DRIVING WITH DATA

A ROADMAP FOR EVIDENCE-BASED DECISION MAKING IN ACADEMIC LIBRARIES

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Ithaka S+R

Ithaka S+R is a strategic consulting and research service provided by ITHAKA, a not-for-profit organization dedicated to helping the academic community use digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways. Ithaka S+R focuses on the transformation of scholarship and teaching in an online environment, with the goal of identifying the critical issues facing our community and acting as a catalyst for change. JSTOR, a research and learning platform, and Portico, a digital preservation service, are also part of ITHAKA.

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Data! Every organization now seems to be obsessed with collecting and analyzing data in order to make better decisions.[1] Technology's ability to deliver data—on use, on users, and on satisfaction with services—makes all of us more mindful of making decisions based on evidence, not simply on belief or opinion. While at first, this ability seems liberating, we can quickly feel overwhelmed by the sheer abundance and variety of the data available. But there is one vital reason to persevere: Evidence-based decision-making allows libraries to take new strategic directions more decisively and develop innovative service offerings more effectively than would otherwise be possible.

> ## Evidence-based decision-making allows libraries to take new strategic directions more decisively and develop innovative service offerings more effectively than would otherwise be possible.

Ithaka S+R, through its suite of survey tools, has been, since 2000, making data available to libraries on faculty perspectives, library directors' perspectives, and more recently, students' perspectives. This service started as a way to track trends that will help libraries understand how faculty needs are changing and to allow libraries to tailor their services to meet new demands. National surveys, though, can do little more than point to big themes, while individual institutions, naturally enough, wanted to know more about their own campus populations. As a result, we began just over a year ago offering our survey methodology to individual institutions that want to gather information specifically for themselves. National surveys also pointed to rather striking differences by discipline, and we began the Research Support Services program in which we analyzed in-depth specific disciplines and their scholarly practices. Thus far, we have completed studies of history, chemistry, and art history.[2]

We are pleased that these studies and services have been found useful by many libraries, but we are also keenly aware of just how much more is needed if a library is serious about wishing to innovate with evidence.

LIBRARIES' USE OF DATA TODAY

While there is more to be done, library leaders have extensive experience with data for several vital decision-making and advocacy purposes.

In collection development, librarians have been tracking collections usage in a variety of ways for many years. Many libraries have incorporated usage data, beginning with print circulations and reshelvings, as part of a process to help guide their collections development priorities. More recently, it has become common to analyze the usage data provided by licensed e-resources, such as COUNTER-compliant usage data about article downloads from e-journal providers, as a measure of the relative value they offer. In some cases, these usage data have been linked with prices, allowing libraries to calculate, at least in a rough way, the "cost per download" or

other types of ratios that allow them to estimate the relative cost-effectiveness of e-resources. In some cases, these analyses are quite sophisticated, and they are utilized in negotiating with publishers at the highest levels.[3]

Libraries use peer benchmarking data extensively. For example, research library leaders use information about collections budget magnitude and staff size and compensation as part of the budgeting process, to explain why an increase is needed or a decrease would be costly. The ARL Statistics are especially important for its members, but similar data are also gathered through ACRL, various consortia, and the federal government. Benchmarking has come to work in other ways as well, with librarians arguing that because a certain number of peer libraries have started a new program or initiative, their library should follow suit.

Over the past decade, libraries have expanded their use of various types of service assessment. Initially popularized by the LibQUAL+ service, there is now a robust library assessment community, including dedicated assessment librarians and coordinators at many institutions, who are charged with examining existing services and user perceptions with the purpose of documenting the value of the academic library's collections and services and identifying opportunities for improvement. At some institutions, assessment has become an important element of how libraries establish their key priorities on a regular basis.

Today library leaders must do more than build and manage collections, improve the quality of existing services, and find the funding to support this work. In addition, the library leader is called upon to reconsider or reassert the roles and objectives of the library in a changing information environment and to develop the strategy, services, spaces, and staffing to support these roles. In the remainder of this paper, therefore, we will be focusing on the use of data, including the types discussed in this section, to establish strategy and lead to a decision about future directions.

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BIG DECISIONS

Management consultants frequently point out that "what gets measured is what gets done." Critics fear that this means organizations will be misled by metrics. To avoid this outcome, leaders are faced with the obligation of determining at the highest level the key questions their organizations must confront, rather than just react to those items easiest to measure and track.

