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NextSPACE

www.oclc.org/nextspace

No. 24

THE INTERNET OF THINGS: 50 BILLION

connected devices and objects
by the year 2020



HOW WILL IT IMPACT LIBRARIES?

12 Is your library a 'Thing'? 18 Shining a light on libraries

BY THE NUMBERS: THE INTERNET OF THINGS (IoT)



50 billion

Devices connected by 2020

oc.lc/devices



82%

Businesses connected by 2017

oc.lc/businesses



1.9 trillion

Economic value-add in 2020

oc.lc/valueadd



1 billion

TVs connected in four years

oc.lc/tvs



1.5 billion

Cars connected in 2020

oc.lc/carsandcows



200 megabytes

Yearly data generated by an IoT-connected cow

oc.lc/carsandcows



240.3 undecillion

Possible addresses to support IoT using Internet Protocol version 6 (IPv6), the latest version of the system of digital rules for data exchange on the Internet

oc.lc/addresses

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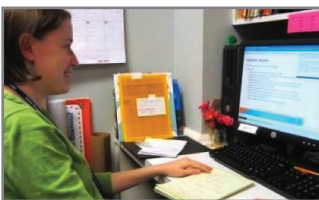
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22

Every second, WorldCat is searched 22 times
oc.lc/worldcat

2,000,000

Every week, 2 million people use WorldCat
oc.lc/worldcat

484

Languages represented
oc.lc/worldcat

331,949,676

Number of records
oc.lc/worldcat

2,209,864,728

Number of holdings
oc.lc/worldcat

16,146,844

Duplicate records removed since 1991
oc.lc/ddr

75,434,221

Number of Local Holdings Records
oc.lc/localholdings

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Editor
Tom Storey

Managing Editor
Andy Havens

Contributing Writer
Jennifer L. Smither

Design
Origo Branding Company



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content



NextSpace MC235
6565 Kilgour Place
Dublin, Ohio 43017-3395 USA
1-800-848-5878

Send questions, comments,
subscription requests and
address/contact updates to:
nextspace@oclc.org.

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When metadata goes mainstream



of it but don't have a lot of details."

At the event, our keynote speaker Daniel Obodovski, author of *The Silent Intelligence*, described the many ways in which simple transmitters and sensors can enhance nearly any object, transforming it into a source of data that can help us better understand our surroundings. His examples included fitness tracking bands like Fitbit, Nest (the connected thermostat), smart watches, smart running shoes and many more. Our cover story has more details about Daniel's talk and the survey that followed.

But while the term may be unfamiliar to some, *eMarketer* and other industry watchers predict that 2015 will be the year when the Internet of Things becomes a thing. It's clearly a concept that's gaining traction in the world of consumer electronics, as retail stores like Best Buy and Target are adding "smart home" or "connected home" sections that feature many of the products Daniel discussed.


According to a December 2014 *eMarketer* article, 44% of business executives worldwide had never heard of the "Internet of Things" (IoT) as of June 2014. Another 30% had heard of it but were unsure as to what it meant. That's pretty much in line with what we heard from librarians in a brief survey about IoT after our symposium on the subject at ALA Annual in Las Vegas last June: "we've heard

Librarians we heard from believe that they have a role to play in explaining and contextualizing the benefits and risks of IoT systems for their users. Others expressed that IoT may provide libraries with some useful increases in efficiency via inventory tracking, environmental control and interactivity. What interests me the most about this technology, though, is where it overlaps with a core competency of libraries: metadata.

In order to build "intelligence" into an object or system, we need to apply metadata concepts in new ways. Whereas librarians are accustomed to creating highly descriptive records about their resources, that's not as much the case for everyday objects and systems. How can we bridge this gap? The library Linked Data work that Jean Godby discusses in the Research section of this issue is one example. Linked Data can connect library resources to major Web services and cloud-based applications and is a technology that will most likely be embedded into many IoT sensors and machines.

Data from the Internet of Things promises to help people better understand the connections between their goals and the tools they use to meet them. To do that, we'll need people who can help create useful "catalogs" of metadata about IoT and build "bibliographies" for our connected objects describing their relationships. Librarians—metadata experts for centuries—have an opportunity here to help other sectors learn how to gather, measure and utilize metadata in new and interesting ways. ■

Skip Prichard
OCLC President and CEO



LIBRARIES & THE INTERNET OF THINGS

WHAT DOES A WORLD WHERE
BILLIONS OF EVERYDAY
OBJECTS CONNECT TO
EACH OTHER AND SHARE
INFORMATION MEAN
FOR LIBRARIES?

“The Internet of Things connects very much with the Semantic Web and with Linked Data. With Linked Data you’ve got the ability to give a thing a URI. The Semantic Web is a Web of things, conceptually. Tying an actual thing down to a part of the Web is the last mile.”¹

—Sir Tim Berners-Lee, from a July 9, 2009 interview with ReadWriteWeb

A world
divided by the
prospect of a
world connected

The simplest definition of the Internet of Things (IoT) might be: real-world objects connected to the Internet, sending and receiving data. But beyond that, there is little consensus on what the specific technical infrastructures of IoT might look like; what kind of standards would be required; who should set those standards; what the specific business cases for various industries should be; and the relationships between personal, private data about individuals vs. information about their connected things.

Likewise, in an informal poll of more than 100 librarians, we found that the term “Internet of Things” itself was less familiar than some specific examples of the “smart” or “networked” objects that are beginning to comprise IoT, such as smart watches, medical monitors, smart appliances and self-driving cars (see sidebar on page 5).

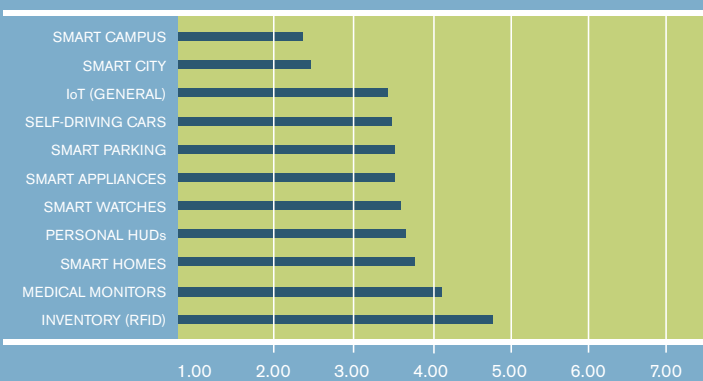
But what does IoT mean for libraries? Will connected objects—clothes, cars, plants, utilities, factories, homes, buildings—fundamentally change the way libraries serve their users? Or is this another new technology that is simply more about hype than reality?

