

ISQ

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TOPIC: FUTURE OF LIBRARY SYSTEMS

THE FUTURE OF LIBRARY SYSTEMS:
LIBRARY SERVICES PLATFORMS

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FROM THE GUEST CONTENT EDITOR

This issue of *Information Standards Quarterly* on the Future of Library Systems spotlights the topic of the new generation of products that I call Library Services Platforms. The earlier term integrated library systems (ILS) is associated with the functionality and concepts associated with managing print collections and the metadata about them. These new products and projects cast a wider net, consistent with the expansion of library collections to include a complex assemblage of electronic and digital materials in addition to their physical inventories.

Electronic materials, such as subscription-based, open access, and repository-based articles, e-books, multi-media content, and the like come with an entirely different—and usually more complex—set of business rules and policies that impact how libraries acquire, describe, and manage these materials and also govern how access by their patrons can be mediated. Digital collections, such as the images, manuscripts, sound recordings, and video materials that a library might create and curate come with yet another set of issues and requirements, such as support of digitization workflows, intellectual property rights, preservation, and asset management.

Each of the new library services platforms takes a different tack on what categories of materials fall within its scope, the technical architectures, and how each interacts with other components of the library's technical infrastructure or other business and information systems that comprise the broader ecosystem in which libraries operate. These new systems present different interoperability scenarios than may have applied to the previous generation of ILS or even electronic resource management (ERM) systems. For example, some entirely abandon the concept of the traditional online catalog in favor of complete reliance on discovery services. This arrangement brings a need to accomplish all patron interactions through APIs rather than through proprietary internal programming. These new products also tend to emphasize capabilities to interact with other business systems, such as those for enterprise resource planning (ERP), student records management, learning management systems, or

courseware platforms—as well as authentication or single sign-on services. In general terms, I see these new systems as rearranging much of the automation infrastructure in ways that impact many of the standards, protocols, and best practices available. While many of these mechanisms may remain relevant, the need for some may be obviated and the need for attention to standardized interoperability in other areas may be exposed.

This issue of *ISQ* presents a wide range of products and projects from this new realm of library services platforms. Carl Grant delivers an excellent overview of this new genre, describes some of their general characteristics, and provides a brief introduction to each of the major products. But how are these products doing in the real world? To help answer that question, we include a set of articles from libraries with direct experience of several of them. Paul Bracke relates the experience of the Purdue University Libraries as a development partner with Ex Libris for Alma and how it fits within that institution's strategic transformation already underway. Gentry Holbert presents the experience of Spring Hill College as one of the early adopters of WorldShare Management Services from OCLC. William Erick Atkinson describes how the Orange County Library System migrated from the Innovative Interfaces' Millennium ILS to that company's Sierra services platform, taking advantage of its APIs to enable integration with a variety of local applications. Michael Winkler and Robert H. McDonald provide an overview and update of the Kuali OLE project



These new products also tend to emphasize capabilities to interact with other business systems, such as those for enterprise resource planning (ERP), student records management, learning management systems, or courseware platforms—as well as authentication or single sign-on services.

that is building a next-generation, enterprise-oriented library system to be made available as open source software.

Ted Koppel of Auto-Graphics contributes an article on the Cost of Resource Exchange, or CORE, standard that was designed to help to improve the communication of financial information between applications such as integrated library systems and electronic resource management systems. This is a case where the standard never saw significant adoption (and was thus released instead as a recommended practice), at least partially due to the shift away from dedicated electronic resource management systems to subsuming this area of functionality within more comprehensive library services platforms.

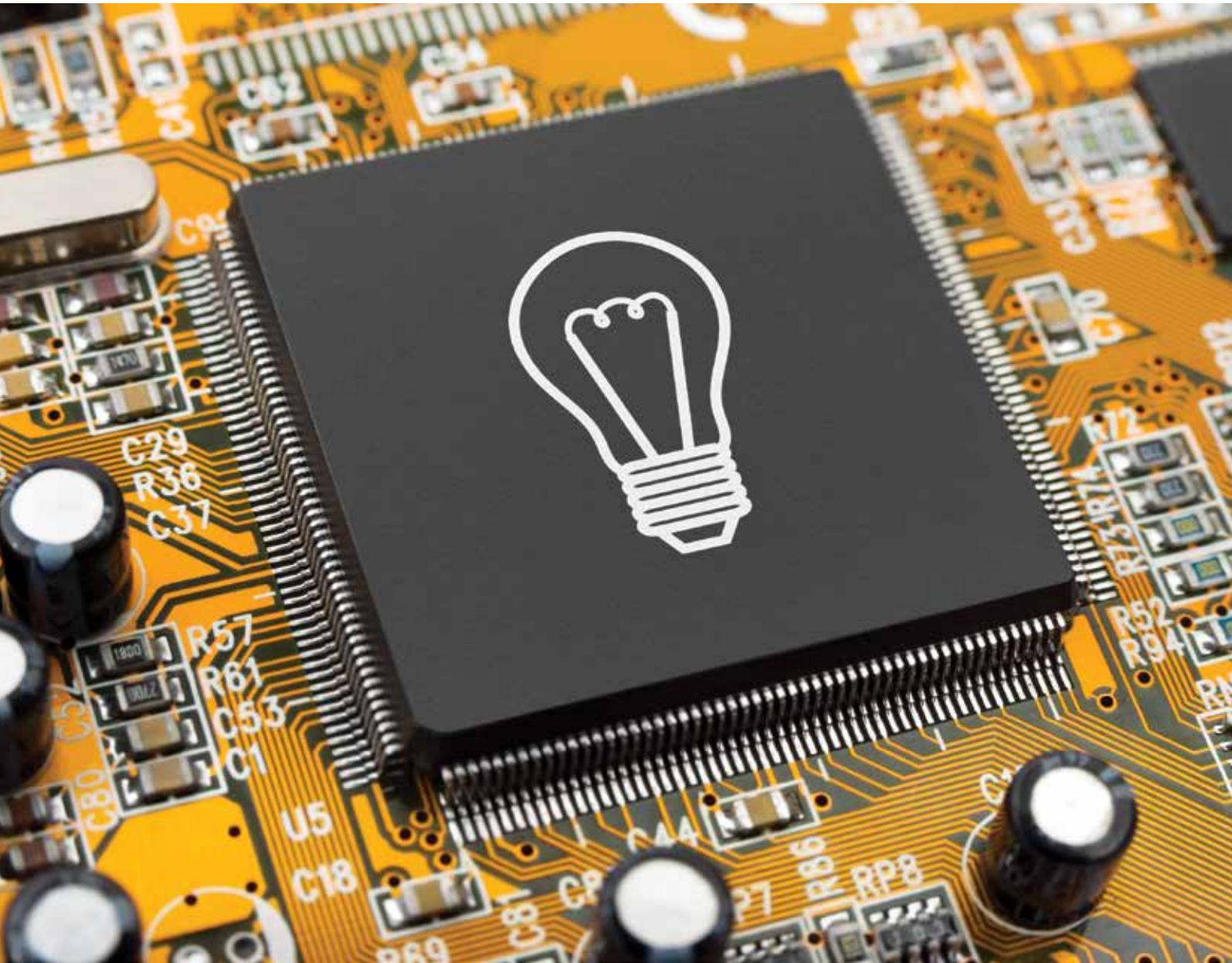
As the guest editor of this issue of *Information Standards Quarterly*, it was great to read about how these products—that I have been following through their respective stages of conceptual design, engagement with development partners, and eventually into production use in libraries—are doing in the real world. Thanks to all of the authors who have

contributed to this issue, which I hope *ISQ* readers will find informative regarding this new phase of library systems.

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THE FUTURE OF LIBRARY SYSTEMS: LIBRARY SERVICES PLATFORMS



CARL GRANT

Many libraries are in the process of rethinking the effectiveness of the automation tools they're using to provide library services, both within and outside of their library buildings. Internally, the core component driving many of these services has been the integrated library system (ILS). The next generation of these systems are called "library services platforms," a term coined by the consultant Marshall Breeding.

The organizations developing and providing these products use a variety of descriptions: "webscale management solutions," "uniform management systems," or just "services platform." The vendors and products that have been announced include: WorldShare™ Management Services by OCLC®, Alma by Ex Libris, Sierra by Innovative Interfaces, Intota™ by Serials Solutions®, Open Library Environment (OLE) by Kuali®, and Open Skies by VTLS.

The primary difference between the traditional ILS offerings and the new library services platform is that the ILS products were largely designed around the management of print collections. As libraries have moved increasingly to accommodate digital collections, they've found the ILS products unable to be reconfigured well enough to smoothly and efficiently handle the integration of all the workflows that are different, yet necessary, for both print and digital. In addition, the older ILS do not take advantage of the latest offerings in computing technologies and architectures, particularly in the area of cloud computing.

When looking at the new library services platforms, we're seeing some radically different approaches being taken and, as with all technologies, each approach has its advantages and disadvantages. However, to understand those approaches, we need to start with some common definitions upon which to make comparisons at the technical level. Then we'll look at each of the new library service platforms. Finally, we'll consider a high-level view in order to understand what the approaches mean at a professional level.

DEFINITIONS

For the purposes of this article, the following definitions are used:

- ▶ **SaaS** – This stands for Software as a Service and really should be viewed primarily as a different way of delivering software. When using SaaS, you're using a remotely hosted machine instead of a locally installed machine and the company hosting the machine takes on the responsibility for maintaining the system, so library staff is freed from this set of tasks.
- ▶ **Cloud Computing** – There is actually an agreed upon set of characteristics from the National Institute of Standards and Technology that defines a cloud computing system as having:
 - » On-demand self-service
 - » Broad network access
 - » Resource pooling
 - » Rapid elasticity
 - » Measured service



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Of course, those characteristics seem better suited to evaluating consumer-facing applications. Since libraries are organizations that sit in-between the cloud service and the end user, applying these characteristics can be done with some discretion. A better filter might be for librarians to perform an analysis by looking for the following cloud computing features:

» **Multi-tenant software** - This is frequently one of the most misunderstood concepts of cloud computing. A “light” definition from WhatIs.Com, states (the emphasis is mine):

*Multi-tenancy is an architecture in which a **single instance of a software application serves multiple customers**. Each customer is called a tenant. Tenants may be given the ability to customize some parts of the application, such as color of the user interface (UI) or business rules, but they cannot customize the application’s code. Multi-tenancy can be economical because software development and maintenance costs are shared. It can be contrasted with single-tenancy, an architecture in which each customer has their own software instance and may be given access to code. **With a multi-tenancy architecture, the provider only has to make updates once. With a single-tenancy architecture, the provider has to touch multiple instances of the software in order to make updates.***

This has important implications for libraries since it means your supplier should be able to run a far more efficient operation, i.e., it will likely take less computer resources than systems running in a SaaS architecture. That should ultimately translate into lower costs to your library for using this type of technology. As mentioned above, another reason that costs should be lower is

that if a supplier is supporting all of their customers (and for a working number, let’s say 500) from this one software instance, when they upgrade that instance of the software to the latest version, all 500 customers are upgraded at the same time. If a supplier is using one instance of the software per customer, even if hosted in a SaaS architecture, then they have to upgrade each instance individually. Obviously this creates overhead and delays.

» **Security certifications** - Without a secure cloud computing or SaaS system, you’re potentially increasing the exposure of your library to all kinds of risks. As a result, when procuring a new cloud computing or SaaS library management system, you, and your legal and procurement people, should make sure the supplier meets some certified standard of security. Note, however, that most certifications only apply to the data center and only to a specific location. So these security certifications may not provide any assurance that data leaving the data center and traversing the larger Web are being transferred in an encrypted, secure manner. Again, this is something you should check separately and as part of a procurement process. There are two particular standards that relate to such security:

- **ISO/IEC 27001** - This standard is focused on requirements for information security management systems, thus it is the most appropriate for addressing your security concerns. The Wikipedia entry on this standard says in part: “ISO/IEC 27001 requires that management: systematically examine the organization’s information security risks, taking account of the threats, vulnerabilities, and impacts; design and implement a coherent and comprehensive suite of information security controls and/or other forms of risk treatment (such as risk avoidance or risk transfer) to address those risks that are deemed unacceptable; and adopt an overarching management process to ensure that the information security controls continue to meet the organization’s information security needs on an ongoing basis.” Compliance can be audited by companies that specialize in this type of work. You can request to see a copy of the certification (although do not expect to see a copy of the detailed assessment as this very request would compromise the security of the system). Remember that the certification should be for the particular data center where your data will be hosted because it is location specific.

- SAS 70/SSAE 16** – The SAS 70 auditing standard for service organizations, written in 1992, was originally designed for examination of a service organization's controls and processes. The SAS 70 website states that certification to this standard “represents that a service organization has been through an in-depth audit of their control objectives and control activities, which often include controls over information technology and related processes.” SAS 70 has now been superseded by SSAE 16; however, you might encounter either of these when asking for a security certification. The newer SSAE 16 dates from 2010 and while it may not be thought to be applicable upon first examination, in fact, just like SAS 70, it too examines controls applicable to service organizations and even has a related report, Service Organization Controls (SOC 1), that is applicable to organizations providing computing services.

LIBRARY SERVICES PLATFORMS – THE APPROACHES

There are three major approaches being taken by the organizations that are building the new library services platforms. To categorize those, let's borrow some familiar phrases:

SOMETIMES YOU JUST HAVE TO START OVER

Systems that follow this approach include WorldShare Management Services by OCLC, Alma by Ex Libris, and Intota by Serials Solutions.

The shared view of these organizations incorporates a line of thinking that says the amount of change we've seen, both in computer technology and in library management/operations, is so substantial that the best way to accommodate the change is to start with a fresh design that can take advantage of all of these changes. As a result, these systems build upon the advances in architecture that allow for multi-tenant operations, data aggregation, analytics, and redundant and secure data centers. In addition, the workflows take an integrated and efficient approach by doing a redesign that incorporates both digital and print processes into common workflows to optimize staff efficiency and effectiveness. These are all positive features of the new systems. The negative aspect of this approach is that some functionality may be lacking in early releases of the product. Whether this approach is for you really depends on your library's needs and where the development organization is focusing first.

For most system vendors, there is a real danger in trying to develop an entirely new product and at the same time address a very broad market. Since these are enormously complex products, as most of us know, there is huge potential for creating disappointment for early adopters. Existing ILS products, while containing limitations in serving today's digital environment, represent hundreds of person-years of development, testing, and documentation. You simply can't replicate all this functionality in a new software architecture in a short period of time, even with agile development techniques, more efficient programming languages, automated testing, and large development teams. As we've seen happen with other products in other fields, this approach simply stretches the developer resources too thin, across too many demands, and doesn't produce enough quality or progress to keep everyone happy at the same time.

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Another way for a system vendor to build a totally new product is to focus on certain types of customers and their specific requirements. As the new product successfully meets the narrower target audience's needs, the developer can then branch out to address other types of libraries. Look for organizations that are taking this approach if you're going to be an early adopter of a new system.

2 DON'T THROW THE BABY OUT WITH THE BATH WATER
System vendors that follow this approach re-utilize a substantial portion of their previous generation of technology and couple it with new technology in various ways to bring new services and capabilities to end users. Realizing the difficulty inherent in recreating products from the ground up, these vendors take the approach that change in libraries will be more evolutionary than revolutionary and that redesigning workflows doesn't supply enough gains to offset the costs. Products taking this approach include Innovative's Sierra and VTLS's Open Skies.

For libraries, there is some sound logic to this approach. Many libraries understand they are currently in a situation where their primary focus needs to be on meeting end user or library member needs. They have to do this by moving quickly and showing real, substantial progress, at a reasonable cost and without breaking everything that works. If this is successful, the library is more assured of seeing improved funding and support in its community of users. So, given limited financial and staff resources, many libraries have to make a choice about where they will focus their resources in the short term—i.e., on the back-room efficiencies, or on user-facing service improvements, many of the latter which depend only partially on the library automation system. While there is no disagreement that improving the back-room efficiencies will also improve many user-facing services, the short-term net gain may not equal the cost of conversion to a new system and/or the reengineering of all those back-room processes right now. Consequently, many libraries decide to defer those improvements until later.

The downside of this approach is that systems that have not been re-written utilizing true multi-tenant architecture will likely take longer for new versions of the software to be installed if you're hosted (because these systems need to update each implementation separately) or if you're not using the SaaS hosting option, you will bear the cost of paying your staff to do the version upgrades.

Ultimately, because this evolutionary approach doesn't optimize the efficiency of the hardware upon which the software is running, it will keep the routine costs of running the hardware/software higher than those providers utilizing the newer, multi-tenant cloud computing architecture. Thus it

will keep the ongoing vendor costs higher. It also means the vendor will be in the situation of having to support multiple versions of the software, another cost that ultimately the customers must bear and one which those providers offering a true cloud computing solution will avoid.

With regard to the software, the evolutionary approach does not provide the more integrated and streamlined workflows of the totally rewritten and reengineered products and thus may not be the best choice for those libraries that are rapidly moving towards adding support for digital collections. If your provider doesn't offer the new integrated workflows, your library could miss out on the advantage of taking existing people and financial resources and reallocating them to new user-facing services. Again, this may not matter to your library at this point in time. It is up to you to make a determination if the work and cost of converting to the newer, more efficient systems is worth the efficiencies you'll gain. Almost certainly, in the long run, it would be. However, many libraries need to deal with the short term first, and there the picture is not always as clear.