Today's library leaders are trying to imagine the future, and to do so they are grappling with some of the essential elements of the academic library. The transition from print to electronic formats, not only for serials

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3 For one example, see Ivy Anderson, "Shaking Up the Norm: Journal Pricing and Valuation", presentation delivered at the ARL-CNI 21st Century Collections Forum, October 13-14, 2011, available at http://www.arl.org/storage/documents/publications/ff11-anderson-ivy.pdf.

but perhaps also for books, seems increasingly inevitable, with attendant implications for physical space, discovery patterns, sharing networks, and the preservation imperative. With the rapid development of digital library collections and services increasingly giving way to a more fully re-envisioned Library, leaders are now facing questions such as:

- Will books also make a complete transition from print to digital format?[4]

- What roles will the library come to play in providing for access to information resources and their discovery?

- Will the library's traditional strengths in bibliographic control be adapted to help ensure discovery and access of high-quality web resources?

- Will a shift in emphasis away from general collections and towards special collections allow the library to find a source of sustained value?[5]

- What is the role and purpose of the library's space in a digital environment?[6]

- How will libraries support scholars' management and use of non-institutional collections through data curation and other new skills?

- Is there a sustainable role for the library to play in supporting the university's instructional programs and appropriate learning outcomes for its students, both in traditional and in online and other non-traditional settings, not only for undergraduates but also for graduate students?[7]

- Is data curation an essential role of the library?

- Will library investments in publishing come to reshape the nature of scholarly communications?[8]

- And can libraries move away from collections-centric to engagement-centered models that allow them to provide sophisticated research support services that "promotes academic productivity"?[9]

These questions are neither an exhaustive list nor universally applicable, but they are posed here to illustrate the magnitude of the types of decisions that library leaders face today.

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4 Roger C. Schonfeld, "Stop the Presses: Is the monograph headed toward an e-only future?" *Ithaka S+R Issue Briefs*, December 10, 2013, available at http://www.sr.ithaka.org/blog-individual/stop-presses-monograph-headed-toward-e-only-future.

5 Rick Anderson, "Can't Buy Us Love: The Declining Importance of Library Books and the Rising Importance of Special Collections," *Ithaka S+R Issue Briefs*, August 1, 2013, available at http://www.sr.ithaka.org/blog-individual/cant-buy-us-love-rick-anderson-kicks-new-ithaka-sr-issue-briefs-series.

6 Nancy Fried Foster, "Designing a New Academic Library from Scratch?" *Ithaka S+R Issue Briefs*, February 14, 2014, available at http://www.sr.ithaka.org/blog-individual/designing-new-academic-library-scratch.

7 One example is Lucinda Covert-Vail and Scott Collard, "Research Library Services for Graduate Students," *New Roles for New Times*, December 2012, available at http://www.arl.org/storage/documents/publications/nrnt-grad-roles-20dec12.pdf.

8 Sarah K. Lippincott (ed.), *Library Publishing Directory* (Atlanta: Library Publishing Coalition, 2014), available at http://www.librarypublishing.org/sites/librarypublishing.org/files/documents/LPC_LPDirectory2014.pdf.

9 Anne R. Kenney, "Leveraging the Liaison Model: From Defining 21st Century Research Libraries to Implementing 21st Century Research Universities," *Ithaka S+R Issue Briefs*, March 25, 2014, available at http://www.sr.ithaka.org/blog-individual/leveraging-liaison-model.

DECIDING TO DECIDE

Libraries facing these types of questions will do so differently due to leadership styles, organizational culture, campus factors, and so forth. In some cases, incremental change may be essential, while in others establishing shared vision takes precedence. In some cases, the decisions may be inevitable, or require executive decision-making, but, in many others, an evidence-based decision-making process will yield the best outcome for the library.

Library leaders need to have a clear understanding of the different roles evidence can and should play in the decision process. The following considerations offer some guidelines:

1) Understand the nature of the problem being addressed and whether and how evidence can contribute to the quality of the decision

> For decisions related to new services or emerging technology standards, historical data or benchmarking activities provide little help, while evidence about user needs, environmental change, and university strategy, may be vital.

2) Weigh the risks, costs, and benefits of an evidence-based approach to decision making.
> How much time and expense will be required to collect evidence?
> What are the risks and what are the benefits of gathering evidence from external stakeholders?
> What are the risks and benefits of simply making the decision oneself or internally?

3) Ensure that the objective evidence gathered by your library is reflected more often than not in the decisions of the organization.

