

Smart Libraries Newsletter

News and Analysis in Library Technology Developments



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Smarter Libraries through Technology

Increasing Impact and Efficiency through Collaborative Technology

By Marshall Breeding

Driven by ever-increasing pressures to operate more efficiently, libraries continue to collaborate through partnerships, networks, or consortia participating in shared technology environments for the management and discovery of their collections. Through participation in a shared system, libraries can see significant cost savings for technology infrastructure compared to independent implementations. These libraries can also devote their technology personnel to other tasks supporting the library other than maintaining local servers and systems. More importantly, these shared systems enable libraries to have more impact, through providing access to a much broader array of resources than would be possible through the collections they acquire directly.

Shared infrastructure provides efficient ways to manage routine activities, enabling libraries to focus on emerging areas that may prove to be more strategic in the long term. Academic libraries, for example, can allocate more staff time and other resources to involvement with instructors and integration of library resources into classes or into support for scientific research through assistance with data management plans, data curation, or other types of activities that promote or assess the institution's research agenda. Traditional library services such as

creating, describing, and providing access to scholarly resources continue as essential services but may be seen as commodity-level activities that have a limited impact on raising the profile of the library within its parent institution or advancing the institution's capacity in research and teaching. It is essential for libraries to perform their traditional roles with the efficiency and at moderate cost, enabling them to devote energies to establishing new programs and exploring and extending their involvement in different areas of the university.

Shared infrastructure also significantly expands the resources available to the individuals in the community served by the library. Academic libraries today tend to acquire far fewer print or electronic books than previous times since the rising cost of electronic resources capture growing portions of collection budgets. Access to literature and scholarly monographs, however, remains critical. Even though academic libraries are acquiring fewer new titles, they maintain extensive legacy print collections and purchase access to large-scale e-book collections. More importantly, academic libraries participate in resource sharing programs to enable collaborative access to collection resources distributed among a wide network of partners. A statewide implementation of a library services platform makes it easy for users to find materials held in any participating organization; courier services and other delivery options can minimize the time it takes to receive materials provided beyond the local library.

The budgets of organizations and governmental entities funding libraries within a jurisdiction can also be a factor in moving to shared systems. Providing funding for a single large-scale project may end up providing savings in the long term, even though it will likely require substantial up-front investment.

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Some shared infrastructure projects can be seen as arising from mandates of funding organizations, though most are more grass-roots efforts of libraries developing strategies for increasing the impact of their collections and services through deep collaboration with partner institutions within their region.

Large-scale collaborative projects take place among public libraries as well as academics. Consortia of public libraries—often also including school or academic libraries—have thrived throughout the history of library automation. Recent years have seen consolidation of small or mid-sized consortia into larger-scale systems as well as the formation of new regional, statewide, and national initiatives. Public libraries see much higher levels of involvement with print books and e-books relative to electronic resources and strive to build dynamic collections of current high-demand titles as well to provide materials that cover the wide range of subjects and languages of interest to their communities. Large-scale shared systems not only expand the pool of resources available, but they also bring together a technical foundation for community engagement. For those that enable social features, such as peer recommendations, shared reading lists, and user-contributed reviews, larger-scale shared systems are more able to reach a critical mass of engagement compared to isolated systems.

The last year has seen a variety of large-scale collaborative projects either initiated or completed.

All of the public and school libraries in Denmark completed the implementation of a nationwide implementation of the Cicero library management system developed for the project by Systematic, a major IT systems and services firm. This system now serves all 99 municipalities in the country and their affiliated public and school libraries. With more than 2,428 libraries participating, the Danish Joint Library System (Fælles Bibliotekssystem) ranks globally as the largest shared system to date. The success of this project positions Systematic as a vendor of significant interest for other projects given the heightened interest in large-scale collaboration in a global industry generally lacking systems with proven capability. (See the June 2018 issue of *Smart Libraries Newsletter* for more details on this project.)

The public libraries in Flanders have recently completed the first implementation phase of a centralized library system based on the OCLC Wise library management system. This issue of *Smart Libraries Newsletter* includes coverage of this ongoing project. The implementation of Wise in Flanders attracts interest since it represents adoption of Wise outside of the Netherlands where it was developed and further paves the way for OCLC's recent initiative to further develop and market the product in the United States.

