

COLLECTION ASSESSMENT:
A CRITICAL IMPERATIVE FOR
ACADEMIC LIBRARIES

ABSTRACT

The ability to assess the use and value of the resources in a library's collection is absolutely vital for today's academic libraries. Libraries are investing in major assessment efforts, generally one-off initiatives that consume immense amounts of resources, in order to derive metrics that demonstrate institutional value. This underscores the need for a more holistic solution for collection assessment.

THE NEED FOR OBJECTIVE, DATA-DRIVEN ASSESSMENT

The ability to assess the value and use of the materials in the library's collection is critical for today's academic libraries. This is being driven by a number of factors:

- Increasing availability of academic content online
- Growth in electronic resources, which questions the value of space-consuming printed works
- Budget pressures that require libraries to understand the return-on-investment for items in the collection, and to avoid redundant investments with e-resources
- Overall pressure on the library to prove its value to the institution

The creation of the LibValue project, funded by the Institute of Museum and Library Services, emphasizes how important the assessment challenge has become to libraries. It was created to establish quantitative metrics to measure return on investment at academic libraries, demonstrate value, and show how the library contributes to overall institutional success. Three U.S. university libraries have taken the leading role in the project.

The project's first phase developed a methodology that used library budgets, faculty surveys, and grant income to tie faculty use of library materials to dollars received, and calculated a quantitative ROI for library investments. The findings showed that \$4.38 in grant income was generated for every dollar invested in the library.

The project's second phase adapted the phase one methodology, incorporated additional data inputs, and applied it across eight institutions in eight different countries. The calculated ROI was between 15.54:1 and 0.64:1 in research grant income for each monetary unit invested in the library overall, while examining the investment in the e-collection alone returned an ROI from 155:1 to 6.4:1. The study, however, did not claim a causative relationship between library investments and grant dollars returned.

Phase three takes a wide-ranging look beyond the collection, investigating the multiple ways in which libraries create value, and aiming to create models and tools for calculating the return. Several of the assessment projects later described in this paper are phase three LibValue projects.

In addition, in June 2012, the ACRL Research Planning and Review Committee released its 2012 Top Ten Trends in Academic Libraries. This biennial report on the issues affecting academic libraries in higher education put an exclamation point on the need for assessment capabilities. Of the ten top issues identified for the current period, two (communicating value and higher education) are directly related to the need for improved collection assessment. Another five represent changes in the delivery model where assessment capability will play a major role in guiding libraries through the transition while continuing to prove their value.

ASSESSMENT-DRIVEN ISSUES

Communicating Value	Academic libraries need to be able to demonstrate how use of library materials and resources correlate with student achievement, and student and faculty success.
Higher Education	The rise in online instruction and degree programs and increased skepticism about the value of a college degree will have an impact on how collections are developed, services are delivered, and how libraries demonstrate value to parent institutions.

ASSESSMENT-RELATED ISSUES	
Information Technology	Social media networks, open content, online and hybrid learning and ubiquitous access to information challenge the library's role as curator.
Mobile Environments	The rise in online instruction and degree programs, and increased skepticism about the value of a college degree, will have an impact on how collections are developed, services are delivered, and how libraries demonstrate value to parent institutions.
Patron Driven e-Book Acquisition	Libraries are predicted to move away from open stacks of physical books with low circulation, and replace them with e-books procured under license terms that focus on high-demand titles.
Scholarly Communication	Open access and other new publishing models that are being developed at an increasing rate are calling traditional arrangements with publishers into question.
User Behaviors and Expectations	With the widespread use of the Internet and search engines, providing convenient access to resources and information is equally if not more important than the depth of resources available.

A REVIEW OF RECENT ASSESSMENT PROJECTS

A literature review of assessment projects undertaken by academic libraries reveals that libraries are investing in technologies, inventing methodologies and expending staff time, in order to assess and analyze their collections. While there are some usage tools available, such as the COUNTER initiative and those that are aligned with e-resource collections, nothing tackles the assessment challenge in a unified and holistic way inclusive to all materials.

In general, assessment projects have used a mix of vendor databases along with proprietary and open-source electronic platforms to mine data. Then, libraries are applying their own custom models and manual number crunching to answer specific questions. As the following examples show, some libraries are entering data manually in Excel spreadsheets, a time-consuming process. Some libraries are collecting electronic platform-generated data and then developing proprietary models to tailor findings and answer specific questions. Others hire external consultants to help manage and model their data and assessment strategies.

