» "I must say I find television very educational. The minute somebody turns it on, I go to the library and read a good book." -GROUCHO MARX

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Reorganizing through Lean Principles

» A team approach to examining and improving acquisition processes.

BY JOHN NOVAK AND RICHARD ZWIERCAN

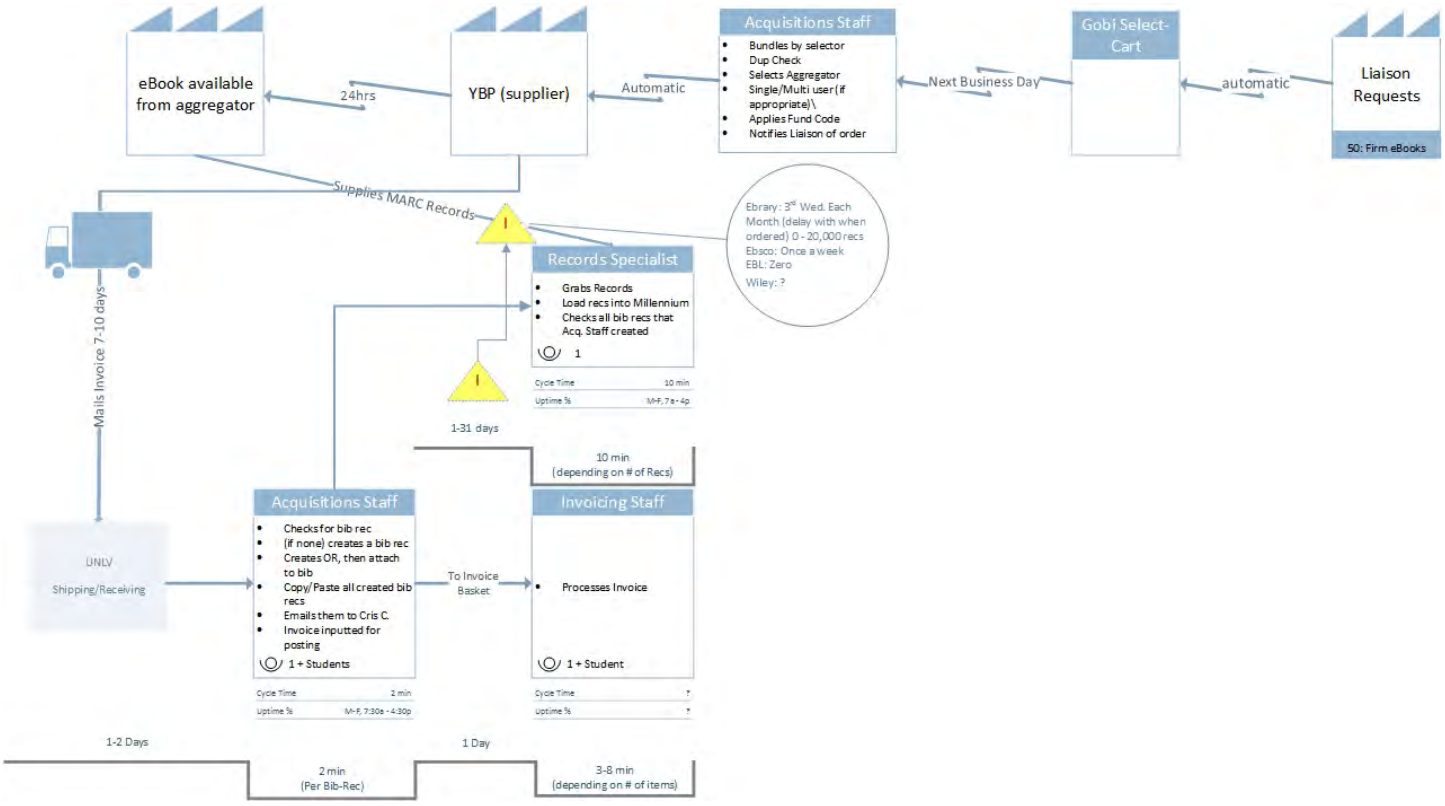
In August 2014, the director of the Collections, Acquisitions, and Discovery division within the University of Nevada, Las Vegas (UNLV) Libraries announced that the division would be reorganized to best use the skills and strengths of existing staff. This division, responsible for acquiring, organizing, maintaining, and making discoverable all needed and relevant materials would be composed of three departments, and the Resource Acquisition, Sharing, and Digital Scholarship department (containing the Resource Acquisition and Sharing Unit) would be one of them. To fulfill the goals of the reorganization, the acquisitions team used Lean principles and tools, specifically the value stream map, to understand and improve its processes.

LEAN DEFINED

Before getting into the design and implementation of the project, let's look at the basic principles of Lean to provide a context for the decision making processes that lead to the reorganization. The principles consist of a cyclical progression of identifying value, mapping the value stream, creating flow, establishing pull, and seeking perfection.

The aim of Lean is to identify and perform tasks that are valuable to the customer. Therefore, Lean methodologies and tools were helpful in evaluating and improving processes to better serve our users.

The starting and ending principles—identifying value and seeking perfection—are the goals of Lean. The middle three—mapping the value stream, creating flow, and establishing pull—are the tools an organization can use to achieve these goals. In Lean, wastes are the non-value adding activities an organization performs



The current Value Stream Map, which guided the UNLV Libraries' ebook acquisition process

that do not benefit the user or customer. These wastes are exemplified by defects, overproduction, waiting, unused staff, transportation, inventory, movement, and extra processing.

THE VALUE STREAM MAP

A value stream map (VSM) is a specific tool in Lean used to evaluate all the processes within a workflow that are currently required to bring a product and/or service from customer request to delivery. According to authors Martin and Osterling, the current value stream map is a "visual storyboard that shows how the work currently gets done."[1] The benefit of mapping the current state is to get "an understanding of how work is *actually* being performed in *today's* environment" as opposed to how a process could or should be accomplished.[2]

What makes the current VSM effective is that it enables staff to gain an understanding of a workflow from a holistic perspective. In other words, the map will show how each process in the creation or delivery of a product affects the speed or movement of that process throughout the workflow.

The goal of undertaking a current VSM is not only to gain an understanding of a workflow, but also to identify where wastes can be eliminated and value-added activities can be introduced. Robert Martichenko makes that point clear in his book, *Everything I Learned about Lean I Learned in First Grade*. By eliminating waste and developing value-added activities, he writes, an organization comes closer to developing an ideal, uninterrupted flow so that lead time (the total time it takes for something to get through an entire process) is reduced and the speed, cost, and quality of product delivery improves.[3]

APPLYING LEAN PRINCIPLES

More than a map, the VSM is a process of creation, and it needs a team to document an accurate picture of the current workflow. At the UNLV Libraries, an ad hoc team was brought together with a good mix of those who knew the process well along with those that could authorize change. This team consisted of the director, two department heads, a manager, and two library technicians who handled the weekly processing of materials.

Another key component to the success of the VSM is to include a value stream manager on the team. This person observes and maps all the information and material flow and records both the lead time and cycle time between each process in each part of the workflow.[4]

Richard Zwiercan, co-author, has Lean certification in process improvement, and

took on the role of value stream manager to document the processes and create the value stream map. John Novak, the other co-author, facilitated meetings and led discussions in the investigation of the current state of ebook acquisition.

The team met weekly to create the VSM. The added benefits of this process were creating teamwork among participants, identifying a need for change, and developing a vision that would be incorporated later in the reorganization of the division.

The accompanying diagram is a current VSM of the UNLV Libraries' ebook acquisitions process circa summer 2014. From the current VSM, we were able to identify wastes related to the downloading and management of MARC records.

LOOKING DEEPLY AT THE PROCESSES

The first realization was the extensive wait time for records to be downloaded. By looking at the upper left of the VSM, it becomes apparent that an ebook was normally available for viewing from the ebook aggregator by the next business day. In other words, the lead time between placing an ebook order and its availability to patrons could be as short as 24 hours. However, the team discovered it could take up to 31 days for an ebook record to appear in the library catalog, meaning that a patron would be unaware that she or he had access to the ebook for up to a month after the library licensed access to it.

The team discovered that this delay was caused by batch loading and processing ebook records only on one day a month. During a weekly VSM meeting, the team uncovered that records were downloaded once a month because downloads of firm and approval ebook orders were performed at the same time as downloads of subscription ebook records. These subscription ebook records were made available to us just once a month.

From a staff standpoint, it was more efficient to download records once a month; the cost to the patron (customer), however, was a potential 31-day delay in ebook availability. If we could discover a way to download these firm and approval ebook records when they were made available, then we would be performing a value-added service to our patrons.

The VSM made other relational issues stand out. Specifically, we learned that the firm and approval ebook workflow was uneven and created an inventory of records, which lead to the creation of hidden errors. Flow is the movement of an item through the entire value stream. In the ebook VSM, the flow stopped once the order was submitted to the vendor. After that, the processes look more like a spaghetti diagram instead of a clear, singular path as the ebook made its way to the user.

