



# European Open Science Cloud (EOSC) Executive Board Final progress report

Report from the  
EOSC Executive  
Board

Independent  
Expert  
Report

EOSC Executive Board

January 2021

Research and  
Innovation

## European Open Science Cloud (EOSC) Executive Board Final progress report

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# **European Open Science Cloud (EOSC) Executive Board**

## **Final progress report**

### ***Report from the EOSC Executive Board***

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January 2021

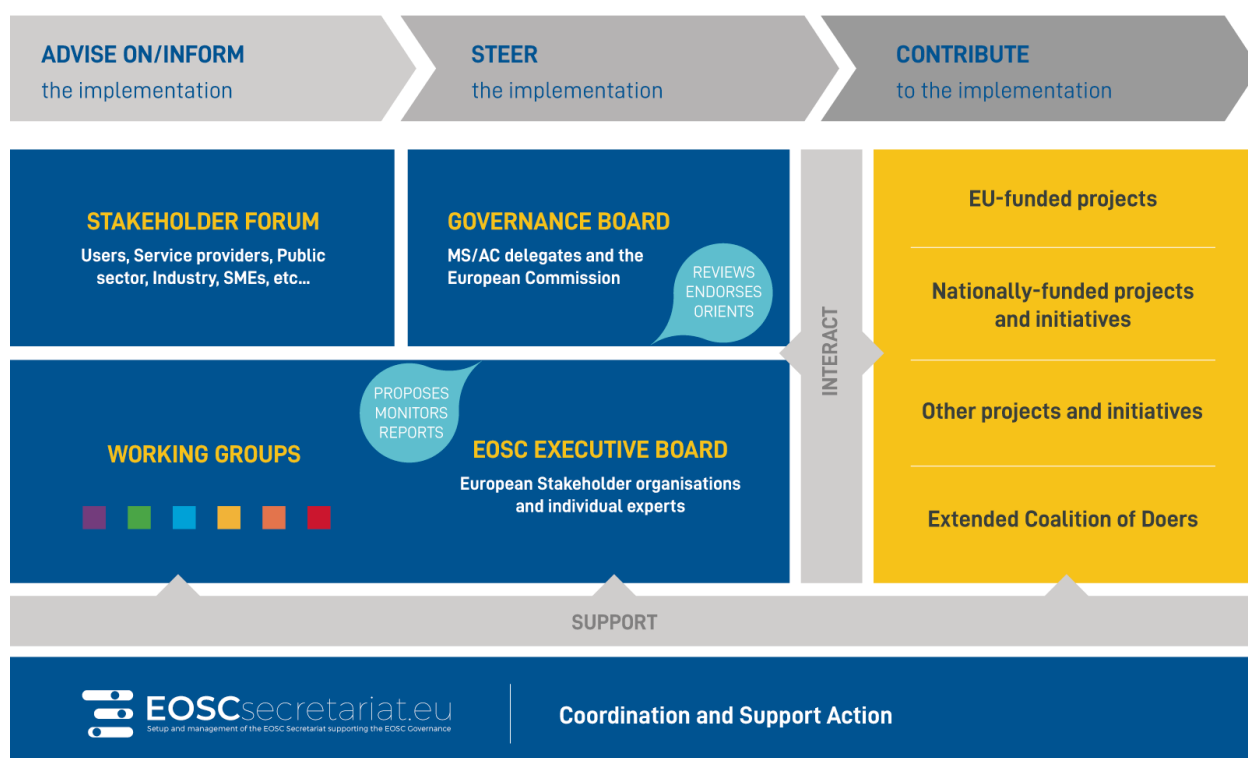


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## 1 EOSC GOVERNANCE

In November 2018, the European Commission initiated a new phase of EOSC governance at an official launch in Vienna under the Austrian Presidency.<sup>1</sup> It convened an Expert Group of eleven stakeholder representatives and individual experts to act as an EOSC Executive Board<sup>2</sup> and a Governance Board representing delegates from all Member States and Associated Countries.<sup>3</sup> These two Boards were intended to collectively steer the implementation of activity delivered by EU-funded projects, national initiatives and other activities from the extended coalition of the doers.



<sup>1</sup> <https://eosc-launch.eu/home>

<sup>2</sup> <https://www.eoscsecretariat.eu/eosc-governance/eosc-executive-board>

<sup>3</sup> <https://www.eoscsecretariat.eu/eosc-governance/eosc-governance-board>

## 2 REMIT OF THE BOARD

The purpose of the EOSC Executive Board was to oversee the EOSC implementation, provide advice on the way forward and on the implementation of the strategic and funding orientations and assist with the transition beyond 2020.

In COM C (2018) 5552 final, the EOSC Executive Board has been tasked to:

- (a) provide advice and support on the strategy, implementation, monitoring and reporting on the progress of the implementation of the EOSC as set out in the Staff Working Document on the Implementation Roadmap for the EOSC<sup>4</sup>, notably in the form of:
- (b) a strategic implementation plan and annual work plans, and of a proposed mechanism for overseeing and steering the implementation of the strategic and annual work plans, and for monitoring and reporting on progress;
- (c) rules for participation to guide service provision and an action plan for scientific data interoperability to operationalise the FAIR principles,
- (d) provide recommendations on the appropriate mechanisms and possible forms for the EOSC governance after 2020 including business models and modes of financing, and on how the user base of the EOSC could be extended to the public sector and the industry.

