

Trends & Issues in Library Technology

IFLA IT Section Newsletter

December 2014

▪ From the Section Chair	1
▪ Web Site Usability and other Lessons Learned from Bulgaria	2
▪ Book review: <i>Next-Gen Library Redesign</i>	3
▪ Design of the Academic Library Website with Persuasive Technologies	4
▪ eReads - NLB's On-going Journey in Enhancing the e-Book User Experience	6
▪ Deploying Social Media Platforms in the National Library of Nigeria	9
▪ Using GIS in Libraries to Facilitate Decision Making	12
▪ About the IT Section	18

From the Section Chair



Open source systems have the potential to democratise access to information services.



Access to information is at the core of the library mandate. How far libraries can go with this mandate depends a great deal on the engagement of the organisation and the library profession in advocating the freedom to fulfil this mandate.

Open source systems have the potential to democratise access to information services. Nothing demonstrates this better than the ubiquitous acceptance of open source on the

African continent. The lack of a license fee around open source is not the only factor in this equation. The open source paradigm also offers:

- Flexibility in deployment. We all know the burdens that content licensing and copyright present for libraries in format transfer. The open source paradigm means that the software can be deployed in the most effective way that suites the library without considerations of user license limits, per CPU limits or restrictions on the number of servers
- Open-ness of design in both import and export of data
- No lock-in to a particular vendor
- The option for full in-house management or external cloud hosting, or organising consortia of libraries to work together management the system

The IT section will be showcasing open source technologies across a spectrum of technologies for libraries, including the Library Management System, Digital libraries, Big Data to and archiving systems. Our satellite conference for 2014 will be at Stellenbosch University, just outside of Cape Town, on August 13-14, as part of the IFLA 2105 congress.

This timing is consciously directed practical realisation of the principles of the Lyon Declaration, launched during the IFLA congress in 2014. This Declaration centres access to information as a critical element of development. While Information Technology does not feature high in Maslow's hierarchy of needs, there are innumerable ways in which the plight of the poor, dispossessed and disadvantaged is affected by access to information. An example of this is the superb IdeasBox developed by Libraries Without Border, and was on show during the Lyon congress.

[continued on Page 5]



This issue of TILT once again demonstrates the range of innovative technology-related projects and services in different library settings.

Web design is an on-going area of interest - we have two articles on usability and interface design as well as an appropriate book review.

The increase in e-books in libraries has led to enhancing the online user experience in discovery and reading. From social media to GIS, our colleagues from around the world continue to innovate library services.

I want to thank all the contributors for sharing their experiences.

Happy reading!

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Editor

Web Site Usability and other Lessons Learned from Bulgaria

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In 2009, Bulgaria received a grant from the Global Libraries initiative of the Bill & Melinda Gates Foundation. Its purpose was to enable 960 libraries in Bulgaria to become contemporary centers for access to information and knowledge that would teach their patrons IT skills and help them get online.

When the Global Libraries – Bulgaria Program began, my main task was to maintain the program portal, www.glbulgaria.bg. Its purpose was to keep librarians informed about what was next in their work, and how they could use the program's resources (such as training, software, and the donated computers) to serve their local communities.

I soon realized, however, that communication was not one-way only. The more librarians did and the more their libraries developed and transformed, the more information, knowledge and experience they wanted (and needed) to share online. Librarians made efforts to share this content via social media and e-mail, but they did not have a central space online to allow them to form a community and reach a wider audience. As time went by and as more success stories from libraries emerged, the more obvious it became that we needed to turn the www.glbulgaria.bg web site into an open web portal for communication by, for, and between all librarians.

The site was originally built as a proprietary platform for a couple of people at the program office to be able to upload text and pictures. In response to the evolving needs, we transformed it into a portal that allowed each of the 960 libraries working in our program to upload news, key content, photos, and videos. In addition, they could communicate with other librarians across Bulgaria to exchange experiences and encourage each other in their work.

We had to consider many factors to make the transition from a web site to a portal successful. We needed to make sure that the portal not only had all the features it needed, but that it would be easy to use. Furthermore, it needed to look modern to reflect the very libraries it would showcase.

We decided to use the Drupal content management system for the portal. Since it is open-source, it would cost us less than any proprietary solution and would provide us with free upgrades and modules for additional functions. That would make its short-term development and its long-term support easier and cheaper than those of proprietary solutions. However, Drupal posed a challenge: it is considered much more developer-friendly than user-friendly.

Meanwhile, most of the librarians we worked with had just learned how to use a computer for the first time, and we were expecting them to use the portal to regularly upload information and communicate. Therefore, we had to make sure the platform looked and felt as easy to use as possible to people with limited computer skills (and confidence).

We decided to pair the Drupal platform and modules with our own custom design for the front-end and back-end. We made sure that on the outside, the portal design would make it easy for any user to quickly and easily find the information they were interested in. On the inside, it had to be just as easy for any librarian to log in and upload news, photos, and a couple of videos about the latest events at their library in just a few mouse clicks.

We hired a web development agency and a web usability expert. With usability principles built into the design from the very beginning, we were able to achieve our goal of an easy-to-use portal. It sounds easy when I say it now, but – at the time – we were working hard with our library stakeholders to ensure we got it right.



Here is the process we used to ensure excellent usability:

1. We made a list of all web portal sections and their titles.
2. We did a “card sorting” test with two groups of users: librarians and library users. Members of each group had to sort the section titles into groups that made sense to them, and explain their rationale (i.e. what they expected each label to contain, and why they believed it belonged in a group with the others).
3. We designed the portal's navigation based on these results to make sure the way information was organized made sense to visitors. This turned out to be a very good decision. We had some ideas for the site's layout and structure before the sorting test, but our users showed us we were not quite right. This saved us the time and hassle of reorganizing and

redesigning the portal later. Also, we got excellent ideas on navigation – we knew what people expected to see when clicking a certain menu item.

4. After the agency had mock-ups of the design, we used our groups of librarians and library users once again. This time, they had various tasks to perform on the mock-ups which corresponded with the most common use cases each group would have with our portal. For example, library users had to find a library, its opening hours and current events; librarians had to upload the same information into their profiles on the portal. We had a usability tester observe each user and record what was happening. Once again, our design was improved. We learned that small things such as a button size, color or placement can make a huge difference in how users perceive the interface as a whole, how they interact with it, and how they feel about it.

Our grant from the Bill & Melinda Gates Foundation concluded earlier this year, and Bulgarian libraries continue to help users get online, access valuable information, and learn critical IT skills. As I thought about everything we learned over the last five years (often the hard way), I realized we had an opportunity (maybe even an obligation?) to help make the path smoother for other libraries.

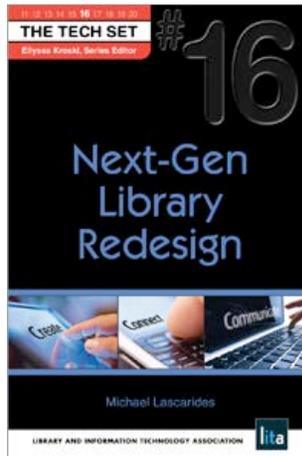
I have since teamed up with colleagues from four other countries in the Global Libraries program: Chile, Moldova, Poland and Ukraine. Together, we have compiled a guide full of our experiences, lessons-learned, and the tips we've share with libraries over the years to help them build their own web sites. We haven't always done it the same way, but we all have one thing in common – we learned a lot.