On the academic library front, Ex Libris continues to sweep the market, with Alma continuing to dominate as

the preferred platform for large-scale consortia and national initiatives.

The academic libraries in Switzerland have developed a major initiative for extended collaboration, including the implementation of shared technology infrastructure. This new project will see over 600 libraries affiliated with 130 organizations implement Alma and Primo by 2021.

National library of Poland announced in July 2018 that it had selected Ex Libris Alma and Primo for a nationwide library network. The Polish National Library's implementation of Alma and Primo will be extended to support a national network for resource management and discovery spanning academic and public libraries.

The academic libraries in Austria are likewise making progress to a collaborative network. The members of two service centers serving different groups of Austrian academic libraries, the Österreichische Bibliothekenverbund and the Österreichische Bibliothekenverbund und Service GmbH, have completed the migration of their bibliographic infrastructure to the Alma Network Zone. This enables Alma to serve as the cataloging system for all the affiliated members in the short term and paves the way for their full implementation of Alma, which is expected to be completed by 2021.

Members of the Ontario Council of University Libraries (OCUL) have begun the implementation of Alma. This implementation will be shared by 13 academic institutions, including six members of the Association of Research Libraries. The system will manage collections totaling 18 million bibliographic records and will serve a combined population of 340,000 students and faculty. Alma will displace the independent integrated library system (ILS) implementations previously in place in each institution, including Sierra, Millennium, Voyager, Symphony, and Evergreen.

The Partnership Among South Carolina Academic Libraries (PASCAL) announced its selection of Alma and Primo as a shared environment to replace the separate ILS products previously serving each institution. This implementation of Alma will serve the libraries of 51 academic institutions, both public and private, throughout North Carolina. PASCAL includes 51 of the 56 colleges and universities in South Carolina.

State University of New York, the largest public university systems in the US, selected Ex Libris Alma and Primo for its 61 libraries. The SUNY libraries are migrating from multiple instances of Aleph and multiple discovery services and other systems for electronic resource management. SUNY serves 467,000 students and its combined collections total 21 million volumes.

At a somewhat smaller scale, the Michigan Shared System Alliance was formed as a new consortium of the libraries of seven academic institutions in Michigan. This consortium

selected Ex Libris Alma and Primo. This shared Alma implementation will displace the standalone ILS of each institution, including Sierra and Voyager.

Although the trend for large-scale shared systems can be seen as increasing, many other libraries continue to maintain or acquire their own standalone resource management and discovery systems. Of the 3,024 academic libraries in the United States registered in the libraries.org database, 1,263 belong to an ILS-sharing consortium and 1,771 implement their ILS independently. Many libraries may not have collaborative or consortial relationships in place with their peers. Establishing new organizational partnerships requires extensive planning and must provide mutual benefits to the participants. Opportunities for resource sharing and operational efficiencies can be achieved apart from entirely shared infrastructure. Participation in multi-tenant platforms, even as independent institutions, can accrue benefits through shared knowledge bases and discovery indexes.

From this industry perspective, the growing trend in shared infrastructure favors the companies able to develop scaleable global platforms. These large projects represent winner-takes-all deals, which can accelerate the growth of companies at the expense of others.

Many of the projects covered by *Smart Libraries Newsletter* in the last few years highlight technologies that support resource sharing and collaboration. The system implementations carried out by individual organizations rarely rise to a level of interest to make headlines, even though they represent a large portion of the overall library technology sector. Libraries are complex institutions and will continue to deploy a diverse variety of technology products spanning many different organizational or collaborative models. *Smart Libraries Newsletter* will strive to be attentive to all of the different patterns of technology developments and implementations and highlight all these trends for its readers.

Ex Libris Alma to Form Basis of National Academic Network in Switzerland

The Swiss Library Service Platform (SLSP) has selected Ex Libris and Alma as the technology to power a new technical environment to support all the academic and research libraries in Switzerland. This initiative, coordinated through the ETH-Bibliothek, will encompass about 600 libraries spanning 130 institutions. This new centralized system will displace several incumbent individual-library and consortial ILS implementations including Aleph, VTLS Virtua, and Intota.

The Swiss Library Services Platform was formed through the consolidation of six existing networks. Some of the major library organizations participating in the project include Haute école de gestion de Genève, Informationsverbund Deutschschweiz, Réseau des bibliothèques de Suisse occidentale, the University of Basel, University of Bern, University of Zurich, Université de Fribourg, Université de Genève, and the Zentralbibliothek Zürich. The libraries in the project span

multiple cultures and languages, including German, Italian, and French.