### 2.1 Working Groups

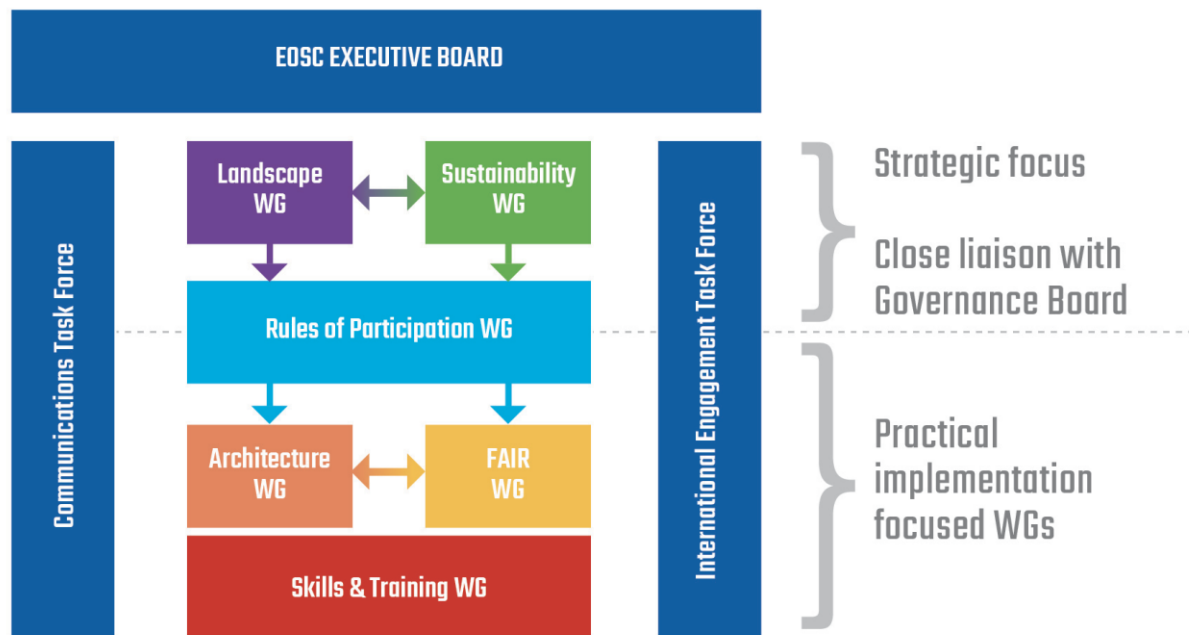
In Summer 2019, five Working Groups were established with the support of the EOSC Secretariat for examining specific questions, such as: mapping the existing research infrastructures in Europe; designing the EOSC Architecture, implementing FAIR, establishing Rules of Participation and defining future governance and sustainability. These were supplemented in late 2019 / early 2020 with additional Working Groups and Task Forces. Full details of the scope of each is available on the EOSC Secretariat website.<sup>5</sup>

- Landscape Working Group chaired by Jan Hrušák and John Womersley
- Sustainability Working Group chaired by Rupert Lück and Stefan Kuster (replaced in September 2019 by Lidia Borell-Damián)
- Rules of Participation Working Group chaired by Juan Bicarregui
- Architecture Working Group chaired by Jean François Abramatic
- FAIR Working Group chaired by Sarah Jones
- Skills and Training Working Group chaired by Natalia Manola
- International Task Force chaired by Cathrin Stöver
- Communications Task Force chaired by Ron Dekker

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4 [https://ec.europa.eu/research/openscience/pdf/swd\\_2018\\_83\\_f1\\_staff\\_working\\_paper\\_en.pdf](https://ec.europa.eu/research/openscience/pdf/swd_2018_83_f1_staff_working_paper_en.pdf)

5 <https://www.eoscsecretariat.eu/eosc-working-groups>



### 3 DELIVERY OF OUTPUTS

#### **COM C(2018) 5552 (a) - Advice and support on the strategy, implementation, monitoring and reporting on the progress of the implementation of the EOSC**

##### *3.1 Working Groups*

This final progress report focuses specifically on the delivery of the Executive Board against its remit.

In addition, the EOSC Secretariat conducted a study in Q2 2020 to assess EOSC achievements from the perspective of the relevant H2020 grants supporting the first implementation phase of EOSC. The study is largely based on an online survey conducted in May-June 2020 which targeted all H2020 projects of direct relevance to EOSC (some of them being already known and identified in March 2018 when the EOSC Implementation Roadmap was published). The Executive Board provided its opinion on the items of the survey.