GLBG Libraries Exchange Experience

We are close to finalizing the guide and look forward to sharing our experiences with the field so that more libraries worldwide can ensure their web sites meet user needs and help them connect with their communities.

We know you have lots of wisdom about building successful library web sites too. What lesson(s) would you add to the guide? What have you learned the hard way? Let me know, and maybe the next version of our web site guide will include advice from many more than five countries. ■



BOOK REVIEW:
Next-Gen Library Redesign
Michael Lascarides, 2012
The Tech Set, #16, Series Editor
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[ALA Publishing](http://www.alapublishing.com)

Part of the second TECH SET series of ten volumes designed to help librarians tackle today's new technologies, trends and practices, Next-Gen Library Redesign is a hands-on manual on how to create an innovative and engaging web presence for libraries.

The book gives an overview of today's technological web landscape and the tools and solutions available, and takes the reader through major milestones, from choosing the right solution for your library to planning to actual implementation, without forgetting the marketing of your project and the importance of using metrics to understand the way patrons use it and interact with it. Each step is then broken down to very practical actions and bits of information to make it easy to follow and to apply.

Sample projects to improve and modernize your library's web presence include incorporating social media, creating interactive and collaborative subject guides, promoting your librarians with public profiles, highlighting deep and unique collections, and using crowdsourcing to create new collections with the help of patrons.

The intended audience for this publication is both librarians with basic to intermediate tech skills who are familiar with new tools and technologies on a consumer's level, and tech-savvy professionals who will find many useful tips and ideas throughout the book.

A list of recommended readings together with references allow the reader to delve further into the subjects of interest. Although the ideas and tendencies described in this publication remain true, some of the suggested web resources might become outdated or obsolete by now, which is to be expected.

Overall, a very useful step-by-step guide to using the new technologies for today's library websites.

For more information about the TECH SET series, visit www.alatechsource.org/techset.

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Design of the Academic Library Website with Persuasive Technologies: Holistic User Experience

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Introduction to Persuasive Technologies

The persuasive technologies were introduced by Fogg (2002) and defined as any interactive systems designed to change people's attitudes, behaviors or both. He discovers that people considered computing systems as living beings or social actors so that they tended to respond to these systems and they were influenced by the systems as well. Based on his discovery, he comes up with the idea that the systems could be used to motivate and persuade people.

According to Fogg (2002), there are five primary types of social cues that make computing systems more persuasive: physical attractiveness, psychological cues, language, social dynamics, and social roles. He argues that the computing systems are more persuasive

- 1) when they - interface or technology - are aesthetically attractive,
- 2) when they are similar to target users in terms of personality, preferences, or other attributes,
- 3) when their texts or messages are written with praise,
- 4) when users feel that they are helpful or do a favor, and
- 5) when users perceive them as an expert who can lead, make suggestions, and provide helpful information.

Why Persuasive Technologies Matter to the Academic Library Websites

The computing systems that Fogg (2002) uses in his article can be any things with technologies from refrigerator with computer screen (Internet of Things) to academic library website. Therefore, the persuasive technologies can be applied to design of academic library website as to not only improve user experience but also change students' attitudes or behaviors when it comes to academic research.

Many academic libraries have conducted usability testing to improve their website. As a result, the library websites have been easy to use and have tried to provide a Google-like search box. The University Library at Indiana University Purdue University Indianapolis (IUPUI) also conducted various usability tests during the spring semester (January-April 2014) to identify why and how users used the library website.

From Google Analytics, the most visited pages were resources-related like Databases A-Z and digital collections. From online survey, users revealed that they used the library website for either their research or assignments. Moreover, they perceived the current library website positively like accessible, useful, easy to use and etc. Overall, the current

library website at IUPUI is okay and satisfying although its design should be improved.

However, high satisfaction doesn't guarantee whether users use the library website. These days, there are many other places like Google where users can start their research or assignments, so the library website is not the only one anymore which provides resources. Therefore, it is no longer enough just to enhance accessibility, findability or usability so that users can easily find specific resources or content that they look for. Rather, user engagement becomes a key element when it comes to design of the website in order to create a holistic user experience. As Schaffer (2009) argues, usability is no longer the key differentiator.

Persuasive Design: PET (Persuasion, Emotion and Trust) Design

One approach to create a holistic user experience is PET design, which stands for persuasion, emotion, and trust. This is a social psychological methodology developed by Human Factors International - a company specializing in user-centered design - to ensure user experiences more engaging, compelling, and effective. Persuasion functions as triggers to a desired action. Emotion is about making sure that users have desired emotional responses during the process while trust is to build credibility or royalty.

Principles of Persuasion

There are many persuasion techniques, and some that could be applied to the academic library website are:

Authority: As Fogg (2002) already insists, the website is more persuasive when it is designed based on its authority. Users would be likely to obey if they perceive the website has authority.

Consistency: Users prefer to maintain consistency between what the website says and does. In other words, it doesn't matter to ask a subsequent request to complete certain tasks as long as it's consistent with the first initiation.

Contrast: Users easily notice when certain things stand out from others. This can be applied to design like color or layout when to highlight important things.

Framing: Users are influenced by how information is presented. For example, users are more easily to understand difficult or important concepts when they are presented in a story.

Repetition: If something is repeated, users perceive that it is important.

Similarity: Fogg (2002) proves that the website is more likely

to be persuasive when users feel that it is similar regarding personality, preferences, or other attributes.

Social proof: If users are not sure about certain things, they tend to rely on what other people do. For example, students are more likely to use certain resources if their classmates use those resources for their assignments.

Principles of Emotion

There are many emotion techniques, including:

Visceral processing: Users tend to react to visual cues or feedback. Fogg (2002) argues that it is more pervasive when texts or messages are written with praise. Therefore, if there are delight elements, these allow users to feel rewarded by even doing routine tasks.

Aesthetic usability: Fogg (2002) discovers that it is more persuasive when it is aesthetically attractive. Fogg (2009) also argues that attractive designs are considered to be easy to use so that users are willing to use.

Goal setting: Users are more likely to achieve a goal when they believe that it is achievable. Fogg (2009) shares best practices for creating new digital experiences that influence users. The very first step is to choose a simple behavior or goal to target. Otherwise it may easily fail.

Knowledge of results: Users are willing to complete their tasks if there are steps shown and these steps indicate where they are in the process.

Principles of Trust

There are many principles of trust, including:

Design quality: Users instantly evaluate credibility of the website based on what they see like design.

Current content: In order to build credibility, content should be regularly updated. If content is inaccurate or links are broken, trust is easily damaged.

Peer advice: Users rely on their peers and colleagues. For example, one of the IUPUI usability tests discovered that users heard the library website more from their peers than from librarians.

Conclusion

The persuasive technologies have been effective where users would be willing to do a target behavior, but it is difficult for them to start or continue (Hamari, Koivisto, & Pakkanen, 2014).

