

# Smart Libraries Newsletter

News and Analysis in Library Technology Developments



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## Smarter Libraries through Technology

### Mandate for Mobile

By Marshall Breeding

Optimizing library services for mobile devices has never been more important, given current use trends. Mobile represents at least half of all use of the internet, though proportions vary according to geographic area and type of service. Many of us rely on multiple devices—desktop, tablet, or phone—depending on circumstances and the activity at hand. It is typical to use a phone for casual searches, online ordering, navigation, or other daily tasks. Some complex tasks are better suited for desktop or laptop computers with larger screens and keyboards. During this period when so many people are working from home, typical setups include multiple screens, VPN connections, and other equipment. Nevertheless, as many as 40 percent of internet users rely exclusively on their mobile devices.

Any organization publishing content or offering services on the internet must accommodate all these scenarios to serve the totality of their user community. Many of the activities related to a library are well suited for mobile access: catalog search, placing requests, checking opening hours, or reserving or downloading ebooks. Yet it is likely that researchers will use a more fully equipped device to perform extensive research, access scholarly articles, or produce their scholarly work.

Many, or most, tasks performed by library personnel fall into

the category requiring full screen devices and may not be great candidates for mobile optimization. It would be hard to imagine performing complex tasks, such as cataloging or acquisitions on a phone. Many ILS vendors have developed mobile apps for a small subset of activities, such as pull lists for requested items, inventory, roving reference, or circulation services.

Libraries have been relatively slow to adapt their patron-facing services to mobile use. Many of the technologies employed were developed before mobile access became a fundamental consideration. It is notoriously difficult to rework interfaces originally designed for desktop use to also work well with mobile devices. Any new or redesigned interface will follow a mobile-first strategy that delivers full capabilities for mobile devices in a way that will naturally also take advantage of the larger screens of laptops or desktops.

In the early days of mobile technologies, many libraries deployed mobile apps to compensate for websites not friendly for mobile devices. A decade ago, for example, it was common for a library to have a website, catalog, or other services created with only desktop screens in mind. These interfaces were painful to use on a phone. As demand for mobile access grew, many libraries would deploy an app with at least a subset of their services. Boopsie, for example, was an early provider of library apps, offering a nice mobile experience, at least for people interested enough in library services to take the time to find and install the app on their device.

It is no longer viable for libraries to offer internet-based services that are not mobile-friendly. Visitors to library websites have little tolerance for sites that do not work on phones and tablets as well as they would on a laptop or desktop computer. Fully responsive web-based services is table stakes for any patron-facing interface.

Today, mobile apps complement a library's range of web-based services rather than provide an escape hatch. Mobile apps

ISSN 1541-8820 November 2020 Volume XL Number 11

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today enable libraries to offer an even more sophisticated mobile experience, offering capabilities not easily achieved via responsive web interfaces. These apps access cameras, location services, and NFC capabilities to offer advanced self-service or personalized features.

This issue of *Smart Libraries Newsletter* features an important development in the library mobile technology sector.

The acquisition of Boopsie by SOLUS consolidates this sector by a notch. It also represents a generational change away from a mobile app mostly used as an escape hatch for libraries without comprehensive mobile strategies toward mobile apps offering new services not easily accomplished even through responsive web interfaces.

## SOLUS Expands through Acquisition of Boopsie

SOLUS has acquired the Boopsie Mobile division from Demco, Inc. The deal strengthens SOLUS's presence in the global library market. Boopsie was one of the pioneers of mobile technology in libraries, though its presence has since been eclipsed by SOLUS and other providers. The technology platform developed by Boopsie was quite advanced and forward-looking when it was launched in 2005, though it may not necessarily be optimal for the current generation of patron-facing mobile interfaces. This business event provides libraries using Boopsie's products an opportunity to shift to more recently developed technologies provided by a vendor with established success in the library mobile technology sector. While consistent with the pattern of consolidation within a market niche, it runs a bit counter to the trend for smaller specialized companies to be acquired by large businesses with diverse product portfolios.

Vendors of mobile products represent a relatively small portion of the library technology industry. Mobile devices represent a growing, if not dominant, portion of access to information resources, including those provided by libraries. It is a basic expectation that any patron-facing interfaces for library services follow a responsive design that makes them as easy to use on mobile devices as on larger screens. Despite the advances in responsive design, opportunity remains for dedicated mobile apps able to provide features not possible through responsive web interfaces.

