

Smart Libraries Newsletter

News and Analysis in Library Technology Developments



50 East Huron Street, Chicago, Illinois 60611-2795, USA



Smarter Libraries through Technology

Exploring New Directions for Library Services

By Marshall Breeding

Many opportunities seem to be emerging today for libraries to become involved in new areas of service. Libraries will naturally continue to carry out their traditional roles of acquiring, describing, and providing access to physical and digital collections and providing reference and other information-related services. But in addition to these traditional roles, libraries are increasingly exploring opportunities for involvement in other areas that will leverage their core expertise and values and benefit the communities they service. The long-term prosperity of libraries could be weakened if they remain constrained within the confines of traditional roles. Libraries have continually adapted to new forms of content, publishing models, technology, and cultural expectations. In this current era, libraries are expanding their sites beyond collections to new types of services. Many of these services are enabled through new technology components.

There have been several examples of expanding library involvement, many of which have been covered in previous issues of *Smart Libraries Newsletter*.

A not-so-recent trend involves the establishment of creative commons and makerspaces in libraries. These facilities support the creative work of library users. In academic libraries, creative commons not only provide access to the rich array of library

resources, but they also provide tools to incorporate content into research and writing projects. They often include multimedia tools, analytical engines, and modelling tools. Makerspaces likewise support the creative activities of library users, usually through the creation and manipulation of physical objects. These facilities might include 3D printers, circuit design components, interactive learning kits, or almost any other tool or object able to present some type of learning opportunity.

The last few years have seen adoption of tools for managing reading list for university courses. This genre initially saw considerable uptake in the United Kingdom with the Talis Aspire, which has now been adopted by about 100 institutions. Rebus:list is an open source alternative developed by PTFS Europe Ltd, which was divested to Cortext and the UK Copyright Licensing Agency in August 2017. Ex Libris launched its Leganto reading list product in 2015. These products help instructors identify supplemental materials for each course, which can be drawn from library collections or personal materials. They also address any issues related to copyright for materials added to reading lists. These reading list management platforms provide opportunities for the library to be more deeply involved with instructors or teaching faculty.

Libraries in academic and research libraries have seen many different areas of expanded involvement. Many have established programs to support research data management. Research projects conducted in universities generate massive amounts of data, which presents challenging problems for storage, management, and preservation. Many funding organizations, such as the National Science Foundation, now require data management

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plans. This activity falls nicely within libraries' areas of expertise, leading many to offer specialized services to help researchers develop and execute their data management plans.

Research-oriented universities also require technical infrastructure to help them manage and document various aspects of the research process. A genre of research management support systems helps institutions manage a complex array of related activities, including research outputs, such as scholarly papers produced, funding sources, active projects, maintain profiles of faculty members and other researchers, and funding opportunities. Examples of research management platforms include Pure from Elsevier, the open source VIVO software, Quali Research (formerly Coeus), and the recently announced Esploro platform from Ex Libris. Many libraries are seeing research support as a new opportunity. It will be interesting to observe how platforms, such as Ex Libris

Esploro, that involve the library as a stakeholder will fare compared to those that are more oriented to the institutional office of research, such as Elsevier Pure and Quali Research.

In this issue of *Smart Libraries Newsletter*, we feature Follett's acquisition of Fishtree, an educational technology company that has developed an adaptive learning platform. This product uses machine learning to create personalized learning experiences and will be integrated into Follett's Destiny integrated library system. The integration of a classroom support environment within Destiny brings the potential to strengthen the involvement of the school library or media center with curriculum. While it is yet to be seen how the capabilities of Fishtree will be folded into Destiny, it does seem like a positive move with the potential to create new opportunities for librarians to work more closely with teachers and to strengthen the visibility of the library within the school or district.

Follett Acquires Fishtree

Follett Corporation, in a move that strengthens its position in educational technology for the classroom, has acquired Fishtree and its adaptive learning platform. Fishtree is a relatively new company in the rapidly expanding sector of educational technology platforms for online learning and markets its platform to K-12 schools and districts, higher educational institutions, and the corporate sector. Fishtree distinguishes its products from other players in the increasingly crowded educational technology sector through incorporating machine learning to curate and align all resources and deliver personalized experiences for every student, while reducing the time required for teachers to prepare and deliver courses. The Fishtree platform has some characteristics of a learning management system, but it is an adaptive learning platform powered by machine learning, social tools, and analytics and comes pre-populated with a large repository of educational resources.

