



## Special Issue on “Research data and new forms of scholarly communication”

### Editorial

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Recently researchers have realized that the current scholarly communication model, based exclusively on articles, is inherently limited and inefficient, even when all articles are in digital form and accessible through the Web. Communication is effective if and only if the recipient of the information, who is often not known beforehand, can comprehend, scrutinize, challenge and reproduce the findings presented. Often the paper itself is not sufficient to convey the information that is required to fully understand all details of a research outcome and of the underlying processes. This makes it extremely difficult, if not impossible, for a recipient of the information to validate or invalidate the finding. This problem is particularly relevant in domains that heavily rely on data-driven research. This deficiency forces researchers to find additional information and to investigate further. This is time consuming and even then it does not guarantee that the knowledge gap can be bridged.

In order to overcome this deficiency and thus further increase the efficiency of the scholarly communication, the variety of published digital artefacts is

being reinforced and widened. Experimental datasets, software, maps, tables and graphs, etc., are now starting to be recognized as “first class objects” in the research communication, as journal articles are today. They are published as research objects or included as part of complex aggregations dedicated to document a research result.

We are now at the beginning of a revolutionary process that transforms scholarly communication. Supporting this change requires a deep re-thinking of organizational models, technological solutions and policies. All stakeholders are currently working on overcoming traditional models, be they researchers, journal editors, repositories or libraries.

This special issue is dedicated to providing insights into the challenges involved in this transformation and into solutions designed and implemented. It is expected that this overview can contribute to foster this innovation process and suggest directions for further improvements.

The first paper by P. Manghi and A. Bardi analyses the complex and varied universe of “Enhanced publications”, new dissemination instruments for research outcomes. It provides a classification of the solutions with the aim of facilitating the comparison, analysis, and the discussion on this new publication paradigm.

The paper by IJ.J. Aalbersberg et al. presents the “Article of the Future” project. It exemplifies a technological solution for interlinking scientific articles and research data, for an automatic enrichment of their description through text-mining and for a 3D visualization embedded in online articles.

The paper by M. Fenner and J. Lin looks at a new approach to evaluate and assess research communication. It suggests new forms of measuring research impact by focussing, in particular, on the concept of article-level metrics. Metrics are collected on a per article basis and complemented by further real-time data from the web, altmetrics: blog posts, social bookmarks, social media and the like.

The last two papers conclude by showcasing how different academic institutions in Europe are organising themselves to deal with the management of data as new forms of outcomes of their researchers.

In particular, the paper by F. Kruse and J.B. Thestrup reports the findings of a DEFF research project that has analysed how the Danish universities store, preserve and provide access to research data. Finally, the paper by S. Vlaeminck and G.G. Wagner summarizes the results of an analysis among primarily German scientific infrastructure service providers evaluated with regard to their potential services for the management of publication-related research data.