

## D2.5: Recommendations for a minimal set of Rules of Participation

Author(s)	<b>ELIXIR-Hub:</b> Pascal Kahlem, Rafael Jimenez, Andrew Smith; <b>CSC:</b> Damien Lecarpentier; <b>CNR:</b> Donatella Castelli, Franco Zoppi. <b>Contributors:</b> Members of EOSCpilot WP2, WP3, WP5, ELIXIR.
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### Abstract:

This deliverable outlines a minimal set of Rules of Participation for Service Providers and Users in EOSC, and aims at feeding decisions within future discussions on EOSC Governance.

The proposed organisational Rules of Participation for EOSC embrace the principles of openness, transparency and inclusiveness. They have been designed after deep analysis of widely accepted working practices in already established European infrastructures and organisations, and iterative consultations of EOSC Stakeholders.

The deliverable presents a main Rule of Participation for all EOSC service providers, complemented by a series of 7 specific requirements which could be applied depending on the needs of each scientific field. The main rule is that “EOSC services shall be *registered* in an EOSC compliant or compatible service catalogue visible to the global EOSC gateway”.

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Author(s)	<b>ELIXIR-Hub:</b> Pascal Kahlem, Rafael Jimenez, Andrew Smith; <b>CSC:</b> Damien Lecarpentier; <b>CNR:</b> Donatella Castelli.
Contributor(s)	Members of EOSCpilot WP2, WP3, WP5, ELIXIR.
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Reviewed by	<b>Françoise Genova (CNRS/CDS, France)</b> <b>Massimo Cocco (INGV, Italy)</b>
Approved by	<b>Brian Matthews (STFC)</b>
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## TABLE OF CONTENT

EXECUTIVE SUMMARY	4
1. SECTION 1 - INTRODUCTION	5
2. SECTION 2 - RECOMMENDED MINIMAL SET OF RULES OF PARTICIPATION	6
2.1. Background	6
2.2. Scope of the study	6
2.3. Recommended Rules of Participation for Service Providers	8
1. Main Rule of Participation for all Service Providers	8
2. Additional specific requirements	9
3. Rule specific to Core Resources of EOSC	11
2.4. Suggested EOSC Rules of Participation for Users	12
3. SECTION 3 - ALIGNMENT WITH THE EOSC IMPLEMENTATION ROADMAP	12
4. SECTION 4 - CONCLUSION	15
ANNEX - SUMMARY OF THE CONSULTATION PROCESS	16
1. First phase (May-June 2017)	16
2. Second phase (July-Sept 2017): Interviews of leaders of selected Infrastructures	21
3. Third phase (Oct 2017 - March 2018): EOSCpilot Stakeholders iterative consultations	25
4. Fourth phase (Jan 2018 - May 2018): Extended consultation outside EOSCpilot	25

## LIST OF TABLES

Table 1 - Alignment of EOSC Rules of Participation with the EC Implementation Roadmap	13
Table 2 - Detailed overview of the mapping of principles of engagement in the infrastructures	19
Table 3 - Interviews of leaders of selected infrastructures	22

## EXECUTIVE SUMMARY

The key objective of the EOSCpilot Governance Work Package 2 is to design and trial a stakeholder driven governance framework with the involvement of research communities, research institutions, research infrastructures including e-infrastructures, and research funding bodies, to shape and oversee future development of the European Open Science Cloud. This deliverable D2.5 fulfils one of the objectives of the Sub-Task 2.3.1 of the EOSCpilot Work Package 2 (Governance), which consists of identifying and proposing a minimal set of Rules of Participation for Service Providers and Users in EOSC, necessary for EOSC participation and function.

This task first investigated and analysed the landscape of 7 e-Infrastructures, 11 Research Infrastructures, 2 commercial cloud providers and scientific initiatives established on the basis of charters/codes of conduct. Organisational Rules of Participation for EOSC were designed in harmony with widely accepted working practices in already established organisations, embracing the principles of openness, transparency and inclusiveness. Iterative consultations with EOSC Stakeholders through 5 events in 2017 and 2018 led to further refine the set of rules that are presented in this deliverable. The proposed Rules of Participation are also aligned with the Implementation Roadmap for the European Open Science Cloud published by the European Commission on March 14, 2018.

The deliverable D2.5 outlines a main Rule of Participation for all EOSC service providers, complemented by a series of 7 specific requirements which could be applied depending on the needs of each scientific field. The main rule is that “EOSC services shall be *registered* in an EOSC compliant or compatible service catalogue visible to the global EOSC gateway”. Additional service specifications may be required in the catalogue(s) depending on the scientific domain. We identified seven specifications of importance, which inform the users and the EOSC governance on the function of the service (availability, functionalities, maturity, support, terms of use, contractual framework) or the characteristics of the service (quality, performance, sustainability, access policies, data portability, compatibility, among others). Service descriptive information must be provided to the catalogue(s) and publicly displayed to enable users to assess the characteristics and quality of the service, as well as those of the service providers. The proposed service specifications tackle the following topics: machine-readable metadata, terms of use and policies, accessibility, portability, access costs and charging model, quality of service and relation to users. These specifications will need to adapt to the dynamic ecosystem consisting of the EOSC Services.

This report aims at feeding future decisions within discussions on EOSC Governance.

## 1. SECTION 1 - INTRODUCTION

This deliverable D2.5 fulfils one of the objectives of the Sub-Task 2.3.1 of the EOSCpilot Work Package 2 (Governance), which consists of identifying and proposing a minimal set of Rules of Participation for Service Providers and Users in EOSC, necessary for EOSC participation and function. This report aims at feeding decisions within future discussions on EOSC Governance.

The deliverable is the result of a joint effort between the EOSC Governance Work Package 2 (Task 2.3.1), EOSC Architecture Work Package 5 (Task 5.1) and the Service Management Framework Work Package 5 (Task 5.3) and the Policy Work Package 3.

This task first investigated and analysed the landscape of e-infrastructures, research infrastructures, commercial service providers, and scientific initiatives established on the basis of charters/codes of conduct. A series of Stakeholders consultations allowed further refinements of the set of rules that are presented in this deliverable.

The proposed organisational Rules of Participation for EOSC have been designed in harmony with widely accepted working practices in already established organisations, embracing the principles of openness, transparency and inclusiveness.

The following sections include the description of the background leading to the present work, and define the scope of the study. The recommended minimal set of Rules of Participation are then described, followed by the analysis of their alignment with the Implementation Roadmap for the European Open Science Cloud published by the European Commission on March 14, 2018. The annex contains the details of the consultation process that spanned from May 2017 to May 2018.

## 2. SECTION 2 - RECOMMENDED MINIMAL SET OF RULES OF PARTICIPATION

### 2.1. Background

Based on the analysis of the various Rules and Principles of Engagement of a set of e-infrastructures and research infrastructures on the provision of various types of Services (Compute, Data, Bioinformatics Tools, among others) and iterative consultation of the EOSC community and leaders of research infrastructures, this document sets out current thoughts on a minimal set of Rules of Participation for Service Providers and Users to engage with the EOSC.

This set of Rules is being refined through an iterative consultation with both EOSC community and leaders of research infrastructures, which represent potential future Users and Service Providers. A summary of the consultation process can be found in the [ANNEX](#)<sup>1</sup>.

The Rules of Participation initially gathered through the analysis of 20 e-infrastructures and research infrastructures from May to September 2017 revealed various levels of entry barriers for Service Providers and Users, depending on the regulations of each individual infrastructure. High-barrier rules ensure a higher quality of Services, but also exclude many of them upfront. In turn, low-barrier rules enable the inclusion of most Services and empower the Users to select the Services according to their own criteria and needs.

The consultation process, started in October 2017, has already allowed to refine the broad set of Rules of Participation initially gathered into a simple set that applies the lowest barrier of entry for service providers. The proposed set of Rules will drive the specific description of the services to enable the Users to select the most appropriate ones.

The Rules of Participation can and will be subject to updates as EOSC matures, accompanied by specific guidelines when required, so we expect the set of Rules to be small and generic enough to allow for participation from all Service Providers and Users from the outset, ensuring as wide a participation in EOSC as possible.

### 2.2. Scope of the study

In the Rules of Participation described hereafter, ‘Service Providers’ are taken to be any organisation which is or planning to offer a Service in the context of EOSC, and include compute (cloud infrastructure) tools, data providers and providers of other research-related services (e.g. providers of semantic tools, providers of network, AAI, scholarly communication services, among others). ‘Users’ (see the definition of End-Users in the Glossary<sup>2</sup>) include individual researchers and research organisations. Users can become Data Providers and/or Service Providers when, for example, they access and process data to

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<sup>1</sup> [https://docs.google.com/document/d/1JBd30DMG\\_KhG8v1h1rOIM4VpYFjOnk4sS59whjaEI/edit#](https://docs.google.com/document/d/1JBd30DMG_KhG8v1h1rOIM4VpYFjOnk4sS59whjaEI/edit#)

<sup>2</sup> <https://docs.google.com/document/d/1Gq73IU2tjVnXLIIpXLH9b4GBO6EGijpIdUtGYHbMm0/edit#heading=h.s90dmy4nakt4>

provide services. All through the document, we name “Service” any service provided by a given Service Provider. That service may be unique to the Service Provider, or may be an instance of a service implemented by that Service provider.