##### *3.2 Landscape analysis*

The Landscape Working Group of the EOSC Executive Board has surveyed and documented the landscape of infrastructures, initiatives and policies across Europe relating to the development of the European Open Science Cloud system. It has prepared a Landscape report, which describes activities in the Member States (MS) and Associated Countries (AC) related to EOSC. It summarises existing infrastructures, initiatives, projects, policies and investments based on input (country sheets) from the MS and AC, and using the expert knowledge of the WG members and delegates to the EOSC governing board, is complemented by information from Horizon 2020 research projects and from open sources. The WG has collated information on 47 MS and AC through input from e-infrastructures, including data and HPC and Distributed Computing facilities, from European and national research networks (NRENs), pan-European research infrastructures and ESFRI roadmap projects and clusters, and from interest groups such as the Research Data Alliance. The Landscape report was validated at a virtual Validation Workshop that was held online on 27 and 28 April 2020.

The Landscape analysis revealed that there are at least a few infrastructures available in all of the countries reviewed. MS and AC reported details on the current landscape of data infrastructures, high-performance computing (HPC) infrastructures, and data repositories that exist in each country and which might be federated or made available to the EOSC. To support a more consistent approach to quantification of the infrastructures available, a number of other open data sources were consulted. In addition, examples of good practice and a set of recommendations have been highlighted in the Landscape analysis.

##### *3.3 Persistent Identifier (PID) policy and implementation architecture*

A PID policy Task Force comprising members from the FAIR and Architecture Working Groups developed and released an initial PID policy for EOSC in late 2019. Ideas were consulted on at the EOSC at RDA event and the EOSC Symposium in 2019 and the PIDapalooza conference in January 2020. The draft PID policy was downloaded over 2400 times and comments have been received from a wide range of international stakeholders. The final version was published in October 2020.<sup>6</sup> The Architecture Working Group has been developing PID architecture guidelines to implement the policy. These were released for consultation in October 2020.<sup>7</sup>

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<sup>6</sup> <http://doi.org/10.2777/926037>

<sup>7</sup> <https://docs.google.com/document/d/1T-bpNsmuxQewslQ48XTyUJ0e0lsV7poaXohpgDo9W34/edit>



### 3.4 FAIR metrics and repository certification

Initial FAIR metrics and repository certification guidelines have been developed based on inputs from the RDA FAIR data maturity model Working Group and the FAIRsFAIR project. Members of the FAIR Working Group Task Force have held various meetings and events with these initiatives to co-develop drafts to put out for consultation.<sup>8</sup> Feedback gathered during Summer 2020 and via the SRIA consultation have informed the final recommendations.

### 3.5 EOSC Interoperability Framework

An Interoperability Task Force was convened by the FAIR Working Group in collaboration with Architecture. Initial work involved reviewing similar models from other contexts, such as the European Interoperability Framework. A study is also being commissioned under the co-creation fund to investigate legal interoperability across Member States and Associated Countries. Recommendations on how to handle conflicting expectations in legislative frameworks will be provided. The EIF provides a summary of current practice and gaps in semantic, technical, organisational and legal interoperability to recommend actions for future work. The report was shared for consultation in Summer 2020 and feedback from the SRIA consultation was also incorporated into later iterations.

### 3.6 Authentication and Authorisation Infrastructure (AAI) Architecture

The AAI Task Force of the Architecture Working Group has agreed on principles and developed a basic architecture for the EOSC AAI. Principles are related to user experience, trust flow and distributed architecture. The AAI architecture uses the results of the Authentication and Authorization for Research and Collaboration (AARC) initiative and, in particular, its Blueprint Architecture (BPA) as a basis for building the EOSC AAI architecture. The Architecture was open for consultation during the EOSC Symposium in October 2020. The main challenge to come will be about the scalability of the architecture as the goal of EOSC is to serve the 2 millions of potential users.

## **COM C(2018) 5552 (b) - Strategic implementation plan and annual work plans**

### 3.7 Strategic Implementation Plan

The EOSC Strategic Implementation Plan<sup>9</sup> presents the vision for a European Open Science Cloud, drawing together a summary of previous work that will contribute to the implementation of the EOSC for the period 2019-2020. The actions proposed are based on the EOSC Implementation Roadmap adopted by the Commission on 14 March 2018. It presents a comprehensive overview of implementation activities, with action lines and timelines for the period 2019-2020. The list of activities includes the most recently approved Horizon 2020 projects.