These persuasive technologies are worthy to be considered to improve a holistic digital user experience as users value the library website for their research or assignments, yet they still start from other websites like Google. Unfortunately, there are not yet many evidences whether these persuasive technologies are effective or not in the context of the academic library website.

Only one study (Sorensen, Zhang, & Berge, n.d.) conducted by graduate students in computer sciences at University of Oslo for developing a new science library web app used the persuasive technology. Therefore, the next step will be to test

whether these persuasive technologies are actually useful and effective to improve user experience and change user's behavior toward academic research. ■

References

Fogg, B. J. (2002). Persuasive technology: Using computers to change what we think and do. *Ubiquity*, 2002 (Dec), 5.

Fogg, B. J. (2009). Creating persuasive technologies: An eight-step design process. Paper presented at Persuasive, Claremont, California, 26-29 April.

Hamari, J., Koivisto, J., & Pakkanen, T. (2014). Do persuasive technologies persuade? A review of empirical studies. *Persuasive Technology* (pp. 118-136).

Schaffer, E. (2009, January 26). Beyond usability: Designing web sites for persuasion, emotion, and trust. *UX matters*. Retrieved from www.uxmatters.com/mt/archives/2009/01/beyond-usability-designing-web-sites-for-persuasion-emotion-and-trust.php

Sorensen, F., Zhang, Y., & Berge, G. S. (n.d.) The new science library web app. Retrieved March 7, 2014, from [www.uio.no/studier/emner/matnat/ifi/INF2260/h11/prosjekter/Within RB with your phone.pdf](http://www.uio.no/studier/emner/matnat/ifi/INF2260/h11/prosjekter/Within%20RB%20with%20your%20phone.pdf)

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During the congress in Cape Town we will also have two sessions relevant to the Lyon Declaration: *Technology facilitating access to information: libraries supporting development* (with Public Libraries, the Asia and Pacific section and Research Services for Parliamentary Libraries section), and *Technology for multi-institution co-operation: aggregating, sharing and collaborating*.

The initiative of the Big Data Special Interest Group (to be chaired by May Chang) is also an important development for the section. This is a fast moving area encompassing many important issues of privacy, open access to information, governance and development of important technological frameworks. Big Data has itself emerged from the huge opens source melting pot, because of the rapidity of the development of systems in this area.

On the personal front: Cape Town marks 10 years that I have been involved with the Information Technology section - appropriately, starting in Durban in 2006 and finishing in Cape Town 2015. The sections of IFLA provide an extraordinary opportunity cooperate with colleagues across the spectrum of interests and around the world. While it may appear to be a daunting prospect committing for 5 years to the work of the IFLA sections, it is also an unequalled professional opportunity and personal experience. The congress itself is always replete with sessions of interest, and engagement with the sections is a way of participating in and shaping the focus of each congress. It is also a way of meeting, working with, and being inspired by your international colleagues. ■

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eReads - NLB's On-going Journey in Enhancing the e-Book User Experience

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Introduction

eReads (eresources.nlb.gov.sg/ereads) is a unique initiative by the National Library Board (NLB) of Singapore to consolidate the various e-books subscribed from major e-book vendors into a portal where customers are able to discover and find e-books of various genres - fiction and non-fiction, in the four official languages using an intuitive and attractive user interface. Other than e-books, the eReads portal showcases the latest eNewspapers and eMagazines as well. The portal was launched on May 8th 2014 and garners an average of 260,000 page views per month.



1. Screenshot of eReads

Solving a Problem

NLB acquires various digital resources from different vendors such as Overdrive, EbscoHost, Beijing Apabi and World EBook Library and each has its own particular strengths in content and genre. In the past, the library simply provided links to the respective vendors' websites and left library patrons to discover these resources on their own. This approach was not very effective as patrons were confused about the content, coverage, user interface available in each website. In short, you need to know which website to visit to find the title you are looking for.

NLB took a leap forward in simplifying the user experience by aggregating the various websites into a single search and discovery function. This was achieved using something that most of these vendors already provide when we subscribe to their services - the metadata of their content.

We worked very closely with the various e-book vendors to establish the format and process flow for them to regularly provide metadata updates to NLB. We are incorporating these as future renewal deliverables. The metadata of all the e-books were consolidated into a central repository.

The next step was to look at how NLB could present the e-books in the portal that would be appealing to patrons. To do that, the team leveraged book covers as the primary method of displaying and attracting our patrons when searching and browsing.

To read the title, we bring the patron directly to the vendor's fulfilment page. This way, we continue to make available the full set of features provided by the vendors at the 'last mile', while complying with all digital rights management (DRM) requirements.

Leveraging technology to do old things in a brand new way

What differentiates and adds value to this portal is the backend service that allows librarians to curate and showcase titles based on themes, thereby giving a fresh discovery element. These themes can be changed regularly using a centralised content management platform that allows NLB librarians to collaborate and share curated themes or categories not only on eReads, but other NLB e-book platforms as well. This opens up a world of the possible services beyond the traditional website, into new innovative concepts such as remote e-book kiosks and walls (e.g., having e-book kiosks in schools, bus stops and other government libraries.)

This role of curating e-content is very similar to what librarians do in physical libraries creating booklists, and book, newspaper and magazine displays, the only exception being that

Librarian curated themes



2. Curated themes by our Librarians

the displays done on eReads extend beyond the physical library space and into the digital realm.

Benefits

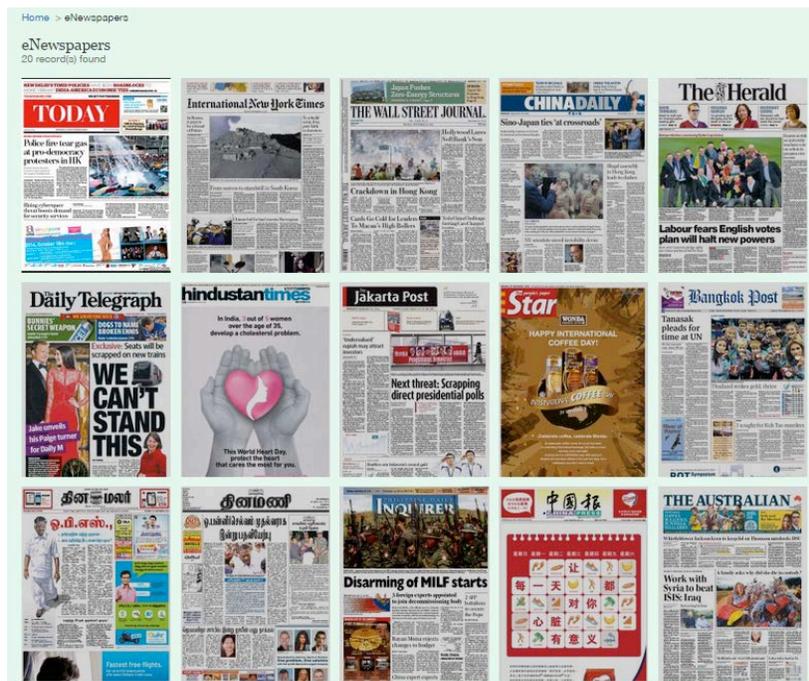
Overall, eReads facilitates NLB's vision of "Readers for Life" by continuously encouraging the love of reading beyond physical books, into the realm of digital books. With the growing use of infocomm technology, we see eReads as a natural progression towards cultivating the next generation of book lovers in Singapore. With the use of the eReads portal, NLB is able to consolidate a wider range of e-books that it sources

