Natalie Ornat and Renee Moorefield

Process mapping as an academic library tool

Five steps to improve your workflow

The academic library is a complex organization whose staff executes numerous processes each day to deliver materials and services in a timely manner to patrons. A process where tasks, information, or documents are passed from one participant to the next is called a *workflow*. Libraries use workflows to coordinate tasks between people and departments and create an efficient progress of work. Interlibrary loan shipping, electronic serials acquisition, damaged item repairing, and reference desk referrals are just some of the hundreds of workflows within the academic library. When diagrammed, these workflows provide valuable information in visual form regarding the path a process takes throughout a library. Diagramming workflows is known as *process mapping*.

While examining this practice as a form of organizational assessment within an academic library, Sarah Barbrow and Megan Hartline define process mapping as an "exercise to identify the major steps and decisions in a routine workflow in visual form."[1] Commonly drawn as a flowchart, the visual document tracks the movement of information and clarifies the tasks, decisions, and potential actions taken throughout the process. The map also displays the different individuals or departments who participate in or affect the process.

The practice of process mapping originally developed to maximize efficiencies in manufacturing environments, but proves useful in analyzing other organizational processes.[2] The creation and analysis of process maps can reveal inefficiencies and problems within a seemingly smooth process. When mapped out, an examiner may uncover duplicated work, bottlenecks where a process slows down, or areas of potential collaboration.

Besides improving processes and increasing organizational efficiency, the act of process mapping can be beneficial to an organization in other ways. By depicting a complex process (including its actors and stakeholders), maps can help pass down, share, or communicate institutional knowledge. They are particularly valuable in aiding crossfunctional collaboration between different library departments or units. Additionally, process mapping is evidence that managers can use to advocate for changes and improvements. As an assessment tool, it is easily learned and adaptable. Process mapping is an approachable way for librarians and library staff to adopt a culture of assessment and reflective practice within their work.

Process mapping in practice

Usually the task of process mapping is done by an individual or a small group over a series of weeks. The analysts may

Natalie Ornat is humanities librarian, email: nornat@uncc.edu, and Renee Moorefield is interlibrary loan coordinator, email: rmooref2@uncc.edu, at the University of North Carolina-Charlotte

be part of the process they are examining; however, it can also be beneficial to have an outsider perform the examination. Looking at a process with fresh eyes can help illuminate inefficiencies and avoid the resistance to change that might keep the process in stasis.

Another way this practice can be implemented is by gathering all relevant stakeholders in a room and developing both "As Is" and "Should Be" maps collaboratively.[3] When done in the form of a workshop, this process may take several days; however, these intensive sessions can serve as a valuable team-building exercise and may prompt helpful discussions on library workflows.

In the summer of 2017, the authors mapped workflows for two library processes at J. Murrey Atkins Library on the campus of the University of North Carolina-Charlotte. This project was part of the Atkins Fellows program, an 11-week paid residential fellowship program for students or recent graduates.

Before beginning the project, we met with the associate dean for public services and the director of access services to determine what broadly scoped processes might be in need of improvement and documentation. The processes for damaged and missing items were targeted, due to their many moving parts and potential for confusion. There were a lot of unknowns within both processes and problem areas that were suspected.

Damaged items workflow

Step 1: Defining the process and scope

The first step in process mapping is to identify the process to be analyzed and define its scope. We had selected the damaged item process. Next we defined the scope as the process from identification of a damaged item to its repair or replacement. Defining the beginning and ending points provides a concrete frame to fill in.

Step 2: Gather information

After the process and scope are set, the tasks, documents, and flow of the current process can be determined. It is important for the analyst to gather information on the process as it currently happens so that the map can serve as an accurate portrayal and be a baseline for creating recommendations.

We identified those involved within the process and worked with them to learn about each stage of the process. We asked each process participant simple but targeted questions such as, "What happens next?" or "Who completes the next task?" to pinpoint each step. We also shadowed staff members as they performed their work, observing and taking notes. If more than one worker performed the same action, we observed each of them to identify any inconsistencies. An alternate method that can be used to record process flow is to gather the process participants together in a room to trace the process collaboratively. This can be especially helpful if more than two people perform the same responsibilities.

Step 3: Create "As Is" process map

Once we had collected information regarding the process, we began creating a diagram to represent the workflow. The format of this visual should be determined by the workflow being depicted and represent the information in a logical and easy-to-read format. One common diagram used for process mapping is a crossfunctional flowchart, which follows the flow of a process through different roles or departments. This type of diagram shows who does what within the process and displays potentially problematic handoffs between individuals, departments, or units.

Flowcharts use shapes that represent different actions or decision points. Commonly, rectangles represent a task or action, and diamonds represent a decision that could result in different paths taken. Figure 1 below contains common flowchart shapes used in process mapping. The text within each shape should be short and concise, keeping the map readable.

Figure 1: Common process mapping shapes.

It might be tempting to incorporate suggested improvements from the start, but the "As Is" map should accurately represent the process as it is currently performed. After creating the "As Is" process map for damaged items, we met with process participants for confirmation and/or corrections. Creating the initial "As Is" map is an iterative process that may take several attempts to create accurately. Our resulting "As Is" process map for damaged items can be viewed in Figure 2.