For example, once the order was placed and the electronic order confirmation record (EOCR) was brought into the system, the next step was to wait for the invoice to appear, which happened about seven days later. At that time, the acquisitions staff would process the invoice and create a brief bibliographic record in the catalog if a record was not already in the system.

However, creating brief bibliographic records at the invoicing stage created duplicate records, because the manner in which the brief bibliographic record was made did not allow time to import the full record (downloaded up to 31 days later) so it would overlay properly in the catalog. This full record was brought in by the records specialist.

Because the records specialist and acquisitions staff did not know the workflow as a whole, they just performed their tasks as an individual processing step, not knowing how their processing step effected either the previous step or the proceeding step in the process. As Robert Martichenko states in his book, "when employees have no concept of the larger game plan, their decisions may be good for their specific job, role, or department, but run counter to something that is better for the organization as a whole."5 In other words, even though the acquisitions staff and the records specialist were performing their processing step correctly, it was causing waste throughout the entire workflow.

WHAT CHANGED?

In August 2014, the Collections, Acquisitions, and Discovery division was reorganized to reduce identified wastes and improve the quality and speed of our monographic, including ebook, acquisitions process. Part of the reorganization was the creation of a new unit within the division—Resource Acquisition and Sharing. Now, all library technicians involved in the acquisitions process were combined into one unit that reported to one supervisor. Being in one unit allowed staff members to see how their individual roles fit holistically into the entire acquisitions process.

In addition, clear expectations and standards were developed to establish baseline performances in our workflows. To encourage a broadened view, staff members in this unit are being cross-trained on all acquisitions functions so they fully understand how their role affects processes up and down the acquisition line.

Creating a new acquisitions unit also created a unified workflow and stronger coordination of the lifecycle management of print and ebook acquisitions. In the reorganization, all functions of purchasing, from the placement of the order to its invoicing and shelving, are contained in the same unit. This consolidation results in better communication, since those involved meet weekly to solve problematic issues and celebrate successes.

To improve quality, a library technician with a cataloging background was hired to head this unit. Now, with cataloging expertise within the acquisitions unit, catalog errors are being caught and fixed, including ebook catalog records with multiple hyperlinks.

» In addition to realigning staff and the workflow, the entire reorganization effort has been a step towards embracing a Lean culture.

To reduce the time waiting for records and minimize the amount of handling of catalog records, the creation of our ebook records were outsourced to YBP Library Services, now a part of EBSCO Information Services. This partnership does add an additional financial cost to acquisitions operations. But by showing library administrators the value stream map and underscoring how identified wastes affect patron services to patrons, the decision to outsource catalog records was justifiable.

POST REORGANIZATION PROCESSES

In addition to realigning staff and the workflow, the entire reorganization effort has been a step towards embracing a Lean culture. In his book, Robert Martichenko writes, "the Lean enterprise is a problem-solving culture. To become Lean means that all people in the organization are focused on identifying the root causes of problems and eliminating those causes."[6]

The newly formed Resource Acquisition and Sharing unit still meets weekly to address issues or concerns related to the acquisitions process. When we notice errors, we halt the ordering process and call ad hoc meetings to solve the issue. We also use our weekly meetings to share best practices, such as documenting workflows or sharing tricks with our integrated library system, so that our staff can do its job more efficiently with fewer errors. If procedural changes occur, such as modifying technical specifications with a book vendor, we discuss these as a group to make sure that a change in one part of the process does not negatively affect the work of someone else.

The results of our VSM investigation and the resulting reorganization have been a success. By improving our ebook acquisitions process, we created a solid foundation on which to support the full-scale demand driven acquisition (DDA) of ebooks program. Using our VSM of firm ebook ordering, we saw where the overlap of firm ordering and a DDA plan would occur (the importing of records) and where it would differ (invoicing). We have also used the VSM on other workflows, such as print and interlibrary loan procedures, to better understand them and to improve these processes when wastes were identified.

In the future, we will use the VSM process to understand and analyze our gifts process and lost/missing books process. These processes were part of another department before the reorganization. Because the library technician who managed both processes retired, we are using this transition as an opportunity to understand and possibly improve these processes.

REFLECTIONS

The value stream map is an important Lean process tool that helps an organization document and understand the current workflow. The Resource Acquition and Sharing staff of the UNLV Libraries used the VSM in just that way: we documented our ebook acquisitions process to understand and make improvements to it. VSM help our team gain clarity about a complex process, and the creation of a VSM helped us plan, communicate, align priorities, and build consensus around an improved acquisitions process.

Employing the VSM, however, does not automatically create a Lean organizational culture. Jeffrey Liker, in The Toyota Way, documents the Toyota Production System (TPS) upon which Lean principles were derived. In his book, Liker discusses the tools that makes TPS, and by extension Lean, successful. But he also states that "it's the people who bring the system to life: working, communicating, resolving issues, and growing together."[7]

In other words, though the technical services staff has used Lean tools to streamline our acquisitions process, we need a concomitant focus on developing our staff so that our unit can continuously improve our processes and become a learning organization. Through weekly meetings, cross-training, and the documentation of workflows, we are laying the foundation for this culture to take hold.

The VSM of our acquisitions process was an important first step in creating this culture. The improvement in time and quality of records we were able to attain through the mapping process was an easy win that demonstrated to staff the benefits of the VSM and of communication, collaboration, and teamwork. As we continue to analyze other processes through the VSM and focus on the development of staff, we hope to create and maintain an effective and exemplary Resource Acquisitions and Sharing unit. ■

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FOOTNOTES

[1]Martin, Karen and Mike Osterling. *Value Stream Mapping: How to Visualize Work and Align Leadership for Organizational Transformation* (New York: McGraw-Hill, 2014), pg. 52.

[2]Ibid.

[3]Martichenko, Robert O. *Everything I Know About Lean I Learned in First Grade* (Cambridge, MA: Lean Enterprises Inst Inc., 2008) pg. 19.

[4]Rother, Mike and John Shook. *Learning to See: Value Stream Mapping to Add Value and Eliminate MUDA* (Cambridge, MA: Lean Enterprises Inst Inc., 2003), pg 5.

[5]Martichenko, pg. 94.

[6]Martichenko, pg. 51.

[7]Liker, Jeffrey K. The Toyota Way: 14 *Management Principles from the World's Greatest Manufacturer* (New York: McGraw-Hill, 2004), pg. 36.

Bright Future with Library Clouds

» The growth and improved accessibility of the cloud is presenting exciting opportunities for libraries.*

BY SIÂN HARRIS

The "cloud" has been hitting the mainstream headlines lately—complete with stories about naked celebrities and explanations that no real clouds are actually involved. As Tamir Borensztajn, vice president of discovery strategy at EBSCO Information Services, observed, "In the not too distant past, cloud computing was sort-of a mystery to most people. Just in 2012, a [US] survey by Citrix showed that 51 percent of people believed that stormy weather affects 'cloud computing.'"

But the notion of cloud computing is deeply embedded into our lives and has been for some years. Many library systems providers also believe that it offers exciting opportunities for libraries in general, and especially for research libraries.

"Cloud applications have played an important role for research libraries for quite some time. If you look at how research is done, it is in fact conducted in the cloud; premium content (such as scholarly journals) and the software that provides access to this content, is predominantly cloud-based. Moreover, solutions that allow us to measure the impact of scholarly research are also cloud-based. So the cloud is really central to the core mission of research libraries," continued Borensztajn.

"The cloud is part of our personal lives. The ultimate in cloud computing in libraries is OCLC WorldCat, which has been around for generations," noted Jane Burke, vice president of market development at ProQuest. The more recent trend towards discovery services also makes use of the cloud.

Such tools, while already embedded in library processes, may not be immediately obvious to librarians and users as taking place in the cloud. More recently, however, a trend has begun of moving many standard library tasks and processes away from local control into the cloud.

"The cloud is already playing a very large role for research libraries. But now, as people are committed to doing their own transactions in the cloud, librarians really notice it," Burke added. "Increasingly, all management services are moving to the cloud, including linking, circulation, acquisitions, and description. These systems must support complete collection management if they are going to displace the locally deployed ILS."

BENEFITS OF THE CLOUD

Potential benefits to libraries of using cloud-based resources and services are many. They include increased efficiencies, opportunities for collaboration, decreased need for in-house technical expertise, cost savings, and more timely access to the latest IT functionality. The cloud also promises improved workflow, automated software updates, redundancy, and back-ups.

"Libraries have a real need for efficiency in processing operations, notably combining maintenance of print and electronic content in a single set of workflows," said Burke. "The new model systems offer unified workflows for all types of content within a single solution. They also offer the platform to provide qualitative benefits, such as a centralized knowledgebase. A robust knowledgebase is critical to delivering unified collection management."

