

## D2.9: 2nd Report on Governance Development Forum involvement and activity

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Status	<b>Final</b>
Version	V1.2
Date	26/02/2019

### Dissemination Level

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### Abstract:

The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSCpilot has established a Governance Development Forum (EGDF) to enable all different stakeholders to contribute to the development of the EOSC governance framework. This deliverable describes the activities that have been carried out to establish the EGDF and to engage different stakeholder groups in the activities of developing the EOSC governance framework, and to ensure that the governance work package receives feedback and input from stakeholders on its work. This document reports the EGDF efforts and actions during the two years of the project. Thus, it is an updated version of Deliverable D2.3 - 1<sup>st</sup> report on Governance Development Forum involvement and activity produced in November 2017.

The European Open Science Cloud for Research pilot project (EOSCpilot) is funded by the European Commission, DG Research & Innovation under contract no. 739563

<b>Document identifier: EOSCpilot –WP2-D2.9</b>	
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Related work package	<b>WP 2</b>
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Due date	<b>30/11/2018</b>
Actual submission date	<b>27/02/2019</b>
Reviewed by	<b>Elly Dijk (DANS)</b>
Approved by	<b>Mark Thorley (UKRI)</b>
Start date of Project	<b>01/01/2017</b>
Duration	<b>28 months</b>

## Versioning and contribution history

<b>Version</b>	<b>Date</b>	<b>Authors</b>	<b>Notes</b>
0.1	<b>12/11/2018</b>	Jenni Hyppölä (CSC), Per Öster (CSC)	1 <sup>st</sup> draft
<b>0.9</b>	<b>19/11/2018</b>	Jenni Hyppölä (CSC), Per Öster (CSC)	Final version for review
<b>0.91</b>	<b>10.1.2019</b>	Elly Dijk (DANS)	A version with the reviewer's comments
<b>1.0</b>	<b>15/02/2019</b>	Jenni Hyppölä (CSC), Per Öster (CSC) and the reviewer Elly Dijk (DANS)	Final, reviewed version
<b>1.1</b>	<b>25/02/2019</b>	Jenni Hyppölä (CSC), Per Öster (CSC)	Fixing “dead-link” issue and minor updates to the text
<b>1.2</b>	<b>26/02/2019</b>	Mark Thorley (UKRI)	Final typographic proof-read and edit

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## EXECUTIVE SUMMARY

The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSCpilot has established a Governance Development Forum (described as a “Governance Development Board” in the *EOSCpilot Description of Action (part A)*) to enable all different stakeholders to contribute to the development of the EOSC governance framework. This deliverable describes the activities that have been carried out to establish the forum and to engage different stakeholder groups in the activities for developing the EOSC governance framework, and to ensure that WP2 - Governance receives feedback and input from stakeholders to their work.

The EOSCpilot Governance Development Forum (EGDF) activity was successfully launched, and during two years, the EGDF reached hundreds of participants from several different communities, academic fields and other interest groups. We have been able to engage a significant number of people representing EOSC stakeholder groups in the activities. Opinions, comments, viewpoints and insights were gathered, which influenced the work of the project, especially on the governance model. At the same time, we were able to share information on the EOSC initiative and the EOSCpilot project. By the end of the project, the following activities will have been carried out:

- A questionnaire on ways to engage stakeholders in the development of the EOSC governance framework;
- Thirteen webinars, reaching an audience of almost 400 people in total;
- Eight thematic workshops, targeting different stakeholder groups, were organized, reaching some 300 people;
- In order to reach a wider audience, the material and reports of the activities have been published on the EOSCpilot website and shared via the social media channels (Twitter, YouTube and Slideshare).

During the first year of the project (1 January to 31 December 2017) the focus of the EGDF activities was in engaging stakeholders in drafting the EOSC governance framework. Valuable feedback and input have been received from events, which was immediately applied in the ongoing work. In addition to the drafting of the EOSC governance framework, valuable suggestions have been received for the investigation and analysis of organizational Principles of Engagement for EOSC and on how to better involve and include different stakeholder groups, and which are the relevant bodies representing them to approach.

During the second project year (1 January to 31 December 2018), the objective was to organize two additional EGDF workshops and continue with the EGDF webinars. Three webinars and five workshops were organised, with a presentation at the EOSC Summit and a session at the Stakeholders Forum. The input received from these events was taken into account in the project work.

This report is based on deliverable D2.3: 1<sup>st</sup> Report on Governance Development Forum involvement and activity by Saara Kontro and Per Öster (CSC). D2.3 is a confidential report, and is currently only available to members of the EOSCpilot Consortium and the Commission.

## 1. INTRODUCTION

How to construct a framework allowing strong and disparate stakeholders to work together is the main governance challenge in the establishment of the European Open Science Cloud (EOSC). The governance framework needs to address cultural challenges, and encouraging the adoption of new ways of working and scientific practices. EOSCpilot designed and trialled a stakeholder-driven governance framework with the involvement of all stakeholders. This framework will shape and oversee future development of the European Open Science Cloud.

The EOSCpilot project has established a Governance Development Forum<sup>1</sup> to enable all different stakeholders to contribute to the development of the EOSC governance framework. The EOSCpilot Governance Development Forum (EGDF) is mandated to function and support the establishment of the EOSC. This deliverable describes the activities that have been carried out in establishing the forum and to engage different stakeholder groups in the activities of developing the EOSC governance framework, and to ensure that the Governance Work Package will receive feedback and input from stakeholders. Chapter 2 introduces the Governance Development Forum, chapter 3 gives an overview of the activities and actions carried out, and chapter 4 reflects on the achievements, and how the feedback and input received from stakeholders has been taken into account in the Governance Work Package activities.

This report is based on deliverable D2.3: 1<sup>st</sup> Report on Governance Development Forum involvement and activity by Saara Kontro and Per Öster (CSC). D2.3 is a confidential report, and is currently only available to members of the EOSCpilot Consortium and the Commission.

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<sup>1</sup> This was described as a “Governance Development Board” in the EOSCpilot Description of Action (part A). The Governance Work Package decided to rename the activity as a Governance Development Forum instead to better reflect its purpose, composition, role and mandate.

## 2. EOSCPILOT GOVERNANCE DEVELOPMENT FORUM AND ITS ACTIVITIES

The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSCpilot designs and trials a stakeholder-driven governance framework with the involvement of all stakeholders including: research producing organisations; National, Regional and Local Governments; Service Providers; e-infrastructures, Virtual Research Environments and other pertinent H2020 projects; Research Funding Bodies; Academic Institutions and Research Libraries; Enterprises, Research Infrastructures; General Public; and Learned Societies, Research Communities, Scientific and Professional Associations. Stakeholders to be targeted are identified and approached in collaboration with the Governance Work Package *task 2.1 Stakeholder scoping* and the Dissemination and Engagement Work Package.

The objective of supporting the development of the EOSC governance reaches beyond the limits of a project structure. Any approach also needs to take into account the various and specific needs of those scientific communities not yielding the benefits of open science, and stakeholders not being part of the EOSCpilot consortium. Only through an open and inclusive approach the ultimate aim of a European Open Science Cloud that provides benefits for all scientific communities within the European Research Area can be realised.

In order to overcome this challenge, EOSCpilot established a Governance Development Forum to enable all different stakeholders to contribute to the development of the EOSC governance framework, a work led by Governance Work Package (WP2) of the project. The Governance Development Forum is not static, but grows as the project moves along and the circle of engaged stakeholders widens.

The 1<sup>st</sup> report on Governance Development Forum covered the first 11 months of the project when the following major types of activities were carried out:

- Surveys: A questionnaire on ways to engage stakeholders in the development of the EOSC governance framework;
- Webinars: Seven monthly webinars were organized, reaching an audience of 159 attendees in total;
- Workshops: Three thematic workshops, targeting different stakeholder groups, were organised, with 126 attendees in total.

In the following table, you will find a summary of these activities. The different activities are reported in detail in the sections that follow.

Table 1: Events and activities carried out in the first year

Time and Place	Event or Activity	Participants	Details
13 – 31 March 2017	Survey: Ways to engage stakeholders in the development of the EOSC governance framework	21 responses / 68 targeted respondents	<ul style="list-style-type: none"> <li>- Questionnaire with 3 closed and 5 open-ended questions.</li> <li>- Views from people already involved in the planning and development of EOSC.</li> <li>- Find out efficient ways to involve stakeholders in the EOSC governance framework development.</li> <li>- Report [Annex A] and at <a href="https://eoscpilot.eu/sites/default/files/eoscpilot_wp2_questionnaire_report.pdf">https://eoscpilot.eu/sites/default/files/eoscpilot_wp2_questionnaire_report.pdf</a></li> </ul>
6 April, 2017	1 <sup>st</sup> EOSC Governance Development Forum webinar	~20	<ul style="list-style-type: none"> <li>- WP2 activities presented, first results of the questionnaire.</li> <li>- Webinar slides at <a href="https://eoscpilot.eu/sites/default/files/20170406_egdf_1st_webinar.pdf">https://eoscpilot.eu/sites/default/files/20170406_egdf_1st_webinar.pdf</a></li> </ul>
4 May 2017	2 <sup>nd</sup> EOSC Governance Development Forum webinar	23	<ul style="list-style-type: none"> <li>- Questionnaire results and conclusions, European Interoperability Framework introduced and its suitability in the EOSC context discussed</li> <li>- Webinar slides at <a href="https://eoscpilot.eu/sites/default/files/20170504_egdf_2nd_webinar.pdf">https://eoscpilot.eu/sites/default/files/20170504_egdf_2nd_webinar.pdf</a></li> </ul>
9 May, 2017 Helsinki	EGDF workshop "Research Infrastructures perspectives on the governance of European Open Science Cloud"	~45	<ul style="list-style-type: none"> <li>- ½-day-meeting, in conjunction with ERIC networking meeting.</li> <li>- Targeted at ERICs and other research infrastructures.</li> <li>- Some conclusions: RIs both users and providers in the EOSC context; EOSC could make expertise available; Reuse experience from the RI cluster projects; Organizational interoperability; GDPR is a concern; "ESOC should follow the principle of subsidiarity and not redo what ERICs are already successfully doing".</li> <li>- Workshop notes [Annex B] and at <a href="https://eoscpilot.eu/sites/default/files/eoscpilot_governance_development_forum_helsinki_9.5.2017.pdf">https://eoscpilot.eu/sites/default/files/eoscpilot_governance_development_forum_helsinki_9.5.2017.pdf</a></li> </ul>
5 July 2017	3 <sup>rd</sup> EOSC Governance Development Forum webinar	20	<ul style="list-style-type: none"> <li>- Topics: Conclusions from EOSC Summit, focus on sustainable funding and governance, Sneak preview of Governance Framework strawman</li> <li>- Slides at <a href="https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170705_EGDF_3rd_webinar_v01.pptx">https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170705_EGDF_3rd_webinar_v01.pptx</a></li> </ul>

Time and Place	Event or Activity	Participants	Details
17 August 2017	4th EOsc Governance Development Forum webinar	26	<ul style="list-style-type: none"> <li>- Topics: Governance framework strawman</li> <li>- Video at <a href="https://www.youtube.com/watch?v=ayz9-UO8q1M&amp;feature=youtu.be">https://www.youtube.com/watch?v=ayz9-UO8q1M&amp;feature=youtu.be</a></li> <li>- Webinar slides at <a href="https://eoscpilot.eu/sites/default/files/20170817_egdf_4th_webinar.pdf">https://eoscpilot.eu/sites/default/files/20170817_egdf_4th_webinar.pdf</a></li> </ul>
8 September, Athens	EGDF workshop "Open science policy aspects in the context of EOsc governance framework"	28	<ul style="list-style-type: none"> <li>- 1,5h workshop session at Open Science FAIR conference</li> <li>- Target: university administration, researchers, projects in the area of open science and FAIR data</li> <li>- Topic: how Open Science should manifest in the EOsc governance framework</li> <li>- Workshop notes [Annex C] and at <a href="https://eoscpilot.eu/sites/default/files/notes_from_the_open_science_fair_2017_egdfpolicyworkshop.pdf">https://eoscpilot.eu/sites/default/files/notes_from_the_open_science_fair_2017_egdfpolicyworkshop.pdf</a></li> </ul>
14 September 2017	5th EOsc Governance Development Forum webinar	25	<ul style="list-style-type: none"> <li>- Topics: EOsc declaration, funding</li> <li>- Webinar slides at <a href="https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170914_EGDF_5th_webinar_v01.pptx">https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170914_EGDF_5th_webinar_v01.pptx</a></li> </ul>
2 – 3 October, Tallinn	EGDF workshop "Drafting Governance Framework and Principles of Engagement for European Open Science Cloud"	~53	<ul style="list-style-type: none"> <li>- 2-day-workshop, in conjunction with e-IRG workshop</li> <li>- Target: Member states' representatives, funding agencies, service providers</li> <li>- Some conclusions: Member States and Associated Countries central role in the governance and decision making of EOsc; EOsc as inclusive as possible from service provider point of view</li> <li>- Workshop notes in Annex C</li> </ul>
12 October 2017	6th EOsc Governance Development Forum webinar	16	<ul style="list-style-type: none"> <li>- Topics: Discussions in the EGDF workshop in Tallinn; Status update of the EOsc principles of engagement work</li> <li>- Video at <a href="https://www.youtube.com/watch?v=3nEnzhE8PZ4&amp;feature=youtu.be">https://www.youtube.com/watch?v=3nEnzhE8PZ4&amp;feature=youtu.be</a></li> <li>- Webinar slides at <a href="https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170914_EGDF_6th_webinar_v02.pptx">https://b2share.eudat.eu/api/files/43130b88-ba5a-4582-8f03-563f88ffc85a/20170914_EGDF_6th_webinar_v02.pptx</a></li> </ul>
9 November 2017	7 <sup>th</sup> EOsc Governance Development Forum webinar	29	<ul style="list-style-type: none"> <li>- Topic: Draft stakeholder driven governance framework for EOsc</li> <li>- Webinar slides at <a href="https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20171109_EGDF_7th_webinar_Stakeholder%20driven%20governance%20framework%20for%20EOsc.PPTX">https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20171109_EGDF_7th_webinar_Stakeholder%20driven%20governance%20framework%20for%20EOsc.PPTX</a></li> </ul>

In the second year of the project, the major types of activities of the Governance Development Forum carried out were:

- Webinars: Three monthly webinars were organized, reaching an audience of 224 attendees in total;
- Workshops: Five workshops or other in co-operation with scientific communities and other stakeholders;
- A presentation at the EOsc Summit;
- A session on Governance at the Second Stakeholders Forum.

In the following table, you will find a summary of these activities. The different activities are reported in detail in the next sections that follow. The activities are first listed on a table, and later described in detail with slides, videos, or other relevant material.

In addition to these activities, feedback has been collected by opening draft documents for commenting on the GitHub repository. For example, D2.6 Governance framework) at:

<https://github.com/EuropeanOpenScienceCloud/Governance>

<https://europeanopensciencecloud.github.io/Governance/>

Table 2: Events and activities carried out in the second year

Time and Place	Event or Activity	Participants	Details
25 January 2018	Workshop: “Piloting EOSC Governance Framework” at EUDAT Conference “Putting the EOSC vision into practice	35	Presenting the current draft model for EOSC governance as expressed by the EOSCpilot project.
15 May 2018	EOSCpilot at E-IRG Workshop		European Open Science Cloud (EOSC) was presented, including the EC Implementation Roadmap, major EOSC projects and related data initiatives, along with national views.
16 May 2018	ENVRI Week’s EOSCpilot Workshop	50	EOSCpilot recommendations on Governance and Rules of Participation
17 May 2018	8 <sup>th</sup> EOSC Governance Development Forum webinar	154	EOSC Roadmap: Translating vision into practice
29 May 2018	Workshop: “Recommendations on Governance and Rules of Participation” at the PRACEdays18 during the European HPC Summit Week 2018	30	EOSCpilot recommendations on Governance and Rules of Participation + Governing piloting
11 June 2018	EOSC Summit	80	EOSCpilot Considerations on the Rules of Participation
18 September 2018	9 <sup>th</sup> EOSC Governance Development Forum webinar	36	Recommendations for a minimal set of Rules of Participation for EOSC
9-11 October 2018	Digital Infrastructures for Research	100	World Cafe session: Minimal set of Rules of Participation for Service Providers and Users in EOSC
25 October 2018	10 <sup>th</sup> EOSC Governance Development Forum webinar	34	The experience from the EOSC HLEG and the EOSCpilot open consultation
21 November 2018	Governance Session at the Second Stakeholders Forum	80	Governance structure

## 2.1. EOSCpilot Governance Development Forum

The EOSCpilot Governance Development Forum (EGDF) has been intended to form a platform for inter-stakeholder-dialogue. It is mandated to function and support the establishment of the EOSC. The objective has been that EGDF meets both virtually and face-to-face. Three thematic workshops were planned to be organized to allow governance framework to be elaborated from the stakeholder perspective. Close interaction between the forum and EOSCpilot was foreseen in the whole process of establishing governance principles and structures for EOSC. There were three workshops during the first year and four in the second year.

To facilitate the participation in the EOSCpilot Governance Development Forum, a charter [Annex E] describing the activities and mandates of the forum was published in the first year. A dedicated section for the forum [<https://eoscipilot.eu/about/governance-framework>] was established at the EOSCpilot website containing instructions to participate in the forum, latest reports and a list of upcoming forum events. The forum could be addressed through the EGDF secretariat (egdf-secretariat at eoscipilot.eu).

As part of the EGDF activities everyone that can affect or is affected by the future European Open Science Cloud was invited to give their views and contribution to the design of stakeholder driven EOSC governance framework. The ways of participation include

- Becoming an organizational representative to the EOSCpilot Governance Development Forum. Only organizations are granted membership to the forum. Memberships are granted by informal application to be directed to the forum secretariat.
- Participating in thematic workshops and webinars that EOSCpilot Governance Development Forum will organize.
- Submitting a statement or position paper on EOSC governance framework to be published at EGDF webpages and taken into account in governance framework drafting.
- Commenting on the documents and on-going activities of EGDF.

