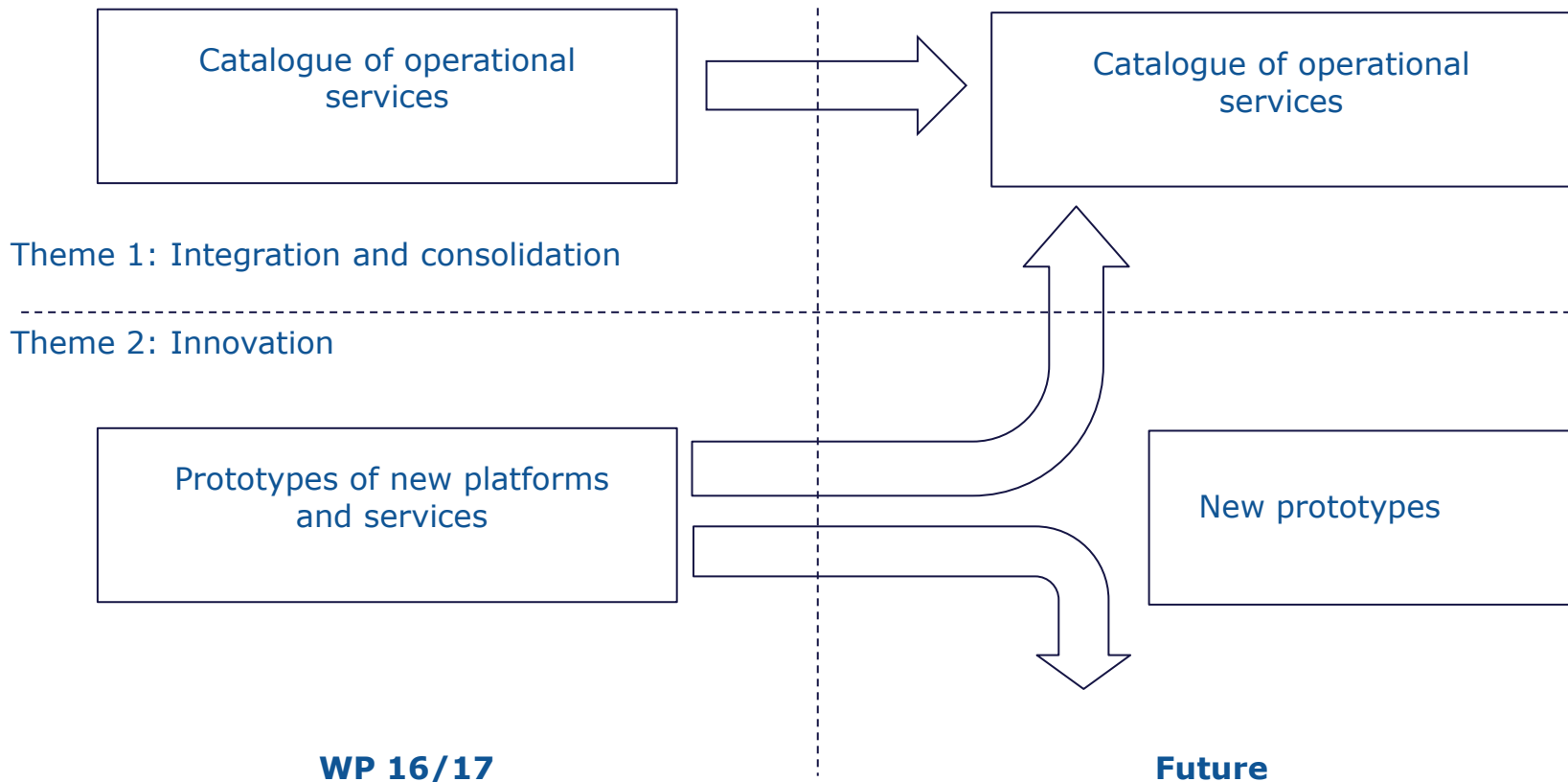
Features

- TRL6 at the beginning of the project; TRL8 by the end (except PPI actions)