We aimed at aligning this work with the tasks of various Work Packages in EOSCpilot: WP2 Task 2.3.1 (Investigation and analysis of organisational Rules of Engagement for EOSC), WP2 Task 2.2 (Federated Governance Framework<sup>3</sup>), WP3 (Policy), WP5 (Services Demonstrators and Services Architecture<sup>4</sup>, Service Management Framework<sup>5</sup>) and WP6 Task 6.2 (Data registries for EOSC). These Rules have been adjusted to reflect the need for inclusiveness on the EOSC participation and propose specific Rules which could be added to fulfil the requirements of particular scientific communities or services.

The European Commission announced on 14 March 2018 the adoption of the Implementation Roadmap for the European Science Cloud<sup>6</sup>, which proposes a framework for Rules of Participation to EOSC. Table 1 (Section 3) shows how the recommended Rules of Participation fully align with the framework specified by the EOSC Implementation Roadmap.

We are aware that the EOSC-Hub project started in January 2018 and in Work package 10, the Task 10.2 “Service Catalogue Technical Evolution” aims at defining rules of engagement for service providers that have services to be included within the Service Catalog. The contents of the present document have been already discussed in March 2018 with the experts in charge within ELIXIR-Hub. This document lays the first draft for recommendations of a minimal set of Rules of Participation, based on an iterative consultation of the research community. We expect the EOSC governance structures and the ongoing projects (e.g. EOSC-Hub) to refine these Rules and adapt them to the needs as EOSC develops.

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<sup>3</sup> Deliverable D2.2: <http://eoscpilot.eu/content/d22-draft-governance-framework-european-open-science-cloud>

<sup>4</sup> Deliverable D5.1: [https://docs.google.com/document/d/1ZeEo32\\_c6zWE-1r04VxJL9oBkKVCXBdRxlQp5Skj4-I/edit](https://docs.google.com/document/d/1ZeEo32_c6zWE-1r04VxJL9oBkKVCXBdRxlQp5Skj4-I/edit)

<sup>5</sup> [https://docs.google.com/document/d/1tJmNvbKChWTagEonUQzn\\_tqS47mwSrYLwttNDxSP8pl/edit?ts=5ac76c5f#](https://docs.google.com/document/d/1tJmNvbKChWTagEonUQzn_tqS47mwSrYLwttNDxSP8pl/edit?ts=5ac76c5f#)

<sup>6</sup> [http://ec.europa.eu/research/openscience/pdf/swd\\_2018\\_83\\_f1\\_staff\\_working\\_paper\\_en.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/openscience/pdf/swd_2018_83_f1_staff_working_paper_en.pdf#view=fit&pagemode=none)

## 2.3. Recommended Rules of Participation for Service Providers

### 1. Main Rule of Participation for all Service Providers<sup>7</sup>

EOSC services shall be **registered** in an EOSC compliant<sup>8</sup> or compatible service catalogue visible to the global EOSC gateway.

There are multiple service catalogues in each scientific community (e.g. TeSS<sup>9</sup> for life science training resources, bio.tools<sup>10</sup> for bioinformatics resources, or FAIRsharing<sup>11</sup> for data and metadata standards). It is recommended that service providers register their services to community accepted and supported catalogues. Catalogues are diverse and various tasks within the EOSCpilot project are providing recommendations about EOSC catalogues:

- EOSCpilot Task 5.1 EOSC Architecture for the basic principles governing the development of the EOSC System Architecture and its services. (Deliverable D5.1 - Initial EOSC Service Architecture).
- EOSCpilot Task 5.2 for the process of entry to and requirements for being accepted in the EOSC Service portfolio. (Deliverable D5.2 - EOSC Service portfolio).
- EOSCpilot Task 5.3 for the Federated Service Management Framework. (Deliverable D5.3 - EOSC Federated Service Management Framework)
- EOSCpilot Task 6.2 for the research and data interoperability within the EOSC. (Deliverable D6.2 - EOSC architecture design)

In the EOSC compatible catalogues, the registered services must be described according to the appropriate EOSC service guidelines (based on the eInfraCentral<sup>12</sup> project), which include information about the service availability, functionalities, operations, maturity, user support, interoperability (metadata schemata supported), openness (licenses), privacy (GDPR compliance), terms of use and contractual framework.

***Rationale:** Inclusiveness, transparency, enabling standardisation and interoperability of services.*

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<sup>7</sup> Be them providers of EOSC Services, EOSC Compatible Services, EOSC Service Components (cf. EOSC Deliverable D5.1).

<sup>8</sup> <http://eoscpilot.eu/content/d22-draft-governance-framework-european-open-science-cloud>

<sup>9</sup> <https://tess.elixir-europe.org/>

<sup>10</sup> <https://bio.tools/>

<sup>11</sup> <https://fairsharing.org/>

<sup>12</sup> <http://beta.einfracentral.eu/home>



## 2. Additional specific requirements

Particular service specifications may be required in the catalogue(s) depending on the scientific domain. We identified seven specifications of importance, which inform the users and the EOSC governance on the function of the service (availability, functionalities, maturity, support, terms of use, contractual framework) or the characteristics of the service (quality, performance, sustainability, access policies, data portability, compatibility, among others). Service descriptive information must be provided to the catalogue(s) and publicly displayed to enable users to assess the characteristics and quality of the service, as well as those of the service providers. These specifications will need to adapt to the dynamic ecosystem consisting of the EOSC Services.

### 2.1. Machine readable metadata

All services (including specific instances of services implemented by Service Providers) must be described in machine readable format and be identifiable by means of a common and persistent identification. Minimal information must be provided to the catalogue(s) according to the specifications of the EOSC catalogue (see rule 1) and to accommodate the specificities of the corresponding communitie(s) to allow users to assess operational and functional aspects of the Service Providers (e.g. quality indicators, FAIR indicators, licences, etc).

*Rationale: Drives adoption of generic standards for content description. Promotes transparency of services.*

### 2.2. Terms of Use and Policies

All EOSC services must have Terms of Use (including Access Policies such as who is able to access them, for how long, who the data could be used/aimed for, how long data will be available, security and privacy issues, the need for Service Level Agreements, among others) and other policies (such as data curation and preservation procedures) displayed publicly online and/or via the EOSC Service catalogue(s).

For data catalogues for instance, EOSCpilot WP3 “EOSC policy”<sup>13</sup> recommends using machine readable licenses instead of terms of use (where possible) and to have a limited number of compatible licenses. WP3 also recommends that Service Providers use EOSC-designed templates of terms of use for specific types of services.

Services that provide “Excellence-based access” (e.g. [PRACE](#)<sup>14</sup>) - where research groups are allocated resources based on competitive processes - should operate with transparent expert peer-review.

*Rationale: EOSC will build on services provided by many organisations. This may limit individual user access or the type of project that can use a given resource (e.g. data security). Such restrictions must be fully transparent.*

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<sup>13</sup> EOSCpilot deliverable D3.1

<sup>14</sup> [www.prace-ri.eu/](http://www.prace-ri.eu/)

### 2.3. Accessibility

EOSC Service Providers must describe how they ensure accessibility and interoperability, and provide information in the EOSC compatible service catalogue where they have registered their service on, e.g. their metadata, APIs, standards, protocols, etc.

*Rationale: Allows for a more open market for users.*

### 2.4. Portability

Legal and technical infrastructures should enable the portability of data and services. Whenever possible, Service Providers (e.g. tools service providers) should support the deployment and execution of their service by users in compatible computing environments. (Work by EOSCpilot Task 5.4 “Service pilots”)

*Example of the ELIXIR (Research Infrastructure for Life Sciences) strategies to implement the portability principle: “we invest significantly in portable workflows (CWL) and making our galaxy servers interoperable (galaxy community); we invest in a reference data distribution service to ensure that users can move data to different clouds and we invest in compatible cloud execution systems (GA4GH cloud project) with the common AAI to tie this together”.*

*Rationale: Facilitates use of service on sensitive data.*

### 2.5. Access costs and charging model

Service providers may apply user charges/fees, which could vary by type of service, type of service provider and location of users. This information must be made clear to users online and via the service catalogue(s). In particular cases, underlying costs could be indicated: for instance for data-related services, service providers could indicate maintenance costs, curation, stewardship, etc.

*Rationale: Low barrier, as it allows for all players (public and private) to engage and the decision on what services to consume is left to users.*

### 2.6. Quality of service

Service providers should adhere to a minimal set of quality guidelines that are being developed within the EOSCpilot project<sup>15</sup> and the EOSC-hub project<sup>16</sup>. These may include the Technology Readiness Level (TRL) scale or domain-specific certifications (for example the CoreTrustSeal<sup>17</sup> certification for a data repository, or an ISO27001<sup>18</sup> information security standard certification for a service provider).

*Rationale: Building trust with users. EOSC will build on services provided by many organisations. Users must be able to make informed choices based on quality, performance and capacity.*

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<sup>15</sup> See EOSCpilot Task 6.2.4

<sup>16</sup> <https://www.eosc-hub.eu/>

<sup>17</sup> <https://www.coretrustseal.org/>

<sup>18</sup> <https://www.iso.org/standard/54534.html>

## 2.7. Relation to users

Service providers should be transparent about the data management mechanisms they use to store-process-publish content. If applicable, Service Providers:

- **FAIRness and Reproducibility:**
  - must publicly indicate if they provide users with the means, and list them, to apply FAIR principles to research data.
  - must publicly indicate if they offer the mechanisms, and list them, to ensure sustainability, openness and reproducibility of data.
  
- **Privacy and Security:**
  - must publicly disclose details on what data about users is collected and how the user statistics is tracked, managed and used for service improvement.
  - must publicly indicate that they offer the mechanisms to apply data protection rules according to the General Data Protection Regulation, especially in terms of Data Protection by Design and Data Protection by default, using relevant shields and information.
  
