Notes on Operations
Redesigning Technical Services for the Twenty-First Century

A Case Study from the University of Alabama Libraries

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The University of Alabama Libraries began a workflow analysis over a decade ago. Primarily focused on traditional technical services areas, this process has been iterative and evolved from the need to seek efficiencies to a broader change in the culture and an acceptance of an ongoing process of improvement. This paper discusses lessons learned from workflow analysis regarding acquisitions, electronic resources, and cataloging/metadata, and examines how these changes impacted the broader library and philosophies of collection development and management.

Workflow analysis is a common process in libraries. Determining staffing needs and identifying obstacles and inefficiencies are customary reasons for undertaking this process. The key elements for a successful process are to engage stakeholders, communicate with all department members, and to create a plan with the understanding that it will evolve during the process. What follows is a summary of the extensive workflow analyses that have been in progress at the University of Alabama since 2007. The first phase took place from 2007 to 2010, and the second phase occurred from 2015 to 2017. While the reasons for the process have evolved, the vision of developing an efficient and cost-effective technical services operation and collection philosophy that successfully meets the needs of library users has remained a constant. This study examines workflow analysis in academic libraries, managing change with long-term employees, overseeing a shifting environment in acquisitions and technical services, and aligning priorities and services to meet users' evolving needs.

Background

The University of Alabama is the flagship institution in the state of Alabama. With a headcount of over thirty-eight thousand students in fall 2018, enrollment has increased by over ten thousand students since the mid-2000s. The number of faculty members has also increased, with a goal of adding three hundred to four hundred new faculty members to the existing ranks since Stuart R. Bell became president of the university in 2015. Physical growth of the campus—plus additional students and faculty—has changed the university's research profile. In

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December 2018, the Carnegie Commission on Higher Education recognized the university as an R1 institution, meaning that it is a university with very high research activity.

The university libraries have responded to growth and the increased emphasis on research in various ways. During phase two of the workflow analysis, the library initiated a new liaison program that focused on outreach and instruction. Changes to the existing liaison program were a separate initiative; however, the processes implemented in Resource Acquisition and Discovery influenced some of the changes. New services such as an institutional repository and more outreach activities to faculty were implemented during phase two. These include a greater online presence, adding resources in media and technology, and renovating spaces to address the needs of a growing student population.

Restructuring the technical services and acquisitions areas of the university libraries at the University of Alabama began as early as 2004 but was stalled due to personnel and leadership changes. Staff participated in a continuous quality improvement process prior to the new associate dean's arrival in 2007. This process uncovered potential areas of concern, and the results were the basis for discussions in summer 2007. The new associate dean was charged to examine the legacy print-based workflow and initiate electronic workflows that were more efficient to expedite the migration from print to electronic. The associate dean's office was located near the technical services departments, she maintained an open-door policy, and encouraged staff feedback. Simultaneously, discussions began with Blackwell's, the library's primary book vendor at the time, regarding workflow analysis. Blackwell's offered a consulting service to assist with reorganization and integrating technology into their workflows. Initial conversations and analysis were conducted over a three-year period, with change initiated throughout the process. Outdated processes were reviewed and evaluated and underutilized functions in vendor's products were considered. An outside consultant acting as a neutral party facilitated discussions and planning. During the ensuing years, these, along with several other factors, resulted in thorough reviews of both technical services and collection development.

A second round of workflow analysis began in 2015. Between the initial evaluation and 2015, a number of faculty and staff retired or resigned. As a result, phase two re-examined some suggestions from phase one that were not yet implemented and explored new opportunities that were made possible by changes within the institution and the publishing industry. Implementation of the EBSCO Discovery Service and other technological changes resulted in re-evaluation of early decisions from the 2007 phase. Cataloging & Metadata, Acquisitions, and Electronic Resources merged into one department just prior to a new department head's arrival in August 2015 and the second phase of the analysis. Several specific changes have resulted from these reviews, and the authors can now reflect on the planning, execution, and evaluation of the changes. The findings provided useful lessons learned and best practices that may assist other professionals as they initiate similar projects.

Concurrent with the shift to digital materials that has increased over the past decade, there has been an emphasis on providing content at the point of need and data driven selection and retention. Efforts to become more efficient included the use of detailed cost per use analysis and results from pilot projects for various purchase on demand models to help shift from a traditional collection development model to a more modern strategy. The new strategy considers space needs, evolving user expectations, new university and library strategic goals, and budgetary realities while allowing the library to meet user needs in a rapidly changing environment. This paper discusses these stages of evolution, the process for creating lasting change, and producing a more effective and efficient process for acquiring materials. The department has continued to follow the workflow analysis recommendations and is committed to encouraging change and growth that helps meet the strategic goals of the library and university.

Literature Review

Change is an ongoing topic in academic libraries and is reflected in the literature of the past twenty years. Numerous published papers address specific workflow changes, and realignment of staff due to changes that have accompanied the increase in digital formats and automation. Many of these papers reflect on a specific aspect of the acquisitions or cataloging process rather than a higher-level overview of the process. Several studies focus on electronic resources (e-resources) and the impact of shifting from print to electronic. Other papers take a more philosophical approach.