[CONTINUED ON PAGE 6]

LIBRARIANS AND THE INTERNET OF THINGS: SURVEY RESULTS

OCLC conducted a brief online survey in late 2014 to assess librarians' familiarity with and views about the Internet of Things and related technologies. More than 100 librarians responded (thank you!) with their thoughts, hopes and concerns around the subject.

How familiar are you with the concept of the Internet of Things and related subjects?



SCALE 1-7: 1 = NOT AT ALL FAMILIAR, 7 = EXPERT

Source: OCLC survey

“ These are important issues for us in the profession, and we need to make sure that we are both educating our users about what’s happening in the wider world, and being good stewards of our own data. ”

Survey respondent

WHAT'S PROMISING ABOUT IOT TECHNOLOGIES FOR LIBRARIES?

- Inventory control
- Mobile payments, ticketing and event registration
- Access and authentication
- Climate and room configuration, accessibility and way-finding
- Mobile reference
- Resource availability for both content and physical plant (rooms, AV equipment)
- Smart books (features activated/enhanced by other IoT-enabled systems)
- Gaming and augmented reality
- Object-based learning
- Assistive technology

AREAS OF CONCERN:

- Privacy, security and hacking (by far the largest concern)
- The expense of participating in IoT technologies
- Staff support and training
- Decline in use of library resources

WHAT IS THE LIBRARY'S ROLE IN SUPPORTING USERS' ADOPTION OF IOT?

- General knowledge, training, demonstrations
- Education regarding privacy and security issues
- Providing accessibility, compatible devices and resources

Several librarians indicated that libraries should wait until the technology is more widely adopted and available until investing time, effort and money into developing IoT services. Or, as one respondent succinctly put it: “For now, sit and watch what develops.”

[CONTINUED FROM PAGE 4]

Some companies are already betting on IoT being as big or bigger than the Internet itself. Despite some ambiguity around the term, technology companies are already creating the sensors, cloud computing platforms and consulting services around IoT...and they are clearly bullish:

“The Internet of Things is a reality today and will only continue to create unprecedented opportunities. Empowering and preparing the next generation workforce to take part in this global opportunity is a critical piece of fueling IoT innovation.”²

~Wim Elfrink, Executive Vice President, Industry Solutions & Chief Globalization Officer, Cisco

If everyday objects require network infrastructure and service provision to participate in IoT, there clearly will be a need for companies to add and support those features. Companies and industries already invested in those products and services are, of course, interested in focusing on the potential benefits of IoT.

On the other hand, privacy and security proponents fear that allowing connected, collected, big data into more areas of our lives has serious downsides. In his September 2014 long-form essay, “The Epic Struggle of the Internet of Things,” journalist, futurist and author Bruce Sterling writes:

“The Internet of Things makes no attempt to redress, or even address, the many real problems that the Internet brought to the world...The Internet of Things doesn’t politically reform the failings of the past—in fact, it doesn’t even care about the failings, it simply wants those new forms of digitised command and control.”

There have always been cheerleaders and naysayers on both sides of significant new technology. But whether the Internet of Things ushers in unprecedented new business and personal opportunities or an era of greater, centralized “command and control”...it is not going to happen quickly or easily.

It’s 1995 for the Internet of Things

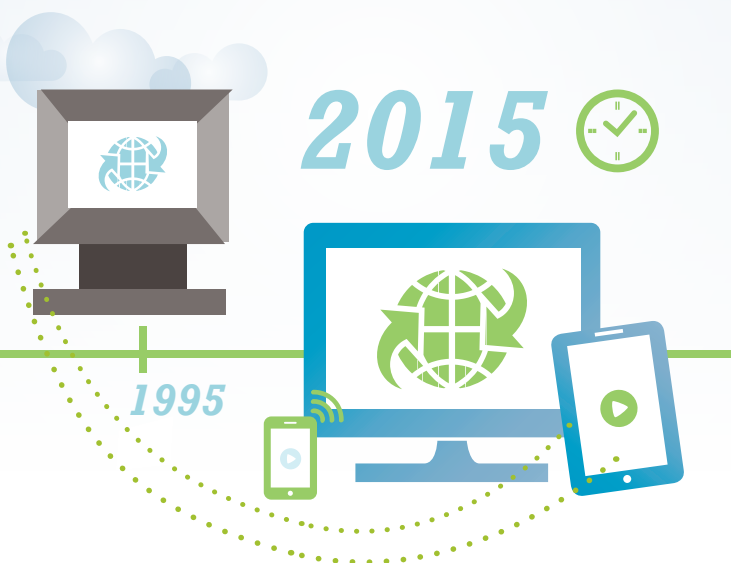
In a May 2013 post for *Harvard Business Review*, Dr. Stefan Ferber, Director for Business Development of the Internet of Things & Services at Bosch Software Innovations GmbH in Germany wrote:

“...the mere prospect of remaking traditional products into smart and connected ones is daunting... But embedding them into a services-based business model is much more fundamentally challenging. The new models have major impacts on processes at the corporate center such as product management and production and sales planning. And given the dynamism of the net, the innovations will have to come more quickly.”³

Dr. Ferber is right. Beyond the technical requirements of adding Internet functionality to objects—sensors, processors and transceivers at the very least—there will be fundamental changes to today’s business models. It is nearly impossible to predict how a fully connected, data-enabled, service-based infrastructure would impact any specific industry. Expand that to include legal, international and inter-industry issues and things get even more complicated.

To help put some perspective on both the positive and negative hype surrounding IoT, it’s helpful to go back and remember what the Internet was like in its infancy. In 1995 almost all Internet connectivity was slow. Laptops were rare and the idea of a tablet like an iPad or Kindle that you could take to the beach was limited to sci-fi like *Star Trek: The Next Generation*. Those were still the days when most people didn’t have email...or even a home computer. Major players like Google, Facebook and Amazon were still years away, and predicting phenomena like Twitter and YouTube would have been impossible.