Implementation of the Alma and Primo for SLSP will commence in 2019 and run through 2021.

This major project reinforces two trends. Ever larger groups of libraries, including national, statewide, and regional, can consolidate diverse and distributed automation environments into broadly shared technical infrastructure based on a library services platform. These initiatives aim to lower costs and to provide new opportunities for resource sharing. This project also reflects the trend for Ex Libris Alma as the library services platform that dominates large projects involving shared infrastructure among groups of research or academic libraries.

For more information, see <http://www.library.ethz.ch/en/About-us/Projects/SLSP-Swiss-Library-Service-Platform>.

Bibliotheca Makes Organizational Changes

Bibliotheca, a large consolidated company offering self-service, material handling, and e-book technologies to libraries,

announced organizational changes to its North American operations. Matthew Bellamy, who came to the company when

it acquired 3M Library Systems, was recently named as President for the Americas. He will lead the company's operations in the United States, Canada, and Brazil as well as coordinate with its business partners throughout Latin America. Bellamy was previously the Chief Commercial Officer for bibliotheca's global organization. Tom Henke has joined bibliotheca as Vice President of Sales for North America and Partners America. Prior to this role, Henke served as Vice President of Sales and

General Manager for Blackboard. Gary Gillem has joined bibliotheca as Inside Sales Manager.

No changes have been announced in bibliotheca's global management team. Simon Plankenhorn continues as the company's Chief Executive Officer. Bibliotheca is a portfolio company of One Equity Partners, a division of JP Morgan and Chase.

OCLC Wise Implementation Underway in Flanders

OCLC has positioned Wise as its strategic library automation offering for public libraries. WorldShare Management Services has proven to be successful among academic libraries but has not seen much adoption by public libraries (see figure 1). One of the largest public library groups using WorldShare Management Services are the public libraries in Northern Territory in Australia that selected the product in 2016.

Wise, as detailed in the April 2018 issue of *Smart Libraries Newsletter*, has recently been launched in the United States as its key product for public libraries. Its design emphasizes patron services and aims to provide libraries new capabilities for engagement with the communities they serve. Wise provides a comprehensive library portal in addition to traditional online catalog search and retrieval features. Allen County Public Library has engaged with OCLC as an early implementor for Wise.

Wise is based on software originally developed by the Dutch company Huijismans en Kuijpers Automatisering BV (HKA). The current Wise platform is based on the bicatWise system, used by most of the public libraries in the Netherlands. The original bicat software was developed by HKA when it was founded in 1983 and was based on the FoxPro database. The software subsequently has been entirely re-engineered with modern technology components and has evolved from a traditional ILS design to one more focused on patron services. OCLC acquired HKA in 2013 for \$11,523,200 according to its 2014 consolidated financial statement.

At the time that OCLC acquired HKA, bicatWise was used in about 66 percent of the public libraries in the Netherlands. Most of the other Dutch public libraries use Infor's v-smart library management system. The product had not been used extensively outside the Netherlands.

Following a major public tender, the libraries in the Flemish region of Belgium selected OCLC's Wise library management system in 2017 and are working through a phased

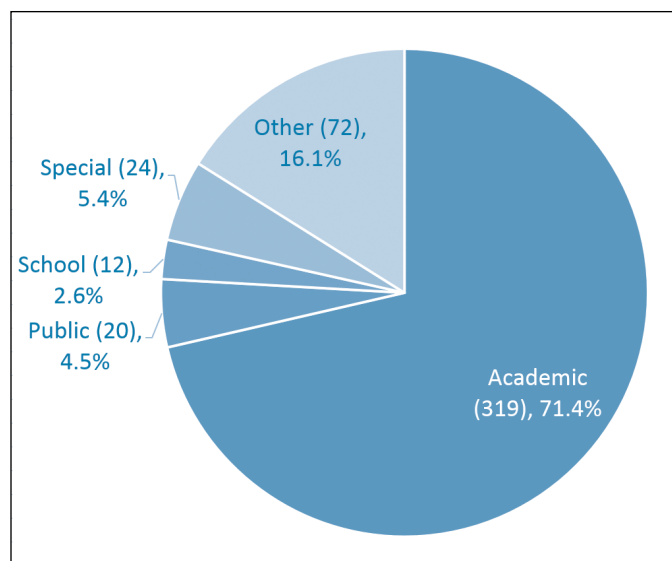


Figure 1: Distribution of 447 WorldShare Management Services Implementations by Library Type

implementation. This project represents one of the largest groups of libraries outside of the Netherlands to use bicatWise.