Relevant topic

- **EINFRA-21-2017** (platform-driven)

Interplay between theme 1 and theme 2: a dynamic view of WP 16/17



WP16-17 e-infrastructure Topics

- **E-INFRA-11-2016** Support to the next implementation phase of Pan-European High Performance Computing infrastructure and services (PRACE) (*Closed*)
- **E-INFRA-12-2017** Data and Distributed Computing e-infrastructures for Open Science (*Closing on 29/III/2017*)
- **E-INFRA-21-2017** Platform-driven e-infrastructure innovation (*Closing on 20/IX/2016 and on 29/III/2017*)
- **E-INFRA-22-2016** User-driven e-infrastructure innovation (*Closed*)
- **INFRA supp-03-2016**: Support to policies and international cooperation for e-infrastructures (*Closed*)

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2

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WP16-17 Implementation Principles

- **Service orientation:** Catalogue of **services**
- **Maximizing and assessing the impact of e-Infrastructures:** Use of **KPIs** for operational, technical and socio-economic impact assessment
- **Participation in international fora such as the Research Data Alliance (RDA)**
- **Innovation through co-design:** the Commission encourages that consortia applying to all topics, in particular to those in the platform-driven and user-driven innovation themes, are composed by a balanced set of partners with complementary competences and roles
- **Open research data**
- **Horizon 2020 as a catalyst for growth and jobs**

EINFRA-12-2017 in detail



Topic: EINFRA-12-2017 (a & b)

Title: **Data and Distributed Computing e-infrastructures for Open Science**
(a) Secure and agile data and distributed computing e-infrastructures

Challenge:

- To make research data discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable
- Integration of an on-demand service-driven e-infrastructure incorporating distributed databases, computing resources and software.
- Related to **INFRADEV-04-2016** "[*European Open Science Cloud for Research*](#)"

Scope:

Complementarity is sought between grants awarded under this topic

- Seamless operation of highly scalable platforms and services dedicated to analytics
- **Integration** of resources exposing them through a dynamic registry and catalogue of services
- Data protection and privacy
- Adoption of standards-based common interfaces (Open source)
- Promotion of open Science message by engaging with user communities (**Focus on the catalogue of services**)
- **Interoperability** of pan-European thematic e-Infrastructures
- Data curation and preservation
- Promoting interoperability with similar infrastructures and exploiting economies of scale

Type of Action: **RIA**

Budget: **€40M**
a) & b) combined

Submission opening: **08/12/2016**

Submission deadline: **29/03/2017**

**Suggested contribution
requested per proposal :** **€10M - €15M**



Topic: EINFRA-12-2017 (a & b)

Title: **Data and Distributed Computing e-infrastructures for Open Science**
(a) Secure and agile data and distributed computing e-infrastructures

Impact:

- Equal opportunities for all European researchers and educators in providing access to essential resources to express their talent and creativity
- Avoid the locking-in to particular hardware or software platforms that would jeopardise the long-term planning for capacity upgrades
- Increase the incentives for scientific discovery and collaboration across disciplinary and geographical boundaries

Applicable conditions:
(common a & b)

- Evaluation criterion: **Excellence. TRL8 required** before the start of the project
- Evaluation criterion: **Excellence.** Service activities excellence measured (among other criteria) on the quality of the **catalogue of services** and the **KPI** measurements and baseline.
- Evaluation criterion: **Impact.** Potential to **enhance capacity for innovation** and production of new knowledge
- Activities: Focus on **(i) Networking & (ii) Service activities** (Theme 1 guidance)

Type of Action: **RIA**

Submission opening: **08/12/2016**

Submission deadline: **29/03/2017**

Budget: **€40M**
a) & b) combined

Suggested contribution
requested per proposal : €10M - €15M



Topic: EINFRA-12-2017 (a & b)

Title: **Data and Distributed Computing e-infrastructures for Open Science**

(b) Access and preservation platforms for scientific information:

Challenge:

- To make research data discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable
- Supporting the integration and consolidation of e-infrastructure for reliable and permanent open access to digital scientific records, based on existing initiatives across Europe