Different stakeholder groups have been encouraged and invited to get involved in the forum activities by:

- Informing all EOSCpilot partners about the forum and requesting them to name a representative to take part in the activities.
- Inviting all the targeted respondents (68) to the questionnaire to take part in the forum activities
- Sending invitation email to all members of the ESFRI forum and all e-IRG delegates.
- Inviting all participants in the EGDF workshops to attend the upcoming webinars and other activities.
- Promoting the upcoming forum activities through social media, by mentioning them in presentations held by the Governance Work Package, by email campaigns etc.

During the first year of the EOSCpilot project the activities of the EOSCpilot Governance Development Forum were launched and the forum has taken its shape gradually. It is, at the moment, a loose association of stakeholders, people attending webinars and occasional workshops. All EOSCpilot partners are represented at the events, and depending on the workshop the targeted stakeholder groups have been well represented. As noted above, people that have attended an EGDF workshop were invited to take part in the upcoming webinars and workshops, in this way they were regularly approached and informed about evolving EOSC governance. The focus of the activities has been in engaging stakeholders rather than acquiring permanent members for the forum. There are few organisations that have requested to become a member of the forum. The format of the forum has been shaped over time slightly differently than what was intended in the beginning of the project. During the second year of the project, the shape of the forum remained loose and rather informal, to encourage people freely to express their opinions and thought. A draft of the EOSC Governance structure (D2.6) was also shared on GitHub, to gather comments. However, most of the feedback was given in the workshops and also in the webinar discussion sessions.

## 2.2. Survey

A survey focusing on the ways in which to engage stakeholders in the development of the EOSC governance framework was carried in March 2017. The primary objective of the survey was to get a start of the Governance Development Forum by building on thoughts and views from people already involved in the planning and development of the EOSC. Additionally, the survey was used to find out efficient ways to engage stakeholders in the EOSC governance framework development as well as to learn about the outcome and ideas transmitted in some workshops focusing on the EOSC held prior to the launch of EOSCPilot (listed below). Answers to the survey provided a rich dataset and pinpointed things to take into consideration regarding the development of the EOSC governance framework.

A questionnaire was sent to 68 respondents via email and received 21 responses. The respondents were identified based on their participation in three workshops:

- 30 November 2015, Brussels: organized by HLEG EOSC to discuss the challenges and possible solutions for EOSC.
- 5 February 2016, Rome: organized by EUDAT, EGI, OpenAIRE, GÉANT, and LIBER to understand the roles of e-infrastructures and research infrastructures in EOSC.
- 29 June 2016, Brussels: organized by European Commission for Member State representatives to discuss preparation of a roadmap outlining the governance and funding of EOSC.

The questionnaire was open for a period of three weeks between 13.3.2017 to 31.3.2017 and distributed via Webropol 3.0. The design included both open-ended and closed questions.

Some conclusions and recommendations on steps forward can be drawn from the questionnaire, since it was targeted to a specified group of individuals already involved in the area of EOSC as well as the quality of responses being high with a response rate of 31 percent. The results of the questionnaire have been reported in the EGDF webinars, shared with EOSCPilot partners and published as a survey report [Annex A] at EOSCPilot website. The main findings of the survey are:

- There is diversity in perception of the definition and actual scope of the EOSC between different stakeholders. Stakeholder groups are trying to understand what EOSC means for them and what would be their role in it. Furthermore, some of the stakeholders consulted identified themselves as representing several stakeholder groups. This has important implications for the development of the EOSC as it highlights the diversity of the stakeholder groups as well as the need to examine whether these groups should instead be identified as stakeholder layers. Thus, the question also arises whether the EOSC governance should be developed in a layered fashion.
- There are different stakeholder groups affected by the EOSC. Among them there are research communities and the concerned national research agencies that should, according to the survey findings, lead the implementation of the EOSC and approve the EOSC governance implementation. The approach that the EOSCPilot project has taken in the design and trial of the governance framework is in line with these findings, i.e. that the development of and governance framework itself should be stakeholder driven. However, we should be careful in defining who would best fit to represent the research communities, since there seems to be many candidates for this position.
- Communications about the EOSC should be improved and unified especially towards the user base along with a clarification of the definition of the EOSC. This would result in a common perception of the scope of the EOSC and help in understanding what type of services will be offered by the EOSC in the future.
- It seems that there are no simple categories of “service providers and users” for the EOSC from the perspective of research community representatives to this questionnaire and this advice should be followed to ensure that different communities will commit to and take ownership of the principles of the EOSC.
- With regard to the efficient ways to involve stakeholders, three main steps could be identified from responses as recommendations: 1) Identify key stakeholder groups; 2) Engage in targeted dialogue;

and 3) Give clear and specific roles to each stakeholder on issues that concern them. Furthermore, regular EOOSC focused meetings between the stakeholders and the European Commission representatives should be organized.

- Different stakeholders have a variety of expectations towards the EOOSC and the kind of services it should deliver as well as the kind of role it should have in the delivery of services for European researchers. Before going into details in defining the services and their providers, EOOSC and the framework governing it should be defined.
- Both the EOOSC governance and the stakeholders involved should be seen as layers: Different stakeholders could be placed in different layers of the governance framework depending on the role they have. Furthermore, and in the light of the survey results, the EOOSC can be seen as a federation of interoperable entities and its governance framework should be designed in a layered fashion. This approach should be studied further in the design of the EOOSC governance framework and when involving stakeholders in this work through the EOSCPilot Governance Development Forum. As a starting point for the design of the governance framework for EOOSC, the recently released new version of the European Interoperability Framework<sup>2</sup> could be used.

### 2.3. Webinars

A series of EGDF webinars was organised in order to ensure and enhance regular interaction between forum members and participants, and to inform and give an update on the developments of different activities of the Governance Work Package. The 30-minute webinars, using a 20-minute-presentation and a 10-minute Q&A session, were organised the second Thursday of each month in the first year, and more occasionally in the second year. The subjects and titles of the webinars were discussed and decided in the weekly WP teleconferences. In the first year, the focus was in information sharing and gathering, whereas in the second year, the focus of the webinars was to present details on what has been done and achieved. There were also two invited speakers from the EC (Athanasios Karalopoulos) and EOOSC HLEG (Silvana Muscella).

The webinar slides are published at EOSCPilot website and from September 2017, video recordings of the webinars are also available. The webinar material is shared with a wider audience by the social media channels twitter, YouTube and SlideShare.

In the first year, seven monthly webinars were organised, reaching an audience of 159 attendees in total:

- 1st EOOSC Governance Development Forum webinar, 6 April, 2017
  - ~20 participants
  - Topics: WP2 activities presented, first results of the questionnaire
  - In this webinar, there was no Q&A session
  - Webinar slides [[https://eoscpilot.eu/sites/default/files/20170406\\_egdf\\_1st\\_webinar.pdf](https://eoscpilot.eu/sites/default/files/20170406_egdf_1st_webinar.pdf)]
- 2<sup>nd</sup> EOOSC Governance Development Forum webinar, 4 May, 2017
  - 23 participants
  - Topics: Questionnaire results and conclusions, European Interoperability Framework introduced and its suitability in the EOOSC context discussed
  - In this webinar, there was no Q&A session
  - Webinar slides [[https://eoscpilot.eu/sites/default/files/20170504\\_egdf\\_2nd\\_webinar.pdf](https://eoscpilot.eu/sites/default/files/20170504_egdf_2nd_webinar.pdf)]
- 3<sup>rd</sup> EOOSC Governance Development Forum webinar, 5 July, 2017
  - 20 participants
  - Topics: Conclusions from EOOSC Summit, focus on sustainable funding and governance, Sneak preview of Governance Framework strawman
  - Q&A session: Research Infrastructures have a dual role in the EOOSC that of service provider and user / representative of research community

<sup>2</sup> [https://ec.europa.eu/isa2/eif\\_en](https://ec.europa.eu/isa2/eif_en)

- Webinar slides [[https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170705\\_EGDF\\_3rd\\_webinar\\_v01.pptx](https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170705_EGDF_3rd_webinar_v01.pptx)]
- 4th EOsc Governance Development Forum webinar, 17 August, 2017
  - 26 participants
  - Topics: Governance framework strawman
  - Q&A session questions:
    1. In the governance framework straw-man, there is no mention of the research and education networks nor network connection interoperability. Is that captured by one of the others instead?
    2. Regarding the EOsc Declaration, is it send to signature or for consultation to member states? Are you sure that EC should send Declaration to all member states of EU or only to those engaged in the project?
    3. Can you elaborate a bit on the connection of the EOsc pilot and the EOsc Hub?
  - Webinar slides [[https://eoscpilot.eu/sites/default/files/20170817\\_egdf\\_4th\\_webinar.pdf](https://eoscpilot.eu/sites/default/files/20170817_egdf_4th_webinar.pdf)]
  - Video recording [<https://www.youtube.com/watch?v=ayz9-UO8q1M&>]
- 5th EOsc Governance Development Forum webinar, 14 September, 2017
  - 25 participants
  - Topics: EOsc declaration, funding
  - Q&A session questions:
    1. How are the user communities represented at the strategic level of the EOsc governance?
    2. How is the industry represented in the EOsc governance?
    3. Why 'credit' criteria should not be applied to all EOsc service providers? (EOsc service providers should be evaluated by their compatibility and credibility. Pan-European infrastructures and services are already credible at European level.)
  - Webinar slides [[https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170914\\_EGDF\\_5th\\_webinar\\_v01.pptx](https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170914_EGDF_5th_webinar_v01.pptx)]
  - Video recording [<https://youtu.be/wEmxDnEzZTc>]
- 6th EOsc Governance Development Forum webinar, 12 October, 2017
  - 16 participants
  - Topics: Discussions in the EGDF workshop in Tallinn; Status update of the EOsc principles of engagement work
  - Q&A session questions:
    1. Is the engagement of service providers and users contract based? How are the contracts formed and who are the contracts between?
  - Webinar slides [[https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170914\\_EGDF\\_6th\\_webinar\\_v02.pptx](https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20170914_EGDF_6th_webinar_v02.pptx)]
  - Video recording [<https://youtu.be/3nEnzhE8PZ4>]
- 7<sup>th</sup> EOsc Governance Development Forum webinar, 9 November, 2017
  - 29 participants
  - Topic: Draft stakeholder driven governance framework for EOsc
  - Webinar slides [[https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20171109\\_EGDF\\_7th\\_webinar\\_Stakeholder%20driven%20governance%20framework%20for%20EOsc.PPTX](https://b2share.eudat.eu/api/files/fc584325-8a06-4e86-9b87-adc4f3e6c85d/20171109_EGDF_7th_webinar_Stakeholder%20driven%20governance%20framework%20for%20EOsc.PPTX)]
  - Video recording [[https://www.youtube.com/watch?v=o-a\\_XPj5y5M](https://www.youtube.com/watch?v=o-a_XPj5y5M)]
  - Q&A session questions:
    1. "I find the explanation of "advisory" as steering the whole process to be a misnomer and will be consistently misunderstood."
    2. "How "steering" communicates with the rest is unclear. Is there some idea to have an IETF like "RFC" process? Otherwise you need a small "Scientific Policy" like a committee whose results are influential."

3. “Could we have a short presentation of the 3 proposed executive layer delivery models and their main differences?”
4. “Will training have to be ‘compliant’ or ‘compatible’ to be applied to other services already determined to be compliant?”
5. “The three implementations models are an output of which body?”

The monthly webinars proved to be an efficient way for engaging stakeholders. Altogether 78 people have registered to become regular attendees of the webinars. The registered webinar attendees represent the following stakeholder groups: 37% e-infrastructure; 23% Research Infrastructure, 13% Funding Organization, 12% University, 11% Governmental institution, 4% Research Library (see Figure 1). It was planned to continue the monthly webinar activity during the second year of the project year, with the aim to further promote the attendance at webinars in different stakeholder groups.

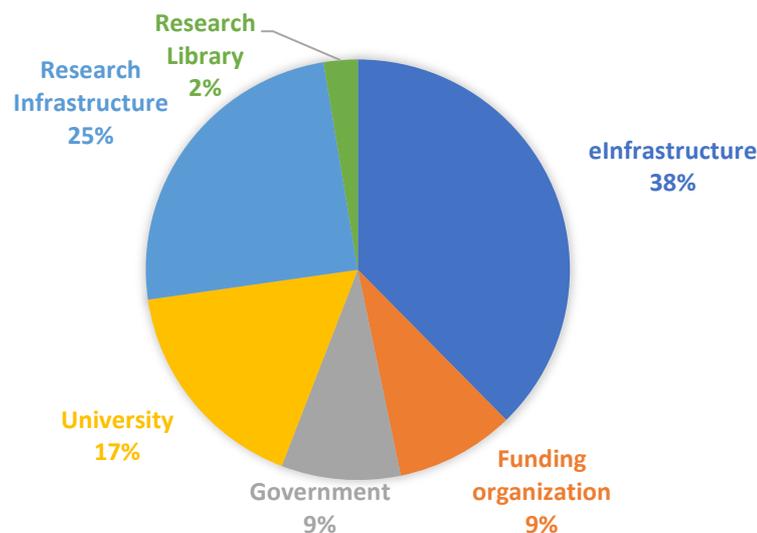


Figure 1: Registered webinar attendees by stakeholder group in the first year

During the second year of the project, three webinars were organised, reaching in total 224 participants.

- 8<sup>th</sup> EOsc Governance Development Forum webinar, 17 May 2018
  - 154 participants
  - Topic: EOsc Roadmap: translating the vision into practice.
  - Speaker: Athanasios Karalopoulos, European Commission, DG Research and Innovation.
  - Video recording [<https://www.youtube.com/watch?v=DcJ2gu5iTYw>]
- 9<sup>th</sup> EOsc Governance Development Forum webinar, 18 September 2018
  - 36 participants
  - Topic: Recommendations for a minimal set of Rules of Participation for EOsc
  - Speakers: Pascal Kahlem and Andrew Smith
  - Webinar slides  
[[https://eoscpiilot.eu/sites/default/files/webinar\\_rop\\_18\\_sept\\_2018.pdf](https://eoscpiilot.eu/sites/default/files/webinar_rop_18_sept_2018.pdf)]
  - Video recording [<https://www.youtube.com/watch?v=ZKtqjXY3a-M>]
- 10<sup>th</sup> EOsc Governance Development Forum webinar, 25 October 2018
  - 34 participants
  - Topic: The experience from the EOsc HLEG and the EOscpiilot open consultation

- Speaker: Silvana Muscella
- Webinar slides  
[\[https://eoscpilot.eu/sites/default/files/silvanamuscella\\_webinar\\_eoscpilot\\_final2\\_5102018.pdf\]](https://eoscpilot.eu/sites/default/files/silvanamuscella_webinar_eoscpilot_final2_5102018.pdf)
- Video recording [\[https://www.youtube.com/watch?v=0b\\_k-955-BI&\]](https://www.youtube.com/watch?v=0b_k-955-BI&)

As the GDPR came into force in May 2018, we decided not to collect and analyse personal details of the participants anymore. When registering to a single webinar people did provide their name and/or e-mail addresses, but we decided not to use these for statistical analysis. Another reason for that was that an e-mail address is not a reliable means to analyse a person's affiliation as people may use specific or private addresses for such registrations.

## 2.4. Thematic workshops in the first year

Thematic workshops are organized by EOScpilot Governance Development Forum in order to engage and consult different stakeholder groups in the development of the EOsc governance framework. Co-locating these workshops in conjunction with larger, already well-established events has proven a well working approach. We have been able to reach our target audiences, and the collaborating event organizers have regarded co-locating the events as mutually beneficial.

In the first year, three thematic workshops were organized, reaching an audience of 126 attendees in total:

- 1<sup>st</sup> EGDF workshop "Research Infrastructures perspectives on the governance of European Open Science Cloud", 9 May, 2017, Helsinki
  - ~45 participants
  - ½-day-meeting, in conjunction with ERIC networking meeting
  - Targeted to ERICs and other research infrastructures
  - Workshop notes [Annex B, also  
[https://eoscpilot.eu/sites/default/files/eoscpilot\\_governance\\_development\\_forum\\_helsinki\\_9.5.2017.pdf](https://eoscpilot.eu/sites/default/files/eoscpilot_governance_development_forum_helsinki_9.5.2017.pdf)
- 2<sup>nd</sup> EGDF workshop "Open science policy aspects in the context of EOsc governance framework", 8 September, 2017, Athens
  - 28 participants
  - 1.5h workshop session at Open Science FAIR conference
  - Target: university administration, researchers, projects in the area of open science and FAIR data
  - Topic: how Open Science should manifest in the EOsc governance framework
  - Workshop notes [Annex C, also  
[https://eoscpilot.eu/sites/default/files/notes\\_from\\_the\\_open\\_science\\_fair\\_2017\\_eoscpolicyworkshop.pdf#overlay-context=about/governance-framework](https://eoscpilot.eu/sites/default/files/notes_from_the_open_science_fair_2017_eoscpolicyworkshop.pdf#overlay-context=about/governance-framework)
- 3<sup>rd</sup> EGDF workshop "Drafting Governance Framework and Principles of Engagement for European Open Science Cloud", 2 – 3 October, 2017, Tallinn
  - 53 participants
  - 2-day-workshop, in conjunction with e-IRG workshop
  - Target: Member states' representatives, funding agencies, service providers
  - Workshop notes [Annex D]

The results of the workshops have been shared publicly as workshop reports at EOscpilot website and on twitter. In the following sub-chapters the main findings of each workshop are reported.

### 2.4.1. 1<sup>st</sup> EGDF workshop "Research Infrastructures perspectives on the governance of European Open Science Cloud"

The 1st EGDF workshop, organized in conjunction with the 6<sup>th</sup> ERIC network meeting on May 9 in Helsinki, and focused specifically on research infrastructure's needs and expectations on EOSC. Two panels facilitated the discussion. There were in total 43 registered participants in the workshop, of which majority were representatives of ERICs and other Research Infrastructures (see Figure 2). The workshop was promoted in EOSCpilot and ERIC networking meeting websites, by social media campaigns, invitation emails were sent to a list of representatives of potential target groups, i.e. research infrastructures and in CSC website in order to address local research infrastructures in Finland, where the workshop took place.