"Efficiency lies at the heart of the surge in cloud computing," observed Borensz-

» **Librarians are increasing expected to demonstrate their value to the institutions they serve, particularly by demonstrating the return on investment for expenditure on resources. Cloud-computing allows them to reallocate resources from managing technology to developing added-value services that satisfy these demands.**

tajn. "For libraries in particular this means the ability to redirect spending on patron content versus infrastructure, for example, and to spend less staff time on hardware and application updates. Cloud-based applications enjoy full redundancy and fail-over, allowing us to outsource some of the headaches associated with maintaining applications and files on our own computers or servers.

And of course, in a cloud environment, updates are automatically deployed and instantly made available to all users."

Roger Brisson, European strategy director at Ex Libris, agrees. "Cloud-based computing has the potential to be a great enabler, facilitating collaboration across departments, institutions, and disciplines, and relieving staff of routine, repetitive, and technical tasks so that they can concentrate on delivering improved and innovative services to end-users.

"Librarians are increasing expected to demonstrate their value to the institutions they serve, particularly by demonstrating the return on investment for expenditure on resources. Cloud-computing allows them to reallocate resources from managing technology to developing added-value services that satisfy these demands."

Collaboration is another key potential benefit, particularly for research libraries, as Liz Van Halsema, marketing content writer at SirsiDynix, observed. "Cloud technology promotes an increased collaboration among libraries, researchers, and students, both in and outside of a single campus. The cloud breaks down institutional walls to give users access to a wider range of research materials," she said.

"With less time required for hardware maintenance and troubleshooting, libraries can focus their attention on faculty and student needs. In other words, they can focus on being librarians. While system administrators benefit from increased data access and efficient administrative tools, librarians can untether themselves from reference desks and access all of their necessary tools through mobile devices, tablets, and computers," continued Van Halsema. "Users can also access journals, videos, and more from their personal devices, anywhere, any time. Overall, cloud technology promotes openness, flexibility, and stability for its users."

Sarah Hickman Auger, director, library platform and product strategy at Innovative Interfaces added that this collaboration is not limited to researchers. "It is applicable to the libraries themselves—resource sharing, shared services, and benchmarking among cohorts is not new to research libraries, but cloud platforms offer more efficient and innovative ways of enabling those interactions."

Cloud-based products also promise to be easier to maintain and update—changes and configurations can be made once and rolled out across a whole system or several libraries.

"When research libraries look at what they are spending their money on--individual applications, individual servers—and the time spent on maintaining them, they see opportunities to reduce costs," said Burke of ProQuest. "There are opportunities for easier, faster, and cheaper resource sharing, without the need for complicated and expensive overlay systems."

And this collaboration, in turn, promises cost benefits. "It reduces the hard costs, hidden costs, and demands on valuable IT staff because there is no hardware to purchase and maintain, no software to install and upgrade, and less batch loading/overlaying," Burke added. "With unified management of both print and electronic resources in a single solution, there are fewer separate systems to buy and maintain."

Hickman Auger at Innovative Interfaces noted: "The cloud offers more efficient delivery mechanisms and information technology economies, which free research libraries to refocus their dollars and attention on services that directly support research and educational outcomes. From a functional service perspective, the cloud presents a scalable foundation for ubiquitous access and scholarly sharing. Researchers need access to materials and tools from multiple locations and different devices for different activities, and cloud services make it possible to provide multiple points of access without necessarily requiring multiple client or app installations."

DESIGN AND INTEGRATION

The cloud also offers potential integration benefits. "From a technology perspective,

one of the advantages is that it allows the integration of systems; it hides the plumbing. When you move to the cloud, the different components cease to be visible," said Hickman Auger.

Andrew Pace, OCLC's executive director, networked library services, made this observation: "Libraries gain the greatest benefit when they do not just simply move their standalone management systems to being hosted in the cloud, but rather move to multi-tenancy cloud solutions. Two potential areas of benefit for libraries are: these systems are being developed from the ground up using 21st century architecture; and being multi-tenancy enables new avenues of affordable collaboration.

"The fact these systems are developed from the ground up and not built on top of pre-existing systems allows the move to service-oriented architecture used by today's systems," he continued. "This feature allows for agility in development not possible with legacy software systems and opens the door for future innovation and inclusion of services not currently envisioned by libraries."

Pace also explained that multi-tenancy software means that software is updated or patched once for all users. In addition, many types of data previously locked up in standalone systems can be shared—meaning it can be created once, enhanced by many, and stored and backed up once for all. It also promises interoperability with other library systems. Material vendors' systems can be deployed once and then used by all instead of each library configuring, testing, and maintaining these interfaces.

CHALLENGES

Moves to the cloud are not without challenges though, and it is still an early solution for many libraries.

"Moving applications to the cloud may raise concerns about recurring fees, decreased control and fewer customization options," commented Borensztajn of EBSCO. "Concerns may also be raised about safeguarding privacy and patron information. Solutions to these issues will differ by provider, and librarians should make sure they understand the deliverables of each service before adoption."

"To achieve the desired efficiencies requires re-engineering of local processes," observed Burke of ProQuest. "That is difficult for many libraries. Without making changes in workflows, the desired efficiencies may not happen.

These new systems do not—and should not—have all of the detailed functions that the ILS does. "Certain functions designed around print title processing are no longer required," Burke added. "This presents an opportunity for the library staff to let go of low value activities and focus on areas where libraries can provide the greatest value and impact. The challenge in architecting what were previously local apps to the cloud is that you have to build for the cloud from the beginning, otherwise you face an enormous task to re-architect."
And there are challenges, too, with some of the very things that are considered benefits of the cloud. "Local differentiation and lack of control come up over and over again," said Hickman Auger. "While everyone is interested in achieving efficiencies and reducing costs, no institution wants to lose their identity or relinquish their autonomy. From defining custom workflows to accommodate local policies and personnel to scheduling software upgrades, there are tradeoffs to consider when moving to a cloud-based solution."

Hickman Auger continued: "There is a question of cultural acceptance. When the goal of the cloud is to achieve greater efficiencies and reduce costs, the solution often translates into a direct impact on one or more job descriptions and/or budget categories. Library administrators are often concerned with addressing those implications as part of their cloud investigation—the responsibilities and resource allocations that must be carefully managed to ensure acceptance and success. And some environments are more receptive than others."

Brisson of Ex Libris has also observed this challenge. "As with the introduction of any new technology, change needs to be managed. However, most people are familiar with web-based applications, and the younger generation of users are so at home with it that the platform on which applications run is almost a non-issue for them. In fact many users increasingly question why they cannot access all applications and data from anywhere on any device."

He has some tips library administrators should consider when choosing a vendor: "Robust security, scalability, availability, and reliability all need to be addressed when selecting a vendor. These are not brand new factors, however; professional IT teams have carefully managed these same functions from the earliest days of on-premise integrated library systems and through the integration of hosted Internet applications. Cloud-based vendors are simply delivering these services across a different medium with slightly different network architecture." Brisson adds another factor librarians do need to look out for when choosing a new cloud-based solution. "Some systems that are presented as cloud-based, such as SaaS environments, are actually server-based applications being hosted by the vendor. Libraries that adopt this kind of system will lose many of the benefits that SaaS and cloud can bring."

PRIVACY AND SECURITY

A big concern for many libraries thinking about the cloud is security. "In the last 10 years libraries have gotten more concerned about security," said Hickman Auger. "When I started at Innovative Interfaces, it was very much 'we're libraries, not banks.'"

However, she thinks that today there is

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potential for security to be better in the cloud. "You are no longer relying on local IT shops to manage control. Using the cloud allows you to lock down in a more secure way but still provide the interaction required. The risks are manageable and the benefits are so great, and you are not trying to tackle the problem one institution at a time."

Nonetheless, such concerns can limit cloud adoption, as Van Halsema of SirsiDynix observed. "Depending on the type, libraries may have certain restrictions for cloud-based solutions. Government, military, and other special libraries, for example, cannot store certain data outside of the institution. While they may be able to take advantage of certain cloud technologies, they most likely won't be able to fully move to the cloud; at least, not in the traditional sense. On the other hand, public and academic libraries are making huge shifts toward cloud solutions."

"Overall, there is a concern about being reliant on someone else's platform for performance and reliability," agreed Burke. "While, as a supplier, we do not see that as a concern, it is a result of abandoning the locally deployed system. Even though databases and discovery systems have always been centrally hosted, libraries are concerned about trusting their local data and local operations to a cloud-based solution." A way to tackle some of the concerns, she said, is to use commercial data centers. ProQuest's Intota uses Amazon Web services. "They have great privacy and local centers, so European customers' systems, for example, are hosted in Europe, which provides geographic benefits. They also have redundancy such as dual electrical and dual Internet."

So, what is the situation today? "The move to cloud-based systems is still in an early adopter phase when one looks at the number of libraries that have moved enterprise systems to the cloud versus the number still running on standalone systems," noted Pace of OCLC. "However, an increasing number of libraries are moving as many of their services and systems to the cloud as possible. In these cases, it has made more of an impact and difference in how the libraries operate."

