Navigating the Flow of Value Streams to the Seas of Collection Management, Acquisitions, and Preservation

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Navigating the Flow of Value Streams to the Seas of Collection Management, Acquisitions, and Preservation

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Abstract

Our process of repairing damaged items had no clear ownership and an ever growing amorphous backlog consisting of approximately 2,800 items at the start of the process review. This backlog continues to hinder access to materials in the collection. We are currently in multistage process review which incorporates Lean methodologies to improve workflow across a number of departments. At the core of these improvements is gathering data to measure current levels of work. From that perspective, we can see where value is needed in the workflows, including areas of collection access, level of repair needed, item replacement/weeding, and meeting user/stakeholder needs.

The University of Nevada, Las Vegas University Libraries consists of one main library and three branch locations serving a campus population of approximately 30,000 students, staff, and faculty. With changes in the economy and frozen staff positions, the libraries needed to look more closely at how processes were organized in order to save time and money. Improved methods and streamlined service were needed to meet user needs for obtaining materials.

Steps toward process improvement were based off of Lean management methods to improve how work was done as well as institute a culture change in the libraries' zeitgeist to identify and remove wastes in activities. A reorganization was implemented to bring the units and departments primarily responsible for handling the collection along the supply chain into one division. Ordering and Receiving, Acquisitions, Cataloging, Stacks, and Interlibrary Loan (ILL) were now under Technical Services renamed Logistics and Resources Distribution Services (LRDS). Once the reorganization was complete, the division held a "job fair" to introduce the newly joined departments to each other's responsibilities and skill sets.

From these discussions, it soon became apparent that there was no set procedure for transferring damaged materials to the Preservation Lab (P-Lab, for short) and back to the Stacks. Items removed from the collection could number dozens at a time

and not return for several months. Occasionally, items being repaired would be requested by users; however, they would not be accessible. ILL would then need to look off campus for the item to satisfy the user's request. Since this process (dubbed "Needs Repair") potentially impacted three divisions, seven departments, and four libraries, it was selected for review.

Background

Without any policies or processes in place, the gathering of damaged materials took on a life of its own. Hundreds of worn books returned to Circulation or found in the open stacks were set aside for repairs. The decision to do so was based on each person's (staff and student employees) individual opinion of what constituted damage. This opened the possibilities to anything and everything being sent to the Preservation Lab. At the start of the review project, this had resulted in an initial backlog of approximately 2,800 items waiting to be repaired with no cap.

The large amount of items involved naturally ended up negatively affecting space in not only the lab, but Circulation as well. An impromptu staging area was established behind the Circulation Desk at the main library. The shelf was normally reserved for intracampus returns, but convenient for both the Circulation and Stacks units. This, however, produced its own issues. It addressed the immediate concern of finding a

place for the damaged items, but with no policy in place, ended up producing a backlog in its own right. Frequently the shelf would fill up to the point of overflowing. It was only at this point that someone would contact the Preservation Lab to collect the materials.

There were several delays in getting items back into circulation. Items could sit on the staging shelf for more than a week before being taken to the lab. The large influx of items into the lab slowed the conservation work of Special Collections (the lab's division) materials and made the regular collection's workload overwhelming. Finding time to work on one group meant the other fell behind. On occasion, items would be sent to a commercial bindery if the cost per item compared to lab staff time justified doing so. Shipping time and amount of pending work at the bindery could add up to several weeks before the items were returned to the collection. Even locating a book in the lab could take some time. The continuous ingest caused the backlog to increase so fast that organization was put second behind simply finding a place to put materials. If a request was made on a Needs Repair book, thousands of items would need to be searched through to find it. Also, if no one updated the Integrated Library System (ILS) record that the book was in the lab, users and staff could be fruitlessly searching the stacks and waiting for a hold that might take months to fill.

The process of repairing materials and returning them to the stacks definitely needed improvement in order for it to be a valuable part of the larger view of collection management. A clear purpose needed to be created to keep the work in scope both for what the Preservation Lab should and should not be handling.

Establishing a Goal

An important part of establishing a goal was finding out which groups were impacted by the lack of process. Circulation had functional space taken away, Stacks needed to know just how many items to pull from the shelves, Reference needed to know how to get requested items, ILL had an increase in requests, the Preservation Lab

had no way to handle the amount of items brought to them, and the users did not get items as quickly as desired.