Ideas about how to reorganize technical services date back to the 1980s, with some suggesting an elimination of the department. Eden, Calhoun, Bates, Intner, and others have speculated on aspects of change in technical services, including changing the name. Intner referred to technical services as the "ugly ducklings in the library pond," and noted that most of our colleagues do not know what we do.[1]

Addressing the climate and challenges of change are common themes in the literature. Pearson and Busch outlined changes made at the University of Nebraska that included both physical change to the space and philosophical changes in the organization. While they primarily addressed space issues, they also noted the importance of project management and creating criteria that aligns with the approach taken by the authors of this paper.[2] The impact staff perceptions have on their work and the organization should be considered during the planning and execution of a workflow analysis or reorganization. Ellero, in discussing workflow redesign at Auburn University, noted that she "focused on her people, and the fact that she was simultaneously losing, gaining and growing staff." Seeking staff feedback and building consensus is critical toward success in a workflow analysis. Ellero "is encouraging all staff to assemble frequently and as needed to work through problems together, especially the partnering of staff across similar functional areas."[3]

The impact of workflow analysis and reorganization on staff at all levels is documented in the literature. Ferguson found that reorganization and the need to do more with less has led to dramatic changes in position descriptions and added responsibilities with e-resources. This is particularly true with the increased focus on e-resources where "some institutions are restructuring positions with electronic resources tasks to encompass areas of responsibility that are not traditionally associated with electronic resources and serials." Attention is focused on how reorganization has impacted library support staff. Ferguson notes that "as budgets are cut and responsibilities are shifted from librarian positions to staff/paraprofessional positions, it not only affects workflows and procedures a, it can become a morale issue within the library."[4] Involving staff throughout the process of reorganization is critical to success. A successful technical services reorganization at the University of Tennessee Knoxville was credited among other things to "open communications, guided leadership, and shared collaboration."[5] According to Ellero, to create a healthy environment for project success, managers should focus on "enabling continuous learning and growth" and instill "an attitude of helpfulness." Other strategies include involving small teams, creating project timelines, and taking time to list the concerns of all staff.[6]

Throughout the literature, discussion of workflow analysis and reorganization often centers on communication. There are situations in which staff within the same department know their own work but are unfamiliar with the work that precedes or follows theirs in the workflow. Staff need to work together to document current workflow and to develop new processes and procedures. This allows everyone to become more familiar and comfortable with the changes, and to share their thoughts on the changes that will result from the reorganization or changes to current practices.[7]

Workflow analysis should provide an opportunity to look broadly at all aspects of the area being reviewed. It should be comprehensive, involving processes and people. Mackinder notes that "workflows are and should be bigger-picture" than process and procedure reviews. She correctly states, "Workflows should be system-agnostic and bridge the gap between policy and procedure."[8] Anderson acknowledged the importance of "clarity about the process, clear communication with all library staff, an iterative workflow conversation, and a list of all possible steps within the workflow to make sure all are accounted for and transitions are clear."[9]

The literature reflects the growing need to improve the visibility of technical services and reaching out across the library to improve opportunities for collaboration and communication. This is particularly important for rethinking how e-resources are managed. Schmidt and Korytnyk Dulaney suggest that "it is necessary to create partnerships with public services and other library departments to understand how access to e-collections is similar to and different from access to print collections, in order to build cohesive policies and enhance end-user search and discovery processes."[10]

Research on workflow and reorganization covers specific areas of technical services work, including e-resources, and examines all aspects of wide scale reorganization. Workflow analysis and reorganization can be managed separately or together as part of a comprehensive review. Findings from a large-scale review of processes may be a catalyst for review of staffing to consider new efficiencies. Results of a 2014 survey of the Technical Services Directors of Large Research Libraries Interest Group found two clear and consistent reasons for pursing a workflow analysis within technical services. Davis concluded "the consolidation of technical services functions is being driven by the desire to increase consistency and efficiency and to reduce costs." She also stated that there "seems to have become a routine practice in technical services to assess existing workflows to make minor adjustments or to undertake a wholescale reorganization process."[11]

Lessons learned during early segments of a workflow analysis can result in changes in the project. Hamlett believes that "the process of documenting, diagraming, and analyzing current workflows will also lead to more streamlined workflows." The benefits of this process may include "a better understanding of staff functions which could lead to some staff reorganization in the future."[12]

Libraries seem to focus more on resolving the differences between public and technical services. There is an understanding that technical services and public services each enable the delivery of services Mortimore and Skinner reported on a recent project at Georgia Southern University intended to improve notification and database instruction following the activation of new resources. The process emphasizes collaboration between technical services and public services when new resources become available. They found that public services involvement "increased awareness and understanding of new and updated resources among public services staff and patrons, improved