Several outputs were proposed in this plan and allocated across the Working Groups, namely:

- Landscape analysis mapping current investments and assessing the EOSC readiness of the Member States and Research Infrastructures (Landscape WG)

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<sup>8</sup> <https://www.eoscsecretariat.eu/eosc-liaison-platform/post/interim-recommendations-fair-metrics-and-service-certification-apply> and <https://www.eoscsecretariat.eu/eosc-liaison-platform/post/provide-feedback-second-draft-fair-metrics-eosc>

<sup>9</sup> <http://doi.org/10.2777/202370>

- FAIR data action plan (FAIR WG)
- Persistent Identifier Policy for EOSC (FAIR & Architecture WG)
- FAIR metrics and repository certification (FAIR WG)
- EOSC Interoperability Framework (FAIR & Architecture WG)
- Initial federating core and preliminary connection of infrastructures (Architecture WG)
- Catalogue of EOSC services and data (Architecture WG)
- Rules of Participation (Rules of Participation WG)
- Recommendations for a post 2020 governance structure as well as strategic and business model options (Sustainability WG)
- Updated PowerPoint template and key slides on EOSC (Communications TF)

### *3.8 Annual work plans*

Strategic Implementation Plan.<sup>10</sup> The 2020 EOSC Work Plan meanwhile noted changes in remit and additional activities not originally foreseen.<sup>11</sup> The Architecture Working Group for example changed the proposed outputs from the federating core and catalogues of data and services which were not within their remit to deliver, to an AAI Architecture, a PID Implementation guide and Recommendations for Scholarly Infrastructures for Research Software.

In addition, a series of outputs were proposed in the Skills and Training domain and a number of governance documents were produced to establish EOSC as a formal partnership. These include a EOSC Partnership Proposal in Horizon Europe, a Strategic Research and Innovation Agenda including a Multi-Annual Roadmap. All of the very labour-intensive documents required for the partnership were not foreseen in the beginning and demanded a significant degree of additional work from the European Commission and Executive Board.

### *3.9 FAIR Data Action Plan*

As the FAIR Working Group was only convened in June 2019 and spent the summer defining the remit for each Task Force, it was decided to produce a single Work Plan covering the full 18 month period rather than annual work plans. This is in line with the approach taken by the Executive Board as a whole. The FAIR Work Plan was published in November 2019.<sup>12</sup> It outlines the approach to be taken by each of the four Task Forces: FAIR practice; Interoperability Framework; PID policy and FAIR metrics and certification. It also specifies the key outputs needed at an EOSC wide level to implement FAIR.

## **COM C(2018) 5552 (c) - Rules of participation**

### *3.10 Rules of Participation*

The Rules of Participation work built on the deliverables from the EOSCPilot project. The Rules of Participation define the rights, obligations and accountability of the various EOSC actors, notably data producers, service providers, data/service users. The implementation

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<sup>10</sup> <http://doi.org/10.2777/972843>

<sup>11</sup> <http://doi.org/10.2777/686725>

<sup>12</sup> <https://www.eoscsecretariat.eu/sites/default/files/eosc-fair-workplan.pdf>

of the Rules will differ according to the maturity and role of EOSC actors. Feedback on key questions and directions for the Rules of Participation was solicited at the EOSC Symposium in Budapest in November 2019. A first version of the Rules was then released for consultation in January 2020, followed by further iterations in Summer and Autumn 2020. A final version will be released in Q4 2020.

**COM C(2018) 5552 (d) - Recommendations on the appropriate mechanisms and possible forms for the EOSC governance after 2020 including business models and modes of financing**

*3.11 Recommendations for post-2020 governance and business models*

The Sustainability Working Group was tasked to explore possible means for ensuring sustainability of the European Open Science Cloud as of 2021. The Working Group produced several versions (Strawman and Tinman report) and collected feedback from EC, EB, GB and the stakeholder community on each version. It also took into account the progress towards the EOSC goals and the outputs of commissioned studies. The final result is an independent document (FAIR Lady) that was submitted for publication on November 13th 2020. It considers the financing model, legal vehicle, governance structure under the planned European Partnership with the EC as well as the regulatory and policy environment of the EOSC. It recommends beginning with a first iteration to establish a Minimum Viable EOSC (MVE) addressing the needs of publicly funded researchers exploiting openly available data. Subsequent iterations expand the EOSC to engage a wider user base including the public and private sector and promote its use beyond the FAIR research data.

This FAIR Lady report from the Sustainability WG builds on the results of several studies commissioned by the EOSCsecretariat project at the request of the Sustainability WG:

- Legal and strategic advice on EOSC legal entity membership and governance structure: performed by Kellen Group
- EOSC core operational costs: performed by AcrossLimits and Boundaryless
- Strengthening of the EOSC Risk Governance through the implementation of an effective risk management system: performed by AON Hewitt
- Expanding EOSC: Engagement of the wider public sector and private sectors in EOSC: performed by Industry Commons Foundation
- Fair Forever 2.0: Long Term Data Preservation Roles and Responsibilities – An Assessment Proposal for the EOSC Sustainability: performed by the Digital Preservation Coalition

Specifically, on business models, EOSC must allow the coexistence of different business models and their evolution over time. Different parts of EOSC can be based on different models. Core and federated data sections can benefit from a membership-based learning business model, partly funded by the EC and partly by the Member States. The mission of this part will be to provide support to the entire ecosystem to learn collectively how to allocate resources, how to manage cross-border research activities, and to provide shared cultural elements to spread best practices and seamless integration approaches. The Exchange section can benefit from a transactional model, pre-paid with monitoring usage of resources purpose for the commons, FAIR resources, open access resources available free of charge but with strong guiding and orienteering services. These models may dynamically change weights over time, building on lean thinking best practices and starting small.