This project will result in a centralized library system for all public libraries in the region, displacing a number of incumbent implementations spanning several products. The implementation will take place in four phases, representing each of the provinces in the area, including Limburg, East Flanders, West Flanders, and Flemish Brabant and some libraries in the municipality of Brussels. This project extends user community of the Wise library management system beyond the Netherlands into the adjacent region of Flanders in Belgium.

OCLC began marketing Wise in the United States in March 2018. The Allen County Public Library anticipates placing OCLC Wise into production later in 2018.

Lyrasis Receives Funds for CollectionSpace Development

Lyrasis continues its close partnership with the Andrew W. Mellon foundation for the CollectionSpace collection management system for museums and related institutions. The Mellon Foundation has funded a new three-year \$1.2 million grant for the ongoing technical development of CollectionSpace and to work toward expanding its user community. The grant will fund additional staff to carry out this agenda and to provide support for the product to the institutions that have adopted CollectionSpace.

CollectionSpace was originally developed by a group of organizations, including the Museum of Moving Images in New York, the University of California, Berkeley, as well as the Centre for Applied Research in Educational Technologies affiliated with the University of Cambridge. The initiative also encompassed the Fluid Project founded at the OCAD University in Toronto focusing on user interfaces for open source software stronger in inclusive design and other aspects of user experience.

Lyrasis has been the organizational home of CollectionSpace since January 2014, with funding from the Mellon

Foundation to build organizational and technical capacity to support the project. In July 2016, the Mellon Foundation funded an \$850,000 grant to Lyrasis and the University of California, Berkeley for technical development and sustainability planning.

In other open source activities, Lyrasis has also become deeply involved with the Library Simplified initiative and the SimplyE library mobile e-reading app originally developed at the New York Public Library (NYPL). Lyrasis and the Digital Public Library of America entered a partnership in November 2017 to develop an e-content and hosting platform for libraries based on Library Simplified as the middleware infrastructure and administrative tools for e-book collections and using the SimplyE app for discovery and access. In August 2018, James English, who led the development of SimplyE at NYPL, joined Lyrasis as its Product Development Strategist for Library Simplified/SimplyE. NYPL initially launched SimplyE in July 2016 replete with 300,000 e-books available to the library's cardholders.

Smart Libraries Q&A

Each issue, Marshall Breeding responds to questions submitted by readers. Have a question that you want answered? Email it to Samantha Imburgia, Associate Editor for ALA TechSource, at simburgia@ala.org.

What best practices should we implement when assessing tools and resources that libraries may be using that could impact patron's data security, such as Google Analytics?

Analytics provide valuable information to organizations regarding the effectiveness of their websites. Libraries value their virtual presence and find value in measuring the level of use their site receives and detailed information on the types of users accessing the site, the devices used, and many other details that may help them improve its content, design, and technical implementation.

Many different tools are available for website use analysis, including Google Analytics, which is not only one of the most

powerful services, but also is able to be implemented without financial cost. As with other free services, the provider may receive value through other types of currency. In this case, the currency takes the form of detailed data describing the use patterns of all the sites taking advantage of the service. The data also includes the IP address of the user requesting each resource. Libraries need to make informed decisions regarding how user and usage data are shared with external commercial organizations and whether the user data associated with specific resources accessed on the library website fits within their policies. Given most libraries have policies to protect patron privacy, personally identifiable data must be handled very carefully. Libraries routinely implement procedures that limit the collection of patron data and carefully control its dissemination to other parties, within the library, within its parent institution, and especially to any external third parties.

Google Analytics and competing services operate with an area of sensitive interactions among multiple stakeholders.

Google provides its analytics service as a free product, primarily to optimize its advertising business and to help commercial sites maximize income. Organizations using its advertising services rely on its Analytics service to measure the impact of their spending and to inform the design and workflow of their site. Google offers a free tier for its Analytics service, but gains important data and insight relating to use patterns based on data collected. Libraries must understand that use of Google Analytics involves transmitting data about every page request to Google servers. This data includes direct information regarding the user and the page delivered, as well as indirect information related to associations to other pages that this user may have visited in other contexts.