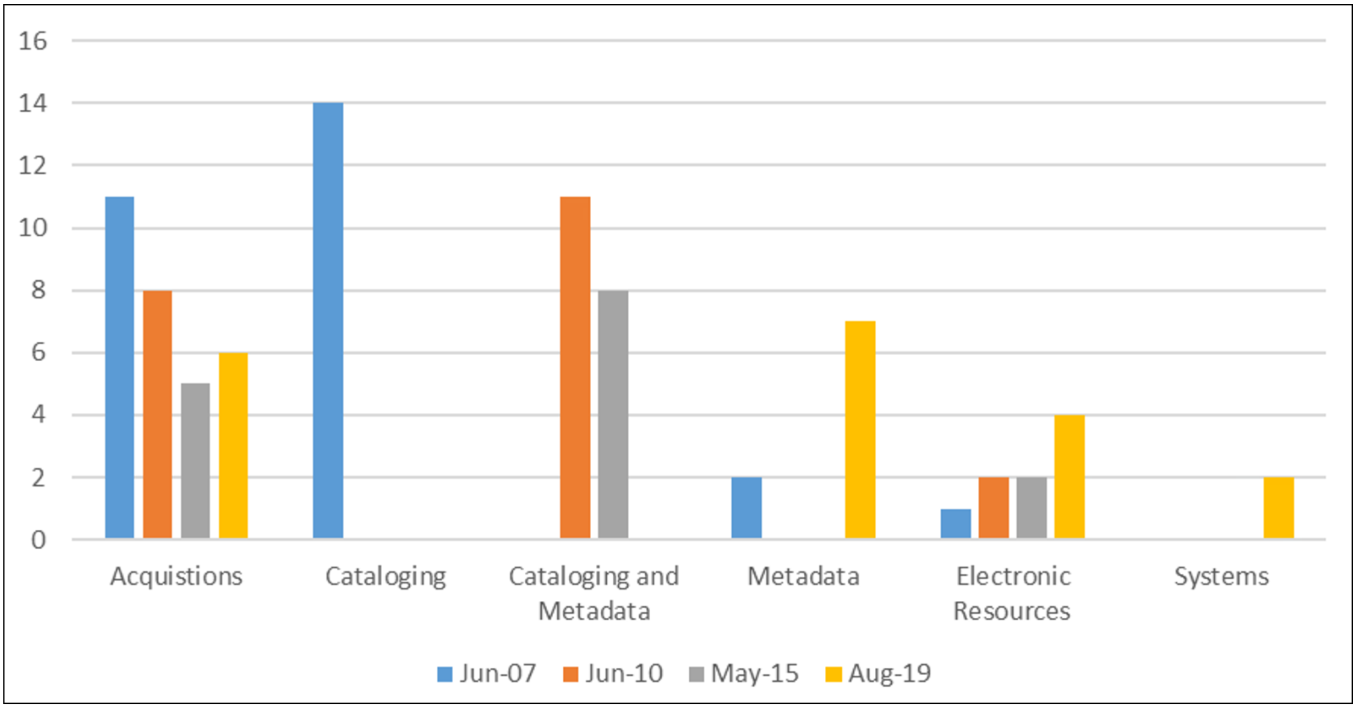

Figure 1. Changes in Personnel 2007–2009

communications between technical and public services staff leading up to and following go-live and improved mediation of resources to patrons."[13]

Staffing Snapshot

The organization of the departments and staffing levels at University of Alabama changed as the reorganization progressed through both phases. In 2007, there were two departments, Acquisitions and Cataloging and an Electronic Resources unit. Systems was part of the Library Technology Division in 2007 and was transferred to Resource Acquisition and Discovery when the systems librarian retired in 2016. Staffing changes began as faculty and staff retired. Changes that impacted staffing included transitioning from print to e-resources and eliminating the duplication of work across units and departments. Some staff were also concerned about ending long standing processes in which they had participated for many years. They often feared that their positions would change dramatically or be eliminated. To help alleviate these concerns, staff were involved in discussions about processes and rethinking how to change or improve them. Their input was solicited, which helped to gain buy in for the changes. Reorganization also impacted the departments when three metadata faculty and staff were transferred to Special Collections to focus on digital projects. This change occurred prior to the start of phase two. Leadership in the departments also impacted the changes. One department head became seriously ill and another long-time department head retired. These factors created both complications and opportunities. The open management positions gave the library the flexibility to pursue new direction with phase two of the reorganization.

Illustrating changes in the numbers of faculty and staff is not straightforward due to the changes in unit and department names. Figure 1 graphically depicts the staffing decreases in cataloging and acquisitions, and the increased emphasis in e-resources that has occurred since 2007. Variances in the chart related to Cataloging and Metadata are indicative of the reporting structures for these areas since 2007. The current structure refers to all cataloging and metadata processes as "Metadata" has been in place since 2017, with the addition of Systems and Technical Processing.

It is necessary to provide details regarding staffing levels and areas of assignment to show the overall transition that has occurred in technical services since 2007. Table 1 shows the breakdown of staff and faculty by reporting area in 2007. These numbers were the starting point for what became a thorough review of technical services and reflect a heavy emphasis on the management of print resources. Staffing was higher in the traditional print areas of acquisitions and cataloging. A major goal of phase one involved determining the proper amount and alignment of staffing.