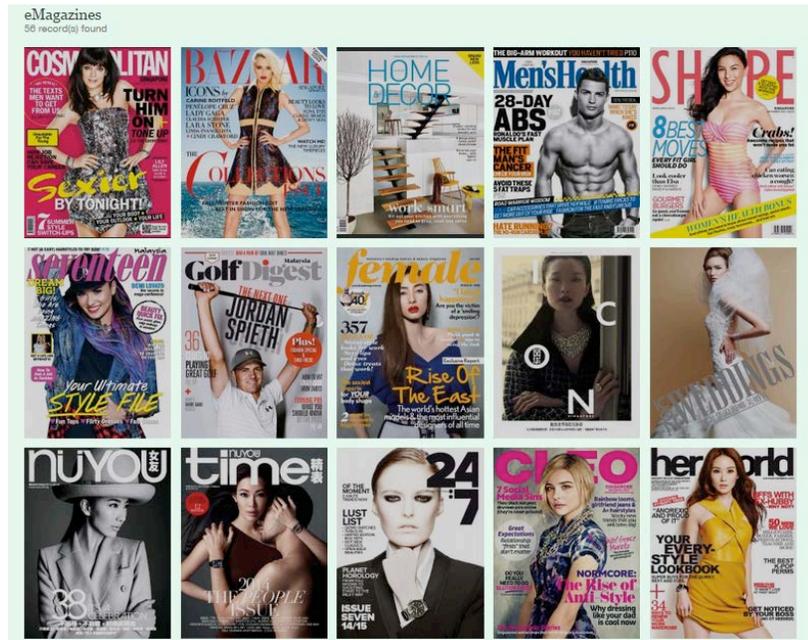
widely from established worldwide e-book vendors, and make it discoverable via various touch points. This in turn helps NLB to maintain its status as a library well-loved by Singaporeans, both in the physical and digital domains.

Specifically, this idea enabled:

1. E-Books Integrated Platform - NLB has been able to use existing technology to intelligently make available e-books from disparate sources into one single platform, providing a major leap in improving service delivery, compared to the past where customers had to navigate through a maze of websites.

3. eNewspapers from various countries





4. eMagazines from various countries



5. Promotional banners in the libraries

2. Productivity Improvement - The initiative allows NLB librarians to curate themes and share this with various new service points that make use of e-books as its anchor service (e.g. e-book kiosks). It also enables internal stakeholders to leverage on the centralised content management technology to reduce manpower costs, improve productivity and provide efficient and excellent services through innovation and the generation of new ideas.

3. Providing Relevant and Updated Content - The ability to selectively integrate and curate e-Content from multiple service providers allows NLB to deliver materials that are timely and useful to its patrons.

Future Plans

eReads is but a starting point of NLB's journey in making the user experience of discovering e-books more seamless. There are also many other opportunities for new service spin-offs and with lots of ideas for improvement in the pipeline, this journey is an ongoing one. Quick-read stations in libraries for the patrons with just 10 minutes to spare, kiosks in schools to promote reading amongst students, and kiosks on mass transit platforms for those on the move are some examples. However, the ultimate goal remains the same - to promote the love of reading, no matter what the medium is. ■

Deploying Social Media Platforms in the National Library of Nigeria

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For the first time in history, more people are able to say more things - to more people than at any time in the past. Social media has played a significant role in enabling people across the globe to interact with patrons, users and friends who participate in their sphere of acquaintances. The potential impact to libraries is significant and spans from greater participation in programs and events due to people telling their friends, neighbours and community about their experiences, a greater utilization of libraries collections by patrons reading, watching, and listening to items from library resources.

Social media is an umbrella term used to describe social interaction through a suite technology based tools, many of which are Internet based. This includes, but not limited to internet forums, networking sites such as Facebook, Twitter, Flickr, Instagram, Stumbleupon, Tumblr, Pinterest, Delicious, Google plus, Webcast and Blogs.

Social media is one of the most effective ways to promote library activities, services and resources. It is a medium used to communicate information pertaining to library operations, activities, news, resources and so much more. It reaches not only library users, but also to potential users to maximize library services and resources.

Social media is a powerful new form of communication. The number of users on popular social media sites is growing at exponential rates. Astronomical development/advancement in technology has provided various opportunities and avenues for libraries, particularly the National Library of Nigeria (NLN) to connect with its users. The last decade has witnessed development of various social media platforms.

Social media is increasingly expected to be an extension of any organization as users turn to popular platforms for information. It exhibits unique characteristics when compared to traditional media forms. Its speed and scope means that once content is published it is available instantaneously, to a potentially global audience. Social media tools tend to be free or available at a very low cost relatively to other forms of media and do not require users to have much technical knowledge. Libraries and other information organizations are beginning to incorporate these applications as a means of creating more interactive, user centered library and information services.

Importance of Social Media

- Provide news or information for users
- Provide links to recommended Internet Resources
- Information about new resources

- Provide research tips
- Encourage use of resources
- Enlarge learning opportunities
- Engage your community
- Expand your community
- Allowing patrons to rate and review items in the collection and having their ratings and reviews publicly visible.
- Allowing patrons to promote programs and events by rating, reviewing, and sharing with their friends and neighbors.
- Building trusted relationship with users

Having highlighted the advantages of social media, there are now so many social media platforms available for libraries to participate in. Libraries worldwide have keyed into these merits by deploying them for their operational activities, events, news, resources, entertainment and information. The NLN in its quest to maximize the opportunity provided by these platforms, officially created accounts with Facebook, Twitter and Instagram.

Setting up accounts in social media platforms without an official website for the organization will be counterproductive, though the website is not a prerequisite for operating social media platforms. The NLN website/portal (www.nln.gov.ng) was redesigned and hosted in July, 2013.

The Virtual Library Services Department (VLSD) was restructured which resulted in the creation of a section for social media within Website Development and Maintenance Division of the department. Designing and hosting of the website provided a better stage for creating new accounts in selected social media platforms.

Facebook

(www.facebook.com/nationallibraryofnigeria)

Facebook was the first official NLN social media platform to be created mainly due to the following reasons:

- It is the most common social media platform globally
- A large number of Facebook account holders are in Nigeria. Official source reveals that there are millions of Facebook users in Nigeria
- A sizable number of library users have Facebook account
- It does not require much technical knowledge
- Familiarity in the use of Facebook

The NLN Facebook page was created in July, 2013. A librarian was assigned the status of a social media manager under the supervision of the Director of VLSD. The duties of the social media manager include the following:

- Develop contents
- Posting of contents
- Respond to inquiries
- Create awareness for NLN social media platforms
- Regular updates
- Maintain Facebook page

It is amazing that within three (3) weeks of its operation, the NLN Facebook page had '100' likes, forty five (45) posts and an average weekly total outreach of three hundred and thirty one (331).

