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Give a Little Bit: Using Lean Tools to Create Efficiencies in Acquisitions and Beyond

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Abstract:

Faced with a higher-level imperative to improve organizational effectiveness, how do you approach that task at an operational level? What are the specific teams and skills needed to transform processes for the future? This session explored topics related to workflow analysis and redesign based on a Business Process Improvement effort at the University of California, Davis. Working with a consultant, a team composed of key players from acquisitions and accounting units examined ordering processes that were particularly cumbersome, eventually focusing on credit card ordering. The team learned many useful process evaluation tools including cross-functional “swim lane” maps, cause and effect diagrams, and a variety of methods for identifying wastes and assessing customer satisfaction (or lack thereof). While some attention was paid to the particular aspects of the credit card workflow, more weight was given to general principles, tools, and applications to other workflows. Attendees learned about the process analysis tools, with emphasis on the swim lane map, in enough detail to start applying them in their own environments.

Introduction and Context

In our process-driven environments, it is all too easy to get mired in habits and day-to-day routines. Organizational efficiency often requires stable processes. When our processes are broken, however, it is often difficult to step back to assess what is happening, and to take the time to fix it. Our university is just one of many examples of institutions launching new initiatives to re-engineer how we support the educational mission. What is described below is one program to rework processes in the library, and the accompanying workflow analysis tools that were learned along the way.

At various organizational levels, the university has mobilized to meet these fiscally-constrained times. One initiative across the University of California is called “Working Smarter, which has launched many projects and “envisions ten distinct campuses using one efficient administrative framework.”¹ Locally at the University of California, Davis, this emerged as the Organizational Excellence Initiative, which embarked upon a review of the administrative functions on campus, specifically the accounting and human resources functions.² One result of the efforts was a consolidation into Shared Service Centers to support both campus-wide and college-level operations.³

In the library, we were responding to this budget outlook by assessing every process and cost center to explore possible efficiencies. Within Technical Services, we had already implemented automated

triage of bibliographic records and EDI invoicing, as well as other workflow efficiencies. The processes that were left to work on were frequently deeply embedded within processes outside of our division, and required additional collaboration with other departments.

Two teams from the Library were recommended by our administration to work with an outside consultant as part of a Business Process Improvement Program sponsored by the campus. Shelley Sweet, the principal consultant at I4 Process, brought her expertise in process mapping, redesign and lean principles and tools to work with our staff.⁴ One team focused on the billing process in our circulation unit. Our team comprised staff from Acquisitions and Accounting. We carefully reviewed the possible workflows we could consider during this program, with the intent to take the best advantage of the intensive workshops. Like many libraries, we had automated a large percentage of our monographic ordering volume through online selection, EDI invoicing, and related processes. Electronic journal content, though work-intensive, was largely acquired through consortial packages. A process that seemed to loom large on the minds of staff in both units was the credit card ordering process, which required special attention and handling to meet campus accountability requirements.

Two cardholders assumed significant responsibility for providing documentation to the library accounting department. In addition, a unit from campus

accounting would randomly issue transaction audits to the cardholders. These audits were frequently invoked by the cardholders as justification for keeping all paperwork connected to an order--printing the website page before and after the order, copying the packing slip, etc. In turn, this paperwork was routed to Library Accounting for matching and reconciliation. What made this stage particularly challenging was the lack of identifying numbers to serve as match points in the various systems: the integrated library system (ILS) provided a purchase order number, the campus accounting system assigned transaction numbers, and yet a third number would appear on the cardholders' statements. This process seemed a perfect candidate to place under the microscope, as well as to serve as a way for all parties in the process to come together.

Process Analysis Tools: The Cross-Functional Map

The program required multiple workshops with the consultant, spanning three months overall. Team members were given particular roles. Core to our group were the sponsor, project lead and facilitator; these were filled by the Associate University Librarian for Administrative Services, the Head of Accounting and the Acquisitions Librarian. Acquisitions and accounting staff served as subject matter experts. We also had representation from our systems department to assist with technology needs. Of these team members, additional roles were taken on to serve as the "maverick" and the data gatherer.

The teams learned a variety of process analysis tools during the course of the program. The most fundamental tool resulted from process mapping into a "swim lane" map which reflected the individual tasks

and roles involved in the process; this map became the foundation for the remaining sessions and exercises. We were instructed to take a specific example of our process that we wanted to map and repeatedly ask of the group "What happened next?" The case was to be fairly representative, and one with which most of the group would be familiar.

Our group chose a routine faculty request for media. Depending on the circumstances a variety of vending options would be at our disposal, but for this case we elected to use a credit card. Individual steps were mapped and kept in a lane until the process passed to another role. Before long, the length of butcher paper was covered in Post-Its, either representing a discrete task, or placed on their corner to represent a diamond "decision point."