Table 2 provides evidence of the positive impact from

Table 1. Faculty and staff count by unit in technical services as of June 2007

Department	Faculty	Staff
Acquisitions	1	10
Cataloging	4	10
Electronic Resources	1	0
Metadata	1	1
Total	7	21

Table 2. Faculty and staff count by unit in technical services as of June 2010

Department	Faculty	Staff
Acquisitions	1	7
Cataloging & Metadata	5	6
Electronic Resources	1	1
Total	7	14

Table 3. Faculty and staff count by unit in technical services as of May 2015

Department	Faculty	Staff
Acquisitions	0	5
Cataloging & Metadata	5	3
Electronic Resources	1	1
Total	6	9

Table 4. Faculty and staff count by unit in technical services as of August 2019

Unit	Faculty	Staff
Acquisitions	1*	5
Metadata	5	2
Electronic Resources	2	2
Systems	1	1
Total	9	10

*DH serves over the whole Department

phase one of the reorganization. By June 2010, the total number of staff had been reduced, and most of the changes had been made in the traditional areas. Faculty counts remained steady. Staff positions that were mainly focused on traditional print ordering, receiving, and processing were reduced over time through attrition. The remaining staff started the process of transitioning to more responsibilities related to e-resources management.

Table 3 is a snapshot of technical services personnel as of May 2015. This represents the faculty and staff numbers just prior to the beginning of phase two. Retirements in key positions and other staff reductions resulted in a situation in which staffing had dropped below planned levels. This was a short-term problem but provided the opportunity for long-term realignment of staffing levels. The open positions allowed for the hiring of new management and key staff positions to support the library's long-term vision.

Table 4 shows the current composition of Resource Acquisition and Discovery. There are nineteen librarians and staff in the department. That is an increase of four from 2015, with the increase in e-resources. While staffing levels within acquisitions remained consistent, it is important to note that staff working in acquisitions are now more integrated into e-resources acquisitions and access. Acquisitions' work has transitioned with the development of demand driven (DDA) and evidence-based acquisitions. Blending traditional acquisitions functions with access and delivery of e-resources has resulted in merging formerly separate areas. This change has also provided the opportunity for cross training and envisioning the workflow in a new way that emphasizes function over format. Staff formerly trained in print acquisitions with differentiation between monographs and serials can now transition into new roles that focus on all aspects of acquisitions without regard for formats. Acquisitions staff are also more involved in making resources available to users through their involvement with e-books and streaming video DDA.

Changing the Organization, Phase One (2007–2010)

In 2007, the organizational structure at the University of Alabama Libraries was traditional and siloed. Acquisitions, Electronic Resources, and Cataloging were separate units with little interaction or overlap in workflow and processes. Collections were print focused in 2007, and this was reflected in the workflow. Many of the employees were long-term and had established workflows that they were initially reluctant to change. This reluctance affected the rate of change. The first phase took nearly two years to complete.

The first phase of analysis and change focused on the Acquisitions Department. During fall 2007, faculty and staff documented current workflows and began to meet as a group. The Blackwell's consultants made several onsite visits to assist with the process and served as a neutral party. Mapping the processes and the faculty and staff functions revealed areas that needed review and adjustments. Management developed goals aimed at breaking down barriers within the physical workflow and preparing staff for the migration to an online environment. Initial goals included increased efficiencies, faster order processes, cost savings, providing training opportunities for staff, and moving the library forward.

Table 5. Key Accomplishments from Phase One

September/October 2007	Workflow description and analysis
November 2007	Presentation of recommendations
March 2008	WCP at Time of Order Beta Testing
May 2008	Final Workflow Mapping
Fall 2008	Testing processes, implementing new staff organizations, improved staff training
February 2009	Blackwell visit to review processes
March/April 2009	Implement workflow for Approval, add barcodes to processing
Summer 2009	Review books with no cataloging to determine if OCLC 100% is necessary
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Although the authors worked with Blackwell's during this phase, the goal was to develop a vendor neutral workflow. Both formats and technology were rapidly changing, and processes that could seamlessly transfer from one vendor to another regardless of what was being ordered and cataloged were needed. When the group began discussing batch processing of records, it was determined that catalogers should be included in the discussion. This promoted communication across departments, rather than only in acquisitions. Additionally, participants took fuller advantage of connections and interfaces between the Voyager system and vendors that previously had not been fully explored. The biggest challenge was accepting good enough for vendor supplied bibliographic records. Traditional reference librarians rejected vendor supplied cataloging records because they felt the quality was inferior and disagreed with the changes being made in cataloging. This matter was eventually resolved, with most librarians and staff realizing the benefits of vendor supplied records during the large influx of new resources.

E-resources began to have an impact on libraries in the 2000s. The larger shift at the University of Alabama began in the late 2000s when e-books were added to the collections and major shifts began for electronic journal (e-journal) content. The existing workflow was reviewed with a focus on reducing the amount of paper needed to manage processes and a corresponding reduction of paper files. Steps were taken to reduce workflow inefficiencies in technical services by eliminating duplication and using vendor provided services to reduce handling during the process and to speed delivery of content to users. Some areas were early adopters of e-resources and served as test cases for what eventually became a library-wide preference in most disciplines. The Science and Engineering Library embraced e-resources earlier because resources in these disciplines were migrating to electronic formats. Additionally, the head of the library wanted to reclaim space in the building for other purposes. The process between 2007 and 2015 moved the library in a new direction and set a tone for the philosophy that resulted in expedited changes that began in 2015. See table 5 for a summary of the key accomplishments from phase one.