- **Easing usability:**
  - All services should be accompanied by corresponding documentation, support and training materials and contact channels (e.g. email, helpdesk) to interact with the service provider.

*Rationale: Develop and maintain trust in provided services through transparency mechanisms.*

## 3. Rule specific to Core Resources of EOSC

The Core Resources of EOSC are the “set of services and processes that are needed for EOSC operations to integrate and enable access to the various resources federated in the EOSC (for example a central AAI, service registry, monitoring, helpdesk, enabling users feedback, among others)([See section 4.2.3 of the governance framework draft document](#)<sup>19</sup>).

We acknowledge the need for Core (enabling) Resources of EOSC as the glue of EOSC. Their cross-domain, cross-region use are absolutely essential for basic EOSC operation. Once a service falls into this category, it must follow stricter rules both on the level of service provision (Service Level Agreements (SLAs)) and the interoperability aspects.

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<sup>19</sup> <http://eoscpilot.eu/content/d22-draft-governance-framework-european-open-science-cloud>

## 2.4. Suggested EOSC Rules of Participation for Users

Here we consider Users as the end-users of Services. Users' Rules of Participation may be ultimately framed within the Terms of Use presented by the Service Providers.

### 1. Data sharing and sustainability

For mid/long-term projects, we recommend the use of Data Management Planning tools as early in the process as possible. Such tools can produce machine-readable outputs and are linked to EOSC infrastructures and services. In the domains where community-recognised deposition data repositories providing the means for FAIRness and Openness exist (e.g. see the [ELIXIR Deposition Databases for Biomolecular Data](#)<sup>20</sup>), users should be encouraged to deposit data in them in the first instance.

As per the “Combined Recommendations for the Embedding of Open Science” published by the European Commission’s Open Science Policy Platform<sup>21</sup>, “individual researchers must consider openness the default position for their work, and use standard identifiers for themselves (ORCID), their outputs (DOI) and their contributions (CRediT)”.

### 2. Acknowledgement of use of services accessed through the EOSC gateway

If requested by the Terms of Use of the Service Provider, users accessing services through the EOSC gateway should acknowledge through citing in publications or other means the specific service or services that have enabled their research.

*Rationale: Improving visibility of the usage/impact of Services through EOSC will support long-term sustainability of those services.*

## 3. SECTION 3 - ALIGNMENT WITH THE EOSC IMPLEMENTATION ROADMAP

The European Commission announced on 14 March 2018 the adoption of the [Implementation Roadmap for the European Science Cloud](#)<sup>22</sup>, which proposes a framework for Rules of Participation to EOSC. [Table 1 \(an online version of the table is available](#)<sup>23</sup>) shows how the recommended Rules of Participation fully align with the framework specified by the EOSC Implementation Roadmap.

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<sup>20</sup> <https://www.elixir-europe.org/platforms/data/elixir-deposition-databases>

<sup>21</sup> <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-policy-platform>

<sup>22</sup> [http://ec.europa.eu/research/openscience/pdf/swd\\_2018\\_83\\_f1\\_staff\\_working\\_paper\\_en.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/openscience/pdf/swd_2018_83_f1_staff_working_paper_en.pdf#view=fit&pagemode=none)

<sup>23</sup> <https://docs.google.com/spreadsheets/d/1t1EqfQwxmsoBrUehytIwLeax32MJpmBzoVOqVNLyKk0/edit#gid=0>

**Table 1 (part 1): Alignment of EOOSC Rules of Participation with the EC Implementation Roadmap.**

Statement number	Implementation Roadmap	EOScPilot recommended Rules of Participation
1	These rules would set out in a transparent and inclusive manner the rights, obligations and accountability of the different stakeholders taking part in the initiative (e.g. data producers, service providers, data and service users)	The analysis of 20the e-infrastructure and research infrastructures from June to September 2017 revealed various levels of entry barriers for Service Providers and Users, depending on the regulations of each individual infrastructure. High-barrier rules ensure a higher quality of Services, but also exclude many of them upfront. In turn, low-barrier rules enable the inclusion of most Services and empower the Users to select the Services according to their own criteria and needs. The consultation process started in October 2017 has already to refine the broad set of Rules of Participation initially gathered into a simple set that applies the lowest barrier of entry for service providers.
<b>What the rules ought to address</b>		
2	The use of the tools, specifications, catalogues and standards (EOOSC shared resources) and applicable methodologies (framework for FAIR research data)	The rule No. 1 states that "EOOSC services shall be registered in an EOOSC compliant or compatible service catalogue visible to the global EOOSC gateway. In the EOOSC compatible catalogues, the registered services must be described according to the appropriate EOOSC service guidelines, which include information about the service availability, functionalities, operations, maturity, user support, interoperability (metadata schemata supported), openness (licenses), privacy (GDPR compliance), terms of use and contractual framework".
3	The principles for regulating transactions in the EOOSC (e.g. financial mechanisms and procedures, agreements/bylaws established by the EOOSC governance framework)	<b>Rationale:</b> Inclusiveness, transparency, enabling standardisation and interoperability The Specific requirement 2.2 states that "All EOOSC services must have Terms of Use and/or Access policies displayed publicly online and/or via the EOOSC Service catalogue(s)". For example, for data catalogues, EOScPilot WP3 "EOOSC policy" recommends to use machine readable licenses instead of terms of use (where possible) and to have a limited number of compatible licenses."
4	The applicable legal frameworks (e.g. GDPR, copyright, Data Security and Cybercrime, dispute resolution and redress mechanisms, e-commerce directive)	<b>Rationale:</b> EOOSC will build on services provided by many organisations. This may limit individual user access or the type of project that can use a given resource (e.g. data security). Such restrictions must be fully transparent. The specific requirement 2.7 states that "Service providers should be transparent about the data management mechanisms they use to store-process-publish content. (e.g. Service Providers must publicly indicate if they offer the mechanisms to apply data protection rules according to the General Data Protection Regulation, especially in terms of Data Protection by Design and Data Protection by default, using relevant shields and information)". <b>Rationale:</b> Develop and maintain trust in provided services through transparency mechanisms.

**Table 1 (part 2): Alignment of EOSC Rules of Participation with the EC Implementation Roadmap.**

Compliance with the rules could differ based on:	
5	<p>The current situation and readiness of data infrastructures and services at the level of Member States (research infrastructures, e-Infrastructures) and disciplines (level of standardisation and integration) and the differences in their established rules and processes.</p> <p>The specific requirement 2.6 states that "Service providers should adhere to a minimal set of quality guidelines that are being developed within the EOSC pilot project (Task 6.2.4). Services that provide "Excellence-based access" (e.g. PRACE) - where research groups are allocated resources based on competitive processes - should operate with transparent expert peer-review".</p> <p><b>Rationale:</b> Building trust with users. EOSC will build on services provided by many organisations. Users must be able to make informed choices based on quality, performance and capacity.</p>
6	<p>The actual existence and variety of service providers and the actual needs of users of the EOSC (e.g. public vs private; horizontal vs specialised).</p> <p>See statement 1.</p> <p>Regarding access costs and charging model, the specific requirement 2.5 states that "Service providers may apply user charges/fees, which could vary by type of service, type of service provider and location of users. This information must be made clear to users online and via the service catalogue(s). Underlying costs could be indicated, e.g. for data-related services, service providers could indicate maintenance costs, curation, stewardship, etc."</p> <p><b>Rationale:</b> Low barrier, as it allows for all players (public and private) to engage and the decision on what services to consume is left to users.</p>
7	<p>Evidence of changing needs and practices in relation with the implementation of the rules, in particular as concerns compliance with existing legal frameworks (e.g. GDPR) and emerging ones (e.g. free flow of data).</p> <p>See statement 2.</p>
8	<p>The rules of participation of the EOSC would need to take into account the established practices and current needs of all researchers and service providers.</p> <p>The rule No. 1 states that "There are multiple service catalogues in each scientific community (e.g. TESS for life science training resources, bio.tools for bioinformatics resources, or FAIRsharing for data and metadata standards). It is recommended that service providers register their services to community accepted and supported catalogues."</p>

## 4. SECTION 4 - CONCLUSION

This document lays the first draft for recommendations of a minimal set of Rules of Participation for Service Providers and Users in EOSC. The proposed Rules embrace the principles of openness, transparency and inclusiveness. The main rule is that “EOSC services shall be registered in an EOSC compliant or compatible service catalogue visible to the global EOSC gateway”. It is complemented with seven specific Rules which could be added to fulfil the requirements of particular scientific communities or services.

The European Commission announced on 14 March 2018 the adoption of the Implementation Roadmap for the European Science Cloud<sup>24</sup>, which proposes a framework for Rules of Participation to EOSC. The recommended Rules of Participation fully align with the framework specified by the EOSC Implementation Roadmap.

This report aims at feeding decisions within future discussions on EOSC Governance and we expect the ongoing projects (e.g. EOSC-Hub) to refine these Rules and adapt them to the needs as EOSC develops.