The roles, which ran along the Y axis of the map, included the Acquisitions staff who were cardholders, Acquisitions receivers, the Acquisitions Librarian, Library Accounting Staff and Campus Accounting Staff. Systems were also represented and included vendor websites, the ILS, and the campus' financial system.

In order to preserve the flow of recording the tasks in the process, we kept a separate list of four different categories that emerged during our conversation: 1) Issues; 2) Data to Be Collected; 3) Improvement Ideas; and 4) Differences Across Instances. This last category in particular helped us stay focused on the particular instance we were describing when variations were noted (e.g., "if it's for Reserves or for another branch, we would handle it a different way").

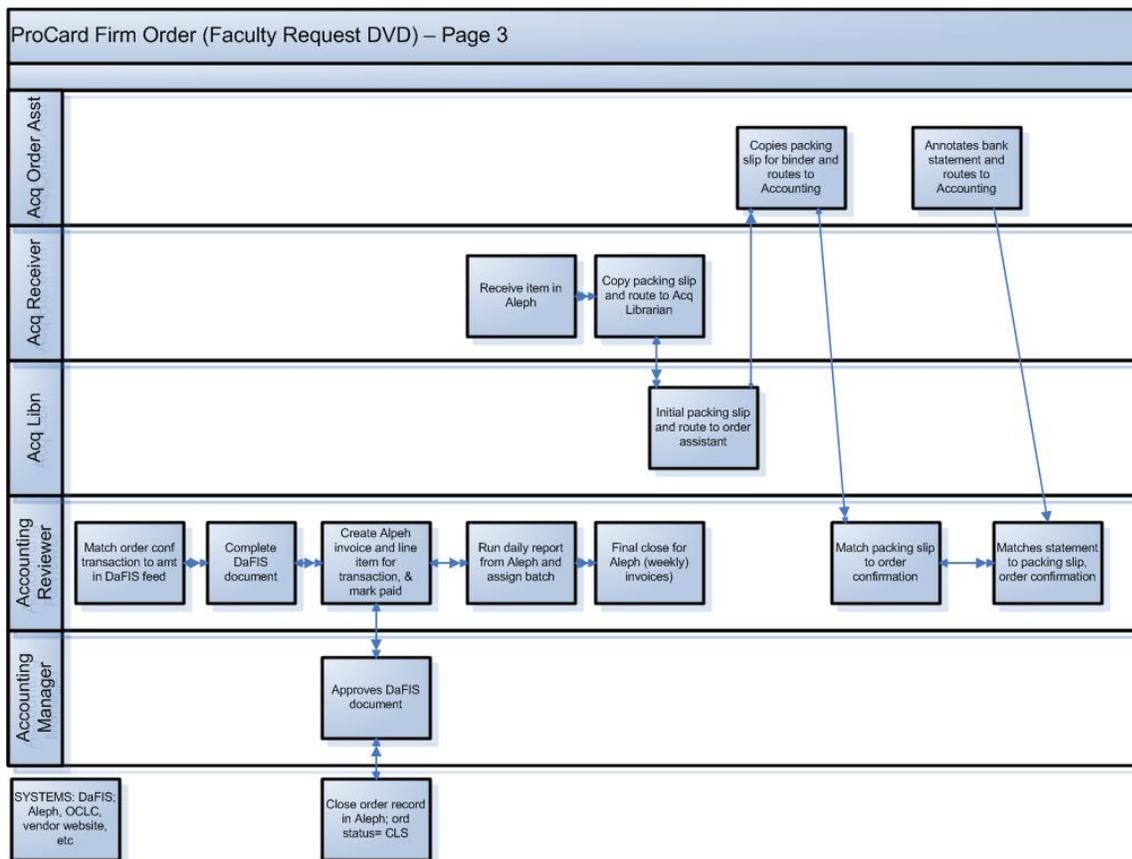


Fig. 1. Sample of Cross-Functional Map Transferred to Visio

Other Tools

We used several other tools to inform our process. One useful tool was the Customer Scorecard, which was used to gather input. A simple list of questions was posed to the “customer”:

- What do you need/require from this process? List the top 3 and rank.
- How are we doing today? (Give a grade of A-F.)
- What does an A look like?
- How is our competitor doing?

Based on the particular process we chose, much discussion was spent on determining our main direct customer. Was it the subject librarians who placed orders with us? Was it campus accounting who received data downstream from the library? Was it our vendors who received the fruits of our invoicing processes in the form of payment? We knew for certain that although our patrons are our

end customers, they would not be aware of our processes to be able to give us any helpful input (this is as it should be).

The group decided that all of these could be seen as “customers” receiving the outputs of our work, and we eventually chose two to three representatives from each. As could be expected, results varied across these groups. Campus accounting was positive, with no negative feedback, but no specific feedback either. We surmised that from Campus Accounting’s perspective, if a campus unit was not notoriously difficult to work with, or on “the list,” then it is doing well.