The panels provided very beneficial input for the EOSC governance drafting work. Regarding research Infrastructures expectations on the European Open Science Cloud, it was commonly agreed that EOSC could make expertise available in the policy, technical areas and ways of working. Many panellists pointed out that interoperability is key for EOSC, be it across infrastructures, services, countries or data. Regarding the topic *optimal governance framework for EOSC from Research infrastructures' point of view*, panellists recommended reusing experience obtained in research infrastructures' cluster projects and organizational interoperability solutions created in the EOSC context. Cluster projects could act as important dialogue partners for EOSC as well as providing a practical example for the governance, for instance, they have a board to agree on common strategies. The panellists underlined research infrastructures dual role as both users and providers in EOSC. According to panellists, research infrastructures have a natural role in EOSC governance as they are not just users, but also providers. It was recommended to create EOSC governance as simple as possible. The governance should reflect what EOSC actually aims to achieve and actively involve main stakeholders. EOSC should follow the principle of subsidiarity and not redo what ERICs are already successfully doing. There is no need to create new legal structures to solve data issues and similar, but instead EOSC governance should leverage on what is already there.

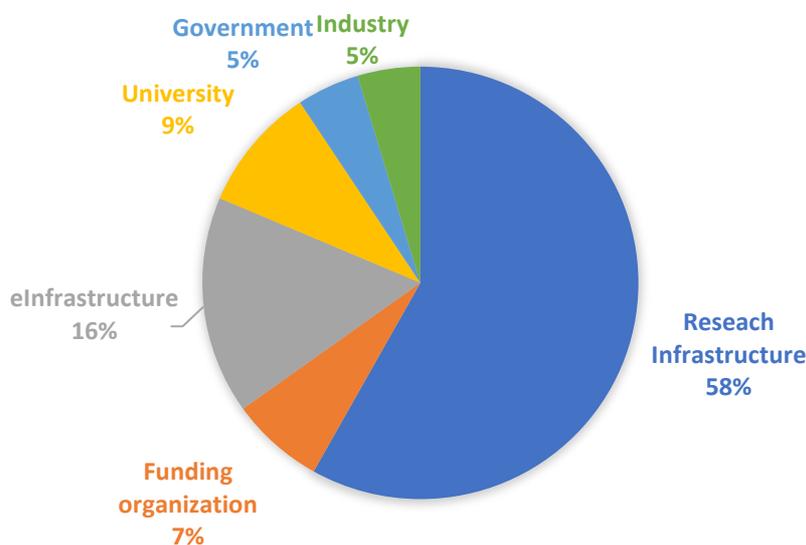


Figure 2: Participants in the 1<sup>st</sup> EGDF workshop, in total 43 registered participants

### 2.4.2. 2<sup>nd</sup> EGDF workshop, "Open science policy aspects in the context of EOSC governance framework"

The 2nd EGDF workshop *Open science policy aspects in the context of EOSC governance framework* was organized on September 8 in Athens as part of the Open Science Fair conference. This 1.5-hour workshop was a continuation of the workshop *Towards a Policy Framework for the EOSC: The EOSCpilot Perspective* arranged earlier the same day. There were twenty-eight participants representing university administration, researchers, projects in the area of open science and FAIR data for the first part of the workshop. Since there

was no separate registration for this second part of the workshop, there is no detailed information or figures available of the attendees.

The workshop was composed of presentations about the EOsc governance framework by representatives of the EOscPilot project and EOsc governance model by EC representatives followed by an exercise in groups. The workshop was concluded with a panel discussion.

In the group exercise the participants split into four groups to very briefly discuss the governance framework with the four layers presented earlier: the research community, the thematic service layer, the data and content and finally the e-Infrastructure layer. The question was if they could relate to the framework and where they saw their own affiliation in this framework that was based on these four layers. In all groups there was some confusion, since the participants often considered themselves (or their organizations) to cover several of the layers, often all four. The relation between the governance model presented by EC and this framework was difficult to grasp and was unclear until it was clarified by the facilitators of the workshop. Some participants made remarks concerning the importance – when talking about governance - of focusing on architecture, structure, service provision etc. as these are the actors more fit into the structural/operational group of EOsc governance. The participants also pointed out that some relevant actors are missing from the range of stakeholders presented in the framework strawman, such as societal, end-users, and citizen science. Some questions were raised also from concerned citizens: Are the citizens included in this ecosystem and how? How the interaction and collaboration between layers are handled?

In the panel discussion, the following topics were raised:

- A strong point for the governance has to do with collaboration and interaction between layers. How to create proper working groups (starting from the research communities) able to pass information between them and then to the next level.
- Rewarding mechanisms should be in place and to be considered an essential factor for EOsc to function properly.
- The governance should decide what the services to be provided by EOsc are and who operates them - “EOsc is a system of systems”. The rules to be established should be discussed and agreed upon: Who is part of EOsc, how trustworthy is a participating organization, who is providing the services for monitoring and mandating the rules of engagement?
- EOsc should be open and transparent in terms of decision-making approach, clear possibilities, clear processes and clear definition of layers, and also who can participate. Citizen science should be part of the governance, especially in the strategic role.
- In creating the governance, there are some requirements that have to be considered, together with the definition of some clear success criteria and together with a clear methodology on how to create a governance.
- On how to involve citizen science in EOsc, Wikipedia or Wikidata could be used as examples. Communities like Wikipedia have a clear governance structure and engagement with third parties. They developed themselves as interaction/communication platforms. However, there are other citizens that are not part of any community. They should also be able to access EOsc and also have some influence.
- Governance has to meet some requirements: It has to be as little bureaucratic as possible, adaptable to changes and flexible.

#### **2.4.3. 3<sup>rd</sup> EGDF workshop, “Drafting Governance Framework and Principles of Engagement for European Open Science Cloud”**

The 3<sup>rd</sup> EGDF workshop, organized back-to-back with the e-IRG workshop and in collaboration with Tartu University and Tallinn University on October 2 -3 in Tallinn, had as a topic *“Drafting Governance Framework and Principles of Engagement for European Open Science Cloud”*. On the first day of the workshop two panels facilitated the discussion on governance, whilst the second day focused on current developments in

EOScpilot and EOsc, and on EOsc services. There were in total 53 registered participants in the workshop, the participants representing e-infrastructures (35%), member states (27%), Universities (17%), Research Infrastructures (13%) and Funding agencies and University libraries (both 4%) (see Figure 3). The workshop managed to well attract the targeted stakeholder groups. The workshop was promoted in EOScpilot and e-IRG websites, by social media campaigns, invitation emails were sent to a list of representatives of potential target groups and in Tartu University Library promoted the event locally in Estonia.

The workshop was very interactive, there were a lot of questions, discussions, and panellists, presenters and participants were searching for answers together. EOScpilot WP2 received good constructive feedback on the draft (work in progress) *Draft Governance Framework* that was presented in the workshop. All member countries represented in the panel expressed their support in the building of EOsc and see that the EOsc declaration has good topics although not all countries have an official position on it, yet. The importance of Member States' and Associated Countries' role in the governance and decision making of the EOsc was highlighted in the discussion. There is a need to find and clarify a proper funding model for the EOsc. The panelists identified the ERAC Standing Working Group on Open Science and Innovation as a proper vehicle for discussion between the EC and MS on the development of the governance model for the EOsc. The wise use of resources was stressed, not duplicating things already done in other initiatives. There should be a clear focus on interoperability of all layers (policy, organizational, semantic, and technical) and member states should agree on mechanisms for interoperability with the support of European Commission to obtain sustainability of the EOsc. ESFRI forum, e-IRG and RDA were identified as important stakeholders for the EOsc.

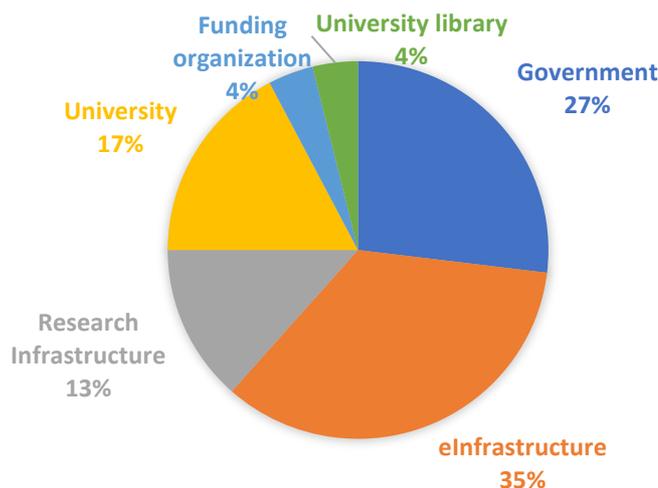


Figure 3: Participants in the 3<sup>rd</sup> EGDF workshop, in total 53 registered participants

In the panel discussion on *Principles of engagement for service providers and users* it was underlined that the EOsc would be built on existing credible services and infrastructures. There is a clear division of duties among the projects in this field: eInfraCentral is designing a framework for EOsc services and EOsc-hub will build interoperability between e-infrastructures and research infrastructures. It was concluded that the harmonization of all access policies is challenging, but a definition of two or three access types to which the services could be categorized should be feasible. Furthermore, since the EOsc is intended to be inclusive, it should be also considered what is feasible from the service providers' point of view. A minimum set of principles should be set for all providers, and another set of principles for those service providers who want to provide more sophisticated EOsc-compliant services, as described in the *Draft EOsc Governance Framework*. The following points were also raised:

- Researchers want to use computing at local, national and European level. The interface from EOsc is interesting: "single-stop-shop with all the interfaces is something we cannot do without". For users, the research community specific services are equally important as computing, both should be part of EOsc. Services really have to work effectively to be used. Provenance of data is very important.

- Barriers: Policy on network layer, issue when transfer data between private providers using the research network (GÉANT).
- Agreement must be reached between service providers on the kind of information to be shared about users.
- How does EOSC benefit the researchers? Funders must be the drivers of EOSC development. Otherwise infrastructures may be reluctant to develop their services towards compatibility with EOSC (optimal use of the scarce resources).
- Branding EOSC for researchers and to pay attention to dissemination. Make the researchers ask for EOSC services!
- Raising awareness of EOSC: What, when and how should be communicated to different stakeholders?

## 2.5. Workshops and presentations in the second year

During the second year of the project, EGDF activities took place in several occasions organised by the scientific community, i.e. actors not necessarily directly involved in the project. EOSCpilot was presented in workshops, conferences and meetings where researchers, e-infrastructures, projects and our other stakeholders meet. In these occasions, EGDF provided a presentation or a workshop, followed by discussions where our target audiences could ask for more information, provide comments and other feedback, and participate in community building and framing the upcoming EOSC. In some of these occasions, we used the interactive Sli.do<sup>3</sup> tool to collect feedback.

These occasions are listed as following, followed by more detailed descriptions of the event. Slides or other material are available as described.

- Workshop: Piloting EOSC Governance Framework at EUDAT Conference “Putting the EOSC vision into practice” 25 January 2018, Porto, Portugal
  - 35 participants
  - Presentation slides [<https://b2drop.eudat.eu/s/Q5ErKtP0ZEIjitY - pdfviewer>]
- EOSCpilot at the E-IRG Workshop, 14-15 May 2018,
  - Topic: The EOSCpilot project
  - Presentation slides [[http://e-irg.eu/documents/10920/421747/2nd\\_02\\_EOSCPilot-eIRG.pdf](http://e-irg.eu/documents/10920/421747/2nd_02_EOSCPilot-eIRG.pdf)]
- ENVRI Week’s EOSCpilot Workshop, 16 May 2018, Zandvoort, The Netherlands
  - 50 participants
  - Topic: EOSCpilot recommendations on Governance and Rules of Participation
- EOSCpilot Workshop: Recommendations on Governance and Rules of Participation at European HPC Summit Week, 29 May, Ljubljana, Slovenia
  - ~30 participants
  - Part one: Presentation of EOSCpilot recommendations on Governance and Rules of Participation.
  - Part two: Governing piloting. An interactive session with Sli.do tool, questions and answers
- EOSC Summit Rules of Participation 11 June 2018, Brussels, Belgium
  - 80 participants
  - Topic: EOSC Pilot Considerations on the Rules of Participation
- Rules of Participation for EOSC, Digital Infrastructures for Research 2018, Lisbon, Portugal, 9-11 October 2018
  - 100 Participants

<sup>3</sup> See <https://www.sli.do/>. The tool can be used to collect answers to multiple choices or open questions, with anonymous voting options. It can be used either on mobile, tablet or desktop.

- A presentation with a title: Minimal set of Rules of Participation for Service providers and Users in EOSC
- Presentation slides  
[\[https://indico.egi.eu/indico/event/3973/session/55/contribution/248/material/slides/0.pdf\]](https://indico.egi.eu/indico/event/3973/session/55/contribution/248/material/slides/0.pdf)

### 2.5.1. Workshop: Piloting EOSC Governance Framework at EUDAT Conference

At the end of its first year of activity, EOSCpilot had defined a first draft framework for governance, principle of engagement of stakeholders and sustainability. This initial framework has to be improved and tuned according to the inputs of the stakeholders in order to shape it in the most effective and broadly accepted fashion.

The objectives of the workshop were to present the current draft model for EOSC governance as expressed by the EOSCpilot project, to discuss important related aspects and open questions with stakeholders, and collect their feedbacks, suggestion, remarks, in order to progressively improve the model.

The 4-hours session aimed at introducing the initial version of the governance framework, to discuss with stakeholders its main characteristics, highlighting possible limitations, incompleteness and problems, collecting suggestions and feedback in order to improve it toward its final implementation.

The workshop started with an introduction to the draft governance framework followed by a discussion session on this topic. The discussion session began with a live poll followed by Q&A session using the Sli.do audience interaction tool. The second part of the workshop was dedicated to the topic of Principles of Engagement for the EOSC. The draft principles of engagement for service providers were introduced and the audience had the opportunity to give direct feedback and raise questions on the topic.

The workshop participants were encouraged to familiarize themselves with the draft EOSC governance framework [\[https://www.eoscpilot.eu/content/d22-draft-governance-framework-european-open-science-cloud\]](https://www.eoscpilot.eu/content/d22-draft-governance-framework-european-open-science-cloud) to enable involvement and contribution to the discussions and governance piloting exercise. Notes from the session are in the Annex F.

### 2.5.2. EOSCpilot at the E-IRG Workshop 15 May 2018

The workshop program was divided in two main parts: In the first part, the HPC ecosystem was presented, in the second part, the status of the European Open Science Cloud (EOSC) was presented, including the EC Implementation Roadmap, major EOSC projects and related data initiatives, along with national views.

The Session on European Open Science Cloud (EOSC) - Progress and National Views featured an overview of the EOSCpilot project.

### 2.5.3. ENVRI Week's EOSCpilot Workshop, 16 May 2018, Zandvoort, The Netherlands

A 1.5-hour workshop had two parts: first presentations on recommendations on Governance and Rules of Participation, followed by an interactive Q&A session on governance piloting, using the Sli.do tool. Stakeholders, such as research communities, research institutions, research infrastructures, e-infrastructures, and research funding bodies were invited to debate and pilot the main characteristics of the draft governance framework for the EOSC and to highlight the items for improvement, and the draft of recommended Rules of Participation for service providers was introduced.

#### **2.5.4. EOSCpilot Workshop: Recommendations On Governance And Rules Of Participation at European HPC Summit Week**

The European HPC Summit Week 2018 in Ljubljana gathered together the main HPC stakeholders in Europe. The European HPC Summit Week was a great opportunity to network with all relevant European HPC stakeholders, from technology suppliers and HPC infrastructures to scientific and industrial HPC users in Europe. PRACEdays18 was the central event of the European HPC Summit Week, and is hosted by PRACE's Slovenian Member University of Ljubljana, Faculty of Mechanical Engineering. EOSCpilot workshop was part of the PRACEdays18 on 29th May.

The first part of the 1-hour workshop was a presentation of EOSC pilot recommendations on Governance and Rules of Participation, and the second part was a Q&A session facilitated with the interactive Sli.do tool. The first draft of recommended Rules of Participation for service providers was introduced, and the audience had the opportunity to give feedback, as well as raise questions on the topic.

#### **2.5.5. EOSC Summit Rules of Participation 11 June 2018**

The EOSC Summit 2018 brought together 180 invited key stakeholders for the implementation of the EOSC, representing all categories and scientific fields, research funders, and officials. Among others, a presentation with a title "EOSC Pilot Considerations on the Rules of Participation" was given to the invited audience.

#### **2.5.6. Rules of Participation for EOSC, Digital Infrastructures for Research (DI4R) 2018, Lisbon, 9-11 October 2018**

The EOSCpilot project has delivered a minimal set of rules following a consultation process with e-Infrastructure and research infrastructure stakeholders. The EOSC-hub project is approaching the topic from a service provisioning perspective, in order to set up common principles for federating service providers as part of the Hub. The 2<sup>nd</sup> High Level Expert Group on EOSC has just launched an open consultation and is gathering further input from stakeholders with a view to propose an initial set of rules which could be taken up by EOSC.

In this World Cafe session, the current state of the discussion was reviewed regarding these EOSC Rules of Participation, by presenting the work from the EOSCpilot project, the EOSC-hub project and the 2<sup>nd</sup> High Level Expert Group on EOSC on this important topic. We identified commonalities and differences between the three initiatives and discuss the next steps. Feedback was collected from the audience and from the presenters on the current status and direction taken in designing the rules.

The target audience was community representatives interested in joining or using the EOSC, service providers interested in offering services via EOSC, and representatives from funding agencies interested in the rules of participation of EOSC.

As EGDF activity, a presentation was given with a title "Minimal set of Rules of Participation for Service providers and Users in EOSC by Pascal Kahlem, who also participated in the panel discussion as a panellist.

### **2.6. The Governance Session at the 2<sup>nd</sup> EOSC pilot Stakeholders Forum**

The second Stakeholders Forum took place in Vienna, Austria, in 21-22 November 2018. The governance work package held a session on 21 November. A 1.5-hours session consisted of a Short Introduction on the Governance, followed by a panel discussion with panellists from different stakeholder groups.

The session presented the results of the two years of governance work. The key objective for the Governance Work was 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, reflecting the overall objective of the EOOSC: to create a trusted European environment for hosting and processing research data to help maintain the world-leading role of European science. The governance framework should overcome fragmentation by federating scientific data infrastructures scattered across disciplines and Member States. This means building on existing structures and involving all key stakeholders.

The full report of the workshop is in Annex F.