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<sup>24</sup> [http://ec.europa.eu/research/openscience/pdf/swd\\_2018\\_83\\_f1\\_staff\\_working\\_paper\\_en.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/openscience/pdf/swd_2018_83_f1_staff_working_paper_en.pdf#view=fit&pagemode=none)

## ANNEX - SUMMARY OF THE CONSULTATION PROCESS

Authors: Andrew Smith (EMBL), Pascal Kahlem (EMBL), Donatella Castelli (CNR), Franco Zoppi (CNR), Damien Carpentier (CSC)

### 1. First phase (May-June 2017)

Broad-based study of the rules of engagement (of service providers and of users) of 7 e-Infrastructure providers/projects, 11 domain-specific research infrastructures (RIs), 2 commercial cloud providers and scientific initiatives established on the basis of charters/codes of conduct.

#### 1) Service-providing RIs and e-Infrastructures picked from the e-infrastructure landscape (See e-IRG roadmap<sup>25, 26</sup>).

- **Networking**
  - GEANT (<https://www.geant.net>)
- **Computing and cloud**
  - EGI (<https://www.egi.eu/>)
  - PRACE (<http://www.prace-ri.eu/>)
  - Helix Nebula initiative (<http://www.helix-nebula.eu/>)
  - NIH Cloud (<https://datascience.nih.gov/commons>)
- **Data infrastructures and services**
  - EUDAT (<http://eudat.eu>)
  - OpenAIRE (<https://www.openaire.eu/>)

#### 2) Domain-specific Research Infrastructures

*Acknowledged in the ESFRI roadmaps (<http://www.esfri.eu/>):*

- **Social Sciences and Humanities**
  - DARIAH (<http://dariah.eu>):
  - CESSDA (<https://cessda.net>):
  - ESS (<http://www.europeansocialsurvey.org>)
- **Environmental Science**
  - LifeWatch ([www.lifewatch.eu](http://www.lifewatch.eu))
  - EPOS (<https://www.epos-ip.org>)
- **Biological and Medical Sciences**
  - ELIXIR (<http://www.elixir-europe.org/>)

*Not-acknowledged in the ESFRI roadmaps:*

- **Satellite Earth Observation and in situ (non-space) data**

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<sup>25</sup> <http://e-irg.eu/roadmap>

<sup>26</sup> <http://knowledgebase.e-irg.eu/e-infrastructures>



- Copernicus (<http://www.copernicus.eu/>)
- **Ocean and Marine Sciences**
  - SeaDataNet (<https://www.seadatanet.org/>)
- **EuroForum** (<http://www.euroforum.org/>) consists of eight European intergovernmental scientific research organisations with the aim to play an active and constructive role in promoting the quality and impact of European Research. These organisations bear already policies to manage the use of their services. Here are 3 examples:
  - CERN (<http://home.cern/>): Founded in 1954, the CERN (European Organization for Nuclear Research) laboratory sits astride the Franco-Swiss border near Geneva. It was one of Europe's first joint ventures and now has 22 member states. CERN Procurement Rules for the procurement of supplies and services are here<sup>27</sup>.
  - ESA (<http://www.esa.int/>): Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. ESA procurement regulations are available here<sup>28</sup>.
  - EMBL (<http://embl.de>): EMBL is an intergovernmental organisation specialising in basic research in the life sciences, funded by public research monies from more than 20 member states.

### 3) Commercial cloud providers:

- Amazon Web Services (AWS): Cloud solutions. AWS public sector contract center policies<sup>29</sup>.
- Google Cloud Platform<sup>30</sup>.

### 4) Scientific initiatives established on the basis of Charters/Codes of conduct

#### *Existing Charters and 'Rules of Engagement':*

- RDA Research Data Alliance (<https://www.rd-alliance.org>): Community-driven organization with the goal of building the social and technical infrastructure to enable open sharing of data.
- Data Seal of Approval: <https://www.datasealofapproval.org/en/>

A list of repositories having acquired DSA seals is available here<sup>31</sup>. Some examples are:

- Czech Social Science Data Archive<sup>32</sup>

<sup>27</sup> <http://procurement.web.cern.ch/en/procurement-strategy-and-policy>

<sup>28</sup> [http://www.esa.int/About\\_Us/Law\\_at\\_ESA/Highlights\\_of\\_ESA\\_rules\\_and\\_regulations](http://www.esa.int/About_Us/Law_at_ESA/Highlights_of_ESA_rules_and_regulations)

<sup>29</sup> <https://aws.amazon.com/contract-center/>

<sup>30</sup> <https://cloud.google.com/>

<sup>31</sup> <https://www.datasealofapproval.org/en/assessment/>

<sup>32</sup> <http://archiv.soc.cas.cz/en>

- Earth Resources Observation and Science Center<sup>33</sup>
- European Charter and Code for recruitment of researchers:  
<https://euraxess.ec.europa.eu/jobs/charter> 892 organisations have endorsed the Charter & Code principles as of May 2017<sup>34</sup>.
- European Charter for Access to Research Infrastructures (resulting from a collaboration between EC RDT, ESFRI and e-IRG)

[https://ec.europa.eu/research/infrastructures/pdf/2016\\_charterforaccessto-ris.pdf](https://ec.europa.eu/research/infrastructures/pdf/2016_charterforaccessto-ris.pdf)

- WISE community on information security for collaborating e-infrastructures:  
<https://wise-community.org>
  - Five Working Groups, which should implement policies:
    - Risk Assessment WISE (Chair CSC, EUDAT)
    - Security in Big and Open Data (Chair HBP, PRACE and EUDAT)
    - Updating the SCI (Security for Collaboration among Infrastructures) framework (Chair: STFC, NCSA & XSEDE): EGI, PRACE, EUDAT, WLCG, XSEDE, HBP)
    - Security Review and Audit (Chair: CSC, EUDAT)
    - Security Training and Awareness (Chair: SURF, PSC)
- Marie Curie Seal of Excellence: <https://ec.europa.eu/research/soe/index.cfm>

### **Examples of initiatives/infrastructures that require certification:**

#### **NIH Cloud Credit scheme<sup>35</sup>:**

A Commons cloud credits business model is being tested, which is designed to provide unified access to a choice of "Commons-conformant" compute resources. Through the Commons Credits Scheme, NIH approves providers that meet its requirements and standards, and investigators can apply to receive credits they can use to purchase cloud services from their choice from among the approved vendors, including commercial HPC providers such as AWS.

#### **EGI service provider certification scheme**

EGI service provider certification activities, roles and responsibilities are community defined, and define the "rules of engagement" i.e. the minimum set of requirements that a service provider needs to meet to be part of the EGI Federation:

- <https://wiki.egi.eu/wiki/PROC09>
- IT security management certification <https://wiki.egi.eu/wiki/SEC05>

### **In-depth case analysis:**

<sup>33</sup> <https://eros.usgs.gov/ns/lrsda/>

<sup>34</sup> <https://euraxess.ec.europa.eu/jobs/charter/declaration-endorsement>

<sup>35</sup> <https://datascience.nih.gov/commons>

Analysis to include a view on ‘organisational users’ particularly for the examples where access to services are provided - in those cases, when users access services, what obligations/requirements do they have?

- Cross e-Infrastructure AUP and conditions of use: The conditions of use described in the AUP have to be accepted by all Users during their registration as a user of the Infrastructure. Having one common AUP for all Users regardless of which infrastructures and/or resources they are using eases the issues of interoperability. The following is the EGI version: <https://documents.egi.eu/document/2623> (other e-Infrastructure collaborating with EGI and supporting a common user base have similar incarnations)

***Table 2: Detailed overview of the mapping of principles of engagement in the infrastructures analysed (The original table is available for download online<sup>36</sup>).***

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<sup>36</sup> [https://drive.google.com/file/d/1M\\_VK4jyFdAHGpntzTVd9aGzbqO2qPGZI/view?usp=sharing](https://drive.google.com/file/d/1M_VK4jyFdAHGpntzTVd9aGzbqO2qPGZI/view?usp=sharing)