As we move forward, we have to keep value in mind. What does value actually mean for this process and for each stakeholder? Balance has to be established in the evaluation of the process flow between workload, user need, and collection management criteria. Also, once the working revision of the Needs Repair process is initiated, a level of success needs to be identified and a system to measure the process put in place. Aspects we are looking at include:

Cost Versus benefit

What actually needs to go to the lab for repair? A small tear of the binding does not hinder usability, but a detached binding certainly would. Can a missing page, or other minor repair, be done by someone other than the lab staff who most likely has bigger concerns? We needed to identify criteria for what actually went to the lab. If the item's content is outdated, or multiple copies are owned, that item could be a good candidate for weeding. Looking at materials as they go through the process allows us to examine the value of the collection on an ongoing basis; low value items can be removed, and high value items repaired or replaced.

Access

A damaged item in the collection does not do the library any good. If the item is out of reach in the lab or falls apart at checkout it does the user no good. ILL can retrieve a copy from another library, but any delay harms our relations. If the item displays in the catalog, users expect it to be available. To ensure the catalog accurately reflects the collection, items need to be returned to the shelves as fast as possible. This means getting severely damaged items to the lab when first noticed, without overwhelming it with the minor items. Incorporating a step to determine the value of items within the process opens space in the stacks where nonrelevant items have been removed making space for new and updated resources.

Staff Time

As we review the Needs Repair process, saving staff time will be of great importance. Steps involving wasted effort have to be identified and removed to produce an effective value stream. Currently, the Preservation Lab's conservator is caught between work needed specifically for his division (which the director would like him to concentrate on) and work needed for the University Libraries' collections. This impedes continuous turnaround of repairs and time needed for student assistance. Frequently, communication would break down across departments, and it would be found that a replacement copy was ordered for a book recently repaired. This ends up impacting the collection thrice over; once in taking the damaged book out of circulation, once in cataloging the replacement, and once in finding space for a duplicate copy.

In trying to define what value is in these circumstances, we are approaching the revision from the user point of view. This leads us to see value as ensuring that items listed in the catalog are available to users when needed. Translating this value to the establishment of a process goal yields the following: To establish a libraries-wide, value-adding policy and efficient procedures for managing which materials are repaired, and returned to collection as quickly as possible. The following sections describe what we have tried so far to meet this goal.

What We Did

We first mapped the current state of the Needs Repair process—quickly realizing there were too many loose ends and no clear flow of steps within the process going from upstream tasks to downstream ones. The idea of flow is one of the key elements in Lean process management. Basically, it attempts to align all steps in a way that transforms production or service by only performing value-adding activities, identifying waste (any non-value-adding activity) throughout the value stream. Therefore, creating flow for the Needs Repair process was an important first step in meeting our goal. The following are highlighted areas and actions that helped in starting to

eliminate inefficiencies and the backlog of Needs Repair items.

A Central Gathering Place

There was already a shelf designated for the Needs Repair items behind the Circulation Desk; however, there was not any standardization for how frequently the items were picked up, let alone by whom. The location made the most sense as a starting point in establishing flow being easily accessible by both Stacks and Circulation. We had already surmised that the majority of items were being identified for repair at the Circulation Desk. For example, a user or staff member would identify a damaged item at checkout. The protocol at that point was to update the item record (noting the specific damage), add a checkin message (noting to send the item to the Needs Repair shelf), and continue checking out the item to the user. When the item was returned, the message would indicate to staff to transfer the item to the Preservation Account and place the item on the shelf to await pickup.

We also serve three branch libraries: the Architecture Studies Library, the Curriculum Materials Library, and the Music Library. Involving the branches as stakeholders, we had a meeting with their process managers. Everyone discussed the current state and agreed on the value-adding benefits of having a central gathering place for all of the University Libraries, seeking all parties' collaboration and feedback. The branches were extremely pleased with this request due to the previous lack of communication and knowledge of the whereabouts of items they had sent to the Preservation Lab. We had agreed that items coming from the branches would, in fact, be items that were deemed high value (meeting collection criteria or curricula) and would be tagged as Need Repair items. This allowed items being checked in from an "in-transit" status to be directed to the proper pickup location.