That’s where we are with the Internet of Things. We can see some of the early indicators. Some industries have done very well with embedded, connected logistics, which is one aspect of IoT that holds promise as an early “killer app.” Libraries themselves have been using RFID chips for decades to create small islands of connected things that help keep track of themselves. But are there other visible signs, today, that point to how and where the Internet of Things might expand...or implode?





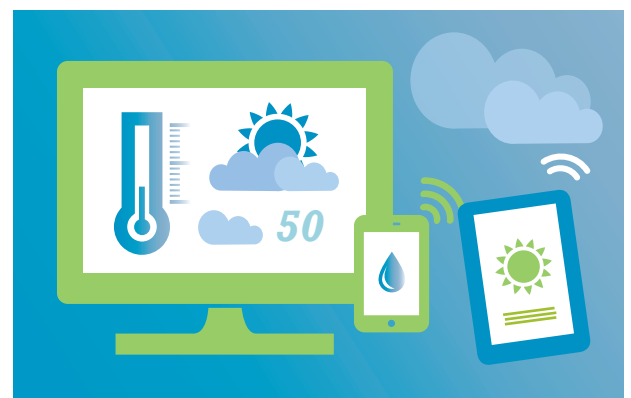
The things aren't smart... the platforms are

Most IoT objects, though, will require only a fraction of the computing power and sensor packages included in smartphones. A device meant to alert firefighters to sudden changes in moisture, temperature and air pressure doesn't need a microphone or fingerprint reader. Pollution detection, water quality, noise levels, waste management, parking availability, structural conditions of buildings...none of these needs more than a single-point sensor to help deliver critical data back to a central platform. And it's there—on service platforms—where the real potential for the Internet of Things starts to become clear.

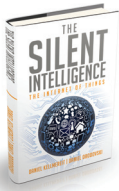
Today, IoT may seem like early websites circa 1995: separate "islands" of information, providing specific data analysis for individual companies and industries. There will be the "Traffic IoT" and the "Weather IoT" and the "Waste Management IoT." Eventually, as standards and providers compete and succeed, those platforms will begin to talk to each other and leverage each other's capabilities the same way that Internet services do today.

Single-purpose IoT systems will provide evolutionary improvements for many industries. Overlapping, connected IoT platforms will give us revolutionary new ways to create smarter environments. And when IoT gets to that stage, it will be an infrastructure that's as much a part of our world as electricity, indoor plumbing and highways. At which point, libraries will have as much stake in the day-to-day use of IoT as every other business.

But, for today—in a world where IoT is still mostly disconnected, independent devices and systems—what are librarians thinking about the technology?



Libraries & the Internet of Things



At the 2014 ALA Annual Conference in Las Vegas, the OCLC Symposium featured a keynote from Daniel Obodovski, author of *The Silent Intelligence: The Internet of Things* [Full video available at oc.lc/ALA-IoT]. Daniel

walked the audience through a quick history of IoT, the current state of the art in commercial and consumer “smart things” and a look at where we’re headed.

Daniel talked specifically about connected medical devices, home monitoring technology, sports and fitness devices, wearable technology and transportation infrastructure. At the macro level he emphasized the following:

“In a nutshell, the biggest benefit of the Internet of Things is that it allows us to connect to the ‘analog things’ around us—like machines, plants, animals, our own bodies and so on—in a digital way. With all the benefits of digital communications—speed of light, easy multiplication of data and easy integration with other digital systems. Combined with wireless telephony, we create the state of machine telepathy, when one machine can talk to any other over long distances, unconstrained by wires.”

Daniel went on to explore some of the outstanding issues on the subject, including security and privacy. These issues were top-of-mind for librarians in attendance who participated in a discussion after the symposium. The extensive reach of personal data collection into more areas of our lives is of concern to many in the profession. These concerns were echoed in our follow-up survey conducted online to a broader audience of librarians (see page 5).

Daniel closed the symposium by remarking that:

“Human creativity doesn’t seem to have limits... computers and sensors don’t possess the capacity to think strategically. They don’t have imagination or intuition... But that seems to be the most important ingredient for creativity and invention. And that’s what opens new horizons and possibilities for us. Where technology, perhaps, helps us better understand ourselves and connect to each other, but never lead or take over.”

“We have a role to play”

Ken Varnum manages library Web systems for the University of Michigan Library and is the editor of the May 2014 LITA Guide, *The Top Technologies Every Librarian Needs to Know*. Ken also wrote two blog posts about the OCLC Internet of Things symposium for the *RSS4Lib* blog.

Like some of our survey respondents, Ken acknowledges that IoT probably isn’t going to be a pressing concern for library services in the near future. “Right now, we’re at the ‘do-it-yourself’ stage, for the most part,” he told us, “and most libraries aren’t going to have the resources to do that.”

On the other hand, he thinks that many of the home automation aspects of IoT will probably be relevant to library operations once they’re more mainstream. “That could be for thermostats and lights and other environmental controls, or tracking objects—like A/V resources—within the library.”



Ken Varnum, Web Systems Manager
Courtesy of Michigan
Photography, Austin Thomason

One aspect of that appealed to Ken—the ability to get some level of data or analytics back from automated systems. “It’s nice for a sensor to turn a light off or turn on a projector,” he said. “But if we can get some data back about how our resources are being used, that can help us plan better.”

But Ken thinks that libraries have a role to play on a couple of fronts. First, in terms of being advocates for transparency when it comes to data collection and privacy. “These are important issues for us in the profession, and we need to make sure that we are both educating our users about what’s happening in the wider world, and being good stewards of our own data.”

Ken also thinks that libraries could play a role by “putting the smart” into various smart objects, places and services. “We have a lot of information that could be very useful to people in a lot of situations. Connecting our services to IoT systems may be another way to redefine our services outside the library building, in classes on campus and wherever people need them most.”



Connecting jobs, education and collections

In a summary of Gartner's 2014 technology predictions⁴, *Forbes Magazine's* Gil Press reported that the total cost of ownership for business operations is expected to be reduced by 30% through smart machines and industrialized services. Gartner also predicts that IoT technologies will require 50% fewer business process workers...but 500% more key digital business jobs, including integration specialists, digital business architects, regulatory analysts and risk professionals. In short, smarter systems will require smarter workers.