In May 2014, the NLN Facebook page had a 4.2 star rating with a remarkable '1000' likes, posts and an average weekly total outreach of 1500. This could be attributed to vigorous Facebook drive and dedicated social media team.

The NLN Facebook page is numbered among the very few libraries in Nigeria that have deployed social media (Facebook) in its operational activities.



Twitter (@librarygovng)

Twitter is a free online social networking and microblogging service that allows registered users to send and read short 140-character text messages, called tweets.

The importance of Twitter:

- It can be a great tool for interacting with library users and the community. But it is an equally efficient tool for feedback and opinions about the library services.
- It has millions of users and more people are joining it every day, which makes it one of the best places to interact with users.
- It is a faster way to disseminate information.

The official Twitter handle for NLN was created in December, 2013 and became fully operational in January, 2014. The social media section was mandated to operationalize the Twitter account.

Unlike the Facebook, the popularity of Twitter cannot be compared to Facebook in Nigeria. In other words, a larger percentage of social media platform usage in Nigeria is attributed to Facebook.

In April, 2014, the NLN Twitter handle had over a hundred tweets and over 20 followers. The social media team has continued to engage the Twitter handle in its program and events, as it was effectively deployed in an exhibition organized by the NLN Centenary Celebration and Centenary Trade Fair Exhibition.



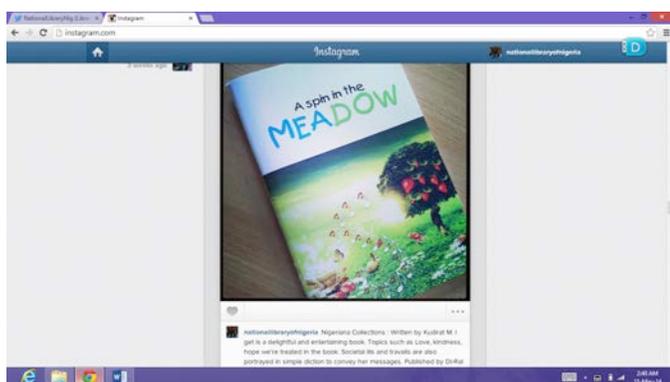
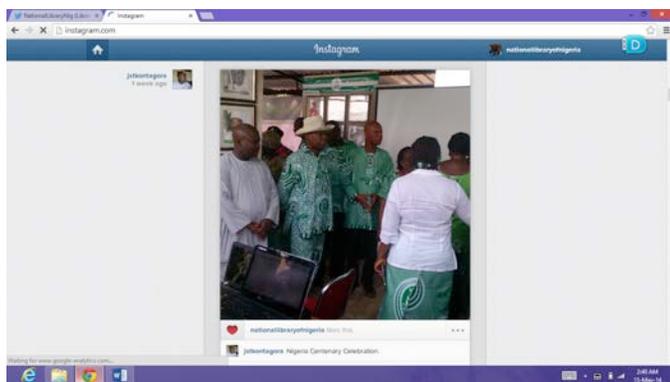
Instagram (nationallibraryofnigeria)

Instagram is an online photo/video sharing social networking service that enables registered users to take pictures and videos and share them on a variety of social networking services.

The official Instagram account for the NLN was created in February, 2014. An online exhibition organized by NLN to commemorate Nigeria Centenary Celebration necessitated the creation of this platform. Images of NLN resource materials, Nigeria pre/post independence era were captured and shared using Instagram. It was also used as a resource medium during the Centenary Trade Fair Exhibition in Nigeria.

The importance of Instagram:

- It offers the opportunity of connecting to other social media platforms like facebook, making it possible to share simultaneously.
- As is common with other social media networks, Instagram facilitate a two way communication by allowing followers to not only comment but to send enquiries.
- Instagram increases the institution online visibility.



Social media impact on NLN activities

Deployment of social media platforms in our operations has brought about some remarkable outcomes:

- Commendation from the general public for connecting with them through social media platform
- Some service are provided through this medium, i.e. issuance of ISSN and ISBN
- Timely response to inquiries about our services, activities, location and resources
- Feedback on how we can improve on our services to the public
- Strategic dissemination of information
- Current awareness service

Challenges

The enormous benefits offered by social media networks notwithstanding, there are a number of challenges that could hamper on the integrity and reputation of their users.

- > The possibility of negative comments by some friends on your pages
- > Hackers taking over your page and posing threat that can lead to monumental damages.
- > How to grow followers (audience)?
- > What should I share?
- > Slow Internet connectivity
- > Capacity building

Conclusion

Libraries are now communicating with their users through a variety of social media platforms. They are using these tools to connect and engage with their users, patrons and communities beyond the library walls.

The social media platforms of NLN have witnessed/ experienced definitive transformation in its operations, structures, service delivery particularly as regards to virtual library services, indigenous knowledge, bibliographic control services, digital references, and capacity building.

The NLN has decided to embrace social media more systematically and comprehensively to identify new platforms for user collaborations and to create opportunities for enhancing and developing library services. ■

Using GIS in Libraries to Facilitate Decision Making

Jason Glatz

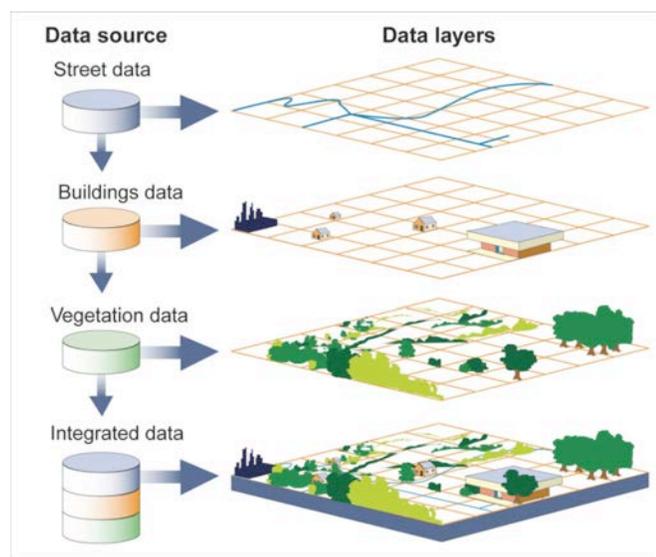
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This article is drawn from an award-winning poster at the ARL 2014 Library Assessment Conference held in Seattle, WA (<http://goo.gl/ot4lw8>). All winning posters focused on improving the user's experience of the library.

What is GIS?

Geographic Information Systems is most commonly thought of as “computer mapping.” It works much like a standard database, but has the capability to relate tabular data with geographic data. By organizing data in a number of layers – much like one might do in Photoshop – it allows users to gather spatial data and analyze it in a number of ways. As an example, Figure 1 is representative of a typical GIS setup.¹



Source: GAO

Fig. 1: A Sample GIS

How can libraries use GIS?

Libraries can use this technology to answer many questions they may have. One example might be to examine the layout of the library, including the impact of adding or removing shelving, furniture, or workspaces. Another example might be to explore location of materials. Where are new materials being shelved? Which areas have high levels of circulation? What books are being pulled from the shelves (and re-shelved), but not checked out? Alternatively, a library might be interested in patron activities, such as where are individuals congregating, which areas are used for group study vs. individual study, etc. GIS can be used to examine anything else that can be mapped – the scale is limited only by the users' imagination.

