



Institutional Open Science Policy

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1. INTRODUCTION

Open science consists in the sharing of knowledge, data, and tools as early as possible in the Research and Innovation (R&I) process, in open collaboration with all relevant knowledge actors, including academia, industry, public authorities, end users, citizens and society at large. Open science has the potential to increase the quality, efficiency and impact of R&I, lead to greater responsiveness to societal challenges, and increase trust of society in the science system.

Fostering and adoption of open science practices is coupled with rethinking how to evaluate the quality of research and researchers. For the past 30-40 years, funding agencies and other policy makers have chosen a very indirect fashion to assess scientific quality. Instead of analysing the quality of the results “per se” published in an article, they chose to use bibliometric indicators such as the Journal Impact Factor (JIF). JIF is the average number of times one article in that journal was cited (for a given year) and was created to help librarians identify journals to purchase.

2. MOTIVATION for the update of CRM Open Access Policy

2.1 BACKGROUND

Science policy in the period 2020-2022 has been momentous regarding the endorsement of open science best practices by funders. The momentum started to build up with the San Francisco Declaration on Research Assessment (DORA) in 2012, during a meeting of the American Society of Cell Biology. The Declaration recognized the need to improve the ways researchers and scholarly research outputs are evaluated. It states that the impact factor is not to be used as a substitute "measure of the quality of individual research articles, or in hiring, promotion, or funding decisions".

The Governing Council of the Spanish Agency for Research (Spanish Acronym AEI) approved at its meeting on April 19, 2021, the adherence of the Spanish main funder to DORA. They have followed a very large number of academic organizations and funding bodies worldwide in the previous decade. This meant the AEI's pledge to change a research evaluation system centred on the impact factor of journals. This adherence has been reflected on the amendments to the Spanish Science Law on 7th September 2022, in which the AEI has embraced and pushed most significantly the open science changes.

At European level, in November 2022, the European Commission (as funding agency) signed the Agreement on Reforming Research Assessment and endorsed DORA officially. The EC has pledged that the adoption of open access and open data practices shall and can be compatible with the possibility of taking appropriate measures to

protect, prior to scientific publication, rights in the results of research, development, and innovation, in accordance with national and European regulations on intellectual property, plant varieties or business secrets.

The Agreement sets a common direction for changes in assessment practices for research, researchers, and research organizations, with the goal to maximise the quality and impact of research. It covers the principles, commitments, and timeframe for reforms and lays out the principles for the Coalition for Advancing Research Assessment ([CoARA](#)). The Coalition is a group of organizations willing to work together to implement the reform. The Coalition's establishment is one of the main expected outcomes of the European Research Area ([ERA Policy Agenda for 2022-2024](#)) which includes an action to advance the reform of the assessment system for research, researchers and institutions.

2.2 EUROPEAN COMMISSION: HORIZON EUROPE position on Open Science

The EC has taken a turn in its open science policy as a funder agency in 2021. Its main programme to fund research, Horizon Europe (HE; 2021-2027), will not reimburse "hybrid" journals fees. This means that the fees to publish as "open" an individual article (arising from an HE project) in a subscription journal will not be an eligible cost. In order to comply with the mandate of immediate share of peer-reviewed articles, the authors would have to choose open access journals or retain their copyright to publish in a thematic or institutional repository.

Regarding open data, HE goes well beyond the optional pilot during H2020. Any beneficiary is now requested to manage responsibly research data in line with the FAIR principles of 'Findability', 'Accessibility', 'Interoperability' and 'Reusability', notably through the generalized use of data management plans, and ensuring access to research data under the principle 'as open as possible, as closed as necessary', in case there is a possible commercial exploitation involved.

It should not be forgotten the influence of COVID-19 pandemic in the development of open science in 2021-2022. Horizon Europe also dictates that in cases of public emergency (for instance, pandemics), if requested by the granting authority, immediate open access to all research outputs under open licenses or, if exceptions apply, access under fair and reasonable conditions to legal entities that need the research outputs to address the public emergency.

2.3 SPAIN: Reformed Spanish Law of Science

The article 37 of the 14/2011 Spanish Law of Science refers to Open Science. In the recent reform, issued on 7th September 2022, this article was significantly amended. Its reformed version states:

1. Public agents of the Spanish System of Science, Technology and Innovation will promote that the results of research, including scientific publications, data, codes and methodologies, are available in open access. This will be promoted through the development of repositories.
2. Research staff in the public sector or whose research activity is mostly publicly funded and who choose to disseminate their research results in scientific publications shall deposit a copy of the final version accepted for publication and the data associated therewith in open access institutional or thematic repositories, simultaneously with the date of publication. This represents a change with the 2012 Law, which allowed for 6 months delays in executing this action, due mostly to embargoes imposed by publishers.
3. Researchers, institutions or companies benefiting from public funds must always comply with the open access obligations. These will be set out in the bases or grant agreements of the calls for projects. Recipients of public grants and subsidies shall ensure that they retain the intellectual property rights necessary to comply with open access requirements.
4. The results of the research available in open access may be used by the Public Administrations in their evaluation processes, including the evaluation of the research merit.