Daily Pickups

Once we had set a central gathering place for all four libraries, the second action for flow was to establish a standard for when the Needs Repair items would be picked up. As mentioned, these

items would pile up until the head of the P-Lab would come down to pick them up or the shelf was over capacity and Circulation staff were forced to call the lab. The heads of ILL and Acquisitions agreed that the ILL Student Assistants would pick up the items, clearing the shelf as part of their daily pickup of returned ILL items. This standardized procedure ensured that damaged items would be removed from an inventory area (where no work was being done) and sent into the repair process regularly. Picking up pending items once a day brought the revision closer to creating one-piece flow.

Tracking

Aside from a standard daily pickup process, we needed a way to track repair item status. For proper flow, we identified that any particular item was going to stop at several locations within the value stream. We met with staff from Circulation, ILL, and the P-Lab (the main areas of in-route flow) and developed a system that would accurately track any item's location. In order to make the tracking simple, we either changed or created new "patron" account names in our ILS. Circulation would start the flow by checking out items to the LRDS Triage account showing they had moved to the ILL department. When the triage subprocess was started, ILL would check out any items needing repair to the Preservation Assessment Flow account. Using these separate accounts also allowed us to track lead and Takt Times; meaning we were able to see where work was delayed and inventory was accumulating (indicators that the process was not working as well as it should).

Evaluation

The evaluation system was the most value-adding component for the flow of the Needs Repair process. With anything and everything that appeared to be damaged first going to the P-Lab (not to mention hindered efficiencies within the P-Lab), there was no mystery as to why a 2,800-item backlog existed. To alleviate this bottleneck, all items would now be sent to the ILL/Acquisitions

unit for review. Organizationally, this unit fell under Collection Management, acting as a central hub for Technical Services. In addition, it was already utilizing the Getting It System Toolkit (GIST) for evaluating acquisitions and sending/receiving resource sharing. Since the ILL/Acquisitions Units were already involved in similar evaluative procedures, we felt it made sense to have the items delivered and evaluated at that location.

For creating the evaluation process to consist of only value-adding activities, we worked directly with the Head of Collection Management and the head of P-Lab. We regarded them as both users of and operators in the process as a way to identify their specific values. This is essentially represented as the criteria set by both departments to meet their return on investment (ROI) needs, what the user is willing to pay for and have delivered at the time of need, even if that user is the staff member working on the next step in the Needs Repair process. Therefore, we only wanted to institute value-adding activities that met the specified values (Connor, 2008).

Collection Management Criteria

The Collection Management criteria was developed by a review of the UNLV University Libraries' collecting methods; shifting the collection model in hopes of enhancing the content and quality of the University's holdings by moving away from an ownership model toward an access model. Below, we mention the Conspectus Collecting Level used, an evaluative system built on criteria input into each Library of Congress (LC) classification in open source software (GIST Gift and Deselection Manager, GDM) developed by SUNY Geneseo. We supplied data from our Approval Plan, regional interests, core curricula, and areas of distinction (Table 1). The evaluation process is also based on a number sequence which addresses a hierarchy of questions applied to an item that matches the highest quality of content at the lowest possible cost to the libraries.

1. # of Check Outs			
= or >5	Yes	Go to #2	
< 5	Yes	Send to: <i>Value-Stream #2</i>	
2. Collecting Criteria (Approval, Regional, Core, Areas of Distinction)			
= 0 or 1	Yes	Send to: <i>Value-Stream #2</i>	
= or > 2	Yes	Go to #3	
3. # of Copies			
= 1	Yes	Go to #4	
> 1	Yes	Send to: <i>Value-Stream #2</i>	
4. Are the newer editions			
Do we own a newer Ed.?	Yes	Send to: <i>Value-Stream #2</i>	
	No	See next line	
Is there a newer Ed.?	Yes	Send to: <i>Value-Stream #3</i>	
	No	Go to #5	
5. GWLA/LINK+ holdings			
GWLA	= Or > 10	Yes	Send to: <i>Value-Stream #2</i>
	< 10	Yes	See next line
LINK+	= Or > 10	Yes	Send to: <i>Value-Stream #2</i>
	< 10	Yes	Send to <i>Value-Stream #4</i> (minor repairs) Send to <i>Value-Stream #5</i> (major repairs)

Table 1. Collection Management Criteria

Preservation Lab Criteria

Preservation criteria was developed in tandem with the head of the lab. They were based on monetary ROI considerations combined with the libraries' Collection Management and Special Collections criteria, as well as the P-Lab's repair costs and preservation standards. The ILL/Acquisitions staff was trained by the head of the lab to identify repair types so they could assign an overall cost to the item after going through the evaluation process. Additional collection criteria included were a mixture of content that all research libraries are expected to own and what meets UNLV's specific needs (Table 2).

