Cutting Edge Technology in Library Services

A project from OITP & LITA

(JUNE 2012) Reader's advisory, outreach, special collections and supporting student learning are common services offered by many libraries—so, what happens when you take them to the "cutting edge"?||The Office for Information Technology Policy (OITP) of the American Library Association (ALA) and the Library Information Technology Association (LITA) are pleased to share short case studies from four libraries that are leveraging technology to extend the reach and scope of library services in their communities.

In fall 2011, a subcommittee of ALA members appointed by OITP and LITA called for nominations of library programs that are serving their communities with novel and innovative methods. After reviewing a record number of submissions from libraries of all types, LITA and OITP are pleased to showcase the following uses of cutting-edge technologies to support new and traditional library services in schools, universities and communities.

The subcommittee selected programs at Contra Costa County Library in Pleasant Hill, Calif.; New Canaan High School Library in New Canaan, Conn.; New York Public Library in New York; and Scottsdale Public Library in Scottsdale, Ariz., as the winners of the association's third annual contest to honor cutting-edge technologies in library services.

"This year's winners represent thoughtful and creative engagement with technology trends including QR codes, open-source software, social media, GIS, and mobile applications," said Christine Lind Hage, Director, Rochester Hills Public Library (Mich.), who chaired the selection subcommittee.

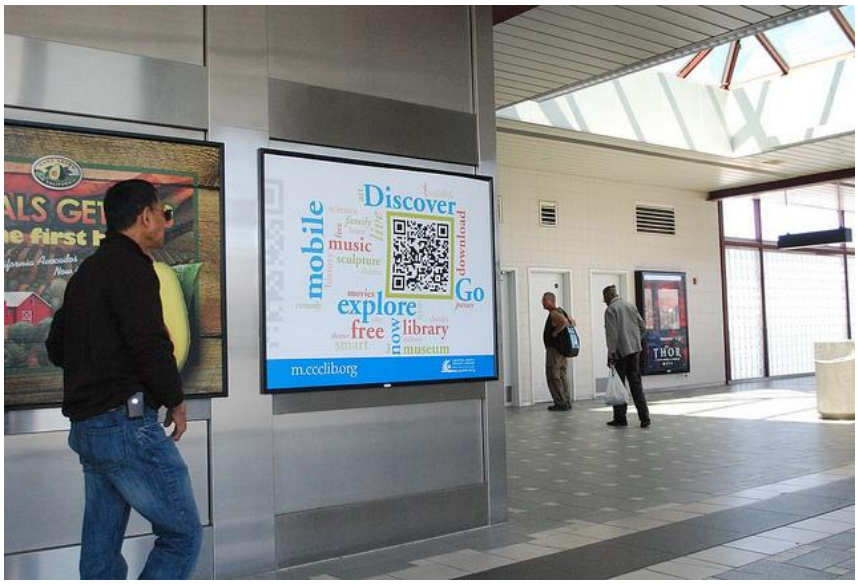
Representatives from these programs will be featured in a session at the 2012 ALA Annual Conference on Saturday, June 23, from 10:30 a.m. to noon at the Hilton Anaheim, Huntington Room.

Contra Costa County Library – Snap & Go

The Contra Costa County Library (CCCL) has expanded far beyond its walls: it now reaches into buses, subway stations and other public gathering spaces.

Through CCCL's Snap & Go project, users with mobile phones are able to use a range of library services by scanning QR (Quick Response) codes. For a 2011 advertising campaign, library staff designed posters with word clouds reminding passers-by what they can do and access at the library, incorporating one of the black and white codes—like the one pictured at right, which will take you to the library's mobile website.

"It's functional advertising," said Paula MacKinnon, Information Systems Manager at CCCL. "Not only does it remind people of the library, it allows them to interact with the library." By reaching otherwise time-pressed users while they are waiting in public spaces, the library has managed to stretch its resources even while budgets tighten and community library building hours are being cut.



Snap & Go in action. (© Contra Costa County Library)

The codes are customized to direct users to the service most relevant to them based on their current location. Ads on local buses take users to the e-book download page, highlighting only those e-books and audiobooks that are compatible with mobile phones. QR codes also are found within the library building, where black and white squares affixed to the covers of popular books take readers to reviews and read-alike recommendations created by library staff. Codes on signs at the information desk open up a text message to a text-a-librarian number; staff responds to the texts within 10 minutes. Still other codes direct users to virtual museum passes, hours and locations, and account and catalog search functions. Usage of the library's mobile website is up 16 percent since the program was implemented.