For libraries, Linked Data technologies may play a key role in helping to build “smarts” into collections and systems [See Jean Godby's article, “Is Your Library a Thing?” on page 12]. IoT providers may also look to libraries to provide a “reference layer” to the Internet of Things, connecting objects to resources that inform, explain or contextualize their use. And, as metadata technology experts, librarians will also be called on to help explain and contextualize IoT itself to the general public.

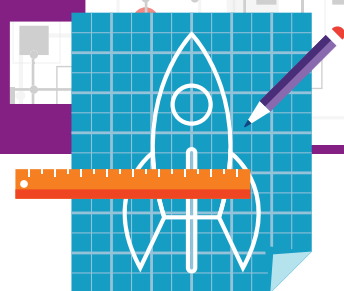
Both the Internet of Things and Linked Data present major opportunities for libraries to connect their resources and services to more people—and things—in more places than ever before. And while it may be possible for many libraries to “sit and watch what develops,” it's clear that more should be done to understand how these technologies will impact our users and communities. ■



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INNOVATE



Innovate anything

Jeff Jacobs, Chief Information Officer, OCLC

Many years ago, I had the good fortune to chat with Steve Jobs for a bit at a computer convention where we were both participating. At one point he asked me if I was a “Mac or PC person.” Having worked only in the PC world for my entire career at that point, I hemmed-and-hawed a bit and then answered that I was “a technology person.”

He smiled, knowing exactly what I really meant. He’d probably heard something like that hundreds of times. But his response to my attempt at politeness is what stayed with me for the rest of my career, and has made a huge difference in how I approach my work.

“Don’t get hung up on the technology,” he told me. “You can innovate anything.”

That’s a profoundly important statement. Especially from someone who was such an icon in an industry that is, obviously, driven by technological improvements. But, if you think about it, much of Apple’s success has come not from specific, incremental changes or improvements in technology. They’ve succeeded by innovating across product design, user interfaces, content delivery, form factor and marketing. The technology is important. But the innovation doesn’t stop—it can’t stop—with making smaller, smarter and faster components.

That’s the main reason I’m thrilled to be working at OCLC and, in general, with libraries. People use libraries in order to transform their lives, which is another type of innovation—becoming a better version of yourself. Whether in public or academic libraries, the learning that occurs is transformational, and that has little to do with specific technology. It happens with books as well as computers, in conversations and through relationships.

While interviewing for my job at OCLC, I heard one fact that made me a little uneasy: the average employee tenure is around 17 years. Now, that’s not unusual in either academia or in public libraries. But in the tech



A Texas Instruments TI99-4A, circa 1982, complete with a Peripheral Expansion box and RGB monitor. A childhood gift, this computer sparked my interest in technology and is part of my collection of “historic technology” from throughout my career.

world I came from? It's a lifetime. Maybe even two. And I was apprehensive that a staff with that kind of tenure wouldn't be as open to change.

I couldn't have been more wrong.

The culture at OCLC is one that appreciates and embraces innovation along a variety of fronts. And my new team made it clear that they want to move forward quickly. They had ideas and plans in place when I started and questions about how things had worked at my previous jobs. All I really had to do was learn from them, make some suggestions and get the ball rolling.

One innovation implied (and expected) in my hiring was the need to integrate the entire OCLC technology organization. Previously, OCLC had two separate divisions: one for engineering (hardware), and one for systems and information technology (software). That made sense in an age when many OCLC services were delivered as installed systems on other people's hardware. But today, as we move further into cloud-based, webscale services for libraries, it all needs to come together. This "One Team" strategy enables the technology groups to share goals, take end-to-end ownership of our products and more closely tie our deliverables to value for your library's users.

Jeff J. Jacobs was named OCLC's Chief Information Officer in May 2014, filling a new position in the 40+ year history of OCLC. Jeff came to OCLC from JPMorgan Chase, where he served as Chief Technology Officer for the digital consumer businesses. He also held the titles of Managing Director and Senior Vice President. In his most recent role at JPMorgan Chase, he oversaw a global technology team responsible for infrastructure, development, quality and operations that support multiple businesses. Jeff has also held technology leadership positions with WellPoint, Intellitech, Exact Software, Cardinal Health and the Kroger Company.



Standing from left: Gene Oliver, Executive Director, Shared Services and Jeff Jacobs, Chief Information Officer. Seated from left: Jim Miller, Executive Director, Management Services; Mike Teets, Executive Director, Strategy, Governance & Architecture; Victor Paini, Executive Director, Operations & Technology; Marty Withrow, Executive Director, Metadata & Resource Sharing, Core Services; and Bill Lisse, Information Security, Head of Global Security.

It also helps us find more ways to innovate. In my 23-year career, I've done everything from build PCs from scratch, program software, administer databases and lead teams as small as one or two people and as large as 600. Learning the business "from the ground up" means that I've had a chance to do many of the things my OCLC team does. Tying it all together in new and efficient ways for the benefit of our members is an exciting challenge for me.

For example, I think there are ways in which OCLC can help improve libraries' analytics, connecting data across a variety of systems. That will help us improve OCLC services and help our members better serve their own communities. In reference to this issue's cover story, I think there will definitely be ways in which information about library collections could be highly useful to partners who want to build "smarts" into the Internet of Things.

I've lived near the OCLC headquarters in Ohio for most of my adult life. The cooperative has an excellent reputation in the IT community, which is partly what attracted me here. Even more compelling, though, was the public purpose of the organization: to help libraries save money while improving information access. That's a truly unique mission among tech companies. And it's one that, I think, provides both OCLC staff and members with many opportunities to innovate.

If you have ideas, suggestions or questions about OCLC's technology or team, please feel free to send me an email at jeff_jacobs@oclc.org. ■



Is your library a ‘Thing’?