Two Examples from Western Michigan University

This article reviews two uses of GIS at Western Michigan University's Libraries. These examples were presented in a poster at the Association for Research Library's 2014 Assessment Conference in Seattle, Washington². ESRI's ArcGIS software, which is the industry leader, was used to develop this poster but similar analyses could be conducted using other proprietary GIS packages, or open source software like QGIS or GRASS.

Shelving Space Analysis

The first analysis was conducted to better understand the impact of new book purchases on shelving space. In particular, it was looking for hot spots – areas that had little existing free space on the shelves and were receiving a large number of new books.

The first step taken was to develop a base map. This analysis focused on the third floor of Waldo Library, and the library already had an architectural drawing of the floor in PDF format. This was converted into a .jpg and the raster file was used as the base map, which is shown in Figure 2.

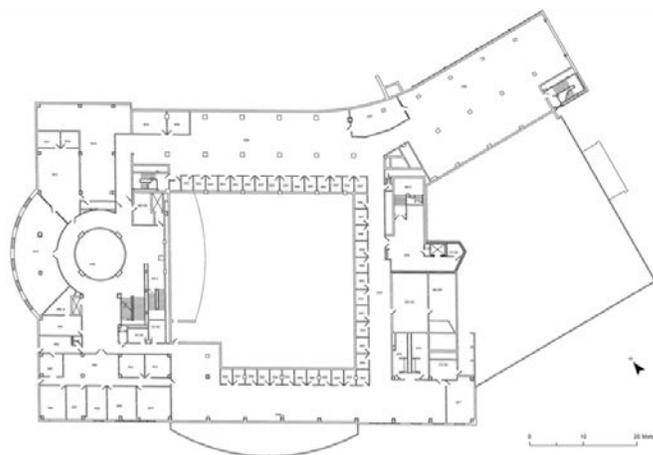


Fig. 2: Waldo Library Third Floor Architectural Drawing

The next step was to create a layer showing the shelving units on the floor. This was initially done by mapping each three foot “section” in the library, as represented in Figure 3. The amount of free space in each section was measured and recorded. Mapping at the section level is useful for floor space planning, but was not relevant for the purpose of this analysis, since it is relatively easy to adjust shelving density by moving books from one section to another. Therefore another layer was created with the sections combined into ranges. The ranges layer also excluded the shelving units from the map room in the northeast of the library, since it was excluded from the analysis.

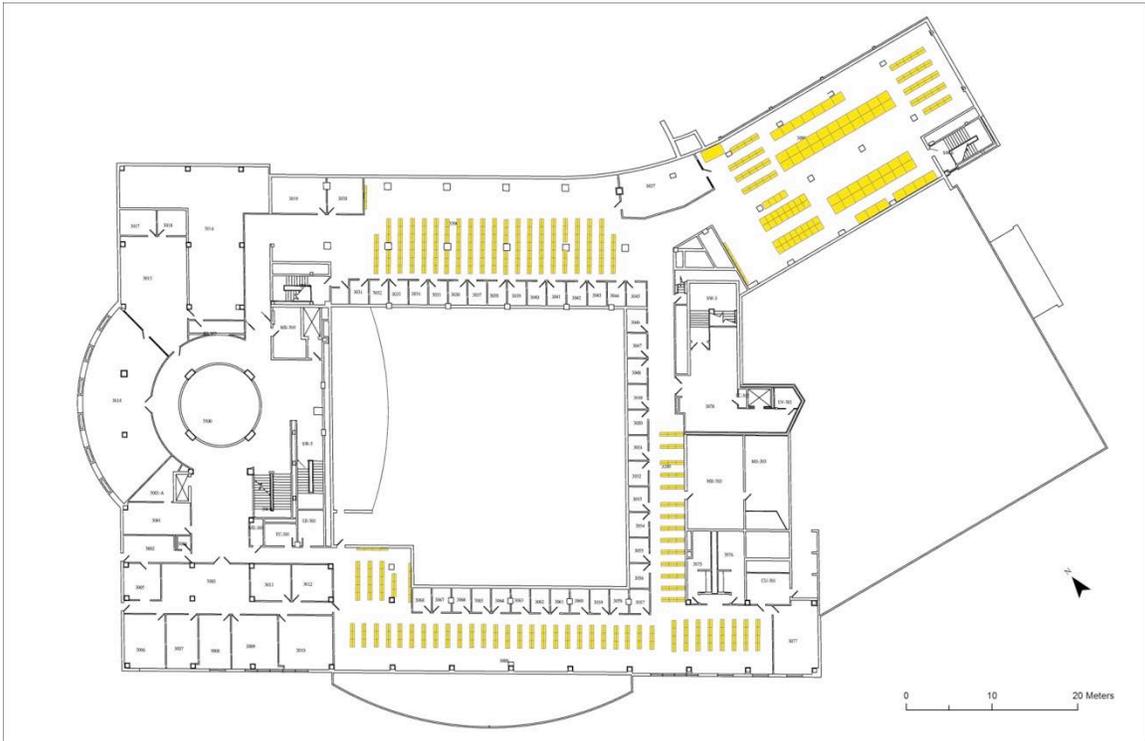


Fig. 3: Base map with sections layer

The amount of free space for each range was calculated from the measurements of the sections and then mapped and color coded. The results are shown below in Figure 4. It immediately becomes apparent that the shelving ranges on the

north side of the building have ample free space and some of the ranges in the southwest and southeast sections of the building are short of space. This map alone can assist with the reallocation of free space.



Fig. 4: Free space mapped to ranges

A few more steps were taken to gain a better understanding of the spatial distribution of books in the library. The first step was to obtain a report of all of the new books processed from the beginning of fiscal year 2013 (July 1, 2013) to the time of the study (May 19, 2014). In order to map the approximate location of these books, a pseudo-addressing system had to be devised, since the GIS software cannot interpret the Library of Congress call number system. This was done by using the book's class as the "street name" and by creating an

"address" from the remaining call number and cutter (which was converted to a number and rounded to two places). In order to do this, the remaining letters in the call number were converted to numbers, and the converted letters and numbers were added together. In order to scale easily, "A" became 10, "B" became 11, and so forth until "Z" became 36. Thus, "BC15.S54 2013" would be transformed into "1528054 BC" where the address would be 1500000+28000+54. More examples are below in Figure 5.