The goals of these projects fall into four broad categories:

- Communicating Library Value and Return on Investment
- Rightsizing Investment in Electronic Resources
- Supporting Library Transformation
- Implementing Patron-Driven Acquisition

COMMUNICATING LIBRARY VALUE AND RETURN ON INVESTMENT

Establishing return on investment (ROI) is vital to demonstrating the continuing value of academic libraries to university administrators and the public. Determining and reporting library ROI is even more imperative now, as academic libraries face budget constraints. Assessment projects typically are measured by their success at calculating an ROI figure or ratio for library services and materials, winning funding, or saving resources from being cut.

University of Tennessee

The University of Tennessee is one of three U.S.-based universities leading the LibValue project. As part of its Phase III activities, the university evaluated the return on investment for its digital special collections by developing a model to place a monetary value on services that are difficult to measure because they are “public goods.”

Project designers first defined two measures of value—dollar amount and impact on research and academic reputation. The researchers then created a custom survey asking users at the special collections library about their willingness to pay for access to the collections, to quantify value. The project also used Google Analytics to generate demographic and usage data, which was compared with the survey data to determine which collections users valued.

Preliminary findings showed that “users value certain digital collections at the University of Tennessee Library,” and that the model may be useful for assessing ROI for other digitized special collections.

University of South Florida

Facing budgetary pressures, the Special and Digital Collections Department at the University of South Florida launched an assessment program to re-evaluate its strategic goals. The department set out to answer a series of key questions on how to maximize resources, using data-driven tools rather than anecdotal evidence.

Quantitative data was collected using several software platforms and tools: Aeon, Desk Tracker, Google Analytics, CampusGuides, and Fedora Commons Repository Software. These software platforms collected data on collection use, reading room activity, website traffic, circulation and reading room statistics, registration profiles, and web analytics.

The project led to significant changes and restructuring. The department revamped its website, updated the digital collections user interface, rearranged collection storage to make materials browsing more efficient, restructured the reading room reference model, created a prioritized processing system based on use patterns, and updated collection development policies. The use of quantitative data as evidence of user patterns, requirements, and needs resulted in successful application for additional university funding.

Bryant University and Drexel University

As part of the LibValue project, both Bryant University and Drexel University conducted projects to quantify the use, value, and ROI for 77 academic library services.

A survey of faculty, staff and students asked the amount and time spent using each library service. Applied in conjunction with in-depth cost analysis, this established a series of metrics: library cost per investment, use, value, user cost or investment, university investment, and finally, return on investment. Within this framework, “contingent valuation” of services was used; for example, a library service was compared to an alternative source of information as a measure of value.

The study found that faculty’s “contingent valuation” of the information they received from the library, i.e., the estimated cost of obtaining it elsewhere, was \$38.9 million. Given the faculty’s actual cost of \$19.4 million to browse, search, obtain, photocopy, and print materials, the project calculated this library service as a net benefit worth \$19.5 million. This number was factored into the \$6.7 million cost of library investments for articles, thus creating a library ROI ratio of 2.9 to 1, or \$19.5 million of value to \$6.7 million in investments. Further, the study found that the ROI ratio for reference services was higher for faculty and staff (a ratio of 17 to 1) than for students (6.4 to 1).

RIGHTSIZING INVESTMENT IN ELECTRONIC RESOURCES

Academic libraries provide public goods and services where the “collective value of all users must be estimated to determine if the subscription or license should be purchased.” Moreover, the explosion in electronic resources is compelling academic libraries to change their assessment and collection practices. From 2010 to 2012, the average number of ebooks offered at graduate and professional libraries grew from 37,500 to 138,800, and at undergraduate libraries, from 31,000 to 80,700. This represents two-year growth of 270 percent and 160 percent, respectively.

University of Maryland University College

The University of Maryland University College (UMUC) focuses on distance education, and as such its library services are almost 100 percent online. The library performs an annual collection review using a series of criteria for assessing its collection, such as login statistics, percentage of full-text articles accessed, relevance to UMUC’s curriculum, overlap with other databases, and input from faculty. UMUC completed two projects, one in 2010 and the other in 2011, in order to validate the reliability of its annual assessment process, ensure that its collection was competitive, and demonstrate the value of the collections to justify continuing financial support.

The first project was a library program review, conducted in spring 2010. The review was performed by external consultants, including subject-area librarians from leading institutions. These consultants conducted their own analyses, participated in follow-up phone calls with UMUC staff, and delivered detailed reports. They found that UMUC’s collections were sufficient and appropriate for the curriculum, and in some cases exceeded the expected minimums. There were, however, specific gaps in subject coverage noted, and the results allowed UMUC to obtain additional funding to cover those gaps.