Various Value Streams

When we first became involved with and reviewed the current state of the Needs Repair process, we assumed that we would form a triage for the evaluation process. For example, the triage would determine if items were repurchased, withdrawn, or to be sent to the P-Lab. However, due to the Lean methodology of creating flow and only performing value-adding activities, we realized that the process was dynamic and would evolve just like any improvement cycle. Thus, we needed to evaluate all existing backlog items, removing those that did not meet the updated criteria. Items meeting the criteria would remain in the backlog until a *Pull System* was established.

Preservation Lab Criteria (these are additional criteria to UNLV Libraries)		
Does it have cultural/historical significance?	Yes	Send to P-Lab
Is it a rare item?	Yes	Send to P-Lab
Is it oversized (unless doesn't meet collecting criteria)?	Yes	Send to P-Lab
Is it a Ref. item?	Yes	Send to P-Lab
Is the replacement over \$40.00	Yes	Send to P-Lab
Is it a special request?	Yes	Send to P-Lab
Is it a paperback (not bond)?	Yes	Send to <i>Value-Stream #1</i>
Does it have a <i>Gift Plate</i> ?	Yes	Send to P-Lab

Table 2. Preservation Lab Criteria

Repair Type	Cost (per item)
Spine Replacement	\$35
Rebind	\$80
Pamphlet Bind	\$35
Bindery	\$20
Page Tip-In	\$5
Withdrawal	\$3

Table 3. Preservation Lab Repair Costs

Bindery (Value Stream 1)

When we started the evaluation process, the value stream for binding items was our best friend. We were able to sift through the entire backlog—removing all inventoried rebinds and outsourcing them to a commercial bindery at \$20 per item versus \$80 or more in labor/materials for an in-house rebind. For the evaluation aspect of value, these items were worthy to keep in the collection; however, the quality of repair needed was less than the conservation value of the P-Lab's rebind. Ultimately, we were able to send 31% (561 books) of the backlog to the bindery at a quarter of the cost.

Liaison Evaluation/Withdrawal (Value Stream 2)

Another 28% of the backlog fell into the withdrawal category, that is, not meeting our collecting model. For the value-stream process to

include all stakeholders, as well as only value-adding activities, we developed a form where recorded essential bibliographic information was sent to the Subject Liaison Librarians for review. The form consisted of specific instructions, as well as areas for comments so we would know which action (value stream) to pass the item through. Reviewed items were then processed for Reorder or Withdrawal.

Reorder (Value Stream 3)

The Reordering value stream is used when newer editions are available and/or purchasing a replacement is more cost effective than sending to the Bindery value stream (see Bindery [Value Stream 1]). Once we established this value stream, we found roughly 4% of all items reviewed fell into this value stream due to the availability of a newer edition, or cost effectiveness in reordering a replacement.

Cost w/o Evaluation Process			
Repair Type	# of Items	Per Item Cost	Total Cost per/Repair Type
Reorder/Replacement	65	\$20	\$1,300
Spine Replacement	259	\$35	\$9,065
Rebind	280	\$80	\$22,400
Pamphlet Bind	65	\$35	\$2,275
Bindery	561	\$80*	\$44,880
Page Tip-In	86	\$5	\$430
Withdrawal	518	\$57.5**	\$29,785
Total Cost (projected)			\$110,135

*if sent to P-Lab would be calculated as Rebinds

**combined as spine replacements/rebind cost

Table 4. Value of Value-Stream Savings

Cost w/o Evaluation Process			
Repair Type	# of Items	Per Item Cost	Total Cost per/Repair Type
Reorder/Replacement	65	\$20	\$1,300
Spine Replacement	259	\$35	\$9,065
Rebind	280	\$80	\$22,400
Pamphlet Bind	65	\$35	\$2,275
Bindery	561	\$20*	\$11,220
Page Tip-In	86	\$5	\$430
Withdrawal	518	\$3*	\$1,554
Total Cost (actual)			\$48,244
Total Savings			\$61,891
Percentage of Savings			56%

Table 5. Value of Value-Stream Savings: Cost with Evaluation Process

Quick Repair (Value Stream 4)

The Quick Repair process was developed separately as many items were evaluated as only needing minor repairs. Therefore, to implement more value-adding activities, we acknowledged that minor repairs (e.g., fixing torn pages) could be done at the point of evaluation, eliminating the need to be transported to the P-Lab. A popular item might not meet the preservation criteria, but it might cover a current topic for an ongoing

course. In this case, a quick repair would produce the highest value for the library and students.