To ensure the program's success, library staff had to overcome many people's unfamiliarity with QR code technology. To facilitate this, they created an online guide to Snap & Go, which received 7,900 views during the project's first year. It provides a basic introduction to QR codes, introduces the services that the library offers through them, and showcases some other organizations that use the technology. It also links to QR code readers for a variety of mobile devices, demonstrating that most basic cell phones with cameras—not merely smartphones—are capable of using QR codes, though library users with older phones may not always realize this. In order to ensure that as many interested people as possible are able to participate in the program, Snap & Go uses the web for catalog searches rather than an app linked to a certain type of mobile device; and services provided through the program are designed to be accessible to users who don't have data plans.

Properly sizing the QR codes on advertisements posed another challenge. As the physical distance between the QR code and the reader increases, the size of the code needs to increase as well. For a marketing campaign that targeted passengers on the local rapid transit system, the design team

had to ensure that the code could be successfully scanned from a distance of eight feet or more without compromising the aesthetic quality of the poster.

CCCL also successfully developed the technology for a "Snap & Checkout" service using QR codes, but chose not to implement this feature, as it would have required library materials to be retagged with new barcodes and desensitized to work with the existing security system.

With its 26 library branches, Contra Costa County Library serves a suburban area outside of San Francisco. It has over 455,000 cardholders and more than 7 million items borrowed annually. It was a recipient of the 2012 John Cotton Dana Library Public Relations Award, which recognizes outstanding achievement in library public education and public relations; and its Library-a-Go-Go service, which allows readers to check books out from self-contained automated book kiosks within metro transport stations and other locations, was selected as a Cutting-Edge Technology winner in 2010.

TECH SPECS

Developed in partnership with Denver-based software developer Quipu Group with funds from a Bay Area Library and Information Systems (BALIS) technology grant, Snap & Go consists of a mobile web platform that directs users through QR codes to specific information. Though free QR code creators are available on the Internet, Quipu created a desktop application that would provide library staff a standard, reliable tool to create the tags; they now resell this program to other organizations that are interested in implementing similar programs.

To create a QR link to a certain library resource, staff can limit a catalog search to the desired type of item, then create a QR code pointing to the static URL for the search. Users who photograph the QR code with their mobile phones will then be directed to the same customized list of results.

For more information: http://guides.ccclib.org/qr

New Canaan High School Library – Participatory Platforms for Learning

The tools used by the New Canaan High School Library are some of the most familiar in the digital world—but the way they're using them puts this library on the cutting edge. Through the likes of Facebook, iPads, Twitter, and Google Apps, the librarians at New Canaan are teaching students to participate as responsible citizens in the digital realm.

The school's innovative curriculum is created collaboratively by teachers and librarians. In one project, students concluded a unit on historical revolutions by studying unrest around the world as it unfolded on Twitter. "This taught us a lot about what kids don't know—not in terms of current events, but in terms of resource evaluation," said Michelle Luhtala, Library Department Chair.

Another project sent sophomores looking through the library's collection of 1950s *Life* magazines to provide a historical context for "Catcher in the Rye." Students used mobile devices—their own or the library's—to photograph advertisements portraying women of the era, then posted them to the class's Facebook group, where they discussed the findings as a group. To conclude the unit, students uploaded the documents on gender roles to Google Apps, and senior English students studying gender in literature critiqued the sophomores' essays.

Facebook plays a key role in New Canaan's program, and the library staff believes that concerns over its distractive powers are unfounded. “Actually, we distract them from socializing with learning,” said Luhtala. Discussions of homework now pop up in students’ live Facebook feeds, keeping them thinking about their school projects when they would otherwise be socializing. In addition, Luhtala notes that technological mastery does not transfer well from one platform to another; with Facebook, they have a medium that the students already know well. “There's no platform students would turn to as often,” she said. “It’s theirs—not ours—and that makes a difference.”

Students are an integral part of the program's advisory committee. In a recent survey, librarians learned that students prefer using their own devices to the library’s devices; 29 percent of the school's students have an e-reader, and 60 percent of students in New Canaan have a data plan for their mobile phones. The librarians work continuously to ensure the platforms and projects have students buy-in.

The project does not exist merely in cyberspace: The physical space of the library is a hub of activity, with an average of 190 students in it at any point during the day. Using mobile SmartBoards and projectors, a history class may meet in one section of the library “stacks,” while a science class gathers in another section; meanwhile, other areas of the library are reserved for silent study.

Key to the success of New Canaan’s model is the support of the school district, especially with respect to trust and openness. The school must permit students to use their own devices and to visit Facebook, Twitter, and YouTube. Teachers must also be permitted to add students as friends on Facebook—a practice that has been prohibited in many communities. When other districts attempting to implement similar programs faced problems with censorship, the New Canaan librarians teamed up with the American Association of School Librarians (AASL) to designate one day of Banned Books Week as Banned Websites Awareness Day. With the support of the ACLU, the National Association of Secondary School Principals, and leaders in the library blogosphere, plans for the October 3, 2012, Banned Websites Awareness Day already are in motion.