Changes continued at a slower pace following the conclusion of phase one. The various technical services units had introduced more technology into the routine workflow associated with purchasing and access. Staffing changes that included moving staff and faculty from Cataloging to Special Collections to concentrate on metadata for their collections, plus retirements and departures, resulted in a slower implementation. During this time, one department head retired, a unit head accepted a new position, and another department head was critically ill, leaving gaps in leadership in the departments. There was also a reluctance among some to accept the necessary changes, and advances were not happening as quickly as originally planned. It was clear during the intervening years that specific and dramatic steps were necessary to implement a management structure to support and pursue the strategic directions that had been established for technical services. Collections and technical services are closely aligned, and many of the policies and procedures that impact one operation will inevitably require changes for both. With this in mind, a plan was devised to usher in a second phase of reorganization with a focus on completing the remaining goals from phase one while setting in motion a new phase to help the library address the needs of a twenty-first-century library.

Changing the Organization, Phase Two (2015–present)

Phase two began with a shift in direction designed to send a clear message about future plans, including building on the positive change realized since 2007. There was a push to expand technical services' scope to better align staffing and service with changes in scholarly publishing and the needs of the university community. In 2015, Acquisitions, Cataloging and Electronic Resources were merged into a single department. The merger resulted in rethinking positions that were needed and returning metadata librarians and staff who had been in Special Collections back to the department.

The merger represented a change in direction for technical services and collection development. Phase two began with renaming the department Resource Acquisition and Discovery. A new philosophy regarding workflow across the departments that had been separate silos was adopted. Following the announcement of the new department, library administration hired a new department head. An early goal for the new department head was to unite the formerly disparate areas of acquisitions, e-resources, and cataloging while conducting a comprehensive workflow analysis and completing the physical reorganization. To improve efficiency, and because there had been other staffing changes and retirements, Systems was also merged into the new department. This brought management of Voyager and EZProxy together in one department.

The decision to hire a new department head was based on the need to broadly examine all processes related to technical services and to address key goals set by library administration. It was important that future changes focused on transforming processes, policies, and staffing to meet the needs of a twenty-first-century library. This included aligning selection, purchasing, processing, discovery, and access to meet the changing needs of a large research university. There was an expectation that the new department head and key managers in the new department would be well connected, understand emerging scholarly publishing models, and be aware of the importance of exploring new purchasing models and new modes of content delivery.

Early in 2015, with a new name in place, Resource Acquisition and Discovery, the search for a new department head began. The new department head was hired in spring 2015 and started in August. The new department head's first assignment was to begin a comprehensive review of policies, procedures, and workflow that impacted technical services and collection development. The goals included integrating the three separate areas that were united to form the new department (Acquisitions, Electronic Resources, and Cataloging) and to seek new ways to manage processes within the department and across the library system. The process involved consolidating the workflow between staff in various areas, removing barriers, relocating staff from multiple locations together in one physical location, and describing the functional areas as one team. Collaboration within the department and the library was a key element of potential change as managers sought to reduce siloed workflows, eliminate duplication, consolidate processing, and explore ways to more effectively select, procure, and provide access to content.

The new department head and staff were supported by library administration and its goal to develop policies, procedures, and workflow that would establish a new vision for research libraries in an electronic environment. The library faced space constraints, budgetary pressure, and changing user expectations. The libraries were now supporting an academic environment that provided online and mixed mode classes while the purchasing decisions and workflow were still based on legacy collections and print-based services. The developing vision needed to integrate collection development into the new department and build a flexible structure that could change as purchasing and content delivery models, user demands, and strategic goals of the university and library evolved. There were clear directives to encourage a thorough review of the existing operation and honest recommendations following the lengthy analysis.

The Workflow Analysis Continues

During the early planning stages of the workflow analysis, goals were established, including the development of a new fund management system to align with expected purchasing patterns as the focus of selection turned toward reliance on e-resources. The workflow analysis continued in fall 2015. That fall ushered in a complete change in how funds were assigned and monitored, with overall management of the fund structure and budget assigned to the new department. There was also a move to help ensure that financial information, usage data and other vital statistics generated by the new department would flow seamlessly to library administration in a timely manner. The workflow analysis needed to focus on how to provide fast and efficient delivery of library content on demand while improving discovery and access to materials. Increasing the discoverability of content and improving discovery performance was necessary to increase usage. The department was charged with exploring how to better use commercial products to assist with discovery and linking to e-resources. Similarly, the analysis provided an opportunity to explore how purchasing decisions were being made and to evaluate newer purchasing models for e-books and streaming video. While some progress was made in fall 2015, the workflow analysis process was expedited early in 2016.

A new Dean of Libraries was hired in fall 2015 and joined the Libraries in January 2016. The new dean supported the workflow analysis and expressed interest in moving to DDA. Prior to 2016, DDA was not a priority. The new dean's support of DDA initiated a complete transition of the collection development model. Coinciding with implementation of key recommendations from the workflow analysis, the library implemented a new liaison model. The new budget structure, the move toward DDA, and the management of collections from the new department were catalysts for the change. Liaisons shifted from a traditional bibliographer selector model to the current model that focuses on instruction and outreach. While some liaisons are more involved with collections than others, particularly in subject areas not well supported by DDA, the shift toward purchasing based on demonstrated need and centralization of collection management into the new department has clearly changed the selection and purchasing strategy.