Hickman Auger noted that the cloud has been completely implemented for some services and is moving toward that trend for others. "Cloud is by no means experimental, as SaaS has become the preferred option for many institutions. But true cloud solutions for some service types are still immature, so libraries are moving at varying paces. Still, the direction is clear, and we expect research libraries will continue the move toward cloud-based solutions at an increasingly rapid rate," she noted.

"We are in a time of transition," Hickman Auger continued. "Some libraries have made the move, others are considering, others are just looking. Wherever they are today, the trend is going in one direction. What's most exciting is the opportunity to produce better services. It opens up new shared services such as linked data and supporting the semantic Web. The reinvigoration of the library as a place to connect with resources is exciting. The cloud gives the opportunity to support online collaboration in the way that physical libraries give a place to support physical collaboration."

Burke shares Hickman Auger's enthusiasm. "I'm tremendously optimistic about the cloud. I think that research libraries today face very different challenges from the days when they were print warehouses. If you can take these systems and move them out of the way,then you can free up time for other things,' she said.

Brisson of Ex Libris observed: "With library management, resource discovery, and delivery systems hosted on the institutional network, librarians' and users' ability to collaborate is limited by the reach of the institution's network. Moving data and applications to the cloud facilitates sharing and collaboration; that is, after all, what the Internet was designed for," she points out.

"Research libraries are uniquely placed to develop strategic services and partnerships that reach across their entire institution and can help to trigger a shift in the internal investment focus that will enhance library funding, adds Brisson. "These services increasingly involve, for example, support for grant applications and grant compliance, more open data access and management, and longer-term availability and discoverability of research data and resources. Cloud-based technologies enable institutions to integrate these services into their core operations in ways that are much simpler than what could be accomplished previously."

Van Halsema of SirsiDynix neatly summed up why research libraries might want to consider a cloud approach: "Cloud-based systems make it easier for researchers and students to recognize the relevance of research libraries."

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Strategic Workflows for a New Library Culture

» Academic libraries must learn to adapt to a new participatory, connected culture.

BY CONNY LIEGL

The increased use of technology affects all services across all library departments. Digitization leads to more complex workflows and shifted responsibilities; therefore, business processes, tasks and services must be flexible and scale to the ever-changing information environment.

By incorporating best practices and implementing the following strategies, tools, and processes, libraries can excel in this exciting time of change.

ADAPTING TO CHANGE

Technology is changing how libraries communicate. Correspondence, both on– and off-line is faster and more flexible and happens simultaneously across multiple channels. Students expect to reach librarians via chat or social media, looking for immediate replies to their requests. This participatory culture has changed scholarly communication drastically.

In his article, *4 Ways Academic Libraries Are Adapting for the Future,* Bradley Lukanic writes, "[Universities] around the country are evolving their libraries and intellectual centers into catalysts for discovery, learning, collaboration, and scholarly breakthroughs."[1]

As academic libraries evolve into cross-disciplinary hubs, centers of academic collaboration, and networks of interrelated idea exchange among faculty, staff, and students, their organizational processes have to adapt to new communication practices.

REVISING EXISTING WORKFLOWS

Outdated, complex processes and disparate systems often lead to low productivity and high costs. The increased digitization of services and a constant interconnectivity of library users tasks library management with reassessing existing workflows and processes.

The goal of this assessment, then, is to identify developing needs and recognize emerging trends that influence all library departments, to simplify overcomplicated workflows, and to adjust processes that reflect future trends and developments.

A comprehensive approach to improve practices includes determining outcomes that would add value to the library's overall objectives. With this knowledge, outdated processes can be amended and new procedures can be introduced to fulfill the identified requirements.

To meet the needs of the digital age "21st century academic libraries and librarians have to revamp accordingly with new skills and competencies to equip themselves to assume new roles," writes Prateek Jain in his article for the *European Journal of Academic Research*.[2] New processes have to reflect these adjustments, offering enough flexibility to adapt and scale to the environment.

QUESTIONING EXISTING PROCESSES

While project management tools can be complicated and expensive, simple techniques can help to identify flawed processes quickly. Asking the "5 Whys," is often used as a way to identify redundant workflows. It is an iterative problem-finding method and an easy way to diagnose problems in communication.

Let's explore an example from a library web team:

Problem: Two pages on the website explain the same topic, but one has outdated information.

1. **Why?** – Web editor Sam only updated one of the two pages.
2. **Why?** – Sam was not aware that a second page exists online.
3. **Why?** – The second page was created by a different editor in a different department.
4. **Why?** – Web editor Lisa was not aware of the existence of two pages either.
5. **Why?** – Web editors do not share updates about ongoing work with each other (**Root Problem**)

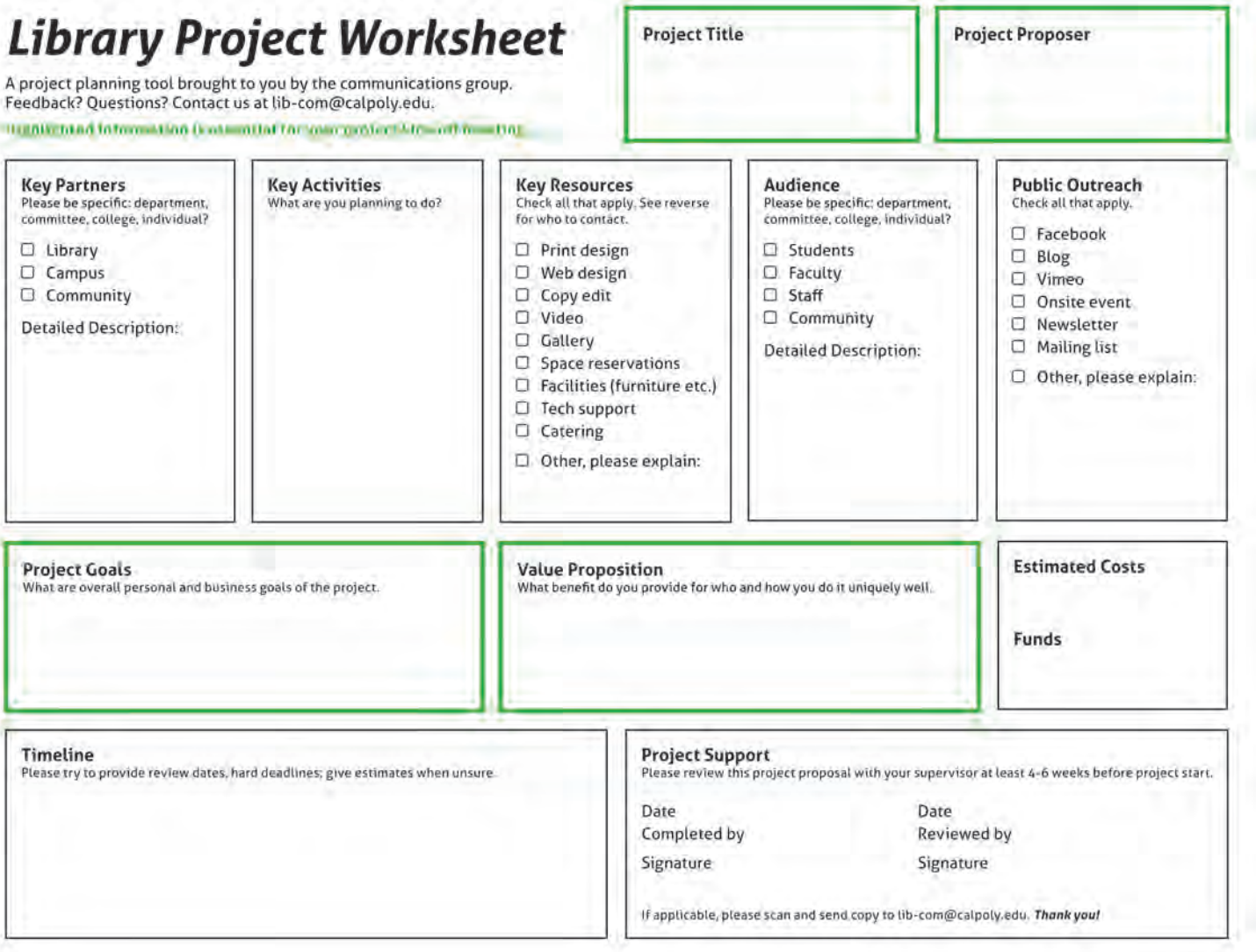
This short sequence of questions quickly revealed a root problem that exposed a flawed production process. Management can address the issue by recommending a regular exchange of updates among all web editors, either in-person or virtually. This reorganization will eliminate duplication of efforts, saving valuable time and resources for all team members.

The 5 Whys can be part of the "5W1H", another simple and practical method for general questioning and probing. Extending the thinking to include not only why, but also what, who, when, where and how will help to justify many important business decisions and challenge existing concepts and workflows.

Why determines objectives, deliverables or goals. **What** describes everything that is or will be involved in establishing and implementing a strategy. **Who** identifies all involved people: team members, stakeholders, target audience, etc. **When** outlines dates, times, deadlines or specific situations. **Where** points out actual locations, or relates to a direction the project or strategy will pursue. Finally, **How** will determine a method to achieve success. All of these questions can be asked multiple times to reveal more details about each step.

