Towards implementing the European Open Science Cloud – IPR and other strategic considerations

ALLEA Statement

ALLEA, a convinced contender for a balanced access to publicly funded research in Europe, has firmly endorsed the European Open Science Cloud (EOSC) Declaration of July 2017. ALLEA has welcomed EOSC Declaration statements of principle, labelled 'Data Culture', 'Rewards and Incentives', 'FAIR Principles', and 'Open Access by Default'. As regards the 'open access by default' principle, ALLEA noted that under that setting proportionate limitations in "duly justified cases" not only of personal data protection and confidentiality, but also in case of intellectual property rights (IPR) concerns, national security and similar, should be allowed.

Since the take-off of EOSC, ALLEA has closely monitored its developments against the background of its declared goals. Under this aspect, ALLEA has assessed the present stage of EOSC administrative and advisory infrastructure, the drafting of Rules of Participation (RoP), the issue of rewards and incentives for participants, data generators and suppliers, and has in particular examined whether and to what extent the EOSC planning reflects legal instruments and technical measures necessary to effectively take into account national, i.e. European security interests, the interests of European researchers participating in the 'Cloud' in effective protection of their proprietary rights in the data made available in the 'Cloud', and the interests of participating researchers in access to data stored elsewhere in the world.

This ALLEA Statement attempts to contribute to a better understanding of the complex EOSC concept, points to a number of deficiencies, i.e. non-compliance of the so far envisaged instruments and measures with the declared EOSC goals, and recommends legal and technical measures and instruments for bringing EOSC process better in line with its declared goals.

About ALLEA

ALLEA is the European Federation of Academies of Sciences and Humanities, representing more than 50 academies from over 40 countries in Europe. Since its foundation in 1994, ALLEA speaks out on behalf of its members on the European and international stages, promotes science as a global public good, and facilitates scientific collaboration across borders and disciplines.

About this Statement

This ALLEA statement has been prepared by ALLEA's Permanent Working Group Intellectual Property Rights (PWGIPR). Through its Working Groups, ALLEA provides input on behalf of European academies to pressing societal, scientific and science-policy debates and their underlying legislations. With its work, ALLEA seeks to ensure that science and research in Europe can excel and serve the interests of society. Read more about the ALLEA PWGIPR: https://allea.org/intellectual-property-rights/

I.

On 10 July 2017 the Declaration on the European Open Science Cloud (EOSC)[1] was signed in Brussels. Under the heading 'Data culture and FAIR data' that Declaration emphasised *inter alia*:

»   European science must be grounded in a common culture of data stewardship, so that research data is recognised as a significant output of research and is appropriately curated throughout and after the period conducting the research. Only a considerable cultural change will enable long-term reuse for science and for innovation of data created by research activities: no disciplines, institutions or countries must be left behind. *[Data culture]*

»   All researchers in Europe must enjoy access to an open-by-default, efficient and cross-disciplinary research data environment supported by the principles of FAIR data (Findable, Accessible, Interoperable and Reusable). Open access must be the default setting for all results of publicly funded research in Europe, allowing for proportionate limitations only in duly justified cases of personal data protection, confidentiality, intellectual property rights (IPR) concerns, national security or similar (e.g. 'as open as possible and as closed as necessary'). *[Open access by-default]*

»   Rewarding research data sharing is essential. Researchers who make research data open and FAIR for direct reuse and/or for (re)producing data should be rewarded, both in their career assessment and in the evaluation of projects (initial funding, review of performance and impact). This should go hand in hand with other career policies in universities and research institutions (appointments, promotions etc.). *[Rewards and incentives]*

»   Implementation of the FAIR principles must be pragmatic and technology-neutral, encompassing all four dimensions: Findability, Accessibility, Interoperability and Reusability. FAIR principles are neither standards nor practices. The disciplinary sectors must develop their specific notions of FAIR data in a coordinated fashion and determine the desired level of FAIR-ness. FAIR principles should apply not only to research data but also to data-related algorithms, tools, workflows, protocols, services and other kinds of digital research objects. *[FAIR principles]*

On 23 November 2018, ministers, delegates and other participants who attended the launch event of the EOSC in Vienna reaffirmed in a declaration the potential of the EOSC to transform the research landscape in Europe. They also confirmed that the vision of the EOSC is that of a research data commons, inclusive of all disciplines and Member States and sustainable in the long-term. They highlighted that Europe is well placed to take a global leadership position in the development and application of cloud services for science and also reaffirmed that the EOSC will be both European and open to the world, reaching out over time to relevant global research partners.