### 3. REFLECTION AND CONCLUSIONS

The EOSCpilot Governance Development Forum activity was successfully launched in the first year of the project, and it continued to collect, share and transmit ideas, comments and viewpoints of the stakeholders in the second year. We have been able to engage a significant number of people representing EOSC stakeholder groups in the activities. Some groups of stakeholders were more active than others, perhaps due to different perceptions of the EOSC and its estimated importance or added-value to a specific stakeholder group. Some groups, e.g. research funders, could have been reached better. Research communities have been represented through research infrastructures and by some researchers. We assumed that the EOSC roadmap would increase interest among researchers, but this wasn't apparent. Member states and funding agencies were supposed to be addressed in the Governance Work Package Subtask 2.4.1 *Creation of an "EOSC Funders Summit"* though in further discussions, addressing these actors was agreed to be the responsibility of the European Commission.

Co-locating thematic workshops in conjunction with larger, already established events worked well. We were able to reach our target audiences and the collaborating event organisers regarded co-locating the events as mutually beneficial. Co-locating workshops was also cost-efficient. Therefore, we were able to organize more workshops than the three that were initially planned in the project's Description of Action.

The EGDF webinars proved a successful way to reach people. It was a useful channel for regular interaction between forum members and participants, and for informing and giving an update on the developments of different activities of the Governance Work Package. The webinars also provided a good occasion to create a direct communication channel between the Commission and the stakeholders, as the webinar presenting the EOSC roadmap and given by a Commission officer was by far the most popular webinar, with over 150 participants.

During the first year of the project the focus of the EGDF activities was in engaging stakeholders in the drafting of the EOSC governance framework. Valuable feedback and input was received from events and was immediately applied in the on-going work. In the second year, the focus was in completing and fine-tuning the work done in the first year. As the EOSC roadmap was published in the spring 2018 and the EOSC High Level Expert Group report in the summer, we were able to provide more accurate information to our stakeholders as food-for-thought and discussion. While at the same time continuing the drafting of the governance framework and compilation of the rules of participation, based on continuous input and feedback from the EGDF community.

Respondents to the questionnaire carried out to establish EGDF activities raised the idea of introducing layers in the governance framework and the importance of interoperability between the layers. Since then the new European Interoperability Framework has been seen as one of the founding elements of the governance framework. The workshop targeting research infrastructures highlighted that stakeholders may have different roles in EOSC and their participation in EOSC may serve different purposes. For example, with research infrastructures being (1) service providers in their thematic domains, (2) users of e-Infrastructure services: building part of their own service offering on the solutions provided by e-infrastructures and EOSC in the future, and (3) representatives of research communities in EOSC. This same feedback was received from the participants in the workshop organized in the Open Science Fair conference, with many of the participants considering themselves (or their organisations) as covering several of the layers, often all four layers (policy, organisational, semantic, and technical) of the governance framework proposal.

In both workshops, stakeholders recommended that the EOSC governance be kept as simple and flexible as possible, and involving all stakeholders, including researchers and citizen scientists. There is no need to create new legal structures to solve data issues, and similar, EOSC governance should leverage on what is already there. These views have been considered when elaborating the EOSC governance framework draft.

The first HLEG on EOsc recommended using the digital governance ecosystem of the Internet<sup>4</sup> as an example for establishing the EOsc governance and describing the stakeholders involved. However, as a result of the discussions it was concluded that though representing the EOsc governance ecosystem in a similar way is a potentially useful, the view is service centric and not user driven. Therefore, it is not suitable in the context of the EOsc stakeholder driven governance framework. It also assumes static roles, whereas in the case of the EOsc, stakeholders many play multiple roles in the governance.

The effective community governance model<sup>5</sup> has been applied in the draft EOsc governance framework in order to ensure a stakeholder driven governance and to engage stakeholders in the problem solving and decision making of the EOsc and in implementing the solutions “Getting things done” as described in the model.

In all the workshops, stakeholders have stated that it was difficult to grasp and understand the relationship between the governance model described in the EOsc declaration and that presented by the European Commission on different occasions, and the EOsc governance-framework draft being prepared by the EOscpilot project. The Governance Work Package partners worked on different activities in continuous interaction with the Commission’s EOsc team in order to ensure that the project’s work was in line with and aware of Commission plans and developments in the area of the EOsc governance. The EOsc Declaration and how the governance model is described in it are included in the EOsc governance framework draft, and the relation between the two are explained in the same way that this relation was explained to the workshop participants.

Some of the key points brought up by the stakeholders were described in the preceding paragraphs. Figure 4 illustrates examples of the feedback and input received and how it has been implemented in the work of the governance Work Package (WP2). In addition to the EOsc governance drafting, valuable suggestions have been received for how to better involve and include different stakeholder groups, and which are their relevant representative bodies to approach, in the investigation and analysis of organizational Principles of Participation (earlier Principles of Engagement) for EOsc (subtask 2.3.1). The Governance Work Package has also reported to the Commission’s EOsc team about the findings and results of the EGDF activities, in order to ensure that these are also taken into account in the EOsc developments.

During the second year, the same applied to the EOsc Roadmap, as the Governance framework draft at the time differed from the model presented in the EOsc Roadmap. It was noted that the model presented by the Roadmap presents the desirable outcome in the long-run, whereas the Governance framework fully described in deliverable D2.6 can be seen as a starting point for the an initial EOsc. The governance model can be developed further and adjusted as experience is gained. It is noted that feedback from the stakeholders has been taken into account in both models during the project.

During its almost two year of existence the EGDF has provided a forum for the EOsc stakeholders to discuss, share ideas, provide feedback and make their voices heard. Webinars, workshops and other activities have been of interest to numerous people representing different stakeholder groups. The insights and comments from the community have been extremely important and valuable when drafting and compiling the Governance Framework and the Rules of Participation. This interaction with the stakeholders can be seen as a key factor for the acceptance and fast adoption of the EOsc, its governance and its services.

Examples of feedback and input received from EGDF activities and how it has been implemented and how it is being implemented in the WP2 work

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<sup>4</sup> <https://www.icann.org/news/multimedia/1563>

<sup>5</sup> [http://www.rtmteam.net/page.php?pageID=25&section=overview\\_of\\_ecg](http://www.rtmteam.net/page.php?pageID=25&section=overview_of_ecg)

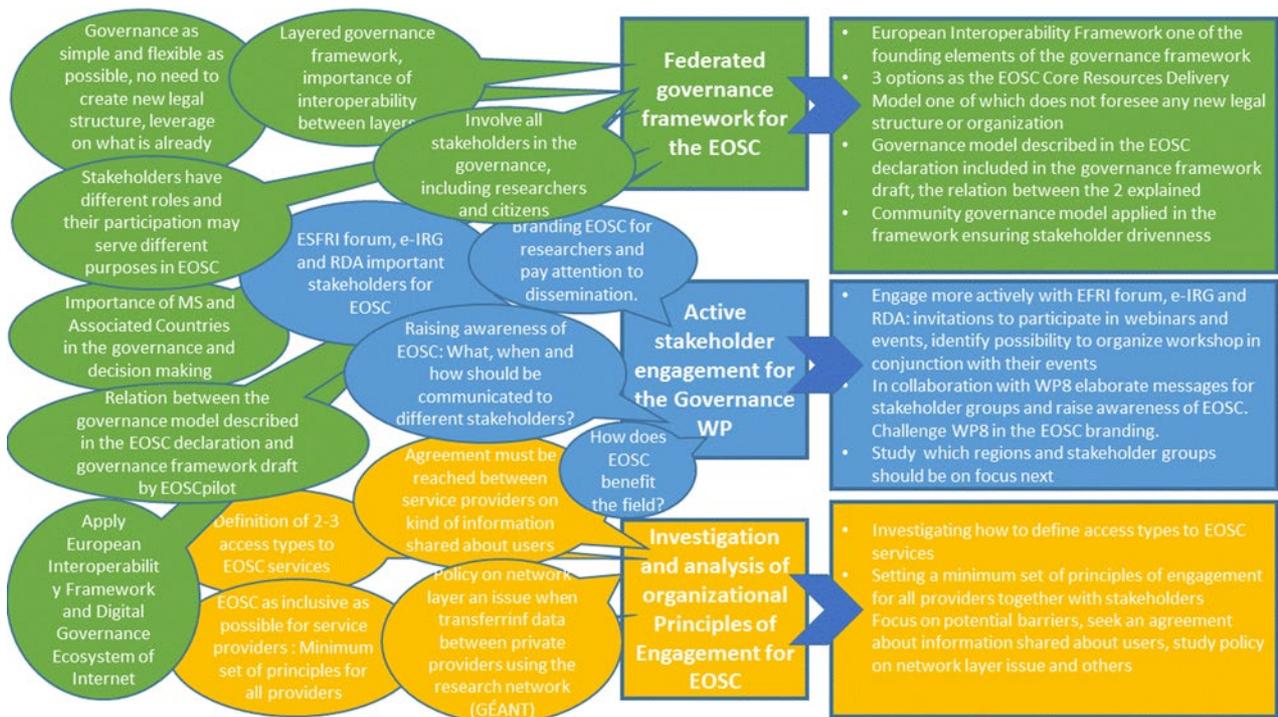


Figure 4: Examples of feedback and input received from EGDF activities and its implementation by WP2

## ANNEX A. EOSCPILOT WP2 GOVERNANCE SURVEY REPORT

### 1. INTRODUCTION

The EOSCpilot will establish a Governance Development Forum to enable all different stakeholders to contribute to the development of the EOSC governance framework. The Governance Development Forum is mandated to function and support the establishment of the EOSC. The key objective for the Governance Work Package 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.

The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSC pilot will design and trial a stakeholder-driven governance framework with the involvement of all stakeholders. This will then shape and oversee future development of the European Open Science Cloud.

This means building on existing structures and involving all key stakeholders. It requires linking to relevant national, European and global initiatives such as the OSPP, RDA, and the e-IRG. Aside from building on existing structures, the framework should build on existing knowledge and expertise on how to handle governance challenges, particularly in federated or interlinking initiatives. A minimal governance framework requires the maximum level of trust, which calls for stakeholders to be actively involved in driving the process forward. A common reason for strategic decisions to fail is failing to attend to interests and information held by key stakeholders. One objective for this WP is to scope the field of potential stakeholders and map them to roles, level of influence and participation as well as to concepts and categories with identified relations and dependencies. The stakeholder analysis will be used for different purposes by all WPs in the project.

This document is a report on the EOSCpilot WP2 Governance Questionnaire. This report will serve as the basis for creating and specifying the work approach of the Governance Development Forum as well as assist the drafting of the governance framework proposal.

## 2. Results

The questionnaire was sent to a total of 68 respondents via email and received a total of 21 responses. The respondents were identified based on their participation in three different workshops:

- 30 November 2015, Brussels: organized by HLEG EOOSC to discuss the challenges and possible solutions for EOOSC
- 5 February 2016, Rome: organized by EUDAT, EGI, OpenAIRE, GÉANT, and LIBER to understand the roles of e-infrastructures and research infrastructures in EOOSC
- 29 June 2016, Brussels: organized by European Commission for Member State representatives to discuss preparation of a roadmap outlining the governance and funding of EOOSC

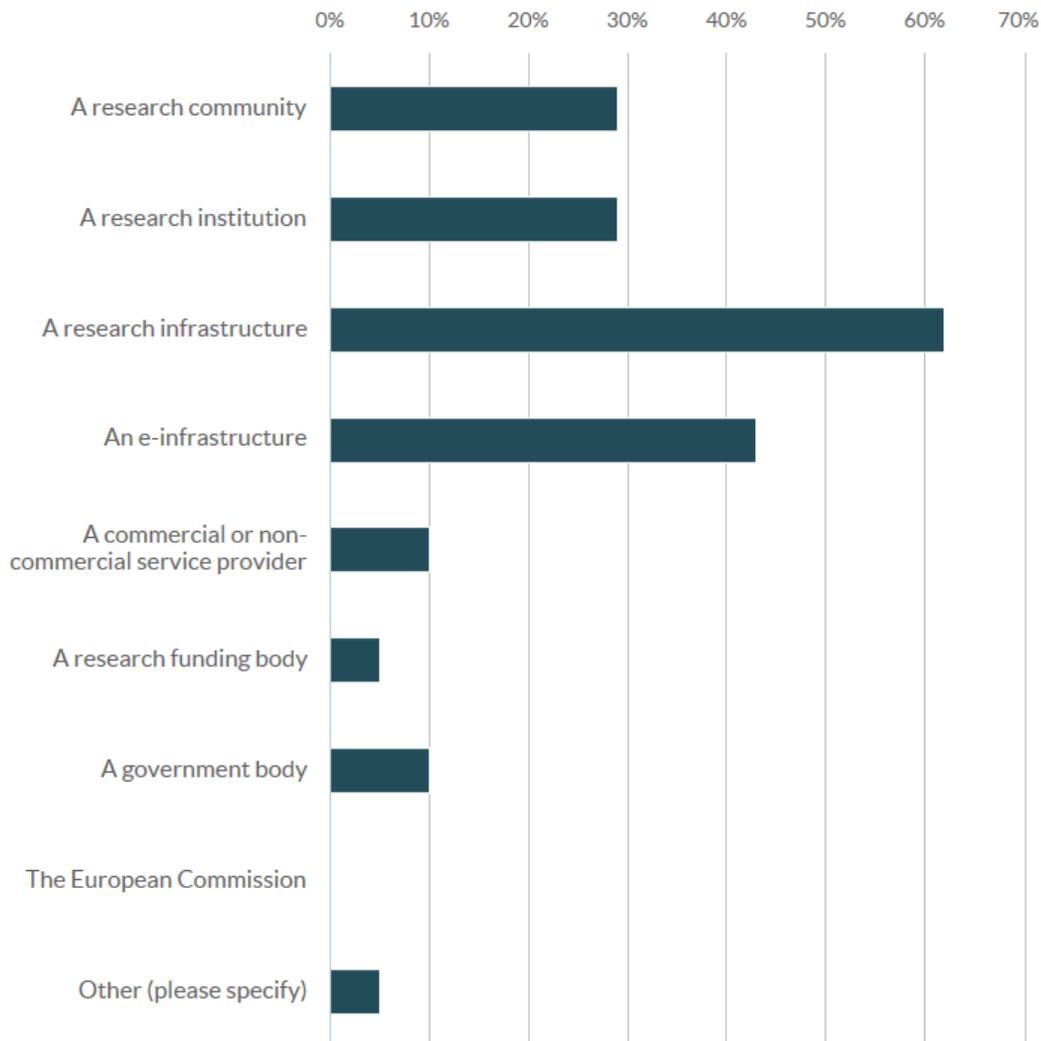
The questionnaire was open for a period of three weeks between 13.3.2017 to 31.3.2017 and distributed via Webropol 3.0. The design included both open- and closed-ended questions (see Annex A). Altogether, there were three closed questions; two provided respondents with a yes or no option and one that contained a list of nine stakeholder groups from which the respondents were able to choose multiple answers. The questionnaire contained five open-ended questions.

The main objective of the questionnaire was to get a start to the Governance Development Forum by building on thoughts and views from people already involved in the planning and development of EOOSC. Additionally, the questionnaire was used to find out efficient ways to involve stakeholders in the EOOSC governance framework development as well as to learn about the participants' thoughts on the workshop topics. Answers to the questionnaire provided a very rich dataset and pinpointed specific issues to take into consideration regarding the development of the EOOSC governance framework.

### 2.1 Representation of respondents

Question one identified the motivation of the respondents for participating in the EOOSC workshops in regards to the stakeholder groups that they represent. The stakeholder groups used were based on a preliminary set of stakeholder groups/categories identified by the WP2 leaders:

1. A research community
2. A research institution
3. A research infrastructure
4. An e-infrastructure
5. A commercial or non-commercial service provider
6. A research funding body
7. A government body
8. The European Commission
9. Other



**Figure 1 – Results of question 1, “what was your motivation to participate in the EOsc workshops? I represent (you may choose multiple answers)”.**

All respondents provided an answer to question one. The two largest representation of respondents were research infrastructures (61.9%) and an e-infrastructure (42.86%). Based on the results, 28.57% of the representation of respondents were research institutions and 28.57% research communities.

Contrarily, the lowest representation of respondents were research funding bodies (4.76%) and other (4.76%), specified as a consultancy in e-infrastructures. 9.52% of the representation of respondents were commercial or non-commercial service providers and 9.52% government bodies. None of the respondents represented the European Commission.

It should be stated, however, that the question included the option for the respondents to choose multiple answers. This ultimately affects the results so that, for example, respondents who represent research infrastructures also identified themselves as representing a research community, a research institution, an e-infrastructure, a commercial or non-commercial service provider, a research funding body, and a government body. This has important implications to the development of EOsc as it highlights the diversity of the stakeholder groups as well as highlighting the need to examine whether these groups should rather be identified as stakeholder layers, as one respondent commented: “*Too many different types of stakeholders*”

– *what is needed is to enable a working relation and communication channel between different stakeholder layers*".

### 2.1.1 Further specification of motivation

All together 13 respondents provided further specification regarding their motivation to participate in the EOsc workshops. The responses indicate a variety of drivers and motivations for different stakeholders.

Support for the objectives of EOsc was visible from the responses and specifically in regards to EOsc being beneficial for researchers on a national level. Motivations for participation were to understand how other infrastructures, such as e-IRG and RDA, fit in the operation of EOsc in general as well as the data interoperability of EOsc in particular. Participation as well as contribution in the development of the EOsc governance model and funding model was also specified. Ensuring alignment and beneficiary components of EOsc with other initiatives was mentioned. These included the High Energy Physics community, HL-LHC research infrastructure, and the African Research Cloud. Additionally, the possibility of co-development of certain components was specified in relation to the requirements of EMBRC RI <sup>6</sup> matching with what will be provided through EOsc. On the other hand, concerns regarding the visibility of cloud services for user communities was raised.

## 2.2 EOsc impact

A total of 20 respondents provided an answer to the question regarding how they foresee EOsc being related to their work. Answers can be divided into three groups: opportunities brought by EOsc, influence of EOsc on other initiatives, and gaps in the development of EOsc.

### 2.2.1 Opportunities brought by EOsc

Respondents identified that EOsc brings with it opportunities for their community, their service users, and for researchers. For example, the decisions made by EOsc governance can have a big impact on the ability to deliver high-quality cloud-based services to the community. In addition to this, EOsc was identified as having the potential to become an important instrument to defragmented data stewardship initiatives in Europe. In regards to the governance framework, EOsc was seen by most as likely to be a strong policy body.

