Evidence-Based Library Management: The Leadership Challenge

Amos Lakos

abstract: This paper is an extension of the author's earlier work on developing management information services and creating a culture of assessment in libraries. The author will focus observations on the use of data in decision-making in libraries, specifically on the role of leadership in making evidence-based decision a reality, and will review new opportunities for data analysis, assessment delivery, and decision-making in libraries. Developments in the information technology (IT) area, especially the increased dominance of very large networked infrastructures and associated services, large-scale digitization projects, collaborative frameworks, and economic and market trends, may have a positive impact on library options for data use and analysis by library management. The discussion is informed by a wide range of new products and services, which are becoming available in the marketplace and are designed to assist decision makers, and by interviews conducted by the author with over 20 library directors, mostly from the Association of Research Libraries.

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Introduction

This paper is exploratory in nature. While pondering the rapidly changing environment in which libraries exist and deliver services, I decided to revisit some of the ideas that Shelley Phipps and I surfaced during the years we invested in developing the concepts and frameworks that became part of our work on the culture of assessment. Within this context, I decided to focus on the crucible of data use for decision-making by library directors, mostly in the framework of academic libraries.

The issue is this: libraries, in general, recognize the value of collecting and using data for planning and decision-making, but they do not do this systematically or effectively.

Steve Hiller and James Self reviewed in detail the library literature and the library assessment advances as part of their ARL "Making Library Assessment Work" project.[1] One of the goals of their project is to facilitate the organization of local processes and structures to advance the ability of libraries to better collect, analyze, and apply data to the decision-making process. My earlier work on developing a management information system at the University of Waterloo was to counter the tradition of decision-making that relied on instincts, unverified assumptions, unfocused discussions, and which was devoid of data and analysis. Eventually, I started looking at organizational climate and culture as vehicles for change in this area, which eventually brought about the idea for the need for libraries and the library profession to embrace a "culture of assessment" in which decisions are based on facts, research, and analysis.

A culture of assessment is integrally connected to the notion of systemic organizational change.[2] It includes many components and prerequisites, among them is the need for libraries to be customer focused, outcomes and impact focused, and the need to act on what is examined, measured, and analyzed. The process of assessment needs to be systemic and become part of work. In essence, we advocated the need for thinking about the library processes and services from a much more external or results-oriented perspective. As we conducted workshops for librarians, we identified the theoretical as well as the practical frameworks that are needed in order to "create" a culture of assessment in a given library. In essence, we were advocating a change in our institutional cultures from being static and inwardly focused to being externally focused both institutionally and professionally, embracing the notion of decision-making based on measurements and analysis of facts and customer expectations.

In such a framework, staff and leadership strive to understand changing customer expectations and values. In this context, collecting and analyzing data are understood as crucial aspects of delivering the right services, at the right time, to a well-understood customer base. In such an environment, continuous analysis of changing customer expectations is internalized in the institution's vision, mission, processes, and impact.

Although there are signs, listed very well by Hiller and Self, that some movement toward the creation of a culture of assessment is becoming more widespread in libraries and in the profession,[3] it would be unduly optimistic to say that a majority of libraries have developed such a culture. That sadly is not the case. This lack of a culture of assessment is most distressing since the advantages of using assessment as the foundation for decisions will benefit the library, the goals of the parent institution, and the expectations of its stakeholders—students, parents, faculty, employers, governments, and so on.

Shelley Phipps and I observed that organizational culture change is possible only with leadership that has a clear and articulated purpose for this change. To quote: "A well-articulated purpose and vision, communicated clearly by leadership, will guide the organization through real culture change. Leaders who are committed to organizational learning and to continuous improvement of services for primary customers and stakeholders will guide the systems and structure changes needed for cultural transformation."[4] Because of this, I will focus in later sections of this paper especially on the role, experience, and practice of library leaders in the use of data and analytics in making decisions.