There are many potential funding schemes and sources that could contribute to the funding of the different components of EOSC. Each funding scheme has its own advantages and constraints that need to be carefully examined and accommodated in order to form a coherent sustainability plan. A theme that is common across all of these schemes is that EOSC is going to need strong political support in the Member States and Associated

Countries to be able to access possible funding streams. For example, if European Regional Development Funds (ERDF) is to become a possible source of funding for EOSC it will require local and national support across Europe to make this happen. The cross-border delivery of research services is constrained by a number of non-technical obstacles that inhibit EOSC from achieving its multidisciplinary and multinational objectives. So, here again EOSC stakeholders will need to persuade their national governments to allow EOSC participants to provide services to other Member States as long as these are part of the agreed spectrum of joint EOSC activities. A key recommendation of the EOSC core operational costs study is to establish an EOSC funding support team dedicated to identifying and securing funds. This team would need to liaise with the governance representatives of the Member States and Associated Countries to garner financial support for the development and expansion of EOSC. Close collaboration with the networks of National Contact Points for funding programmes such as Horizon Europe could compliment the competences and reach of this funding support team.

### *3.12 Changes to delivery plans*

The relationships between governance organisations and EOSC-related projects need to be transparently described and understood by all parties. Governance bodies have strategic, organisational and communication roles while projects have execution responsibilities. For example, standards should be defined collectively under governance leadership while their implementations and service delivery should be the responsibilities of projects and stakeholders.

As can be seen above, some of the elements delivered differ from the projected outputs in the European Commission's roadmap and the Strategic Implementation Plan. The Architecture Working Group, for example, did not deliver the initial federating core, preliminary connection of infrastructures and catalogue of EOSC services and data. These major initiatives are being delivered by well-resourced EOSC projects. The Architecture Working Group liaised and provided advice and steering, however could not ensure delivery or be responsible for outcomes. As a result, the Architecture Working Group organised three Task Forces with predefined charters on Authentication & Authorization Infrastructure (AAI), Persistent Identifiers (PID) architecture and Scholarly Infrastructures on Research Software.

## 4 ADDITIONAL ACTIVITIES

The sections below outline work produced beyond the original remit. Some of these deliverables such as the EOSC Persistent Identifier (PID) policy were noted in the EOSC Implementation Roadmap, whereas others emerged via Working Group proposals such as the FAIR in practice report and Recommendations for Scholarly Infrastructures for Research Software. Several further strategic outputs were requirements for establishing EOSC as a viable European partnership.

### 4.1 *Landscape validation*

Many of the country sheets have been updated throughout the summer 2020. The Digital Curation Centre (DCC) was commissioned to undertake a further and detailed analysis. The work resulted in a second part of the report i.e. the Landscape analysis. It was found that the majority (61%) of the MS and AC have policies in place regarding open access to scholarly publications, but only 34% have a policy in place regarding FAIR data. Relatively few countries (21%) mention EOSC in their policies, but 38% plan to do so in future; but only three countries so far (BG, DK, RO) include mention of EOSC as part of their funding criteria. More than half of responding countries have nominated contact points for open science (53%) and for EOSC (42%). In the majority of countries, many of the relevant policies are still in the planning stage.

Information presented was discussed and confirmed at a second validation workshop held on 28-29th September 2020, which brought together representatives of the Landscape WG and selected stakeholders and experts from responding countries. Both reports were published as electronic publications through the publishing services of the EC.

### 4.2 *FAIR in practice report*

The FAIR in practice Task Force of the FAIR Working Group assessed current practice across research communities to identify barriers and enablers for adoption of FAIR. The FAIR in practice report analyses the state of policy and practices within diverse research communities in different countries and offers six practical recommendations on how FAIR can be turned into practice. These recommendations are aimed primarily at decision making entities of the European Open Science Cloud (EOSC), as well as research funders. The report was consulted on widely and officially released in October 2020.<sup>13</sup>

### 4.3 *Scholarly Infrastructures for Research Software*

While research software was not considered as a pillar of EOSC in the initial phase of the initiative, it became clear during the last two years that special attention had to be directed towards archiving, referencing, describing and crediting research software. The Architecture Working Group launched a Task Force in June 2020 and produced a report that was open for consultation in October 2020.

The report provides the state of the art in infrastructures for research software, identifies shared best practices and open problems, highlights use cases and their corresponding workflows before proposing recommendations for short term as well as long term priorities.

The report calls for considering software as the third pillar of open science next to publications and data.

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<sup>13</sup> <http://doi.org/10.2777/986252>

#### 4.4 Skills and training deliverables

The working group started in Jan 2020 and has formed four task forces to carry out the work. All task forces will deliver their reports mid/end of November 2020, and these will comprise chapters of a final overall report to be published by the EC in January 2021.

