



Convenience and quality: cloud-based personal research tools and the evolving scholarly record

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Over the past few years a vast range of cloud-based scholarly communication tools have been added to the researcher's toolkit. The [timeline developed by Jeroen Bosman and Bianca Kramer](#) at Utrecht University Library illustrates how dramatic these developments have been. I welcome this trajectory as placing control of the information aspects of the research process firmly in the hands of the researcher. In many cases, these tools have been developed by researchers initially for their own purposes, and then shared with colleagues more widely. This has to be a good thing - nimble and responsive solutions to common problems.

In many instances, this work has been developed in a spirit of openness - [protocols.io](#), for example - was developed by ZappyLab with [funding raised through Kickstarter](#). Other examples of popular services include [hypothes.is](#) for annotating, discussing and collaborating; [F1000Research](#) for publishing and [Figshare](#) for data sharing.

The release this week of the European Union report, [Emerging reputation mechanisms for scholars](#) by the research team at [CIBER](#) further affirms the widespread use of innovative tools and platforms on driving scholarly reputation. Their review looks at a wide sweep of systems including repositories, altmetrics and peer review systems, electronic lab notebooks and social networking services. Anyone interested in this area will find much of interest.

However, I do worry about the impact of these developments on the [stewardship of the evolving scholarly record](#). As I think about the library of the future, I see us providing a portfolio of three reasonably discrete service offerings, at least to those working in the STEM fields. Firstly, we have the library as gateway to a collection of information resources. Whilst local collections of printed materials (and other physical objects) will continue to be relevant to some disciplines, in the networked world, they will represent only a subset of readily available content, provided overwhelmingly in digital form. Secondly, we will have the library as a learning environment, increasingly focussed on providing a range of tools and technologies, and varied study spaces, all aimed at students. We know already that in many settings, students use these spaces, extensively, but largely independent of the collections and librarians. Thirdly, and, in my view, most importantly, the library will be home to a team of information specialists whose role increasingly is to provide expertise in information aspects of the research lifecycle. These activities include, but are not restricted to, discovery of existing content, preparation of grant applications, including impact assessment of the applicant's prior research, data management planning and execution, analysis and computation, writing, publishing, dissemination and curation. I see the librarian's role here as twofold: providing advice on which tools and approaches are most suitable in a given situation; and stewarding the outcomes of research on behalf of the wider

institutional and research communities.

We cannot presume, or assume, these roles for ourselves, though. We need to be welcomed by researchers into their laboratories and clinics, and their invitation will be more forthcoming if we are viewed as credible players in the research process. To me, this is beyond question: our core professional knowledge lies firmly in this space. When we are visible in the research setting, we can see how researchers interact with information activities, and provide guidance on best practice. When we are absent, researchers will make their best effort, but may not necessarily adopt best stewardship practices.

Some years ago, the (British) Chartered Institute of Library and Information Professionals developed a graphical illustration of the body of professional knowledge for its members. Whilst the supporting text has been updated, I find the model insightful, and one that speaks of the enduring nature of our professional contribution in dynamic research environments.

So how might we move forward? One of the key tasks will be to ensure our knowledge of the tools available to our research community. The Utrecht model offered a glimpse into many of these, as does the CIBER report. Conversations with researchers, tracking their blogs and keeping abreast of developments in the research field all will assist. We must also experiment - testing new tools, identifying their strengths and weaknesses, and sharing our observations with each other. Events such as the recent [Advancing Research Communication & Scholarship conference](#) also provide opportunity for knowledge sharing.

We must also forge new connections with researchers on campus. I was in conversation with one of our computer science faculty members recently. He considered the library irrelevant to him and his colleagues - a statement arising from his perception of the library's traditional role as provider of collections. In his field, all new research is deposited in [arXiv](#) and he hadn't imagined that our broader expertise might bring value to his research. When I talked about a new approach to library engagement, focussing on services such as assessing the impact and reception of his work, he became very enthusiastic.

But a Dean's enthusiasm does not always reflect the capacity of already busy librarians. We need shared understanding of our priorities, and an appreciation that we must invest in recruiting more librarians to deliver these more intensive information services. But I strongly believe that as our collections become viewed as one [component of a networked and global resource](#), the value librarians bring to the research university will lie firmly in bringing our professional expertise directly into the research setting.