A further note about my use of the term "evidence based." I am using this term in its management connotation. Evidence-based management (EBM) is a new concept in the management literature. "Basically it is a simple idea. It just means finding the best evidence that you can, facing those facts, and acting on those facts—rather than doing what everyone else does, what you have always done, or what you thought was true."[5] The principles of evidence-based management were developed by Stanford University's Jeffrey Pfeffer and Robert I. Sutton and outlined in their book *Hard Facts, Dangerous Half-Truths, and Total Nonsense: Profiting from Evidence-Based Management*.[6] Although they deal mainly with the for-profit sector, in my view, their conclusions are readily transferable to the non-profit sector, especially as the evidence-based decisions practice is based in the medical field. The authors show that "implementing evidence-based practices is an uphill battle in lots of domains," giving examples from public policy, law enforcement, HR practices, education, and more.[7]

The Information Economy—Beyond the Library

In this global economy, developed countries are moving increasingly from a resource- and manufacturing-based economy to an "information economy." UCLA's Uday Karmarkar, in his research at the UCLA Anderson Management School's Business and Information Technology (BIT) Project, estimates that the United States is already essentially an information economy, based mainly on the information and services sectors or industries. Already in 2004, the information sector comprised over 60 percent of the U.S. GNP value-added in the private sector. In the Unites States, the information sector comprises over 50 percent of the economy. The manufacturing sector of the economy has shrunk to less than 16 percent of the GNP. This rapid transition to a knowledge-based economy, of course, includes the library sector, which is in essence an information and knowledge service.[8]

As part of this trend, successful industries both in the service and the manufacturing sectors are increasingly built on their ability to leverage information for effective competition and survival. The transition to the Internet enabled the information environment to affect all sectors: manufacturing, energy, defense, education, and media, among others.

Karmarkar as well as Thomas Davenport (and, for that matter, many others) noted the increased need of the economy for business intelligence and the use of this business intelligence and analysis by the leadership of companies for decision-making purposes. Most cited companies are both building in-house analytics systems and hiring people with the right skills for managing and analyzing information or buying their information as is needed.[9]

New, so-called "killer applications," such as electronic reservation systems, predictive maintenance systems, online ordering, electronic banking, and more, have enabled the creation of sophisticated supply chain delivery systems. Supply chain management (SCM) is the oversight of materials, information, and finances as they move in a chain of activities from supplier to manufacturer to wholesaler to retailer to consumer. These systems, in turn, create new expectations and new disruptive business models.[10] The power of searching, combined with new advertising and information delivery capabilities, are

transforming whole industries. Organizations that apply these new capabilities, such as the ability to translate large transactional data into effective structures, processes, and decisions, develop competitive business advantages. Companies as diverse as Amazon (e-commerce), Harrah's (gambling and entertainment), Capital One (banking), Toyota (automotive), Wal-Mart (retail), and Google and Yahoo (information, media) are using analytics not just because they have data but also because they must.[11]

The importance of developing effective supply chain systems is amply exhibited in companies such as Amazon, Zappos.com, Fed-Ex, UPS, and even the U.S. Postal Service, not only in their distribution systems but also especially in integrating the supply chain with efficient customer support systems.

The disruptive nature of these new applications is clearly demonstrated by the convulsions experienced by the music, media, and publishing industries. They are all going through stages of major adaptation and restructuring, pushed by new technological breakthroughs that are transforming the way their products are consumed, marketed, organized, and more. The economic impact is apparent in the way their products are created, packaged, acquired, and distributed. A product such as the iPod, combined with the iTunes Music Store, is changing the way music is packaged, discovered, and consumed. Besides creating a whole slew of competing products and services, it forces a wholesome and painful change on the music publishers, media companies, and, in essence, on the consumers who adopted it and, in effect, created it through their behaviors and habits. Many legacy businesses are desperately trying to survive in this new environment by splitting, merging, and searching for new markets and business models.

At the same time, new demographics not only create new markets but also new tastes and new and ever-changing trends. The academy is struggling to adapt by leveraging the Internet for e-commerce, and the explosion of available and findable information is changing the way we read, learn, keep in contact, teach, and consume. Time shrinks. Expectation about service quality is constantly rising. Whole industries are rapidly transforming as a result of the fast-paced changes in technology that cause ongoing economic, social, and political upheavals.