Google offers a configuration option for Google Analytics that anonymizes data before it is transmitted to its servers. This option must be set in the code snippet that is added to each page to enable Google Analytics. Unless this configuration setting is activated, Google will associate each page use captured with a specific address. Setting the ‘anonymizeIp’ parameter to “true” will instead mask the last portion of the IP address, making it more difficult to associate access to any given resource to a specific user (see Figure 2). The default version of the code snippet generated from the Google Analytics console will not include this configuration option, meaning that by default it collects and transmits the full IP address. In most cases, this code will be pasted into a single place in the content management system for the website in a way that it is presented on each page delivered. For more information, see the article “IP Anonymization in Analytics: A Technical Explanation of How Analytics Anonymizes IP Addresses” on the Google Analytics Help page (<https://support.google.com/analytics/answer/2763052?hl=en>).

Another possible behavior of Google Analytics enables tracking of the user through advertising networks. This option is configured either from within the embedded code snippet seen above or through the Google Analytics console. Advertising tracking is enabled through activating the “displayfeatures” plug-in (see Figure 3). Do not add this line to your code snippet if you want a higher level of privacy for your patrons.

This feature can also be set through the Google Analytics console. To check this setting, navigate to the ADMIN

```
<script>
(function(i,s,o,g,r,a,m){i['GoogleAnalyticsObject']=r;i[r]=i[r]||function(){
(i[r].q=i[r].q||[]).push(arguments)},i[r].l=1*new Date();a=s.createElement(o),
m=s.getElementsByTagName(o)[0];a.async=1;a.src=g;m.parentNode.insertBefore(a,m)
})(window,document,'script','https://www.google-analytics.com/analytics.js','ga');
ga('create', 'UA-xxxxxxx-1', 'auto');
ga('set', 'anonymizeIp', true);
ga('send', 'pageview');
</script>
```

Figure 2: Example of a webpage script for Google Analytics to anonymize IP addresses

```
<script>
(function(i,s,o,g,r,a,m){i['GoogleAnalyticsObject']=r;i[r]=i[r]||function(){
(i[r].q=i[r].q||[]).push(arguments)},i[r].l=1*new Date();a=s.createElement(o),
m=s.getElementsByTagName(o)[0];a.async=1;a.src=g;m.parentNode.insertBefore(a,m)
})(window,document,'script','https://www.google-analytics.com/analytics.js','ga');
ga('create', 'UA-xxxxxxx-1', 'auto');
ga('require', 'displayfeatures'); // don't add this if you want to protect privacy!!
ga('set', 'anonymizeIp', true);
ga('send', 'pageview');
</script>
```

Figure 3: Enabling the “displayfeatures” plug-in

Remarketing

Enables data collection for Display and Search Remarketing. This includes data from Google's signed-in users who have chosen to enable Google to associate their web and app browsing history with their Google account, and to use such information from their Google account to personalize ads. Google Analytics temporarily joins these identifiers to your Google Analytics data in order to support your audiences. When you enable this setting, you must adhere to the Google Analytics Advertising Features Policy, including rules around sensitive categories and the necessary privacy disclosures to your end users about the data you collect and share with Google.

OFF

Advertising Reporting Features

Enables Advertising Reporting features like Audience Demographics and Interests Reporting, Campaign Manager reporting, Display & Video 360 reporting, and Google Display Network Impression Reporting that help you better understand your users. Learn more

OFF

Figure 4: Google Analytics Remarketing and Advertising Reporting Features

page, select the web property to be configured, and under the “js Tracking Info” group, select “data collection.” The page titled “Data Collection for Advertising Features” will include two toggles, one for Remarketing and the other for Advertising Reporting Features (see figure 4). Both should be set to off to prevent user activity from being tracked in the advertising networks.

The page “Data Collection for Advertising Features” states the consequences of enabling these features:

“Note: By enabling the toggles below, you enable Google Analytics to automatically collect data about your traffic. If you don’t want to collect data for advertising features, then you need to turn off both toggles as well as ensure that you have not manually enabled any advertising features data collection in your Google Analytics tags.”