The responses also highlighted EOsc bringing opportunities for specific stakeholder groups. It was identified that EOsc could help shape the way that services are delivered to users of already existing infrastructures. The opportunity for researchers to use cloud resources across Europe where data is located and provisioning data resources on the EOsc to enable other analysis activities was highlighted. EOsc was also viewed as providing a framework for developing strategies and implementing tools for scalable sensitive data management and processing.

### 2.2.2 Influence of EOsc on other initiatives

Respondents also identified opportunities for other initiatives, national service development, and for developing strategies as well as data tools. EOsc was foreseen as becoming an important instrument to defragmented data stewardship initiatives in Europe in relation to implementing the FAIR principles. In this regard, EOsc can set an example that other initiatives can follow on a national basis. Through EOsc, the right people and existing initiatives will be brought together in order to avoid overlapping, for example, in regards

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<sup>6</sup> EMBRC (the European Marine Biological Resource Centre) is a distributed European RI which is set up to become the major RI for marine biological research. The main purpose of EMBRC is to promote marine biological science and the application of marine experimental models in mainstream research by providing the facilities (lab space), equipment, expertise and biological resources that are necessary for carrying out biological research. In what concerns data, the role of EMBRC is to generate and make it available.

to the SKA project<sup>7</sup> and its regional centers around Europe. In addition, EOOSC was seen as providing a core infrastructure to support ESFRI activities and a larger governance context for the (GO)FAIR initiative<sup>8</sup> as well as influencing the implementation of WLCG<sup>9</sup>.

### 2.2.3 Gaps in the development of EOOSC

In addition to the opportunities brought by EOOSC and its influence on other initiatives, the respondents identified some gaps in regards to EOOSC and its development. Respondents viewed that there are still a lot of room for improvement in communication towards its user base, and clarity needed regarding the services to be offered by EOOSC. One respondent also highlighted that they have the impression that the analysis and processing functions together with long-term data management are being underestimated and yet a decade of experience with the LHC show that these aspects are crucial. It was also identified that a sustainable and economic federation of e-infrastructures organized among a few thematic “virtual data hubs” in support of the implementation of the data management plans of all major ESFRI projects should come first. This would imply that scientific projects/communities and the concerned national research agencies should lead the implementation of the EOOSC and approve the EOOSC governance implementation.

A worry regarding the governance and model of EOOSC was also raised. One respondent discussed how bringing the existing European e-infrastructures at the center of the evolution of the ecosystem and of the future governance of EOOSC, will not correspond to expectations. This was seen risking reiterating an e-infrastructures’ model based on the distinction on the two categories of “service providers and users” which is not the one expected by the largest scientific communities for the future. Additionally, and as highlighted earlier in this report, there remains a gap within the stakeholder group identification as the stakeholders may rather be seen as layers. Thus, the question arises whether the EOOSC governance should be developed in a layered fashion.

## 2.3 EOOSC and organisational or national Open Science strategy/policy

All respondents answered the question regarding their organisation or country having an Open Science strategy or policy. 76% of respondents identified that their organisation or country have an Open Science strategy or policy and, subsequently, 24% identified that there is no such strategy or policy in place within their organisation or country.

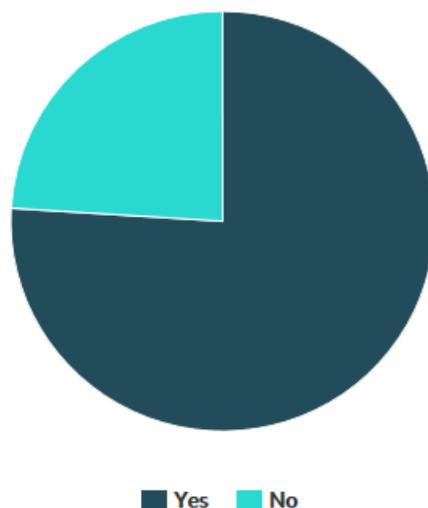
All together 10 respondents out of the 16 who answered, provided a link to their organisational or national Open Science strategy or policy. One respondent identified that their whole organisation is based on Open Science and data.

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<sup>7</sup> The Square Kilometre Array (SKA) project is an international effort to build the world’s largest radio telescope, with eventually over a square kilometre (one million square metres) of collecting area.

<sup>8</sup> The (GO)FAIR initiative is an implementation initiative towards the Internet of FAIR data and services. <https://www.dtls.nl/fair-data/go-fair/>

<sup>9</sup> The Worldwide LHC Computing Grid (WLCG) project is a global collaboration of more than 170 computing centers in 42 countries, linking up national and international grid infrastructures. The mission of the WLCG project is to provide global computing resources to store, distribute and analyse the ~50 Petabytes of data expected in 2017, generated by the Large Hadron Collider (LHC) at CERN on the Franco-Swiss border.



**Figure 2 – Results of question 4, “does your organization or country have an Open Science strategy or policy”.**

### 2.3.1 Strategies on how EOSC will be related to national or organisational Open Science strategy/policy

The question concerning specific strategies on how EOSC will be related to the respondent’s national or organisational strategy or policy, received a total of 19 responses. From these, eight respondents stated that there currently is no strategy in place on how EOSC will be related to their national or organisational Open Science strategy or policy.

A total of five respondents identified specific strategies how EOSC is or will be related to their national Open Science strategy/policy. Specifically, the National Open Science Plan of Netherlands was mentioned along with the development of an Open Science strategy for Africa. EOSC was also viewed as an exemplar that needs to be followed nationally. In addition, the Finnish ESFRI RI participation and the e-infrastructure provision on a global, European and national level were identified as ways for EOSC to have an influence. One respondent also identified the (GO)FAIR initiative as being the closest to their national Open Science strategy in relation to EOSC.

Specific strategies on how EOSC will be related to organisational Open Science strategies or policies were identified by three respondents. For example, GEANT was mentioned as planning to make its cloud services portfolio and identity federated services available to the EOSC. In addition, the interaction between EMBRC and EOSC was stated to be clarified through the e-infrastructure specification for EMBRC (which is currently under development), the Data Policy and the Management Plan.

Respondents who identified that there is no national or organisational Open Science strategy also identified uncertainties in regards to EOSC. For example, a respondent representing a research community responded that they are “*trying to understand what EOSC means for them*”. Other responses from research communities identified that a strategy on how EOSC will be related to national or organisational Open Science strategy/policy is either under development or that they are hoping to address this in the near future.

## 2.4. Issues discussed in workshops that could have or have enhanced the planning and development of EOOSC

A total of 15 respondents identified specific issues or ideas that were discussed in the workshops that could have or have enhanced the planning and development of EOOSC.

**Table 1 – Main issues discussed in workshops.**

Issue	Further Explanation
<b>Scope of EOOSC and communication</b>	<ul style="list-style-type: none"> <li>▪ Should EOOSC become a physical cloud infrastructure or a set of principles guiding a federated implementation (rules of engagement)</li> <li>▪ a clear definition of what EOOSC is</li> <li>▪ importance and role of the research infrastructures</li> <li>▪ use cases</li> </ul>
<b>Governance and funding of EOOSC</b>	<ul style="list-style-type: none"> <li>▪ These should be based on strong national coordinating building blocks</li> <li>▪ embed the practical advice of repository managers, IT service operators and researchers in the governance and operation of EOOSC</li> <li>▪ governance model must consider the incentives of researchers to share their data</li> <li>▪ synergies between research infrastructures and e-infrastructure</li> <li>▪ governance structure that involves stakeholders</li> <li>▪ compliance to GDPR and its national implementations</li> <li>▪ to gather funders from member states together for a discussion</li> </ul>
<b>Acceptance of FAIR principles</b>	<ul style="list-style-type: none"> <li>▪ HLEG report, doubts around if the full research community or the research infrastructures will be standing behind the report</li> <li>▪ sensitive data management and sharing (informed consent management, dynamic consent)</li> <li>▪ sensitive data processing</li> <li>▪ interfacing and interoperability</li> <li>▪ data quality</li> </ul>

Overall, the responses indicate specific workshop topics in relation to the development of EOOSC. These include the following:

- The importance and role of the research infrastructures
- Sensitive data management and sharing – stakeholder engagement when dealing with sensitive data
- Procurement – synergies between research infrastructures and e-infrastructure

The responses also demonstrate that the workshops highlighted a diversity in perception on the actual scope of EOOSC, in particular, between e-infrastructures and other research infrastructures. Thus, in order to turn the EOOSC vision into a working implementation, the practical advice of repository managers, IT service operators and researchers needs to be embedded in the governance and operation of EOOSC.

## 2.5 Involving stakeholders in the development of the EOOSC governance

A total of 17 respondents identified ways in which the different stakeholders could be involved in the development of the EOOSC governance. Table 2 shows specific stakeholder groups that the respondents identified regarding their involvement in the development of the EOOSC governance.

**Table 2 – Stakeholder involvement.**

Stakeholder	Ways of involvement
<b>Users</b>	<ul style="list-style-type: none"> <li>▪ attracting users to drive the development of EOOSC</li> <li>▪ being better informed and becoming users</li> </ul>
<b>Research infrastructures</b>	<ul style="list-style-type: none"> <li>▪ ESFRI infrastructures could play an important role disseminating the EOOSC into specific communities</li> <li>▪ intensive interaction is needed between research infrastructures and EOOSC (also on a practical level)</li> </ul>
<b>Interest and advocacy groups</b>	<ul style="list-style-type: none"> <li>▪ these groups should be welcome and involved in the governance structures of EOOSC</li> </ul>
<b>e-Infrastructures</b>	<ul style="list-style-type: none"> <li>▪ draw on the experiences of e-infrastructures in regards to funding and governance</li> <li>▪ workshops to capture the opportunities and potential pitfalls of different models</li> <li>▪ intensive interaction between research infrastructures and EOOSC, also on a practical level</li> </ul>

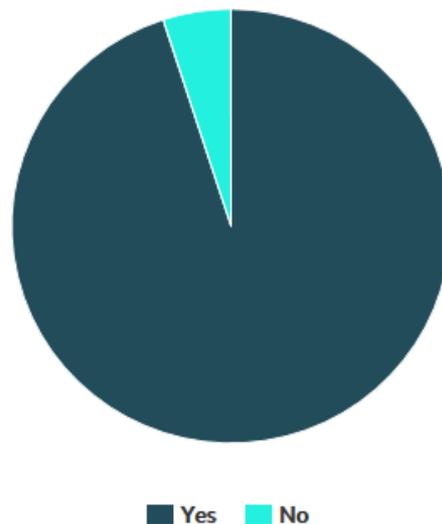
The responses also highlight ways in which stakeholders can be involved in the development of EOOSC governance. Specifically, three steps can be identified in regards to stakeholder involvement:

- a) The need to identify key stakeholder groups
  - *“The different stakeholder groups need to be clearly identified and engaged with agreed commitments and incentives for participation. Regular EOOSC focused meetings between stakeholders and DGs RTD, CNECT and GROW should be organised.”*
- b) The need to engage in targeted dialogue
  - *“It will never be possible to get all different kind of stakeholders under the same “umbrella”. Enable a working relation and communication channel between the different stakeholder layers, as it will never be possible to have one governance body consisting of researchers and funders!”*
- c) The need to give clear and specific roles to each stakeholder on issues that concern them

- *“The interested stakeholders should have an active role in the development of the EOSC governance. A working group, with representative of each area, should be created to define the EOSC governance.”*
- *“Clearly separate the roles of funders, research infrastructures, users and e-infrastructure service providers.”*

## 2.6 Future contact

Question 8 asked the respondents whether they wish to be contacted in the future in relation to EOSC and its development. Below, figure 3 demonstrates the responses.



**Figure 3 – Results of question 8, “can we contact you in the future in relation to EOSC and its development?”.**

Only one respondent specified that they do not wish to be contacted in the future in relation to EOSC and its development. This respondent was a representative of an e-infrastructure. All 21 respondents answered this question.

## 3. Conclusions

The main objective of this survey was to get a head start of the EOSCPilot Governance Development Forum by building on thoughts and views from people already involved in the planning and development of EOSC. Furthermore, the aim was to find out efficient ways to involve stakeholders in the EOSC governance framework development. Since the survey was targeted to a specified group of people already involved in the area of EOSC and the number and quality of responses was high with response rate of 31 percent, some conclusions and recommendations on steps forward can be drawn from the survey.

Although the survey responses generally speaking support the objectives of EOSC, there is still diversity in perception on the definition and actual scope of EOSC between different stakeholders. Stakeholder groups are trying to understand what EOSC means for them and what would be their role in it. Furthermore, some of the stakeholders consulted identified themselves as representing several stakeholder groups. This has important implications to the development of EOSC as it highlights the diversity of the stakeholder groups as well as highlighting the need to examine whether these groups should rather be identified as stakeholder layers. Thus, the question also arises whether the EOSC governance should be developed in a layered fashion.

Communications about EOSC should be improved and unified, especially towards its user base, and the definition of EOSC clarified. This would result in a common perception on the scope of EOSC and help in understanding what type of services will be offered by the future EOSC.

The results of this survey suggest that research communities and the concerned national research agencies should lead the implementation of the EOSC and approve the EOSC governance implementation. In this regard the approach that the EOSCpilot project has taken in the design and trial of the governance framework, is in line with these findings which is that *the development of and governance framework itself should be stakeholder driven*. The concern raised among respondents that bringing the existing European e-infrastructures at the core of the evolution of the ecosystem and of the future governance of EOSC would not correspond to expectations of some of the stakeholders should be considered. It seems that there are not simple categories of “service providers and users” for EOSC from the perspective of research community representatives to this survey, and this advice should be followed to ensure that different communities will commit to and take ownership of the principles of EOSC.

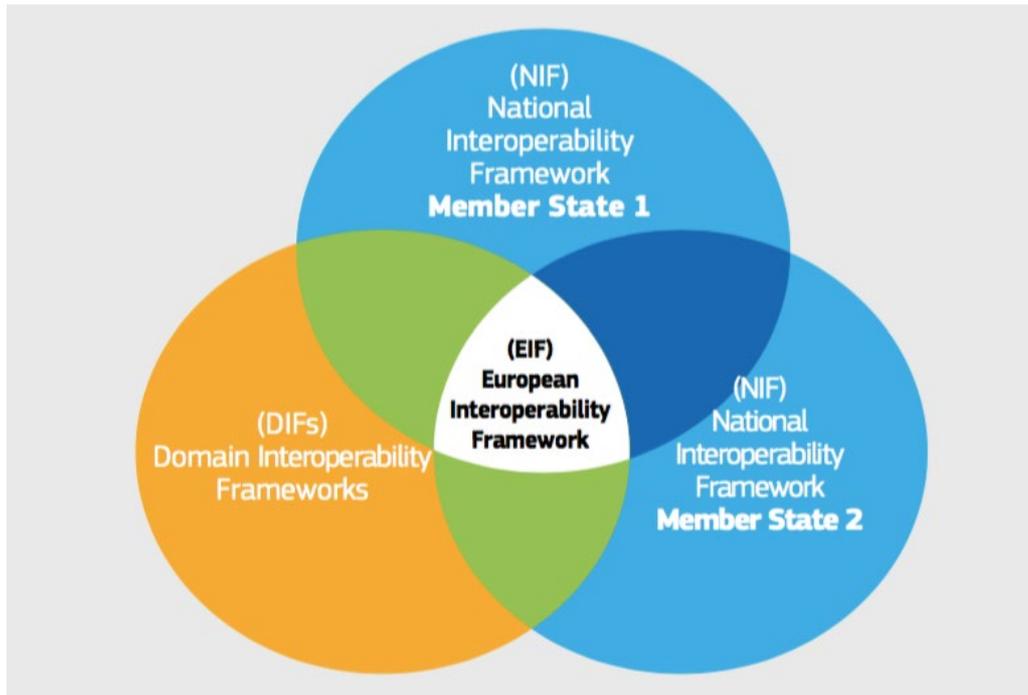
With regard to the efficient ways to involve stakeholders, three main steps could be identified from responses as recommendations: 1) Identify key stakeholder groups; 2) Engage in targeted dialogue; and 3) Give clear and specific roles to each stakeholder on issues that concern them. Furthermore, regular EOSC focused meetings between the stakeholders and European Commission representatives should be organized.

The survey results also show the variety of expectations that different stakeholders have on EOSC, which kind of services it should deliver, and which kind of role it should have in the delivery of services for EU researchers. Before going into details in defining the services and their providers, the EOSC and the framework governing it should be defined. As discussed earlier in the report, the survey results give some implications on the next steps. Both when looking at EOSC governance and the stakeholders involved these should be seen as layers: Different stakeholders could be placed in different layers of the governance framework depending on the role they have. Furthermore, in the light of the survey results, EOSC to its nature can be seen as a federation of interoperable entities and its governance framework should be designed in a layered fashion. This approach should be studied further in the design of EOSC governance framework, and when involving stakeholders in this work through the EOSCpilot Governance Development Forum.

As a starting point for the design of the governance framework for EOSC the recently released new version of European Interoperability Framework<sup>10</sup> should be used. It is intended to be used in promoting seamless services and data flows for European public administrations, but it could be adapted to the EOSC context as well. The interoperability model suggested by the European Interoperability Framework is applicable to all digital public services, and could be considered for EOSC. It includes four layers of interoperability: policy (legal), organisational, semantic and technical, a cross cutting component of the four layers, ‘integrated public service governance’; and a background layer, ‘interoperability governance’ (presented in figure 4). Different stakeholders could be positioned in different layers in the interoperability governance depending on which kind of roles they have in the EOSC governance framework: which kind of duties they have and which policies they should follow.