The October 2020 issue of *Smart Libraries Newsletter* featured the acquisition of Capira Technologies by OCLC. This move brings further consolidation among library mobile technology vendors.

### Details of the Acquisition

Through this transaction, SOLUS acquires technology and customers from Demco. It does not involve Demco employees joining SOLUS. The Boopsie library apps will no longer be

developed. Its customer libraries will be offered a transition to SOLUS-powered apps at no cost.

SOLUS has developed tools to smoothly migrate libraries from the Boopsie mobile platform. While there will be some effort involved in migration, libraries will gain the new capabilities available through the SOLUS mobile app with no additional cost beyond what they were paying for the Boopsie-based app.

Residual support for Boopsie apps will continue through September 2021. Following this transition period, the Boopsie mobile platform will be decommissioned.

The financial details of the transactions were not released.

### Market Presence

SOLUS has become established as the largest provider of mobile technologies to public libraries in terms of libraries served. It has licensed customized mobile apps to about 360 library customers, including 5,600 branches or locations spanning five continents. The total number of individual library customers on the platform is likely to be far higher as SOLUS reports large consortia as single customers.

The acquisition of Boopsie positions SOLUS to make a significant expansion in its customer base. Boopsie had about 100 contracts at the time of the acquisition.

This acquisition expands the geographic reach of SOLUS. The majority of Boopsie's clients were in the United States, though it also had a presence in New Zealand. SOLUS serves customers in the United Kingdom, Australia, and the United States. The distribution of SOLUS customers is further expanded through its partnerships with ILS vendors.

### Demco Divests

Demco and its parent holding company Wall Family Enterprise

has steadily grown through a long series of business acquisitions to become a major provider of products and services to libraries and other organizations. The sale of Boopsie is a rare instance of the company divesting a product or business unit.

Demco remains involved with software and technology. In addition to the other products that continue to be offered by Demco Software, the company has recently made an agreement with Axiell to market its Quria platform for public libraries in the United States and Canada.

Demco, Inc. acquired Boopsie in 2015 as part of its initiative to create a new operating business specializing in software for public libraries. The company had previously acquired Evanced Solutions in May 2011. Evanced products, though no longer carrying the name, continue to be marketed and supported by Demco Software, including its SignUp program-registration system and Spaces + D!BS facilities management application.

See the June 2017 *Smart Libraries Newsletter* for additional details of the establishment of Demco Software and its acquisition of Boopsie. An in-depth profile of Boopsie was featured in the May 2015 issue of *Smart Libraries Newsletter*.

Demco Software leveraged the Boopsie platform for its Demco DiscoverMobile, launched in 2017. This app included capabilities such as searching and browsing library collections, mobile check-out, and integration with its calendar and event registration products.

## SOLUS Background

SOLUS, with its headquarters in Glasgow, United Kingdom, provides mobile technology products and services for libraries. The company develops customized mobile apps for libraries as well as mobile applications to facilitate tasks performed by library staff. Multiple vendors of ILS products have partnered with SOLUS for their branded mobile applications.

SOLUS was founded in 2005 by Neil Wishart, who serves as chief executive officer; Andrew Daye, the company's chief technology officer; and Richard Offord, former director. Prior to Offord's departure, the company had been primarily involved with the creation of digital signage products for organizations in many different industries.

Beginning in 2012, SOLUS shifted its focus to mobile technologies for libraries, with the City of Edinburgh Libraries as its initial customer. Following the launch of its library division, the company expanded its leadership team and geographic market interests. Liz McGettigan joined SOLUS

*SOLUS has become established as the largest provider of mobile technologies to public libraries in terms of libraries served.*

in 2013 and is the director for digital library and cultural experiences. SOLUS expanded into Australia in 2015. Brenton Hall is the director for SOLUS responsible for the APAC region. John Richardson joined SOLUS in 2018 as director of SOLUS North America, leading the company's further expansion in the United States and Canada.

The companies involved are relatively small. At the time of the acquisition SOLUS employed 13 persons.