Organisation/initiative	Selected for deeper analysis	Type of organisation	Legal framework	Description	URL	Policy adopted from	Users description	Policies/rules for user access			Service provider description	Policies/rules for service providers		
								Ethical	Legal	Organisational		Ethical	Certification	Organisational
<b>INFRASTRUCTURES</b>														
<b>GEANT: Networking</b>														
GEANT: Networking		Networking and associated services infrastructure	Association under Dutch law.	GEANT develops, delivers and promotes advanced network and associated infrastructure services for research and education, supporting open collaboration and knowledge sharing amongst its members and the wider research and education community.	<a href="http://www.geant.net/AboutEuropean-Infrastructures/Pages/Home.aspx">http://www.geant.net/AboutEuropean-Infrastructures/Pages/Home.aspx</a>		Serves its core membership of 38 European national research and education networks (NRENs) and one Representative Member – NORDUnet – which participates on behalf of five Nordic NRENs and who, collectively, serve their Research and Education user base of around 10,000 institutions and 60M users.		Conditions of use: <a href="https://www.geant.net/warner/legal.aspx">https://www.geant.net/warner/legal.aspx</a>					
EGI: advanced computing for research (cloud computing)	X	High-throughput and cloud computing e-Infrastructure		Publicly-funded and comprises over 300 data centres and cloud providers spread across Europe and worldwide.	<a href="https://www.egi.eu/">https://www.egi.eu/</a>		Scientists, multinational projects and research infrastructures		Terms of use: <a href="https://www.egi.eu/terms-of-use/">https://www.egi.eu/terms-of-use/</a>		The EGI Cloud compute service is implemented as a hybrid, Infrastructure as a Service (IaaS) cloud composed by public, community and private cloud providers.	<a href="https://www.egi.eu/privacy-policy/">https://www.egi.eu/privacy-policy/</a>		Resource Centre Operational Level Agreement. This document defines the minimum set of operational services and the respective quality parameters that a Resource Centre is required to provide in EGI. <a href="https://documents.egi.eu/document/31">https://documents.egi.eu/document/31</a>
PRACE - Partnership for Advanced Computing in Europe (Supercomputing)	X	High-performance capability computing e-Infrastructure		The mission of PRACE (Partnership for Advanced Computing in Europe) is to enable high impact scientific discovery and engineering research and development across all disciplines to enhance European competitiveness for the benefit of society. PRACE seeks to realize this mission by offering world class computing and data management resources and services through a peer review process.	<a href="http://www.prace-ri.eu/">http://www.prace-ri.eu/</a>		PRACE systems are available to scientists and researchers from academia and industry from around the world.		<a href="http://www.prace-ri.eu/ri/ri-requirements/">http://www.prace-ri.eu/ri/ri-requirements/</a>					A candidate for a membership in the Association must meet eligibility criteria which are defined in the Statutes (in article 6.1) of the PRACE association. <a href="http://www.prace-ri.eu/statutes/">http://www.prace-ri.eu/statutes/</a>
HELIX Nebula initiative		Open cloud services sustainability EU-funded project: Partnership between industry and RI in pre-commercial procurement		Aims to establish a dynamic ecosystem, benefiting from open cloud services for the seamless integration of science into a business environment.	<a href="http://www.helix-nebula.eu/">http://www.helix-nebula.eu/</a>		Workwide. An entity that applies to become a User Member shall have an intent to procure cloud computing services and actively participate in the Initiative e.g., through participation in task forces and provide use cases for cloud computing that support the work of the Initiative. Users will name a representative to participate in regular meetings of the Helix Nebula Users Board.		<a href="http://www.helix-nebula.eu/become-new-member/">http://www.helix-nebula.eu/become-new-member/</a>		An organisation that applies to become a service provider member should commit to support a minimum set of cloud computing services and perform at least one Proof of Concept of a flagship use case with a user.			<a href="http://www.helix-nebula.eu/become-new-member/">http://www.helix-nebula.eu/become-new-member/</a>
NIH Cloud		Cloud Computing services									Cloud service providers			<a href="https://data.science.nih.gov/commons">https://data.science.nih.gov/commons</a>
OpenAIRE: Scientific articles repository	X	Research Data e-Infrastructure		OpenAIRE delivers "an electronic infrastructure and supporting mechanisms for the identification, deposition, access, and monitoring of PPI and ERIC funded open access articles", through the establishment and operation of the European Helixoid.	<a href="https://www.openaire.eu/">https://www.openaire.eu/</a>	RDAAWDS Publishing Data Services	(i) Research Communities (individual researchers and research institutions) using the provided deposition functionalities to fulfil PPI pilot and ERIC OA guidelines. (ii) National Open Access Initiatives which will be coordinated to further promote the OA movement to researchers and institutions. (iii) Repository Managers willing to interoperate to exchange OA publications and usage statistics to gain more visibility for their institutions, and (iv) Scientific communities wanting to explore ways of deposition and management of research datasets.				865 OPENAIRE COMPATIBLE DATA PROVIDERS <a href="https://www.openaire.eu/search/data-providers">https://www.openaire.eu/search/data-providers</a>		OpenAIRE USES OpenAIRE re3data as authoritative repository registries	OpenAIRE's Content Acquisition Policy: <a href="https://www.openaire.eu/content-acquisition-policy">https://www.openaire.eu/content-acquisition-policy</a>
EUDAT: Big DATA	X	Research Data e-Infrastructure		EUDAT has created an important infrastructure for the European Research Area, by providing solutions for managing electronic data that would be difficult for some research communities to provide on their own.	<a href="https://www.eudat.eu/">https://www.eudat.eu/</a>	RDA Data Type Registers	Any researcher or research group (organisations or individuals)				<a href="https://www.eudat.eu/eudat-cd/using-data-access-and-re-use-policies-workshop-report-priorities-for-2015">https://www.eudat.eu/eudat-cd/using-data-access-and-re-use-policies-workshop-report-priorities-for-2015</a>		Any generic or thematic site hosting a data repository and providing ICT services to facilitate research is welcome to join the EUDAT CDH.	<a href="https://www.eudat.eu/eudat-cd/joining">https://www.eudat.eu/eudat-cd/joining</a>
<b>DOMAIN-SPECIFIC RESEARCH INFRASTRUCTURES</b>														
DARIAH - Digital Research Infrastructure for the arts and humanities		Infrastructure for Social Sciences and Humanities		DARIAH is a pan-European infrastructure for arts and humanities scholars working with computational methods. It supports digital research as well as the teaching of digital research methods.	<a href="http://www.dariah.eu/">http://www.dariah.eu/</a>		Researchers in the Arts and Humanities disciplines		<a href="http://www.dariah.eu/each/usage-rules">http://www.dariah.eu/each/usage-rules</a>		DARIAH Members are countries (EU Member States and Associated Countries) or intergovernmental organisations.			
CESSDA - Consortium of European Social Science Data Archives		Infrastructure for Social Sciences and Humanities		CESSDA provides large scale, integrated and sustainable data services to the social sciences.	<a href="https://www.cessda.net/">https://www.cessda.net/</a>		social science researchers				social science data archive service providers			<a href="http://www.cessda.eu/">http://www.cessda.eu/</a>
ESS - European Social Survey		Infrastructure for Social Sciences and Humanities	ERIC	The survey measures the attitudes, beliefs and behaviour patterns of diverse populations in more than thirty nations.	<a href="http://www.europeansocialsurvey.org/">http://www.europeansocialsurvey.org/</a>		The data are available without restrictions, for not-for-profit purposes.		<a href="http://www.europeansocialsurvey.org/ess/ess/conditions-of-use.html">http://www.europeansocialsurvey.org/ess/ess/conditions-of-use.html</a>				ESS subscribes to the Declaration on Professional Ethics: <a href="https://www.isi-web.org/index.php/activities/professional-ethics-declaration">https://www.isi-web.org/index.php/activities/professional-ethics-declaration</a>	
LifeWatch - Biodiversity and Ecosystem Research		Infrastructure for Environmental Sciences	ERIC	In general terms, LifeWatch is aimed to address new research fields, test innovative hypothesis, deepen scientific knowledge and above all, to provide solutions for environmental policy and management issues.	<a href="http://www.lifewatch.eu/">www.lifewatch.eu</a>		Researchers and educational institutions, business, institutions, citizens				Those Centres are upgrades of existing facilities and new infrastructures located in Member and Associated Countries of the European Union, providing access to:  Distributed observatories/sensor networks; Interoperable databases, existing (data-)networks, using accepted standards; High Performance Computing (HPC) and Grid power, including the use of the start-of-art of the so-called Cloud and Big Data paradigm technologies; Software and tools for visualization, analysis and modeling.			<a href="http://www.servicencentre/lifewatch/eu/service-centre">http://www.servicencentre/lifewatch/eu/service-centre</a>
ELIXIR	X	Infrastructure for Biological and Medical Sciences		Data infrastructure for life-science information.	<a href="http://www.elixir-europe.org/">http://www.elixir-europe.org/</a>		Researchers		Terms of use: <a href="https://www.elixir-europe.org/legal/terms-of-use">https://www.elixir-europe.org/legal/terms-of-use</a>  Usage Policy and conditions of use of the Compute Platform: <a href="https://www.elixir-europe.org/services/compute/usage">https://www.elixir-europe.org/services/compute/usage</a>	<a href="https://www.elixir-europe.org/about-us">https://www.elixir-europe.org/about-us</a>	The ELIXIR Framework for service delivery is composed of 5 Technical Platforms comprising Data, Tools, Interoperability, Compute and Training. They bring together the resources and expertise from the ELIXIR Nodes. Node Applications are submitted by countries, reviewed by the SAG, approved by the Board. The ELIXIR Collaboration Agreement states that Member States of the Council of Europe (http://hub.coe.int) are eligible to join ELIXIR. Other states may be declared eligible by decision of the ELIXIR Board. Furthermore, EMI, and Intergovernmental Organisations established under international or EU law (such as ERIC) are allowed to become a member in ELIXIR.	<a href="https://www.elixir-europe.org/documents/elixir-policy">https://www.elixir-europe.org/documents/elixir-policy</a>	Handbook of Operators: <a href="https://www.elixir-europe.org/information/handbook-operators">https://www.elixir-europe.org/information/handbook-operators</a>	
SeaDataNet	X	Infrastructure for Ocean and Marine Data Management			<a href="https://www.seadatanet.eu/">https://www.seadatanet.eu/</a>									
Copernicus		Infrastructure for Satellite Earth Observation and in situ (non-space) data		The Copernicus programme is a user-driven programme which provides six free-of-charge operational services (atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security) to EU, national, and regional institutions, as well as to the private sector.	<a href="http://www.copernicus.eu/">http://www.copernicus.eu/</a>		Primary users of Copernicus are public policy-makers, public bodies responsible for environment and security matters, and business operators. However, access will not be limited to these users and the data and information provided by Copernicus will be accessible in principle to any citizen.		<a href="http://www.copernicus.eu/main/faq">http://www.copernicus.eu/main/faq</a>		The service provision of Copernicus services has been delegated by the European Commission to a number "Entrusted Entities", which act or will act as "service providers" in this perspective. Several "Delegation Agreements" were signed during the period 2014 – 2015.  The Copernicus services are provided to users as follows: The Copernicus Land Monitoring Service is provided by the European Environment Agency (EEA) for the Pan-European and local components, and by the European Commission Joint Research Centre (JRC) for the global land component. The Copernicus Atmosphere Monitoring Services (CAMS) and the Copernicus Climate Change Service (CCS) are provided by the European Centre for Medium-Range Weather Forecasts (ECMWF). The Copernicus Marine Environment Monitoring Service (CMEMS) is provided by Mercator Ocean (the French centre for analysis and forecasting of the global ocean). The Copernicus Emergency Management Service (EMS) is provided by the European Commission Joint Research Centre (JRC). The Copernicus Security Service will be provided respectively by FRONTEX for Border Surveillance, by the European Maritime Safety Agency (EMSA) for Maritime Security and by the European Satellite Centre (SatCe) for Support to External Action.	<a href="http://www.copernicus.eu/main/faq">http://www.copernicus.eu/main/faq</a>		
CERN		European Organization for Nuclear Research			<a href="http://home.cern">http://home.cern</a>		Physicists and engineers		<a href="http://procurement.web.cern.ch/en/procurement-strategy-and-policy">http://procurement.web.cern.ch/en/procurement-strategy-and-policy</a>					
ESA					<a href="http://www.esa.int">http://www.esa.int</a>									
EMBL					<a href="http://www.embl.de">http://www.embl.de</a>									
GEO - Group on Earth Observations		Infrastructure for integration of observing systems		The GEO community is creating a Global Earth Observation System of Systems (GEOSS) to better integrate observing systems and share data by connecting existing infrastructures using common standards.	<a href="http://www.earthobservations.org/">http://www.earthobservations.org/</a>		Full and open access to Earth observation data, information and knowledge is crucial for humanity as it faces unprecedented social, economic and environmental challenges.		Terms and conditions of use: <a href="http://www.jproportal.org/terms-conditions">http://www.jproportal.org/terms-conditions</a>		2 ways to participate: Members: Members are encouraged to contribute financial resources, to the greatest extent possible, in addition to the human, intellectual and programmatic resources needed to fully implement GEOSS. Participating Organizations: The participation of international, international, and regional organizations with a mandate in Earth observation or related activities is essential to the success of GEO and GEOSS.			Membership in GEO is open to all member States of the United Nations and to the European Commission. Membership in GEO is contingent upon formal endorsement of the GEOSS 10-Year Implementation Plan.
<b>COMMERCIAL CLOUD PROVIDERS</b>														
Amazon Web Services		Cloud solutions			<a href="https://aws.amazon.com/">https://aws.amazon.com/</a>				<a href="https://aws.amazon.com/contract-terms/">https://aws.amazon.com/contract-terms/</a>					
Google Cloud Platform					<a href="https://cloud.google.com/">https://cloud.google.com/</a>				<a href="https://cloud.google.com/about/">https://cloud.google.com/about/</a>					