We received the most specific feedback from the subject librarians, having selected one department head, and one librarian in Special Collections to interview. Core requirements included timeliness and completeness. In some cases, especially with Special Collections items, Acquisitions occasionally missed opportunities to purchase specific items.

The comments from the Special Collections librarian also alluded to past practices related to purchasing, including staff reimbursements for purchases made “in the field,” a practice that had been phased out over the years.

Data Gathering

Once the basic swim lane map was created, the group made subsequent passes to develop additional measures. One iteration involved identifying areas where data was needed to evaluate the process. We were urged to be aware of statements like “this happens all the time” as cues for data-gathering. Some measurements were for lengths of time spent to perform a specific task. These were timed and reported by the subject matter experts.

To support many of our questions, a dataset was created of monographic orders over an 18-month period, covering the previous fiscal year and the first part of the fiscal year to the date of our program start. This included a large number of data elements including order type, order and receipt dates, vendor codes, and budget and invoice information. This dataset also helped to put the pain of the credit card ordering process into perspective. Overall our library processed over 35,000 total monographic orders, both approvals and firm orders. Of these, only 630 were credit card orders. While these results gave us reason to congratulate ourselves in efficiently handling this kind of volume, it did not diminish the pain of the credit card ordering process.

Data related to the budget codes, specifically those that required manipulation in library accounting from budget defaults assigned to the credit cards, eventually guided our decision-making during our process redesign. Grounding our decisions in the data facilitated the acceptance of the proposed changes to the process.

Additional Layers to the Swim Lane Map

Throughout the course of the program, we added subsequent layers to the swim lane map, indicating the following:

- Cycle time, or the time from the beginning to the end of a process or stage of a process

- Process time, the time it took to perform a particular task in the process
- Areas of errors or rework
- Pain points
- Wait time
- Fundamental value-added steps

Each layer contributed to a deeper shared understanding of each aspect of the process that led up to the redesign stage. As the picture became more nuanced on our butcher paper, we identified wastes to eliminate in our process. The step of noting pain points allowed staff to express their feelings about the current process and also provided the opportunity for the new design to relieve some of the workflow suffering.

Outcomes

The final stage of the program was devoted to process redesign. The goals for our redesigned process emerged as we were analyzing the swim lane map and collecting data. From the subject matter experts’ experience with the credit card ordering process, they knew firsthand that they were dealing with too much paper.

A key to success for the changes was the buy-in of the campus accounting unit who issued random transaction audits to the cardholders. Any changes made to our process within the library could quickly be undone if campus accounting had compliance requirements that reinforced process-heavy practices. During the program a meeting was scheduled between two representatives from campus accounting, including the supervisor of the staff person who issued the audits, the Library Accounting Supervisor and the Acquisitions Librarian. This exchange proved to be very fruitful: campus accounting clarified their audit requirements of ensuring that the item ordered was the item received. In turn, we were able to show a mock-up of a report using data from our ILS that replicated information previously provided in paper. Not only was campus accounting more than happy to accept this report in place of the paper documents, but conversation also turned to some of their processes that might be more automated.

With this provisional approval, development quickly turned to finalizing this report from our ILS. Not

long after our program ended, one of our cardholders received two messages with transaction audit requests. This was our first opportunity to use the report, with a reminder of the earlier meeting. It was a joyful day when we got the reply that this report met the needs of campus accounting. The groundwork for this small success was already being laid at a campus level with the Organizational Excellence initiative and Shared Service Center project. Often accounting operations are viewed as inflexible, with compliance trumping all other values. This experience emphasized that in this budget-constrained environment campuses are looking for efficiencies in all processes, and that new ways of working can be achieved along with meeting accounting requirements.

Benefits and Future Applications

During the program, participants remarked on the intensive time commitment required to re-engineer a process that occupied a relatively small bandwidth compared to other library processes. Among the benefits, however, was equipping several people in Technical Services with a toolset for process analysis to apply to other workflows and subsequent projects. While we have not embarked on a full workflow analysis for other processes since the program's end, we have applied the tools and approaches to other projects. The cross-functional map, for example, has been one of the tools in one of several projects related to the systemwide initiative of Next Generation Technical Services.

Despite the time commitment, one clear benefit to working with a consultant is having a definite time period in which to work—no dragging things out, not doing your homework, sticking with the status quo. Yet, with widespread organizational support and initiative, it is possible to embark on similar re-engineering projects without the enlistment of a consultant. Some resources that may help in this

effort include Dan Madison's *Process Mapping, Process Improvement and Process Management* (2005), a core resource for our program, and a recent publication by John Huber, *Lean Library Management: Eleven Strategies for Reducing Costs and Improving Services* (2011).^{5,6} It was noted during the session that while Huber focuses on print-based workflows, both resources provide solid principles for print or electronic processes. In addition, a recent article in the area of archives also provides examples of process mapping and includes tools not covered here (Daines, 2011).⁷

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