3 WE ARE OPEN
Open source software approaches have been gathering momentum in the library software marketplace for some time. Obviously, the task of building an open source library management platform is a herculean task, one of massive complexity. The library marketplace is already supporting both the Evergreen and Koha open source ILS products and whether or not it can also support an effort to develop an open source library services platform is yet to be seen. However, the Kuali organization, backed by Mellon Foundation grant money is trying to do so via an offering called OLE (Open Library Environment).

While the open source approach is important to note, one might expect that the product could also be slotted in one of the other two approaches described above. In fact, OLE carves a path somewhere between the two as we will see below.



ANALYSIS OF THE LIBRARY SERVICES PLATFORMS

Now, with these approaches in mind, let's analyze each of the available new platforms more closely.



Sierra by Innovative Interfaces

Innovative takes an approach for their library services platform of largely repackaging their previous product, Millennium, and modifying

it to run on a new open source database (PostgreSQL), using a new open source indexing engine (Lucene), adding new open APIs, opening up some of the existing APIs, updating the interface, and adding new, functional modules. The totality of this package is called Sierra and it can be had as either software-as-a-service (SaaS) or a local install.

For libraries that decide to focus on meeting end user or member needs and defer reengineering back-end processes until later, Sierra will prove to be an entirely viable option. Libraries wanting to move to a hosted environment will be able to do so. (Innovative has long offered hosting for many of their products, including Millennium.) The product is available right now and offers a total range of library functionality, although workflows may not be as configurable as some competitors' offerings.

Innovative describes Sierra as an "open development" platform and is taking some very positive steps in this direction. Sierra clearly provides customers with access to more of the system APIs and Innovative is promising to deliver new APIs that will give access to additional data and services. (Librarians should request a detailed list of both the released and planned-for release APIs as part of their evaluation.) The Sierra literature talks about a developer community, coming soon, to be called the "Sierra Developers Connection." Sierra does offer some excellent reporting tools, a feature that has long been a plus for the Innovative Millennium product. These new tools include a new "Reporter" module that allows users to select fields and compose complex reports with relative ease (although some training is required). The data used to drive this module is copied nightly and includes the "core" ILS data. Another new tool is the "Decision Center," a tool for use by staff, typically the manager of collections. It appears to primarily use canned reports, but they can be run dynamically for instant use and analysis.

These reporting tools are offered primarily for use with data from the library or consortium using or sharing a Sierra implementation. Aggregation beyond this (such as would be required to compare your library to peer institutions across the country) involves additional steps to upload the data to Innovative's Data Center and to run the reports there.



OLE by Kuali

This is the only open source software solution being offered among the new library services platforms. Backed by Kuali, development partners, and Mellon Foundation

grant monies, a number of academic and research libraries have banded together to build, own, and govern this offering. The stated values of OLE membership include the ability to drive the product to meet the needs of member institutions, the ownership of the software as a long-term investment, and the ability to meet the enterprise needs of a research library that will also work for librarians in a consortial environment. The stated goal of the OLE project is to build a flexible, service oriented, enterprise library management system for academic and research libraries. As such, the product is a ground-up build of a new offering, but one that uses, where possible, some of the other Kuali open source software components. Currently the available functionality includes acquisitions, record loading, accounts receivable, and basic reports. Planned for future release are circulation, cataloging, inventory, financial processing, and ERM components. The product—designed to support the range and formats of scholarly information—interoperates and integrates with other systems while providing workflow configuration capabilities.

OLE is a SaaS offering, not a true cloud computing system and institutions using the product must select their own hosting service. Note this may change, however, as commercial partners sign on. Data sharing across system installations is done using the open linked data model.

OLE, like many of the new library services platforms, is at a very early development stage. Therefore, some features like interface design have not yet been addressed with any level of sophistication. OLE has hired an interface designer so this issue should be addressed in future releases. While OLE presentations are currently focusing on the open source benefits, rates of adoption and implementation will not likely increase until librarians can readily see how the product will solve today's problems and reduce expenses. At a high level, OLE, when compared to true cloud computing solutions, may not fully address issues such as data aggregation and analytics, multi-tenant architecture, and data center security/redundancy.

It is also not yet clear if OLE can acquire enough support among academic and research libraries to sustain itself over the long term. While the promise of OLE is strong, in comparison to competing library services platforms OLE remains focused on technical underpinnings and building support while other offerings are focused on showing functionality, well designed interfaces, and working examples of modifiable

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workflows. Nonetheless, over 70 libraries are current Quali members and from the perspective of building a collaborative and community system, open and available to all, OLE has no peer among today's library service platform offerings.



Intota by Serials Solutions

Intota is a totally new product, written from the ground up, and is a true cloud computing solution. It is said to offer true multi-tenant software operations, shared data capabilities, and to fully support a powerful analytic and analysis engine. Plans also exist for multiple data centers, including international locations, within the next year. Intota is the latest entrant in the market for the revolutionary approach to a library services platform, so functionality is accordingly smaller at this point in time. The advantage of being the latest, though, is that what is being shown features some creative thinking and well thought-out integration of the workflows and processes that occur in the backrooms of all libraries.

Intota's development is based on the premise that libraries are managing today's collection with yesterday's tools and that with the changing nature of the collection users want to be self-sufficient. Intota focuses on workflows, system maintenance, and assessment, the latter emphasis to aid libraries in showcasing their value. Overall, Intota is a total reconceptualization of library management systems providing functionality focused on selection, acquisitions, description (cataloging), fulfillment, a knowledgebase, and discovery.

It would also appear, based on Serials Solutions' selection of development partners, that Intota is a product designed to have broad appeal across all types and sizes of libraries. This carries some risks in the early stages of the product's life, so librarians should carefully analyze their needs and understand when those needs will be addressed on the development timeline before committing to production use.

As for the openness of Intota, the company is promising a suite of documented, open APIs. Historically, Serials Solutions has been doing this with their other products for quite some time, so there is every reason to expect this trend will continue.

One of the real advantages of Intota is that it represents a total approach from end user discovery to the library's backroom. As a result, it offers tightly integrated processes, efficient and effective workflows, and data handling for both the print and digital environment. It will allow librarians to smash through the silos that existed in previous library automation systems.

Another important area where Intota is showing promise is analytics. At least in discussions, Serials Solutions is placing a major focus on assessment and analytics. Analytics are becoming more important because they allow the library to use data to understand the users in far greater detail and to predict, with higher accuracy, what types of services and content they'll need and when. This should be very appealing to librarians and will offer major steps forward in the profession in terms of being able to offer new, proactive services to users.

As for availability, while Serials Solutions is currently signing up and working with test partners for Intota, the product is not expected to be completed until late 2013, while many of the competing offerings are already largely complete and being installed.

At this point, the data center locations and security level certification(s) are unknown and thus customers need to closely analyze the security criteria discussed above during the procurement phase.



Alma by Ex Libris

Alma is also an entirely new, true cloud computing product. The overall approach of Ex Libris is to provide libraries with comprehensive, unified

resource management. In doing this, their intent is to avoid the duplication of effort and data required in maintaining separate ILS, ERM, institutional repository, discovery, and link resolution products. The goal is for library staff to be able to work in one environment.

Because Ex Libris traditionally addresses a narrower segment of the library marketplace (academic, research, national, and corporate libraries being their target market), one of the advantages they've had is that despite developing an entirely new product, they've also developed more depth of functionality than competing library services platforms. That functionality includes: selection (acquisitions and demand-driven acquisitions), print management (circulation, reserves, ILL), electronic management (licensing, usage tracking), digital asset management (repository functions), metadata management (cataloging, collaborative metadata management), and link resolution (OpenURL). This product should move libraries from "just-in-case" to "just-in-time" collection development models. The product also features configurable workflows using a management tool that allows tasks to be assigned to staff. Due to the configurability of workflows, libraries can largely retain existing workflows and then re-engineer them as time permits. Of course, it must also be noted that while much functionality exists at this point, there is some functionality still missing. This includes support for consortia capabilities, which will not be released until 2013. Also planned, but not yet release is support for EAD and MODS.

One of the new features offered as part of Alma is the "Community Catalog" used for the sharing/storage of metadata between libraries. Data in the Community Catalog uses the PDDL open data license. Among the data currently loaded are records from: CONSER, the Library of Congress, the British Library, and various journal metadata records.

Ex Libris has laid the groundwork for a full implementation of cloud computing by placing data centers in the United States, the United Kingdom, and Australia. All of their data centers are independently SAS 70 certified. There is no planned capability to support local installations of Alma.

As a true cloud computing solution, Alma will be able to provide analytics based on shared data (provided customers agree) using Oracle's analytic tools. The result is that libraries should have comprehensive analytics across all their assets and users (and potentially across all libraries using the "Collaborative Business Intelligence" tools). As noted above, such analytics will allow libraries to better understand and anticipate usage patterns. Together, these capabilities should offer customers some powerful user-focused services in the future.

Ex Libris is another company that has long offered open APIs with their products. Plans for Alma include open APIs and support for SOA (Service Oriented Architecture). The company has long offered support for customers doing open source software extensions to their products via the EL Commons website. The site includes both a Wiki and a code-sharing facility to encourage customers to share code, documentation, and presentations about code extensions they have developed. There are separate sections offered for each of their major products.

Because of the focus on depth of functionality rather than breadth of market, Alma appears to offer the richest level of functionality available in the new cloud computing library services platforms at this time.



WorldShare Management Services (WMS) by OCLC

WorldShare Management Services (WMS) is a fresh start, a totally new product that rethinks and recreates management software for libraries

and offers a true cloud computing solution. Built by OCLC, it has the potential to benefit enormously from the "common good" and collaboration that OCLC represents. The philosophy underlying WMS is that libraries are more alike than different and that commonalities in management, workflows, and service are as similar as library collections, clients, and services. Yet, at the same time, OCLC understands WMS must support unique needs and must adhere to principles of vendor neutrality, wherever possible.

WMS is being designed for all types and sizes of libraries from those with millions of titles, circulations, and users to those with less than 100 users. The product uses all the data available in WorldCat®, the WorldCat knowledge base, the WorldShare™ vendor information center, the WorldCat Registry™, and other centralized data repositories. This is a huge advantage for libraries.

However, as noted with other systems, one of the consequences of trying to appeal to that many types and sizes of libraries is that the functionality can be thin during the early

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stages of the product lifecycle. Librarians should carefully analyze their needs and understand when those needs will be addressed on the development timeline before committing to production use.

OCLC is offering solid and innovative methodology when it comes to installing the product. The community of early adopters works together during this process and the implementation process becomes a group experience. Libraries hold weekly meetings with their cohorts and discuss their plans, issues, and findings. OCLC has also developed training tutorials and recorded sessions that are available for library staff to use 24/7. Furthermore, live training sessions are available almost weekly at no additional charge to libraries. Overall, this combination appears to be a very strong support system for implementing sites.

In the area of analytics, OCLC has announced plans to collect and use data to drive analytic-based services. Hadoop, an open source software framework from Apache, is being used and is extremely powerful. Hadoop has been the driving force behind many big data projects and the services that could result from its combination with OCLC's data could be quite impressive.

When it comes to openness, WMS seems to be promising on several different levels. OCLC wants their platform seen as one that enables libraries to build on top of it because they understand they can't do everything themselves. So, like many of the other platforms, they're saying WMS will offer a large number of open APIs for integrating with other applications. Unlike other platforms, though, OCLC's approach includes development of a common framework for services (F4S). This strategy is designed to allow OCLC to build consistent APIs, which are intended to translate into external developers being able to consistently develop new extensions. Furthermore, to do this they're using Open Social, a public specification defining a container and a set of common APIs for web-based applications. This will allow library developers an open source method for creating apps, which they can then upload directly into the WMS interface, or use externally in other Open Social Containers. So in addition to APIs, OCLC has built the entire infrastructure for F4S and application processing, an App Gallery, and a management interface that allows users to modify the interface by adding their

own apps. Of all the new platforms, this appears to be one of the most comprehensive approaches.

OCLC has two data centers in the U.S. and one each in Australia, Canada, and Europe. Within the next year, OCLC will be adding a second site in Europe. All of their data centers are certified to meet ISO 27001 and Lloyds Quality Assurance certifications.



Open Skies by VTLS

Open Skies is the very latest entrant into the library services platform. VTLS is taking an approach of repackaging their previous technology while

combining it with other existing VTLS technologies and bundling in new capabilities. As with Innovative Interfaces and Sierra, this approach realizes many libraries are in no hurry to reengineer their backroom processes in light of the possible costs involved, but instead feel that they can get better support by initially focusing on end user-facing improvements. So VTLS has focused on adding support for multimedia, multi-format metadata, mobile devices, and greater interoperability with third-party systems through support for open APIs and SOA. They've added a unified Drupal™ user interface on top of Chamo and other existing products. Through that interface, VTLS can offer data from their VITAL and Virtua systems to end users. Solr (a highly scalable, open source, search and index platform) is also employed in Open Skies. The specific steps involved are the merger of content from Virtua and Vital, the merger of Chamo and Visualizer into a new Chamo Discovery module, the creation of a common metadata management system for Virtua and Vital, and the development of enhanced displays of FRBR and RDA records.

Given this approach, there is no loss of existing functionality with this offering; rather, it is an approach that tries to integrate print and digital content; add streaming media support; allow events and activities to be supported; and provide basic preservation services for digital content, e-book collection management, and extensive support for mobile users.

Open Skies will be available either as a local installation or a SaaS offering. It does not meet the definition of a true cloud computing solution as defined above. Data centers can be provided by VTLS or self-hosted by the customer.

Openness is provided via basic support for linked data as well as open APIs that conform to Chamo structures (but this is not an open public specification).

Open Skies is scheduled to be released in early 2013 and should be demonstrable during ALA Midwinter in Seattle.



SUMMARY COMPARISON OF LIBRARY SERVICES PLATFORMS

KEY: U=Unkown N=No Y=Yes P=Planned I=Included O=Optional L=Limited support of function

| PLATFORM | Open Skies | Intota | Alma | WorldShare | Sierra | OLE |
|---|------------|------------------|-----------|------------|-----------------------|-------|
| VENDOR | VTLS | Serial Solutions | Ex Libris | OCLC | Innovative Interfaces | Kuali |
| FEATURES | | | | | | |
| Multi-tenancy | Y | Y | Y | Y | N | N |
| SaaS/Cloud | SaaS | Cloud | Cloud | Cloud | SaaS | SaaS |
| Local installations possible? | Y | U | N | N | Y | Y |
| SAS 70 or ISO 27001 certified data center? | N | U | Y | Y | N | N |
| DaaS (shared data service) | N | P | Y | Y | N | L |
| CUSTOMER TYPES TARGETED (as of 6/2012) | | | | | | |
| Public | Y | Y | N | Y | Y | N |
| Academic | Y | Y | Y | Y | Y | Y |
| Special | Y | Y | Y | Y | Y | N |
| National | Y | Y | Y | Y | Y | N |
| Consortia | Y | Y | Y | Y | Y | N |
| FUNCTIONALITY | | | | | | |
| Selection/Acquisitions | Y | Y | Y | Y | Y | Y |
| Fulfillment/Circulation | Y | Y | Y | Y | Y | P |
| Description/Cataloging | Y | Y | Y | Y | Y | P |
| Discovery | U | O | O | O | O | O |
| ERM | Y | Y | Y | Y | Y | P |
| ILL | Y | Y | Y | Y | Y | U |
| Booking | L | U | P | U | Y | N |
| Analytics | N | Y | Y | Y | N | N |
| Reporting | Y | Y | Y | Y | Y | Y |
| One Interface | Y | Y | Y | P | L | P |
| Knowledgebase | N | Y | Y | Y | Y | N |
| Linked Data Support | L | U | L | L | N | N |
| Open APIs and/or SOA | Y | Y | Y | Y | Y | Y |
| Event Management | Y | U | N | U | U | N |
| Mobile Support | Y | U | Y | Y | Y | N |
| Streaming Video Support | Y | U | Y | U | U | N |
| Multi-lingual Subject Headings | Y | U | Y | Y | Y | N |
| FRBR Support | Y | P | L | L | N | N |
| RDA Support | Y | P | Y | Y | Y | N |
| Preservation Capabilities | Y | N | Y | N | N | N |
| E-book Support | Y | U | Y | Y | U | U |

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ACTIVELY SHAPING THE NEW LIBRARY SERVICES PLATFORMS

One thing that librarians must think about when moving to any of these new platforms is how to use these new capabilities to leverage the profession in profound and positive ways. To do that, librarians need to focus on the following when selecting and implementing these systems:

1 The mission and values of librarianship have to be embedded in the product. To do this, we first have to agree, at least to some degree, on what our mission should be.

While this is a much-discussed topic in today's environment, for the sake of this article let's use R. David Lankes' (Syracuse University) statement that says: "The mission of librarians is to improve society through facilitating knowledge creation in their communities." That's a great, simple, and inspiring statement, which we can readily use. Increasingly, we need to be sure we find ways to do just that using these new platforms.

2 Defining our future is a task of participation, not representation. If we want to be sure the core mission and values of librarianship are properly designed into the products we use, librarians must be active participants or drivers of the development process. NISO is a great place to do this. Currently work is underway, for example, in the areas of demand driven acquisitions, the new bibliographic framework, SIP and NCIP, ERM and open discovery—the results of which should find their way in future product releases. Get involved in those activities and support them by allocating staff time to work on projects that will affect your library's future systems.

We also need to be involved in demanding and specifying standards covering APIs and the ability to migrate data in/out of cloud-computing environments and at reasonable costs and in reasonable timeframes.