## 2. Second phase (July-Sept 2017): Interviews of leaders of selected Infrastructures

Infrastructures: EGI, PRACE, OpenAIRE, EUDAT, SeaDataNet, ELIXIR, Amazon Web Services

Questions asked:

ABOUT THE SERVICE PROVIDERS
What is the procedure of inclusion of a service provider?
Are there minimum criteria to include service providers (scientific, legal, technical) in your infrastructure - active/passive service providers
How are the criteria presented? (are they machine actionable? Are they a list of public criteria?)
Is there a regular review of the service provider criteria? (frequency? Done by committee?)
Are the service providers self-declared/self-certified?
Type of services provided
Do you make domain/service-type decisions on which providers can be classed as providers?
Pricing policy for users (is there a different cost between academic/private users, or users from within that country or other countries?)
ABOUT THE USERS
What obligations/rules user's organisations have to adhere to use the service (ie, ensure their systems are safe and secure, are there differences in the roles of the users)?
Is there an evaluation process to assess users requests (ie, scientific domain, scientific excellence, funding)?

**Table 3: Interviews of leaders of selected infrastructures (The original table is available for download online<sup>37</sup>)**

<sup>37</sup> <https://drive.google.com/file/d/1u5iADeSat9UgPQ2vk-KQ4A3trn3LSLpM/view?usp=sharing>

	e-INFRASTRUCTURES				DOMAIN-SPECIFIC RESEARCH INFRASTRUCTURES			COMMERCIAL CLOUD PROVIDERS	INITIATIVES DRIVEN BY CHARTERS	
	Summary analysis of results	EGI: advanced computing for research (cloud computing)	PRACE: Partnership for Advanced Computing in Europe (Supercomputing)	OpenAIRE: Open Access Infrastructure for European Research	EUDAT: Big data	SeaDataNet	ELIXIR - Life Sciences	AMAZON WEB SERVICES	EDA Research Data Alliance	Charter Access to RIs
Persons running the interview		Donatella	Pascal	Donatella	Damen	Donatella	Pascal	Pascal	Donatella	Andy
Contact persons		Tiziana.Ferrari@egi.eu	Philippe.Segers (philippe.segers@gencl.fr), Claudio	Natalia Manola (natalia@di.uoa.gr)	Johannes.Retz@mpcdf.mpg.de	Dick M.A. Schaap (dick@maris.nl)		Angel Pizzaro (pizarroa@amazon.com)		
Questions										
<b>ABOUT THE SERVICE PROVIDERS</b>										
What is the procedure of inclusion of a service provider ?	EGI: need a formal link to the council to be able to join. PRACE: It is the country that joins PRACE. OPENAIRE: no particular agreement is needed, they need to implement guidelines for content providers. NOADs are national contact points. EUDAT: service providers need to have a collaboration agreement. SeaDataNet: Need to download a data manager.	Two participative models are supported by the EGI Federation: 1- Any national service provider affiliated to one of the 23 national/international infrastructures that participate in the EGI council 2- Any service provider affiliated to an e-Infrastructure/Research Infrastructure which has a collaboration agreement with EGI. EGI holds agreements with major e-Infrastructures worldwide (Asia-Pacific region, Africa and Arabia, North and South America) Both publicly funded and commercial providers can become part of the EGI Federation.  Service providers need to belong to an Operations Centre that provides support in the daily running/incubating of the services within EGI. The Operations Centre is responsible for certifying service providers according to community-defined operational procedures. Service Providers that become part of the EGI Federation need to adhere to the EGI Resource Centre Operational Agreement, which includes the acceptance of a number of security policies, defines the support channels and the minimum service level targets to which the service provider adheres.	The compute resources are provided by 5 participating countries: DE, ES, IT, FR and CH. Each country contributes an equivalent amount of resources, and does not expect equal return. There is a fixed number of participants.	OpenAIRE operates a dual infrastructure: a technical one that connects OA data sources in all of Europe and beyond, and a human network that assumes a national key role for open access and open science policies for awareness, advocacy, training, and their implementation. Service providers hook up to the main OpenAIRE service (content catalogue) by implementing the Guidelines for Content providers. The guidelines address data, literature, or mixed repositories, OA journals, national or thematic aggregators, institutional or national CRIS systems. No particular agreement is needed for inclusion. For other services (e.g., providing full text of publications, usage statistics) OpenAIRE is including all service providers via terms of agreements to clarify distribution status and privacy of data.  The human network (National Open Access Desks – NOADs) are organizations who either have a governmental mandate for acting for OA/open science in their respective countries, or if there is no such case (in many settings) been proven to have the ability to approach a wide range of stakeholders in their country in relation to open science.	The CDI service providers (or "CDI nodes") are generic and thematic trusted data repositories, computing and data centres that have committed to provide the CDI services in accordance with the CDI Service Management Framework (SMF). Any organisation can join as individual member. There are a number of requirements to pursue (interoperable or integrated nodes). Membership needs to be approved by the CDI Council and organisations can become members once they have signed the EUDAT CDI Collaboration Agreement. By joining the EUDAT CDI, the organisation agrees to comply with the EUDAT CDI model and service management framework.	SeaDataNet is a pan-European infrastructure for marine and ocean data management. It aims to give discovery and access to marine environmental data sets as acquired for marine physics, chemistry, geology, geophysics, and biology from scientific cruises with research vessels, ocean observing stations and all other in-situ observing systems, operated both for science purposes as for environmental management purposes. The Common Data Index (CDI) data discovery and access service aims to connect data centres that are in charge of processing and long term stewardship of observation data sets in a direct cooperation with the in-situ data collecting parties. So SeaDataNet aims at first line data centres. At present >100 data centres from 34 countries around European seas are connected. Data centres need to install and configure the SeaDataNet Download Manager component and prepare metadata in CDI format and data in SeaDataNet CDV and NetCDF formats, using the appropriate SeaDataNet software tools, which can be downloaded freely from the SeaDataNet portal. There are also manuals and training material available. SeaDataNet has an operational overall support desk and a dedicated CDI-support desk to coach new data centres and to maintain the overall services.	ELIXIR Nodes describe the services they would like to provide through ELIXIR in their Node Application form, for which there is a template that all Nodes use. These services cover Databases, Tools, Interoperability Services, training and Compute. Only countries that have joined ELIXIR by signing the ELIXIR Consortium Agreement can submit a Node application. Once submitted, the Node application is reviewed by the ELIXIR SAB for its excellence and relevance.	NA		
Are there minimum criteria to include service providers (scientific, legal, technical) in your infrastructure - active/passive service providers	EGI: strict rules: operational agreement, policy; comply with service management policies; technical side PRACE: EUDAT: existing technical requirements (interoperable nodes or integrated SeaDataNet: no criteria Note: difference between EU projects and intergovernmental-supported projects Principles of engagement have to be relevant for RIs that exist as legal entities, and also the projects that are funded through the EU	The minimum requirements are defined by the Resource Centre Operational Level Agreement. The OLA is community defined and periodically revised: <a href="https://documents.egi.eu/documents/01">https://documents.egi.eu/documents/01</a> The OLA is service agnostic and is meant to ensure a minimum level of conformance to standards in the area of support: quality of service, AAI and security which ensure a minimum but sufficient level of interoperability and trust in the EGI federation. The minimum requirements are policy and technical. Policy: service providers need to comply to integrated service management policies and security policies ( <a href="https://wiki.egi.eu/wiki/SPG-Documents">https://wiki.egi.eu/wiki/SPG-Documents</a> ), these are defined in collaboration with peer e-Infrastructures. Technical: service providers need to comply to standards for federated identity provisioning, authentication, authorization, monitoring and accounting.	Providers contribute funding but also technological expertise that allows bringing these resources together and make them available. This also includes training.	Technical aspect: serving Open Access needs. Human aspect: national mandate, capability for outreach and training	Service Providers are connected to the CDI using a CDI compliant approach for data access and discoverability. On the basis of the pre-requisites that they can meet, service providers can be classified as Interoperable or Integrated. Different levels of integration between the service provider and the rest of the EUDAT CDI.  Interoperable nodes: - must have a data repository in which they preserve or curate data from a single research community or host data from several research communities or experiments (storage and access services). - must identify the data hosted in the repository via some form of persistent identifier (persistent identification). - it must be possible to harvest and discover the associated metadata through EUDAT's E2FIND service. Integrated nodes: - must be interoperable nodes, - must integrate their local data infrastructure with the CDI's data management services. - must provide a common data access layer. - must integrate with a common authentication & authorization infrastructure (AAI). - must connect their services to the common CDI service management infrastructure and operate it according to the service management framework (SMF).	See above. The data centres must have an offer of marine in-situ data and from 1st hand.	There is no formalised set of criteria as to what technical or quality the service should adhere too - this is mainly because you can't have a standard set of criteria for services that include databases, tools, training, standards and compute. Also, one of the main purposes of ELIXIR is to support capacity building and to reduce fragmentation. We want countries to put forward activities that are relevant for them nationally and the European-level even if they are not that mature. The idea is that by being part of the community the overall quality of services will increase.	NA		
How are the criteria presented ? (are they machine actionable? Are they a list of public criteria)	EGI: OLA template, ISO standard	The criteria are defined in the Resource Centre Operational Level Agreement. The OLA template adopts the FSM standard guidelines and is conformant to ISO 20000 standard. It is not machine actionable. However, the list of services and providers that are certified and comply to the OLA can be consumed programmatically via a REST API exposed by our configuration database	NA	Technical aspect: guidelines.openaire.eu Human aspect: list of activities to perform distributed to closed groups. This to be made public with the formation of the OpenAIRE legal entity.	The criteria are defined on the EUDAT CDI Collaboration Agreement and the EUDAT CDI Service Management Framework.	How to contribute and become a SeaDataNet node is explained at the SeaDataNet portal		NA		
Is there a regular review of the service provider criteria (frequency? Done by committee?)		Yearly review conducted by the EGI Operations Management Board and subject to ISO 9000 and ISO 20000 external audit.	NA	Technical: yes. Automatic validation every two weeks. Human: review every 3 years by the OpenAIRE board.	Regular review by the Operations Committee, criteria approved by the CDI Council	The criteria are quite fixed. However connection of new data centres is discussed in the SeaDataNet Steering Committee.	The Node undergoes a high-level review by the SAB periodically, or if they have undergone a major change.	NA		