Library resources and services are transitioning from a static, print-based content framework to a much more complicated service environment, mainly digital in content. The advent and the maturation of the Internet are transforming libraries. For example, the library resources environment in all its formats—print, music, film, maps, media, and so on—and its associated workflows, structures, and services are undergoing tremendous and rapid change by rethinking OPACS, focusing on digital resources, and rethinking technical processes. The cumulative impact of these changes is powerful and still not completely understood.

The Information Economy—The Library Perspective

From a macro perspective, the library profession is starting to articulate a need for a fundamental re-examination of the library and the library profession in the new environment. Libraries are investing in digitization efforts in a number of interrelated areas, including digital preservation, resource discovery, scholarly publishing, and digital collection development. These efforts, including the well publicized efforts of Google

Library Program and the Open Content Alliance, will increase the availability of digital content and allow for free and unfettered access to public domain works. These varied and ongoing developments entail new modes of resource discovery, new opportunities for resource and information delivery, as well as new modes of inventory management. They will also allow libraries to explore a range of innovative new information services that can be built upon these new digital frameworks.

In this age of information overload, the library profession needs to focus outward and change what it is about. Libraries need to look at their roles and their services by focusing on the new possibilities emerging from the new information environment. The convergence of information and connectivity and the state of unlimited "findability" are challenges with which librarians need to come to terms.[12] The same can be said about the challenges of the "long tail" phenomenon, which describes a business model in which low-demand products eventually find their own markets. The application of new library tools and services to take advantage of this phenomenon and the implications for library collections, services, and supply chain systems is just starting to be examined.[13] OCLC just unveiled (still in beta) the new OCLC WorldCat.org Web-based search module that enables direct searching of more than 10,000 libraries' collections.[14]

OCLC's research and OCLC marketing have produced an increasing number of relevant studies investigating the global information environment, the challenges facing libraries in the new environment, the changing perceptions of libraries, and more.[15] Because OCLC's customer base is global and diverse and the quality of their survey is superior, the relevance of their findings and forecasting has a high degree of credibility.

The "Environmental Scan: Pattern Recognition (2003)," is an invaluable resource for gaining an overview of the varied challenges confronting libraries and librarians in this information environment.[16] The findings of OCLC's study concerning the perceptions of libraries are enlightening and worth close attention. For example, the study finds that the "library brand" is still books; the library's main service is still perceived as the borrowing of print books; and most individuals are unaware of and do not use library electronic resources. Most people search non-library search engines, and they prefer, by far, self-service. Less than 2 percent of respondents begin an information search on a library Web site.[17] The emerging picture is of an institution that needs to redefine its vision, its values, and its services.

The volatility that is emerging in the publishing sector and also in the library IT sector is a sign that the library is also facing an increasingly unpredictable external business environment. The merger between two publishing giants, Wiley and Blackwell, is a signal to the library community that they are facing choices over which they have no influence. In the traditional library integrated systems sector, the September 2006 acquisition of ExLibris by Francisco Partners, a technology focused private equity funds company, was followed by the acquisition of Endeavor Information Systems from Elsevier. Recently SirsiDynix was acquired by Vista Equity Partners. These mergers highlight the intense search for profitable business solutions in our market segment. This may also signal that libraries and information business sector, itself, are in a period of rapid transition. Given the limited size of the library market, traditional library vendors such as Elsevier and EBSCO, among others, are diversifying their services and searching to develop marketing directly to end users.

These external environmental forces necessitate renewed examination of the library's future as a viable information framework. Jerry Campbell examined a number of possible future roles for the academic library. He stated:

> Because of the fundamental role that academic libraries have played in the past century, it is tremendously difficult to imagine a college or university without a library. Considering the extraordinary pace with which knowledge is moving to the Web, it is equally difficult to imagine what an academic library will be and do in another decade.[18]

In essence, Campbell is questioning the survivability of the current model of the academic library, but even he does not directly deal with the place of assessment in the future of the academic library.