II.

Together with some 100 institutions, ALLEA has firmly endorsed the EOSC Declaration. Since then, ALLEA has closely followed the remarkable progress in the implementation of the EOSC as reflected in the 'Final Report and Recommendations of the Commission's 2nd High Level Expert Groupon the European Open Science Cloud (HLEG) of 2018' on 'Prompting an EOSC in Practice', and the EOSC Strategic Implementation Plan of 2019 produced by the EOSC Executive Board. ALLEA in particular took note of the HLEG's deliberations on the impact of current regulation on the EOSC activities, where the group stated that the European Commission is aware of the importance of the free flow of non-personal data for the emergence of the data economy and that it claims that

> "[f]ree flow of non-personal data are a pre-requisite for a competitive data economy within the Digital Single Market. To fully unleash the data economy benefits we need to ensure a free flow of data, allowing companies and public administrations to store and process non-personal data wherever they choose in the EU." ('Prompting an EOSC in Practice", p. 47, 1st paragraph)

ALLEA is also aware of the position of the High Level Expert Group that privacy or commercial sensitivity concerns could justify exclusion of the reuse of certain data, and that in case of EOSC, the Rules of Participation (RoP) will define the rights, obligations and accountability of those involved with the EOSC including data producers, service providers, data/service users, vis-à-vis the applicable legal frameworks.

According to the Strategic Implementation Plan of the EOSC, the RoP, which will define the rights and obligations governing EOSC transactions, will include the following outputs (listed under 2.1 'Impact of Current Regulation', p. 23):

»   The objectives for the RoP and a proposal of an initial set of RoP for immediate implementation, according to the time schedule they are at present in the drafting stage;

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1 All documents referenced in this statement can be accessed on the European Commission's websites on the European Open Science Cloud: https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud and https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud-hleg (both last accessed on 12 February 2020)

» The collection of user feedback on the initial set of RoP, expected by the second quarter of 2020; and

» A revised proposal of the RoP for application after 2020.

As it is revealed from the published plan, the consultations and available evidence according to the EOSC Executive Board, the rules ought to address, inter alia "the applicable legal frameworks (e.g. GDPR, copyright, data security and cybercrime, dispute resolution and redress mechanisms, e-commerce directive)".

III.

ALLEA notes that whereas the EOSC Declaration of July 2017 stated that, under 'open access by-default', proportionate limitations of open access could be allowed in duly justified cases, *inter alia* of confidentiality and IPR concerns, the EOSC Executive Board announced that the RoP ought to address *inter alia* 'copyright'. Attention is drawn to the fact that 'copyright' constitutes only one category of IPRs, not covering in particular patents, the most important tool not only for protecting inventions, but also for incentivising and securing the high risk investments in R&D, be it public or private.

Bearing in mind that the EOSC Declaration itself has acknowledged that IPR concerns should be taken into account, to ALLEA's understanding the RoP should ensure that proprietary rights in research data eligible for patent protection will be adequately preserved, i.e. that institutions owning such data will be given enough time to secure their proprietary rights, either before making available those data via the 'Cloud' or by an embargo for the access to the data already in the 'Cloud', and will not be losing control over their commercial use by others having access to the 'Cloud'. The RoP should enable defining properties, access control and authentication to support different levels of security, ranging from unprotected to highly secure access. ALLEA in its statement on 'The Need for Intellectual Property Rights Strategies at Academic Institutions'[2] of November 2019 highlighted the importance of such strategies for successful exploitation of publicly funded research results to the benefit of society at large. ALLEA also submitted a number of recommendations how to improve the situation in Europe.[3]

According to the Vienna EOSC Declaration (under point 4) "the EOSC will be both European and open to the world, reaching out over time to relevant global research partners".