Regarding open data, the amended law stresses that the system will also promote other initiatives aimed at facilitating free access and management of data generated by research, in accordance with the FAIR principles, to develop open infrastructures and platforms, to promote the publication of scientific results in open access, and the open participation of civil society in scientific processes.

3. CRM Open Science institutional Policy.

As an institution in the Spanish Research system, the CRM must abide to the Spanish Law of Science, as well as to the specific rules of funders such as the European Commission. As an awarded Maria de Maeztu Unit of Excellence, every output of the research will also have to comply with the specific rules of this call.

The CRM endorses DORA and is a signatory of the Agreement of the Research Assessment Reform promoted by the EC and the EUA. (https://coara.eu/app/uploads/2022/09/2022_07_19_rra_agreement_final.pdf 7; December 2022).

In the aforementioned context of changes, the CRM has adapted its open access (2028) policy and extended to detail the institutional best practices regarding open data and open software that its research staff is expected to adopt.

3.1 OPEN ACCESS

The current text represents an update of its open access policy (2018), enlarging its principles to embrace fully the open science concept, aligned with the context described in the previous section.

- CRM promotes open access to scientific results in the form of peer-reviewed articles, curated databases and software authored by its research faculty, postdoctoral fellows, and students.
- CRM fosters and supports that the affiliated and hired research staff -deposit their academic publications—journal papers and conference proceedings—in its own institutional repository, hosted by RECERCAT-CSUC (<https://www.recercat.cat/handle/2072/199267>). This will be facilitated by the CRM Research Support personnel (Data Steward as a primary contact person). Training and advice will be provided on an ongoing basis.
- Aligned with the Spanish Law, the academic publications authored by CRM research staff (both affiliated and hired) must be published 1- in open-access journals or 2- in journals allowing that their works are deposited immediately, without any embargo, in an institutional repository such as CRM-RECERCAT (<https://www.recercat.cat/handle/2072/199267>).
- The CRM researchers enjoying an affiliation with one University can benefit from the transformative agreements that the Spanish Universities have reached with diverse publishers. The University libraries should be contacted to learn the specific scenario and proceed in such direction.
- The CRM aligns with the European Commission recommendations, discouraging publications in any hybrid journal. The centre will not cover open access fees to publish in a paywall, traditional journal (i.e. therefore hybrid) from institutional

funds such as CERCA in-house funding, Mm Award and related sources (predoctoral grants) from 1st April 2023 onwards.

- CRM research staff is strongly encouraged to avoid predatory journals, through checking the Beall's list of publishers classified as such. For those publishing in fundamental mathematics, the MathSciNet database of validated and approved journals is a good reference.

3.2 OPEN DATA

- As part of the iCERCA network, the CRM will require his research groups use the CORA Research Data Repository ([CORARDR; https://dataverse.csuc.cat](https://dataverse.csuc.cat)) to release the FAIR data from their projects. They will rely on the support provided by CSUC, from the preparation of the Data Management Plans to the uploading of data sets in this repository.
- CRM will act appropriately to safeguard authors' copyright and recognition in relation to publications deposited in CRM-RECERCAT and datasets in CORARDR and will work along with CSUC and with its support for its perpetual preservation.

3.3 OPEN SOFTWARE

- Because of the Open / FAIR Data policy described above, CRM research staff should work whenever possible with open software code for their data generation, manipulation, or annotation, including benchmarking new mathematical models and algorithms. This allows to comply the requirement of reproducibility.
- CRM will provide support to use CORA Research Data Repository (CoRA. RDR) as a platform to share software produced by our research groups as well as advice on the most adequate copyleft licenses for its distribution. The centre also recommends the use of the GitHub platform or similar alternatives to disseminate, share and control versions of such codes.

4. REFERENCES

- European Commission position and mandates as a funder for Open Science:
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- DORA (San Francisco Declaration on Research Assessment, 2012): <https://sfdora.org/read>
- Agreement on Research Assessment Reform <https://coara.eu/agreement/the-agreement-full-text>
- Spanish Law of Science - Amendments Full text 7th Sept 2022: <https://www.boe.es/eli/es/l/2022/09/05/17/con>
- Predatory publishing:
 - Beall's list: <https://beallslist.net>
 - EMS advice article: <https://euromathsoc.org/predatory-publishing>

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