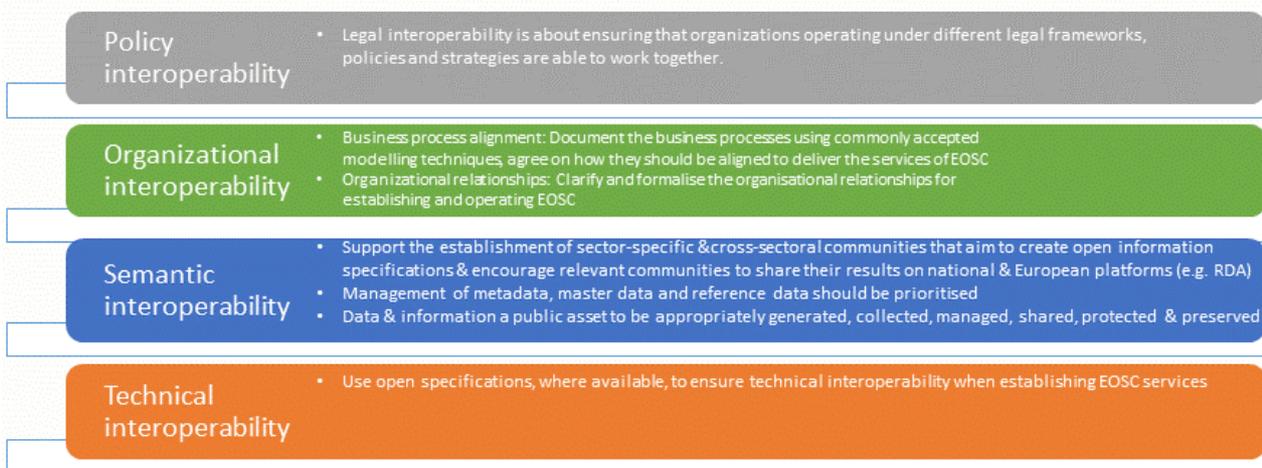
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<sup>10</sup> <https://ec.europa.eu/isa2/eif>



**Figure 4 – Interoperability governance.**  
 (Source: <https://ec.europa.eu/isa2/eif>)

In the figure 5 below the four layers adapted to EOOSC are demonstrated with some layer specific recommendations.



**Figure 5 – The interoperability model modified to the context of EOOSC and some layer specific recommendations**

The findings of this survey provide many aspects to be considered in the design and trial of the EOOSC governance framework and in the work of the EOScpilot Governance Development Forum. The usefulness of the suggested European Interoperability Framework in the design of EOOSC governance framework remains to be seen and will be evaluated in the discussions between stakeholders representing different layers in the EOOSC interoperability framework.

## ANNEX B. NOTES FROM THE EOSCPILOT GOVERNANCE DEVELOPMENT FORUM WORKSHOP IN HELSINKI, 9 MAY 2017

### Introduction

Per Öster, EOSCpilot WP2 leader, CSC – IT Center for Science welcomed the participants and explained the main aim of the EOSCpilot Governance Development Forum (EGDF), which is to enable stakeholders to contribute to the European Open Science Cloud (EOSC) governance development. He highlighted in particular the science cases and interoperability as motivators for EOSC and EOSCpilot - there are national facilities and resources that need to be visible and used on the European level.

This EGDF “pop-up workshop”, organized in conjunction with the 6th ERIC network meeting, focused specifically on research infrastructure’s needs and expectations on EOSC. Two panels facilitated the discussion. The panelists represented a number of research infrastructures from various research domains.

Per opened up for a virtual follow-up meeting in the fall to continue the discussion on this topic. More material and input from stakeholders to the EOSC governance development can be found on the website: eoscpilot.eu (click “about” to find the EGDF space).

### First Panel discussion: Research Infrastructures expectations on the European Open Science Cloud.

*Panel chair: Per Öster, EOSCpilot WP2 leader, CSC – IT Center for Science*

*Panelists: Franciska de Jong, Clarin ERIC, Christine Kubiak, ECRIN ERIC, Niklas Blomberg, Elixir ERIC, Volker Röhling, ECCSEL, Francisco Colomer, JIVE, Sanna Sorvari, ACTRIS ESFRI.*

### Panel topics:

- Which kind of services would you expect the EOSC to provide?
- From the point of view of the users of your infrastructure / researchers that your Research Infrastructure represents, which kind of benefits do you expect EOSC providing them?
- What is characteristic of your Research Infrastructure that should be taken into account when designing EOSC?

Per Öster initiated the discussion by mentioning that the scope of EOSC is still quite unclear, and that **research infrastructures’ concrete expectations on EOSC - what issues EOSC can solve, and what services to provide - will play an important role in helping defining what EOSC should become.**

Francisco Colomer, JIVE, described that there is a transition going on in their research infrastructure from developing everything themselves for the astronomy community (tools etc.), to start outsourcing part of the work to be able to focus on their core services. EOSC could share part of this work, **as cloud services for the astronomy community are much needed.**

**For the life science domain, the main benefit of EOSC is expertise**, according to Niklas Blomberg, Elixir ERIC. More of the non-technical expertise is needed, for instance in developing ways to achieve mutual recognition, by simple standards, codes of conduct etc., with a set of shared basic rules. EOSC could be useful for this kind of work.

Sanna Sorvari, ATRIS ESFRI, pointed out that they are interested in checking solutions (technical and non-technical) outside their own community, for instance on interoperability and workflows of data, where they can benefit a lot from collaborating with e-infrastructures. **EOSC could help in getting e-infrastructures more sustainable, for research infrastructures to get a similar counterpart**, since one major hurdle is that they have very different funding schemes. Per Öster noted that sustainability can be quite stable for some e-infrastructures, like CSC in Finland for instance and similar organisations in other countries, but the question is how the e-infrastructures’ activities are directed to the actions needed. Niklas Blomberg suggested to use

the expression **“Life cycle management” instead of sustainability, to highlight that some things should not exist forever.**

Volker Röhling, ECCSEL, stated that they are in the early stage of cloud storage and data reuse processes (related to CO2 capture, transport and storage technologies research), with a big range among the partners. He concluded that **some research domains currently experience a paradigm shift where researchers start moving over to cloud storage. EOSC could assist in provide some training how to make this shift,** for instance in curation of data, how to make data useful for a longer period.

Clarín ERIC has a big diversity of end-users for their language resources and other services, which was highlighted by Franciska de Jong. **EOSC could assist in very clear, user-friendly tutorials, help-desk support for the various services in order to attract this diversity of users.** If there were to be only training and no on-going support, there is a risk to miss a large part of the Clarín ERIC community. The diversity not only in different levels of skills but the multilingualism itself can multiply the number of questions user can put to services.

Christine Kubiak, ECRIN ERIC, described the concerns around **medical data, which needs specific consent,** since it is collected for clinical research. **Interoperability between countries and metadata, where there are currently no common standards for this kind of data are two main issues where EOSC could play a role.** Another issue is the confidential data, which needs high security. Due to these aspects, reuse of data poses quite special questions and concerns.

### ***The reuse of data***

Per Öster asked the panelist from ATRIS ESFRI about the reuse of data from a general perspective. **How much is data really reused, both within a community and across domains?** How to facilitate the reuse?

Sanna Sorvari stated that within their community, there is reuse of data but she wondered if there may be a bit too much “hype” around cross-domain data reuse, since she has not seen many examples of this. **Sanna concluded that if reuse of data across domains is to be the main aim of EOSC, she does not think it is going to be achieved. She recommended for EOSC to facilitate for interoperability first** and for this there is a need to discuss more on who are the users of EOSC.

Francisco Colomer mentioned that they have used meteorological data within astronomy as an example of successful data reuse across domains. **The limitations are that the astronomy data remains at the producer or at the telescope, and there is a risk that the data disappears, if it is depending on the resources of the provider. EOSC could help in making this data available in a more guaranteed way.** A pilot could easily be done in astronomy, since there are no privacy issues. The challenge lies more in the volume of data - computation and archiving are the most common problems in the astronomy community.

A person from the audience asked **how private sector can use data provided by research infrastructures.** Niklas Blomberg stated that **open science data is an important tool for local innovation in Europe. Private sector needs to be educated in how research data can be of use - modern knowledge economy.** Researchers should be trained to be able to approach companies and work with these issues. Sensitive access-controlled data does not mean it has to be totally closed.

### ***Role of cluster projects in EOSC governance set-up***

Per Öster asked the panelists their views on **how to use cluster projects in EOSC governance and set-up.**

Franciska de Jong described cluster projects as a good way to “simulate multidisciplinary collaboration”, and reminded that **joint problems and solutions in cluster projects can be used in EOSC.** Niklas Blomberg concluded that **organisational interoperability can be reused from cluster projects to the EOSC context.** In cluster projects it has been noticed that rather small issues can become big blockers for the users, for instance different access schemes. This has been addressed via organisational interoperability in cluster projects. EOSC is similar but on the macro level. Sanna Sorvari reminded us that the cluster project is not only a useful tool towards EOSC, it is also about community building for their own domain. **But cluster projects can**

**act as important dialogue partners for EOSC as well as providing practical example for the governance** (a board to agree on common strategies for instance). Sanna also called for **research infrastructures' to have a natural role in EOSC governance** as they are not just users, but also providers. **Many other panelists also underlined research infrastructures dual role as both users and providers in EOSC.**

### **Second Panel discussion: Optimal governance framework for EOSC from Research infrastructures' point of view**

*Panel chair: Per Öster, EOSCpilot WP2 leader, CSC – IT Center for Science*

*Panelists: Ron Dekker, CESSDA ERIC, Jan-Eric Litton, BBMRI ERIC, Fruzsina Molnar-Gabor, EMBL, Jonathan Taylor, ESS ERIC, Bahne Stechmann, EU-OPENSOURCE ERIC*

#### Panel topics:

- The optimal governance framework for EOSC from the Research Infrastructure point of view
- The characteristics of different Research Infrastructures that should be taken into account in the governance of EOSC
- Important aspects of the governance in EOSC?
- What the governance of EOSC should consist of
- Who should form the governance of EOSC
- What kind of funding streams (instruments) are foreseen to fund EOSC. How Research Infrastructures should contribute to this or should they?

Per Öster asked the panelists to tell about **experiences when forming ERICs and research infrastructures that could be useful when developing EOSC governance.**

Ron Dekker, CESSDA ERIC, explained that when forming the CESSDA consortium, they had to convince countries (national service providers) that they had an added value of being a consortium at the European level. This was hard and required a lot of work. He concluded that **EOSC should also work on making the added value clear and visible for different stakeholders.**

Fruzsina Molnar-Gabor, EMBL, mentioned that the harmonization expected to come with General Data Protection Regulation (GDPR) will not come. Instead, implementation will vary on the national level. **EOSC could have a role in showing the direction for how GDPR could be implemented.** Jan-Eric Litton, BBMRI ERIC, agreed that countries are on extremely different levels on preparing for GDPR implementation, and that there is a need to help the countries calibrate the unknown in the GDPR regulation.

Jonathan Taylor, ESS ERIC concluded that their governance has changed a lot over the years, and since EOSC Governance is even more complex, it will most probably change over time as well. He suggested for **EOSC governance to have some flexibility but to be based on some core values of what EOSC is about to deliver.** According to Jonathan, the **core of EOSC is the data and the end product is science.** Per Öster agreed that **governance of EOSC needs evolutionary thinking.**

Bahne Stechmann, EU-OPENSOURCE ERIC suggested for **EOSC to lead the discussion with funders and encourage funders to make it mandatory for the data to be available.**

Jan-Eric Litton described the scattered landscape in Europe as a challenge when forming BBMRI-ERIC, with different ministries responsible etc. Still he believed that there starts to be an understanding that is important to make the cloud environment part of personal data. The aim should be to make **cross border exchange of**

**personal data possible in Europe.** Per Öster stated that **it is the science cases that can make the dialogue happen between different ministries, and EOsc should try to give the science cases that can initiate such a dialogue.**

Ron Dekker, CESSDA ERIC, called for **the science community to be the target group of EOsc** and suggested rather to go for scientists than for countries when setting up EOsc governance. He suggested not only focusing on the policies, but also rather going for many pilots that may not all succeed when setting up EOsc governance.

Bahne Stechmann told about an experience in EU-OPENSREEN ERIC he believed is true for almost all ERICs: in the preparatory phase, they discussed with scientists for three years. After that, they went to the funders, and had the same discussion for five more years. The conclusion is that **EOsc needs to have the funders onboard from the beginning, and to be able to convince funders EOsc needs to find good arguments for the added value.**

Niklas Blomberg mentioned that ESFRIS are experienced in negotiation with Ministries versus science communities. He also stated that **there is no need to create new legal structures to solve data issues and similar, but instead for EOsc governance to leverage on what is already there.**

Jonathan Taylor viewed **EOsc added value as using data more effectively.** Per Öster asked if ESS ERIC take their multiple users into account in the governance of their facilities and Jonathan explained that they are taken into account in the operating strategy but not in the governance as such.

Some final remarks were that **EOsc governance should be as simple as possible**, and that it should reflect what EOsc actually wants, actively involving main stakeholders. **ESOC should follow the principle of subsidiarity and not redo what ERICs are already successfully doing.** There was also a suggestion for EC to take the responsibility of financing the first 2-3 years of EOsc for a successful start-up period.

## ANNEX C. NOTES FROM THE OPEN SCIENCE FAIR 2017: EOSCPILOT GOVERNANCE WORKSHOP IN ATHENS, 8 SEPTEMBER 2017

### Introduction

This 1.5 h workshop was a continuation of the Towards a Policy Framework for the EOSC: The EOSC Pilot Perspective Workshop arranged earlier the same day. There were twenty-eight participants.

Matthew Dovey started by briefly presenting the EOSCPilot and the governance work package. He explained that the project was constructing a framework to allow engagement with all stakeholders including both consumers of EOSC services and resources (such as research communities) as well as providers of services and resources into EOSC. It was also necessary to accommodate both top down and bottom up driven governance models.

There are comparisons between any prospective EOSC governance with the governance of the Internet – this is mentioned in the first EOSC High Level Expert Group Report. A good infographic of internet governance has been created by ICANN<sup>11</sup>

A key aspect of internet governance is that “No one person, organization or company governs the digital infrastructure, economy or society. Digital governance is achieved through the collaborations of multi-stakeholder experts acting through polycentric communities, institutions and platforms across national, regional and global spheres”

The digital governance infographics has three layers (Economic and Societal; Logical; and Infrastructure). For EOSC, it was felt that there should be four layers (Research Community; Thematic Services; Data and Content; and e-Infrastructure). One purpose of the workshop would be to test the usefulness of this structure.

Athanasios Karalopoulos (EC Policy Officer) continued the presentation he gave in the previous session. He mentioned again the June 2017 Summit that brought together the stakeholders to agree on the vision of EOSC and to exchange ideas concerning the next steps towards the implementation of the first stage of EOSC. EC in agreement with the stakeholders are implementing the governance structure for the operational phase of the EOSC (that is 2018-2020). After 2020 a different kind of governance will be invoked.

The EOSC Declaration includes a section about governance where a three-layer governance is proposed: strategic layer (where EC and member states are directly involved), executive/operational layer (including a governance board at the executive level and relevant working committees, such as thematic and functional) and advisory layer (Stakeholder forum). The three layers will be coordinated/supported by a coordination structure.

The draft of the Roadmap that will be made public by the end of December will include the proposal for the governance; after that there will be 3-6 months to improve the proposal so that by the end of May the roadmap will be finalized. It is expected that the new governance structure to be functional by the beginning of Austrian Presidency.

EOSC Stakeholders' Forum is open to all categories represented at the summit plus those endorsing EOSC Declaration and plays the role of Advisory board. The EC planned a meeting on 28-29th of November, initially built on the EOSCPilot project (1st Stakeholder Engagement Event). The Forum is conceived to help shaping output/decisions of EOSC Governance Board and to support, implement and monitor the commitments taken by EOSC stakeholders. During this meeting, a more concrete proposal for the governance will be presented and discussed with all the stakeholders. EC will define the application procedure and working modalities of the Forum.

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<sup>11</sup> <https://www.icann.org/news/multimedia/1563>

A Funding proposal draft for supporting the delivery of EOSC by 2020 is, at the moment, in preparation and foreseen to be ready by the end of October. The proposal consist of 6 action points:

1. INFRAEOSC-04-2018 - Connecting ESFRI infrastructures through Cluster projects (Opens 05.12.2017/ deadline 22.03.2018)
2. INFRAEOSC-05-2018-2019 – Support to the EOSC Governance (Opens 05.12.2017/ deadline 22.03.2018)
3. INFRAEOSC-01-2018 – Access to commercial services through the EOSC hub (Opens 05.12.2017/ deadline 22.03.2018)
4. 4.INFRAEOSC-05-2018-2019 – Support to EOSC governance (opens 19.07.2018/deadline 21.11.2018)
5. INFRAEOSC-02-2019 – Prototyping new innovative services(opens 20.10.2018/deadline 29.01.2019)
6. INFRAEOSC-06-2019-2020 – Enhancing the EOSC portal and connecting thematic clouds (opens 14.11.2018/deadline 20.03.2019)

## Discussion about the framework

The participants divided into four groups to very briefly discuss the governance framework with four layers presented by Matthew Dovey. The question was if they could relate to the framework and where they saw their own affiliation in this framework that was based on four layers: the research community, the thematic service layer, the data and content and finally the e-Infrastructure layer. In all groups there was some confusion, since the participants often considered themselves (or their organizations) to cover several of the layers, often all four. Also the relation between the governance model presented by Karalopoulos and this framework was difficult to grasp and was unclear, until Dovey clarified it.

Some participants made remarks concerning the importance – when talking about governance - of focusing on architecture, structure, service provision etc. as these are the actors more fit into the structural/operational group of EOSC governance. Also, some relevant actors are missing: societal, end-users, citizen science to name few.

Dovey answered the concerns by showing another slide (with different layers) that he initially chose to suppress due to its apparent complexity. This considers the different stakeholders, the different roles the stakeholder might play (including consumer, provider, funder etc.), the areas of interest they might have in the governance.

Karalopoulos commented that the governance structure should be inspired by the services provided, not by the system. If, in the present format, the layers are not all fed, then it's a problematic, nonfunctional governance structure.

Some questions from concerned citizens: Are the citizens included in this ecosystem and how? How the interaction and collaboration between layers is handled?

## Panel discussion

Panelists: **Athanasios Karalopoulos** - EC, **Donatella Castelli** – CNR, **Penny Labropoulou** – CLARIN, moderator Jessica Parland-von Essen, CSC

**Penny Labropoulou** introduced herself and CLARIN. Her main message was that a strong point for the governance has to do with collaboration and interaction between layers. How to create proper working groups (starting from the research communities) able to pass the information between them and then to the next level.