The workflow analysis produced numerous recommendations, and many changes were made to policies, procedures, and staffing. The positive impact of these changes

Table 6. Key accomplishments from Phase Two

Spring 2015	Decision made to merge technical services and rename Resource Acquisition & Discovery
Summer 2015	New department head hired to manage Resource Acquisition & Discovery
Fall 2015	Comprehensive review of the GOBI approval plan profile & physical reorganization
Spring 2016	Workflow analysis completed and recommendations submitted
Spring/Summer 2016	SpringShare A–Z and EBSCO Usage Consolidation implemented, DDA on EBSCO
Spring 2017	New Coordinator for Metadata & Metadata Librarians + Technical and Systems Librarian join department
Summer 2017	Coordinator for Acquisitions & Electronic Resources hired, Full Text Finder implemented
Fall 2018	Electronic Resources Librarian hired

increased efficiency throughout various aspects of both collection development and technical services operations. Following the success of the workflow analysis and reorganization, there was time to evaluate the entire process of planning the workflow analysis, prioritizing recommendations, implementing new ideas, and evaluating the results.

The workflow analysis and review of processes resulted in a complete review and update to the GOBI approval plan profile. The profile change was initially designed to reduce the need for high amounts of firm ordering by allowing more titles to be automatically selected. However, as noted, it also served as the foundation for a robust DDA model that has continued to evolve since its inception in March 2016.

Information gleaned from the review resulted in full implementation of shelf ready processes, expedited review and disposition of gift materials, and a streamlined review of damaged materials. These issues are examples of impediments, and reviewing the policies and procedures resulted in more efficient processing. Steps were taken in Acquisitions to expedite ordering, receiving, and processing with an emphasis on improving delivery time to Circulation. Working collaboratively with Circulation and Interlibrary Loan (ILL), efforts were made to improve physical processing and use ILL data for purchasing decisions.

New products were implemented in 2016 to help with resource management and to improve discovery. SpringShare A–Z, an alphabetical list of databases, was fully implemented and is managed in Resource Acquisition & Discovery. Liaisons were included in the planning and continue to make recommendations for improvements. EBSCO Usage Consolidation was added to the growing list of EBSCO products used to manage e-resources. Using EBSCONet for cost and usage data has proven to be helpful to make retention decisions, and the data is used during negotiations, particularly for Big Deals. Phase two ended in the successful alignment of new responsibilities, processes and organizational structure to address the current needs of the library. See table 6 for a summary of the key accomplishments from phase one.

Discussion

Workflow analysis and reorganization is a catalyst for change. The process allows an organization to review and evaluate legacy operations, including outdated collection development strategies and technical services processes. Often these dated processes continue long after the need for them diminishes. This can be due to a lack of focus on ensuring routine and consistent review, or because of reluctance by some library staff to discontinue a workflow that has been part of their routine for many years. Legacy operations frequently include unnecessary steps to process materials. Reviewing workflows can highlight these outdated procedures and initiate changes that improve the efficiency and effectiveness of operations. A good example is how the authors' library ended liaison review of approval plan shipments. Since libraries often do not return print materials received on approval, the delays in processing created by liaison review increased the time it took to send materials to circulation while the cost of accepting a few books that would have been returned has far less impact than holding up workflow.

Completing a detailed workflow analysis will likely identify inefficient operations. During the process, all staff involved should review existing procedures and answer two important questions. First, are there steps that should be taken that are not currently being taken? Does the process include steps that are no longer necessary? Experienced staff are often able to find new efficiencies, particularly when they understand that changes to procedures will result in faster ways to move processes through the department and better ways to complete the work in an efficient manner. This evolution in thinking results in an increased sense of responsibility and buy-in from staff who have had a larger role in the success of the project.

If a department has not updated procedures and policies in many years, a workflow analysis can serve to identify where changes are needed, and who should be involved in the process. Frequently, during a thorough review of workflow, inefficiencies are discovered, and the failure can sometimes be attributed to outdated procedures and policies. The analysis can lay the groundwork for making positive changes in desired outcomes and the steps necessary to best serve local needs. Being willing to consider new outcomes and to reduce unnecessary processes is critical when efficiency is the goal. Reviewing workflows with a goal of achieving maximum results with the least amount of staff involvement is critical to success and can result in innovative new ways to accomplish organizational goals.

Two key results of a detailed workflow are important for the future of any department within a large library system. Identifying training needs and single points of failure during a workflow analysis project assist in planning for ongoing improvements in the department. A good workflow review can identify the need for cross training. It is important to identify areas where key decisions are made or processes are completed by a single person. Having this information provides opportunities for training, may result in possible employee promotions, and helps with continuity when an employee leaves.