Mapped to our previous problem statement, we can explore the root problem deeper:

- **Why** don't web editors share updates with each other? **Answer:** Lisa and Sam work in different departments; they usually don't meet.
- **What** type of meeting would be effective for them? **Answer:** Informal, face-to-face meetings with a laptop to look at the



website together.

- **Who** should initiate meetings? **Answer:** The department supervisors will make the introductions.
- **When** should Lisa and Sam meet, i.e. how often? **Answer:** A bi-monthly meeting for 45-60 minutes seems appropriate for a direct exchange.
- **Where** can they meet? **Answer:** Informal meeting spaces, at individual desks, or in a small conference room.
- **How** will Lisa and Sam avoid future duplicated or outdated information on web pages? **Answer:** By meeting regularly, the web editors will keep each other up-to-date about recent developments, and check-in before adding new pages or content that could concern both department pages.

THE LIBRARY PROJECT WORKSHEET

The previous example demonstrates one significant challenge project managers often face: overcoming unclear communication. Undefined ownership leads to duplicated efforts and redundancies, an overlap of duties, and ambiguous expectations of deliverables. These issues reduce team productivity and delay finalizing the project and delivering results.

The Business Model Canvas, introduced in 2008 by Alexander Osterwalder, is known as an invaluable tool for entrepreneurs.[3] This simple visual chart is based on nine fundamental building blocks that describe the infrastructure, customers, finances, values, and goals of a particular company, and addresses the 5W1H questions. It shows potential trade-offs and captures all essential activities associated with it.

This model was presented to the cross-departmental communications team by Robert E. Kennedy Library's business librarian. The team explored approaches to modifying this strategic management tool for library purposes together.

The result was a customized library version that helps to optimize and improve workflows. The Library Project Worksheet (**see Figure 1**) visualizes all milestones of a given project with an emphasis on the focus, flexibility, and transparency of all processes.[4]

Figure 1: The Library Project Worksheet

Before an initial meeting of the team members and supervisors to discuss new projects, project initiators are tasked to fill out four blocks in the worksheet: project name, proposer, goals, and value proposition. This information motivates the creator to think thoroughly about objectives and potential alignment with institutional vision and goals, especially since the unique benefits of the project have to be specified to the group.

The proposals are distributed to those who will attend before the first meeting so all partners can understand the proposed projects. Together, the group can then continue to define more details and identify other collaborators: key partners,

Figure 2: New York University defines a "Secret Sauce" culture code for members of HashtagNYU

key activities, key resources, anticipated audience, and potential public outreach. Estimated costs, funding sources, and a projected timeline will determine the feasibility of requested resources and partners, while outlining project milestones and deliverables.

To ensure managerial support, the project initiator should review the proposal with his or her supervisor who will approve the process about four to six weeks before the project starts.

Mapping projects in this visually clear and pragmatic way helps to achieve a shared understanding of project needs and goals, identify stakeholders and collaborators, and outline the projects' budget requirements. It establishes a clear owner, describes tasks and responsibilities of team members, and eliminates duplicated efforts.

STRATEGIC PLANNING

Another holistic method to revise outdated practices involves developing a strategic plan that outlines trends and developments that may influence the organization's culture and methodology in the future. Synthesized information presents a quick overview of upcoming challenges in a changing environment. According to Lukanic, "Libraries must now foster a positive ecology of relationships, connectivity settings, and tools layered together to foster discovery and learning within the context of a dynamic academic framework."[5]

Strategic plans typically include the library's mission, vision, objectives, and priorities and outline academic and program requirements that help to make informed decisions in a range of five to ten years. Detailed action plans and strategies for assessment and evaluation ensure that goals can be tracked and achieved.

Facilitating a library-wide, team-based strategic plan ensures that all members are involved as partners in the process and share a common vision and goals moving forward; however, with rapid technological progression, it can be a challenge to envision future developments today.

To accelerate the critical thinking process, Robert E. Kennedy Library's executives facilitated a visit with scenario planning expert and futurist Bryan Alexander. "Scenarios allow campus planners to imagine themselves in a future environment, based on their narrative and discursive structure...Understanding a scenario engages a reader's creativity, either in formal role-playing or in the imaginative act of envisioning one's campus under different conditions," Alexander explained.[6]

Different interactive, user-centered strategic planning events involved various stakeholders across campus, including students, faculty, and community members. All of these groups help to provide unique perspectives and demands that will influence the introduction of new services and the transformation of established routines.[7]

Transparency of the strategic planning progress—such as sharing stories, videos, and timelines on public library websites or blogs and publishing the final strategic plan online—encourages users to become familiar with the organizational processes and keeps them up-to-date about developments, decreasing the need for additional public updates. Recent examples include *"How to be a Futurist,"*[8] Robert E. Kennedy Library's interview with Bryan Alexander that was shared on social media, or New York University Division of Libraries' Strategic Plan 2013-2017, *"Mapping the Library for the Global Network University"*[9] that can be read online.

COMMUNICATION TOOLS

A number of communication methods frequently used in other institutions and corporations apply to libraries as well.

Distributed publications in the web and social media. Distributed publication models have become the new norm. Content management systems, such as WordPress and Drupal, provide an easy way to maintain and update web content. Intuitive user interfaces enable non-technical personnel

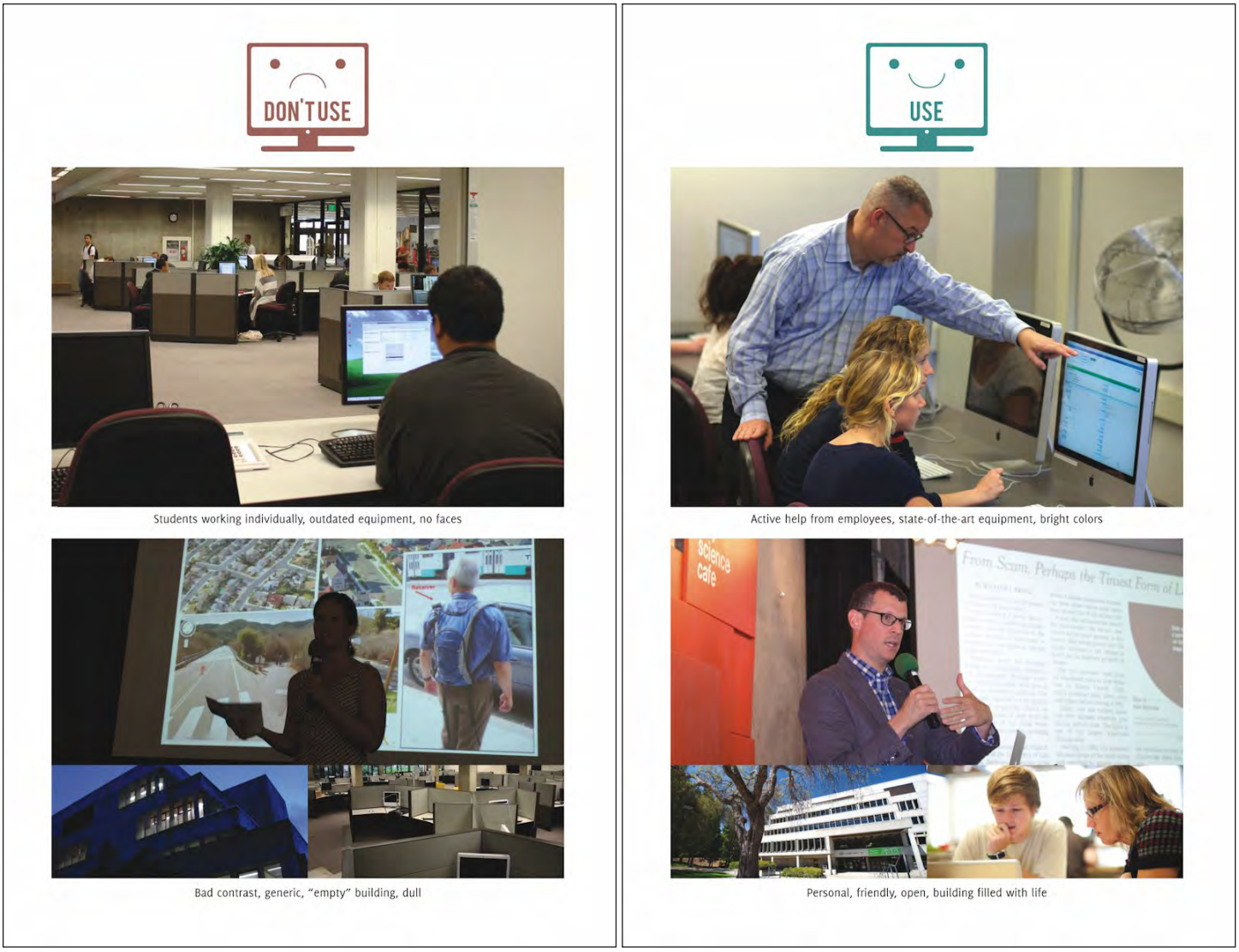


Figure 3: Brand identities reflect the connected mindset of the library and its visitors who constantly communicate digitally.

to manage content without IT knowledge. Social media presents an informal way to rapidly share updates and information directly with users.

