

The Brave New World of Scholarly Repositories

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Keynote Abstract

The manner in which scholarly research is conducted is changing rapidly. This is most evident in Science and Engineering, but similar revolutionary trends are becoming apparent across disciplines. Improvements in computing and network technologies, digital data capture techniques, and powerful data mining techniques enable research practices that are highly collaborative, network-based, and data-intensive. These dramatic changes in the nature of scholarly research require corresponding fundamental changes in scholarly communication. The established scholarly communication system has not kept pace with these revolutionary changes in research practice and has not capitalized on the immense capabilities offered by the digital, networked environment. In essence, the current electronic scholarly communication system is a scanned copy of its paper-based predecessor upon which a thin layer of cross-venue interoperability has been overlaid. The time has come to design and deploy the innately digital scholarly communication system that scholars deserve, and that is able to capture the digital scholarly record, make it accessible, and preserve it over time.

A vision has emerged of a new scholarly communication infrastructure that has a wide variety of repositories at its fundament. These repositories can be institutional, discipline-oriented, dataset repositories, publisher's repositories, learning object repositories, etc. But in this vision, the repositories are not regarded to be static nodes in a scholarly communication system merely tasked with archiving digital scholarly materials, and making them accessible through discovery interfaces. Rather, these repositories are regarded to be part of a loose, global federation of repositories, and scholarly communication itself is regarded to be a global workflow (or value chain) across dynamic repositories. Thinking about scholarly communication in this sense brings up intriguing questions including the level of cross-repository interoperability required to support such workflows, the consequences of the requirement to persist the communication infrastructure as technologies evolve, the manner in which to record and express the chain of evidence as a unit of scholarly communication is used and re-used across the scholarly communication system, etc.

The keynote address will describe the vision of a new digital scholarly communication system, and will present perspectives on technical avenues to facilitate its emergence as they have been explored by the Pathways project (Cornell University & Los Alamos National Laboratory) funded by the National Science Foundation, and in the April 2006 "Augmenting Interoperability across Scholarly Repositories" summit sponsored by Microsoft, the Mellon Foundation, the Coalition for Networked Information (CNI), the Digital Library Federation (DLF), and the Joint Information Systems Committee (JISC).