Address	TITLE	DATE	CALL_NO
1502854 BC	If A, then B : how the world discovered logic / Mic	8/8/2013	BC15 .S54 2013
17701176 BC	Rationality through reasoning / John Broome.	10/17/2013	BC177 .B76 2013
17702223 BC	Emotive language in argumentation / Fabrizio Ma	4/18/2014	BC177 .M227 2014
17702732 BC	Method of metaphor / Stanley Raffel.	12/7/2013	BC177 .R323 2013
17702829 BC	Being realistic about reasons / T.M. Scanlon.	4/18/2014	BC177 .S29 2014
17702830 BC	Normativity of what we care about : a love-based	11/6/2013	BC177 .S295 2013
17703232 BC	Methods of argumentation / Douglas Walton. Uni	10/24/2013	BC177 .W3232 2013

Fig. 5: LC call numbers converted to pseudo-addresses

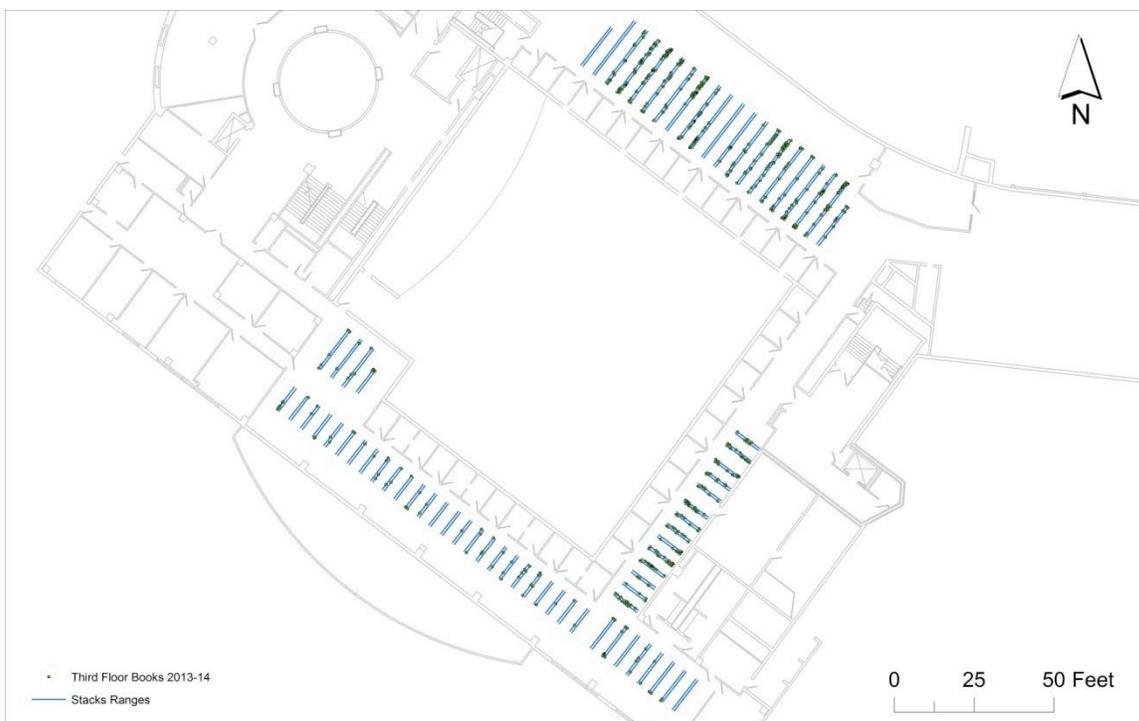


Fig. 6: New books geocoded to ranges

The next step was to create beginning and ending "addresses" for each range and to create a polyline layer that would overlay the ranges and represent the "streets." Once this was completed, the books' "addresses" (call numbers) could then be geocoded to the "streets" (ranges). The results are shown in Figure 6.

One issue that arose with this technique is that when call numbers were very similar, the books would be geocoded on top of each other. Thus it is difficult to see if the dot on the range represents one book or ten books. In order to overcome this, a kernel density filter was run over the map to create a heat map (Figure 7). This shows the density of the new books acquired over the study timeframe.



Fig. 7: Density of new book acquisitions



Fig. 8: Final Analysis of New Acquisitions on Shelving Space

The final step in this analysis is to select and extract the ranges that have limited shelving space and to overlay it on the heat map (Figure 8). This pinpoints the hot spots on the third floor. In particular, books from the southeast section need to be moved down to the southernmost section of the floor in order to accommodate the influx of

new books. There is another section in the southwest of the library that may need attention in the future, but is not currently receiving a large volume of new books. Finally, while the northern section of the library is growing rapidly, it currently has ample shelving space.

Patron Distribution Analysis

The second analysis conducted for this poster looked at the distribution of patrons throughout the library. It used tallies of the number of devices connected to wireless access points (also known as wifi) taken on the hour as a proxy for patrons. The data were obtained from the University's Office of Information technology, and were provided as a .csv file with the access point ID, a time stamp, and the total number of devices attached. This method is an imperfect measurement since a patron may be double counted if he or she has a laptop and a cellphone, and would not be counted at all if he or she had neither. That being said, using the number of connections to wireless access points has several advantages and disadvantages.

One of the method's advantages is its accuracy and consistency compared to manual collection of data. There is no way that one staff member (or even a number of staff members) can record where all of the patrons are distributed at an exact point in time. There will always be patrons on the move who might be double counted, and human error will lead to missed patrons as well. It is also much less work to log the data automatically when compared to collecting the data manually. This is particularly true when collecting data over a time frame (e.g. the average number of patrons in a location over the course of a week).

There are a few drawbacks as well. One shortcoming is that custom locations can't be studied. The access points cover a certain area. If there is an area of interest that overlaps two or more areas, or a smaller area within the wifi coverage zone, it

