eurodoc

The European Council of Doctoral
Candidates and Junior Researchers

info@eurodoc.net
http://www.eurodoc.net
Rue d'Egmont 11, Brussels

Eurodoc input on UNESCO Open Science Recommendation

1. Context of the current commentary by Eurodoc

Following the electronic consultation on Open Science (OS) by UNESCO in the form of an online survey (February to July 2020) towards a global consensus regarding the transition to Open Science, the European Council of Doctoral Candidates and Junior Researchers (Eurodoc) answered with a series of proposals regarding key aspects to be included and obstacles to be addressed from the point of view of Early Career Researchers (ECRs). Eurodoc considers Open Science a main pillar in the career development and evaluation of ECRs and has a Working Group fully devoted to this topic. This group activity focuses on awareness, training, and policy research advocacy on promoting Open Science.

2. Summary of key points on the previous Eurodoc proposal

2.1. Key aspects pointed by Eurodoc

In the previous proposal, Eurodoc suggested (question 28 of the UNESCO survey) the following key objectives in the transition to Open Science to be considered in the UNESCO Global Open Science Recommendation:

General:
- To cover all **aspects** of OS, and to identify globally agreed **norms**
- To valorise OS practices in the research assessment as a common **standard** across different disciplines
- To create a standard-setting instrument for OS practices **assessment**

Specific:
- Coherent **policy** on OS at local, institutional, national and international levels
- Comprehensive **awareness** raising on OS
- **Training and support** on OS practices and skills, and also clarification on who is responsible for this training (namely the responsibility of academic institutions in their courses)
- **Incentive/Reward System** implemented at different levels, including in the performance evaluation of researchers and the assessment of research careers, to facilitate the involvement of all the actors in the Research & Innovation ecosystem

2.2. Obstacles identified by Eurodoc

We also highlighted (question 29 of the UNESCO survey) as major barriers and obstacles to a

global consensus on Open Science the following:

- **socio-cultural** (differences in cultural values, discipline approaches and between career stages; lack of a reward system for recognition of OS practices),
- **technological** (differences in resources and research e-infrastructures between countries and institutions),
- **political** (different paces, lack of policy development and strategic planning between institutions and countries),
- **organizational** (lack of promotion of an open research culture that actually supports and addresses OS skills training),
- **economic** (differences in economic power between institutions and countries to implement required OS infrastructures)
- **legal** (lack of international legislation regarding research outputs, including data protection, commercial interests, and conflict of interest).

3. **Commentary of Eurodoc on the first draft of the recommendation following its previous proposal (June 2020)**

3.1. Key aspects and Obstacles identified by Eurodoc already included in the First Draft

Eurodoc welcomes the first draft of the recommendation released by UNESCO and considers that this draft covers many core aspects necessary for a successful transition to practice Open Science. We find that most of the key points and obstacles identified by Eurodoc are included in the current document.

In particular, Eurodoc acknowledges that the recommendation considers:
   a) the role of different stakeholders involved in the process;
   b) different levels of implementation (individual, institutional, national, regional and international levels) - each one with their own characteristics and needs;
   c) the need to consider cultural differences.

Also, we recognize the challenges of providing open access to all scientific outputs. Therefore, we support the definition of the required legal frameworks to ensure a proper balance between openness and adequate protection of individual, commercial and other special groups' rights. Eurodoc further highlights that the necessary legal, strategic and structural support needs to be adapted to the different cultures and research incomes to facilitate the transition towards Open Science.

We support that the recommendation pressures the current research system to change its incentive system by rewarding Open Science practices. This point is particularly relevant to promote the change of the current research culture. Finally, the draft considers the necessary investment in advanced training and professionalization of roles related with Open Science.