Delivery/Pick up (Value Stream 5)

The only hurdle in this value stream was establishing standard procedures for transporting items between Circulation, ILL, and the P-Lab. Daily deliveries (at set times, from set locations) between have been included in the regular ILL steps for picking up or returning requested

materials. This transportation improvement necessitated creating the account for the lab to track where Needs Repair items were in the process. The purpose for this was to know an item's exact whereabouts and provide accurate metrics for Phase II. As with all value streams, we had to establish steps in a logical sequence and provide commutative indicators as to where to drop off and what to pick up.

Preservation Lab Focus

Most of the initiatives for a future state are directly related to the P-Lab workflow, that is, repair, flow, organization, etc. As with many taking a new position, the head of the P-Lab had been trained to a specific mentality and inherited an unstructured workflow. To further address the lab's needs, he will have to seek more value-adding activities and manage the flow of the Needs Repair process in order to establish and sustain one-piece flow. A big large part of this will be standardizing work areas, sorting tools and equipment in alignment with their specific task. The following are specific examples of changes current initiated.

Flow

As discussed earlier, one major change was establishing set drop-off and pickup locations in conjunction with daily delivery routines. This eliminated the buildup of inventory, decreased the overall time of repair, and increased findability of items within the process.

We selected and mapped out the steps of one repair process, writing down actions taken and drawing out staff movement. In an experiment to rework the process steps—focusing work to fewer areas, requiring less walking, and aligning all like processes—we found the same repair quality could be produced within one-fourth of the time and at one-third of the process steps.

Another key aspect in maintaining flow (e.g., keeping the workload consistent and the backlog from growing) that we needed to know and record is the Takt Time, work time available

divided by daily customer demand. The trick in meeting Takt Time is knowing the cycle time compared to the Takt Time, then figuring out the appropriate number of operators for optimum efficiency. Cycle time to Takt Time is calculated by adding time needed to complete each repair compared to the number of work hours needed to complete each type of repair, that is, x hours of work should have at least x hours of staff time, both weekly and daily, to meet demand (Byrne, 2013).

Organizing the Work Areas

We are reassigning work areas to be job specific. Individual tables are being organized so that all tools and equipment needed for one repair type (e.g., pamphlet binding) are kept in designated locations, accounted for, and within easy reach. Staff will know exactly where a task is performed and will not need to wander around to find resources. On a larger scale, unnecessary and unused equipment is being removed from work tables and the lab itself.

Conclusion

We have basically just started revising the Needs Repair process. In order to achieve one-piece flow, we will continue reviewing certain elements of the process over the next several months. Since we have established basic Takt Times, the primary elements in maintaining flow are: standards of repair(s), pull systems, and visual management. Forming standards of repair(s) is our first objective. This, in essence, will define and distinguish basic quick fixes (e.g., tip-ins, corners, page tears) from P-Lab conservation (e.g., spine/binding replacements) in aims of establishing the next element, pull systems. Pull systems will essentially manage all possible repair types by triggering value-adding activities once a damaged item enters the P-Lab. Finally, visual management will help bring all the elements together by providing visual cues to real-time statuses. Examples of visual management to try are, but not limited to: repair guides, diagrams, signage, labeling, and student assistant training standards/assessments.

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Appendix: Glossary

Current State: a “snap-shot” look at how a process functions at any given moment.

Cycle time: the rate of time each product is produced.

Flow: a state where all steps in a process move from start to finish with minimal and errors.

Lead time: the total amount of time taken in one step before work moves on; includes work, waiting, and inventory times.

One-piece flow: a state where a single unit moves through all steps of a process before work on the next unit is started.

Supply Chain: the connecting system of all resources, people, data, and activities involved within a process from request to delivery.

Takt Time: available work time divided by user (customer) demand.

Value-adding: work done provides a benefit, or some level of worth, to a user.

Value Stream: the sequential steps (start to finish) of a process that directly add value to a user.