## SOLUS Partnerships

The SOLUS mobile app operates with 12 different ILS products. In addition to working with libraries directly, several vendors of library products have partnered with SOLUS to develop patron-facing mobile apps. These apps carry the branding of the ILS vendor and are tightly integrated with their catalog search and user service features and include a wide variety of features to create the rich mobile experience expected by library patrons. These partnerships include:

- Axiell, initiated in December 2014, taking advantage of the APIs available through the Axiell Arena platform, which serves as a library's website and collection discovery tool.
- Libero Informatics, based in Australia, works with SOLUS for the mobile app for its LIBERO ILS, used by public libraries in Australia.
- SirsiDynix entered a partnership with SOLUS for the development of its BLUEcloud Mobile app, the successor to its original BookMyne+ product launched in 2010.
- Most recently, Innovative Interface and SOLUS entered a partnership for the creation of Innovative's new mobile app for libraries to work with its Sierra and Polaris ILS products. This new app includes advanced capabilities such as patron self-checkout, including support for RFID security, as well as features to support curbside pickup. Patrons can request items through the mobile app or the web catalogs and use the button on the mobile app to notify staff when they have arrived to collect their materials. The new mobile app is available for iOS and Android.

## Boopsie Background

One of the first companies to develop mobile technologies for libraries, Boopsie was founded in 2006 by Greg Carpenter and Tim Kay. The company's business model was based on

the development and deployment of a platform-as-a-service, providing scalable infrastructure for mobile apps and other services. The company's core market was libraries, though it also licensed its products and technologies to organizations in other sectors.

Carpenter and Kay exited Boopsie at the time Demco acquired it. Tony Medrano served as CEO of Boopsie from 2013 through 2016. Nicholas Wehr joined Boopsie in 2014 as its executive vice president for technology and continued with the company through its ownership by Demco. He also served as executive vice president of Evanced Solutions, also part of the Demco Software portfolio, acquired in 2011.

The Boopsie platform was developed prior to some of the modern API-based integrations between ILS products and mobile apps. The Boopsie platform managed the content and provided discovery and user services in support of its mobile apps or other applications. Content resources, such as library catalog data, are loaded and indexed on the Boopsie platform. This approach provides high performance and scalability but requires continual incremental processing of new resources. Search results performed on a Boopsie mobile app may not exactly align with results of the native library catalog. Relevancy and indexing algorithms may differ, and recent items may not yet be loaded and indexed. The SOLUS app interacts with the APIs of the ILS in real time to provide current search results consistent with the native catalog or discovery service.

One of the major components of the Boopsie platform-as-a-service, AccessILS, enables interoperability with a library's ILS, with connectors developed for each major product. This service, launched in April 2015, provides the integration capabilities used by Boopsie to interoperate its app platform with diverse ILS products. It is also a service that can be licensed by content providers and other vendors, eliminating the need

to develop a complex matrix of connectors. AccessILS essentially translates the proprietary system interactions of each ILS product into a uniform and modern API. Those licensing AccessILS can target their development on this single API rather than separate integrations for each ILS product.

Technologies developed by Boopsie principals were also licensed by organizations in many other industries. (See patent applications: 20110078243, 20110083167, 20120323965, 20200142901, 20120310924, 20080168039, 20100306228, 20140096081, 20130124606, 2014017261; and grants: 8255377, 8255411, 8639713, 8639713).

Boopsie also worked with other vendors to facilitate the deployment of mobile technologies. OCLC, for example, partnered with Boopsie to develop its WorldCat Mobile app in 2009, which saw its production release in June 2011.

*Despite the strengthening of SOLUS's position, the mobile sector in library technology remains competitive.*

## The Evolving Library Mobile Landscape

With the acquisition of Boopsie, SOLUS gains a foothold to become one of the major providers of mobile technology in the United States and Canada and to strengthen its global position overall. Through its direct sales to libraries and its partnership with ILS vendors SOLUS will likely see growth in the library mobile technology sector.

Despite the strengthening of SOLUS's position, the mobile sector in library technology remains competitive. Several other vendors offer library-specific mobile products, including Capira Technologies recently acquired by OCLC; Communico, BiblioCommons, Springshare, and others. Many companies offering library catalog and discovery services have developed mobile apps in addition to their responsive web interfaces.