TECH SPECS

Both the library's website and its instructional portal, "THE ANNEX @ New Canaan High School Library," link to a YouTube channel for instruction, a Twitter page for tech support, and its Facebook page. Destiny, the integrated library system (ILS) software, allows students to post reviews in the library catalog, recommend books to one another, and construct a personalized reading shelf. Librarians catalog research-related websites and incorporate them into the same centralized library management system through which students can access the rest of the school's content, including 1,400 nonfiction e-books available for one-hour or longer loans.

Students are required to collaborate, share, and store their work in the cloud using the full Google Applications suite, and the library uses Google Voice as its phone service. Students who text the number (61 KNOW MOR 0) will reach the e-mail inboxes of all library faculty and staff, while phone calls are channeled to all librarians' phone lines.

For more information: http://nchslibrary.info/

New York Public Library – Map Warper Toolkit

With ordinary maps, you can explore distant places. With the New York Public Library's Map Warper Toolkit, you can explore distant times as well. Through the power of crowdsourcing, NYPL is transforming its collection of historical maps into an unparalleled resource for researching New York City history.

Users who browse the New York Public Library's Map Warper will see scanned maps from New York's past superimposed upon maps of the present day. If the multilayered map you're looking for doesn't yet exist, you can help to create it: using the toolkit, you can pin the scanned historical maps to modern Google-style maps, giving new life to what were often rare or fragile documents. The newly processed map is then freely accessible to the public, enriched with user-generated metadata and pan-and-zoom functionality. Maps may be imported directly into platforms such as Google Earth and ArcGIS.

"One of the most exciting aspects of this project is its participatory nature," said Matt Knutzen, Geospatial Librarian at NYPL, "meaning that anybody with a computer can create an account, log in, and begin warping and tracing maps, whether for a school or personal project or otherwise."

The developers are striving to ease participation: "We're intent on making sure we don't turn people away at the door with software that's too cumbersome to use," said Knutzen. While the Map Warper's current interface is not highly intuitive, NYPL is working to improve its usability. So far, users have processed over 3,000 historical maps and transcribed nearly 80,000 historical building footprints.

The enriched maps already have proven useful for a range of projects. After the EPA designated New York City's Newtown Creek and Gowanus Canal as Superfund sites in 2010, the library hosted Citizen Cartography events and took on library interns to help build new resources from historical maps for the environmental remediation process. NYPL's collection included digitized copies of fire insurance atlases, containing information on oil refineries, gas works, chemical factories, and paint manufacturers in the area. NYPL also has partnered with Canadian historians to develop maps of the Klondike Gold Rush, and the library set up a special instance of the Map Warper to compile and make available information for the relief effort after the 2010 Haitian earthquake.

NYPL Labs envisions the Map Warper as the foundation of a system that includes maps, newspaper archives, place-based ephemera like historical menus and playbills, photographic archives, business records, and relevant literature. Envision a Google Earth with the ability to search not only by place, but by time: users will see everything the library has pertaining to a place within their specified time range displayed as points on the map.

The library developed the software in collaboration with Topomancy (formerly EntropyFree), an open source geospatial software firm; the same team recently has completed detailed documentation to support users who wish to install and maintain the application on their own servers. The software and the documentation are freely available for other institutions to use and build upon.

"NYPL Labs is trying to build tools that are open source, lowering the bar for participation and helping libraries get more mileage with fewer resources," said Ben Vershbow, Manager of NYPL Labs. Though administering the current version of the project requires a high level of technical sophistication, Vershbow and Knutzen envision a not-too-distant future version of the Map Warper Toolkit that can be installed and managed by tech-savvy staff at a library or local historical society. Small public libraries, as well as corporate archives, personal collectors, and other interested participants, could use the Map Warper as part of a collective digitization project—pooling and integrating local historical materials, then making them accessible to a wider audience for further development.

The Map Warper Toolkit is paving the way for a new kind of public research library for the information age: one built in active collaboration with the public.

TECH SPECS

NYPL Labs hopes to make the Map Warper Toolkit available as a software package that can be installed as easily as any other open source software package (e.g., OpenOffice.org). In its current version, however, the free, open source toolkit will need to be managed by a system administrator who understands servers, images, and metadata.

To assist users in launching the Toolkit—and help to further develop it—NYPL Labs provides an installation guide and documentation for users of the software: http://code.mapwarper.net/. The NYPL team suggests that having internal staff working on the project is ideal, but that it can be run with the help of outside developers as well.