All of these activities can and will play key roles in shaping the new platforms that are being built. The system vendors are actively participating and librarians need to also get involved to ensure that solutions are done in a way that promotes and provides the services libraries and their patrons need.

3 For library services to have value they must offer differentiation. Organizations succeed by carefully analyzing those they serve and taking a broad view to get an understanding of all the places an end user can get his or her needs met. This analysis also makes it possible to understand where our organizations fit and where other organizations are going to do some things better than us. We should stop trying to compete in those areas because it's a waste of our resources.

What we have to decide is: What are our "core" services, i.e., what is it that we do that creates differentiation leading to our being the preferred source of a knowledge/information service for our end users? Those core services are what sustain our organizations and are why our jobs exist. **It is what we do.** Everything else we do, while possibly very important, is a "peripheral" service. They may be related to our core but don't necessarily have to be done by our organizations. We can look at having these peripheral services done outside of our organizations. Cloud computing, for example, can offer a lot of assistance in several key areas.

For us to move forward in doing new things, we have to squeeze and extract from these peripheral services, the money, time, and people resources they currently consume and redirect them towards our core services. The "core" is where we create differentiation and thus ultimately add value for our members and end users.

So, what are some things we could do to be sure these new library services platforms take us where we need to go? Consider these ideas:

- We should provide **knowledge creation platforms, not just knowledge discovery platforms.** This means providing tools to make it easier for the user to take existing knowledge and build new knowledge. How about a process that allows the user to copy text, pictures, videos, or sound recordings into a new work while automatically handling copyright clearance and/or creating the footnotes and bibliography? Or tools that allow us to reach beyond the research and perform a variety of analyses with the data behind that research. Let's enable users to create new works and to seamlessly feed the results of those efforts into the open access processes for review, publication, and further distribution.
- We need to provide **contextual support**—the ability for library members, to easily understand the environment in which existing knowledge was created and the funding sources behind it. We should be able to say, through our technology: "Show me an opposing point of view or show me other critical commentary on this view." We don't want to place our users in a "filter bubble;" we want to place them in a "learning bubble," a place above biases, above unspecified and un-modifiable filtering.
- We also need to pay a lot more attention to the **users' needs and experiences** with our services. This is another area where aggregation of data about users, their lives, and where they are in the continuum of their life can be

used to help us know what they'll need and when they'll need it. Like so many business sectors, we need to use the data about our users and provide analytics that can give our members better, customized, and very pro-active services. If we don't do this, other businesses will emerge to provide it directly to our end users, leaving the library out of the equation. Our future rests in providing unique services that our users want, need, and value.

Finally, one thing that our profession must be concerned about with these new library services platforms is allowing our libraries to become increasingly reliant on any one supplier for a broad range of products, content, and/or services. This is certainly the result that many vendors would like to see with these new platforms.

However, as librarians, we should be sure that we maintain the ability to:

- 1 Quickly move to new solutions as they come forward
- 2 Openly and cleanly integrate the best solutions together
- 3 Avoid being locked into content silos where choices are made *for* us, instead of *by* us.

By applying the recommendations above, the profession of librarianship can thrive along with those organizations who serve libraries. We can make sure these new library services platforms are not only a foundation but also an amplification of the mission of librarianship. Then our collective value in the days ahead can be more clearly conveyed and understood and we will truly be serving our customers as well as our profession. | FE | doi: 10.3789/isqv24n4.2012.02

(Note of disclosure to readers: While the author has made every attempt to present this article's information without bias, readers should be aware that I've served as the President of Ex Libris North America, a VP at Innovative Interfaces, and as President of VTLS.)



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RELEVANT LINKS



ALMA (Ex Libris)
www.exlibrisgroup.com/category/AlmaOverview

EL Commons wiki and code share (Ex Libris)
www.exlibrisgroup.org/display/ElCommons/Home

Intota (Serials Solutions)
www.serialssolutions.com/en/services/intota

ISO/IEC 27001:2005, Information technology - Security techniques - Information security management systems - Requirements
www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=42103

Lankes, R. David. The Mission of Librarians Is to Improve Society through Facilitating Knowledge Creation in their Communities. The Atlas of New Librarianship.
www.newlibrarianship.org/wordpress/

NISO active projects websites
www.niso.org/workrooms/

The NIST Definition of Cloud Computing. NIST SP 800-145. September 2011.
csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf

Open Library Environment (Kuali)
www.kuali.org/ole

Sierra (Innovative Interfaces)
sierra.iii.com/

Statement on Auditing Standards (SAS) No. 70 website
sas70.com/

Statement on Standards for Attestation Engagements (SSAE) No. 16 website
ssae16.com/

VTLS
www.vtls.com/

WorldShare Management Services (OCLC)
www.oclc.org/webscale/

Paul J.
Bracke

Alma at Purdue: The Development Partnership Experience

PAUL J. BRACKE

In mid-2009, we found ourselves at the Purdue University Libraries in a position that will be familiar to many libraries. Library services were undergoing change, but our technological infrastructure was not serving us in developing new services as well as we thought it should. Fragmented and, at its core, oriented toward print collection management, we were struggling with developing more effective models for providing access to our now largely electronic collections. At the same time, a number of new strategic directions were emerging that required that the Libraries shift human resources to new activities.

These directions were allowing the Libraries to develop new, deeper relationships with the campus through a reinvigorated model of liaison librarianship and the development of strong programs in data curation and information literacy.

When approached with the opportunity to become development partners on the Ex Libris Unified Resource Management (URM) project, now known as Alma, it was an opportunity to advance the Purdue Libraries' strategic priorities on multiple fronts—and an opportunity we seized. Alma was appealing on several levels. The vision of an integrated approach to resource management was appealing

as electronic resources and repository development had become vital components of our collection development activities. The collaborative vision of Alma, most specifically the Community Zone approach to shared management of bibliographic records, was also attractive as we developed strategies for repositioning cataloging staff into other metadata-related activities. Finally, we have been actively migrating our technology platforms to the cloud to enable technical staff to focus on mission-centric applications rather than infrastructure.

What is Alma?

Alma is Ex Libris' next-generation library management system. In the Ex Libris product strategy, there is a three-tiered, decoupled strategy consisting of Primo as the discovery layer, Alma as the library management system, and Rosetta as the preservation layer. Alma supports acquisitions and selection functions, electronic resource management, cataloging and metadata management, and access services functions. There are several noteworthy design characteristics of Alma. First, it is a cloud-based system, which has several advantages. For one, this approach reduces the need for individual libraries to invest in hardware infrastructure and allows them to focus technical support resources on application support connected with business practices, rather than devoting significant resources toward systems administration functions. Second, this approach allows for regular, incremental updates to the system, which means system improvements can be deployed more quickly than in an institutionally-hosted solution with a traditional and resource-constrained approach to upgrades.

Purdue's Existing Infrastructure

The Purdue Libraries' current infrastructure consists of Voyager (also from Ex Libris) for the Integrated Library System, with several other systems providing specialized functions. VUFind is the primary interface to the catalog, although WebVoyage is still available. MetaLib is used for federated search and SFX provides OpenURL services.

Purdue also employs a three-pronged approach to digital object management.

- 1 **Contentdm® (OCLC)** supports digitized archival and special collections.
- 2 **Digital Commons®** (bepress) supports institutional repository and publishing programs.
- 3 **HUBzero®** supports the institution's data repository.

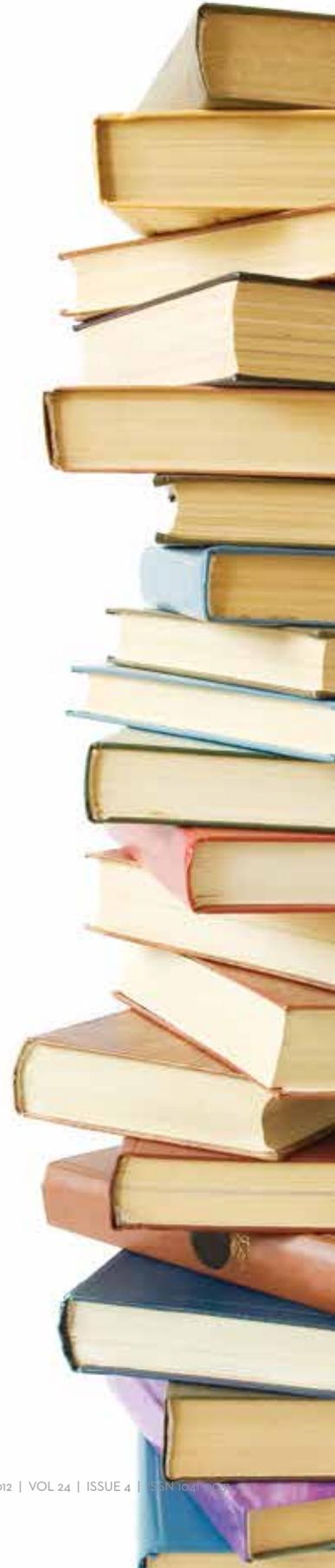
The Purdue Libraries do not currently have a production electronic resource management system.

The Development Partnership Process

For the past three years, the Purdue University Libraries have been development partners with Ex Libris for Alma, along with our colleagues at Boston College, KU Leuven, and Princeton University. The partnership has consisted of several phases, progressively building towards the launch of a finished system. Initially, the partnership was focused on system design, allowing stakeholders within the Purdue Libraries to provide input into the design of the various functional components of the system. This included input into cataloging/metadata, acquisitions, fulfillment (circulation, reserves, document delivery, etc.), e-resources management, third-party integrations, and more. This process involved discussing proposals for Alma functionality, describing existing use cases—“This is what we do and how we do it”—and functional wish lists—“I've always wished I could ...”—to enable Ex Libris to develop the system. This design phase was followed by a series of testing phases, during which the Libraries' staff tested both the latest functional developments in Alma and also data migrations.

Data migration has been a consideration throughout the testing stage of the partnership, with several migrations executed during the process. Considerable effort was expended on identifying data to be migrated, mapping data from the structure within Voyager (and other systems) to that used by Alma, and verifying migrated data. As one might expect, the quality of data migrations progressively improved throughout the testing process as Ex Libris refined their procedures and as more functionality became available, allowing more and different data to be tested.

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We have been very pleased with the new upgrade process enabled by Ex Libris' cloud-based approach to Alma. Enhancements and bug fixes are now released on a monthly basis, without the hassle of performing the upgrades ourselves. It is our impression that we are receiving upgrades in a timelier manner than in the past, which will also facilitate continuous improvement of processes within the Purdue Libraries.

Preparations for an Alma deployment have gone far beyond our contributions to the design and testing of the system, however. Launching a major system like Alma is a major undertaking and requires a significant focus on change management issues. Accordingly, we have spent a significant amount of time in ensuring that we launch at the point when the system is ready for us, and when we are ready for the new system. This has been approached through several avenues, beginning with the documentation of our important workflows, including both mission critical tasks and more peripheral activities.

This had a number of benefits.

- 1 Allowed us to assess the readiness of the system for our launch. We were able to evaluate the state of readiness of the system not only for our mission critical processes, but also for tasks that might not be absolutely essential for us on day one but would be needed in the near-term.
- 2 Allowed the staff to be able to see, in a structured way, how Alma would support their work. Their exposure to the system was no longer disconnected from the context of their day-to-day activities and it became easier for staff members to test and evaluate when they could directly assess the impact on their work.
- 3 Documenting workflows provided an opportunity for staff to begin shifting their mindset about their work from one framed by our current technological infrastructure to one framed by our future infrastructure.

Initial documentation was done from the point of view of workflows completed in Voyager, SFX, etc. Steps and tasks were system-specific, but outcomes were not. By working with Purdue Libraries managers and Ex Libris, staff have been able to make the transition to expressing their needs in an Alma context. This has had the benefits of facilitating system evaluation and of increasing the comfort level of staff with the system. Finally, the documentation process has provided a foundation for staff training. We have been able to leverage the process documentation, once converted to an Alma-oriented workflow, as the basis for staff training materials. Staff training is being developed at several levels, including general overviews of the system, specific function areas, and in-depth treatments of specific workflows.

In a parallel process, we have also been implementing Ex Libris' Primo product as a discovery layer. This has been launched in advance of the Alma deployment to provide discovery services to the Primo Central index as well as a range of local collections—print and electronic records from our Voyager ILS, digitized and archival collections, materials from our textual and data repositories, and LibGuides. We have continued to run both our VUFind catalog and WebVoyage. Once Alma is deployed, however, Primo will become the sole local search interface to collections.

These processes have put the Purdue Libraries in a position where we have a scheduled launch date of May 2013. Although Alma's vision is not fully realized at this point, at Purdue we feel that Alma's current state will prove to be an improvement over our existing infrastructure. With monthly releases of new functionality, we anticipate seeing continued and steady progress toward the vision that was attractive in making the commitment to Alma.

The Development Partnership Experience

We have learned a number of things at Purdue through our participation in the Alma development partnership that have been helpful to our Alma implementation, that will likely be useful to us in the future, and that might be useful to other libraries prepared to engage in similar processes. Keep in mind that these were lessons learned in a development partnership when working with a system that was very much in the early stages of development. Some of our testing and migration processes were more iterative than would be typical of the implementation of a finished system.

Cloud Management Systems and System Improvements

A common frustration for many libraries, including Purdue, about the traditional systems environment is the long path to bug fixes and functional improvements. One must wait, not only for the bug fix or enhancement to be developed, but then for it to be bundled into a periodic major or minor upgrade. Applying these upgrades can be difficult to schedule and then cumbersome to apply. We have been very pleased with the new upgrade process enabled by Ex Libris' cloud-based approach to Alma. Enhancements and bug fixes are now released on a monthly basis, without the hassle of performing the upgrades ourselves. It is our impression that we are receiving upgrades in a timelier manner than in the past, which will also facilitate continuous improvement of processes within the Purdue Libraries.

Use Cases and Understanding Processes

Use cases are, of course, vital elements to designing software and prioritizing features. Using real life scenarios to explain the significance of a feature request is an important approach to software development. It is an approach employed throughout the development process with Ex Libris. We found this to be useful in two respects. First, during the design phase it provided Purdue Libraries staff, and the staff from other libraries, with a framework for describing their practices and the significance of them. More importantly, they were useful in challenging our own assumptions. On a number of occasions, Purdue staff found themselves challenged to provide a clear explanation of the need for a desired functionality. An obvious benefit of this in many cases was being able to clearly communicate our desired functionality. In other cases, however, the approach had the additional benefit of forcing us to reexamine our assumptions about what was important in our work. Although our staff takes a very thoughtful approach to

their work, it is easy to become entrenched in work practices that could be improved. Thinking about our requirements in the context of a use case allowed us to question whether workflows, or steps in the workflows, were necessary or whether there might be different and better ways to achieve desired outcomes. One example involves changing the way collections funds will be tracked by acquisitions staff. There were significant differences between Alma and Voyager in this respect. After long consideration of our existing practices and of the new possibilities afforded by Alma, we felt that Alma's approach offered quite a few advantages and we elected to make changes to our workflows.

Engaging Staff

The Alma development partnership has been an important experience for Purdue Libraries' staff. Although the process has required a lengthy commitment from those involved, it has had benefits for everyone involved. Library staff engaged in acquisitions, electronic resource management, and other activities had learned to make do with the shortcomings of our existing environment, but had good ideas about improvements that would make it easier to provide high quality services to members of the Purdue community. The Alma development process has afforded Purdue Libraries' staff with the opportunity to have these ideas put into practice. These ideas were expressed to Ex Libris staff throughout the design process, and Purdue staff can point to a number of examples of Alma functionality shaped by this input. Having the opportunity to see one's influence on the product has been a positive experience, especially since we believe that this influence will improve our ability to serve the Purdue community.

One learning experience has been the importance of involving public services staff in system evaluation early in the process. To some degree, it was clear from the beginning that public services staff would need to be involved. Contributing to the design and testing of access services functions was an important component of the process and subject selectors would also need to be able to place orders and monitor expenditures. The area of greatest concern to staff, however, has been the transition to Primo as our OPAC. Although many staff members were accustomed to a modern catalog interface through VUFind, they were concerned about the transition to Primo and its ability to provide structured searching and browse displays. Although there have been improvements to Primo over the course of the development project, most notably in the area of browse functionality, many staff members are still uneasy

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about the impending transition to Primo as the sole interface, particularly without WebVoyage as a fallback option. If there were one area to stress in planning the implementation of a next-generation library system that might be overlooked, it would be the importance of involving public service staff in evaluating the integration of the system with the discovery layer as early in the process as possible.

Alma and the Transformation of the Purdue Libraries

We chose to engage in the Alma partnership for strategic reasons. At the time we were approached about participating in the development partnership, the Purdue Libraries were moving aggressively in a number of directions of strategic importance to their future. We were reshaping our model of liaison librarianship, developing data services, advocating for information literacy, and developing publishing services. At the same time, we were trying to move into an increasingly electronic collection development environment. With limited capacity to expand resources, we were interested in solutions that might allow us to dedicate existing staff in new directions.

Leadership within the Purdue Libraries elected to become partners with Alma because we felt that it enabled these strategies and facilitated transformational change in our collection access and management functions. A system that is more workflow-oriented, that provides the advantages of a cloud-based system, and that offers the potential to develop collaborative approaches to activities such as copy cataloging were all very attractive to us. We believe that Alma offers a platform that will enable us to engage in collection management functions in new ways, and refocus our efforts in strategic directions.