James Neal examined the issue of the changing skills needs of the library profession, questioning the current relevancy of the MLS and the blurring of the "status" of professional staff, but he really was asking for a genuine effort at examining the kind of skills the profession would require to remain viable.[19] At the Greater Western Library Alliance Conference on February 27, 2006, Neal continued to examine the macro issues that information technology and scholarly communication pose for the future relevance of the academic research library. He identified 24 "imperatives," some of which are relevant to the discussion on the future assessment in libraries. Among the issues he listed were the need to focus on institutional expectations, on measures of user satisfaction, on measures of success, on assessing the impact of library collections and services on an ongoing basis, on the measures of cost effectiveness, and on the need to continually be able and willing to make difficult choices.[20] He discussed the shifting values of the library, a discussion of which is quite controversial for a large part of the profession. Imperative 22 discusses the need for academic libraries to "prepare for accountability and assessment."

Neal repeated some of these observations in a somewhat different format at the Taiga Forum, a meeting of Associate University Librarians that was organized to

> develop new solutions, evolve to meet changing user expectations, and prepare leaders for the future. Whether…in technical services, public services, collection development, or information technology,…libraries must develop cross-functional vision that makes internal organizational structures more flexible, agile, and effective. …[They] must move beyond the borders and transcend the traditional library organization.[21]

The forum also put together a list of Taiga Forum Provocative Statements, which surprisingly do not mention assessment or analytics.[22]

Another sign that librarians are starting to view the future differently is to be found in two new reports. Both the University of California's Bibliographic Services Task Force (BSTF) Report[23] and the report prepared by Karen Calhoun for the Library of Congress titled "The Changing Nature of the Catalog and its Integration with Other Discovery Tools"[24] question the viability and effectiveness of continuing investments in local library catalogs when other, more effective "collaborative" alternatives are possible and will deliver better services and be more cost effective. The implications of these findings have ramifications beyond "the catalog" since a change in this central library service will have a domino effect on such local library processes as collections, acquisitions, public

services, document delivery, interlibrary loans, and staffing levels—in other words, the future utility, structure, and governance of libraries. These reports reinforce the need to examine fundamental library goals and processes as well as the need to move from the local processes and services to collaborative ones.

There are additional examples of discussions by leaders in higher education and research libraries that point to a growing awareness about the "ambiguous" future of the research library and even of the research university. "The Research Library in the 21st Century Symposium" that took place September 11–12, 2006, at the University of Texas Libraries, University of Texas at Austin, is an impressive example of the increasingly more realistic discussions regarding the future of the research library.[25] This is especially the case as these questions have far reaching implications not just for the libraries as institutions but also for the future of learning, research, and the preservation of scholarship and information for future generations. A new report of the ARL Task Force on New Ways of Measuring Collections deals with the future of measuring research collections and, among its conclusions, shows a growing awareness among research library directors about investing in data and analytics frameworks for better management and decision-making regarding library resources in the future.[26]

New Library Assessment Services and Tools

In conjunction with these macro library developments, there are a number of new assessment tools and associated services that have the potential to enable libraries to better understand the resources and services they deliver. I will list some of the more visible ones.

Reporting software and services, particularly for collection management, are emerging. Over 10 years ago, I identified the utility of using business intelligence software such as COGNOS to create reporting and analysis modules for libraries to better manage their collection and technical services. In the last two years, we are at last seeing many ILS companies who, in collaboration with various business intelligence software companies, are developing more mature library reporting modules. Endeavor has worked with COGNOS to bring out Voyager Analyzer, "a comprehensive reporting and analysis system. …[A] powerful Web-based system [that] enables a library to make data-driven decisions regarding their library collections."[27] SirsiDynix makes available the Director's Station module that uses one of today's leading business intelligence technologies, to "enable libraries and consortia to maximize the value of data already available on their institutions and to make informed, data-driven decisions by providing a unique, customized view of…[an] institution's activities and operations."[28] SirsiDynix has a companion product for Director's Station, the Normative Data Project for Libraries (NDP), "whose goal is to compile transaction-level data from libraries throughout North America; to link library data with geographic, demographic, and other key types of data; and, thereby, to empower library decision-makers to compare and contrast their institutions with real-world industry norms on circulation, collections, finances, and other parameters."[29]