For more information: http://maps.nypl.org

Scottsdale Public Library – The Gimme Engine

For those who want to combine the serendipity of shelf-browsing with the wisdom of a team of librarians—and give it a digital twist—the Scottsdale Public Library's Gimme Engine is just the tool. The Gimme Engine is a mobile book recommendation tool that combines library staff book reviews, cataloging data, and content enrichment service images and descriptions, all to be reached through a simple one-question web interface.

The project originated after Scottsdale received Library Services and Technology Act (LSTA) funds from the Arizona State Library, Archives and Public Records. In order to best use the funds, staff conducted a survey that asked both library users and non-users what services they would most like to see the library offer. While current services such as browsing the collections, reserving a book, and

looking at the calendar of events were of high interest to people, another service—book recommendations—seemed like an area in which the library could find a way to innovate.

"What books should I read next? That's something people are always asking us," said Ann Porter, Community Relations Coordinator at the Scottsdale Public Library. Users often cited Amazon.com's recommendation services, which gather information based on other users' purchase history to suggest additional titles, and asked whether the library could create a similar tool. "But Amazon doesn't protect users' privacy the way that libraries do," Porter noted, "so we thought, what else can we do?"

To develop their own book recommendation system that would be compatible with the library's commitment to privacy, librarians translated common requests—for example, "Gimme something like *The Hunger Games*!"—into a lighthearted drop-down menu of ways to complete the "*Gimme"* request: examples include "a laser gun," "something old school," or "some lovin'." Librarians periodically change these questions, as well as the recommended books, to keep the engine from getting stale. The interface, pictured below, is designed for simplicity and ease of use by both web users and those accessing the Gimme Engine on their smartphones. Results are quick, easy to read, and easy to share through social media.

But creating a simple tool is not a simple matter, as they discovered. "Our biggest challenge was our app developer not understanding the library environment and customer base," said Aimee Fifarek, Scottsdale's Library Technologies and Content Manager. Because the library did not have programmers on staff, they brought in a developer and gave him a set of marching orders—but he did not have an underlying understanding of the needs and expectations of library users. "We had to become more involved in the development process than we were initially prepared for," said Fifarek, "but once we repositioned the library staff as the creative control and the developer as the technical expert, we were able to come up with a successful product."

The reviews offered alongside Gimme's recommendations are the work of library staff. While this is a demand on their time, library managers have signed off on the project, and librarians are glad to dedicate a small amount of time to writing new reviews for the recommendations. "The key is really good communication and having staff members who are passionate about reviewing," said

Fifarek. The reviews are brief to suit the needs of the typical smartphone user. Staff believe the project has boosted circulation of recommended titles, suggesting Gimme is connecting readers with books they might otherwise not have picked up. The library is now beginning to gather data to measure the impact.

The Scottsdale Public Library serves Scottsdale's 221,000 residents, as well as residents of Maricopa County. The collection contains over 800,000 items, including books, magazines, DVDs, CDs, audiobooks, and more, and the library circulates around 2.5 million items per year.

TECH SPECS

The Gimme Engine was designed as a mobile website rather than as an app so that one installation will work on all computers and mobile devices. Gimme integrated three separate technologies being used by Scottsdale Public Library into a single, easily supported interface: RSS feeds from the library's Millennium Integrated Library System and an ancillary product called FeedBuilder; Syndetics content enrichment service; and the GoodReads API (based on the popular book-sharing website, GoodReads.com).

Because the library's IT and web services staff is small—including two systems integrators, the IT manager, a graphic designer, and two librarians who assist with the design and public catalog interfaces—they decided to use LSTA grant monies to hire a programmer to create Gimme and connect existing technologies into one application that can be easily managed by library staff with no programming knowledge.

For more information: http://gimme.scottsdalelibrary.org

To learn more about library services previously recognized as "cutting edge" and about the Program on America's Libraries for the 21st Century, please visit www.ala.org/al21c.

With thanks to…

The 2012 Cutting-Edge Technology in Library Services selection committee: Christine Lind Hage (chair), Director, Rochester Hills Public Library (Mich.); Mark Beatty, Training and Automation Librarian, Wisconsin Library Services; Kathy Brown, Director for Planning and Research, North Carolina State University Libraries (N.C.); Chris Harris, Coordinator, School Library System/Media Services for Genesee Valley Educational Partnership (N.Y.); and Joyce Valenza, Teacher/Librarian, Springfield Township High School (Penn.).

OITP Research Associate Jessie Mannisto for writing up these program descriptions. Jessie served as a 2011 Google Policy Fellow with OITP and is the author of "Restoring Contemplation: How Disconnecting Bolsters the Knowledge Economy" (OITP Perspectives No. 2).