> Staff need to see that the data they provide are used by decision-makers.

Once leaders have decided that their organization will make decisions on questions of this magnitude with evidence, in most cases they will establish processes for doing so. While details will differ, in all cases, the fundamental parts of the process are the same: determine the appropriate scope of the question to be addressed, establish a decision-making process that incorporates the appropriate set of stakeholders, gather and analyze the right data for the decisions at hand, and make decisions that balance the risks of action and inaction.

The greatest challenge is to identify all of the stakeholders for a given issue and then figure out how to gather the evidence from the stakeholder groups that will facilitate effective decision-making. When tackling these big issues, the stakeholders are almost always outside the library. Once the stakeholders are identified, what do we actually need to know from them? Do the data exist? Are they readily accessible and reliably interpreted? Who is best positioned to gather the evidence needed and can they be tasked with doing so on the timeline required?

An effective process ensures that a strong decision can be made. The reality for libraries is that many decisions are made, or at least cloaked, in committee and task force structures. These groups often request that data be gathered, but if they are not in a position to act on their findings or if all decisions must be based on group consensus, it is little surprise that the data is not acted on effectively.

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To counter this, it may be useful to develop the decision path and an interpretation plan, and to confirm these with certain key stakeholders, before data gathering begins. This allows an opportunity to confirm that the right data are to be collected to support the range of interpretations and decisions foreseen. And it makes it possible to recognize and address differences in interpretation at an early stage in the process. For example, the library staff that is concerned about a decrease in the size of the staff, based on ARL statistics, may see this as loss, compared to peer institutions, while the provost may view this as a clear indication that his/her library is more efficient than others. Once the interpretation plan is determined, data can be gathered and the predetermined decision path can be followed to move the process to completion with an appropriately strong decision.

For the big issues, there is almost always a role for the provost, the faculty advisory committee, or other key external stakeholders. In some cases, it may be prudent to bring them directly into the decision-making process. In other cases, these are delicate, and sometimes supervisory, relationships, which the library director alone must manage and maintain. In all cases, library directors will want to ensure that big decision-making processes are structured and communicated in a way that ensures maximum campus support for the decisions that eventually emerge.

WHAT TO MEASURE

Libraries are familiar with output data—they have been collecting statistics related to work accomplished, transactions completed, and collections acquired for decades. The data needed to make decisions about creating the 21st century library go far beyond production statistics.

Increasingly, it is easy to track actual user behaviors because library or vendor technology constantly captures data on use. How often do institutional users come to the library's web site to find information? How many items are downloaded? How many external users make use of the library's web site? How many of the electronic resources are used? At what level of use? All of these types of queries can be answered by automatically-gathered data. The meaningful question for librarians, though, is do these data tell us what we need to know about our users?

Activity counts, even when applied to collections, can no longer be accepted as telling the whole story. For example, usage data that are aggregated at the COUNTER-compliant level do not show breakdowns by traffic source, which is vital for understanding discovery patterns, or by user type, which would allow libraries to distinguish teaching from research uses. Although data of the type necessary to conduct these types of analyses are often not readily available to the library, developing mechanisms to access these types of analyses in partnership with content providers would be richly valuable to many types of library decisions. Taking similar kinds of approaches to other types of activity data may have similar benefits.

Trends in higher education, including the growth in online and non-traditional learners, will frame the work of the academic library going forward, as will changes in the basic mechanisms of communications and discovery. No library can hope to make plans for its role and its services without an essential understanding of the external

environment, both elsewhere in the university and more broadly. Environmental scans, then, are important tools for the library. What is going on in the broader world that will have direct bearing on how we shape the services of any library, and what is going on here at our university in the coming years that will have direct bearing on how we shape our own library's services?

Broad environmental change and evolving user needs are closely related to one another. Understanding changes in research practices, scholarly communications, teaching patterns, and learning styles, not only in the aggregate but for specific disciplinary and institution-type populations, allows libraries to identify unmet needs and develop services that can address them. While there are advantages to relying on findings generated across the community, there are some types of user needs that can only truly be examined locally.

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Assessing the perceived quality of library services has its place, but also its limitations. On the one hand, every organization needs metrics for how well it is doing at its current work. But service quality measures are limited in that, even if active users continue to perceive a given service as valuable, the number of active users may have declined. In this sense, measures of market share, to estimate the share of a given user need for which the library is the provider, may in fact more closely track with actual value delivered. At a higher level, however, all these metrics focus on existing service categories rather than the new types of needs that scholars and students are accumulating.