By Jean Godby, Senior Research Scientist, OCLC

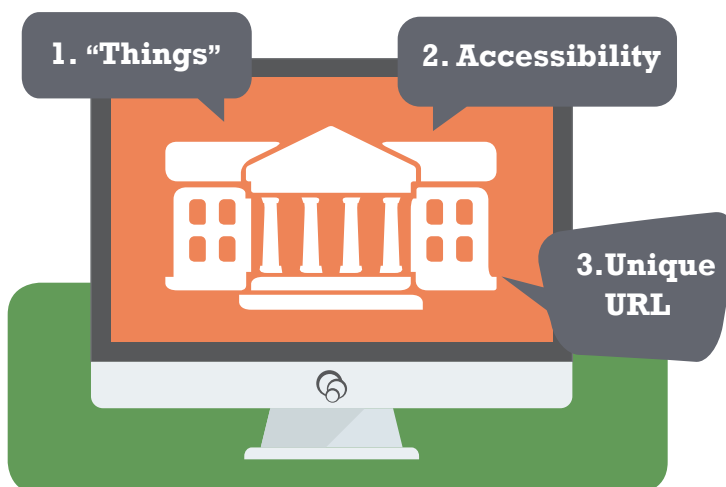
That was the question asked by Anna Neatrou in a post on the Mountain West Digital Library blog after reading about a group of librarians at Montana State University in Bozeman. The team, headed by Kenning Arlitsch, was startled to discover that a Google search for “Montana State University Library” returned a Knowledge Graph, complete with a map, which incorrectly located their library in Billings, 145 miles away.

Search engines typically parse a string such as “Montana State University Library” into a set of keywords that can be matched against a user’s query. But how can a software process grasp the fact that Montana State University Library –also known as the Renne Library, or more simply the MSU Library–is a unique place in Bozeman, not Billings, that can be located on a campus map and is the flagship library for the entire Montana State University system? In the idiom of the Semantic Web, the problem is that the MSU Library is a Thing, while the multitude of ways that people name and describe it are Strings. Mistakes like the one discovered by the Arlitsch team are the inevitable result when Strings and Things are inappropriately connected.

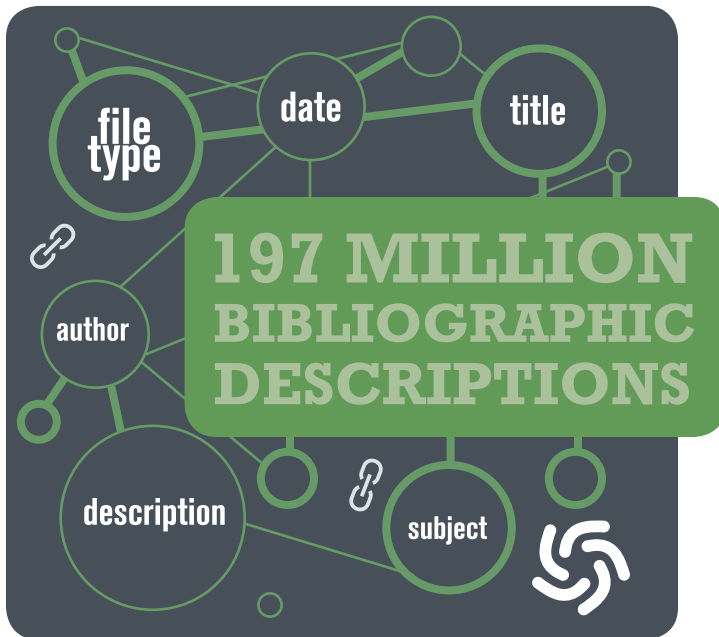
The uniquely human ability to map the abstract and infinitely productive symbolic system called ‘English’ or ‘Japanese’–or ‘language with a capital L’–to references in the real world has been studied for over two thousand years by philosophers, linguists and psychologists. Unfortunately, this skill is alien to software processes. But it can be simulated to a limited degree through the architecture and design principles of the Linked Data or Semantic Web paradigm.

The implementation has three requirements. The first is a set of authoritative resources that describe the people, places, organizations, things, events or concepts that humans talk and write about. Second, these resources have to be accessible from anywhere in the world by a software process. Finally, the resources have to contain a unique Web address for each ‘Thing’ described, which resolves to structured data that can be easily parsed and interlinked. Empowered with data in this form, a machine process can mimic the human reader’s ability to move from text to text, accumulating knowledge about the MSU Library or any other person, place, or thing of interest, regardless of how it is named or described in human language.

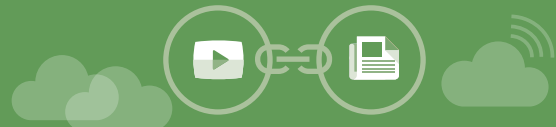
The Arlitsch team determined that Wikipedia was the key to solving their problem. To most readers, Wikipedia is an encyclopedia and one of the most frequently visited sites on the Web. But it is also an important authoritative resource on the Semantic Web because it is converted to structured data and consumed by Google to produce Knowledge Graphs. Thus the Arlitsch team was able to make the MSU Library visible to Google and supply important facts about it–such as its correct location in Bozeman, not Billings–through the simple act of submitting a high-quality article to Wikipedia.



Making search engines recognize a library as a Thing is important, of course, but Linked Data principles are also being used to address the much bigger problem of exposing the contents of libraries to the Web. OCLC researchers have been tackling this problem for a dozen years. With grant funding from Institute of Museum and Library Services, we are currently working with the Arlitsch team to develop a model of their library's institutional repository that is understandable to Google and can be replicated at other universities. And like other standards experts who have recognized that library authority files are well-suited to serve as authoritative resources, we have developed Linked Data representations of the Dewey Decimal Classification system, FAST and VIAF. One result is that VIAF is now one of the most heavily referenced resources in the Semantic Web ecosystem.



Another example is the WorldCat Works project, a set of 197 million bibliographic work descriptions available as Linked Data. A Work is a high-level description of a resource, containing information such as author, title, descriptions, subjects etc., common to all editions of the work. In the case of a WorldCat Work description, it also contains links to the record-level descriptions already shared in the experimental WorldCat Linked Data. In doing this work, we are acting on some of the age-old values of our profession, which places a premium on collaboration, openness and a voice of authority. Our goal is to make libraries more visible in the environment where users are most likely to begin their quest for knowledge. But in return, the Semantic Web benefits from the collective expertise of over a hundred years of librarianship. ■



LINKED DATA

describes a method of publishing structured data so that it can be interlinked and become more useful. It builds upon standard Web technologies such as HTTP, RDF and URIs, but rather than using them to serve Web pages for human readers, it extends them to share information in a way that can be read automatically by computers. This enables data from different sources to be connected and queried.



THE SEMANTIC WEB

is a collaborative movement led by the World Wide Web Consortium (W3C), the main international standards organization for the World Wide Web. The standard promotes common data formats on the World Wide Web. By encouraging the inclusion of semantic content in Web pages, the Semantic Web aims at converting the current Web, dominated by unstructured and semi-structured documents into a "Web of data."