Through this fast, practically instant exchange of information and novel way of outreach, library staff and faculty turn into promoters. Library services have to be advertised to users to attract visitors and distinguish academic services from other available services. As Ejenyi Anyangwe wrote in her blog, "[We] must think from the user's point of view, understand their needs, create services which are meaningful to them, and be effective in promoting them."[10]

Nonetheless, the model of distributed publishing can be challenging for all team members. If individual responsibilities are unclear, managers must explicitly facilitate group discussions, provide clear directions and focus on driving projects forward.[11]

The academic library as a brand. Universities and libraries become brands with their own guidelines and codes. New York University defines a "Secret Sauce" culture code for members of HashtagNYU, the university's social media team (**see Figure 2**).[12]

When promoting the library's brand, employees evolve into service ambassadors. Consistency in messaging, a shared vision, and user-focused communication are crucial. The goal is to create an integrated brand identity that connects all promotional material, including the library's website, digital signage, social media, photography, and video.

As shown in **Figure 3**, brand identities reflect the connected mindset of the library and its visitors who constantly communicate digitally, have an increased need for customized user support, and demand instant online access to research resources.

Communication guides. To ensure all employees adapt these branding principles, think customer-focused, and act as a team with a common vocabulary; it is useful to introduce and share public manuals or guidelines.

The Robert E. Kennedy Library has developed two of these documents. The first is a communications guide, which covers social media standards and effective communication with the media and reporters. The second is a web communications guide, which reviews best practices for "good web content" and demonstrates examples for publishing through the content management system. These quick references outline standards for communications, social media, and the web in support of new distributed contribution models (**see Figure 4**).[13]

EFFECTIVE TEAM ORGANIZATION

The improvement of existing processes and implementation of proven methods requires commitment from the administration, staff, and faculty alike. In a new era of interconnectivity, distribution of responsibilities and promoting group accomplish-

Figure 4: Examples from the Robert E. Kennedy Library's web communication guide.

ments are crucial. An open interaction allows all project members to express objectives, thoughts, questions, or concerns that might drive strategic development and clarify tasks and processes.

Campus practices and processes are often grown organically and develop slowly over time. As a result, they often struggle to reflect a modern approach to cross-disciplinary communication. Instead, they can foster academic silos among institutions.

Collaborations with partners around campus should be established, assessed, and maintained to break down academic silos. As Jeffrey Shank and Susan Bell wrote in their article for *Reference & User Services Quarterly,* "To fulfill the evolving educational mission of the academic library, blended librarians must partner with faculty and staff to embed themselves and their instruction, as well as services, in courses and the campus curriculum."[14]

Good communication among interdisciplinary and cross-institutional teams will increase productivity and encourage dynamic changes for ongoing improvement. To quote Bradley Lukanic, "Universities will be most successful in leveraging their libraries if they not only solve for current needs but ensure their facilities can respond to future changes in pedagogy and technology."[15]

THE FUTURE BEGINS TODAY

As library services evolve with growing technological needs, planning efforts have to align with the overall campus strategies and business needs. Flexibility is key as campus leadership explores new ways of using library space to foster dynamic research and cross-disciplinary collaboration.

Libraries can facilitate developments by employing new strategic processes and communication strategies today. Communicating a strong, common vision with the help of essential communication tools will empower libraries to successfully adapt and perform agile process management in a rapidly changing information environment. ■

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Liegl specializes in user-centered design and transforming ideas into engaging and powerful tools to make people happier, more productive, and less frustrated. She holds a Master of Arts in Information Science from Saarland University, Saarbrucken, Germany.

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FOOTNOTES

[1] Lukanic, B. (2014). *4 Ways Academic Libraries Are Adapting For The Future.* Co.EXIST, Fast Company & Inc, October 24, 2014. Retrieved February 20, 2015 from http://www.fastcoexist.com/3036939/4-ways-academic-libraries-are-adapting-for-the-future.

[2] Jain, P. (2013). *A paradigm shift in the 21st century academic libraries and librarians: prospectus and opportunities.* European Journal of Academic Research, 1 (3), 133-147.

[3] Watch a short introduction: *"Business Model Canvas Explained"* https://www.youtube.com/watch?v=QoAOzMTLP5s

[4] Robert E. Kennedy Library. (2014). *Library Project Worksheet*. The tool has been licensed with Creative Commons (CC:BY), and can be downloaded here: http://bit.ly/cplib-project.

[5] Lukanic, B. (2014).

[6] Alexander, B. (2014). *Higher Education in 2024: Glimpsing the Future.* EDUCAUSE Review, vol. 49, no. 5 (September/October 2014). Retrieved February 25, 2015 from http://www.educause.edu/ero/article/higher-education-2024-glimpsing-future.

[7] To read more, see Fogg, C. (2010). *Team-based Strategic Planning: A Complete Guide to Structuring, Facilitating, and Implementing the Process,* Wakefield, RI. CreateSpace Independent Publishing Platform. Retrieved February 15, 2015 from https://library.nyu.edu/about/Strategic_Plan.pdf.

[8] Robert E. Kennedy Library. (2015). *How to Be a Futurist*. Interview with Bryan Alexander. Retrieved February 26, 2015 from http://bit.ly/lib-futurist.

[9] NYU Division of Libraries. (2013). *Strategic Plan 2013–2017 Mapping the Library for the Global Network University*. New York, NY. Retrieved February 20, 2015 from https://library.nyu.edu/about/Strategic_Plan.pdf.

[10] Anyangwe, E. (2012). *Professional development advice for academic librarians.* The Guardian, Higher Education Network, Blog Post, March 22, 2012. Retrieved February 19, 2015 from http://www.theguardian.com/higher-education-network/blog/2012/mar/22/professional-development-for-academic-librarians.

[11] To read more, see Maxwell, J.C. (2001). *The 17 Indisputable Laws of Teamwork: Embrace Them and Empower Your Team.* Nashville, TN: Thomas Nelson, Inc.

[12] Osse, C., Jensen, N. (2014). *Essential Strategies for a Student-Staffed Social Team.* Presentation at HighEdWeb, Portland, OR, October 20, 2014. Presentation retrieved February 16, 2015 from http://hashtagnyu.com/HEWEB14.

[13] Both guides are published under a Creative Commons (CC:BY) license, and can be downloaded at http://bit.ly/cplib-comm *(Communications Guide),* and http://bit.ly/cplib-webcomm *(Web Communications Guide),* respectively.

[14] Shank, J., Bell, S. (2011). *Blended Librarianship. [Re]Envisioning the Role of Librarian as Educator in the Digital Information Age.* Reference & User Services Quarterly, 51 (2), Winter 2011, 105-110.

[15] Lukanic, B. (2014).

Connecting What Students Use to Library Research

» By starting with Buzzfeed and Facebook in InfoLit sessions, students can quickly grasp the loopholes and make the transition to more academic resources.*

BY JOE HARDENBROOK

At Carroll University in Waukesha, WI, two sections of an introductory 100-level psychology course are given a specific assignment: work in groups to gather five scholarly, empirical research articles on a topic. Each group is then asked to write a review of the articles used in their findings and post them on a course website.

When I'm teaching information literacy for a class such as this one, I try to do the right "stuff:" active learning, hands-on work, positive attitude, etc...I also make sure I'm prepped for class at least a day before.

But yesterday, I decided to throw my lesson plan in the garbage.

The class's professor sent me this email late in the day: "Students have been gathering sources from Facebook and blogs and not evaluating what they find." This realization is probably not a big shock to most librarians, but the professor was concerned.

THE NEW LESSON PLAN

I can talk until I'm blue in the face about databases, but why go right to the databases? Most of our students (at this point) don't see the connection between everyday life and academic research. Instead, I decided to start where students are most comfortable and then transition them to more authoritative sources.

I combed Facebook, Buzzfeed, and the Huffington Post to find articles that had a psychological theme—something students might come across while using social media. I jokingly tweeted:

"I wish my Facebook friends would reshare more 'dumb' posts because I'm looking for #infolit examples for a pysch class I'm doing tomorrow."

Luckily, awesome Twitter library folks chimed in with some examples:

@SJLeeman: "This one was going around recently:"

http://www.anh-usa.org/half-of-all-children-will-be-autistic-by-2025.

And...

@dupuisj: "From a slightly different angle:"

http://www.theguardian.com/environment/

Work of prominent climate change denier was funded by energy industry.

Now I had a plan!

THE ASSIGNMENT

After separating the class into three groups, I gave each one a popular topic relating to psychology, which I found through a search of the following three sources:

- *Huffington Post article:* Hungry? Maybe Don't Go Shopping: Academic research shows that people who are hungry purchase both food and non-food items at a higher rate than people who are not hungry.
- *Buzzfeed article:* Watch Six Pairs Stare into Each Other's Eyes as Love Experiment (also had a cute video, and I showed a portion of it in class).
- *A post that was popular on Facebook:* Half of All Children Will Be Autistic By 2015: Research by an MIT scientist.