In order to enhance its real-time and on-demand report management capabilities, EBSCO, a worldwide leader in providing information access and management solutions

through print and electronic journal subscription services, research databases, and more, is partnering with WebFeat and with MPS's ScholarlyFacts. By integrating WebFeat Express into Ebsco's A-to-Z serials management service, it enables its customers to apply WebFeat's SMART (Statistical Measures Available Real Time) to track use and generate reports.[30] Additionally, through a new partnership, use statistics for EBSCO*host* Research Databases are available from ScholarlyStats.[31]

Serials Solutions, a company that delivers tools and services for managing library electronic resources, has a product named Overlap Analysis, which enables a library to generate an unlimited number of statistical reports to evaluate current database subscriptions and make future collection decisions. The company is also currently developing, for early 2007 delivery, an aggregation and reporting system for use statistics, named COUNTERcounter that combines Project Counter vendor statistics files with resource cost details and other metadata from the Serials Solutions knowledge base. COUNTERcounter will store and normalize the data and provide a user-friendly reporting tool to answer librarian's questions about how much use a resource gets and how much it costs per use. All these tools are now integrated into Serial Solutions 360, which integrates all their e-resource access and management services into one consolidated package, delivering robust analytics capabilities.

Serials Solutions has developed for early 2007 delivery an aggregation and reporting system for usage statistics named 360 Counter that combines Project Counter vendor statistics files with resource cost details and other metadata from the Serials Solutions knowledge base. 360 Counter will store and normalize the data and provide a user-friendly reporting tool to answer librarians' questions about how much use a resource gets and how much it costs per use. It will enable a library to generate an unlimited number of statistical reports to evaluate current database subscriptions and make future collection decisions.[32]

OCLC developed the WorldCat Collections Analysis module, a "Web-based service that provides analysis and comparison of library collections based on holdings information contained in the WorldCat database," which can be used for benchmarking library collections, rethinking collection budget allocations, and collaborative collection development purposes.[33] The implications can be far reaching for planning, budgeting, document delivery, staffing, and so on.

One example of consortia analytics activities is work done at the Ontario Council of University Libraries (OCUL), which has developed the Scholars Portal Statistics framework that is capable of creating reports for the 20 member libraries. Scholars Portal was launched in 2001. The portal provides access to networked electronic resources purchased consortially by 20 Ontario universities. The assessment team at OCUL partnered with the Association of Research Libraries Statistics and Measurement Program to utilize Brinley Franklin and Terry Plum's innovative survey methodology, Measuring the Impact of Networked Electronic Services (MINES), to assess the impact of the Scholars Portal on the academic community in 16 Ontario libraries. The 2004–2005 implementation of the MINES Survey at OCUL provided a wealth of information that has helped identify patterns of use of electronic journals, and it provided valuable user opinions from all the consortia libraries.

Through the Scholars Portal Web site, OCUL library staff can retrieve a wealth of data on the use of locally loaded resources.[34] This provides a clear indication of the degree to which Scholars Portal is meeting the needs of an institution's users. To better understand the complete use of OCUL electronic resources, use data from multiple data sources and vendor systems are being incorporated into a database and mined through data analysis tools.

Another interesting Scholars Portal module is RACER, which stands for "rapid access to collections by electronic requesting."[35] It is a Fretwell-Downing Inc.'s VDX (Virtual Document Exchange) software implementation that enables an interlibrary loan requesting and management system through the Ontario University Virtual Union Catalogue. The module also enables members to create statistical reports.

Another relatively new service is from MPS Solutions. Called ScholarlyStats, it allows libraries to outsource the administration of the use statistics and analysis of electronic resources. It provides libraries with a single point access for a range of vendor-generated use statistics. This off-the-shelf solution solves the challenge of getting one overview of the use of resources from many different vendors.[36]

A similar service comes from Library Dynamics, which employs visualization capabilities, enables libraries to analyze and manage library collections and resources, and also benchmark collections. The product analyzes and compares collections for decision support.[37] As a good example of collaborative ventures, Library Dynamics is partnering with Blackwell Book Services; its capabilities enhance Blackwell's Collection Management Services in delivering value-added analytic capabilities while, at the same time, making good use of Blackwell's superior marketing power.