THE KNOWLEDGE GRAPH

is a knowledge base used by Google to enhance its search engine's search results with semantic-search information gathered from a wide variety of sources.

What's your story?

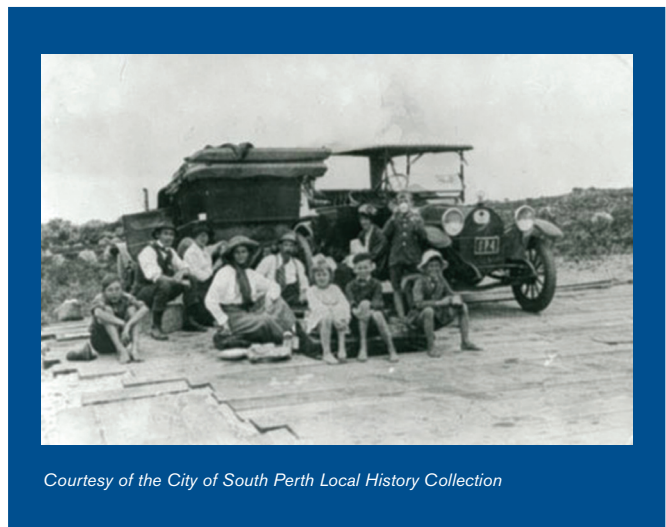
Our diverse member libraries tackle new challenges every day. Through our growing collection of member stories, libraries share solutions and other good ideas with each other to improve library services everywhere! The three stories below feature member libraries that have opened their local history collections, tracked down important research articles and increased staff training opportunities. You can read more about these and other libraries at oc.lc/stories.

Pulling archives out of the basement

South Perth Library in South Perth, Western Australia

Local History Librarian Farah Kabbani told us that South Perth Library houses a fragile collection of local historic photographs and illustrated postcards from World War I-era artists May and Herbert Gibbs. The library takes care to preserve these resources in the lower level of the main branch and allows access only through a Local History Librarian. Unfortunately, Farah admitted, "this made the collection somewhat unapproachable, and interest... waned over time."

So Farah and her team digitized their photos and postcards and posted them online using CONTENTdm Digital Collection Management Software. According to her, the response has been outstanding. "Local residents have been getting in touch with us and offering to contribute their personal photographs to the history



Courtesy of the City of South Perth Local History Collection



collection...Students are now using it as a reference point for their school research projects. Residents can now do their family history research and research into their house histories or local businesses... and those residing on the other side of Australia can now do the same. We have had a lot of interest from our local councilors and elected members." Now that the local collection is available online, South Perth Library is engaging the community and even growing the collection while still protecting the originals.

Delivering hard-to-find materials when researchers need them

Vancouver Aquarium in Vancouver, British Columbia



As the only librarian supporting the Vancouver Aquarium and its research programs, Ann Dreolini receives a lot of requests for articles about aquatic habitats and animals. The researchers at the aquarium study environments all around the world, and they sometimes need specific articles from obscure or non-English journals. Maintaining subscriptions to all of those journals would be too much for Ann and her five volunteers to keep up with. Instead, Ann relies on interlibrary loan to find the articles she needs.

She recalled one especially difficult-to-locate article about different types of algae growth from *Hokkaidoritsu Suisan Shikenjo Kenkyu Hokoku*, or Scientific Reports of Hokkaido Fisheries Experimental Station. “This is somewhat of an obscure Japanese journal,” Ann explained. “I found it at the University of Hawaii at Manoa, and they were able to send me a copy.”

Ann especially appreciates the Article Exchange feature in WorldShare Interlibrary Loan because it enables her to borrow articles electronically and to share them immediately with researchers. “This is especially helpful for larger documents, because our email system has a size limit of 10MB per message,” she said. Thanks to the interlibrary loan network, the Vancouver Aquarium’s researchers have access to library material from across the globe.

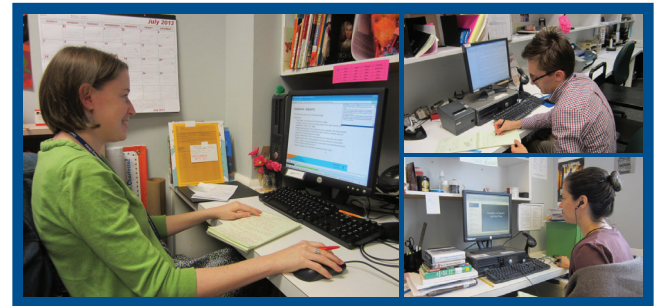


Photo by Neil Fisher, Vancouver Aquarium

Empowering staff to learn

Charlotte Mecklenburg Library in Charlotte, North Carolina

The Tooele City (Utah) Library established a simple strategy to help staff enhance their skills. Called Self-Directed Achievement, the library allows each staff member to set one personal training goal per week and gives each an hour to accomplish it. This program encourages lifelong learning and professional development and engages staff in their career trajectory. It has been so effective in the Tooele City Library that Jami Carter, Library Director, presented a webinar through WebJunction to share the model and lessons learned with other libraries.



Susan Green, Branch Manager for the Morrison Regional Branch of the Charlotte Mecklenburg (North Carolina) Library, was listening. And she ran with the idea. Susan asked her staff what training they would pursue with one hour of self-directed learning each week. “Every single employee, without hesitation, immediately came up with something they would like to do,” she told us.

The staff at the Morrison Regional Branch have reacted enthusiastically to the opportunity. And the things they’re learning have directly improved services for library patrons. “One of the most impressive things for me is that our staff have time to explore the many online databases and services we offer our patrons,” Susan added. The Morrison Regional Branch enjoy this self-directed learning time so much that they now refer to it as “Happy Hour.” ■

WorldCat Discovery Services updates

Simplify your ILL processes

Interlibrary loan staff with access to both WorldCat Discovery Services and WorldShare Interlibrary Loan can search WorldCat and initiate an ILL request. With the “Staff ILL Request” button in the WorldCat Discovery staff interface, you can immediately connect to an item’s holdings display to quickly locate a potential lender and complete the request. This integration enables you to benefit from the full-featured searching provided by WorldCat Discovery in a simple, streamlined workflow.

This enhancement is especially important for ILL staff who have been conducting ILL through FirstSearch.