Determining When to Conduct a Workflow Analysis

Organizations need to consider when it is appropriate to undertake a detailed workflow analysis project. These projects frequently coincide with the hiring of new librarians into key leadership positions. New leaders typically bring expectations or strengths, and to execute them, they must first determine what is works well and where improvement is needed. New leaders may receive directives from their superiors, which require the manager to gain an understanding of existing practices before instituting changes.

An organization may need to review workflow to address the loss of key positions or new strategic directives. It is important that large-scale changes not be implemented without a thorough understanding of the complete workflow within the department or units that will be impacted. Libraries are undergoing physical changes resulting from the need to find more space for users, which can affect staff. Any time there could be a physical move of staff, or when individuals from different areas within a library are brought together to report to one leader, it is an ideal opportunity to review operations. Finally, when a department or library expects to implement a major new initiative, there is also an opportunity to review workflow, even if it is limited to those aspects of the work that will be impacted by the pending change. When the decision is made to begin a workflow process, and particularly when reorganization is an expected outcome, it is important to take steps early to mitigate problems that can slow the project or negatively impact the results.

Managing the Process

Whether an individual or a team is leading a workflow analysis, it is important to manage the process from the early planning stages through to completion. There is potential for staff to be impacted or affected by changes in processes or altered workspaces at any point in the process. Perhaps the most important step to be taken early in the process is to gain the support of the library administration, faculty, and staff. This is critical since individuals will have the opportunity to participate and share in success. Otherwise, there is the risk that they may be neutral, or even worse, negative toward the entire process. It may not be possible to get complete buy in, but having engaged staff who feel they have a voice is critical to help reach the desired outcomes.

It is necessary to promote an environment that supports active engagement and encourages everyone to participate. Seek out and use feedback with the goal of getting input from those closest to the workflow that is being reviewed. It is important to empower staff because leadership can be situational and may emerge from various areas of the department. It is vital that staff feel that they are part of the process and are heard. This provides buy-in and ownership for the processes being developed and the reorganization of the department.

The purpose of a workflow analysis is to review all aspects of library, department, unit, or functional areas with the goal of implementing effective changes. To be successful, leaders need to create a change environment that is focused on inclusiveness and includes open dialogue. While the process should include involvement at all levels, it is important that the senior leadership for the project lead by example. This includes setting the tone for productive workflow review sessions and encouraging others to suggest new ideas, comments, and questions.

Workflow analysis is difficult and time consuming. Often much time passes before the desired changes become reality. Staff may lose interest because there seems to be little progress, which makes it important to highlight successes. Even small victories will motivate the team. While successes are the expectation, there will also be failures, and these will help guide future discussions. Throughout the analysis, the focus should remain on identifying areas that need improvement, including inefficient operations.

Considerations

Since the authors were leading an analysis of technical services and collection development, their focus was on the movement of physical materials or processes required to acquire e-resources and make them discoverable. What they learned during the project led to the development of a list of key areas of discovery that affected the workflow analysis and outcomes. These factors were considered in various aspects of operations and human resource management following the project. Some of these factors are now common practice within the department. First, identify obstacles to determine if the root cause is inefficient operations, lack of staffing, lack of training, or all of these things. Use them as an opportunity to explore training needs. Training and cross training will help to improve staff members' comfort levels, prevent single points of failure, and result in the department establishing succession planning for key areas. It is important that more than one person manages all key functionality. Finally, use the workflow analysis process and the detailed review to help staff at all levels become more aware of the impact of their work. Everyone will be more motivated if they understand how they are connected to others within their department and the larger organization.

Planning for Success

Workflow analysis and reorganization are two different processes but are often managed together given that a workflow analysis, even in the early planning stages, can identify the need for reorganization. The latter can be as simple as relocating individuals on the same floor or department to improve interaction or to bring staff with similar responsibilities in closer proximity. Or, it may be complex and involve relocation to new work areas with supervisory changes and new responsibilities for staff. The authors managed a planned workflow analysis and reorganization that was designed to radically change the environment and lead to a new vision for technical services and collection management. Managing both simultaneously contributed to positive results and key findings that may help other librarians who are planning for an extensive review of workflow processes.

It is important to stress that a project of this magnitude requires a lot of effort, planning, and willingness to make changes. Both planning and analysis are critical to success and it is important that the analysis be carried out during the workflow review process. While the results are what will be measured, it is important to consider that steps taken before and after the actual changes will contribute to overall success.

It is critical to set reasonable goals and objectives, to establish and follow reasonable timelines, and provide regular reports to managers and staff to keep everyone engaged. Start by gaining support from the staff, help them to envision changes, and explain how they are related to the strategic vision for the library and the larger organization.

The review process will help to identify inefficiencies and strengths. Individuals should be given an opportunity to provide input and, when appropriate, given an opportunity to provide leadership based on their specific strengths. Use regular department meetings to keep the staff updated on changes and to maintain communication going throughout the process. Since good ideas can come from all levels of an organization, it is important to foster an open environment where opinions are welcome and considered. When staff are involved from the outset and given a chance to actively participate, it will increase the chances of success.