Scope:

Complementarity is sought between grants awarded under this topic

- Deployment and maintenance of service-driven knowledge e-infrastructure
- Development of a coordinated architecture linking institutional and thematic repositories across Europe
- Support of publishing platforms and services for scientific information
- Collection of bibliometric data on publications, citations etc. on all Horizon 2020 scientific output. Delivery of standard and on-demand statistics.
- Supporting global interoperability of open access data e-infrastructures

Type of Action: **RIA**

Submission opening: **08/12/2016**

Submission deadline: **29/03/2017**

Budget: **€40M**
a) & b) combined

Suggested contribution
requested per proposal : **€8M - €10M**



Topic: EINFRA-12-2017 (a & b)

Title: Data and Distributed Computing e-infrastructures for Open Science

(b) Access and preservation platforms for scientific information:

Impact:

- Make the intellectual capital of Europe available to researchers, business and citizens at large. Preserve it for further exploitation by future generations.

Applicable conditions: (common a & b)

- Evaluation criterion: **Excellence**. TRL8 required before the start of the project
- Evaluation criterion: **Excellence**. Service activities excellence measured (among other criteria) on the quality of the catalogue of services and the KPI measurements and baseline.
- Evaluation criterion: **Impact**. Potential to enhance capacity for innovation and production of new knowledge
- Activities: Focus on **(i) Networking & (ii) Service activities** (Theme 1 guidance)

Type of Action:

RIA

Submission opening:

08/12/2016

Submission deadline:

29/03/2017

Budget: €40M

a) & b) combined

Suggested contribution

requested per proposal : €8M - €10M



Implementation mechanism for EINFRA-12-2017

- All proposals responding to this call will be evaluated by the same expert evaluators
- Additional experts (external board) will help the Commission to identify **potential synergies, overlaps and gaps** in the overall service offering proposed in the proposals
- Successful proposals will conclude **complementary grants** with the Commission, which requires them to sign collaboration agreements among themselves
- The Commission will encourage projects to take into consideration the findings on synergies, overlaps and gaps when concluding their collaboration agreements
- After six months of grant agreement signature, the Commission will **convene the external board** to assess the collaboration agreements
- Reviews for these projects will be **run jointly**

EINFRA-21-2017 in detail



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(a) Support to Public Procurement of innovative HPC systems

Challenge: • Prepare **the capacity required to future generations of e-infrastructures**. Be able to respond to the long-term needs of research and education communities in a 5 to 10 years' timeframe
(common a, b1 & b2)

Scope:

- Procurement of **innovative HPC solutions** supporting the deployment in Europe of world-leading HPC capability infrastructure
- Making available a substantial percentage of the new systems to European researchers in the PRACE framework (see EINFRA-11-2016)
- **Diversify the available HPC capabilities** in order to satisfy the needs of a wider range of users in different key application areas
- **Coordination of national and European HPC procurement plans** in view of the implementation of a European supercomputing strategy

Type of Action: PPI

Budget: €26M
a) only

Submission opening: 14/04/2016

Submission deadline: 20/09/2016

Suggested contribution requested per proposal : -



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(a) Support to Public Procurement of innovative HPC systems

Impact:

- Setting the scene for a **sustainable European procurement market on HPC**; increase effectiveness of public procurement in leading-class HPC systems
- Fostering adoption and use of innovative world-class HPC solutions available in Europe
- Better coordination of demand and supply in the European HPC ecosystem, with improved collaboration between users, technology suppliers and procurers

Applicable conditions:

- Evaluation criterion: **Standard sub-criteria apply**
- Specific Requirements for Public Procurement of Innovative solutions (see *HORIZON 2020 - Work Programme 2016–2017. General Annexes. Annex E (p.23-26)*)
- Funding rate: 35% of total eligible cost
- Activities: Combination of **(A) Preparation stage, (B) Execution stage**

Type of Action:

PPI

Budget: €26M
a) only

Submission opening:

14/04/2016

Submission deadline:

