

National Initiatives for Open Science in Europe – H2020 Research and Innovation action – contract no. 857645



The Financial Aspects of Open Science

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Open Science Policies

- National Research, Development and Innovation Office Open Science Position Paper October 2021
- UNESCO <u>Recommendation on Open Science</u> November 2021
- European Commission <u>Towards a reform of the research assessment system</u> (scoping report) November 2021
- G6 statement on Open Science December 2021
- France: <u>Decree on RDM</u> December 2021
- USA: OSTP <u>policy guidance</u> on OA and RDM August 2022
- Coalition for Advancing Research Assessment Agreement (<u>CoARA</u>) October 2022







Európai Bizottság







Eurobarometer 2021

QA9.5 The following are some statements that people have made about science or technology. For each statement, please indicate to what extent you agree or disagree.

The results of publicly funded research should be made available online free of charge (%)



Source: European citizens' knowledge and attitudes towards science and technology (2021)



Open Access

Most researched area of OS, specially of the financial aspects.

Worldwide Publishing Market



- Thinking about articles is a very ,traditional' research paradigm
- Researchers face direct financial barriers (APC)
- Easy to define and monitor
- Because of the above, OA plays a dominant role in the research funding system

Source: https://oa2020.org/wp-content/uploads/OA2020_Conceptual_Framework.pdf



Research Data Management

- Many times, financial costs are not covered by the researchers, but by the institution or the consortium. Labour force and expertise are the main costs
- Many criteria appears in the funding system that are not easy to monitor
 - Data Management Plan
 - FAIR principles
- Costs for RDM has to be allocated at the application of some (US) research funds



What will it cost to manage and share my data?

\checkmark What to cost in?



Infrastructure costs

- Digitisation
- Storage
- Licensing and Security ... and
- Sharing and Re-use
- Archiving

Skills costs

- Data wrangling
- Description and Documentation
- Metadata generation
- Formatting and Cleaning
- Consent and Anonymisation

Source: http://doi.org/10.5281/zenodo.4548344



Research Assessment Reforms

- Probably the biggest financial effect will be caused by this pillar of open science
- Research performance based on publication and citations is easy to monitor
- Open science factors in the assessment are not easy to standardize



Source: https://www.uu.nl/en/research/open-science/tracks/recognition-and-rewards



Cooperation is an essential part of the research system, that can make financial support a lot easier

- Research Data Repositories supported centrally (Zenodo, ELKH)
- Consortial OA agreements (EISZ, SCOAP³)
- Digital research infrastructure (EOSC)
- Preprint servers, joint repository discovery (Unpaywall, CORE, BASE)





PID Cost-Benefit Analysis

Cost-benefit analysis by JISC of 6 persistent identifiers: DOI, ORCID, ROR, RAiD, Crossref Grants

UK PID Consortium Cost-Benefit Analysis



21st June 2021

- A benefit of 5,76M GBP can be achieved in a 5-year period by using DOI and ORCID in a system level
- Main saving can be reached by optimising the research funding system by using joint metadata properly: 420M GBP in 5 years
- Using a joint metadata scheme is a system-level investment

Josh Brown, Phill Jones, Alice Meadows, Fiona Murphy, Paul Clayton. (2021). UK PID Consortium: Cost-Benefit Analysis. <u>https://doi.org/10.5281/zenodo.4772627</u>



Peer-Review Cost Estimation

- Balázs Aczél (ELTE) and his colleagues estimated the cost of peer review activities done ,freely' by researchers (same methodology as domestic and household work cost estimation). Yearly 100-130 work hour only for USA, GB, and China researchers, that is equal of 2,5 billion USD https://doi.org/10.1186/s41073-021-00118-2
- Nature trialled open peer review in 2021. A great number of researchers support this method, that might help peer-review activity to became part of the research assessment system: <u>https://doi.org/10.1038/d41586-022-00493-w</u>

Image source: https://doi.org/10.1038/d41586-022-00493-w

PEER REVIEW OPENS UP

In 2021 and 2022, transparent peer-review comments were published alongside many *Nature* research articles. In total, 447 out of 974 articles in 2021 were published with anonymous referee reports. By 1 February 2022, it was 30 out of 61 articles.



onature

published with peer-review exchanges

Cost Prediction of Transformative OA Agreements

- Interactive tables were published by Max Planck
 Digital Library that supports the cost prediction of transformative OA agreements
- Tables can be filtered by institution and publisher, and provides different scenarios that help institutional decision making



Ralf Schimmer, Ádám Dér, Colleen Campbell (2021). The DEAL Cost Modeling Tool: A practical contribution for evaluating the impact and costs of transformative open access publishing agreements. <u>https://doi.org/10.17617/2.3331716</u>



Open Science vs. Financial Burdens

Recommendations, Statements, Guidelines Practical steps, Financial requirements with concrete conditions

Free access, Replicability, Cooperation, Evidence-driven research

Obligation, Extra work load



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