

OPEN ACCESS AND OPEN FILE FORMATS FOR LONG-TERM SUSTAINABILITY OF DIGITAL ASSETS AND ASSOCIATED SOFTWARE IN OPEN SCIENCE

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Extended Abstract

Expectations for transparency and openness in research have been issues for ongoing discussions amongst researchers, funding agencies, policy makers, and the broader society for decades. There are currently a number of initiatives for increased openness in research, both at international (e.g. EU, 2013a, 2013b) and national levels (e.g. Lundell, 2014; SRC, 2013). Such (open science) initiatives include openness in both conduct of research and in provision of outcomes, something which involves "sustainable access to and re-use of documents and datasets" (ALLEA, 2012). Further, these issues have been discussed by the G8 Science Ministers who declared that they "could lead efforts to improve the transparency, coherence and coordination of the global scientific research enterprise in order to address global challenges and maximise the social and economic benefits of research" (UK, 2013).

Transparency in research and open access to peer-reviewed research results and data require long-term sustainability of digital assets and associated software. To this end, it has been recognised that open scientific research results and data "should be easily discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable to specific quality standards." (UK, 2013) Further, the EU recognises the importance of utilising open source software and open file formats (and other open standards) for re-usability and sustainability of digital assets developed and maintained in research: "Special attention must also be given to preserving scientific software and models in order to keep information re-usable and re-producible. Open standards, formats and open source software solutions can help ensure this." (EC, 2012)

The EU expects that publications "must be stored using text file formats which are either standardised or otherwise publicly known so that anyone can develop new tools for working with these documents" (EC, 2013b). However, the EU does not detail recommendations concerning use of sustainable (open) file formats, something which significantly impacts the sustainability of research results. Nor does the Swedish Research Council address this aspect at all in its recommendations towards open science to the Swedish government (SCR, 2015). Further, neither the EU nor the Swedish Research Council detail recommendations concerning use of specific licensing for open source software. For the Swedish context, it is apparent that there is a need to undertake further analysis of all openness dimensions.

Conduct of research in an open science paradigm implies the need for addressing a number of openness dimensions related to complex policy, social, technical, and legal (licensing) aspects. This implies a need for consideration of development and (long-term) maintenance of digital assets, which includes a need to consider: open access (of data and peer-reviewed publications), open standards (for digital assets), and open source software (produced and used in research). Many decisions taken during the conduct of any research project involve consideration of these dimensions, and complex relationships between these. Our ongoing research project addresses challenges related to these dimensions with a focus on open access and open standards. Specifically we investigate conditions and practices related to use of open access and open file formats for provision of digital assets in open science.

References

- ALLEA (2012) Open Science for the 21st century: A declaration of ALL European Academics, presented at a special session with the Vice-President of the European Commission, and Commissioner in charge of the Digital Agenda, Mme Neelie Kroes , ALLEA General Assembly, Accademia dei Lincei, Rome, 11-12 April. URL: <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/news/ALLEA%20Declaration%20on%20Open%20Science.pdf>
- Corbett, S. (2011) Creative Commons Licences, the Copyright Regime and the Online Community: Is there a Fatal Disconnect?, *The Modern Law Review*, Vol. 74(4), pp. 503-531.
- EC (2012) Towards better access to scientific information: Boosting the benefits of public investments in research, Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions, European Commission, COM(2012) 401 final, Brussels, 17 July.
- EC (2013a) Guidelines on Data Management in Horizon 2020, The EU Framework Programme for Research and Innovation: HORIZON 2020, European Commission, Version 1.0, 11 December.
- EC (2013b) Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020, The EU Framework Programme for Research and Innovation: HORIZON 2020, European Commission, Version 1.0, 11 December.
- Lundell, B. (2014) Comments on proposal for national guidelines for open access ("Förslag till Nationella riktlinjer för open access ", Swedish Research Council, 10 October) from Björn Lundell, 2 November. URL: <http://www.vr.se/omvetenskapsradet/regeringsuppdrag/regeringsuppdrag/nationellariklinjerforoppentillgangtillvetenskapliginformation/kommenteravetenskapsradetsutkasttillnationellariklinjer.4.70a7940b146b8f93794b3d6c.html>
- SRC (2015) Förslag till nationella riktlinjer för öppen tillgång till vetenskaplig information, Swedish Research Council, Stockholm, ISBN 978-91-7307-251-9. (*in Swedish*).
- UK (2013) G8 Science Ministers Statement, GOV.UK, Signed by G8 Science Ministers 12 June 2013, Foreign & Commonwealth Office, 13 June. URL: <https://www.gov.uk/government/news/g8-science-ministers-statement>