The Fishtree platform leverages a growing trend in PreK-12 schools for teachers to increasingly rely on Open Educational Resources (OERs) rather than textbooks. The rising costs of textbooks has become a major factor in the development of alternative methods of providing content in courses across all educational sectors, including primary and secondary schools, colleges, and universities. Online learning platforms incorporating open learning resources as well as all other sources, have attracted increasing interest in tools that can provide alternatives to traditional textbooks and ease the burden on teachers in creating lesson plans, grading, and reporting. This allows personalized learning to scale.

The acquisition of Fishtree places Follett in a sector of educational technology with rapidly growing interest and is consistent with its strategies of providing technology and content products that address an expanding scope of involvement in PreK-12 schools and districts.

An Adaptive Learning Platform

The mobile-friendly Fishtree adaptive learning platform enables teachers and other educational professionals to create courses on any topic, populated with OERs or even custom-developed content. The platform includes tools to create lesson plans, discover relevant content resources, align to standards, create and grade tests, and track student performance. The platform includes filters to search content resources by grade or reading level as well as topical terms.

The Fishtree platform comes populated with a large set of OERs that can be readily deployed into courses. The product can also import content from textbooks or existing courses and continuously index real-time content sources daily.

Using Artificial Intelligence to Drive Personalized Learning

The platform uses advanced analytics and machine learning to guide students through course material based on performance and other data points, such as interests, content usage and efficacy, and user interactions. Based on these technologies, the

Fishtree platform delivers personalized learning experiences for each student unlike a static course, which has a single path of navigation. Fishtree allows teachers to set customized learning outcomes according to the needs of each student. The platform continuously collects data as students work through their curriculum and uses that data to make recommendations or selections of material in each subsequent activity.

Since the platform gathers extensive information regarding each student, several layers of security have been implemented to protect sensitive data. The platform has been designed to ensure student privacy and to comply with regulatory frameworks such as FERPA (Family Educational Rights and Privacy Act).

Designed for Integration

Fishtree has designed its platform to be easily integrated into other components of a school's educational infrastructure. It has developed a flexible set of APIs for interoperability with learning management systems or student information systems and supports the industry-standard LTI (Learning Tools Interoperability) specifications.

Business Model

The Fishtree business model relies on revenue from subscription fees paid for access to the platform. The company charges fees of about \$10 annually per student. The subscription fees in most cases should offer considerable savings compared to purchasing or licensing textbooks for each student or reducing the effort required to curate and align resources in the classroom.

Follett Expands Its Reach

Following the acquisition of Fishtree, Follett will integrate this adaptive learning platform into its Destiny library management system. Destiny is well established as the dominant automation system among K-12 schools in the United States, with implementations in over 70,000 US public school libraries.

While Follett School Solutions originally specialized in automation tools for school libraries, for the last decade or so, it has also invested in technologies and content addressing the broader needs of schools and districts. The company has produced versions of Destiny, for example, configured to manage textbooks, equipment, and other educational assets, even when not directly managed by the school library.

In 2010, Follett acquired X2 Development Corporation and its Aspen Student Information System, providing an inroad to the school district administrative systems sector. Aspen provides a platform to consolidate all information about students,

Open Educational Resources

Open educational resources (OERs) have become a key component of learning environments across the educational spectrum. In contrast to textbooks, which deliver content in a proprietary way, OERs are openly licensed units of content that can be incorporated into educational environments without direct costs. OERs can be used according to specific Creative Commons licenses. Though the specific terms may vary, the expectation is that OERs can be freely accessed, modified or updated, and redistributed.

A recent court case further clarified the conditions in the way that OERs can be used. Great Minds, a non-profit organization involved in curriculum materials in math and English for primary and secondary schools filed a lawsuit against FedEx for its role in copying materials on behalf of schools interested in using its materials. A federal appeals court ruled against Great Minds stating that schools can contract with a third party, even if it is a for-profit company, to copy materials to be used by students and teachers.¹ This ruling softens concerns that may arise as schools employ commercial services to assist in their adoption of OERs.

1. Sean Cavanagh, "Curriculum Provider Loses Court Fight with FedEx Over Copying 'Open' Materials," EdWeek Market Brief, July 13, 2018, <https://marketbrief.edweek.org/marketplace-k-12/curriculum-provider-loses-court-fight-fedex-copying-open-materials/?cmp=soc-tw-shr-mktbf>.

ranging from basic contact and demographic information to class schedules, events, grades, health records, or other related data elements. As a solution provider, Follett will meet a growing market demand for integrated solutions that meet the needs of all stakeholders in school districts and libraries.