The second project was a benchmarking project that measured UMUC's research database holdings against those of its peers, and compared key indicators such as library staff ratios and library expenditures. Once the peer group had been identified, the "library database holdings lists of the peer group were harvested and then analyzed in comparison with UMUC's holdings." Each difference in the collection between UMUC and its peers led to greater scrutiny into whether the discrepancy was due to differences in curriculum, or whether the content was duplicated by other subscribed databases. This process entailed UMUC manually assigning an "evaluation code" to each database to determine whether UMUC currently subscribed, whether or not it was applicable to the curriculum, and whether an unsubscribed database was desirable relative to available funding.

The data were used to calculate total collection expenditures versus electronic collections, expenditures per full-time employee, total library expenditures, and holdings and activity data.

University of Minnesota

The University of Minnesota (UM) determined that the "cost per use" metric was based on the "questionable assumption" that a user who clicks on a link downloads the article, reads it—and most importantly—cites it. The project instead defined a set of value-based metrics in the areas of utility, quality and cost-effectiveness to guide collection-management practices. These initiatives are part of a broader 2011-13 strategic plan undertaken by the university library system to "explore new and collaborative approaches to collection development and management . . . in the context of continued inflation and constrained budgets."

The UM libraries agreed that while the most common vendor-generated metrics (e.g., from their link resolver and COUNTER) generated useful data on the number of downloads and cost per material, these platforms were limited in answering key questions, such as how journal use varied across different academic departments. UM took this process further and used "affinity strings" to capture key data when a patron logged into the system. These included the user's department, degree program, and position at the university. Finally, two years of data were integrated into a single spreadsheet for analysis. This methodology allowed UM to use the metrics to decide which e-journals would be retained.

The project found that different data-measurement metrics produced more useful results than others, depending on the question being asked. For example, link resolver data combined with custom affinity string data generated a satisfactory snapshot of journal use, while link resolver click-throughs were found to be more predictive of citation behavior than COUNTER downloads. Data collection began in 2009, with data analysis and results expected to be completed by summer 2013.

SUPPORTING LIBRARY TRANSFORMATION

Academic libraries are transforming from information repositories into engagement-centered spaces and "co-creators of scholarly experiences and outcomes." Students demand collaborative study space and amenities at the expense of open stacks. Space-saving robotic collections systems and weeding initiatives are being brought to bear as capacities for print materials reach their limit.

One estimate calculates that 100,000 monographs take up 20,000 square feet, while 2.7 million monographs take up 405,000 square feet. Meanwhile, circulation of monographs in most libraries is flat or declining, with a sizable percentage of most collections not used at all. Print materials carry higher costs than electronic materials in space, cleaning, maintenance, electricity, climate control, staffing, and circulation.

North Carolina State University

North Carolina State University (NCSU) faced the problem of overcrowding in its libraries, with the ability to seat only 5 percent of its students — far short of the university standard. As part of the launch of a new, state-of-the-art library in January 2013, the university planned for ways to save space to accommodate future needs. The new library would be part of the university's goal to compress space and ultimately transform the library "from a storage facility into a rich environment of learning and collaborative spaces." NCSU chose a robotic, automated retrieval system—bookBot—that requires only one-ninth of the space used for conventional shelving.

In summer and fall 2012, the library carried out the migration of 1.4 million books and other materials to bookBot. NCSU tracked the migration with a data management system and matrix that included the calendar timeframe, days remaining, working days, percentage complete, duration in days, count of materials, and tasks (types of materials). The system was integrated into the established integrated library system (ILS) software.

As a result of the migration and use of the data management system, NCSU was able to generate key statistics and analytics for its collection. For example, the analytics included the average number of checkouts by day of the week or time of day, and future capacity forecasts for the entire library. Among lessons learned, NCSU determined that data analysis is an in-demand skill for librarians.

University of North Alabama

Collier Library at the University of North Alabama (UNA) is currently in the process of weeding out its print books in order to increase the space and facilities available for students to work collaboratively, while preserving a print collection that matches current curricular needs. Additionally, the rise of electronic alternatives was a motivating factor for undertaking the cull – Collier currently offers access to over 200,000 ebooks and 19,000 online journals, and both collections are growing rapidly.

UNA hired a third-party, a deselection tools and consulting company, to develop a framework for withdrawing materials. The company took UNA's data and created a list of "withdrawal candidates" to use as a beginning point for discussion of the materials most eligible for withdrawal. The criteria included most recent circulation date, publication date, and the number of libraries holding the item in the United States. Different objective criteria were assigned based on subject area; for example older books were more relevant for history, while newer books were more relevant for science. Faculty, staff and student workers "flagged" the candidates for deletion; teaching faculty then provided input as to whether the title should be withdrawn.