**Skills:** The skills and training deliverables are being prepared with a focus on (1) the roles of target users in the minimal viable EOSC and the related skillset needed; (2) the options for organisational models for competence centres; (3) the position of EOSC skills and training in digital skills national strategies and agendas and (4) the definition of a set of recommendations and specifications for a central catalogue for training resources. The skillset Task Force identified the roles of target users within the EOSC ecosystem in a diagram. This diagram is still being revised and adjusted based on the feedback received from an open consultation and from presentations at the EOSC Consultation Day and the EOSC Governance Symposium. The Task Force is now mapping the required skills for the identified roles using existing frameworks. Finally, specific roles and skills will be highlighted for different categories of organisations within the EOSC ecosystem.

**Competence centers:** Through a series of interviews, the task force has collected case studies to review and analysed the approaches that organisations (at institutional, national, research infrastructure and professional associations levels) use to implement their skills and competencies building and training programmes. These case studies include topics for positioning and priorities, skills and competencies, governance, business models and sustainability timeline, coordination and alignment with other initiatives.

**Training resources catalogue:** The task force is working towards the definition of a set of recommendations and specifications for a catalogues for training resources within EOSC. It will deliver a report focusing on the motivations for a central catalogue for training resources as part of the EOSC portal, user needs, interoperation with peripheral catalogues (discipline specific, national, thematic or others), FAIRness, metadata, quality and sustainability aspects. The Task Force is working closely with INFRAEOSC projects and will deliver a first version of the recommendations at the end of November for an open consultation.

**National strategy:** A consulting company is assisting the task force to write a report on how skills and training in EOSC fit into the wider national Digital Skills strategies. An initial landscape and gap analysis report has been delivered covering nine countries, currently being discussed and validated by the task force members. Further validation will take place through a series of focus groups with key actors in national settings. The final report will include recommendations for policy makers on how to embed EOSC skills and training in national strategies.

#### 4.5 Partnership proposal, Strategic Research and Innovation Agenda (SRIA) and Multi-Annual Roadmap (MAR)

In Autumn 2019 it became clear that the Executive Board would need to draft a series of documents to ensure Governance Board approval of the EOSC initiative. EOSC is one of 49 candidate partnerships to be launched as part of Horizon Europe. A Partnership Proposal was iteratively drafted and submitted to the EOSC Governance Board to approve. This was endorsed in Spring 2020. Activity was subsequently dedicated to the Strategic Research and Innovation Agenda and the Multi-Annual Roadmap. These documents highlight priorities for investment in infrastructure to facilitate the EOSC vision. A major consultation on the SRIA was held between July-September 2020. Feedback was incorporated and will inform the Horizon Europe Work Programme. The amount of effort needed for these activities cannot be underplayed. It is a key lesson reflected on in the concluding section.

#### 4.6 *Establishing a legal entity*

For EOSC to become a European Partnership under Horizon Europe, a legal entity would be required that needs to be operational by the end of 2020 in order to be able to sign the MoU with the EC which establishes the partnership. In close collaboration with the EC, the GB and the Legal Entity Task Force of the Sustainability WG as well as expert legal advice, suitable options for the new EOSC legal entity were explored and a decision to set up the EOSC Association as a Belgian AISBL was made. The statutes for the new Association were drafted, consulted and decided on so that the EOSC Association could be officially founded by four founding members agreed upon by the Executive and Governance Boards. After its foundation, a task force consisting of founding members and organisations interested to join the EOSC Association started to draft the Bylaws. These Bylaws together with MoU will be voted on in the first General Assembly in December.

#### 4.7 *Stakeholder events & consultation*

Many events have been run over the two years including several webinars, workshops, consultation sessions and symposia. The first EOSC Governance event was organised in conjunction with the Research Data Alliance (RDA) Plenary 14 in October 2019 in Helsinki.<sup>14</sup> With 230 participants active in Open Science from 33 different countries, the event offered an open platform for policy makers and representatives from academia and research to discuss open science and data commons initiatives from Africa, Australia, Canada, Europe and Japan. The event gave insights into global trends and how the EOSC is positioned itself in this global setting, and importantly, highlighted what the necessary steps are for its effective and quick establishment. The event also confirmed EOSC as a vehicle for quality science to maximise socio-economic impact. The Helsinki event was followed by the first EOSC Symposium held in Budapest in November 2019<sup>15</sup> that was crucial to gather inputs and feedback on the activities performed by the EOSC Working Groups. This event was collocated with an EOSC Coordination day<sup>16</sup> organised by the EOSC Secretariat where the first steps to align the EOSC projects contributions and plans were agreed.

2020 has seen two major events taking place: In May 2020 an online EOSC Consultation Day<sup>17</sup> that gathered over 600 participants was organised to present the early results of the EOSC Executive Board and its Working Groups. The event was an excellent consultation instrument, on top of the individual online consultations launched by the different Working Groups, to have lively discussions with the EOSC stakeholders and collect relevant input for the progress of the work of the groups. In October 2020, the final EOSC Governance Symposium<sup>18</sup> was organised online as part of the European German Presidency calendar. The event was a culmination of two years of work carried out by the current EOSC governance including the EOSC Governance Board and the Executive Board and its Working Groups. Delivered to around 1,000 EOSC stakeholders from over 50 different countries, this was not only the largest EOSC Symposium yet, but it was also an essential opportunity for convergence and alignment principles and priorities which are key for ensuring a smooth transition to the implementation phase. During this Symposium, the Executive Board and its Working Groups delivered the draft final versions of the documents due by the end of their mandate for final consultation. In particular, the EOSC Strategic Research and Innovation Agenda (v0.8) which defines the general framework for future strategic research, development and innovation activities in relation to the EOSC was presented to the audience.