Although the full vision of Alma is still a goal for the future, Ex Libris has developed a system that will provide the Purdue Libraries with immediate improvements. Many of the issues that have been cause for concern with our existing infrastructure, particularly the poor functionality for contending with electronic resources, have been improved upon. We feel that our technical infrastructure will better meet our needs when we go live with Alma in May 2013. The technology is simply a tool for realizing the change we foresee in our environment, however. Alma is not a cure-all for the future of our, or any other, library but it provides tools that will enable the new kinds of collections work we envision.

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Alma Library Management Service (Ex Libris)

www.exlibrisgroup.com/category/AlmaOverview

Contentdm (OCLC)

www.contentdm.org/

Digital Commons (bepress)

digitalcommons.bepress.com/

Ex Libris products

www.exlibrisgroup.com/category/Products

HUBzero

hubzero.org/

Purdue University Libraries

www.lib.purdue.edu/



RELEVANT
LINKS



Gentry
Holbert

OCLC's WorldShare Management: *Early adopter experience at a small liberal arts institution on the Web*

GENTRY HOLBERT



"If at first, the idea is not absurd, there is no hope for it." – Albert Einstein

The idea of migrating a library's integrated library system (ILS) to one that changes both the user and administrative interface and workflow may appear to be somewhat absurd. It is certainly a monumental feat, but one for which there is much hope, to quote Einstein. Spring Hill College, a small, liberal arts Jesuit institution, decided to completely change the heart of their library in December 2010, becoming early adopters of OCLC's WorldShare™ Management system in an attempt to improve the user experience and streamline internal operations. This article follows the process through the decision, implementation, and future plans, and discusses the lessons learned.

Spring Hill College is a private, non-profit located on the Gulf Coast in Mobile, Alabama with an FTE of 1,393, mostly undergraduates, and a Carnegie classification of Masters (smaller programs). There are five librarians: a director, two public services librarians, and two technical services librarians.

Established in 1830, Spring Hill College is the oldest Catholic college in the Southeast. In 2004, we were fortunate

to open the new Marnie and John Burke Memorial Library, a 71,000-square-foot, modern facility housing library collections, administrative offices, computer labs and classrooms, faculty development, a tutoring/writing center, and numerous group study rooms. The Burke Memorial Library, located near the center of campus, is truly a hub of academic life at the College.

The Technical Services staff is comprised of a librarian in the role of Head of Technical Services, an Emerging Technologies Librarian, an Acquisitions & Accounts Manager, and a Serials Support Specialist. While library staff members are multi-talented in both public and technical services, there is no systems librarian position. Library & Informational Resources (LIRS) is semi-merged organizationally with campus IT services, with library staff including IT Help Desk support, instructional technologists, and information support specialists that do IT training. ITS (Information Technology Services) is a separate department

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within the building that manages technology infrastructure and supports administrative functions of the College. ITS and LIRS have separate budgets and reporting structures.

Spring Hill College's Burke Library had been a SirsiDynix library since 1995, with hosting moved to SirsiDynix in 2005. The SirsiDynix Symphony system was implemented in 2007. Upon librarian review of the SirsiDynix contract and services in 2010, many areas of frustration were voiced. At 20% of the Burke Library's budget (without salaries), the system was expensive. The cost was rising each year and librarians' dissatisfaction with the system included a feeling of lack of customer service and response, lack of reporting functionality, modules that were unusable, an unwieldy workflow, and frustration with an inability to make embedded location changes. For example, in 2004, the library moved from the old Byrne Library into a new building known as Burke Library. The Byrne name was embedded in the coding at a level the library staff could not change. SirsiDynix would not do it without expensive additional costs.

Decision to Switch to OCLC

After librarian review and discussion, an effort was made in 2010 to resolve issues with SirsiDynix, but improvements were not made and amid continued high frustration we began the search for a new library management system. We had a strong need for an integrated, single interface with access to multiple resources (traditional cataloged materials, e-books, e-journals, subscription databases, and archival collections) with consolidated subject indexing and metadata. But we quickly discovered the world of available ILS, discovery layers, and online catalogs is constantly shifting in both ownership and functionality.

An informal process was started by making a list of wants and needs within a new ILS. For Spring Hill College's Burke Library, these included the ability to push out our electronic resources (e-books, full text journals, and databases), streamline our acquisitions and ordering process, produce meaningful reports, and a desire to work with a known company, not someone new to the library or ILS business. Also, as a small, liberal arts institution, we were highly limited by cost.

The librarians felt a need to maximize use of our library subscriptions, especially electronic content. Roughly 51% of the Burke Library's budget is spent on electronic resources and an updated collection development policy put even more emphasis on purchase and selection of electronic resources. The librarians felt that valuable content was not being effectively accessed by users through the SirsiDynix catalog.

After many internal discussions, OCLC webinars, extensive discussions with OCLC staff, discussions with other early adopter libraries, and consideration of both price and features, a decision was made to switch to OCLC's WorldShare Management system (WMS). This decision had buy-in from Spring Hill College's five librarians. OCLC was very clear that being an early adopter meant the agreement was a two-way arrangement. Spring Hill College was expected to be an active participant in the process, give feedback, and help shape the direction and timeline of new features for WMS. This was an exciting prospect.

WMS is a web-based unified system meant to replace a traditional ILS while streamlining cataloging, acquisitions, circulation, and license management. It operates in conjunction with WorldCat® Local, which offers Google-type searching and the ability to create and share bibliographic lists, as well as to create tags and reviews similar to Amazon's website. It is also a discovery tool—not just for the library's electronic resources, but also connecting with WorldCat Local, the WorldCat knowledge base, local holdings records, vendor and publisher information, and authority records.

The decision to migrate to OCLC was based on the reputation of the company itself, not just on price and features. The librarians were comfortable that OCLC was a trusted, known company in the library world. Burke Library already used their services for cataloging and ILL, OCLC already held much of the library's data, and OCLC was viewed as a stable organization. SirsiDynix had been hosting the Burke Library's data, so the librarians were comfortable with the idea of cloud computing and offsite hosting.

A negative for both Spring Hill College and OCLC was Burke Library's intense timeline. OCLC was hesitant to accept an early adopter institution under such constraints. However, the Burke Library needed to move forward and have implementation complete before the SirsiDynix contract ended in April 2011. A contract was signed with OCLC in late December 2010. It was a tight timeline, and in retrospect, a somewhat absurd aspiration to migrate to a complete new system in four months.

Implementation

An important success factor in switching software vendors and systems is project management. The scope of the project for Spring Hill College's Burke Library was defined as the migration of data from SirsiDynix to WMS, configuring WMS to enable circulation of materials, and transitioning users to WorldCat Local as our catalog.

Strategic reasons—cost, general frustration with ability to make embedded location changes, need to streamline and improve workflows, and dissatisfaction with existing vendor customer service—allowed the Burke Library staff to quickly accept this change. Change management was not an issue. However, as mentioned, the short timeframe was one of our major challenges.

Other challenges were communication with SirsiDynix over ownership of data and developing work-a-rounds. SirsiDynix was extremely considerate in giving us access to our data past the contract date; however, they wanted to charge for upgraded “exit services” and were not as accommodating as we would have liked in providing the data. In the end, SirsiDynix sent us a raw .dmp file of all of our data without charge. Using extended access to the SirsiDynix host site, we also extracted our own files to migrate as guided by OCLC’s *Data Migration Questionnaire* and *Data Translation Table*. A large part of the anxiety of implementing a new system is deciding what data to clean up and what data input can wait. Once the implementation process began, we realized cleaning up data and processing new materials would have to wait. At the time, Spring Hill College was going through major budget cuts, so there were not many new materials to process.

Beginning in February 2011, OCLC set up a three month, WMS cohort syllabus to guide eight early adopter institutions through the implementation process. Sessions were done through webinars and included peer presentations. Topics included testing, implementation, service configuration, data migration, training, and customer support. Information and training on modules such as serials and acquisitions were given before a system was implemented. As an early adopter, our expectations of change and two-way communication were clearly defined, and we participated in all of the cohort syllabus events and provided presentations of our progress.

While the cohort syllabus information exchange was helpful and the sense of moving through the process with a group reassuring, the fact that cohort institutions were migrating from different systems caused a lack of cohesion. Others in the cohort were migrating from systems such as Ex Libris Voyager, SirsiDynix Horizon, and SirsiDynix Symphony. When the initial and main issue of executing a new system is migration of data, discussing change management with libraries utilizing a myriad of systems is not useful. Given our short timeframe, our ability to bond with other cohort institutions was limited. It was more useful for us to go out of the cohort and speak to institutions with similar migration issues.

As early adopters of WMS with a tight schedule, we had to develop our own work breakdown structure to help stay on track. An internal project worksheet and timeline was created with tasks (see sidebar), dates, staff involvement, and completion.

It was quickly realized we did not have the time to formalize this project worksheet. For example, we lacked basic project management tools such as a probability impact matrix, and a Gantt chart. In the end, the tasks on the project worksheet were completed, but not through formally following a process. More guidance in this area would have been beneficial.

TASKS INCLUDED IN THE WORK BREAKDOWN STRUCTURE INCLUDED:

✓ SIRSIDYNIX TO WMS TRANSITION

Interim check-out procedures, go live date, web link changes, marketing, resolving browser issues

✓ BATCH LOAD OF RECORDS

Error/missing record check

✓ CIRCULATION

Patron records load, policies & procedures, staff permissions, begin check-out, patron login/password

✓ ACQUISITIONS

Staff permissions, policies & procedures, request procedures

✓ CATALOGING

Staff permissions, staff training, handling of government document records

✓ SERIALS

On hold due to migration issues

✓ EDUCATION

Training staff on new system, LibGuide about new catalog, educating faculty and students, WorldCat lists





We are a two-library system (Burke Library and Teacher Education Library) and user policies between the two differ. Our map is very long which makes it difficult to change, and it takes time to develop an understanding of a new system. Communication with WMS support staff was critical, and calls were frequent when mapping our circulation policies.

Bibliographic data was exported in March of 2011. Our monographic bibliographic data migrated with only minor difficulties. When we developed our WMS translation table for holdings we did not realize we would lose item information if the location did not migrate.

Our serial data was sent in a separate file for migration and we did not anticipate issues. However, one title had over forty items associated with it, but after migration there were only three items associated with the title. One of our major problems with the serial data was that the titles migrated but the items associated with the title did not migrate. We received error files but we have been unable to determine what caused the items to be directed to the error file. We had numerous conversations with OCLC support about this. It has been suggested that perhaps our serial data could be reloaded from the original file, but this would erase any changes that we have made since that time. Our serial data continues to be problematic in that some titles have no call numbers, locations, or items associated with them. The only solution appears to be by creating local holdings records for these serial titles, which is a very time consuming process. We should, perhaps, have anticipated such risks associated with switching systems.

Our patron data could not be migrated from SirsiDynix so we relied on Excel spreadsheets and manual labor to preserve and transfer this data.

Configuring our circulation policy proved to be a lengthy process as several attempts were required. The WMS map centers around material format as defined in the MARC record. We are a two-library system (Burke Library and Teacher Education Library) and user policies between the two differ. Our map is very long which makes it difficult to change, and it takes time to develop an understanding of a new system. Communication with WMS support staff was critical, and calls were frequent when mapping our circulation policies. More up-front guidance and hand holding from OCLC would have been helpful.

The WMS approach to branding was quick and easy. It would have been favorable to have more public relations events on campus, such as naming the new catalog, but our short timeframe did not permit this. Our patrons were pleased with the look of WorldCat Local. Our patrons appreciate the inclusion of articles and electronic resources. A LibGuide was created with tutorials and lists of benefits and features. We are still tailoring our bibliographic instruction to maximize our patrons' use of the new catalog.

At the start of the 2011 fall semester, we provided training for faculty. The majority of the feedback was positive, with comments such as, "I love the new catalog, and look forward to making some lists," and, "I may have the students in my philosophy and gender course make a list as part of their projects drafting stage—supporting their development in information literacy and in research and scholarship."

Negative feedback focused on the two separate logins required for deeper involvement in WorldCat Local. There is one login for WorldCat Local, which allows users to create personalized lists and searches, and there is a separate login for patrons to access their Burke Library account and make holds or renew materials. Our campus IT department employs lightweight directory access protocol (LDAP) to keep multiple logins and passwords to a minimum

for users. LDAP would be advantageous to eliminate the double login, but it is not available through WMS at this time.

The new catalog did look better to users, searched a broader swath of materials, including electronic resources, and provided more information in a “one stop shopping” approach to initial research. However, the new system was not exactly a discovery layer, link resolver, or A to Z list of resources, so education was necessary as was keeping some subscriptions from other vendors such as Serials Solutions and EBSCO. Within our budget constraints, there is not one system that does it all and piecemeal applications will still have to be acquired.

Future

WMS offers the ability to develop API or web service keys. OCLC has a developer network in place where information is shared on topics ranging from streamlining workflows to going mobile. These are features that we have not yet explored due to staffing and time constraints, but may consider in the future.

Our WMS acquisitions and ordering features have not been implemented due to an inability to work with our CARS and Jenzabar systems for tracking and approving expenditures. We are currently using old workflows and bypassing the WMS acquisitions module. We believe there is potential to more fully integrate these and hope to do so in the near future.

We are participating in a study of ROI pre- and post-WMS by examining circulation statistics, usage of e-resources, interlibrary loan, and patron/staff satisfaction with OCLC. Since implementing WMS, all of our interlibrary borrowing and lending has decreased. We believe this is due to an increase in online fulfillment; our students and faculty are more likely to find what they need in our increasingly richer and more varied electronic databases. WMS has helped connect our patrons to these resources.

In the spring semester of 2012, Spring Hill College participated in the MISO (measuring information service outcomes) survey, a web-based quantitative survey designed to measure how faculty, students, and staff view library and computing services in higher education.

Our MISO survey included a direct question about the online library catalog, and results showed:

73% of our faculty found the online catalog *very important*

69% of students found the catalog *important or very important*

83% of faculty were *somewhat satisfied or satisfied* with the online catalog

92% of students were *somewhat satisfied or satisfied* with the online catalog

40% of all respondents were interested in learning more about the online catalog

This information confirmed the online library catalog is considered important by our patrons and that there is a high level of satisfaction with it. It also tells us that patrons would like more information and training in the use of the catalog. The MISO survey gives us the ability to compare our data to similar schools and see whether we fall above or below the



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mean. We will participate again in the 2013 MISO survey to have internal data to compare and monitor use, importance, and satisfaction of library and IT services.

Lessons Learned

There was a positive impact among Burke Library staff in working together to clean up data, change workflows, set new policies, and engage in the decision-making process to implement a new system and correct past errors. While this can be cumbersome and sometimes frustrating, it created a positive sense of community and working together to get it right.

There was a cost savings with moving from SirsiDynix to WMS. WMS bundles some of our former cataloging and FirstSearch costs, and the aggregated amount is less. We were fortunate in that our Friends of the Library group paid our initial WMS implementation fee, which was a one-time cost in addition to the annual subscription costs.

We were able to discontinue our Serials Solutions 360 discovery layer product, but we continued with the Serials Solutions Core A-Z List. OCLC WMS provides an A to Z journal list, but not an A to Z list of electronic resources. In theory, electronic resources should be managed through OCLC's knowledge base, which is an administrative system to manage the library's electronic resources and linking features. However, the shifting nature of electronic collections causes discrepancies between what is available through direct databases and what is available in the knowledge base. For example, ebrary's Academic Complete™ collection showed 80,000 records at one point through its own interface, while accessing it through knowledge base showed 70,000 records. This was remedied to a discrepancy of 80, after working with both OCLC and ebrary. There are still many vendors and collections not available in knowledge base, which makes us reluctant to rely on WMS as a complete discovery service. It seems to be the result of an issue with communication and allowed access between publishers and OCLC. Currently, we are considering purchasing an outside link resolver to layer over our system and allow Google Scholar to tie in.

As previously mentioned, one lesson learned is that one system cannot do it all. Our goal was to use the features of WMS as intended and train our patrons to search through the WorldCat Local portal for all electronic resources. However, we have found that outside vendors are still needed. But we believe the potential is there for WMS, and that OCLC is moving in the right direction with the product.

John Lombardi, American University professor and administrator, spoke at the Association of Research Libraries' Library Assessment Conference in the Fall of 2012 on the topic of cloud computing. Of note, he said, "You can't afford

to be first. Let the Harvards do that. You don't have the money to lose." As an early adopter, Spring Hill College was taking a risk by being first. Lombardi is correct that small institutions do not have the money to lose on untested endeavors. It may have been best to wait for other, richer institutions to test OCLC's WorldShare Management system as early adopters. However, Spring Hill was ready to take Einstein's "absurd" risk, and while difficult and not complete, the change has been more positive than negative for both patrons and staff. | IP | doi:10.3789/isqv24n4.2012.04

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Burke Library Collection Development Policy

libguides.shc.edu/content.php?pid=119200&sid=2989439

Library Assessment Conference, Plenary Session

libraryassessment.org/sessions/

MISO Survey

www.misosurvey.org/

OCLC WorldShare Management Services

www.oclc.org/us/en/webscale/

Spring Hill College Burke Memorial Library

libguides.shc.edu/burkelibrary

Spring Hill College WMS LibGuide

libguides.shc.edu/content.php?pid=208688



RELEVANT
LINKS

The Orange County Library System Environment:

Connecting Sierra with Custom Applications on the Web

WILLIAM ERIC ATKINSON

The Orange County Library System (OCLS) was formed in the 1980s as an independent tax district that provides library services to the residents of Orange County, Florida. It consists of a main library and 14 branches. The System also has a robust online presence and an extensive home delivery service.