3.2. What Eurodoc finds missing in the first draft regarding important points to be included

Here we highlight what Eurodoc believes that should be included, or at least more explicitly stated in the Recommendation.

a) The Recommendation generally encourages the Member states to «*strategically plan and support Open Science awareness raising at institutional, national and regional levels*» (section IV, (i) point 18., page 10). Nevertheless, Eurodoc believes that strategic plans at each level should be further emphasized. The lack of a strategic plan is reported to be a key reason for failure in the long-term for OS to succeed. In fact, one the results of the Scholarly Publishing and Academic Resources Coalition (SPARC) survey report "Scoping the Open Science Infrastructure Landscape in Europe"[1] (october 2020) referred the following: «*a large majority [of open science infrastructures - OSIs] exercise some good governance. Almost all OSIs are also guided by mission/vision documents (94 out of 118), with considerably fewer utilising strategic plans or roadmaps (68 out of 118), illustrating that many know where they want to go, but considerably less have formulated and described plans on how to get there. Following good governance is a key challenge for OSIs*». To guarantee a long-term sustainability of OS practices and their inclusion in the research culture, this strategic planning should include funding, initiatives plans and open infrastractures investments.

b) Taking advantage of this reference to Open Science Infrustructures (OSIs) in point (a), we believe that the current definition of OSI in the first draft of the UNESCO recommendation is incomplete, as it focus only "digital infrastructures", namely platforms and repositories required to perform Open Science (see section II, point 9. (iv)). However, according to the SPARC report (see above), «*by infrastructure we mean the structures and services needed for Open Science/Scholarship to operate, e.g. services, protocols, standards and software that the academic ecosystem needs in order to perform its functions during the research lifecycle*». Importantly, by services we can also include physical facilities that enable researchers to perform Open Science as such core facilities, open labs, and open libraries. An example of a catalogue of OSI and core facilities is in the project CatRIS[2].

c) The UNESCO first draft mentions Open Educational Resources very little. In point 9. (section II), which lists the key elements of OS, point (vi) defines Open Educational Resources, but does not state concrete examples of good practices about what this means (it does for other elements). In general, the draft is scarce in what refers to Open Educational materials, but we believe this is an important point. Although Eurodoc acknowledges that advanced education and training should be responsibility of the institutions and governments, the open access to this type of resources (e.g. such as Massive Open Online Courses, MOOC) is particularly relevant for researchers and other stakeholders in less developed countries which may find harder to get support from their

---

[1] Ficarra et al. (2020, October 30). Scoping the Open Science Infrastructure Landscape in Europe. Zenodo. http://doi.org/10.5281/zenodo.4159838

[2] https://project.catris.eu/about_catris

institutions/governments. Therefore, we underline the importance of open access to educational resources.

d) The draft from UNESCO recognizes the importance of raising awareness of OS at several levels. One of the possible ways of bringing awareness to all the stakeholders involved in the research and innovation ecosystem is through development of education and training programs in OS. The draft mentions training in open data a few times, as recommendations to the Member States in 21. (c) and 22. (b) and (c). Although it also states «*Providing systematic and continuous capacity building on Open Science concepts, principles and practice*» in point 21., what follows seems to focus mainly on open data and less on training in OS in general. We believe the Recommendation should enforce more explicit education and training in OS in all its facets and elements and include OS in the researchers curricula independently of their career stage.

e) Moreover, although the draft, under the definition of Open Evaluation, states the existence of a transparent and participatory peer review process (section II, point 9., (v), page 5), the clear recommendation of Open Peer Review practices is lacking. Only on page 15 (section IV, (vi), point 23.) we can find a reference to peer review and evaluation, but without emphasis in this type of practice, or without clearly identifying it as "Open Review" practices.
We recognize that the recommendation needs to cover many aspects and should not lose itself in detail, but we believe that the Open Peer Reviewing process is a key step for the transparency and openness of science, and needs to be clearly emphasized, namely in terms of behaviours to adopt by Publishers, editors and leaders of professional societies related with scientific publishing.

f) Regarding sharing of data and good data management, data stewardship is referred throughout the Recommendation, what Eurodoc congratulates. This management is connected also with the necessary professionalization of scientific roles regarding data curation and management. But data management can and should also be performed by the researchers (although they may have support for this) under Data Management Plans (DMPs), which define the whole lifecycle of data and allow a priori definition of correct procedures and data standards. We believe these types of plans should at least be referred to in the Recommendation.