In addition to these events, all supported by the EOSC Secretariat project, the EOSCsecretariat project has established a Stakeholder Liaison Platform and the Executive

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<sup>14</sup> <https://www.eoscsecretariat.eu/international-research-data-community-contributing-eosc>

<sup>15</sup> <https://www.eoscsecretariat.eu/eosc-symposium>

<sup>16</sup> <https://www.eoscsecretariat.eu/events/eosc-coordination-day>

<sup>17</sup> <https://www.eoscsecretariat.eu/events/eosc-consultation-day>

<sup>18</sup> <https://www.eoscsecretariat.eu/eosc-symposium-2020>

Board has released all its outputs for community feedback. Regular blog posts have also kept the community informed of Executive Board meetings and progress together with newsletters and social media campaigns.



## **5 LESSONS LEARNED – RECOMMENDATIONS TO THE EC AND EOSC ASSOCIATION**

### *5.1 Continue to demonstrate commitment and goodwill*

The results of the EOSC Executive Board are exemplary. Far more has been achieved than was originally in scope, and this has only been made possible by the commitment of individual members, their organisations and the European Commission. It is an incredible feat that this could be achieved while the Horizon Europe regulation and the Strategic Planning comitology is still ongoing. The leadership demonstrated by the European Commission, and overall flexibility and goodwill from all parties has enabled EOSC to be proposed as a mature, viable partnership with a registered legal entity, placing it in a strong position for the next phase of work.

### *5.2 Be realistic on timescales and scope*

The remit of the Executive Board was broadened significantly during the delivery period, in particular to draft the Partnership Proposal, Strategic Research and Innovation Agenda and establish a legal entity. With hindsight, it is clear that the decision for the European Partnership Agreement (EPA) was not discussed enough, nor fully understood in its implication on timelines and workload. The amount of manpower required went far beyond the description of the Expert Group (30 days a year for a member, 60 days a year for the Chair and 60 days a year for independent experts). An engaged and committed member of the EB will have spent around 150 days a year (c.0.6 FTE), particularly from July 2019 onwards when the decision towards the EPA road was taken.

In many cases the required additional effort could be drafted in from the organisations which helped to absorb the pressure, but it also led to a situation in which some members of the EB worked around the clock, while others decided that they could not contribute to such a level and such tight deadlines. Inevitably this influenced the dynamics within the EB and led to those “in” and those feeling left “out”. Understandably the European Commission also had limited foresight on the additional steps and timelines required to progress the EPA. Although plans will always change, providing more accurate estimates of the likely work and additional lead-in time in future would be preferred.

### *5.3 Consider the dynamics when establishing the governance structures*

Establishing a clear governance structure by convening the EOSC Governance Board and Executive Board was a huge step forward and has led to significant progress and greater coordination. The time required to get work started when new structures like these are put in place should not be underestimated. The dynamics of the related bodies also needs careful consideration. From the very beginning a hierarchy was implemented between the EOSC EB and GB. The fact that the EC supported the GB directly, while the EB was supported by the EOSCsecretariat, led to an amplification of this hierarchy. There were too many instances in the early days in which communication between the two bodies was made difficult and the GB was not reachable for the EB. This led to a perception of “them vs us” which was broken down by a number of collaborative workshops. The administrative support or Secretariat function also needs to be delivered by people dedicated to this role with the requisite experience of the sector. The dynamics between EC, GB and EB and the role of the secretariat should be explored further and lessons on leadership should be drawn from it.

### *5.4 Balance stakeholder representativeness and consult broadly*

The Executive Board composition seems to have been chosen carefully. There was a balanced distribution between the Research Infrastructures, e-Infrastructures and data producing organisations. There was also gender balance and a range of country representation. This enabled the group to explore and find common ground in most activities and/or instances without too much dominance from one or more individuals. The Executive Board also created a realistic amount of Working Groups in appropriate topic

areas. The new EOSC Association should consider the remit carefully and ensure a similar balance of bodies to help coordinate this, drawing appropriate expertise from the diverse range of stakeholders and in particular research communities.

EOSC is a complex undertaking that engages multiple stakeholder groups with different perspectives and concerns. The EOSC vision is not limited to linking datasets, federating infrastructures, or aligning policies; it starts by linking multiple stakeholders throughout the data lifecycle and across the European research ecosystem. Many efforts have been made to consult with the stakeholder community but it remains difficult to effectively reach all players with an interest or role in EOSC. While the EOSC Stakeholder Forum was to be a body in the EOSC Governance created for 2019/20 there was no clear ownership of the Stakeholder Forum. This led to work carried out by the EOSC pilot project to lose all momentum and for the stakeholder community to become homeless and losing its voice. The Liaison Platform could not incorporate earlier contact lists due to GDPR legislation and a similar lack of continuity in maintaining a Stakeholder Forum or Coalition of the Doers is likely as the EOSC Association takes over the Secretariat function. The importance of consulting research communities must be stressed and all attempts made to support continuity in stakeholder engagement.

