

# An action plan for the European Open Science Cloud

The much-trailed European Open Science Cloud (EOSC) is on track to be launched in November 2018. But how should this wide ranging and multi-faceted EU initiative go about achieving its ambitious goal of providing Europe's 1.7 million researchers with easy access to each others' data and research tools, and to a broad range of computing resources?

The Science|Business Cloud Consultation Group - members of the university-industry network with a special interest in the science cloud<sup>1</sup> - has proposed a high-level action list to support the development of the EOSC. EU research ministers have just endorsed the EOSC roadmap laid out by the European Commission, head of a the second EOSC Summit being held in Brussels on June 11th.

To help the open science cloud fulfil its considerable potential and build on the work of the EOSC pilots, the EOSC-hub and other existing initiatives, the Science|Business group<sup>2</sup> proposes that the EOSC Executive Body establish working groups with a mandate to:

Define the EOSC reference architecture - the functionality and interfaces offered by a small set of core services. The data and services providers who need to connect to the core EOSC services should review this architecture.

Detail rules of participation for the EOSC, starting with rules for data providers, service providers and end-users.

Establish a detailed segmentation of the EU scientific research community - a market analysis for each segment to understand the nature and scale of the services they require from the EOSC, as well as how such services are currently provided and funded<sup>3</sup>.

Define the business model and incentives for each segment of EOSC users

Complete a full definition of EOSC services based on an analysis of how research is being conducted today. Building on the results of 'EOSC reference architecture' working group, this working group would select implementations of the core services from amongst the candidates available.

1 Includes experts from CERN, Microsoft, Amazon, the European Space Agency, University of Twente, Association of Commonwealth Universities, GEANT, University of Eastern Finland, Swiss National Computing Centre, Huawei, EUACM, the European University Association, Barcelona Supercomputing Center, Google and EUA.

2 Note this paper is a product of Science|Business. The views expressed herein do not necessarily reflect those of individual members.

3 As proposed by the EU Competitiveness Council, this analysis could be underpinned by a map of national research data infrastructures and initiatives in the Member States that can be federated. Ideally the map should become a form of compendium with an overview of the current status, contents and scale of the EOSC. Progress of the EOSC compared to the previous annual roadmap should also be included in the second edition.

Establish how the EOSC will be integrated into global scientific research - jointly establish policies and specifications to allow the EOSC to interact with similar structures in other regions of the world to enable open science on a global level.

Implement a process to enable total quality management of data throughout its lifecycle through the certification of digital repositories that can preserve data for the long-term, where necessary.

Identify the optimum legal structure for the EOSC beyond 2020, including a funding model for the legal structure that takes into account the output from the 'business model and incentives' working group. It should also consider the governance model for the second phase (2021 onwards) taking into account experience gathered during the first phase through a consultation with all participants.

Define the long-term roadmap of the EOSC and how it will develop. The roadmap should be published and revised on an annual basis and be divided into three sections identifying activities to be performed in the short-term (1 year), medium-term (2-3 years) and long-term (4-5 years).

Identify relevant gaps in skills and education and propose means to close those gaps so that end-users can make full use of the EOSC and service providers can participate fully.

### **Additional considerations**

- Each working group should have a tightly-defined objective. Once that objective has been completed, the group should cease to exist.
- Following a schedule that maps implementation roadmap for the European Open Science Cloud, the working groups should aim to complete their function within two years.
- Initially, to limit the time and scale of work to be performed, the EOSC should be established as a 'minimum viable ecosystem', which can be expanded during a second phase (after two years) taking into account feedback on initial usage and participation.
- As the work of the individual working groups will be inter-related, the progress of each group should be communicated to all others. In many cases, there will be dependences between the working groups, which should be taken into account in their scheduling.
- Working group chairs should meet frequently and the EOSC could organise events with a wider participation twice per year.
- Transparency will be necessary to ensure trust amongst EOSC participants so the output of all the working groups should be openly published.

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