Follett's Partnership with Lumen Learning

Follett has other areas of involvement with courseware platforms and OERs. In April 2017, Follett Higher Education entered into a distribution agreement with Lumen Learning. Lumen Learning develops course content, which is released as OERs. The arrangement with Lumen enabled Follett Higher Education to deepen its involvement with OERs in addition to its extensive offering of traditional textbooks and other content products. Follett Higher Education provides content and courseware materials to over 1,200 colleges and universities.

Following this agreement, Follett Higher Education integrated Lumen's OER-based courseware through its included program using its Follett Discover platform. Students pay a

support fee for the Lumen platform and content, ranging from \$10 through \$25, a significant savings compared to purchasing traditional print or electronic textbooks.

Fishtree Background

Fishtree was founded in Dublin, Ireland by Terry Nealon and Jim Butler in 2012 as an educational technology company. Nealon served as the company's Chief Executive Officer and Chair, and Butler served as its Chief Technology Officer. Fishtree has grown from a startup to a mid-sized company of about 15 personnel at the time of its acquisition by Follett. The company is headquartered in Arlington, VA with its development facilities in Dublin.

The founders of the company have extensive backgrounds in educational publishing and technology. Prior to founding Fishtree, Nealon served as Executive Vice President and General Manager of international markets at Houghton Mifflin Harcourt, and Butler was Senior Vice President, Platforms with Riverdeep and Senior Vice President, Technology Product Development at Houghton Mifflin Harcourt. Both exited Houghton Mifflin Harcourt in 2012.

Leading up to its acquisition by Follett, Fishtree had attracted significant investments to fund its product development and marketing strategies. In 2015, for example, the company secured \$3 million in venture funding to further develop its technology and expand into the US market. Investors included New Markets Venture Partners, Recruit Holdings based in Tokyo, Japan, Educational Credit Management Corporation, and JISR Venture Partners in Dubai and raised \$5 million more with current investors and Jefferson Education.²

2. John Kennedy, "E-learning Start-up Fishtree to Create 25 New Jobs after Raising US\$3M Investment," Silicon Republic, March 3, 2015, <https://www.siliconrepublic.com/jobs/e-learning-start-up-fishtree-to-create-25-new-jobs-after-raising-us3m-investment>.

Fishtree formed multiple partnerships to acquire content resources to populate its platform and to integrate with learning management systems. Fishtree entered into a partnership with Blackboard Learning in May 2016 to integrate its platform with the Blackboard learning management system using the LTI. Fishtree also works with Instructure for integration with its Canvas learning management system. In April 2016, Fishtree entered into a collaboration with Learnosity, a provider of assessment technology, to integrate its assessment tools and metrics into its adaptive learning platform.

Nealon will join Follett to lead the initiative to incorporate the technologies developed by Fishtree into the Follett product portfolio, including its integration with Destiny.

The acquisition of Fishtree represents a major opportunity for the expansion of its technology into the US school market. The Fishtree platform will be made available as an optional added-cost extension of Destiny, which is used in the vast majority of public schools in the United States. Follett did not disclose the terms of its acquisition of Fishtree.

Follett Corporate Background

Follett Corporation is one of the largest companies serving libraries and educational institutions, with an estimated \$3.6 billion in annual revenue. The company includes multiple operating businesses, including Follett School Solutions (<https://www.folletlearning.com/>), which offers educational materials and technology products for PreK-12 schools and districts; and Follett Higher Education, which manages physical and virtual campus bookstores, offers an e-commerce environment campus retail outlets, and provides campus technology products and course materials (includedED). In 2016, Follett Corporation acquired Baker & Taylor, a major distributor of content products to public libraries, bookstores, and other retail outlets.

BiblioCommons Launches BiblioOmni

BiblioCommons continues to expand its portfolio of products and services for public libraries. The company has recently developed a new marketing platform to enable libraries to create and distribute content to promote its collections, services, and events. This new product aims to help libraries increase awareness of their services by the communities they serve using some of the techniques that have been well established

in the marketing and communications activities in other commercial and non-profit sectors.

BiblioCommons has developed BiblioOmni as an extension of BiblioWeb, a library-specific content management system for deploying a full-featured website. BiblioWeb provides tools that enable library personnel to configure engaging website designs and create content without technical expertise. It

follows a “card architecture,” where content can be stored as small blocks with appropriate metadata that can then be organized and presented in different ways on the website. These products are based on the overarching concept that content should be created once and then be available to be published or distributed in many ways. BiblioOmni will also be available to libraries that do not use BiblioWeb.