g) The UNESCO recommendation identifies the importance of attribution of persistent identifiers (PIDs) (section IV, (iii), point 20., (e), page 11) to digital objects and research outputs. Eurodoc suggests an extension with the explicit reference of these PIDs to researchers (e.g. ORCiD) and research protocols, to ensure all participants in research, scholarship, and innovation are uniquely identified and connected with their contributions across disciplines and borders. For this, the use of authorship attribution systems and tools (e.g. CRediT – Contributor Roles Taxonomy) may be particularly useful by providing a

systematization and standardization of the attributions.

h) Moreover, point 21.(e), states the abolition of Article processing charges (APCs) or BPCs (for Books). This would be the ideal scenario. However, to be realistic, and in line with what Eurodoc suggested before, if no abolition is possible, at least a reduced and real-cost processing charge should be applied: academic publishers should hereby be encouraged to improve their publication options and reduce the fees for Open Access.

i) Eurodoc considers the Research Assessment and incentive system as a key aspect to highlight. The recommendation already states the necessity of broadening and updating the evaluation criteria for recruitment and promotion goals ((v), point 22., page 13 and 14). However, Eurodoc suggests that, to promote a change in research culture at local and institutional levels, the OS practices should be also considered for performance evaluation of research units, and allocation of research funding within the institution as well as on the national level, thus extending the individual career development aspects of the reward system to an institutional and collective one as well.

j) Finally, the Recommendation should clearly state the possible misuse of OS and potential measures to remedy such transgressions[3]. Therefore, we highlight that, despite multiple positive effects, OS can still have weak or questionable impact. This can stem from incidences of negligence, such as the misuse, misinterpretation, and overgeneralization of research findings, or the use of non-peer-reviewed publications and data. Further, OS practices may even be malicious in nature, including the existence or exploitation of APCs already stated in the draft, the existence of predatory journals, and the emergence of low-quality and false science. Finally, impact may be lost in situations where specific infrastructures, knowledge or practices are not available to all researchers, or may place too much pressure on stakeholders.

Eurodoc believes that only awareness of OS as a whole, with its advantages and challenges, allows the consideration of developing solutions. Raising the awareness and perception levels as well as spreading applicable knowledge on specific aspects of OS through education and training should be a top priority.

However, current bottlenecks of OS might even offer an opportunity to overcome existing systemic shortcomings. As such, predatory journals are largely a consequence of the existing incentive system and competitiveness, whereas improved evaluation criteria and metrics offer a chance to at least partly exclude and reduce such malpractices. Moreover, current scientific culture has long established journals as the main communication channels within research fields, which were necessarily used (a) to achieve a high visibility of research results in the field (through scientific publications), (b) to gain a reputation in the respective field that is necessary for career advancement, and (c) to fulfil current evaluation criteria. Adapting the policies of the funders and the research career assessment might

---

[3] Besançon et al., (preprint). Open Science Saves Lives: Lessons from the COVID-19 Pandemic. DOI: 10.1101/2020.08.13.24984

induce a cultural change within the research fields towards diamond open access (OA) journals, which in many fields already exist. This would solve the unjustifiably high APCs or subscription prices of the publishers and it would allow for inclusion of lesser funded laboratories or national communities. Finally, the consideration of other research outputs (i.e. data, code, protocols, etc) besides scientific publications (i.e. articles) may broaden the platforms and communication channels one can use to disseminate scientific results, and shall improve on the recent reproducibility crisis.

As final remarks, Eurodoc wishes that UNESCO will include a strategy for a long-term sustainability plan for Open Science that will address the open educational resources, enforcing the training to be included in the researchers' curricula. Moreover, as Early Career Researchers we would like to have clear definitions of the Open Science key elements. Eurodoc hopes that this recommendation will be adopted by institutions, publishers, editors, and all other relevant stakeholders involved. We recommend that researchers will take a key role in good data management, data stewardship and data management plans. Eurodoc also suggests a change in the research culture by including Open Science in the research assessment. Finally, we believe that Open Science is an opportunity to overcome existing misuses of science and bad research practices, which will improve research ethics.