When OCLS was formed, it was organized with a large degree of operational autonomy. In addition to providing circulation, reference, and acquisitions functions, OCLS was responsible for its own payroll, accounting, facilities, and information systems functions.

The Information Systems department is responsible not only for providing traditional ILS support, but also for managing the Library's telephone and network infrastructure and the Call Center. It is also involved in researching, selecting, implementing, and supporting all technology-based systems. From the very inception, this has included finding ways for the various, disparate systems to work in concert to provide better service and efficiency.

The Millennium Environment

In 2004, OCLS purchased library management software from Innovative Interfaces. The platform was named Millennium and provided basic acquisitions, circulation, and Web OPAC functions.

In addition, Millennium provided tools to connect to non-ILS technology.

- 1 Integration with online resources was provided via Web Access Management (WAM). WAM provides patron authentication for remote access to online resources by functioning as a proxy server. This provides for easy setup and maintenance, but can lead to strain on the ILS server

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Innovative has provided the Sierra Database Navigator (DNA) as a tool to document data relationships and provide SQL examples. Innovative has stopped short of providing custom SQL code, but has given libraries the tools they will need to construct their own.

by proxying each packet. As streaming media evolved, this service began to noticeably degrade server performance. Also, some online resources were not compatible with a WAM implementation.

- ② **A second tool to support interoperability was Standard Interchange Protocol (SIP) support.** Innovative licenses SIP support on a per-connection basis. Again, this is generally easy to set up, but SIP support can be limited with certain external systems. The per-connection pricing can also serve as a brake to innovation by increasing overall cost. At OCLS, this has restricted the use of SIP to the support of various self check-out/check-in platforms.
- ③ **A third tool for interoperability was the PatronAPI, which provides basic authentication and querying of patron records.** This API is licensed on a site-wide basis. Although the initial cost is rather high, the library is not restricted in the number of licensed connections. Initially, OCLS purchased this product to reduce the overall cost of supporting its implementation of PC Reservation® software from EnvisionWare®. Over time, we have found a number of additional applications for this simple, but powerful, API.

The Sierra Environment

In 2011, OCLS entered into a development partnership agreement with Innovative Interfaces to migrate to its new Sierra platform, which is being released in successive phases. In its first phase, Sierra focuses on Millennium compatibility while providing for greater data access via an open Postgres database implementation. All previous interoperability tools remain intact, providing for seamless continuity when migrating from Millennium to Sierra. During this phase, the increased functionality is restricted to read-only data access; this maintains the integrity of the business logic. Sierra organizes the Postgres tables into Sierra Views, which provide easier access to data in a more accessible logical relationship (i.e., a Patron-Record, an Item-Record, etc.). Innovative has provided the Sierra Database Navigator (DNA) as a tool to document data relationships and provide SQL examples. Innovative has stopped short of providing custom SQL code, but has given libraries the tools they will need to construct their own.

As Sierra development moves to its next phase, Innovative will begin to provide access to the business logic via a set of robust read/write APIs. As this new functionality is developed, there will be increased opportunity for coupling technology platforms.

OCLS migrated from Millennium to Sierra on October 22, 2012. Because of the similarity of the Millennium staff client to the Sierra staff client, there was an extremely low learning curve for staff. We also did not implement changes to our Web OPAC, so the impact on library customers was minimal. The Information Systems department has begun migrating some of its PatronAPI-based customizations to use the new Postgres/Sierra Views data access methodology.

Integration with Other Systems

Call Center

OCLS purchased a telephony and call center system from Lucent (now Avaya) in 1999. After implementing Millennium in 2004, we began to look for ways to interconnect the two systems. We have been able to do this via a custom-

written php application (Questline), MySQL, and an eIVR server (Integrated Voice Response). Information Systems staff wrote an application to track customer phone calls. Each call can be a simple account issue or quick reference, or it can be a detailed inquiry that is routed to a service department that is not part of the call center. The difficulty was connecting the incoming call to the patron record in the ILS. In order to streamline the process, our Call Center software routes the incoming call through an eIVR server. This server prompts the user to enter their Library Card number and then uses Innovative's PatronAPI to validate the patron and write the Library Card number to a MySQL table. Then when the Call Center agent takes the call, the Questline program uses the PatronAPI to retrieve additional information about the patron—including name, address, patron-type, and money-owed—and displays it to the staff member in real-time. This results in a smoother, more informed initial interaction between staff and customer.

Another recent modification we made to the Call Center workflow was to insert an option to transfer the call to Innovative's Telephone Renewal System (TRS) to renew circulated material at the beginning of the call, or when the customer is on hold. This means the customer does not need to remember a separate phone number for telephone renewal. It has led to a significant increase in the utilization of the Telephone Renewal System. Unfortunately, the Innovative TRS product has not been refreshed in a number of years and does not provide the ability to transfer back into the call flow at the end of the renewal call. It should be noted that there may be third-party TRS systems that might provide more flexible integration.

Under Sierra, we will be using Sierra Views to enhance the information that can be retrieved from the Postgres database. For example, the PatronAPI can only provide the total number of items a customer has checked out. With Sierra Views, we will be able to list the individual items. This will lessen the need for the Call Center agent to toggle back and forth between the Questline application and the Sierra Desktop Application. As the APIs are developed in phase 2 of Sierra, we hope to integrate read/write functions such as renewing items into the Questline application. These will enforce the business logic that will ensure data integrity. It should also be said that OCLS is actively looking for an alternate to the current Avaya telephony architecture and will likely be moving to an IP/cloud-based system in the near future. This will provide a new set of opportunities and challenges.

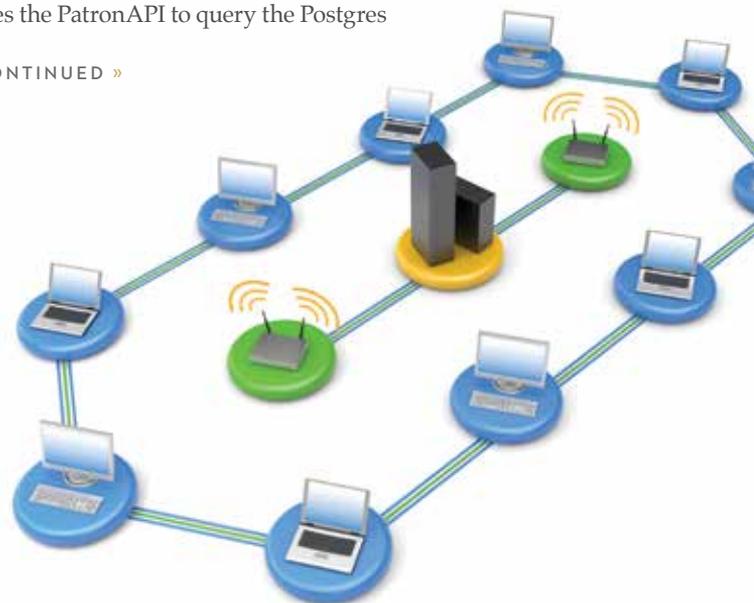
Wireless Infrastructure

OCLS has been offering customers WiFi access at all locations for a number of years. This was accomplished via a number of Access Points (APs) tied to a Radius server for authentication. This Radius server was tied to a MySQL database, which contained a list of MAC addresses and corresponding patron Library Card numbers. To enroll, library staff would take a patron's Library Card number and MAC address. They would check the account status in the ILS and then enter the card number and MAC into the database. As wireless use accelerated, the inefficiency of this process became harder to work with. There was also no cleanup done as patron accounts became delinquent or when they changed laptops (resulting in a changed MAC address). There was also no ability to provide meaningful statistics concerning wireless use.

In the summer of 2008, OCLS upgraded its wireless infrastructure. We chose an integrated Cisco-based platform that uses a robust wireless controller. This Cisco Controller interfaces with an upgraded Radius server, which is able to interface with a custom php application. We explored using SIP2 for its simple implementation, but we did not like the reporting options of the platforms we reviewed. We also wanted greater control when granting/denying access. Here again the Information Systems staff went to work connecting the Cisco and Innovative platforms.

What we implemented is a separate wireless network with a broadcasted ssid. The Cisco Controller pushes a logon screen to customers as they connect to the PublicWireless network where they provide their Library Card number and PIN. The Controller passes these credentials to a Radius server, which executes a php script that uses the PatronAPI to query the Postgres

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As Short Message Services (SMS) began to emerge, OCLS recognized early on that customers would want to get text message notifications from the Library. The concept of getting text reminders of materials coming due and upcoming programs was popular. At the time, Innovative Interfaces did not have a model in place to provide this. By now you should be able to guess the OCLS response: build it ourselves using any available tool.

database. The php application verifies the Patron-Type and Money-Owed fields. If they meet the thresholds, the application writes information to a MySQL table for statistical purpose and passes a grant code to the Controller, which then connects the user's session to the network. If the account is delinquent or not eligible, then information is also written to the MySQL table and a deny code is sent to the Controller. The Controller then pushes an informational page to the user directing them to library staff, and disconnects the user from the network.

This system allows OCLS to enforce a wide set of access parameters. It also provides historical information that allows us to examine wireless use including the number of sessions per month, the number of unique customers served, the most used APs, wireless use by branch, etc.

✉ SMS Notification

As Short Message Services (SMS) began to emerge, OCLS recognized early on that customers would want to get text message notifications from the Library. We experimented with short codes and text-based reference, but found it to be expensive and underutilized. However, the concept of getting text reminders of materials coming due and upcoming programs was popular. At the time, Innovative Interfaces did not have a model in place to provide this. By now you should be able to guess the OCLS response: build it ourselves using any available tool.

In 2007, Information Systems staff wrote a system we call OCLS Alerts. This consists of a php application, a MySQL table, a low-cost SMS gateway service, and the Innovative Review File function. We also connect it to our program registration software, Events from Evanced Solutions, to provide reminders of classes that the patron has registered to attend.

The way it works is that customers enroll in OCLS Alerts via a webform keying in their Library Card number and PIN. They provide their cellular number and configure what kind of notices they want to receive. They can select Materials-Due, Classes, or both. If they select Materials-Due reminders, they can select detailed notifications (one message per item including title) or digest (number of materials due). The digest option can help minimize carrier charges.

On a daily basis, Library staff will run a query using the Sierra Desktop Client to select materials that will be due in three days. They export information into a text file and transfer it to separate server. A php application will then parse the file and load it into the OCLS Alerts MySQL table. A cron job on the server will then send the messages out at a pre-set time.

This process has been in place and working well for several years. However, it does mean that staff must manually run tasks to generate the report and download the file. Innovative does provide a separately priced Scheduler product that could automate parts of this task, but there would still be a lag because of the asynchronous nature of the workflow. OCLS plans to use the power of Sierra Views to provide a real-time link between the Postgres database and the php application that sends the notice.

It should be noted that Innovative now has a product to provide SMS messaging. There are also several third-party services available, but these tend to be subscription based and can have a significant ongoing cost. The system we have in place costs very little in ongoing charges. We also use an XML

interface to our Events software to gather program registration information and send out class registration reminders.



Remote Access to Online Databases

The standard way to provide patron authentication for remote database access on Innovative Interface platforms is their Web Access Management (WAM) product. Over the years, we have found that some emerging electronic resource vendors' databases did not work well in a WAM environment. OCLS has used the PatronAPI to address this on a case-by-case basis. We developed an authentication gateway using a php application that collects the patron's Library Card number and PIN. It will query the Sierra database and evaluate our custom policies (pseudo loan rules). If access is granted, it will perform a referring URL authentication. If denied, it sends a message back to the user. We have been doing this for a number of years for resources that provide streaming media.

In recent years, we have also used this process to integrate authentication with products from OverDrive and Library Ideas (Freegal Music and Freading). These vendors can support SIP authentication, which can be easier to implement, but we have found several advantages to using our customized method. Services such as OverDrive perform authentication against the Library ILS, but then create a local record in their own system. Patron holds on e-books are then tracked and managed from the vendor's storefront. Each time the customer visits the site, the vendor will check back with the ILS to ensure the customer is still valid and in good standing.

A weakness of using SIP to enable this workflow is that SIP authentication is based on the Library Card number. This means that the Library Card number is typically used as the unique identifier for the customer in the vendor's database. The problem creeps in when the customer loses or damages the physical Library Card. If these cards have a pre-printed card number, then a new one is issued from the ILS. Now the vendor's database and the ILS are out of sync and ongoing authentication becomes problematic. How do you authenticate using the new Library Card number, but not lose the association with existing electronic holds placed under the old number? With our PatronAPI method, we are able to pass the Innovative patron record unique identifier to the e-book vendor instead of the Library Card number. Now, the Library Card number associated with the record can change without impacting the unique identifier associated with the account. This means the ILS and e-book vendor databases remain in sync.



A weakness of using SIP to enable this workflow is that SIP authentication is based on the Library Card number as the unique identifier for the customer in the vendor's database. The problem creeps in when the customer loses or damages the physical Library Card.



Mobile Applications

OCLS has several mobile applications for patron use. These applications tend to use the same asynchronous query and download process to provide catalog data to the application as is used in our SMS application. Using the real-time Sierra View capabilities, we will be able to begin pulling data in real time. The first application of this will be in our reader's advisory app, Shake It. Staff currently gather the information on a weekly basis and populate a MySQL database with titles and holding information that the app uses to make recommendations. With Sierra Views, this link can be made without staff intervention, resulting in fresher, more up-to-date results.

In phase 2, we hope to have this application as well as others we develop provide simple interactivity for easy renewing and requesting of materials. Currently, our apps must vector out to Innovative's SmartPhone-enabled AirPac.

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Upcoming Projects

OCLS is involved in additional development projects where we will be calling upon the Sierra platform to provide us with the tools to connect with traditional ILS data. These include implementing our own e-book platform based on the Adobe Content Server (ACS). There is already a lot of work underway between Innovative and other e-content vendors such as OverDrive. We are currently working to develop our own ACS storefront and anticipate having something available in 2013.

Additionally, we have done some preliminary research in building access control systems (ACS). Essentially, these are door locks that can interact with databases and/or APIs. The ACS could be used to control access to study rooms, workpods, and other small group spaces. Should we develop this type of application, it will likely come online in 2014.

Deprecated Projects

It is worth noting that sometimes it is the right decision to abandon a customization. This occurs as new industry standards develop or when the ILS vendor can provide more powerful functionality at a lower cost. Prior to running Millennium, we used DRA-Classic as an ILS. At that time, the system did not provide for credit card payment of fines and fees. In response, we wrote our own e-commerce application using .Net technologies. As soon as the ILS began supporting e-commerce, we moved to its native solution. It was clearly easier and less expensive to use the integrated solution than to maintain a separate solution.

Summary

OCLS has been connecting disparate technology platforms to its library data for decades. This process will continue even as we implement new library solutions, such as the Sierra platform. We have worked with multiple ILS vendors and looked closely at open source projects such as Koha and Evergreen. The choice of individual ILS is important, but on its own, no system can meet all the interoperability needs of an organization. Also, the systems with which these platforms must communicate are constantly evolving. The Information Systems department of any library organization will constantly face this challenge. OCLS has been able to successfully meet this challenge with the Sierra platform from Innovative Interfaces, but we will continue to push the limits of the tools they provide. | IP | doi: 10.3789/isqv24n4.2012.05

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Innovative interfaces

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www.adobe.com/products/content-server.html

Events (Evanced Solutions)

evancedsolutions.com/our-solutions/events/

Library Ideas

www.libraryideas.com/

Millennium ILS (Innovative Interfaces)

www.iii.com/products/millennium_ils.shtml

Orange County Library System (OCLS)

www.ocls.info/

OverDrive

www.overdrive.com/

PC Reservation software (EnvisionWare)

www.envisionware.com/pcres

Sierra Services Platform (Innovative Interfaces)

sierra.iii.com/

SIP protocol (3M & NISO project)

www.niso.org/workrooms/sip/



RELEVANT
LINKS



Michael Winkler



Robert H. McDonald

Kuali OLE: A Collaborative Community Model for Software Development

MICHAEL WINKLER AND ROBERT H. MCDONALD

Kuali Open Library Environment (OLE) is perhaps best known as an Andrew W. Mellon Foundation-funded project to create an open source, next-generation library management system. Since our initial investigatory OLE Project in 2009 found that the academic and research library community supported the goals and concepts of a community supported and developed library management system, Kuali OLE has worked to engage this community with our vision for community sustained software for library management—software for libraries and by libraries.

Important to that vision is a service-oriented technical architecture that provides adopters with format-neutral, document-oriented persistence, rules-based workflow, accessible metadata indexing, enterprise-strength financial processes, and a rapid interface development environment. The Kuali OLE technology stack gives libraries control over library process workflows and provides an application development toolkit that lets adopters extend OLE to their specific needs—leveraging their descriptive metadata, finances, and workflows to build more tightly integrated management workflow solutions for research libraries.

Previous discussions and presentations of Kuali OLE have often focused on the technologies, roadmap, and project status as we have cast our vision into community-sourced software. The evidence of these maturing efforts can be

readily found, monitored, and test-driven at the Kuali OLE website or in the sheer amount of code developed, which can be tracked at our Oloh site. Visitors can find archives of our presentations, descriptions of our technologies, expectations for deliverables for each release, and our current release test-drive and driver's manual. Further, the OLE website provides opportunities to interact with partner participants to gain further understanding of our approach to OLE as a solution platform for academic libraries.