**Donatella Castelli** pointed out that rewarding mechanisms should be in place and to be considered an important factor. She commented on what Labropoulou said that CLARIN offers services at different levels (from researchers to infrastructures) and consequently CLARIN should be in the governance. EOSC is open in terms of services. The governance should decide what the services to be provided by EOSC are and who operates them. "EOSC is a system of systems". According to Castelli we should discuss about the rules that

establish who is part of EOsc, how trustworthy is a participating organization, who is providing the services for monitoring and mandating the rules of engagement.

**Athanasios Karalopoulos** started his speech by saying that EOsc should be open in terms of transparency, decision-making approach, clear possibilities, clear processes and clear definition of layers and also who can participate. Citizens should be part of the governance, especially in the strategic role. In creating the governance, there are some requirements that have to be considered, together with the definition of some clear success criteria and together with a clear methodology on how to create a governance.

Jessica Parland-von Essen asked how to involve citizen science and gave as an example of Wikipedia or Wikidata. Furthermore a question how to ensure citizens access was brought up.

A participant from the audience commented that communities like Wikipedia have a clear governance structure and engagement with third parties. They developed themselves as interaction/communication platforms. We should look at what they have done and learn. However, there are other citizens that are not part of a community. They should also be able to access EOsc and also have some influence.

To conclude **Penny Labropoulou** stressed that the governance has to meet some requirements: it has to be as less bureaucratic as possible, adaptable to changes and flexible.

## ANNEX D. NOTES: EOSCPILOT GOVERNANCE DEVELOPMENT FORUM WORKSHOP IN TALLINN, 2 – 3 OCTOBER, 2017

### INTRODUCTION

The EOSC and EOSC governance are being designed at the moment. In the EOscpilot governance development forum activities the representatives of all stakeholder groups are taken on board in the discussion and definition of how the EOSC should be governed. In the EOscpilot governance development forum workshop that took place on October 2 – 3, 2017 in Tallinn, in conjunction with the e-Infrastructures Reflection Group Workshop under the auspices of the Estonian EU Presidency of the European Union, national e-IRG delegates, representatives of member states, advisors to the ministry as well as scientists and service providers were invited to take part in the debate and plan of the future EOSC. There were all together 53 participants in the workshop.

In this document the discussions of the two panels that took place during the first workshop day are reported.

### First panel discussion: Member states' role and engagement in the EOSC governance framework

*Panel Chair: Leif Laaksonen, CSC - IT Center for Science*

*Panelists: Toivo Räm, Estonia; Gabriele Von Voigt, Germany; Françoise Genova, France; Hanifeh Khayyeri, Sweden; Ivan Maric, Croatia.*

#### Panel topics:

- What is the position of your country or organization towards the EOSC declaration that has been produced by EC as outcome of the European Open Science Cloud Summit (12 June 2017)?
- Does your country or organization support the declaration? Are there some particular aspects in the declaration that you would like to highlight?

Prior to the panel discussion Matthew Dovey, JISC, EOscpilot task leader working on the Federated governance framework for the EOSC, presented the latest developments in drafting the EOSC governance framework<sup>12</sup>, which panelists were invited to comment on.

All member countries represented in the panel expressed their support in the building of EOSC and see that the EOSC declaration has good topics although not all have official position on it, yet. The importance of Member States and Associated Countries in the governance and decision making of the EOSC was highlighted in the discussion. There is a need to find and clarify a proper funding model for the EOSC. The panelists identified the ERAC Standing Working Group on Open Science and Innovation as a proper vehicle for discussion between the EC and MS on the development of the governance model for the EOSC. The wise use of resources was stressed, not duplicating things already done in other initiatives. There should be a clear focus on interoperability of all layers (policy, organizational, semantic, and technical) and member states should agree on mechanisms for interoperability with the support of European Commission to obtain sustainability of the EOSC. ESFRI forum, e-IRG and RDA were identified as important stakeholders for the EOSC.

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<sup>12</sup> [https://eoscpilot.eu/sites/default/files/eosc\\_governance\\_framework.pptx](https://eoscpilot.eu/sites/default/files/eosc_governance_framework.pptx)

## Views of different countries

### **Germany**

Germany is keen on EOSC, but there is no information if EOSC declaration has been signed, yet. It is the initiator of the GO FAIR initiative<sup>13</sup> with the Netherlands. France is the third country that has now joined the initiative. It is also very active in implementing FAIR principles. When looking at the European scene usually the governance of infrastructures is handled in big European projects, but member countries still have a strong position as enabler since the investments come from the member states. This should be taken into account in the EOSC as well.

### **Estonia**

In Estonia the Estonian Computational Infrastructure was established in 2011 when the four major IT institutes joined their force together. Structural funds were used for realizing the infrastructure. There is a national open science initiative run by the research council. Estonia supports the building of the EOSC and sees that the EOSC declaration has good topics. Member states have an important role in the EOSC governance and this should be visible in the upcoming governance model. Another pressing issue is to find a proper funding model for the EOSC. Estonia has experience of designing large infrastructures and systems, for instance the example of X-Road<sup>14</sup> of Estonia could be used in the design and implementation of the EOSC.

### **Sweden**

Sweden has no official position on the EOSC declaration yet. However, the EOSC declaration has topics that are in line with the Swedish government objectives in the area of open science and research data management. The resources should be used wisely when developing the EOSC in order not to duplicate things that are already under work or done in FAIR and other initiatives. The ERAC Standing Working Group on Open Science and Innovation has been identified as a proper vehicle for discussion between the EC and MS on the development of the governance model for the EOSC, but not all member states are aware of this.

### **France**

France agrees with the Declaration sections regarding data culture and FAIR data. The role of the RDA and of other organizations such as the W3C and FORCE11 has to be emphasized. The implementation level raises many issues. In particular, the EOSC should federate resources, but not integrate them in a single framework. It should build on existing resources at the disciplinary, national and local level. Moreover, the Declaration lacks of a clear focus on interoperability.

- Member States could agree on interoperability mechanisms at different levels (technical, semantic, operational and legal), as described in the European Interoperability Framework.
- These interoperability mechanisms will help to share and reuse the national e-infrastructures at a pan-European level.
- The European Commission should support these interoperability mechanisms to achieve the sustainability of the EOSC.
- Open science includes open access to publications, which should be fully part of the EOSC, and this has components also at the local, national and disciplinary levels.

The governance and funding sections of the Declaration need to be revised. For France, the governance of the EOSC should be endorsed by the Member States and Associated Countries through the ERAC SWG on Open Science and Innovation. EOSC governance should be inspired by the governance set in place for research infrastructures in general and in ESFRI more specifically. It should include formal gathering of the

<sup>13</sup> <https://www.dtls.nl/fair-data/go-fair/>

<sup>14</sup> X-Road is the backbone of e-Estonia, which allows the nation's various public and private sector e-Service databases to link up and function in harmony. <https://e-estonia.com/solutions/interoperability-services/x-road/>

scientific users' needs (beyond users involved in EOsc). The ESFRIs should be considered as a major component of the EOsc and the ESFRI Forum should be an important stakeholder of the EOsc.

France considers to structure its national e-infrastructures into a French Open Science Cloud. France wishes to nominate a representative at the ministry level in the Board of Funders of the EOsc. France encourages its scientific communities to be involved in the EOsc through the ESFRIs. Some of the research infrastructures in the national roadmap are or include disciplinary data infrastructures and the way they will interface with EOsc has to be assessed.

## Croatia

The Croatian representative expressed his criticism on EOsc and EOscpilot: There is very little information available before getting the invitation to participate in the panel. There is no critical mass of organizations or people involved and engaged in the development and discussion about EOsc. There is a need to communicate to countries, research communities and institutions. There are nice visions but no details are existing. The governance model should be a representation of countries, not federation of countries. An all-inclusive model should be in place. A much better understanding of governance and business models are needed to be able to discuss about the details of EOsc and its governance. For instance, how to combine 40 different business models of member states on how services are provided to researchers at national level?

In the questions, answers and comments part of the panel discussion the following themes were touched upon:

- It was clarified that in the EOsc governance member states and associated countries have the same position. This will be corrected in the EOsc communication and documentation and where associated countries are not at the moment mentioned in the text in the parts where member states' role is described.
- The communication strategy of the EOsc was discussed. How to inform about and engage researchers at national level with the EOsc? There could be EOsc champions in the same way that digital champions<sup>15</sup> were established to promote and implement the Digital Single Market at member state level. Dissemination should be on focus when the EOsc is more defined: How to tell about things at the moment, when you do not know what to answer when different questions arise? However, inclusiveness is important that all not only 'insiders' will engage to the development of EOsc.
- It was clarified that the stakeholder forum model in the governance framework is based on the RDA forum model. In the EOsc governance framework context there are many different tasks and players involved, for instance one needs to define how the services should interoperate. There is a difficulty in balancing in top-down and down-to-top approaches. Member countries and EC want to have their say as well. There are different actors on different levels: service providers communicating with researchers, EC with policy makers etc.
- It was pointed out that we should build on existing infrastructures and they should become interoperable. It is important to agree on the standards to make these existing parts interoperable. This development cannot be community driven to be sustainable and realizable. Funding comes from the governments, so they are at the driver's seat. A distinction should be made between general access to 1) the infrastructure, 2) services, and 3) access to data. There might be different access and pricing policies involved: Access to the point of use free of cost and additional costs when using different services and accessing data. With respect to the investment we should also consider and define the actors accordingly: 1) Who we expect to fund EOsc, 2) who will use the services and 3) who will pay the access to whom.

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<sup>15</sup> <https://ec.europa.eu/digital-single-market/en/content/about-digital-champions>

## Second panel discussion: Principles of engagement for EOSC from users' and service providers' point of view

*Panel Chair: Andrew Smith, Elixir Europe*

*Panelists: Yannick Legré, EGI.eu; Ari Asmi University of Helsinki and ICOS ERIC; Damien Lecarpentier, EUDAT; Bob Jones, CERN; Françoise Genova, Strasbourg Astronomical Data Centre CDS*

### Panel topics:

- How is access to your services provided currently? For users, how do you access the services you require?
- What are the rules/principles around using those services?
- Are there legal/financial/ethical/organisational bottlenecks that would hinder your participation as a service provider in EOSC?
- Do different service types (for example, cloud, training, databases, interoperability) require different Principles of Engagement?
- How can cost-recovery be managed, especially for access to services provided in a different country to where researchers are based?

At the beginning of this session Andrew Smith introduced the EOSCPilot on-going work in the area of Principles of Engagement<sup>16</sup> and some prevailing questions. In the panel discussion it was underlined that the EOSC will be built on existing credible services and infrastructures. There is a clear division of duties among the projects in this field: eInfraCentral is designing a framework for EOSC services and EOSC-hub will build interoperability between e-infrastructures and Research Infrastructures. It was concluded that the harmonization of all access policies is challenging, but a definition of 2 to 3 access types to which the services could be categorized should be feasible. Furthermore, since the EOSC is intended to be inclusive, it should be that also from the service providers' point of view. A minimum set of principles should be set for all providers, and another set of principles for those service providers, who want to provide more sophisticated, EOSC-compliant services as described in the draft EOSC governance framework<sup>17</sup>.

Françoise Genova from Strasbourg Astronomical Data Centre shared their experience of researchers needs in her speech. The researchers want to use computing at local, national and European level. The Interface, single-stop-shop with all the interfaces that the EOSC will provide will be very attractive for the researchers. From the user point of view the research community specific services are equally important as computing, both kind of services should be part of the EOSC catalogue of services. Above all, services really have to work to be used.

Ari Asmi representing ENVRI cluster and ICOS ERIC pointed out the importance of provenance to the data. The users of their infrastructure must be ensured that the data is coming from them and not from someone else. He also brought up the challenge of connecting access policies together. The idea of providing generic services through the EOSC sounds a good idea, but from his experience there is a lot of work to make it work. Another question is that are the member states willing to invest in building these generic services and will they be worth the investment?

Bob Jones from CERN shared with the audience the experience of Helix-Nebula<sup>18</sup> and how principles of engagement are set in it. There are two type of services: 1) general open access services (a repository, where

<sup>16</sup> [https://eoscpilot.eu/sites/default/files/eosc\\_wp2wp3\\_rules\\_engagement.pptx](https://eoscpilot.eu/sites/default/files/eosc_wp2wp3_rules_engagement.pptx)

<sup>17</sup> [https://eoscpilot.eu/sites/default/files/eosc\\_governance\\_framework.pptx](https://eoscpilot.eu/sites/default/files/eosc_governance_framework.pptx)

<sup>18</sup> The Helix Nebula Initiative is a partnership between industry, space and science to establish a dynamic ecosystem, benefiting from open cloud services for the seamless integration of science into a business environment. <http://www.helix-nebula.eu/>

you can store your data, limited capacity to each user, access to LHC data, subset of data), and 2) access limited through federated identity management for the high-end physics community. As the policy for getting access through authorization there is a quota for different research infrastructures that is proportional to their investment. There are documented legal, financial and technical requirements for principles of engagement that are agreed across ten sponsors from different disciplines. One of the definitions is the service agreement. The barriers in the Helix-Nebula case that have been encountered are on the policy level of the network layer. It is not possible to transfer directly data to private providers. An agreement must be reached between all service providers about which kind of information is shared about users.

Jones also raised the question of the public service providers in the EOSC: Will public service providers be able to sign service level agreements? Furthermore, when using the EOSC the users should be able to migrate from one service provider to another if they are not happy with the service.

Yannick Legré from EGI.eu pointed out that many public service providers are improving their service offering and some have taken an insurance for the case of not being able to meet the service level agreement. For example EGI.eu has been awarded with two ISO certifications (ISO 9001:2015 and ISO/IEC 20000-1:2011). Damien Lecarpentier from EUDAT debated if we then should take for granted that we exclude public service providers from the EOSC if they are not able to meet service level agreements. Or should exceptions be made or the principles of engagement be set loosely enough to allow more providers to join the EOSC? In the EOSCPilot service development the vision is that the EOSC must be as inclusive as possible: A minimum set of principles will be set for all service providers, and another set of principles for those service providers who want to provide advanced services.

Asmi suggested that funders must be the drivers of the EOSC development. Otherwise infrastructures may be reluctant to develop their services towards compatibility to the EOSC and make different investment decisions of the available scarce resources. He also underlined that we need to demonstrate how the EOSC will benefit the field. Branding the EOSC for researchers and pay attention to dissemination. We should make the researchers ask for EOSC services!

Genova raised the issue of what is a service in the EOSC? There should be principles of engagement not *only* to IT services but also for scientific community and user group specific services. The experience has showed that from the user point of view the community and user group specific services are as important as computing services, such as PRACE. Andrew Smith pointed out to this that the governance framework draft presented earlier gave some perspectives and solutions to this: We need to have definitions of different kind of services, the EOSC compliant and EOSC compatible services, etc.

Genova continued that the complexity of the EOSC is in the diversity. There are many kind of services and many scientific communities, but not all are organized. The core is the interoperability of local, national and European level services and infrastructures. If there is a disciplinary infrastructure, the users should follow their principles of engagement and rules to ensure the FAIRness of data. If there is no such a disciplinary infrastructure or organization, the researchers / users of this field will follow generic rules of data management.

Carmela Asero from the European Commission highlighted at the end of the discussion how cross-disciplinary-usage is more complicated than intra-disciplinary. How can we scale up a service of such a community as Genova represents? It is service provider's responsibility to deal with the principles of engagement, access policies and barriers, and negotiating with funders and other parties concerned. This work should be done for the potential cross-disciplinary users to promote and widen the group of users for the infrastructure.

## ANNEX E. EOSCPILOT GOVERNANCE DEVELOPMENT FORUM CHARTER

Version 1.0

### Background

EOSCpilot - European Open Science Cloud for Research Pilot project supports the first phase in the development of the European Open Science Cloud (EOSC) that the European Commission has launched as stated in their communication of April 19, 2016 *“to offer Europe’s 1.7 million researchers and 70 million science and technology professionals a virtual environment to store, share and re-use their data across disciplines and borders.”* Once in operation EOSC *“will make it easier for researchers and innovators to access and re-use data, and will reduce the cost of data storage and high-performance analysis. Making research data openly available can help boost Europe’s competitiveness by benefitting start-ups, SMEs and data-driven innovation, including in the fields of medicine and public health.”*

EOSCpilot is a two-year EC funded project that will establish the governance framework for the EOSC and contribute to the development of European open science policy and best practice. It will develop a number of demonstrators functioning as high-profile pilots that integrate services and infrastructures to show interoperability and its benefits in a number of scientific domains. EOSCpilot will engage with a broad range of stakeholders, crossing borders and communities, to build the trust and skills required for adoption of an open approach to scientific research. These actions will build on and leverage already available resources and capabilities from research infrastructure and e-infrastructure organisations to maximise their use across the research community.

### Governance Development Forum

The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSC pilot will design and trial a stakeholder-driven governance framework with the involvement of all stakeholders including: research communities, research institutions, research infrastructures including e-infrastructures, commercial and non-commercial service providers and research funding bodies. This will then shape and oversee future development of the European Open Science Cloud.

The objective of governing the development of EOSC reaches beyond the limits of a project structure. Any approach also needs to consider the various and specific needs that those scientific communities not yielding the benefits of open science and stakeholders not resourced on the EOSCpilot grant. Only through an inclusive practice the ultimate aim of an EOSC that provides benefits for all scientific communities within the European Research Area can be realised.

In order to overcome this challenge EOSC pilot will establish a Governance Development Forum to enable all different stakeholders to contribute to the development of the EOSC governance framework, a work steered by WP2 Governance of the project. The Governance Development Forum is not static, but will grow as the project moves along and the circle of stakeholders widens.

The Governance Development Forum will form a platform for inter-stakeholder-dialogue. It is mandated to function and support the establishment of the EOSC. The Governance Development Forum will meet both virtually and face-to-face. Three thematic workshops (preliminary dates in June 2017, October 2017 and May 2018) will be organized to allow governance framework to be elaborated from the stakeholder perspective. Close interaction between the forum and EOSC pilot is foreseen in the whole process of establishing governance principles and structures for EOSC.

### How to participate

- In targeted meetings by invitation that solicit requirements, rules of participation and engagement etc.
- By contributing statements and positions papers

- By providing feedback to published documents and reports as they come out of the EOSC pilot activities, e.g. stakeholder mapping and analysis, policies and skills
- The latest development and discussion about governance framework is published in a dedicated page under the EOSCpilot website where all interested parties can follow the progress.