2 Find the report: https://allea.org/portfolio-item/the-need-for-intellectual-property-rights-strategies-at-academic-institutions/

3 Read more: https://allea.org/intellectual-property-rights/

To ALLEA's understanding the RoP, which will define the rights and obligations governing EOSC transactions, will have to clearly define what constitutes an EOSC transaction, and adopt clear rules, not only as regards the obligation of publicly funded institutions to share data they generate, but also who and under which conditions will have access to the Cloud and how and to which purpose those having access will be entitled to use the accessed data. Moreover, it will be essential to provide for clear rules as regards 'rewards and incentives' for those who will be sharing research data, as provided for in the EOSC Declaration.

In the globalised and very competitive world data constitute the main source for any activity in all areas of science and technology and are in particular the lifeblood for artificial intelligence technology. The noble project of the EOSC cannot ignore the fact that at present the United States and China dispose of far more data than Europe, or, at least, that access to data in those regions is not hampered by data protection or other regulatory constraints. European initiatives should not force publicly funded European generators of data to share them with the entire world, but should encourage the European actors to make best use of the data, and to allow for free access to non-personal data when appropriate, in particular when the global scientific community in a certain field has clearly adopted and implemented a truly open data policy.

IV.

ALLEA

» Aware that EOSC is to be understood as a federation of existing and planned research data infrastructures, i.e. not as a provider of hardware or software, but as a federated information system, a system of systems offering an invisible infrastructure for access and storage services - transparent to the user with aligned protocols, standards and guidelines such as the Digital Object Identifier system or Eduroam for Wi-Fi access.

» Aware that the implementation of the EOSC is a process, not a project, by its nature iterative and based on constant learning and mutual alignment.

» Aware that the regulatory framework shall define the rights and obligations governing EOSC transactions between EOSC users, providers and operators.

» Aware that following EOSC RoP shall make research data of different categories and from different sources available, both publicly and privately funded.

» Aware of the present stage of RoP drafting.

» Aware of the present stage of the EOSC Model-

Architecture of the federated infrastructure development.

» Aware of the composition of the EOSC Executive Board (as of February 2020).

» Aware of the complexity which EOSC will have to manage in terms of its technical, scientific/research, social, economic and legal implications.

» Aware that EOSC and its RoP must provide for solutions adequately considering the needs and interests of the wide range of affected disciplines, which may vary considerably.

» Convinced that EOSC has to provide for solutions adequately taking into account also justified proprietary (e.g. intellectual property related) interests of data suppliers, data users and the European research community as well as the European public at large.

» Anxious to contribute to a successful completion of the EOSC process, which should substantially improve competitiveness of the European research community in the global context.

ALLEA considers that

· The EOSC Executive Board should be enlarged and include a member having ample experience in data sharing practices and pitfalls, with preferably a legal background or at least practical experience in the field of data contracts and intellectual property rights.

· The EOSC overall legal design should ensure reciprocity of access for participating researchers submitting data according to the EOSC RoP and to EOSC compliant users of data stored elsewhere.

· The EOSC overall design should aim to promote interoperability with other regional data clouds which also promote interoperability and seek to develop common global standards enabling scholarship and science to be shared as public goods for the benefit of all.

· The RoP should introduce high quality standards for the data sharing practices and the cloud infrastructure.

· Staggered security regulations as regards data and processes, with due consideration of all relevant aspects (i.e. machines, tools, peoples), should be defined. However, different requirements, depending on the security level, must also be foreseen.

· Security should be considered for all components of pipelines (even seemingly non-descript ones), in particular including the 'last mile' from the network to the individual nodes, the specific user application running on the end-point computers, and the defined requirements checked through certification.

· Open source should be promoted as a method to ensure security (lower risk of malicious code).

· New licences for models of real or virtual processes and services should be prepared.

· Licensing models should be harmonised and negative consequences, as at present resulting from different types of open source licences, avoided.

· Different usage models/scenarios, from completely open to highly restrictive, should be considered.

· Traceability of data (versioning, anti-counterfeiting) should be guaranteed.

· Future-oriented approach for infrastructure with a clear concept for the integration of legacy systems should be applied.

· Certifications should be aligned.

· Alternatives to widespread commercial every-day services from US providers (such as Google docs) should be developed.

· Data should be stored, unless it is proven impossible, on servers and equipment operated in Europe and subject to EU rules.

· Awareness among institutions and stakeholders should be raised.