While much attention is concentrated on our technologies, organization, and roadmap, less attention and discussion has been focused on the innovation that is most critical to our success: the Kuali OLE collaborative community model. Based on work from the Kuali Foundation and their initial success in developing Kuali Finance and Kuali Student, Kuali

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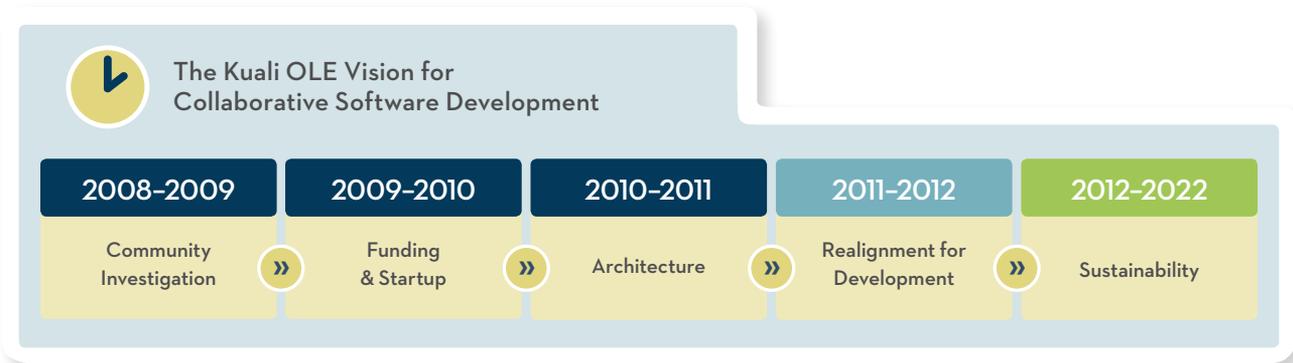
The Kualī OLE technology stack gives libraries control over library process workflows and provides an application development toolkit that lets adopters extend OLE to their specific needs—leveraging their descriptive metadata, finances, and workflows to build more tightly integrated management workflow solutions for research libraries.

OLE has worked to adapt this model to a library centric environment. We are a collaboration of partner institutions that have developed a shared vision for library management software, invested significant cash resources, and expended the ingenuity and dedication of our staff in this effort. While the motivations of each partner are born of our individual institutional priorities, we have evolved into what Hilton and Wheeler define as a collaborative community in order to find an open, common, and shared solution. We have not simply invested in a software development project, but in a strategic engagement of collaboration based on our institutional similarities and our willingness to leverage our work as one large-scale project.

The Kualī OLE Collaborative Community

The Kualī OLE collaborative community has been an evolution of vision, focus, and organization. We began this journey, not as a community fully formed by similar interests, but as an investigation. As the OLE Project, a group of libraries joined with Duke University with funding from The Andrew W. Mellon Foundation to investigate the approach and requirements for building an open source, next-generation library management system for academic and research libraries based on the principles of service-oriented design. Critical to this investigation was a determination of whether there was enough interest and support in the academic library community to provide the resources that would be necessary to undertake a large software development effort, and if so, how such an effort would be organized. By the end of the OLE Project in 2009, through many engagements with the academic library community, we had validated the concept of a community owned and developed software application framework. Further, we had investigated the benefits of joining an existing organization as a host for a software development project, rather than developing a niche not-for-profit organization. The Kualī Foundation provided a model to support and sustain the ambitious conclusions in the OLE Project final report. In Kualī, we found a robust organizational and technical architecture that provides a legal entity, supported development environments and tools, an existing host for the Kualī Rice middleware framework that would become critical to our software development, and an active and committed commercial affiliate program that can provide critical commercial resources for development, consulting, and operational services normally beyond the reach of typical, unaligned open-source projects.

In 2009, building on the cooperative recommendations of the OLE Project, a proposal was developed to attract collaborative academic library partners to join in a software development project to build the Open Library Environment. To build a new community required the project to attract committed and diverse partner libraries, procure sufficient funding to underwrite the effort, and find an organizational home for the project. Collaborative communities can arise where the goals and interests of the participants are aligned; through this alignment, partners find the trust and structure for sharing vision, knowledge, effort, and scrutiny. The proposal had to lay out a clear and compelling set of goals that potential partners could evaluate against their own goals, be explicit about the resources required for the project and what a partner's contribution would be, and provide a project organization that could support a shared approach to software functionality. The proposal to form the Kualī OLE project attracted seven founding partners that could



develop deep collaboration and shared commitment. As the partnership was coming together, the proposal was further developed to attract funding from The Andrew W. Mellon Foundation and matched with partner cash commitments; this provided sufficient funding for the start-up phase. With our commitment and funding, our partner institutions joined the Kuali Foundation as the Kuali OLE project, ready to collaborate in building on our shared vision.

With the nascent Kuali OLE community in place, we set about designing our technical architecture and establishing our software development strategy. Much of the work done during this phase of our project focused on investigating, evaluating, and selecting technical approaches and software for building Kuali OLE. We organized our partners around requirements for major functional aspects including Select and Acquire, Describe, Deliver, and Relationship. These groups developed the basic scope of needed services against which our technical architecture could be designed and evaluated. We recognized the need to balance deliverables that could not only manage traditional library workflows, but also could extend to new workflows to incorporate new demands on libraries to manage a wider set of content types and services. It was our collective knowledge and estimation of a rapidly changing and disruptive future that fueled innovations in Kuali OLE technologies including a service oriented design using Kuali Rice middleware, enterprise-strength financial processes that will power new models for information acquisition, Apache Jackrabbit and Solr to provide future-proofing for changing descriptive metadata practices, and Kuali Identity Management to support multi-institution populations of patrons for library services. The diversity of outlook, deep domain expertise, technical skills, and visionary insight embedded in our collaborative community has shaped the innovative and extensible design of Kuali OLE.

Realignment of priorities and organization is a challenge to any organization; it requires insight into needed changes and the fortitude to effect these changes. The Kuali OLE community required such realignment as we transitioned from our architecture phase into a software development collaboration that needs to produce working code and deliverables. During the summer of 2012, Kuali OLE reorganized our development practice and changed functional council leadership, brought on a new project manager, streamlined redundant technical resources, and reformed our specification writing practice. These changes were quickly conceived and deployed through the consensus of our community that progress on code required more direct interaction of our community subject matter experts with our contract software developers. We stripped away barriers to direct communication about requirements, which has significantly improved the velocity of development and provided a more holistic understanding of software priorities and directions. The trust, born of shared vision and effort within our community, allowed for agile recognition and action.

Kuali OLE is now moving towards its milestone 1.0 release in 2013. While we are deeply focused on software development, we have already begun, as a community, to develop strategies and processes for implementation of Kuali OLE. As can be expected with any community-sourced software, there will be early adopters and the community is preparing to be a resource and partner in their implementations. In the next couple of months, we will see at least one Kuali Commercial Affiliate (KCA) offer services to implementing libraries. But our early implementers will also have substantial community support. Our shared core teams, as well as staff from our partner libraries, are working with the implementing libraries to assist in planning, gap analysis,

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technology staging, and training. Within the Quali OLE collaborative community the success of these early adopters is critical to all partners. These deployments will not only validate our efforts to develop software, but will shine a light on deployment and integration patterns that all of us will need for our own implementations. Again, partners gain advantage by committing to the community.

In closing, a note on the strength of the Quali OLE collaborative community would be incomplete without a mention of our newest partners. A measure of community vitality is how it grows and sustains its activities. During the last year, Quali OLE has added two new partners to our community: Villanova University and North Carolina State University. Both new partners bring considerable experience with open-source software development, discovery tool integration, and cooperative interactions. Our community is in discussions with other libraries now and will likely bring on board additional partners before the end of the year. Our code base continues to grow and the shape of core modules of functionality is coming into resolution. We have proposed a third year of funding from The Andrew W. Mellon Foundation and are hopeful that this grant will be awarded. The Quali OLE Board has approved continued funding from their own resources as we complete development and begin to realign to deploy, functionally extend, and sustain our software and our community.

During this past year, Quali OLE has partnered with JISC Collections in the United Kingdom, with funding from JISC and from The Andrew W. Mellon Foundation, to develop the Global Open Knowledgebase (GOKb). GOKb is critical infrastructure for Quali OLE deployments to support electronic resource management. But our vision is that global information is a community resource and should be open and supported by the community of users. GOKb will depend on community cooperation to build and sustain this open data resource that will be helpful to Quali OLE, to JISC's Knowledge Base+ project, and to the wider academic library community. These activities demonstrate how our community vision continues to resonate within our collaborative community, but also is relevant and attractive to new and potential partners, funders, and the wider library community.

The Collaborative Community Investment

In recent years, we have seen many library management systems (LMS) vendors merge and realign mainly due to the influx of private equity funds into the library management system marketplace. This has, according to Marshall Breeding, continued to create an environment that allows a "smaller group of larger firms [to] dominate the library automation marketplace. They are largely international, diversified, and privately owned. The mergers and consolidations that

marked the recent history of the industry have absorbed the weaker products and companies." This is the way that the marketplace should work; however, the critical component here that does not play out so well in the academic and research institution marketplace is that this has an effect of promoting single system solutions that are still based in purchasing software or in purchasing LMS services from privately-held cloud environments.

What does this mean for mid-size to large-size research libraries? It means a lack of options in managing library business practice and workflow. It also means that many staff work cycles are put in service of developing, along with this smaller and smaller pool of library management system vendors, the new systems that are being put into place as software as a service (SaaS) or service platform systems. Libraries that are early adopters often put hundreds of thousands of hours of analyst effort in implementing a newly developed system. The good part about this opportunity is that it shapes the development of the new system. The bad part is that this effort from the library technology and technical services staff will never be regained, and cannot necessarily be shared with other peer libraries due to the siloed nature of proprietary software and services.

In the Quali OLE Community, we are not against vendors or profit-based service options but we exist to propagate a new business model within the library community that seeks to develop long-term, deep-collaboration across institutional boundaries that can leverage this time, work effort, and expertise so that it can be shared across institutional boundaries. This can happen because our software is open source and our institutions can work together to build a shared system that is affordable, scalable, and enabled for new management options for digital content and for changing methods in the information supply-chain lifecycle. This model thus enables a scope and vision for a library management system that does not have "need quotas" for new customers in order to reach defined profit margins; it can be sustained by a smaller like-minded community. Does this mean we do not want new partners? No, it means we know what it will take to sustain our software, and it means that once we hit a certain mark in terms of long-term partners, we can achieve sustainability for our software as well as supporting an ecosystem of fee-based services that can enable new installations and new users, as well as provide needed services for our software services platform.

The other key component that keeps our library investment within the higher education and the academic library community is our new business model that is derived from the Quali Foundation model of leveraging local

solutions for use with multi-institutional common problems. In Kuali OLE we look at local issues but always in terms of how that issue can be leveraged for use at other partner sites. This does not mean that we are looking for solutions for all academic libraries; however, in most cases that turns out to be true once we have vetted a solution for our rather representative group of mid- to large-size academic library organizations.

An Ecosystem for Vended Services

The Kuali Foundation provides a set of services that benefits all of the Kuali projects, including Kuali OLE. The Kuali Foundation is a locus of our collaborative community. Along with providing an umbrella organization for Kuali projects, the Kuali Foundation is the legal entity that manages the intellectual property for Kuali software, organizes the Kuali Spring Workshop and the annual Kuali Days Conference, hosts development environments for Kuali projects, and directs development of Kuali Rice. In addition to these services, the Kuali Foundation oversees the Kuali Commercial Affiliates (KCA) program that provides an ecosystem of services for delivering Kuali software systems. The KCA program allows commercial service providers to join in the Kuali Community and contribute to governance and development of the community. KCAs can build profitable business models around service, rather than offering a complete solution. With one or more KCAs, a library can provision planning, implementation, data migration, hosting, or support services. In an open and collaborative community, there is less likely to be vendor lock-in for services around a software product. In establishing Kuali OLE with open access to the intellectual property of our code base, libraries as well as service providers have the same access to our code.

We see several advantages to a managed ecosystem for open source code with complementary commercial services. Libraries can choose what services they require or fund a development for a unique functional need. Where a library finds value, it can invest independently or it can seek like-minded partners to underwrite extensions of functionality. Finally, because the Kuali OLE collaborative community owns the intellectual property, investment of resources stays in the community and remains focused on our shared goals—rather than being diverted to external goals—and new knowledge or processes can be easily shared among community partners.

A Start for Global Partnership

Another component of the Kuali OLE partnership emerging to help sustain long-term growth is the growing global library collaborative community. The world of research and academic libraries is becoming a global community that is easily accessible through online communication (Skype, WebEx, GoToMeeting, unified communications systems, etc.) This type of community building, while often formed through these virtual communications, can be grown through in-person interactions at international library and cultural heritage conferences that often rotate back and forth between parts of Europe and North America. Through these venues and contacts, the Kuali OLE community has found that the needs of academic and research libraries are similar the world over and we are primed for our next steps to include more international collaborative partners to our community.

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In terms of specific global cooperation, Kuali OLE has established a long-term cooperative alignment with the Joint Information Systems Committee (JISC) in the UK. Early in our discussions, we knew that we wanted to work together because we saw so many common overlaps in the work we were establishing in the areas of library management systems and electronic content management. However, we knew that arriving at a point of collaboration and not just cooperation would take particular attention to scope, timing, and aligned vision. This occurred after two years of cooperation last spring when we launched our Global Open Knowledgebase (GOKb) Initiative that is a spin-off project aimed at developing infrastructure that will support GOKb in the Kuali OLE community and KB+ in the JISC and JISC Collections Communities. Our first large-scale project working together has enabled new ties for the Kuali OLE community as well as for JISC and JISC Collections. We are leveraging current meetings in each of our countries to optimize face-to-face communications while also taking advantage of current Internet technologies to make our project work as one global partnership.

This growth will inevitably lead to an expansion of our communication strategies that will require more world presence. However, this is not new territory for higher education communities; we see many scoped opportunities for leveraged software development that have occurred with groups in the higher education sector such as Sakai, Kuali Finance, Open Grid Forum, and others that leverage shared resources across institutional boundaries for the common good. It will require continued communication and commitment to partners who might live in far-flung time zones and speak different languages, but that can build continued community for long-term sustainability.

Standards and Community

The Kuali OLE collaborative community has a natural affinity with the open standards efforts organized by organizations like NISO and EDItEUR. These organizations promote standards that drive innovation, integration, efficiency, and economy. Standards define components of target platforms that support data interchange, metadata representations, or accounting practices. Standards seek to lubricate interoperation of different systems and, in doing so, encourage sufficient scale across libraries, software systems, and shared service. Standards-based interoperability tends to prove effective in representing explicit knowledge resources not held in proprietary walled gardens. The cumulative impacts of standards are to push for innovation by exposing community-critical knowledge and lowering risks for innovators and adopters as well as for public and private cooperatives. Similarly, a collaborative community, like Kuali OLE, supports

directed collaboration as a means of driving innovation and lowering risks. The Kuali OLE shared vision, knowledge, and effort powers our collaboration and strengthens our community. This is not simply a convenient way to pool our resources, like a buying club for materials or a technology cooperative. Our community is an alignment of goals that provide the structure for collective action, influence, and impact reaching beyond simply delivering a software package. The Kuali OLE partnership demonstrates that our partners have more in common than they have differences. Harnessing this alignment supports our development efforts, can prove attractive to other like-minded libraries, and builds a collaborative community for innovation and impact that proves bolder than institutional or geographic boundaries. | IP | doi: 10.3789/isqv24n4.2012.06

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RELEVANT
LINKS



Ted Koppel

TED KOPPEL

Hard CORE: Not All Useful Standards Catch On

CORE—the acronym stands for Cost of Resource Exchange—was a standards initiative, under the National Information Standards Organization (NISO) umbrella, that took place between 2008 and 2010. CORE was designed to facilitate the transfer of cost, invoice, and related financial information from an integrated library system (ILS)—using data created in the acquisitions module—to an electronic resource management (ERM) system.

By transferring acquisitions-related data dealing with electronic resources to the ERM system, the ERM could combine that data with usage (and other) statistical measures to derive cost-per-use and related reports in the ERM. Although the original CORE specification derived from the need to transfer data from an ILS to an ERM, any two business applications could make use of this format for simple and efficient data exchange.

A little history

To properly describe why the CORE concept evolved as it did, it is useful to examine several trends that took place in the late 1990s and the early 2000s regarding the Integrated Library System and how it was structured and sold. Prior to the late 1990s, early ILS vendor products were tightly integrated. This meant that a vendor's OPAC, circulation system, acquisitions system, serials system, etc. were designed to work as a single unit and there was no reasonably simple way to tie together the best individual modules of different ILS to create a system that was truly the "best in class" for a specific library's needs. In essence, the library had to use the modules provided by the vendor, good or bad.

Early moves towards the "dis-integration" of the ILS began to take place around 2001-2002. Federated searching (metasearching) was introduced as a product capable of simultaneously searching an OPAC and any number of external databases, and reporting the results in a single "scoreboard." Early federated search projects often used screen scraping and proprietary search connectors, but

many took advantage of Z39.50 and leveraged related work on CQL (Common Query language) and SRW and SRU (search/retrieval via Web and search/retrieval via URL).