The feedback received from different consultations highlight a divergence of objectives, priorities and interests across and within stakeholder groups concerning the benefits and costs of EOSC as well as the disruption it may cause to existing structures, decision making processes and funding models. The planning of EOSC must acknowledge that such tensions exist and work to reconcile them if EOSC is to achieve its goals. The iterative approach as outlined in this document is intended to progressively build trust and resolve conflicts between the stakeholders while acknowledging that not all the solutions and answers are known today. For this approach to be successful there must be an objective assessment of what has been achieved with each iteration and the experience gained taken into account in preparing the future. The recent creation of the EOSC Association is an important achievement and the Association should strive to provide a forum where the stakeholders can resolve their differences and collectively pursue their stated commitments to achieving the objectives of EOSC.

### *5.5 Ensure the EOSC governance has authority to act*

The European Commission set the Executive Board as an expert group. This led to confusion of mandate from the very beginning and meant that some work areas were scoped too ambitiously and in-line with what an Executive Board could achieve, but outside of scope for an Expert Group. Liaison and oversight of ongoing EOSC projects in particular was problematic. Lessons could be learned from the ESFRI governance model where the stakeholder and MS/AC expertise are streamlined for effective evidence-based policy measures.

While ESFRI is also registered as a Commission Expert Group and is a self-governed body composed of 42 delegations (MS, AC) and the EC. Each delegation is formed by two high-level representatives of MS/AC linked to policy-making and up to two additional experts knowledgeable of RIs ensuring competent, merit based and impactful discussions and decisions. The Commission is a member of ESFRI (and ESFRI EB), and it provides the ESFRI Secretariat and support (in kind and H2020 project). The main body of ESFRI is the ESFRI Forum. It decides on the composition, mandate and tasks of the ESFRI Executive Board, the Strategy Working Groups (in the seven scientific domains) and the Implementation Group. It has also the capability to set up ad-hoc expert groups to obtain independent advice on scientific, technical, socio-economic or other issues.<sup>19</sup>

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<sup>19</sup> [https://www.esfri.eu/sites/default/files/ESFRI\\_Procedural\\_Guidelines\\_Revision\\_2019\\_Adopted.pdf](https://www.esfri.eu/sites/default/files/ESFRI_Procedural_Guidelines_Revision_2019_Adopted.pdf)

#### *5.6 Enable greater flexibility to steer initiatives*

A constant frustration of the Executive Board lay in the fact that there was no possibility to consistently engage with past, current or upcoming EOSC projects. The diversity of these makes it difficult to obtain an overview of activity to effectively steer initiatives. The reason for that was in part a lack of manpower in the EB itself, but also due to the contractual relationship between the EC and these projects. Interventions by the EC to establish MOUs between projects and align parallel activities were much appreciated, however greater sharing of information and workplans with the Executive Board was expected. An attempt at coordination was started in 2019, but did not carry momentum beyond the first two meetings. The lack of coordination has hampered the overall integration and ultimately the success of the EOSC projects since their inception – too many projects, which on paper were related, were allowed to go their own independent and uncoordinated way. Enabling the future EOSC Association to have clearer links and an ability to steer funded projects is recommended. Different routes could be followed to achieve this. We suggest that the EOSC Association has a clear role within key investments such as the forthcoming EOSC Future project. This could be via an external advisory board or a specified role within the project. Assembling the projects in Working Groups, as done by the EOSC Architecture WG, could also be pursued to ensure all perspectives are represented when decisions on implementation routes are taken to ensure consensus and coordination.

#### *5.7 Coordinate communication and branding to avoid reputation loss*

Due to lacking coordination between the different EOSC projects, there has been a lot of confusion about the EOSC mission on the side of the EOSC stakeholders and potential end user communities. Such misalignment between EOSC mission and communication to third parties bears a reputational risk and the potential for a negative perception that the wide spectrum of users connected with EOSC could have. A lack of strategy to guarantee service quality, management and standards (Service Level Agreements SLAs) may cause reputational damage to the entire EOSC ecosystem. It is recommended to have a single point of information for the wider EOSC community to retrieve information and as a way for the EOSC Association and the Partnership as a whole to send out a coherent, aligned message on EOSC. Work has begun on this by initiating a website under [www.eosc.eu](http://www.eosc.eu). Currently this presents the EOSC Association and is envisaged to build into the central EOSC website, incorporating the portal and other key outputs after a process of validation with EOSC stakeholders.



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The European Open Science Cloud (EOSC) Executive Board Final progress report document contains a summary of the work delivered by the Executive Board against its remit.

The purpose of the EOSC Executive Board was to oversee the EOSC implementation, provide advice on the way forward and on the implementation of the strategic and funding orientations and assist with the transition beyond 2020.

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