	e-INFRASTRUCTURES				DOMAIN-SPECIFIC RESEARCH INFRASTRUCTURES			COMMERCIAL CLOUD PROVIDERS	INITIATIVES DRIVEN BY CHARTERS
	Summary analysis of results	EOI: advanced computing for research (cloud computing)	PRACE: Partnership for Advanced Computing in Europe (Supercomputing)	OpenAIRE: Open Access Infrastructure for European Research	EUDAT: Big data	SeaDataNet	ELIXIR - Life Sciences	AMAZON WEB SERVICES	RDA Research Data Alliance
Are the service providers self-declared/self-certified?		The Service Providers are certified by the Operations Centre they are affiliated to. We have national Operations Centres and regional Operations Centres (comprising multiple countries). The national Operations Centre model is the one adopted in Europe where the majority of service providers of the EGI Federation are located. The Operations Centre model allows the delegation of operational responsibilities to local/national/regional authorities. This has allowed the EGI Federation to expand to hundreds of service providers. All services of the Federation are planned, delivered and controlled according to a lightweight set of processes and procedures that comply to ISO 20,000.	N/A	For repositories, journals, aggregators and CRIS systems, OpenAIRE employs an automated process via the OpenAIRE Validator service.  For other providers (registries, dba, etc) there is no certification process. However integration of providers of this kind is a choice of the OpenAIRE data curators who make sure the data source reaches a level of quality required to be part of an infrastructure (e.g. availability of service, quality of data).	Concerning trustworthiness: some CDI SPs are TRAC compliant (1 trustworthy Repositories Audit & Certification, ISO 16363) or DSA compliant (Data Seal of Approval). Concerning IT security or IT QM: SPs are either not specifically certified, self-certified, ISO 9001 certified (QM) and/or ISO 27001 certified (information security).	N/A	N/A	CS (Germany) Operational Security Attestation Cyber Essentials Plus (UK) Cyber-attack protection DOD SRG Department of Defense Data FeRRAMP Government Data Standards FIPS Government Security Standards IRAP (Australia) Australian Security Standards ISO 9001 Global Quality Standard ISO 27001 Security Management Standard ISO 27017 Cloud Specific Controls ISO 27018 Personal Data Protection MLPS Level 3 (China) Multi-Level Protection Scheme MTCSS (Singapore) MTCSS Tier 3 (Singapore) Multi-Tier Cloud Security Standard PCI DSS Level 1 Payment Card Standards SEC Rule 17a-4(f) Glacier for SEC Rule 17a-4(f) Financial Data Standards SOC 1 Audit Controls Report SOC 2 Compliance Controls Report SOC 3 General Controls Report	Charter Access to Rta
Type of services provided		We provide two service catalogues: the external service catalogue for researchers and the internal service catalogue for service providers of the EGI Federation. External service catalogue: <a href="https://www.egi.eu/services/">https://www.egi.eu/services/</a> Internal service catalogue: <a href="https://www.egi.eu/internal-services/">https://www.egi.eu/internal-services/</a>  The external service catalogue includes the following service categories: Compute (Cloud Compute, Cloud Container Compute, High Throughput Compute), Storage and Data (Online Storage, Archive Storage, Data Transfer) and Training.	The mission of PRACE is to enable high impact scientific discovery and engineering research and development across all disciplines to enhance European competitiveness for the benefit of society. PRACE seeks to realize this mission by offering world class computing and data management resources and services.	The OpenAIRE service infrastructure has been devised to support, facilitate, enable where missing, and monitoring scholarly communication workflows in respect of Open Science. Its services collect metadata records from scholarly communication providers (e.g. literature and data repositories, CRIS systems, publishers, funder registries, author registries, data sources registries, etc.) and end-users (e.g. scientists, project officers, PIs) to populate a graph of interlinked scholarly objects, i.e. literature, datasets, funders, projects, organizations, authors, and data providers. Over such graph, OpenAIRE offers a number of so-called service products – i.e. services accessible with user interfaces from the web – aimed at specific scholarly communication stakeholders (e.g. researchers, funders, research infrastructures, project officers, managers of data providers, etc.) and exposes open APIs ( <a href="http://api.openaire.eu">http://api.openaire.eu</a> ) to serve third-party services (e.g. CORDIS portal, Elsevier's Scopus, institutional repositories, etc.).	<b>B2ACCESS</b> ( <a href="https://b2access.eudat.eu">https://b2access.eudat.eu</a> ) is the multi-protocol AAI service for service providers and users. <b>B2HANDLE</b> is the service for minting, storing, managing and resolving persistent identifiers (handle PIDs) and handle namespaces with some relevant metadata (e.g. the checksum of the digital object) <b>B2FIND</b> ( <a href="https://b2find.eudat.eu">b2find.eudat.eu</a> ) provides a cross-disciplinary metadata harvesting and indexing service and a discovery portal. <b>B2DROP</b> ( <a href="https://b2drop.eudat.eu">b2drop.eudat.eu</a> ) is a data exchange service for researchers who want an easy and quick solution for a plain storage. CDI providers can offer several B2DROP instances. <b>B2SHARE</b> ( <a href="https://b2share.eudat.eu">b2share.eudat.eu</a> ) is the data repository and data publishing service. <b>B2NOTE</b> is a service allowing users to "annotate" semantically a document. <b>B2SAFE</b> allows community and departmental repositories to implement data management policies on their research data which is distributed across multiple administrative domains. <b>Sensitive data services</b> (currently via TSDUID and gPDATA/CS) which provide secure GDPR compliant IT-platforms for generic sensitive data processing to single users and user communities. <b>TDR and LTP</b> : Long term preservation services are certified Trusted Digital Repository services with Long Term Preservation (TDR).  <a href="https://www.eudat.eu/services-support">https://www.eudat.eu/services-support</a>	The core network and primary stakeholders of SeaDataNet are the National Oceanographic Data Centres (NODCs), which in most countries are part of major research institutes. The NODCs have a national remit to oversee marine data acquisition and data management in their countries, establishing and maintaining relations with other organisations in their country, who are active in marine data acquisition. These can be research institutes and governmental agencies. In principle also private organisations are welcome, however so far this is very limited. The SeaDataNet national nodes (NODCs) are then responsible for maintaining a number of SeaDataNet pan-European directories, such as Cruise Summary Reports (CSR), European Data Collections (EDMC), and monitoring programmes and networks (EDIOS). These directories give overviews of marine data acquisition activities and those involved per country. Next to these the Common Data Index (CDI) data discovery and access service is maintained in direct cooperation with relevant data centres. At present this service gives access to > 1.9 million data sets from >600 originators and managed by >100 data centres. SeaDataNet also maintains and publishes a large set of Controlled Vocabularies which are used for marking up all directories and data sets in a standardised way. These vocab are widely adopted in the marine domain on a global scale. All services are available with human user interfaces, content management systems, and increasingly also with machine-to-machine services. In addition SeaDataNet develops and maintains data products such as a pan-European Temperature & Salinity climatology. These data products are published by a data products catalogue service (Sextant) and a products viewing service (OceanBrowser). Moreover SeaDataNet develops and publishes guidelines, standards and software tools for data formats, metadata formats, quality control, analysis, spatial interpolation, visualisation, publishing.	The ELIXIR framework for service delivery is composed of 5 Technical Platforms comprising Data, Tools, Interoperability, Compute and Training.		
Do you make domain/service-type decisions on which providers can be classed as providers?		The EGI service management policies are service-type agnostic. The EGI Federation is open to any provider that complies to the minimum set of service provider policies defined by the community.	N/A	No		See earlier explanations above	No. Once a country joins ELIXIR (and signs the ECA), the Member State decides on what services it wants to put forward (Funders and the infrastructure operators work together on this).	N/A	
Pricing policy for users (is there a different cost between academic/private users, or users from within that country or other countries?)		The policy-based access varies in each country and depends on the applicable national legal framework. Various providers support both policy-based access and payed access. A minority of providers support payed access. Price is independent from the country of origin of the users, but restrictions apply to users affiliated to external organizations/projects.	PRACE usage is free of charge, except that the user must be a member of the PRACE-ISBL association (fee)	Not currently.	No. However, local service providers might apply different pricing for different user categories.	No pricing in the system. In case of restricted data sets negotiations take place. This is a bilateral between users and data centres. The system administrators yes or no with motivation. Whether yes implicates a price is not known and does not really take place to our knowledge. SeaDataNet is not an e-commerce operation but an infrastructure to get structured and harmonised overview and access to as many as possible validated in-situ marine data sets.	Again it differs between centres. Resources are often free for local users, but based on a charging model for users from outside that country (e.g. in the case of CSC/ELIXIR/Finland)	Pricing is publicly available ( <a href="https://aws.amazon.com/contact-center/">https://aws.amazon.com/contact-center/</a> ) The cloud credit system with the NIH presents some limitations (researcher has to negotiate beforehand with AWS, and then present the project to the NIH; AWS reports usage to NIH; The budget is limited to 50k)	
ABOUT THE USERS									
What obligations/rules user's organisations have to adhere to use the service (i.e. ensure their systems are safe and secure, are there differences in the roles of the users?)		Users have to comply to an Acceptable Use Policy and Conditions of use Policy ( <a href="https://wiki.egi.eu/wiki/SPG:DocumentsFor_all_VO%27s">https://wiki.egi.eu/wiki/SPG:DocumentsFor_all_VO%27s</a> ). Research Collaborations/Projects (a.k.a. Virtual Organization - VO) have to comply to an additional set of security policies ( <a href="https://wiki.egi.eu/wiki/SPG:DocumentsFor_all_VO%27s">https://wiki.egi.eu/wiki/SPG:DocumentsFor_all_VO%27s</a> ). VO Operations Policy, VO Registration Security Policy, VO Membership Management Policy, VO Portal Policy, Service Operations Security Policy, Security Policy for the Endorsement and Operation of Virtual Machine Images.  A corporate Service Level Agreement or VO-specific Service Level Agreement (as applicable) define the services that are provided by EGI.	PRACE supports Open Science. As such, all users are welcome, including SMEs. PIs must be from a EU member state. Other countries may have access, through a EU collaborator. PIs must be a member of the association PRACE-ISBL.	OpenAIRE is about open access and open science. We are open to all including SMEs, even though on this case we sign up MOUs related to expectations. OpenAIRE operates a wide range of services and therefore it maintains different types of users and user levels, with different rights.	Users must comply with the terms of use relevant to the service.	All pan-European directory services are public and users can freely query and browse to find relevant information. The CDI Data Discovery and Access service is also freely available, however for requesting access for downloading data sets it is required that users are registered in the Marine-ID AAA service and have agreed with the SeaDataNet policy and license. The actual data access is arranged by a shopping basket mechanism, whereby the user credentials are used for the processing and tracking requests. Users can be anybody from society and worldwide.	The policy is dependent on the resource, so varies from database to compute centre	None. The user is liable for his use of the AWS. The user uses to use AWS at his own risk.	