UNA's weeding process is ongoing, but the result will create more room for student-centered learning facilities, and increase the relevancy of print collections.

East Carolina University

In the spring of 2010, the central administration at East Carolina University (ECU) decided to move a new program into the library building. This created an immediate need to reduce print holdings by 90,000 volumes, or 10 percent of the circulating collection, in order to allot space for the new program, but the library also perceived an opportunity to address long-term goals related to "print collection management and the substitution of online journals for print."

ECU's approach focused on withdrawing printed volumes of journals and serials that were duplicated online, whether in a currently held package or one that could be acquired. The project was undertaken by a dedicated staff of one librarian, three staff members, and two graduate assistants. One part of the effort was a manual process that involved comparing the quality and coverage of the available online editions against the print holdings, including whether non-text elements such as charts and images were reproduced in the electronic versions. If the online version of the title was found to have complete coverage and the digitization quality was adequate, that title was withdrawn. Those that were deemed inadequate were referred to the librarians for final decision.

For the titles not available in the archival journal packages held by the library, the professional librarians undertook an even more painstaking process of assessment. The librarians generated call number lists of journals, with basic identifying information, which were then visually verified in the stacks. The librarians notated each title (e.g., as to availability of online versions, even if not currently held by the library) and then evaluated the title for withdrawal or retention based on relevance to the field or to the university's programs, often consulting with subject-matter specialists. In the process, the librarians developed a series of "rules of thumb" for judging a title. Forming these rules and applying them to specific titles was "by far the most time-consuming part" of the entire project. Even though the rules were in place, librarians still had to determine whether it was appropriate to apply them. Decisions were sometimes made, and then changed; in revisiting a title, librarians found they had forgotten why an initial decision for retention or withdrawal had been made.

IMPLEMENTING PATRON-DRIVEN ACQUISITION

Patron-driven acquisition (PDA) is another trend that will grow in the near future with libraries facing budget constraints. One library, Grand Valley State University, states that it has saved \$481,000 after adopting the PDA model, compared to purchasing all ebooks. According to digital publishing consultant Joseph Esposito, as many as 600 libraries around the world have adopted a PDA system to buy new materials, and this number is "likely to double" by 2014. In addition, he estimates that PDA would "theoretically eliminate" unused library books and could generate savings of around 40 percent at a typical research library.

Cranfield University

Cranfield University, a post-graduate university focused on science, technology, engineering, and management, launched an electronic collections-assessment project in order to justify expenditures and “demonstrate smart procurement to key stakeholders.”

The university has been honing its collection assessment process since at least 2005, and has faced a steep learning curve while starting essentially from scratch. Initially, the library began its assessment with a purely quantitative approach. Drawing upon three data sources—COUNTER usage statistics, subscription agent financial reports, and student and staff population data—the library sought to develop a “systematic process of capturing, storing and analysing [usage] data” that would be “systematic and sustainable,” and could be repeated as needed.

The process developed was essentially an Excel template which used formulas to calculate derived metrics from entered data. Match formulas and ISSNs were used to link data where necessary. The key performance indicators used included: average number of downloads per title, percentage of titles with zero downloads, average cost per title, usage of core titles, cost per full-text download, three-year trends for most popular titles, and core titles in the Top 30 most popular titles.

The library supplemented this data analysis with “a process to capture the qualitative information pertinent to the resources,” including interviews with academic liaisons, which sought to discover who was using the resources and what effect their cancellation might have on teaching and research. The library also performed an analysis of course reading lists to see which titles faculty were assigning, where each title was published, and how often it was assigned.

The library found that the “combined approach” of quantitative and qualitative metrics allowed it to more effectively determine the value of its journal packages, and the results were used successfully to halt a proposed cut in resources, allowing important electronic journals to be spared from budget cuts.

CONCLUSIONS

The libraries that undertook these projects did so out of necessity; whether due to impending budget cuts or other institutional pressures. The time and resources that were devoted demonstrate how critical these initiatives were. The need of academic libraries to measure their worth and assess their collections is not just theoretical – it is very real. It is here now. This heightens the critical need among libraries today for an approach to collection assessment that is more automated and “out-of-the-box.” Libraries should not have to invent their own processes in order to answer the basic questions that their institutions are challenging them to answer.

ABOUT INTOTA™ ASSESSMENT

Intota Assessment is a library collection analytics service that provides book and serials analysis and consolidated usage across all formats. This new service provides innovative views and metrics of a library’s collection, including a number of reporting and analysis tools designed to improve collection management, making it possible for library staff to focus on delivering higher value services to their patrons.

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