“For any library staff member who previously used FirstSearch primarily for interlibrary loan, this new integration provides a compelling reason to begin your library’s transition to WorldCat Discovery, if you haven’t already,” explains Katie Birch, Portfolio Director OCLC Delivery Services.

OCLC plans to continue to improve searching features in WorldCat Discovery.

Prove ROI with Google Analytics

WorldCat Discovery now includes new usage reporting capabilities through Google Analytics. Now all libraries using WorldCat Discovery can view metrics on patron and staff discovery activity, including number of users, page views, session durations, online access of resources and the use of specific facets. You can see real-time data in 30-minute increments, or you can view past usage metrics more than two days old.

Need even more reporting options? Consider upgrading to the for-fee custom reporting option. This WorldCat Discovery enhancement allows you to create custom traffic and usage reports based on the specific information you need using Adobe Analytics. Existing WorldCat Local and WorldShare Management Services libraries automatically receive custom reporting at no charge when they migrate to WorldCat Discovery.

Speed consortial lending with group views

WorldCat Discovery also now offers a fee-based option to maximize the value of library consortia. Through the new group views feature, you can show staff and users the holdings of other affiliated libraries in your group. If the group libraries have reciprocal borrowing or other consortial ILL arrangements established, this can save your ILL staff significant time and effort. Library users searching for an item available at an affiliated library can click a single button to initiate an interlibrary loan request.

Learn more:

oclc.org/worldcatdiscovery

Automated ScienceDirect holdings registration and maintenance

In partnership with Elsevier, OCLC members can now automate registration of both e-book and e-journal holdings from ScienceDirect, Elsevier’s full-text platform for scientific, technical and medical research. This new service is similar to capabilities currently available for ProQuest, Ingram and others that automate e-book holdings registration based on subscriptions to ebrary, EBL (Ebook Library), MyiLibrary, JSTOR and Teton Data Systems.

To get started, you’ll need to authorize Elsevier to provide OCLC with weekly holdings updates based on your ScienceDirect subscription. After this initial set-up is complete, OCLC will automatically

- register collections (including e-journal coverage data) in the WorldCat knowledge base,
- maintain holdings in the WorldCat bibliographic database, and
- send MARC records with ongoing updates.

This will streamline your e-resource management workflow and make your ScienceDirect collections easier to find, use and share.

To get started:

oclc.org/Elsevier



OCLC and the British Library offer new option for fast, flexible document delivery

OCLC has partnered with the British Library to expand and simplify document purchasing options. The new purchase option enables WorldShare Interlibrary Loan users to confirm the availability of documents in the British Library Document Supply Service (BLDSS) before placing an order. The option also allows you to choose the price and delivery options that best fit your needs and budget. You can receive requested documents within minutes, or you can choose a slower option for a lower price.

The partnership simplifies your copyright compliance and document fee payment procedures by including these costs in the single price you pay. You can also manage your charges through WorldShare ILL's Interlibrary Loan Fee Management (IFM), which reconciles all resource-sharing payments and fees through your monthly OCLC invoice, eliminating the need to write individual checks and invoices for each transaction.

ILLiad users may also take advantage of this partnership by using an add-on that is available at oclc.org/BLAddOn.

OCLC acquires Sustainable Collection Services

Combination accelerates efforts to manage print collections

OCLC has acquired Sustainable Collection Services (SCS), the industry leader in helping libraries manage their print collections. With this acquisition, OCLC is accelerating its initiative to help its members work together to accomplish their shared-print objectives.

Library collections are moving from print to digital, and spaces once used to house books are now dedicated to collaboration and research. Librarians need to decide what materials to keep, what can be shared among groups of libraries and what can be recycled.

OCLC maintains WorldCat, the largest aggregation of library data in the world, as well as the world's largest library resource sharing network. SCS is the leader in analyzing print collection data to help libraries manage and share their materials. SCS services leverage WorldCat data and analytics to show individual libraries and library consortia which titles should be kept locally, which can be discarded, and which are the best candidates for shared collections.

OCLC Research has been at the center of the evolution of library collections. Recent studies and reports on the subject include *Right-scaling Stewardship* (2014) and *Understanding the Collective Collection* (2013).

"Interest in shared print management among OCLC member libraries reflects a growing awareness that long-term preservation of the published record can be organized as a collective effort," said Constance Malpas, OCLC Research Scientist. "Working together, OCLC and SCS can significantly accelerate our efforts in collection management and shared print projects." ■

Learn more:

oclc.org/scs

Shining a light on the essential work that libraries do

Working with our members around the world, the OCLC cooperative helps libraries boost their visibility within the communities they serve.

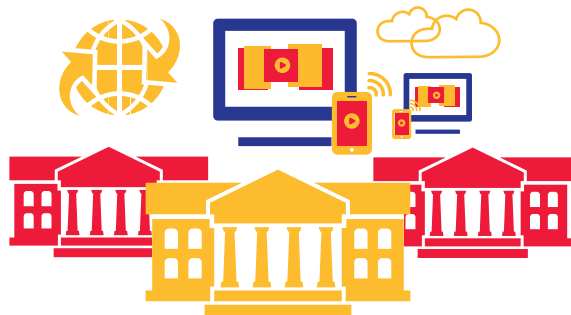


A coalition to boost learning for the information workforce

In November, OCLC received grants from the Institute of Museum and Library Services (IMLS) and the Bill & Melinda Gates Foundation to strengthen continuing education and professional development for the workforce of archives, libraries and museums across the U.S. The grants continue the work of the Coalition to Advance Learning in Archives, Libraries and Museums, which was formed in 2014 to ensure that information workers are equipped to meet the evolving needs of the public and lead learning initiatives in their local communities.

In today's world, people require digital fluency and access to lifelong learning resources outside of the traditional classroom to keep their knowledge and skills up to date. Because of their standing as highly trusted and inclusive, safe places in their communities, archives, libraries and museums often serve as hubs in their communities, and are relied upon to provide the access, information and support that people need to thrive. These grants will help produce strategies for effective and sustainable professional development of information workers, and will identify new opportunities for mutually beneficial collaboration among archive, library and museum organizations.

The ultimate goal is to enhance the contributions of archives, libraries and museums to the people of their communities and fabric of contemporary society.



Libraries, movies and placemaking ... a great combination!