20/09/2016

**Suggested contribution
requested per proposal :**

-



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(b.1) Research and Innovation Actions for e-Infrastructure prototypes
Universal discoverability of data objects and provenance

Challenge: Prepare the **capacity required to future generations of e-infrastructures**.
(common a, b1 & b2) Be able to respond to the long-term needs of research and education communities in a 5 to 10 years' timeframe

Scope:

- Service prototype for the uptake of a Digital Identifier for digital objects across disciplines and geographical areas.
- Promote federation of locally operated systems to ensure interoperability.
- Address requirements from all relevant stakeholder groups

Type of Action: RIA

Submission opening: 08/12/2016

Submission deadline: 29/03/2017

Budget: €20M
b.1) & b.2) combined

Suggested contribution requested per proposal : €4M - €5M



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(b.1) Research and Innovation Actions for e-Infrastructure prototypes
Universal discoverability of data objects and provenance

Impact:

- To allow discoverability of digital objects that facilitate access to resources and collaboration between scientists.
- Settle the potential to be used as a core service across Europe and globally.
- Avoid duplication of efforts for developing services common to many e-infrastructures

Applicable conditions:
(common b1 & b2)

- Evaluation criterion: **Excellence.** TRL 6 (min.) required before the start of the project and achieving at least TRL 8 by the end.
- Evaluation criterion: **Excellence.** The extent to which the proposed activities will improve, in quality and/or quantity, the services provided by state of the art e-infrastructures
- Evaluation criterion: **Impact.** Potential to enhance capacity for innovation and production of new knowledge
- Scoring: The score for the criterion **Excellence** will be given a weight of **1.5**
- Activities: Combination of **(i) Networking, (ii) Service activities & (iii) Joint Research Activities (JRA)** (Theme 2 guidance)

Type of Action: **RIA**

Submission opening: **08/12/2016**

Submission deadline: **29/03/2017**

Budget: **€20M**
b.1) & b.2) combined

Suggested contribution
requested per proposal : **€4M - €5M**



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(b.2)Research and Innovation Actions for e-Infrastructure
prototypes
Computing e-infrastructure with extreme large datasets

Challenge:
(common
a, b1 & b2) Prepare the capacity required to future generations of e-infrastructures. Be able to respond to the long-term needs of research and education communities in a 5 to 10 years' timeframe

Scope:

- Service prototyping for dealing with very large data resources.
- Support by robust mathematical methods and tools following an open source approach and aiming at common interfaces.
- New model approaches to HPC and data management are encouraged.

Type of Action: RIA

Submission opening: 08/12/2016

Submission deadline: 29/03/2017

Budget: €20M
b.1) & b.2) combined

Suggested contribution
requested per proposal : €2.5M - €3M



Topic: EINFRA-21-2017 (a, b1 & b2)

Title: **Platform-driven e-infrastructure innovation**
(b.2) Research and Innovation Actions for e-Infrastructure prototypes
Computing e-infrastructure with extreme large datasets

Impact:

- Support the evolution of e-infrastructure services based on exascale data resources.
- Prepare data and computing infrastructure to absorb needs of intensive computing science communities while easing the learning curve of new services for such communities.

Applicable conditions: (common b1 & b2)

- Evaluation criterion: **Excellence**. TRL 6 (min.) required before the start of the project and achieving at least TRL 8 by the end.
- Evaluation criterion: **Excellence**. The extent to which the proposed activities will improve, in quality and/or quantity, the services provided by state of the art e-infrastructures
- Evaluation criterion: **Impact**. Potential to enhance capacity for innovation and production of new knowledge
- Scoring: The score for the criterion **Excellence** will be given a weight of **1.5**
- Activities: Combination of **(i) Networking, (ii) Service activities & (iii) Joint Research Activities (JRA)** (Theme 2 guidance)

Type of Action:

RIA

Submission opening:

08/12/2016

Submission deadline:

29/03/2017

Budget: **€20M**
b.1) & b.2) combined

Suggested contribution
requested per proposal : €2.5M - €3M