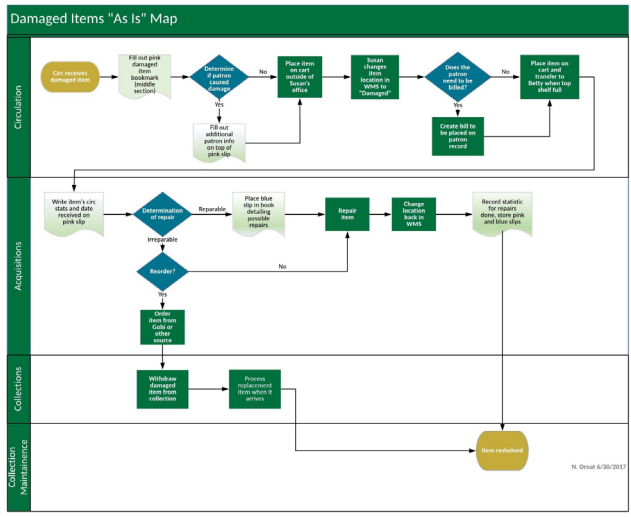

Figure 2: Damaged items "As Is" map. View this article online for detailed images.

Step 4: Analysis for improvement

After the final version of the "As Is" map is created, the next step is to look for areas that might be improved. The analyst will look for areas where there are bottlenecks, duplication of work, illogical or unnecessarily complex work, and other opportunities to create greater efficiency or needed collaboration within the process. Sometimes the analyst may have already gathered suggestions from process participants during the information collection stage. In examining a crossfunctional map, gaps may be identified where other stakeholders should be involved or dead ends where follow up is needed.

In our analysis of the damaged items workflow, it became clear that an important voice was being left out of the process. All damaged items were immediately going to be repaired. If the item was deemed irreparable, a replacement copy was ordered and the original was withdrawn from the collection. However, there was no evaluation built into the process to determine whether an item was worth repairing, or whether an item to be replaced should be replaced with an updated edition. As a result, items that could have been replaced with updated editions or been withdrawn altogether were going back on the shelves. With an already overcrowded print collection, these actions could hinder the library's goals to create a more relevant and up-to-date collection. Those who were best equipped with the subject area knowledge to make this evaluation, the liaison librarians, were not formally involved within the damaged item process.

Step 5: Creating a "Should Be" map

The last step in process mapping is turning the identified improvements into an actionable set of recommendations and depicting the ideal process within a new, reworked diagram called a "Should Be" map. This map shows how the workflow will look if specific recommendations are adopted. This visual can then be used to advocate for the pro-

posed changes and serve as an intuitive and readable resource if the process is adopted.

In order to determine how to involve the liaison librarians in the damaged item process while still maintaining the greatest efficiency of the workflow, the authors met with the Research and Instructional Services team at Atkins Library to gauge past participation and future ideas for involvement. A step was added to the "Should Be" process model, which allows the liaison librarians to evaluate damaged material and decide whether to have the item repaired, replaced with an exact or updated edition, or withdrawn. Each decision sets into motion a separate set of tasks. If the item is to be repaired, it is sent to the materials processor for repair and then reshelved. If the item is to be reordered, the acquisitions manager completes the ordering and withdraws the original book. If it is to be withdrawn, the item is given to the acquisitions department to be weeded.

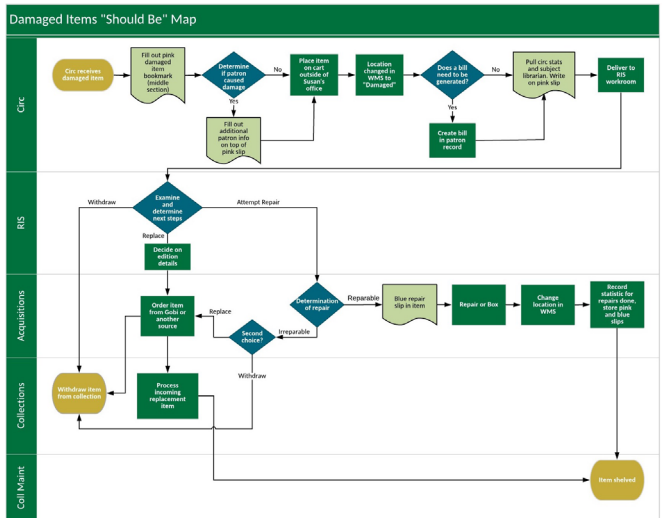

Figure 3: Damaged items "Should Be" map.

After the "Should Be" map was drawn up, the last step entailed meeting with all involved process owners and departmental supervisors to share the proposed changes, answer questions, and gather feedback. Plans were made for how the items would successfully get to and from the liaison librarians. The "Should Be" process map for damaged item is found in Figure 3. A new damaged item slip was designed to accompany the item through the revised process.

Conclusion

This five-step procedure for process mapping can be recreated to assess a variety of workflows within a library. After completing an assessment of the damaged item workflow, we also analyzed and revised the missing items workflow. Both modified workflows created through this project were approved by department supervisors and are in the process of being implemented. Once implemented, staff and process participants have been encouraged to remain vigilant to reflect on the new processes and identify any further pain points. As with any workflow, the process should be regularly assessed and open to change.

Process mapping is a valuable tool for library staff and librarians who wish to document or refine a process. As in these cases at Atkins Library process mapping can help identify inefficiencies and opportunities, provide a method of knowledge transfer and institutional memory, and offer a visual representation of steps within a prescribed course of action.

Notes

1. Sarah Barbrow and Megan Hartline, "Process mapping as organizational assessment in academic libraries," *Performance Measurement and Metrics* 16, no. 1 (2015): 34–47.

2. Paul Savory and John Olson, "Guidelines for using process mapping to aid improvement efforts," *Hospital Material Management Quarterly* 22, no. 3 (2001): 10–16.

3. J. Fulscher and S. G. Powell, "Anatomy of a process mapping workshop," *Business Process Management Journal* 5, no. 3 (1999): 208–38.