Libraries Should Take Control of Library Technology

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To meet library users' expectations for mobility, speed, customization, and connection, libraries need a fundamentally different technology infrastructure. Only by taking responsibility for the design and implementation of their technologies will libraries be able to deliver their resources and services effectively within an increasingly competitive information environment.

Mobility

Libraries know that researchers' work styles and expectations have changed, but have not yet fully addressed the magnitude of those changes. Take, for example, the trend toward mobility. The growing use of smart-phones suggests that very soon most library users will have small, highly functional computers in their pockets and use them regularly for seeking, manipulating, and sharing information. At the same time, the growth of interdisciplinary and international research teams will accelerate demand for library resources and services to be delivered anytime and anywhere.

Although libraries have been experimenting with ways to allow catalog searching, reference consulting, and use of their digital resources on cell phones and other mobile devices, today's library systems and interfaces reflect an earlier time when library materials were retrieved from a building or on large-screen computers attached to a campus network. Current licensing and usage policies are usually based on location rather than work styles, requiring different strategies for accessing library resources from non-campus locations or complicated rules for what can or cannot be shared among institutions. Researchers need to share library resources across an international research team as easily as they now share them across campus or across a regional consortium. The most vibrant libraries in the future will be those that embrace delivery on hand-held devices at any time and from anywhere as their core strategy rather than as an enhanced service or special option.

Speed

In addition to expecting access to resources and services anytime and anywhere, future library users will expect delivery that is almost instantaneous. Of course, they already do! Every librarian has a story of a student preferring a quickly discovered item to one that is more scholarly but more time-consuming to find, or of a researcher who orders a book from Amazon rather than waiting for interlibrary loan. Libraries are not businesses, but library users' experiences with online businesses shape their expectations for finding and receiving information. Online businesses do not expect a customer to undergo training before being able to find a product, to need personal assistance in placing an order, or to wait a week for an item to be moved from one location to another, and then have to go to pick it up. Speedy and simple searching, extensive information about an item, and quick delivery directly to the user will be requirements for successful libraries in the future. Yet our systems for purchasing, describing, and tracking library materials make it difficult for us to move at the speed that users expect.

Customization and connection

Whether they are returning to an online merchant, checking Facebook, or sending a text message, users expect those systems to know who they are, what their preferences are, what their prior behavior in the system was, and who their associates are. Such systems not only remember things about their users, they also offer suggestions about items that may interest them, adjust the interface to make it easier to perform repeated tasks, and introduce them to people and groups with common interests. Online versions of [The New York Times](#) and [The Washington Post](#) now offer tools that allow readers to access data mentioned in articles and display it in ways that are meaningful to them. The most successful libraries in the future will be those that support researchers by offering them data and tools that help them connect in new ways with other people, to see relationships across information sources, and to transform and share information in new ways. The technologies libraries now have available to them make this data sharing nearly impossible.

Future technologies for libraries

Libraries' efforts to respond to the trends of mobility, speed, customization, and connection have been hampered by the technology systems that underlie their day to day activities. Current technologies trap

library data inside the Integrated Library System (ILS), require staff to use inefficient workflows, impose non-intuitive strategies on library users, and isolate library systems from other parts of the academic enterprise. Libraries have attempted to work around the weaknesses of their ILS or to develop their own software to address specific needs, but until recently, those efforts have been fragmented.

Hope for the future comes from library collaborations that are addressing broad functionality and creating open technology systems that can be adapted to changing needs. Library-initiated open-source projects such as Koha, Evergreen, VuFind, and eXtensible Catalog offer possibilities for libraries to make the changes they need and want to make.

In 2009, the Open Library Environment (OLE) Project, funded by the Andrew W. Mellon Foundation and led by Duke University, convened representatives from hundreds of libraries and organizations to propose ways technology could support rather than limit what libraries want to do. Thinking outside the box of their current systems, project participants envisioned very different ways of working. Suppose, they said, the library system and the course management system could freely exchange information. The creation of new courses could automatically trigger notifications to subject librarians so they could reach out to instructors and students. The library system could route information about relevant new acquisitions directly to the instructor of the course, formatted for easy addition to the course website. As instructors added reading assignments to their course website, bibliographic information could be collected to inform library purchasing decisions. Or, suppose the campus research system notified the library system when a new grant is awarded. The library's technology system could provide information to the researcher about options for storing data throughout the project and depositing articles published from the project into an institutional repository, and could offer contact information for a library consultant.

From many hours of these future-directed discussions, the OLE Project team designed a technology framework that embeds libraries directly in the key processes of scholarship generation, knowledge management, and teaching and learning by utilizing existing enterprise systems where appropriate and by

delivering new services built on connections between the library's business systems and other technology systems. In the next phase of this project—Kuali OLE—a group of academic and research libraries led by Indiana University will build out the OLE framework into community-source software available to libraries worldwide.

As inventor Alan Kay famously said, "The best way to predict the future is to invent it." Working together to create the technology they need is an essential step in libraries' inventing their future.