4-15-2015

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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 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 for 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 thirty days 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 30-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 30 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.

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. 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.