## Axiell Acquires CultureConnect

Axiell, in addition to its library automation products, has a major presence in the technologies for museums and other cultural institutions. Through an ongoing series of acquisitions, Axiell has become more diversified in the types of products it offers and in the geographic regions it serves. Axiell has recently

acquired CultureConnect to further expand its technology offerings for the museum and cultural institution sector.

Axiell's library business is concentrated in Scandinavia and the United Kingdom, though it has also recently expanded into other European countries with its new Quria library

services platform for public libraries. In March of this year, Axiell announced a partnership with Demco to market and support *Curia* in the United States.

A visual representation of Axiell's history of mergers and acquisitions is available on Library Technology Guides. The top portion of the chart presents acquisitions related to library technology; the bottom half shows those related to museums, archives, and digital content.

<https://librarytechnology.org/mergers/axiell/>

The September 2020 acquisition of New York-based CultureConnect brings to Axiell new technologies for the creation of sophisticated digital experiences for museums and cultural institutions. This acquisition builds on partnership announced in June 2019 to create interoperability among their respective platforms. CultureConnect's products enable organizations to create engaging online exhibits, virtual programs, mobile museum guides, mobile kiosks, games, and other interactive interfaces delivered through mobile devices and touchscreens. CultureConnect enables the organization to create content in a single platform and publish it, with built-in data and analytics, to many different interfaces or applications.

CultureConnect was founded in March 2013 by Samantha Diamond and Monika Smyczek. The organization received early rounds of funding from the New Orleans-based Idea Village and through the New Orleans Startup Fund. Samantha Diamond serves as the CEO of CultureConnect.

The company's involvement with museums and archives has a more global footprint. Since 2013 Axiell has made a number of business acquisitions to further expand the products it

developed for the museum and archives sector. These acquisitions build on the products Axiell had created for this sector, such as CALM and Arena. These acquisitions include:

- **Adlib** (March 2013): based in The Netherlands; its products for libraries, museums, and archives were implemented in many global regions.
- **Selago Design** (October 2013): based in Canada; its core product Mimsy XG was implemented mostly by museums in the Canada and the United States, though it also had clients in the United Kingdom, Australia, and Asia.
- **KE Software** (April 2014): based in Australia; its product EMu has been implemented by some of the largest museums in the world.
- **Mobydoc** (May 2016): based in France, serving more than 1,200 museums in France.
- **Musoft** (August 2020): based in Prague, serves museums and cultural organizations in the Czech Republic and the Slovak Republic.
- **CultureConnect** (September 2020).

In another major advancement in this sector, Axiell announced that a suite of its products has been selected by Library of Congress to manage its audiovisual materials. The collections involved are those held at its Packard Campus for Audio Visual Conservation, the American Folklife Center, and the Veterans History Project. The Packard Campus is a world-class facility for the collection and preservation of motion pictures, broadcast television and radio, recorded sound, as well as many other types of audiovisual materials. The products selected include Axiell Collections and Axiell Flow for the management of materials and Axiell Arena for access to the collections.

## Smart Libraries Q&A

Each issue Marshall Breeding responds to questions submitted by readers. Email questions to Patrick Hogan, Managing Editor, at [phogan@ala.org](mailto:phogan@ala.org).

*What items should we consider when updating or creating a library website? Where should we start?*

The website is one of a library's most important assets. In most

cases, a library's website will reach a much wider audience than the number of visitors to its physical facilities. It is vital to have a website that follows a modern design, that is easy to use, and that offers the content and features supporting the services of the library. Visitors to library websites bring very high expectations, informed by their experiences with social media and the services of the tech giants, like Amazon or Google, or a myriad of other organizations with limitless resources to

design and deploy compelling web and mobile experiences.

The many technical components and design considerations involved in operating a modern website are increasingly sophisticated. The content and services specific to library websites bring even more complexity. The fundamental values and assumptions of libraries, embracing privacy and anonymity, bring in additional complexity. The general web and mobile infrastructure, in contrast, is based on capturing and exploiting personalized data. The deployment of a library website requires great care to not only deliver a great user experience, but to ensure that its technical operation works consistently with basic assumptions of privacy and security.

These factors drive many libraries to turn to specialized vendors for the design and deployment of their websites or to implement library-specific website portals such as Stacks from EBSCO or BiblioWeb from BiblioCommons. Few libraries have in-house expertise for the many different aspects of modern website design and deployment.