» Students reported that the headline sounded shocking. They also said they were likely to trust an "expert" at an academic institution. Students found the original researcher's name and Googled that person only to find that she is controversial in the scientific community and not trained in the biological/medical field. Students also questioned if the organization that had the post about autism might be biased.

ACTIVITY

After sharing the links with the class, I asked each group to read the articles to become acquainted with the topic. Then I told them to see if they could locate the original research, starting with Google—something they are all familiar with. I stopped each group during their searches to ask them questions and point them in the right direction. We concluded by having each group share what they found with the rest of the class (which lead to interesting teaching points).

For the Huffington Post article:

Students found the names of the original researchers mentioned, but the article did not have the title of the original study or a link to it. An initial Google search didn't find anything useful. (This lack of concrete information was a great segue into using library databases.)

For the Buzzfeed article:

Students found that the article mentioned a republication of the academic study in *The New York Times*. The NYT article had the original researcher's name, plus a link to the scholarly article. (Clicking on the link to the article showed the students that access to it was provided by our library.)

For the Facebook article:

Students reported that the headline sounded shocking. They also said they were likely to trust an "expert" at an academic institution. Students found the original researcher's name and Googled that person only to find that she is controversial in the scientific community and not trained in the biological/medical field. Students also questioned if the organization that had the post about autism might be biased. They noticed other things on the website, including that vaccines may be "ineffective" or unsafe. (This was the perfect time for me to introduce a method often used by academics to evaluate Web sites: the "CRAAP" test—currency, relevance, authority, accuracy, and point of view).

THE TAKEAWAYS

As a result of their exploration, students came away with important points about research.

- Every day, we read, see, or hear about things that involve academic research—on almost any topic imaginable. We just have to do a little digging to get to that research.
- Google and the general web are great as starting points, but they shouldn't be the ending point.
- The blog posts and websites we may find won't be considered "academic" by our professors. We're going to need to track down the original psychological studies.
- We need to carefully evaluate the information we find on social media sites using the CRAAP test.
- The library has databases to locate the original studies (such as PsycINFO). They can be searched in many ways, including by keyword, by article title, or by a particular author…if we have that bit of information. (In addition, only a couple of students in each section reported using Google Scholar before, so I made sure to mention that source as an alternative tool to keep in their research "wheelhouse.")
- We were able to look at the original empirical research article from the Buzzfeed example and were able to identify the basic set-up such as the abstract, methods, results, and references. This outcome was important because this is the type of scholarly article that students need to find for their projects.

From this point, I transitioned to the library's resources with a quick demo of PsycINFO and some of the other psychological resources. I showed the combined class how to formulate a search strategy using an active learning whiteboard activity where student take a psychology research question (such as "if you grocery shop while hungry, do you purchase more food?") and identify the keywords and brainstorm synonyms.

Once this instruction was completed, the students still had plenty of time to do searching on PsycINFO and other relevant sources to gather citations for their final class projects.

And I began searching media sites for relevant examples that I could use in my next InfoLit session. ■

ABOUT THE AUTHOR: Joe Hardenbrook is reference and instruction librarian at Carroll University, Waukesha, WI. He manages reference and instructional services, teaches information literacy sessions, and serves as a liaison to the education, psychology, and diversity programs. He also blogs regularly @mrlibrarydude.

FURTHER READING:

Heidi Blackbrun, Cynthia Dudenhoff, & Kate Wise. "Oh, Snap! Using Popular Culture to Reach Undergraduates in Library Instruction," Criss Library Faculty Proceedings & Presentations, January 2013.

Jean Cook, "Wake Me Up Before You Go-Go: Using Unlikely Examples to Engage Students in Information Literacy," LOEX Quarterly, Vol: 39, Issue 4, 2013.

Nedra Peterson, "It Come from Hollywood: Using Popular Media to Enhance Information Literacy Instruction," C&RL News, February 2010.

Advances Blur the Definition of Library Point of Sale Systems

» Enhancements can change the way a library can benefit from an enterprise-wide POS system.

BY BRUCE H. LODE

Point of sale (POS) solutions typically have been defined as specialty, hospitality, or service systems. In the past, when libraries or other non-profit organizations searched for POS solutions, they first had to decide whether their application was specialty, hospitality, or service based.

Specialty POS systems are designed for the sale and tracking of hard and soft goods such as merchandise, clothing, and accessories. In hospitality application, POS systems are designed for the sale of food and beverages. Service systems are frequently used for anything that falls in between.

In other words, the lines were seldom crossed between the different types of POS systems. So if an organization implemented one type of POS system for use in multiple applications, it usually was faced with significant compromises.

Today, POS technology continues to advance. For libraries, these advancements fall into three categories: equipment or hardware, software or application, and configuration options for the implementation of the equipment and software.

PROVIDING FOR GROWING NEEDS

First, let's look at equipment and security advancements. Recent advancements from hardware manufacturers, such as the HP ElitePad with Retail Case, allow for mobility on standard Wi-Fi that supports the latest in secure POS. More importantly, these devices do or will soon support all the major payment processing technologies, including Near Field Communications (NFC) and Europay, MasterCard, and Visa (EMV) standards. EMV will be required for the upcoming liability shift in October of this year (for more information on the shift, see the accompanying **box**).

To meet growing needs, tablets, including the HP ElitePad, use full touch screens with any combination of peripherals such as 2D scanners, digital payment collection, magnetic swipe readers, digital signature capture, and even email delivery of customer receipts. All of this capability is available today right in the palm of your hand.

While mobile registers are the newest incarnation of POS, the world has not stood still in fixed stations either. New offerings include low-cost, secure devices that have small price tags and small footprints such as the new HP TX1 and RP2 all-in-ones, which are fully integrated computers with touch screens that are easy to use and intuitive for any library staff member or volunteer.

It is clear that more options are being provided by leading manufacturers at more affordable prices than ever before. These devices will help all libraries address current and future security needs to protect their customers, while also providing operational benefits.

MANAGING MULTIPLE APPLICATIONS

In the past, and even in some cases today, a vendor's software offering to the library industry addressed one area of need, while another vendor's offering addressed a different area of need. For example, libraries may have implemented and currently use separate applications for:

- Collecting fees,
- Selling merchandise, books, and/or supplies with inventory management,
- Managing events or classes and tracking session capacities and attendees,
- Selling food and beverages, and
- Development and fundraising.

All of these applications, though effective in their own realms, create inefficiencies for the library as a whole. Among these inefficiencies are varying levels of payment card industry (PCI) compliance (or non-compliance), increased costs for new versions and support, multiple points of contact for support, increased amount of time needed for cross training, and a lack of consistent or consolidated financial reporting.

ALL-IN-ONE OPTIONS

Today, with the availability of applications like The Assistant Manager™ (TAM), all-in-one options are available and can be evaluated for how they incorporate the multiple systems being used currently in a library. Centralizing operations on a single application provides benefits not achievable any other way. The benefits include:

- Minimal cross training among the library's business units,
- Detailed, consistent, and consolidated reporting,
- Low cost of ownership from a single developer or provider, and
- Lower amount of IT resources needed to support one solution versus many.
- Not only is an all-in-one application beneficial, the right all-in-one solution can support the following business units within a library:
- Fundraising, by promoting and tracking donations and easily communicate with benefactors.
- Specialty POS, by accounting for fee collections, book sales, merchandise, and supply sales.
- Hospitality POS, by track food and beverage sales.
- Class and event management, by scheduling, promoting, and selling capacity-based events.
- Customer tracking, by accumulating customer historical activity and managing relationships.
- Integrated support systems, by setting up library-wide reward programs, tracking employee charges, and processing gift cards.
- Web sales, by providing and monitoring a fully integrated e-commerce site.

With applications used in a typical modular licensing scheme, a library can implement all or any combination of these features. From back of the house to customer facing areas and even on the web, an enterprise-wide all-in-one application can offer many benefits that will improve efficiencies as well as the customer's experience.

It's safe to say that advancements in application development toward enterprise-wide offerings make the traditional definition of POS systems a thing of the past.

THE CLOUD'S THE LIMIT

No matter what POS devices or applications are selected for a library, one more configuration option should be considered. In the past, most applications were configured on site. Today, cloud implementation, or hosted, configurations are also available.

Which configuration is best for your library? The answer depends on the following factors:

- The size of the configuration, to include the number of locations, users, and registers.
- The computer and network infrastructure that is available.
- The IT staff and IT resources that are available.
- The amount of capital available to invest in a POS upgrade.

Typically, an on-premise configuration involves having the computer infrastructure in place or purchased, including the actual computers as well as the servers, networks, and firewalls. With a cloud-hosted solution, the server is based in the cloud so less equipment is required. Computers and networks are still needed, but less IT infrastructure is required overall. As a result, less IT staffing and expertise is needed as well.