### More information

EOSCpilot - European Open Science Cloud for Research Pilot. <http://www.eoscpilot.eu>

European Commission - Press release: European Cloud Initiative to give Europe a global lead in the data-driven economy [http://europa.eu/rapid/press-release\\_IP-16-1408\\_en.htm](http://europa.eu/rapid/press-release_IP-16-1408_en.htm)

Realising the European Open Science Cloud. The first report and recommendations of the Commission High Level Expert Group on the European Open Science Cloud

[http://ec.europa.eu/research/openscience/pdf/realising\\_the\\_european\\_open\\_science\\_cloud\\_2016.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/openscience/pdf/realising_the_european_open_science_cloud_2016.pdf#view=fit&pagemode=none)

## **ANNEX F. NOTES FROM THE EUDAT CONFERENCE “PUTTING THE EOOSC VISION INTO PRACTICE” SESSION “PILOTING EOOSC GOVERNANCE FRAMEWORK” 25 JANUARY 2018, PORTO, PORTUGAL**

### **EOScpilot on Governance by Per Öster**

Per Öster told the EOScpilot project will establish the governance framework, develop pilots integrating services and infras, to demonstrate interoperability, and engage stakeholders, to build the trust and skills. All this will provide an open approach to scientific research.

The Governance work package (WP2) includes federated governance framework. After drafting of governance model and draft Principles of Engagement, the project going for piloting to seek feedback. There is also preparatory work for business models ongoing.

Öster highlighted active contribution from all stakeholders is required and highly welcomed.

### **Draft Governance Framework for the EOOSC**

Matthew Dovey presented the EOScPilot’s vision on EOOSC Governance. It must be

- Capable of supporting the definition, management and coordination of EOOSC
- Defining organizational, operational and managerial interoperability
- Architecture ecosystem
- Same principles of openness, transparency

Dovey told much of 2017 was spent in consultation with stakeholders. The feedback from the consultations highlights

- Importance of involving all stakeholders
- Simple and flexible governance
- Layers and interoperability between them
- Different roles and responsibilities of stakeholders
- European interoperability Framework
  - Importance of the Member states and Associated countries
- Unclear relation between the governance model described in EOOSC declaration and the governance framework draft

Dovey noted stakeholder roles include e.g. consumer, provider, decision-makers. The roles are overlapping and may be simultaneous. The roles are neither classes nor types of stakeholders.

A community governance model aims at getting things done, engaging citizens and measuring results. If presented as circles, there are intersections.

The proposed governance model draft has three layers: 1) Strategic, 2) executive/operational, 3) steering (=advisory, telling what is needed). The roles of the actors in these layers are consequently 1) measuring results, 2) getting things done, 3) engaging community.

The name of the steering/advisory (third) layer of the governance model is still open. The ideal name may perhaps be somewhere between the two, in terms of the implied “strength” of influence of the body - but currently we lack a suitable word to describe this. Suggestions are very welcome.

In the Community Governance Model, there are overlapping circles of governance layers, and the EOsc resources are in the middle, thus the core of EOsc.

EOsc resources include service, data, and people. There are three types: Compliant, Compatible, and External resources, thus the core, supported, and externally supported resources.

The presentation continued interactive with the Sli.do tool. The questions and their responsive answers were:

Slido: 1) Do you agree with the 3 layers: steering, strategic and executive? Yes 64%, No 31%, No 5% (n=23)  
1 vote “no”- A person who voted such explained he feels the name “steering” is misleading for that layer.

Slido 2) Names of the steering layer was proposed by the audience:

Guidance (comment: guidance has no power, steering has)

Driver

Stakeholders

The community forum

Slido 3) Consumers and providers on the same layer, given that many communities play both roles?

Yes: 72, No: 24, Idk:4 n=25:

A commentator from the audience noted that developers don't want to be seen as consumers. In the R&E environment where it's a sort of co-development community, having the providers and consumers in the same layer seems appropriate.

The presentation was followed by a lively discussion.

### **Principles of Engagement for the EOsc by Pascal Kahlem, Andrew Smith, Damien Lecarpentier**

Background of the study:

- Aims at identifying and propose a preliminary set of Principles of Engagement for Service Providers and Users
- Joint effort WP2-T2.3.1, WP5-TS.3
- A complementary task
- Provide feedback
- Main principle of engagement for SPs
  - EOsc service shall be registered in the EOsc service catalogue
  - Recommendations on the catalogues: Task 6.2 for data registers, task 5.3 for services
  - To be registered, the service must be described
  - Rationale: inclusiveness, transparency, and ease of access
- Service specifications and requirements include

- 1) service specifications what do we want to know about the service? (maturity, availability, functionality terms of use...)
  - 2) service additional requirements: what do we value for EOOSC (e.g. quality and performance, compatibility, the user AAI), etc.
- Proposed specific requirements include
    - MR metadata
    - Terms of use /access policy
    - Accessibility
    - Portability
    - Access cost and charging module
    - Quality of service
    - Relation to users
  - Principle specific to Core Services of EOOSC
    - Core resources are “relied” on for EOOSC operations
    - May have to adopt stricter standards or service requirements
  - Principles of engagement for users
    - 1) data sustainability
    - 2) acknowledgement of use of EOOSC services
  - The presenters provided a SurveyMonkey link

The interactive session questions were:

Q1: Do you agree with our strategy: lightweight and inclusive approach with minimum service specifications, and add incentives to promote EOOSC values/principles over time?

(majority yes, 65%, no/idk: 18%).

In the discussion, there was a question, how well the Principles of Engagement will work against the requirements imposed by existing legal Regulations etc. - especially GDPR. It was noted it's very hard to be entirely lightweight in the face of legal requirements. All the service providers will however be required to be fully compliant with GDPR, so EOOSC PoE can assume this/require it (but without imposing additional requirements of its own).

It was also noted we should find some mechanism for avoiding the user having to read and agree to (e.g.) 20 sets of Terms of Use, for each service they will use through the EOOSC to achieve their end-to-end needs. We need to think about what we should impose for the EOOSC core, compliant services. Kahlem responded it is OK for the core EOOSC services but we need to think about the cost of this.

A question concerned what about consumers or customers (as opposed to users) of services - e.g. an RI buying a service on behalf of its users? Lecarpentier responded he feels the set of core services will be quite limited - e.g. to 10-20. He says it's quite manageable to write Terms of Use for those. Much more challenging will be to impose or enforce strong rules for the vast range of services outside this core. It is important to distinguish between these two sets. Also, issue of single catalogue of EOOSC services, versus a catalogue-of-catalogues which would require a mapping of terms etc - another job for the EOOSC core.

Q2: Which minimal set of information would you need, to select/consume an EOOSC service ?

Discussion of importance of “availability” of a service - i.e. user needs assurance it will continue to be available and won't suddenly disappear or stop being supported. The GDPR - because it's a legal Regulation, compliance with it should be able to be assumed, rather than EOOSC having to play an

enforcement/verification role. It was noted one model doesn't fit all, domain-specific services, that's why service catalogues are required. Importance of vocabulary and metadata was stressed. Since one of the drivers for the EOsc is to encourage cross-discipline re-use of data however, it is important to ensure that the PoE for each discipline are not difficult to access/understand for a user from a different discipline.

Q3: From your point of view, is the proposed approach suitable for promoting open science?

Yes: 100% (n=10)

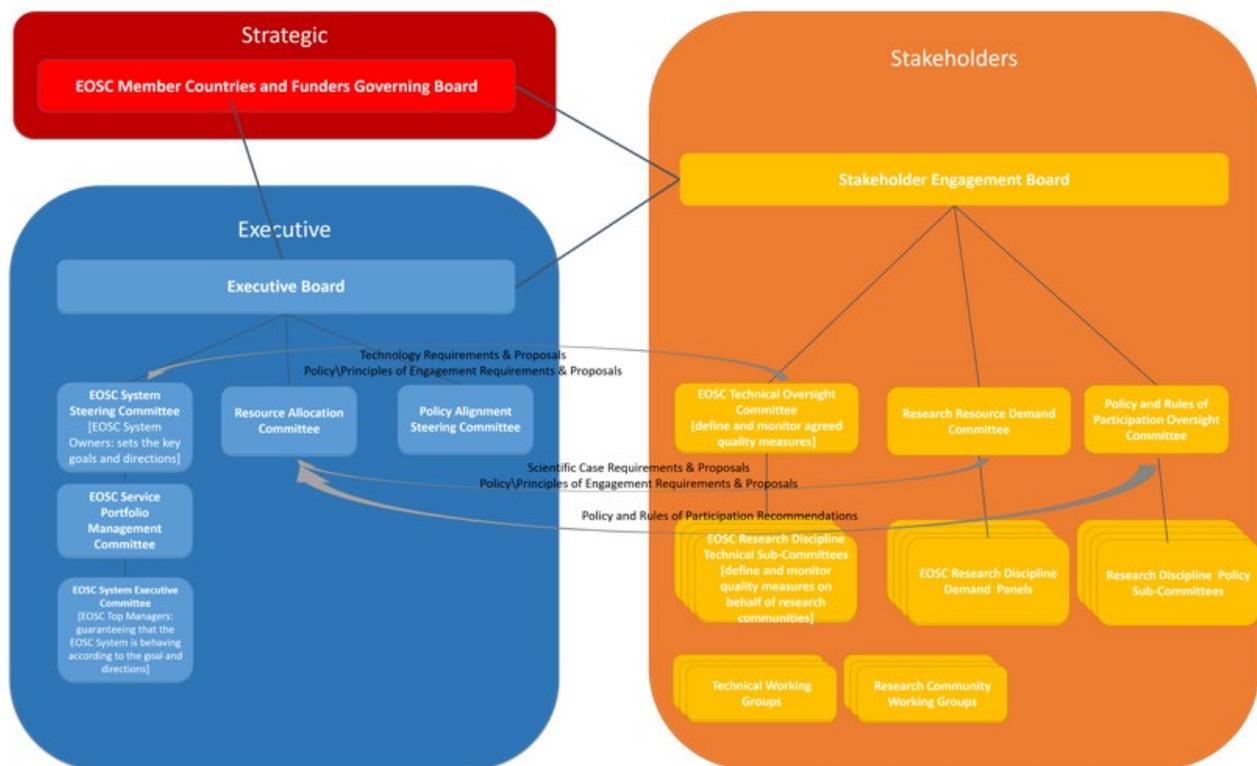
## ANNEX G. REMARKS FROM THE EOSC STAKEHOLDER FORUM'S GOVERNANCE PANEL 21.11.2018

Compiled with Päivi Rauste (CSC), Jesse Oikarinen (CSC), commented by Silvana Muscella (Trust IT Services)

Governance within EOSC needs to be carefully thought of, and there are multiple examples of local experiences that should be taken into account stated **Per Öster**, lead of the Governance work in EOSCpilot. He chaired the panel to discuss the future of EOSC Governance in the Stakeholder's Forum 21<sup>st</sup> November. "EOSC governance will have implications for the whole European research, whether we succeed or fail. Therefore, governance is important!"

The panelists involved in the session have extensive experience and were representing considerations from various fields of stakeholders.

**Matthew Dovey**, Head of e-Infrastructure Strategy at JISC, has drafted a vision for EOSCpilot project how the EOSCpilot Governance Framework looks forward to how the governance needs to involve after the implementation period post 2020. It is a living document where everybody who wants can comment in the Github when the deliverable is published. (See figure below)



**Marie Timmermann** is a Senior Policy Officer at Science Europe addressing research funders and research performing organisations, responsible for various aspects of the Open Science agenda, research data and EU legislation. Timmermann pointed out that it is also crucial to make the business model clearer. There should be discussion about the EOSC post-2020 financing model already now.

Some recommendations within the 2<sup>nd</sup> EOSC HLEG report have been considered already on post 2020 financing model.

**Tiina Kupila-Rantala**, Deputy Managing Director at CSC, is responsible for EOSC-hub strategy work. Tiina wanted to emphasize the stakeholder side. "Not only the bodies in the model are important but also the processes, workflows between the bodies are of crucial importance. Processes and workflows are actually

more important than the bodies and therefore the processes should be defined well. She underlined not to draw too tiny lines.” which is difficult to interpret and to implement.

Trust-IT Services CEO and 2nd EOSC High-Level Expert Group Chair **Silvana Muscella**, together with the other HLEG experts have finalized the final report published and launched at the EOSC launch during the Austrian Presidency of the Council of the European Commission on Friday 23<sup>rd</sup> November. According to her it is important to analyze who are the actual stakeholders and what is their role. A user-centered approach is the key for EOSC to succeed, organically approached, together with the element of access to reputable and trusted data through peer review.

An overview on responding to having a Minimum Viable Ecosystem (MVE) for EOSC is the right approach to take. Planning an MVE includes: Identifying & understanding the Business needs; Finding the opportunities which includes; Identification of users, their actions & desired results as well as identification of pains & gains of each action. The following user’s input may be taken into consideration from the user analysis divided into:

- European Researchers
- Software Developers
- Infrastructure Providers
- Research Funding organisations

The following table, in the final HLEG report provides details around the action and the story behind the users in supporting an MVE. -

User/provider	Actions	Story ending
<b>End User</b>	Register for use* Describe data Discover service* Find data Transform data Run analysis* Store results Pay for service Sponsored to use a service	Evidence based on research accomplished, followed and cited
<b>Service developer</b>	Identify user needs Create access enabling services (e.g. marketplace, helpdesk, authorisation, identification, workflow, block chain ...)* Create some research enabling services* Publish service* Provide consulting about service Charge for service	Investment into development of service returned
<b>Research funding organisation</b>	Identify user needs* Recognition opportunities Aggregation services	Acknowledgement of the EOSC as central reference in research funding themes
<b>Core Infrastructure provider</b>	Attract service hosting* Charge for hardware resource use	Well-exploited, secure, interoperable and searchable infrastructure

Matthew Dovey commented that the structure of the 'Executive' group reflects the 'Stakeholders' group as the executive body is implementing the decisions made by the stakeholders. Openness is the key in the model, there shouldn't be a closed community. Stakeholders need a wider role.

The audience also posed quite a few questions and comments. There was significant discussion regarding universities and researchers' role in EOSC. The president of EURodoc, Gareth O'Neil and Lidia Borrell-Damian, director of Research & Innovation at the European University Association suggests EOSC is not well enough known among researchers so getting the universities and institutes involved, on a much higher level was considered important.

Per Öster pointed out it is important to involve the researchers already in the building and shaping of the EOSC governance. During the current project, efforts have been made to reach out to researchers in order to get feedback on EOSC and governance model.

Also, EuroHPC was considered a relevant avenue of synergy to engage with where some needs could be capitalized on related to EOSC, an idea of having an HPC Working Group could be considered as well. The HPC does have its own very unique mechanisms so this may not necessarily be vital but a more articulated synergy going forward to help build the EOSC in Practice stories could be considered.

Discussing the Working Groups, again an overview of some potential WGs with the highest priority for the 1<sup>st</sup> implementation phase were provided by Silvana Muscella and they are listed below, (\*) the Star WGs have been included in line with Open Consultation Feedback from the EOSC Community Summer 2018, published on the EOSCPilot project website:

- ✓ The Rules of Participation WG
- ✓ Reference Architecture WG
- ✓ Open Standards in Service Development and Seamless deployment WG\*
- ✓ Resource Allocation WG
- ✓ Governance & Legal Structure
- ✓ Incentives & Business Models WG
- ✓ FAIR Principles over Data & Services WG
- ✓ Global Scientific Research WG\*
- ✓ Data Management Policies WG
- ✓ Quality Management of Data WG \*
- ✓ Data Security & Compliance WG
- ✓ Monitoring & Indicators WG \*

The main message of the panel seemed to be the importance of the stakeholder engagement. Research infrastructures should be strongly involved and easily connected to universities. The earlier the researchers are taken in the building and shaping the EOSC the better. Research Infrastructures, ESFRIs, ERICs are expected to play a **central role in EOSC** where cross-use of Research Infrastructures best practices is demonstrated - an outcome to be closely monitored by **Funding Agencies**

Business plans are crucial and the funding after 2020 should be taken into consideration already now.

Flexible **business models** and **rewarding schemes**, to be field-validated should be introduced. Some ideas of different business models from the 2<sup>nd</sup> HLEG report are laid out below:

- ✓ **Direct Support Model**
  - ✓ an institute receives a grant from a funding entity to build/operate the resource and make it available to other grantees of the funding entity

- ✓ Ability of certain researchers to **access these resources may be restricted** (i.e. non-grantees of the funding entity cannot access to the resource)
- ✓ **Cloud Coin Model**
  - ✓ Based on a certification programme for commercial & non-commercial provider of scientifically useful services
  - ✓ Accept specific EOSC-defined financial transactions in payments (“cloud-coins”)
- ✓ **Hybrid Model**
  - ✓ Combination of Direct support Model & Cloud Coin Model.

## ANNEX H. GLOSSARY

Term	Explanation
<b>EOSC</b>	European Open Science Cloud
<b>EC</b>	European Commission
<b>EOSC-hub</b>	Horizon 2020 funded 3-year-project to be launched in 2018. More at: <a href="https://www.egi.eu/about/newsletters/introducing-the-eosc-hub-project/">https://www.egi.eu/about/newsletters/introducing-the-eosc-hub-project/</a>
<b>EIF</b>	European Interoperability Framework
<b>eInfraCentral</b>	Horizon 2020 funded project. More at: <a href="http://einfracentral.eu/">http://einfracentral.eu/</a>
<b>ENVRI</b>	Environmental Research Infrastructures
<b>European Interoperability Framework</b>	EC framework giving specific guidance on how to set up interoperable digital public services.
<b>H2020</b>	Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market.
<b>HLEG</b>	High Level Expert Group
<b>IETF</b>	Internet Engineering Task Force
<b>Open Science</b>	The movement to make scientific research, data and dissemination accessible to all levels of an inquiring society, amateur or professional.
<b>OSPP</b>	Open Science Policy Platform
<b>Project partners</b>	The EOScpilot project partners
<b>RDA</b>	Research Data Alliance
<b>Research Infrastructures</b>	Research infrastructures (RIs) are facilities, resources and services used by the science community to conduct research and foster innovation.
<b>VREs</b>	Virtual Research Environments
<b>W3C</b>	World Wide Web Consortium