	e-INFRASTRUCTURES					DOMAIN-SPECIFIC RESEARCH INFRASTRUCTURES		COMMERCIAL CLOUD PROVIDERS	INITIATIVES DRIVEN BY CHARTERS	
	Summary analysis of results	EGI: advanced computing for research (cloud computing)	PRACE: Partnership for Advanced Computing In Europe (Supercomputing)	OpenAIRE: Open Access Infrastructure for European Research	EUDAT: Big data	SeaDataNet	ELIXIR - Life Sciences	AMAZON WEB SERVICES	RDA Research Data Alliance	Charter Access to Rts
Is there an evaluation process to assess users requests (e. scientific domain, scientific excellence, funding)		<p>The EGI services can be accessed through the following access policies:</p> <ul style="list-style-type: none"> <li>Policy-based: users are granted access based on policies defined by the EGI resource providers or by the EGI Foundation; such policies usually apply to resources being offered "free at point of use" to meet some national or EU level objective; for instance, a country may offer free at point of use resources to support national researchers involved in international collaborations</li> <li>Wide access: users can freely access scientific data and digital services provided by EGI resource providers</li> <li>Market-driven: users can negotiate a fee to access services either directly with EGI resource providers or indirectly with the EGI Foundation</li> <li>Services allowing access to rival resources (e.g. computing capacity or storage space) are usually provided under a policy-based or market-driven access policy.</li> <li>Services allowing access to non-rival resources (e.g. software packages or scientific data) are usually provided under a wide access policy.</li> </ul> <p>All access policies may not be available for each and every resource, service or scientific data set.</p>	<p>There are 2 calls per year for projects. There is also free Preparatory Access that allows users to test the system before applying to the calls. This Preparatory Access is free, and receives free support (including for SMEs).</p>	<p>Not currently, OpenAIRE is open to all. For specific services, policies that relate to their use will be in place by mid 2018. These policies will be aligned with RRI rules.</p>	<p>Some services (b2share, b2drop, b2find) are offered free of charge for public use. Others can be accessed (or purchased) through service level agreements with specific CDI providers. EUDAT also runs regular open calls making available storage resources to selected projects.</p>	<p>Requests for data sets downloading are arranged through the CDI Data Discovery and Access service and fall under the SeaDataNet Data Policy and License. Data centres (and their data originators) can indicate in the CDI metadata per data set whether they demand a restriction and what restriction. Users at registration have a public role; however NODCI can amend the role to be more specific, like scientific, private, government, etc. The roles in combination with data access restrictions drive a decision matrix. Most data sets of the 1.9 million are unrestricted and directly accessible for everybody. A subset has restrictions and require negotiation between the user and the data centre to reach a decision (yes/no). The CDI shopping system facilitates the access and negotiation process and all relevant transactions are administered for users, data centres and overall system managers, each at their own collection level.</p>	<p>For depositing data in databases there is no evaluation process. For accessing computing resources, the policy differs between centres</p>	<p>No. The users are free to use the AWS how they want.</p>		



### 3. Third phase (Oct 2017 - March 2018): EOSeopilot Stakeholders iterative consultations

- [2nd EOSeopilot Governance Development Forum](#), Tallinn (EE), Oct 2-3, 2017
- EOSeopilot WP2 meeting, Brussels (BE), Oct 18-19, 2017
- [EOSeopilot Stakeholder Forum](#), Brussels (BE), Nov 28-29, 2017
- [Piloting EOSeopilot governance framework](#), Porto (PT), January 25, 2018
- [EOSeopilot All Hands Meeting](#), Pisa (IT), March 8-9, 2018

### 4. Fourth phase (Jan 2018 - May 2018): Extended consultation outside EOSeopilot

For this consultations, we made use of a survey<sup>38</sup> to collect feedback.

- European Commission Officers (RTD: Katarzyna Szkuta (A2), Maria (A2), Lorenza Saracco (B4), Jean-Claude Burgelman (A2), Patrick (A2), Brussels (BE), May 2, 2018
- [EOSeopilot Workshop in ENVRI Week](#), Zandvoort (NL), May 16, 2018

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38

[https://www.surveymonkey.com/analyze/browse/eMKC15Kgv6iMPkngJTdT2DYsXuOcVedjbi\\_2FJEk8tAr0\\_3D](https://www.surveymonkey.com/analyze/browse/eMKC15Kgv6iMPkngJTdT2DYsXuOcVedjbi_2FJEk8tAr0_3D)