BiblioOmni leverages the technical infrastructure for BiblioWeb, but instead of presenting the content on the website, it can be distributed through multiple communications channels directly and via APIs. Typical distribution channels might include newsletters distributed via email, digital signage within the library or in remote locations, presentations on self-service kiosks, as well as printed flyers that may be posted within the library or sent via physical mail. BiblioOmni can tap into many different content sources, such as news announcements, events, book lists created in BiblioCore, lists of new acquisitions, and other programming content. Data

from BiblioEvents, for example, can flow into BiblioOmni.

BiblioOmni creates customized marketing channels based on the themes of the current marketing campaign and on the recipients personalized profile. Marketing content can then be customized according to the recipients nearest branch location as well as by interest topics and demographic data. Blending the context of the marketing agenda and personalized user information, the specific content is assembled and distributed through each communication channel.

BiblioCommons positions BiblioOmni as a library-specific marketing automation platform. It puts tools into the hands of libraries that are commonplace in the business world to help them increase awareness of library services, which in turn should increase engagement with library services and the use of library resources.

BiblioOmni is currently in its development phase with expected availability later in 2018. For more information, see <http://www.loveyouonlineibrary.com/>.

New Modules for Bibliotheca cloudLibrary

Bibliotheca has recently introduced several new components of its cloudLibrary digital lending platform. These new modules expand the scope of cloudLibrary interfaces to also integrate services related to the library’s physical collection. The new features available for the cloudLibrary mobile app include the capability to

- Use their mobile device to checkout items from the library without using a library-provided kiosk or visiting a service desk. In most cases, the user will need to use a library kiosk to disable the security alarm for items checked out through the app.
- View their borrowing history of both physical and digital

items through the cloudLibrary app.

- Receive notifications and receipts related to the physical items they have borrowed.

These new features fall within bibliotheca’s ongoing strategy to converge physical and digital lending in libraries. The company has developed extensive product portfolios for self-service, sorting, and automated materials handling for physical materials and has become established as a major player in the digital lending arena through the cloudLibrary platform, which was originally developed by 3M Library Services, which bibliotheca acquired in 2016.

People in the News

ProQuest has named Oren Beit-Arie as its Chief Strategy Officer. Beit-Arie previously served in a similar role for Ex Libris. This move expands his charge to include all the business units of ProQuest.

Backstage Library Works has promoted Lara Henry to

Vice President of Metadata Services. She previously held roles including Vice President of Operations, product manager for cataloging, and manager of client support. Kelly Barrall with Backstage Library Works has been promoted to Vice President of Digitization Services.

Florida Academic Library Services Cooperative Update

The June 2016 issue of *Smart Libraries Newsletter* included an article on major academic library projects that had been awarded to Innovative Interfaces. These awards included the selection of Sierra and Encore for resource management and discovery for the 40 institutions associated with the Florida Academic Library Services Cooperative (FALSC). This project

has been terminated with an amicable separation agreement between FALSC and Innovative. FALSC will continue to operate its two Aleph instances and work toward a more consistent set of deployment options based on its locally developed Mango interface, EBSCO Discover Service, and Full Text Finder as it considers future options.

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.

Which OPAC vendors are best known for compliance to accessibility best practices and standards? How can we advocate to make sure vendors make Section 508 and WCAG compliance a priority in their design?

As institutions that serve diverse communities, libraries expect that their websites, catalogs, discovery services, and content products be deployed so that they can be well used by persons with disabilities. Libraries generally work hard to ensure that the web resources for which they have direct control in design and internal coding not only have great functional design, but also comply with best practices and standards for accessibility. As noted, multiple regulations and standards provide guidance on the presentation of web-based resources, so that they can be better used by persons with disabilities:

- **Section 508** refers to the United States Rehabilitation Act of 1973, Section 508: Web-based Intranet and Internet Information and Applications, which specifically applies to resources implemented or developed by US Federal agencies, but they are also voluntarily adopted as requirements for other organizations (<https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards>).
- **WCAG** or Web Content Accessibility Guidelines 2.0 are recommendations issued by the W3C describing tech-

niques to make web content more accessible (<https://www.w3.org/TR/WCAG20/>).

These two sets of recommendations and requirements complement each other. Websites able to comply with both documents can be considered accessible from a technical viewpoint. Functional accessibility may be a more subjective evaluation.

It can be especially challenging to design and deploy library catalogs in ways that not only technically comply to standards for accessibility but that are also functionally usable by persons with different types of disabilities. Some library catalogs are not easy to use by persons with disabilities due to overall complexity, dated user interface mechanisms, and library-specific labelling and terminology, which may not be readily understood by users.