For more detailed information, see Eric Hellman’s article, “How to Enable/Disable Privacy Protection in Google

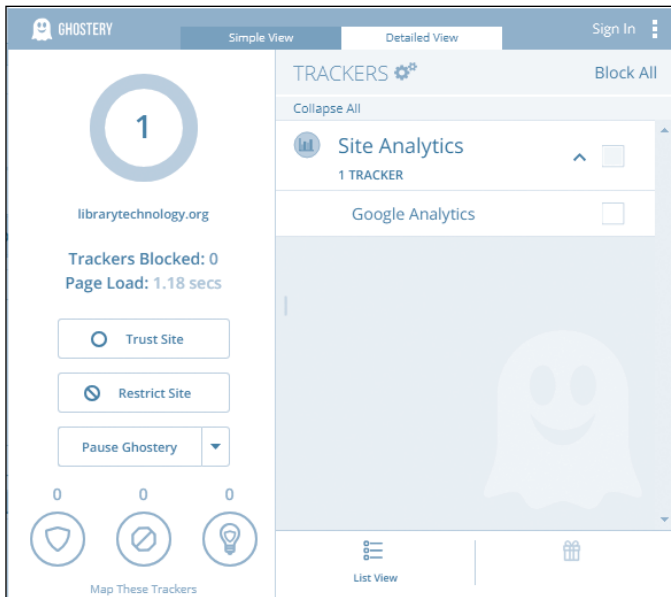


Figure 5: Example of the browser plug-in Ghostery, which displays all tracking tags on your website

Analytics (It's Easy to Get Wrong!)” at <https://go-to-hellman.blogspot.com/2017/02/how-to-enabledisable-privacy-protection.html>.

An alternative model of website analytics relies on server logs instead of the page tagging technique used by Google Analytics. All web servers, unless configured otherwise, record every page request into a locally stored log file. Using software to analyze a web server log file does not require sharing user traffic with any third party. These tools range from very simple reports to those that provide comprehensive site analysis as sophisticated as Google Analytics. As an example, AWStats is an open source log analysis tool, which has been continually developed since about 2000.

Google Analytics is one of many different tracking tags that may be embedded on web pages. Each tracking tag operates differently. Most will transmit some type of information to a third party. To provide an environment that protects patron privacy, it is important to know about every tracking tag and to understand what data are transmitted and what entities receive that data directly or indirectly.

In some cases, the page tracking tags are placed on a library page intentionally to activate some desired feature or service. It is also possible for tags to be enabled accidentally, or as a side effect of a widget or service embedded on the page.

It's tempting to add features by borrowing JavaScript or other code snippets from other sites without understanding all the details of how they work. Even experienced developers can introduce tracking mechanisms, making it important to survey your site periodically, especially after implementing a redesign or implementing major changes to ensure that it does not contain unintended tracking tags.

Libraries can perform a comprehensive assessment of their environment to determine all tracking tags present. Many tools are available, including Ghostery, which operates as a browser plug-in. Using Ghostery, a site using only the Google Analytics tag would be reported as shown in figure 5.

As libraries deploy technology-based applications or services, they must take into consideration many factors related to the security and privacy of patron data.

An important aspect of a patron privacy policy involves the non-collection or protection of personally identifiable information. Most web-based applications and services are designed to collect data on every aspect of their use. Personal information has become the currency of the internet, making user and usage data a valuable commodity. Any web server, for example, will come with a default configuration that logs all activity, usually tied to an IP address. Depending on the context, the IP address itself may not reveal a specific person but may be combined with other data points to triangulate activity to a specific person. In response to this possibility, libraries may opt to scrub web server logs of IP addresses or other personal information.

Most library-specific applications have been developed to limit or anonymize activity that can be linked to a specific individual. Products such as discovery services, integrated library systems, library services platforms, or others specifically developed for libraries will almost always include configuration options that can be enabled to limit collection of personal data. Libraries may need to be more careful when deploying applications or components designed for commercial use. It is likely that these services will need to be carefully configured to reflect the user privacy policies of the library. Any general-purpose content management systems, authentication services, or other components should be carefully reviewed regarding how they collect, store, and transmit personally identifying data. In broader terms, it is important to periodically audit the library's entire technical infrastructure, including vendor-provided services, to ensure that the actual behavior of all software and services conforms to the organizations stated privacy policies.



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