Conclusion

This paper provided an overview of the workflow analysis and reorganization of technical services at the University of Alabama starting in 2007. In addition to covering planning and execution of the project, this paper highlights the key successes and challenges encountered over the two phases that focused on all aspects of workflow, staffing, physical location of operations, and the migration from a heavily print-based collection to one that emphasizes e-resources with a focus on providing access at the point of need. The project was iterative, and planning was set in motion to develop a process of continuous improvement. The study examined workflow analysis in a large academic library and focused on providing best practices for managing change and shifting priorities and practices within technical services to align with current user expectations, evolving industry standards, and university priorities.

An overview of changes in staffing and highlights of the organization of technical services were provided and covered in detail to emphasize how changes brought on by several factors resulted in a shift of positions toward e-resources management. Throughout the two phased process, mapping was used to identify barriers to workflow and to institute changes that would increase efficiency and result in more effective results. The analyses identified the need for better communication between the various areas within technical services, the importance of using existing and newly acquired technology, and a focus on change management.

The two phases of workflow analysis and reorganization saw major changes to e-resources management but also a steady reduction in print-based operations and associated workflows. While the workflow was changing, there were opportunities to change priorities and policies, and to introduce new philosophies related to collection development and technical services. A new focus on uniting formerly disparate units into one cohesive department to manage both technical services and collection development served to accelerate the rate of positive change.

This project identified the need for more collaboration within the department and to selectively reach out to other library departments as priorities shifted toward a collection model that emphasized purchase on demand and more outreach to academic departments. There was a recognition that the process needed to result in a flexible management structure and a focus on modern purchasing and delivery models.

The results of this two-phased review were positive and resulted in specific new initiatives, including a robust DDA plan for academic monographs, staffing changes, physical relocation of staff and elimination of redundant processes. The analysis identified areas in need of cross training, identified single points of failure in the workflow, and highlighted the need for consistent review of processes and alignment to library and university strategic plans. During the years of this ongoing analysis, several new products were implemented, including SpringShare, EBSCO Usage Consolidation, and Full Text Finder.

Some clear best practices developed, including the importance of timing for initiation of comprehensive workflow projects and detailed planning prior to execution of changes. It is important to include staff at all levels, to seek their input, and to build support before changes are made. Including staff opinions and considering their concerns as much as possible throughout the process can help garner support and buy in from those most impacted by the changes. It is critical that libraries undertake workflow analysis periodically to review current practice and take the opportunity to evaluate priorities and processes. Change is inevitable and it is important to have clearly articulated goals, to celebrate small victories, to include staff at all levels, and keep communication lines open. Doing so will help mitigate the natural tendency to avoid change and will result in more efficient and effective services that align to the needs of a modern academic library.

References

1. Sheila S. Intner, "A Technical Services Makeover," *Technicalities* 27, no. 5 (2007): 14.
2. Debra J. Pearson and Nancy J. Busch, "Redesigning Nebraska's Libraries Technical Services: Creating a Climate for Change," *Library Philosophy & Practice* 617 (2011), http://digitalcommons.unl.edu/libphilprac/617.
3. Nadine P. Ellero and Eugenia Beh, "Charting a Course toward Embracing Evolving Technical Services Horizons," *Serials Librarian* 72, no. 1–4 (2017): 153, http://doi.org/10.1080/0361526X.2017.1321292.
4. Christine L. Ferguson, "Electronic Resources and Serials Staffing Challenges," *Serials Review* 44, no. 2 (2018): 125, http://doi.org/10.1080/00987913.2018.1471885.
5. Nancy Bight et al., "Ch . . . Ch . . . Changes: Restructuring Through Change," *Serials Librarian* 74, no.1–4 (2018): 136, https://doi.org/10.1080/0361526X.2018.1428008.
6. Shade Aladebumoye and Nadine P. Ellero, "Rebuilding: Organizing and Operating Under New Mangement," *The Serials Librarian* 70, no. 1–4 (2016): 226, https://doi.org/10.1080/0361526X.2016.1147881.
7. Bight et al., "Ch . . . Ch . . . Changes."
8. Lisa Mackinder, "The Seemingly Endless Challenge: Workflows," *The Serials Librarian* 67, no. 2 (2014): 159, http://doi.org/10.1080/0361526X.2014.940481.
9. Elsa K. Anderson, "Workflow Analysis," *Library Technology Reports* 50, no. 3 (2014): 24.
10. Kari Schmidt and Christine Korytnyk Dulaney, "From Print to Online: Revamping Technical Services with Centralized and Distributed Workflow Models," *Serials Librarian* 66, no. 1–4 (2014): 74, http://doi.org/10.1080/0361526X.2014.879033.
11. Jeehyun Yun Davis, "Transforming Technical Services," *Library Resources & Technical Services* 60, no. 1 (2016): 58.
12. Alexandra Hamlett, "Keeping Up with the Flow: Electronic Resource Workflow and Analysis," *Serials Librarian* 70, no. 1–4 (2016): 173, http://doi.org/10.1080/0361526X.2016.1159434.
13. Jeffrey Mortimore and Debra Skinner, "Shaping Expectations: Defining and Refining the Role of Technical Services in New Resource Rollouts," *Serials Librarian* 72, no. 1–4 (2017): 170, http://doi.org/10.1080/0361526X.2017.1285127.