First floor, 8 am – 10 pm

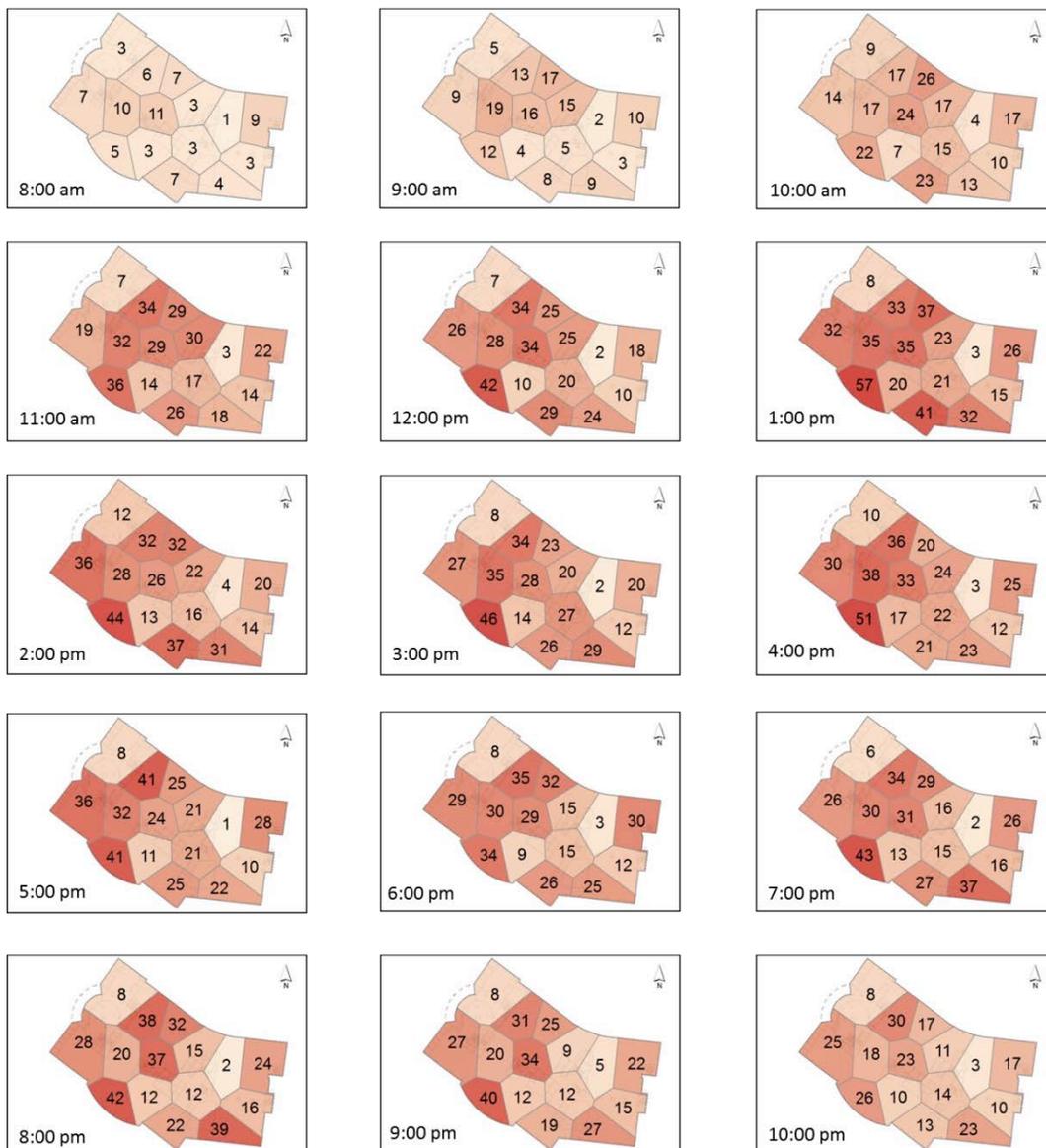


Fig. 9: Temporal Analysis of the Main Floor of Waldo Library

Patron distribution at 1 pm

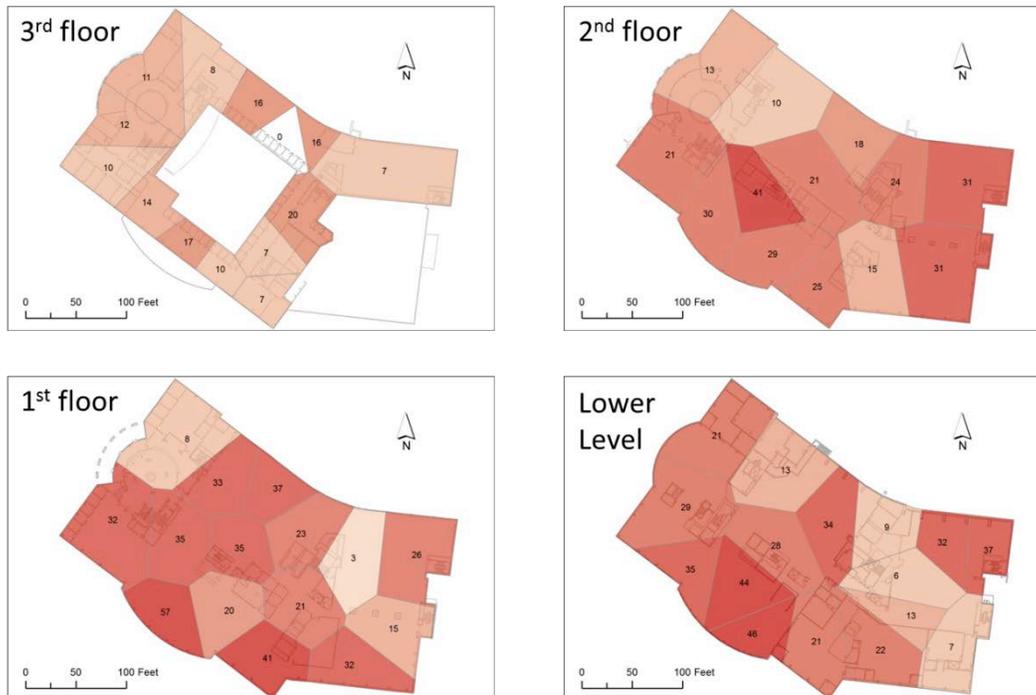


Fig. 10: "Snapshot" of Patron Distribution in Waldo Library at 1pm

cannot be specified. Also, there is some ambiguity regarding which access point the device attaches to, particularly for patrons that might be on the edge of two access points' coverage areas. Waldo Library has thick concrete flooring, but other libraries might experience "bleed through" from different floors depending on the facilities' construction.

Understanding patron distribution can be useful in a number of ways. One of the most obvious ways would be to provide data for decisions. Where should the library add additional computers for patron use? Where are the optimal areas if the library had funds to add additional power outlets or furniture upgrades?

The first step for this analysis was to map out the wireless access points throughout the library. These were recorded as point values. In order to assign a coverage area for each access point, the points were run through a Thiessen Polygon tool, which "defines an area of influence around its sample point, so that any location inside the polygon is closer to that point than any of the other sample points."³

Once the coverage areas were created, the hourly snapshot data from the Office of Information Technology were associated with them. This allows for a number of different analyses. Figure 9 shows patron distribution on the main floor of the library over a 15-hour timeframe. It is readily apparent that peak traffic occurs from approximately 11 a.m. to 9 p.m. Also, patrons tend to cluster towards the front of the library and along the southern side of the library.

The data can also be used to analyze the distribution of patrons within a library at a given time, as illustrated in

Figure 10. Once again, it is apparent that patrons tend to congregate along the southern side of the library, with some clustering towards the rear of the library on the 1st, 2nd, and lower levels.

The two examples in this analysis were based on one day's worth of data during finals week and used as a proof of concept. It would be more appropriate to gather a larger dataset for analysis. This would allow for exploration of trends over days, weeks, etc., as well as averaging the snapshots over the timeframe to get more robust data.

Conclusion

While GIS is usually reserved for larger scale mapping projects, libraries can use the technology to facilitate data driven decision-making. At a minimum, having a detailed floor map can assist in operations. For instance, a detailed paper copy can be used to catalog needed repairs, or to sketch out potential changes to the floor plan. A little more work allows libraries to conduct analyses like the kind examined in this article. While this article lays out a few uses of GIS in libraries, the technology can be used to answer a wide variety of questions that might arise in your institution. ■

References

- (1) www.gao.gov/assets/660/650293.pdf
- (2) libraryassessment.org/bm-doc/27glatzposter.pdf
- (3) support.esri.com/en/knowledgebase/GISDictionary/term/Thiessen%20polygons



The Information Technology (IT) Section promotes and advances the application of information technologies to library and information services in all societies, through activities related to best practices and standards, education and training, research, and the marketplace. The scope covers IT for creation, organization, storage, maintenance, access, retrieval, and transfer of information and documents for all types of libraries and information centers; IT for the operation of libraries and information centers; and, related management and policy issues. Of primary importance is the application of IT for supporting access to, and delivery of, information.

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