More granular data on individual users' activities can afford greater opportunities to analyze needs and develop or optimize services. But considerations for user privacy can make librarians uncomfortable with such granular data, which has to some degree impeded our ability to establish the types of personalized services that are skyrocketing on the consumer internet. Even so, some libraries, in partnership with institutional research offices, are gaining comfort in linking academic records, library usage patterns, and survey data, at the level of individual students, for analysis purposes. The University of Minnesota, for example, has experimented with combining these data sources to learn more about the impact of library services and to identify opportunities to serve students more effectively.[10]

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10 See for example Krista M. Soria. and Jan Fransen. and Shane Nackerud. "Library Use and Undergraduate Student Outcomes: New Evidence for Students' Retention and Academic Success," *portal: Libraries and the Academy* 13.2 (2013): 147-164, available at http://dx.doi.org/10.1353/pla.2013.0010, preprint available at http://hdl.handle.net/11299/143312.

STRUCTURE AND CULTURE

Every library has its own decision-making culture. Library leaders who encourage data-driven decision-making will see staff at all levels gathering and analyzing data. In a more top-down culture, many staff believe that data do nothing to influence their administrators. They may be inclined therefore to gather evidence more defensively, to make a case for their existing operations rather than to plan creatively for the future. Such libraries may find it valuable to build transparent decision-making structures that allow staff to see and understand how decisions are made.

There is often confusion about the role of those charged with gathering and analyzing data. Either on their own or working in partnership with colleagues, they must be able to shape their work into a narrative that can hope to have an impact on the organization. In some libraries, the assessment librarian, user experience expert, or data analyst, has an administrative champion for the data who can help to craft a narrative and ensure it receives the organizational attention it deserves. In other library cultures, however, the data people must possess effective political and communication skills of their own, because the burden will fall on them to build alliances that ensure their work finds an engaged audience and to build streamlined outputs that can capture the attention of decision makers. In many cases, individuals have been recruited for technical skills when organizational abilities are equally important. Many libraries will find it helpful to be clear about the nature of these responsibilities in designing assessment, user experience, and data analyst positions.

Librarians inhabiting these roles within public services departments sometimes have faced challenges to their ability to have a real impact. Some librarians have sought changes in organizational structure as a solution. Some libraries are electing to house an assessment staffer in the library director's office to ensure they have an impact. Other libraries are thinking about models of radical decentralization, making assessment a responsibility of every unit rather than staffing it as a function of its own. Many institutions have found it to be valuable to develop strong relationships with the campus institutional research and/or assessment offices. And ACRL is working with dozens of institutions to help them link library assessment with institutional priorities and perspectives.[11] These choices are particular to a given library's structure and culture and interact with the question of how to design any particular staff position.

However these functions are organized, data must be allowed to take on a life of their own. Valuable data that are gathered in the course of but outside the scope of a given project have no champion and therefore may have little ability to find impact. The challenge is not only to create the technical structures that allow data gathered for one purpose to be made available to the rest of the staff for other uses, but also for the organizational structure and culture to make it important that staff do so. This requires the library as a whole to consider its role and purpose, agreement on the data to be gathered in a reasonably uniform way, and depositing the data in an easily-accessed place, as well as the right set of incentives—rewards and consequences alike—to encourage decision-making that incorporates data.

11 Assessment in Action: Academic Libraries and Student Success http://www.ala.org/acrl/AiA

SUCCESS

Library leaders aiming to create a more evidence-based decision-making environment can begin by ensuring that these building blocks are in place:

- Environmental scans are conducted at regular intervals by knowledgeable experts.

- Library has a clear statement about the types of data that are useful for making decisions.

- Organizational structure and technical skills and system are in place to assemble, manage, and analyze the data.

- A culture of transparent decision-making is personally modeled, to show the value of evidence and also the importance of reaching decisions in the absence of full information.

- External data that are necessary for decision-making are identified, gathered to the extent possible, and analyzed for integration into the library's decision-making processes.

- Processes and purposes of data collection reviewed periodically to ensure that they are still relevant and useful.

For our part, we at Ithaka S+R are thinking about ways we can assist libraries in becoming evidence-based decision-making organizations. We hope you will respond to this Issue Brief with suggestions for research we should conduct or workshops that we can design that would be most helpful to the library community.