In cases where the library engages an external firm or a vendor product, the library staff should exercise at least some oversight. The website's visual appeal and functionality can be assessed through careful testing and through feedback from library users. Assessing its technical performance can be more difficult because many of these characteristics are not necessarily visible. Rather, a diverse set of validation and testing tools are available to assess the correct technical implementation and configuration of the website. Failure to adhere to any of these technical issues may impair the security, privacy, or performance of the library website.

Libraries can inspect their own websites with the following tools to assess important technical details. These considerations also apply to the services and content products the library makes available through its website.

- The coding underlying the website should be free from syntax errors, with valid HTML and CSS. The W3C Markup Validation service can be used to identify errors. Any errors need to be corrected until the code is fully validated. Libraries using a content management system or a site created by a consultant or contractor should require technically valid code. Access this service at: <https://validator.w3.org/>
- The site should be operated using HTTPS and not HTTP to ensure that any interactions that patrons have on the library's website are private and cannot be intercepted by

third parties. HTTPS extends the HTTP protocol with encryption for secure communication. The operation of HTTPS requires a valid digital certificate. You can verify the encryption of the site and view the digital certificate on any browser. On Chrome, simply click on the icon presented on the search bar. This topic was discussed in the Q&A section of the August 2018 *Smart Libraries Newsletter*.

### *The fundamental values and assumptions of libraries, embracing privacy and anonymity, bring in additional complexity.*

- Libraries should avoid advertising trackers and other code that may compromise the privacy of users as they interact with your website. Some of these trackers may be included unintentionally or in some content management applications by default. Libraries should be aware of the trackers present and eliminate any that are not specifically required for the operation of the site.

The recently released Blacklight tool from TheMarkup provides a detailed analysis of trackers on a website: <https://themarkup.org/blacklight>

- The deployment of a library website can—and should—include structured data coding to facilitate the discovery and presentation of the library's website and resources on external search engines. Structured data is not seen in the presentation of a website but is detected by search engines and other automated scripts that interact with your site. Tools that examine the structured data on websites include:
  - The Google Structured Data Testing Tool: <https://search.google.com/structured-data/testing-tool>
  - Google Rich Results Testing tool: <https://search.google.com/test/rich-results>
  - Note that Google will be deprecating the Structured Data Testing Tool in favor of the Rich Results Test. The Structured Data Testing Tool detects all categories available through schema.org, while the Rich Results tool is limited to the specific categories in the Google Gallery
- Web pages must load quickly. It is important to understand any bottlenecks caused by scripts or components that respond slowly. You can view the performance of each included component using tools such as:
  - [urlscan.io](https://urlscan.io/): <https://urlscan.io/>
  - The developer tools in Google Chrome, which also give a detailed analysis of the load times of each internal component of a web page.

- Each web page must properly accommodate use by mobile devices. Not only is this characteristic essential so that your users can easily access your site from their phones, but Google and other search engines penalize sites that are not mobile friendly.
  - Google Mobile-Friendly Test: <https://search.google.com/test/mobile-friendly>
- Include a sitemap to help search engines understand each unique content item on your site. These sitemaps follow a specific protocol and are almost always generated via a script on your web server.
  - Sitemaps XML format: <https://www.sitemaps.org/>

protocol.html

- XML Sitemap Validator: <https://www.xml-sitemaps.com/validate-xml-sitemap.html>

This list of tools is not comprehensive, but it provides good starting point to assess the technical integrity of a website. While these technical issues are important, the design and functionality issues are much harder to assess and improve. Neither technical nor design considerations are static. Technical standards and protocols continue to advance, requiring continual updates in website components or configuration. Preferred design frameworks change even more rapidly. Library websites require continual attention to ensure their optimal performance and success.

Questions or suggestions  
for topics in future issues?

**YOUR  
COMMENT  
COUNTS!**

Contact Patrick Hogan at  
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## November 2020 Smarter Libraries through Technology

*Smart Libraries Newsletter*

Marshall Breeding's expert coverage of the library automation industry.

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Production and design by the American Library Association  
Production Services Unit.

*Smart Libraries Newsletter* is published monthly by ALA TechSource, a publishing imprint of the American Library Association.

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