

Working Together to Strengthen Research in Europe European Research Area Conference 21-23 October 2009, Brussels

Summary of discussion and conclusions of individual session 1.5 Open Access and Preservation

The issue and context:

- The Web has changed the way science is communicated, allowing for much faster, wider, deeper dissemination of 'traditional' outputs, such as articles in journals, and of data (raw, derived, reduced, etc).
- Progress on improving the efficacy of dissemination by Open Access is hindered by a number of things – researcher unawareness of opportunities, researcher misunderstanding of copyright issues and what they are allowed to do with their outputs, publisher obstruction particularly by manipulating the copyright issue in their own favour, lack of understanding of the opportunities in research institutions and by research funders
- Some progress has been made in terms of policy developments by individual funders and institutions, but this is patchy
- Industry, which innovates upon basic research, has poor access to that research in Europe
- The Commission, as a funder, has mandated that Open Access be provided for 20% of FP7-funded outputs
- The Council of Ministers produced recommendations for Member States in late 2008 that, according to the CREST survey, have been acted upon only minimally, with some MS more active than others and some leading the world in this regard

Analysis of the challenges and European dimension

Looking forward to a new Framework Programme needs to take into account that, in future, the way research will be carried out will have profoundly changed from what it is today. Computerised methods and machine applications will play a major role in data-driven science. The use of machines and computerised science is the major rationale behind the growing trend to provide all kinds of research information in an open, re-usable format. Open Access is a transformative principle in research communication that can improve the efficacy of the scientific effort in ERA and worldwide.

Since Open Access is not a means in itself, but only a gateway to the exploitation of research results, three major challenges need to be met:

1. It is necessary to motivate the provision of any research results in an openly accessible format that also ensures re-usability by others throughout Europe and the world – and all of this for a very long time.
2. Digital research publications, data, software and tools to manipulate the data need to work together seamlessly. This requires a European research communication ecosystem of efficient infrastructures that enable and encourage a culture of sharing.
3. The open provision of research results and data will only lead to economic growth in Europe and the world if highly efficient search and retrieval functionalities are put in place that allow the discovery of all relevant material and present it in useful ways. This kind of service is needed not only by the research community, but also by stakeholders in industry, especially SMEs, which build upon the results of scientific research.

The following recommendations answer to these three broad fields.

Conclusions/Recommendations:

Theme: the need to provide research outputs (articles, books, datasets etc) in an openly accessible and easily re-usable way

- Continue and expand the Commission's mandatory policy on providing Open Access to 20% of FP7-funded research articles: the policy should cover 100% of articles and datasets
- Require a data management plan for each EU-funded project and promote best practice on data provision, care and storage
- Explicitly acknowledge this need for proper data management by allowing an element of funding in each grant awarded to be spent on ICT activities relating to preservation of data outputs (we anticipate that this may amount to 10-15% of the cost of the project in some disciplinary areas)

- Mindful of the increasing importance of machine readability and manipulation of research outputs in future research and data generation, take steps to discourage PDF as a science output format and encourage and enable the use of XML as the common standard
- Address the issues of rights of use, and of article and data ownership. A legal regime is needed in Europe that enables reusability and creates a culture of sharing of scientific outputs, and new copyright rules are needed that are appropriate to academic research requirements, taking into account the requirement not just to access but also to re-use research outputs
- With regard to long term preservation of articles, develop a pilot e-journal registration service so that libraries can be sure which material is being formally looked after for the long term by other agencies and which they themselves need to take steps to preserve
- Work on the establishment of financial mechanisms to enable Open Access publication

Theme: the need to provide an integrated system of science communication – an ecosystem of infrastructures – that ensures the optimal functioning of the system

- Encourage *research institutions* across Europe to adopt common policies and standards that allow sharing of all research outputs (noting that the institutions fund and maintain the infrastructural components of the system but that individual research disciplinary communities will need to develop guidelines on good practice, since this will vary between disciplines). Institutions should be the locus for collection of the original research outputs and centralised (perhaps disciplinary-based) services should harvest, mash-up and re-present content in ways that suit disciplinary needs
- Act upon the aspiration to make ERA the world leader in establishing a culture of research sharing: currently the focus is on national-level policies and practices and coordination is lacking across Member States
- Support and reward researchers who participate in the culture of sharing. New systems of assessment, recognition and reward need to be developed, along with the tools to provide them. In particular, address the need for new metrics to measure worth and performance of individual scientists, derived from the usage and impact of both publications and data outputs
- Joining the system up properly at technical infrastructure level will provide the means to develop these things. One component is already in place – the CERIF metadata standard that provides the syntactical foundation for describing not only the research information/outputs themselves but also the context in which they are produced. Encouraging the development of further technical standards that address similar issues is essential in building the foundations to enable true interoperability across the European repository network
- Coordinate the development by Member States of facilities to store and preserve outputs, including complex objects, at a decomposed level, enabling future generations of scientists to access and re-use individual components of the outputs

Theme: the weak link between the basic research sector and innovative industries in ERA

- Take the necessary steps outlined above to collect and present scientific information in an openly-accessible form for innovating SMEs to use
- Provide assistance to innovating SMEs to enable them to discover, find and obtain research material that they need to create future wealth

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