The Outside the Box initiative gives libraries a chance to build a sense of community through fun, free local events based on the principles of "placemaking." OCLC signed its first public/private partnership with Redbox in 2013 to provide libraries with funding to create community-led programs that bring people together in a shared physical space to foster connection and local pride. Following a successful pilot in 2013, 40 new communities across the U.S. hosted 58 Outside the Box events over the summer of 2014, bringing movie nights, festivals, art shows, concerts and more to 6,000 local residents. The program was aided by the expert consultation of Project for Public Spaces; equipment, furnishings and marketing materials were supplied by Redbox.

Learn more:

oclc.org/outsidethebox



Impact of library advocacy program comes to light

Geek the Library, the community awareness campaign funded by the Gates Foundation and managed by OCLC to build support for libraries, has enrolled more than 1,800 public libraries across 48 U.S. states since 2009.

With the program scheduled to end in June 2015, a Seattle-based evaluation company, ORS Impact, has been conducting a formal assessment to determine what outcomes this far-reaching campaign has generated. Preliminary results show that the program is shifting how people think about their local library and changing how libraries interact with their communities.



In the initial survey collection rounds, library staff reported they experienced stronger partnerships with local organizations, such as business associations, civic and interest groups, and local philanthropies. Three-quarters of staff surveyed reported an increased awareness and perception of the library as a key asset for the community, and a majority indicated that the campaign resulted in more—and more engaged—library champions who would take action on behalf of the library in the future.

Geek has been a game changer in a number of local funding situations. One librarian said that her library “was able to raise more funds in our fund-raising campaign last year than ever before.” Another librarian reported that four local groups reached out and said, “We have grant money—write something, we can pretty much guarantee you will get it.”

A December webinar hosted by WebJunction presented the interim results of the campaign, and hosted a panel of Geek librarians who spoke to how they have continued to build on the success of the campaign even after they completed it. You can read a full recap of this webinar—or view the full recording—at the WebJunction website: oc.lc/geekimpact

Even after the project sunsets, libraries are welcome to adapt the collateral and information that is found on the Geek the Library website to help raise awareness in their community.

Meanwhile, the success of the Geek the Library campaign has sparked interest in Europe, and pilot programs have been conducted in Austria, Germany, the Netherlands and Switzerland. Expanded, multilingual campaigns are now continuing in Switzerland and Austria.

Learn more:
oc.lc/geekthelibrary

New, free self-paced library training open to all

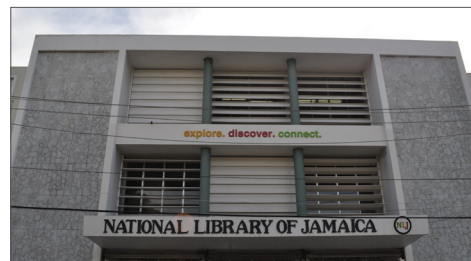
WebJunction continues to be the place where the library profession gathers to build the knowledge, skills and support needed to power relevant, vibrant libraries. In 2014, WebJunction had 621,000 visits to WebJunction.org, the open, online learning community, and saw 23,000 registrations for webinars and 9,400 enrollments in courses.

Last July, WebJunction launched its new learning catalog, learn.webjunction.org, providing free access to library-focused, self-paced courses and webinar archives. Through the generous support of OCLC, the Gates Foundation, and many state library agencies across the U.S., WebJunction continues to provide timely and relevant learning content for you to access anytime, from anywhere. Certificates of completion are made available to all learners, after completing any course or webinar enrolled in from the catalog.

WebJunction continues to add resources. The catalog currently houses 25 self-paced courses and 99 webinar archives produced by WebJunction or by one of its content collaborators at Infopeople, TechSoup, ALCTS or the Montana State Library. Five new courses were created in 2014 through the collaborative efforts of 12 trainers from libraries across the U.S., as part of OCLC’s “Strengthening CE Content” initiative, a project funded by IMLS. Over the next year, WebJunction will continue to grow its catalog of learning content, and will add new resources on topics of high interest on webjunction.org. Please be sure you are subscribed to *Crossroads*, the monthly e-newsletter that spotlights new learning programs and professional development opportunities. ■



National Library of Jamaica joins OCLC, shares collection through WorldCat



The National Library of Jamaica wants to share Jamaican heritage, identity and culture with the world. To do that, its materials need to be visible and discoverable on the Web—any place in the world, any time of the day. The library recently became an OCLC member and began adding records and holdings to WorldCat, enabling its rich collection and library data to be shared with many online services where users go to search.

Learn more:
oclc.org/worldcat

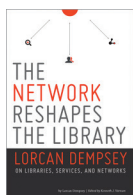


TU Delft selects OCLC WorldShare Management Services

A global innovator and one of the world's leading technical universities, Delft University of Technology becomes the second Dutch university library to move to OCLC's cloud-based library management services.

Learn more:
oclc.org/delft

Lorcan Dempsey's insights into the future of libraries captured in new book



The Network Reshapes the Library offers a collection of influential blog posts by Lorcan Dempsey, OCLC Vice President, Research, and Chief Strategist. In this compendium, editor Kenneth J. Varnum provides a selection of entries from Dempsey's blog that library planners, administrators and those interested in technology will find stimulating.

Learn more:
oclc.org/reshapes

New members take seats on OCLC Board

Four new members participated in their first OCLC Board of Trustees meeting in November. They are, left to right: Kathleen Keane, Director, Johns Hopkins University Press; Brady J. Deaton, Chancellor Emeritus, University of Missouri; John F. Szabo, City Librarian of the Los Angeles Public Library; and Ellen Tise, Senior Director, Library and Information Services, Stellenbosch University in South Africa.



Learn more:

oclc.org/newboard

12 public libraries in Québec providing online reference around the clock

BIBLIOPRESTO.CA is using OCLC's QuestionPoint Virtual Reference Service to cooperatively support its users, even when doors of the physical library buildings are closed. The organization of public libraries recently purchased a group license and completed implementation of the service.

Learn more:

oclc.org/bibliopresto

RLUK, OCLC to improve library visibility with shared collection management goals

OCLC and Research Libraries UK (RLUK), a consortium of the largest research organizations in the U.K. and Ireland, have announced an expanded partnership that will help RLUK achieve key strategic objectives for shared collection management and resource discovery. ■

Learn more:

oclc.org/RLUKpartnership



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