The NISO Metasearch Initiative—several working groups to devise protocols and standards relating to discovery, efficient searching, and standardized retrieval—took place in 2003 and a year or two after. The overall high-level result of federated searching was to promote the separation of the search process from the ILS—in short, to "outsource" certain aspects of searching. Federated search as a technique has continued to evolve in the last five to eight years and is now largely supplanted by the so-called Discovery Platforms, which act as large centralized indexes to data sources of all types (including library catalogs), then provide links to the actual information, wherever it may reside.

Another example of this "dis-integration" would be The Library Corporation's introduction of the Online Selection Assistant (OSA) in 2004. OSA is a web-based acquisitions, purchasing, and fund control system for libraries using any ILS. OSA was designed from the start to be agnostic; it works with and transfers data to and from a variety of ILS systems.

A final example of this dis-integration would be the rise of hosted (third party) serials management systems—in particular dealing with electronic serials content—such as those sold by Serials Solutions and its competitors. Although the Serials Solutions product line (and ownership) has changed over the last several years, their original products

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[We] proposed to NISO a new project, which we later named CORE, to facilitate the exchange of cost and invoice information...We published a draft standard for trial use (DSFTU) in mid-2009. ...So what happened? Unfortunately, very little.

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(link resolution, electronic package management, and bibliographic control of those complicated serials records) should be seen as third-party products that acted in concert with, but separate from, the ILS.

The move to ERM

As more and more library resources became available online, libraries had to adjust to that new content delivery mechanism. Libraries had been purchasing electronic resources, of course, for decades prior to the mid-2000s. Most academic libraries had subscriptions to search Dialog, SDC, or BRS databases as early as the mid-1970s. However, appearance of the World Wide Web, and vendor sophistication in understanding how to leverage the Web, enabled the move away from printed serial issues to digital availability of full-text articles as the ultimate product to be delivered to the library user.

Most online content vendors marketed their electronic serial collections (and continue to do so) in the context of packages. A single package might include anywhere from 50 to 5000 individual journal titles, with each title including one (or many issues) during the course of a year. A library would purchase the vendor serial packages; the content vendor, in turn, licensed libraries to use that content, subject to copyright, digital rights management, embargos, and various other factors affecting how their digital products might be used.

The Digital Library Foundation (DLF) commissioned a study on electronic resources in 2002 that resulted in the publication of a document entitled *Electronic Resource Management: Report of the DLF ERM Initiative* (the green book). The document, published in 2004, acted as a basis for the development of a number of ERM systems in the library industry (Endeavor's Meridian, Ex Libris' Verde, as well as products from EBSCO and Serials Solutions).

At a very high level the DLF ERM document dealt with the lifecycle of electronic resources, including how they were acquired, how they were implemented, what permissions users had, licensing, usage statistics, etc. It described hundreds of data elements (and their interactions) that had been identified as important to libraries in managing their electronic resources. A second electronic resource management initiative, known as ERMI 2, began not long after the original document was published to address certain topics and issues that had arisen since the original document was published. The ERMI 2 document was published in 2008.

Several standards initiatives can be tied (either directly or indirectly) to the ERM "green book" and the development and use of electronic resource management systems. Among these initiatives are:

- » **The Standardized Usage Statistics Harvesting Initiative (SUSHI) Protocol (ANSI/NISO Z39.93:2007)** defines an XML schema for a single straightforward way for publishers of electronic content to provide usage-based statistics (particularly COUNTER reports) to library customers and for libraries to easily harvest them.
- » **ESPreSSO (Establishing Suggested Practices Regarding Single Sign On, NISO RP-11-2011)** recommends best practices for allowing a user to sign on only once and have access to multiple resources across numerous servers at different points in the online searching and retrieval process.
- » **PIE-J (Presentation & Identification of E-Journals, NISO RP 16-201x)** is a forthcoming recommended practice that will provide guidance on the presentation and identification of e-journals— particularly in the areas of title presentation and

bibliographic history, accurate use of the ISSN, and citation practice—to facilitate online discovery, identification, and access for the publications.

- » **ONIX-PL (ONIX for Publications Licenses)** is a messaging format for the delivery of publisher licensing information in a transferable and machine-readable XML format.
- » **SERU (Shared Electronic Resource Understanding, NISO RP-7-2012)** is a recommended practice that articulates standard business practices that protect both the library's and the publisher's interests for the usage of e-resources without the need for a formal licensing document.
- » **KBART (Knowledge Bases And Related Tools, NISO RP-9-2010)** defines common, industry-wide best practices for the distribution of publisher metadata to knowledgebases used in OpenURL linking between search results and the referenced e-resources.
- » And of course, **CORE**.

Where did CORE come from?

As with so many ideas in technology, customer needs pushed the idea of an exchange of acquisitions data between an electronic resources management system and an ILS. Ed Riding (then an ILS product manager at SirsiDynix, now Collections Program Manager at the LDS Church History Library) and I (then the Verde product manager at Ex Libris, now VERSO ILS Product Manager at Auto-Graphics, Inc.) had a mutual customer. That customer was using the Dynix Horizon ILS but had chosen Verde as their ERM system. The customer wanted to retrieve statistical information on usage through COUNTER-formatted reports and ultimately harvest those reports automatically using SUSHI (when that protocol was complete.) However, the library's electronic resources purchasing data, and specifically the package pricing, resided in the serials management module of the library's ILS. Without having both usage data and pricing data in the same place, the library was forced to devise a series of complex spreadsheets and data exports to come up with rational cost-per-use measures. Although the use of cost-per-use data has been controversial in the past, it is one (of many) factors used by libraries to justify their continued subscriptions to electronic resources.

At the same time, Jeff Aipperspach (then a product manager at Serials Solutions, now with Avalara) had similar needs. Serials Solutions, a third-party, non-ILS vendor, needed an efficient way to extract acquisitions and invoice data from their customers' ILS systems and load that into the Serials Solutions servers to deliver similar cost analysis and to add value to the Serials Solutions electronic resource management system.

Jeff, Ed, and I proposed to NISO a new project, which we later named CORE, to facilitate the exchange of cost and invoice information. Our proposal identified three primary goals:

- 1 To develop and refine a list of data elements for exchange between the source and the target (the ILS and the ERM)
- 2 To create a transport protocol that would be lightweight and useful in transferring this data, both on a one by one (title) basis and in batch
- 3 To create use cases describing how acquisitions-related data transfer could be useful not just in exchanging data between ERMs and ILS, but also in distributing other sorts of acquisitions data (between, for example, a consortium central office and its consortium members)

A NISO working group was organized and began its work in mid-2008. The original working group comprised a number of ILS and serials management vendors and had broad representation from the academic library community. We published a draft standard for trial use (DSFTU) in mid-2009. The DSFTU described a compact and useful XML structure for the delivery and exchange of relevant acquisitions data. As is normal after the release of a DSFTU, the library world has a year to develop and test the usefulness of the standard—and report flaws and errors—before it goes out to a formal vote to approve the standard by the NISO membership.

So what happened?

Unfortunately, very little. The NISO CORE DSFTU was released in spring 2009, during the depths of the “Great Recession.” Many ILS software vendors were retrenching and reducing staff and were loath to take on new development projects at that time. Further, the DSFTU was released in the spring—about six months after most vendors had determined what that year's development roadmap and budget would be.

In addition, there was some resistance on the part of some ILS software vendors to develop interoperability software that would, essentially, give their customers flexibility to move away from that software vendor's own product or use separate vendors for ILS and ERM. By not building interoperable software, an ILS system could keep its own customers captive.

Finally, by that point, Jeff and I had each, independently, moved from our ERM-based employment to other positions. The critical mass supporting CORE was no longer in place to continue to promote it within our companies.

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What is the status of CORE today?

NISO, in addition to publishing formal ANSI-accredited standards, also publishes a series of Recommended Practices. These are considered to be guidelines or best practices and do not have the force of an official standard; they can be used or modified by users to meet their own specific needs. A decision was made by the Business Information Topic Committee, which oversaw the CORE Working Group, to publish CORE as a Recommended Practice (NISO RP-10-2010), rather than as a standard.

After publication of the Recommended Practice, the original NISO CORE Working Group disbanded. In its place, NISO created a Standing Committee, currently consisting of eight people, to support the Recommended Practice and answer questions about CORE. The Standing Committee is also charged with promoting the Recommended Practice and periodically assessing whether there is enough interest in CORE to restart the formal standards process.

For more information on CORE including the final Recommended Practice, FAQs, background information, the original working group roster, and the Standing Committee roster, visit the CORE project webpage.

Lessons learned

Since publication of the DSFTU in 2009, the electronic resource management world has continued to evolve. E-books—barely contemplated in the 2004 ERMI Report—have become a significant portion of library purchasing. E-books present an entirely different set of management challenges than did the package-based electronic serials that were the main concern in 2004.

ERMs as standalone products are also morphing. Ex Libris' Verde has become a portion of their new Alma Unified Resource Management (URM) product, which is described as “support[ing] the entire suite of library operations—selection, acquisition, metadata management, digitization, and fulfillment—for the full spectrum of library materials, regardless of format or location.” One can see this effort perhaps as an attempt to “re-integrate” the ILS (including the ERM module) after a decade of going the other way.

That said, I am still convinced that there is a need for a lightweight standard exchange mechanism that can deliver acquisitions invoice and financial data from the ILS to other applications. Perhaps, as e-books proliferate and are provided from multiple vendors, additional interoperability and data sharing requirements will be identified, for example, to

assess library effectiveness, justify the library's budget, and improve the library's collection for the benefit of the user. It is likely that in the next few years, as libraries again want to promote interoperability between disparate systems, CORE will be seen as the right tool for the job.

I SP I doi: 10.3789/isqv24n4.2012.07

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CORE project webpage

www.niso.org/workrooms/core

CORE Recommended Practice

www.niso.org/publications/rp/RP-2010-10.pdf

DLF Electronic Resources Management Initiative, Phase II: Final Report. Digital Library Federation, December 30, 2008.

old.diglib.org/standards/ERMI2_Final_Report_20081230.pdf

ESPreSSO project webpage

www.niso.org/workrooms/esso

Jewell, Timothy D., et al. Electronic Resource Management: Report of the DLF ERM Initiative. Digital Library Federation, 2004.

old.diglib.org/pubs/dlf102/dlf102.htm

KBART project webpage

www.niso.org/workrooms/kbart

PIE-J project webpage

www.niso.org/workrooms/piej

ONIX-PL specification

www.editeur.org/21/ONIX-PL/

SERU project webpage

www.niso.org/workrooms/seru

SUSHI project webpage

www.niso.org/workrooms/sushi



RELEVANT
LINKS



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New Version Published of NCIP – NISO Circulation Interchange Protocol

A new edition of the two-part American National Standard on the *NISO Circulation Interchange Protocol (NCIP)* (ANSI/NISO Z39.83), version 2.02, incorporates implementers' feedback about and experience with the standard into changes that improve the usefulness and practicality of the various services.

NCIP addresses the need for interoperability among disparate circulation, interlibrary loan, consortial borrowing, and self-service applications by standardizing the exchange of messages between and among computer-based applications. Part 1 of the standard defines the *Protocol* and *Part 2: Implementation Profile* provides a practical implementation structure. The NCIP protocol is widely supported in integrated library systems (ILS) and resource sharing software.

In addition to the revised standard, the NCIP Standing Committee has made available supporting tools and

documentation to aid in implementation, including an XML schema that matches the implementation profile defined in Part 2 of the standard. A separate document, *Introduction to NCIP*, provides librarians and other implementers with a basic introduction to NCIP and links to sources of additional information about the standard. The *NCIP Core Message Set* defines a minimal set of nine messages (out of the full set of 45) that supports the majority of the current functionality for resource sharing and self-service applications and provides a simpler starting point for new implementers.

 The NCIP standard and the supporting tools and documentation are freely available from the NCIP Workroom on the NISO website: www.niso.org/workrooms/ncip/.

COUNTER-SUSHI Implementation Profile Published as a Recommended Practice

A new NISO Recommended Practice, the *COUNTER-SUSHI Implementation Profile* (NISO RP-14-2012), provides a practical implementation structure to be used in the creation of reports and services related to harvesting of COUNTER Release 4 reports using the NISO SUSHI Protocol. The *Standardized Usage Statistics Harvesting (SUSHI) Protocol* was issued as a standard (ANSI/NISO Z39.93) in 2007 to simplify and automate the harvesting of COUNTER usage reports by libraries from the growing number of information providers they work with. COUNTER (Counting Online Usage of Networked Electronic Resources) is an international initiative that published its first Code of Practice in 2003 and issued Release 4 of the *COUNTER Code of Practice for e-Resources* in April 2012. XML schemas supporting the Implementation Profile and Release 4 of the *Counter Code of Practice* have also been published by NISO, which has an agreement with COUNTER to maintain the schemas and keep the SUSHI and COUNTER schemas in synch.

The SUSHI standard and the COUNTER XML schema both have a level of abstraction and flexibility built in to handle future needs, but this can result in decisions by implementers that could cause interoperability issues or require client implementers to customize the service for every different provider. The *COUNTER-SUSHI Implementation Profile* was developed to provide guidance with Release 4 of COUNTER by setting out detailed expectations for both the server and the client of how the SUSHI protocol and COUNTER XML reports are to be implemented to ensure interoperability.

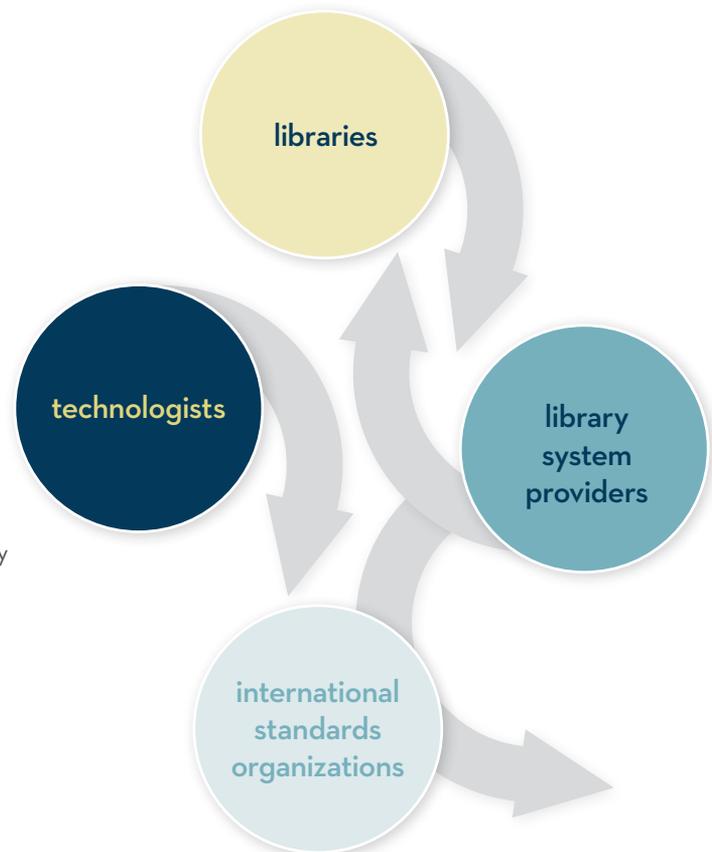
 The *COUNTER-SUSHI Implementation Profile* (NISO RP-14-2012), the referenced schemas, and additional implementation guidance for SUSHI can be found on the SUSHI webpages (www.niso.org/workrooms/sushi/). Release 4 of the *COUNTER Code of Practice* is available on the COUNTER website (www.projectcounter.org/code_practice.html).

NISO Receives Mellon Foundation Grant to Assess the Current State and Future Needs of a New Bibliographic Framework

The National Information Standards Organization (NISO) has been awarded a \$48,516 grant from The Andrew W. Mellon Foundation to fund a study to determine the needs and requirements of the library, higher education, and non-profit networked information communities to ensure they are able to use and exchange bibliographic data in an increasingly networked, linked data environment. The funds will be used to hold one face-to-face meeting in the United States and four global webinars, accompanied by workgroup efforts during the periods between webinars. These meetings will be conducted to coordinate the needs and requirements of key communities, including libraries, technologists, and library system providers, as well as other international standards development organizations.

“The bibliographic exchange environment in which the majority of the world’s libraries operate has been based on the Machine Readable Cataloging (MARC) standard since it was developed in the late 1960s,” explains Todd Carpenter, NISO’s Executive Director. “The Library of Congress has been working intensively on the future of bibliographic control since 2006 when it formed the Working Group on the Future of Bibliographic Control and recently announced it had contracted with Zepheira to help accelerate the launch of the Bibliographic Framework Initiative. The Resource Description and Access (RDA) standard, published in 2008 to replace the Anglo-American Cataloguing Rules, already provides a model for mapping some MARC data into Web resources, but there are significant challenges left in making sure that one can express concepts in a new data format. Many organizations are moving forward with their own initiatives to expose bibliographic data, without organized coordination or consensus about community priorities, leading to duplicated work, delays, and inefficiencies. Given the diverse community that is impacted by bibliographic exchange and citation, as well as the tremendous investments made in existing MARC-based library systems and records, there is a need for high-level coordination of activities to help avoid duplication and fragmentation of the bibliographic exchange community.”

The goal of this project will be to engage a group of key stakeholders—from the communities of libraries, system suppliers, and higher education/research institutions, as well as non-traditional users of bibliographic information—to develop consensus around a community roadmap of needed activities related to a New Bibliographic Framework based on linked data, identify exchange points where standards development is needed, and document areas where functionality testing should be performed so that feedback can be provided to all participants in linked-data bibliographic exchange.