Methods for achieving good accessibility differs between locally-developed websites or web-based resources and those purchased or licensed from external vendors. Libraries have direct control over the resources they develop internally and can make any needed adjustments to internal coding and interface design needed to make it accessible. This approach assumes that the library has the needed technical expertise to not only perform the development, but also to have expertise in the accessibility standards and in design of interfaces for optimal user experience.

Most libraries depend on externally-supplied products or on contractors for at least part of their web environment. For these resources, achieving accessibility must be accomplished through product selection and working with the vendor or contractor. Requirements for accessibility must be included as

requirements in the procurement process and validated once the selected product has been implemented.

Widely used products, such as library catalogs, can generally be expected to comply with the minimal requirements of Section 508 and WCAG, especially those offered by the major vendors. Since almost all libraries now include accessibility requirements in their request for proposals, lack of compliance would exclude them from ongoing sales opportunities. But don't take compliance for granted: make accessibility compliance a mandatory requirement in any procurement process, evaluate responses accordingly, and validate conformance once implemented.

When assessing public-facing web products, such as online catalogs, a preliminary investigation might include checking whether the vendors provide statements regarding the accessibility of their products. Some of the major library technology vendors provide these statements:

- SirsiDynix: <http://www.sirsidynix.com/accessibility>
- EBSCO Information Services: <https://www.ebsco.com/technology/accessibility>
- ProQuest / Ex Libris
 - Primo: https://knowledge.exlibrisgroup.com/Primo/Product_Documentation/System_Administration_Guide/010System_Architecture/070Accessibility
 - Summon: [https://knowledge.exlibrisgroup.com/Summon/Product_Documentation/Frequently_Asked_Questions_\(FAQs\)/Summon%3A_Accessibility_Compliance](https://knowledge.exlibrisgroup.com/Summon/Product_Documentation/Frequently_Asked_Questions_(FAQs)/Summon%3A_Accessibility_Compliance)
 - Alma: https://knowledge.exlibrisgroup.com/Alma/Product_Materials/050Alma_FAQs/General/Accessibility
- OCLC: <https://www.oclc.org/en/policies/accessibility.html>
- Koha: <https://wiki.koha-community.org/wiki/Accessibility>

This approach applies to online catalogs based on open source software as well as proprietary products. At least in the United States, most open source implementation take place through support services from commercial providers. Open source products should be held to the same level of conformance. There may be fewer barriers to achieving compliance since both the vendor and the library have access to the source code that generates the patron-facing pages, and adjustments can be made as needed.

It is also important to note that both proprietary and open source catalogs and discovery interfaces allow for considerable customization. Libraries expect to customize their public

interfaces to align branding, to accommodate local preferences in the display of bibliographic information, and for the integration of value-added services, such as cover art, recommendation engines, link resolvers, or request services. The vendor of the catalog itself cannot be responsible for any issues related to accessibility that may result through local customizations and integrations. It is therefore important that libraries test the technical and functional accessibility of their catalogs following any major changes in customization or configuration.

A variety of tools are available to assess or validate a product's or website's conformance to accessibility standards. These tools range from sites that perform free online validation to full-featured testing suites oriented to professional software developers available for purchase or subscription licensing. The United States General Services Administration maintains a resource page on testing tools for Section 508 compliance: <https://www.gsa.gov/about-us/organization/office-of-the-chief-information-officer/office-of-deputy-cio/office-of-enterprise-planning-and-governance/accessibility-and-section-508/gsa-508-technical-tools-and-resources>.

Libraries using older online catalogs may face especially difficult challenges in accessibility. As noted, most vendors ensure that their current offerings conform with library expectations for accessibility. Legacy products often do not receive major development attention, including updates to the interface that may be needed to achieve compliance with accessibility standards. Libraries tend to hold on to their integrated library systems for more than a decade and may have public interfaces developed without attention to accessibility. Should it not be possible to adapt an older online catalog to conform to accessibility standards, the library would need to address the issue when the time comes to replace its integrated library system. Some libraries may opt to implement a third-party discovery service, which may offer a modern user experience and accessibility compliance.

Libraries' strongest source of influence in emphasizing issues such as accessibility comes through their pocketbook. Procurement documents, service contracts, and other legal agreements related to public interfaces must include language that requires conformance to specific accessibility standards. Such requirements will ensure that vendors give this issue a very high priority, but this leverage also depends on a critical mass of libraries making these stipulations. The library and the vendor communities need to hold this issue as a priority to ensure widespread implementation of websites and web-based resources that can be easily used by persons with disabilities.



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Editor

Marshall Breeding
marshall.breeding@librarytechnology.org
Twitter: @mbreeding

Managing Editor

Samantha Imburgia
312-280-3244
simburgia@ala.org

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