A cloud-hosted configuration reduces initial licensing costs, and the on-going costs are paid monthly. Other start-up costs must be considered as well such as redundant Internet providers and hardware virtual private networks (VPNs). These costs are not required in an on-premise or local configuration. But they must be in place when in the cloud to ensure that the mission critical POS application is not down when it is needed.

The cloud will never totally eliminate on-premise configurations, but it is a viable POS option to be considered by today's libraries.

For additional information on the pending liability shift, see http://usa.visa.com/merchants/grow-your-business/payment-technologies/credit-card-chip/index.jsp?utm_source=google&utm_medium=paidsearch&utm_campaign=security.

CHANGE IS GOOD

Advancements in technology are continual and a part of every facet of our lives, both at home and in the workplace. The advances in POS applications are making benefits more widely available to non-profits of every size, and that is great news for libraries! ■

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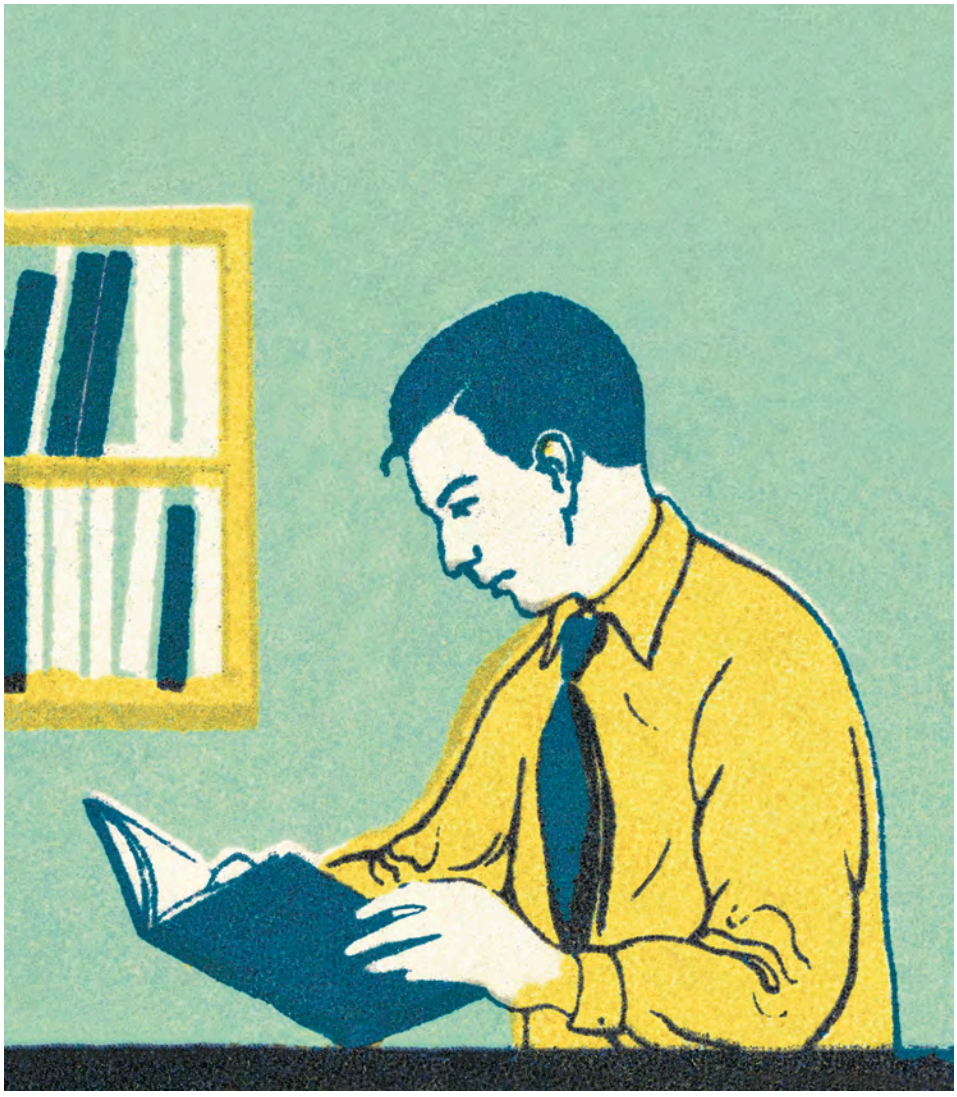
Data Scientist Training for Librarians: A Course and a Community

» Through interaction with others in a targeted course, librarians gain insights into the realm of research.*

BY JEREMY GUILLETTE AND JAMES DAMON



A course called Data Scientist Training for Librarians (DST4L), held at Harvard University for librarians in the Boston area, led to a community of librarians who work on data-driven projects.

During the first DST4L offering in the spring of 2013, students were divided into teams, and each team took on a data-driven project that they worked on for the duration of the course. A series of instructors introduced tools such as Python, Git, OpenRefine, R, and Tableau during weekday lessons, and the students put them to use on weekends when they met to work on projects. Over the course of the training, the students went from data extraction and cleanup to forging links among data items by application program interface (API) queries and, finally, to creating visualizations and presenting a coherent narrative for a data-driven story.

The second offering of DST4L, held in the fall of 2013, started with a two-day boot camp for a new cohort of data savvy librarians in training taught by Software Carpentry. Subsequently, students met for three hours each Tuesday morning for 14 weeks. In addition to covering Python, Git, and OpenRefine, the course covered some of the finer points of Excel and introduced Gephi, a network analysis and visualization tool. Students then developed their own projects and collaborated for a two-day hackathon. The course concluded with presentations and a panel discussion led by participants.

PROJECT SPECIFICS

One project that came out of DST4L is the construction of a Russian gazetteer, a geographical dictionary used in conjunction with a map or atlas at Harvard's Fung Library. (In this project, author Jeremy Guillette worked with Hugh Truslow, Fung Head Librarian and a DST4L alumnus).

The two took a document that had already been digitized by the Hathi Trust and put it through an optical character recognition (OCR) program to extract the text with formatting intact. With the text and formatting in a machine-readable format, the duo

» The most difficult part of the project—and the part where the DST4L tools, skills, and ways of thinking have been most helpful—is in reconciling older place names with current ones. The text uses archaic spellings, as well as letters that went out of use when Russian spelling was reformed in the early 1900s. By creating simple rules in Python to update those instances and applying them to the place names before asking an API for their locations, the pair could automatically replace them with modern equivalents.

was able to extract particular parts of the text—in this case, the names, types, and administrative units of places mentioned in the text. They then sent the names to a geolocation API, specifying the appropriate areas based on their knowledge of the administrative sites.

However, the late-1700s text Guillette and Truslow were examining used letters and spellings that are not part of modern Russian, meaning that some transformations had to be applied before the names could be used. Fortunately, the project is structured so that the tools to locate places in this text can be applied to other Russian texts and, with a bit of modification, to texts and location data in any language.

The most difficult part of the project—and the part where the DST4L tools, skills, and ways of thinking have been most helpful—is in reconciling older place names with current ones. The text uses archaic spellings, as well as letters that went out of use when Russian spelling was reformed in the early 1900s. By creating simple rules in Python to update those instances and applying them to the place names before asking an API for their locations, the pair could automatically replace them with modern equivalents.

Sometimes, the API didn't return results for a place name, or it returned multiple possible matches in an area (meaning the team didn't find an exact match). By consistently applying increasingly sophisticated transformations to the text, Guillette and Truslow were able to automate as much of the process as possible before doing research by hand. When every place mentioned in the text is georeferenced, they will put the results into an existing interface at the Center for Geographic Analysis so that others can build them into their own workflows.

WHY TAKE SCIENCE FOR A SPIN?

One of the great things about DST4L is its hands-on approach to data-driven projects. Even for librarians who don't intend to work directly on these kinds of projects, the class engenders a different mindset. After working directly with messy data or any of the dozens of other headaches that can plague researchers, the participants start to think about things a bit differently. They see the benefits of opening up access to the library's data, potential connections between datasets, and perhaps an idea of what everyone's talking about when they say "big data."

TAKEAWAYS

The specific lessons, tools, and projects of DST4L provide participants with valuable skills and knowledge. However, DST4L's greatest benefit may be the sense of continued growth and development in the library profession.

We didn't become librarians because we lack the creativity, passion, talent, or ambition to pursue our own interests. We didn't replace our goals with those of our patrons. The success of a service mission is measured by the quality of the service provided. Ultimately, the quality of a librarian's work is determined by his or her ability to understand and manage connections.

At face value, DST4L is a technology course that teaches librarians to script, extract, wrangle, and visualize. At its heart, it reminds librarians to push themselves, each other, and the profession. In searching for relationships between sets of data and building ways to visualize them, we can make connections. Linked data becomes an open door. The potential of the Web becomes that much more visible.

In class, we even got to know our librarian neighbors. There is certainly no substitute for the colleagues you meet and the community you create in the pursuit of knowledge. ■

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