I N R I doi: 10.3789/isqv24n4.2012.08



The ORCID ID is a 16-digit number that is compatible with ISO 27729, the International Standard Name Identifier (ISNI). ORCID IDs are randomly assigned by the ORCID Registry and expressed as a URI.

ORCID Registry Launched

In October 2012, the ORCID (Open Researcher and Contributor ID) Registry was launched, providing a mechanism where researchers can obtain a unique personal identifier that unambiguously distinguishes the individual as the author or creator of their published works in systems that adopt ORCID. Researchers and scholars can register for an ORCID identifier, create ORCID records, manage their privacy settings, and link to and synchronize their ORCID identifier with external systems, such as electronic databases of citations or full-text publications.

The ORCID ID is a 16-digit number that is compatible with ISO 27729, the International Standard Name Identifier (ISNI). ORCID IDs are randomly assigned by the ORCID Registry and expressed as a URI. Within the first 24 hours of the ORCID launch, over 1000 registrations were logged.

Participating in the ORCID Launch Partners Program are research institutions, publishers, research funders, data repositories, and third party providers, including The American Physical Society, Aries Systems, Avedas, Boston University, the California Institute of Technology, CrossRef, Elsevier, Faculty of 1000, figshare, Hindawi Publishing Corporation, KNODE, Nature Publishing Group, SafetyLit, Symplectic, Thomson Reuters, Total-Impact, and the Wellcome Trust.

Many of these organizations are already integrating ORCID IDs into their systems and publication workflows. Thomson Reuters' ResearcherID® will link to ORCID

and allow researchers to synchronize their publication information. Nature Publishing Group, Hindawi Publishing Corporation, Aries Systems, Thomson Reuters, and the American Physical Society (APS) are integrating ORCID identifiers into the manuscript submission process. Elsevier has enabled researchers to link to their Scopus Author Profiles from their ORCID records, saving them time when setting up their ORCID profile and allowing Scopus to automatically keep their ORCID bibliography up to date. Next year, Scopus will incorporate ORCID data into the Scopus author profiling process to increase the accuracy of the Scopus profiles and automatically propagate work that researchers do to clean up their ORCID profiles. Through its affiliate ORCID EU, ORCID is working with DataCite to link ORCID identifiers with research datasets.

As part of the ORCID Registry, individuals can search the metadata from CrossRef and add their past works to their personal ORCID records. ORCID is also working with CrossRef and the publishing community to ensure that ORCID identifiers collected during the manuscript submission process are incorporated into article metadata. CrossRef has modified its metadata schema so that publishers can include ORCID IDs with their bibliographic metadata deposits. The CrossRef system will allow querying for ORCID IDs from its records early in 2013. ■

For more information on ORCID, visit: <http://orcid.org>



Leading Global Standards Organizations Endorse “OpenStand” Principles that Drive Innovation and Borderless Commerce

Five leading global organizations—IEEE, Internet Architecture Board (IAB), Internet Engineering Task Force (IETF), Internet Society and World Wide Web Consortium (W3C)—announced that they have signed a statement affirming the importance of a jointly developed set of principles establishing a modern paradigm for global, open standards. The shared “OpenStand” principles—based on the effective and efficient standardization processes that have made the Internet and Web the premiere platforms for innovation and borderless commerce—are proven in their ability to foster competition and cooperation, support innovation and interoperability, and drive market success.

The OpenStand principles demand:

- » Cooperation among standards organizations
- » Adherence to due process, broad consensus, transparency, balance, and openness in standards development
- » Commitment to technical merit, interoperability, competition, innovation, and benefit to humanity
- » Availability of standards to all
- » Voluntary adoption

Standards developed and adopted via the OpenStand principles include IEEE standards for the Internet's physical connectivity, IETF standards for end-to-end global Internet interoperability, and the W3C standards for the World Wide Web. Other technologies that would be applicable to the open standards model are design-automation standards and the global smart-grid effort. The group invites technologists, inventors, developers, professionals, scientists, engineers, architects, members of academia, students, civic and governmental leaders, developers and other professionals, and organizations to affirm the principles. ■

Ⓢ OpenStand principles: open-stand.org/principles/

Source: Open Stand Press Release (<http://open-stand.org/openstandlaunch/>)



ALCTS/LITA Metadata Standards Committee Formed

The Library and Information Technology Association and the Association for Library Collections & Technical Services (ALCTS), with the support of Reference and User Services Association (RUSA)—all divisions of the American Library Association—have formed the ALCTS/LITA Metadata Standards Committee to develop metadata standards for bibliographic information.

The Committee plans to begin its work at the Midwinter Meeting of the American Library Association, January 2013, and will actively seek input from many groups and communities of practice in its work.

The three ALA divisions have also voted to disband the ALCTS/LITA/RUSA Machine-Readable Bibliographic Information (MARBI) Committee, as of June 30, 2013. The MARC Advisory Committee (MAC) is expected to continue to advise the Library of Congress on MARC development beyond this date and ALA representatives and liaisons on the MAC roster will continue to advise LC about MARC. ■

Ⓢ Source: Zoe Stewart-Marshall blog posting (<http://litablog.org/2012/08/new-alctslita-metadata-standards-committee/>)

The Committee plans to begin its work at the Midwinter Meeting of the American Library Association, January 2013, and will actively seek input from many groups and communities of practice in its work.

Second Edition of Open Archival Information System Reference Model Published

The International Organization for Standardization has published a revision to *Space data and information transfer systems – Open archival information system (OAIS) – Reference model* (ISO 14721:2012). An OAIS is an archive, consisting of an organization, which may be part of a larger organization, of people and systems that has accepted the responsibility to preserve information and make it available for a designated community. The term “open” in OAIS is used to imply that the standard was developed in open forums and does not imply that access to the archive is unrestricted. Matching text to the ISO standard is freely available as a recommended practice of The Consultative Committee for Space Data Systems.

Barbara Sierman (National Library of the Netherlands) in her blog entry, *OAIS 2012 update*, refers to this as “the most important standard in digital preservation.”

She identifies the main changes from the previous edition as:

- » An added element for access rights information
- » Discussion of emulation as a viable preservation strategy
- » Greater interaction between the Administration Functional Entity and Preservation Planning Functional Entity
- » Improved definition of “authenticity”
- » A redefinition of “information package”
- » A new definition of “other representation information” ■

Ⓞ OAIS text: <http://public.ccsds.org/publications/archive/650x0m2.pdf>

Sierman blog entry: <http://digitalpreservation.nl/seeds/standards/oais-2012-update/>

New Global Subject Codes Standard Launches at Frankfurt BookFair

Book industry representatives from 16 countries announced the formation of a new, global standard to categorize and classify book content by subject. The project, initially known as “Thema,” was first announced during the Tools of Change Supply Chain Conference taking place during the Frankfurt International Book Fair. The new standard will be a general purpose classification scheme for the book industry, meant initially to work alongside existing standards such as BIC, BISAC, CLIL etc. The long range goal is to move all markets to the global standard, helping to eliminate confusion among both upstream and downstream.

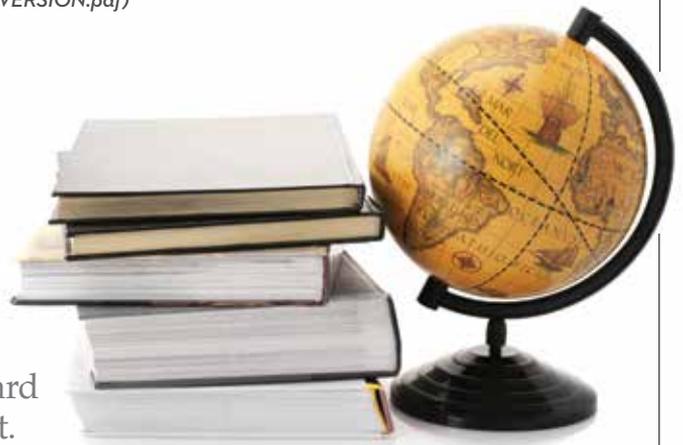
A new, independent organization created to manage Thema will be governed by a multinational Board of Directors. Countries currently participating in the Thema project include: Australia, Austria, Canada, Denmark, France, Germany, Italy, Netherlands, Norway, Pan Arab Group, South Africa, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Thema will continue the work already begun by the iBIC project managed out of the United Kingdom. Book Industry Communication (BIC) and Nielsen Book, who jointly own iBIC, have graciously donated the iBIC intellectual property to the Thema Board for the creation of the global standard. ■

Ⓞ A temporary website has been established at: www.panthema.org

Source: Thema press release (<http://www.bic.org.uk/files/pdfs/THEMA%20PRESS%20RELEASE%20--%20UK%20VERSION.pdf>)

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New Services Provide Growing Access to Research Datasets

Both commercial and non-profit information service suppliers are making forays into providing improved access to research datasets, as illustrated by recent announcements.

Ex Libris and the Australian National Data Service (ANDS) have agreed to syndicate the metadata of the research data that ANDS makes available. Any datasets registered with ANDS will also be visible to researchers who use the Primo Central Index for resource discovery. This agreement is part of the Ex Libris initiative to expand the indexing of research data in Primo Central. "Providing scholarly access to research data and materials from institutional repositories is a high priority for Ex Libris," commented David Beychok, vice president of discovery and delivery solutions at Ex Libris.

Thomson Reuters announced the launch of the Data Citation Index™, a research resource within the Web of Knowledge™ to facilitate the discovery, use, and attribution of data sets and data studies that also link to peer-reviewed literature. This new research resource from Thomson Reuters creates a single source of discovery for scientific, social sciences, and arts and humanities information. Thomson Reuters partnered with numerous data repositories worldwide to capture bibliographic records and cited references for digital research, facilitating visibility, author attribution, and ultimately the measurement of impact of this growing body of scholarship. The Thomson Reuters white paper, *Collaborative Science: Solving the Issues of Discovery, Attribution and Measurement in Data Sharing*, takes a close look at the approach of utilizing the Data Citation Index to bridge the scholarly research gap.

JSTOR, which launched its self-service Data for Research website in 2008, announced a study—led by Jevin West and Carl Bergstrom of the University of Washington about

gender inequality among authors of academic papers—that was based on the research articles in JSTOR's digital library. This project exemplifies the kind of research made possible by new digital technologies, enabling anyone in the world to explore the JSTOR holdings and to freely create datasets for use in their research. Today the site sees about 700 datasets created and downloaded annually. Previously, Yale University legal scholar and law librarian Fred Shapiro used data from JSTOR to document first uses of words that pre-dated the Oxford English Dictionary. The benefits of projects like the one just released by the West-Bergstrom team can reach beyond the findings themselves. The West-Bergstrom team also created an interactive tool that allows others to explore the underlying content based on the work they have done. This demonstrates how sharing large corpora of data can also lead to the creation of new ways of exploring and discovery scholarship—effectively giving researchers another lens through which to view the published literature. ■

 Ex Libris/Australian Data Service press release: <http://tinyurl.com/exlibris-australia>

Thomson Reuters press release: http://thomsonreuters.com/content/press_room/science/730914

Collaborative Science: Solving the Issues of Discovery, Attribution and Measurement in Data Sharing white paper: http://go.thomsonreuters.com/dci_essay

JSTOR press release: <http://about.jstor.org/news/jstor-enabled-data-mining-project-signals-next-wave-research>

Data for Research website: <http://dfr.jstor.org/>

Correspondence between ISO 25964 and SKOS/SKOS-XL Models Developed

The ISO TC46/SC9/WG8 working group for the ISO 25964 standard about Thesauri have published a document defining the *Correspondence between ISO 25964 and SKOS/SKOS-XL Models*. The document is intended as a correction and/or update to the Appendix "Correspondences between ISO-2788/5964 and SKOS constructs" of the *SKOS Simple Knowledge Organization System Primer*. The update was needed because ISO 25964-1, *Information and documentation – Thesauri and interoperability with other vocabularies – Part 1: Thesauri for information retrieval* was published in 2011, replacing the earlier ISO thesaurus standards ISO 2788:1986

and ISO 5964:1985, which provided specifications for monolingual and multilingual thesauri, respectively.

In addition to mapping the elements between the ISO 25964-1 standard and the SKOS Model, the document includes any comments on the related MADS/RDF (Metadata Authority Description Schema in RDF) mapping. ■

 The Correspondence document is hosted on the NISO website at: www.niso.org/apps/group_public/download.php/9507/Correspondence_ISO25964-SKOSXL-MADS-2012-09-16.pdf

I NW I doi:10.3789/isqv24n4.2012.09



SD [STANDARDS IN DEVELOPMENT: November 15, 2012]

Listed below are the NISO working groups that are currently developing new or revised standards, recommended practices, or reports. Refer to the NISO website (www.niso.org/workrooms/) and the Newline quarterly supplements, *Working Group Connection* (www.niso.org/publications/newline/), for updates on the working group activities.

Note: DSFTU stands for Draft Standard for Trial Use.

| WORKING GROUP | STATUS |
|--|--|
| Demand Driven Acquisition of Monographs Co-chairs: Michael Levine-Clark, Barbara Kawecki | Recommended Practice (NISO RP-20-201x,) in development. |
| Digital Bookmarking and Annotation Sharing Co-chairs: Ken Haase, Dan Whaley | Standard (NISO Z39.97-201x) in development. |
| Institutional Identifiers (I²) Co-chairs: Grace Agnew, Oliver Pesch | NISO RP-17-201x, <i>Institutional Identification: Identifying Organizations in the Information Supply Chain</i> Finalizing for publication. |
| Improving OpenURLs Through Analytics (IOTA) Chair: Adam Chandler | IOTA Technical Report (NISO TR 5-201x,) in development. |
| Journal Article Versions (JAV) Addendum Chair: TBD | Revised Recommended Practice (NISO RP-9-201x) in development. |
| Knowledge Base and Related Tools (KBART) Phase II <i>Joint project with UKSG.</i> Co-chairs: Andreas Biedenbach, Sarah Pearson | Phase II Recommended Practice in development. |
| Open Discovery Initiative Co-chairs: Marshall Breeding, Jenny Walker | Recommended Practice (NISO RP-19-201x) in development. |
| Presentation and Identification of E-Journals (PIE-J) Co-chairs: Bob Boissy, Cindy Hepfer | NISO RP-16-201x, <i>PIE-J: The Presentation & Identification of E-Journals</i> Finalizing for publication following the public comment period. |
| Resource Synchronization Co-chairs: Herbert Van de Sompel, Todd Carpenter | Standard (NISO Z39.99-201x) in development. |
| Standard Interchange Protocol (SIP) Co-chairs: John Bodfish, Ted Koppel | Standard (NISO Z39.100-201x) in development. |
| Supplemental Journal Article Materials <i>Joint project with NFAIS.</i> Co-chairs Business Working Group: Linda Beebe, Marie McVeigh. Co-chairs Technical Working Group: Dave Martinsen, Alexander (Sasha) Schwarzman | NISO RP-15-201x, <i>Recommended Practices for Online Supplemental Journal Article Materials</i> Finalizing for publication following the public comment period. |
| SUSHI Server Working Group. Chair: Oliver Pesch | NISO RP-13-201x, <i>Providing a Test Mode for SUSHI Servers</i> Finalizing for publication following a draft for trial use. |
| SUSHI Standing Committee Co-chairs: Bob McQuillan, Oliver Pesch | NISO Z39.93-201x, <i>Standardized Usage Statistics Harvesting Initiative (SUSHI)</i> Revision being prepared for ballot. |
| Z39.7 Standing Committee Chair: Martha Kyrillidou | NISO Z39.7-201x, <i>Information Services and Use: Metrics & statistics for libraries and information providers—Data Dictionary</i> Revision being prepared for ballot. |



JOIN NISO AS A LIBRARY STANDARDS ALLIANCE (LSA) MEMBER

Take Advantage of NISO's Education Programs

LSA members receive one *free* connection to all NISO webinars—13 are scheduled for 2013. Use your one connection in a conference or training room and invite multiple staff members to attend. Recorded versions of the webinars are available for one year following each event. LSA members can also register at a discount for all of NISO's other education programs—virtual conferences, in-person forums, and joint NISO/DCMI webinars. Focused on standards, best practices, and technologies in the library, publishing, and scholarly information communities, these educational programs are an excellent and cost-effective method for current awareness and learning about standards and cutting-edge technology.

As a NISO member, you shape the agenda.

Digital content is at the heart of your operations, so you want it organized, accessible, searchable, protected, and preserved. This is what NISO technical committees and working groups ensure. NISO employs a community approach to solve some of the most vexing issues in our community.

Through NISO, you connect with the people and organizations important to your success.

NISO is the only organization that focuses on the intersection of libraries, publishers, and information services vendors. Libraries can work with content and service providers who learn from your expertise, respond to your challenges, and explore new solutions with you. You connect with decision-makers who make your library better. And it all happens in neutral settings where all the players are on equal footing.

Your support of NISO ensures the continued development of standards and recommended practices for our community.

NISO is the only ANSI-accredited standards development organization for libraries, bibliographic and information services, and publishing. It is one of the only standards organizations that offers its standards and recommended practices in open access. Membership dues are a critical source of funding to continue offering these publications free of charge.

Your organization needs to be a driver, not a follower,
of information services and technology.

Our members are there. They contribute their voice. They make a difference.

CONNECT TO HAVE AN IMPACT

 www.niso.org/about/join/