Another library systems vendor, TLC, has partnered with COGNOS "to provide users of its ILS, Library.Solution, with the most up-to-date Web-based reporting system available. Cognos' ReportNet, coupled with Library.Solution's Oracle-powered data-base, delivers a full set of pre-written reports, lists, and notices to support out of the box most library reporting needs."[38] This and the other above-mentioned examples of partnerships and solutions are just a snapshot of developments that may be superseded by the time this article gets published.

Spotting a potential market, some library consultants are offering statistical analytics and reports as part of their services. The listing of analytical tools available for libraries is growing and points to a number of new and alternative assessment-management options available externally to the local library. Acquiring external analytical services may become a way to solve the skills and resources dilemmas facing libraries that wish to integrate assessment and analytics services into their decision-making framework.

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Additional Relevant Library Assessment Research

Susan Beck's 2003 paper, "Making Informed Decisions: The Implications of Assessment," grappled with the question of the impact of assessment on library management

and decision-making and the degree to which assessment data have influenced change. Beck conducted interviews at a number of ARL Libraries. She cast her questions wide, attempting to examine issues of institutional accountability, governance, existing assessment activities, impact of assessment data on decisions, the planning process, time spent on assessment, the cost of assessment, and more. Her paper lists a number of preliminary conclusions—which, in my view, are quite optimistic, especially regarding successful integration of a culture of assessment into everyday processes, given that the concept of culture of assessment is new. Beck recognized that there is acknowledgement of the need for increased assessment activities and for the creation of frameworks to translate knowledge into decisions at the local level. She is in the process of analyzing her data further.[39]

The preliminary results of a six-university study conducted in 2003–2004 by participants in the UCLA Senior Fellows Program entitled "The Centrality of the Library: Views of Presidents and Provosts" were presented at the 12th ACRL Annual Conference in Minneapolis, Minnesota, April 8, 2005, by Beverly Lynch, UCLA; Catherine Murray-Rust, Colorado State University; Susan Parker, UCLA; Deborah Turner, University of Washington; Diane Walker, University of Virginia; Frances (Fran) Wilkinson, University of New Mexico; and Julia Zimmerman, Ohio University. They observed that university presidents and provosts have some fondness for the concept and phrase of "the library is the heart of the university," but—in the past decade or so—their attention has turned to the more practical matter of expecting the library to demonstrate its value to the teaching, learning, and research missions of the university. It seems that senior university administrators get their library information primarily from their local library directors, and they are mostly concerned with campus budgetary issues. The group also reported that administrators view the library differently from faculty and academic departments because libraries do not collect data comparable to the academic departments, such as course and major enrollment data.

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One of the more ambitious activities undertaken to find practical approaches for libraries to develop and sustain effective assessment has been conducted through the ARL Statistics and Measures Program, under the leadership of Martha Kyrillidou.[40] Of particular importance are the various new measures initiatives introduced by Carla Stoffle, University of Arizona, that defined and supported the collection of a number of new and more effective performance and impact measures for libraries.[41] Some of the more noteworthy projects to mention are—LibQUAL+®, MINES for Libraries, E-Metrics, COUNTER, and learning outcomes.

Hiller and Self reviewed the library literature on use of data in library management and found little evidence of integrated or sustained use in libraries. These findings led to their ARL sponsored "Making Library Assessment Work" project, which has in the meantime evolved into a new ARL service named Effective, Sustainable, and Practical

Library Assessment service. One of the project goals is to facilitate the organization of local processes and structures to advance the ability of libraries to better collect, analyze, and apply data to the decision-making process.[42]

The rationale and the context of the project is outlined in detail in a *Library Trends* article published in 2004, in which they provide an overview of data use in libraries, organizational barriers to their systematic use, issues dealing with support, and some examples of libraries that have, in their view, successfully integrated data acquisition, analysis, and application into management.[43]

Some of their observations were presented at the 2006 ALA Annual Conference in New Orleans and included:

- Every library is unique, with diverse organizational cultures, which offer opportunities and challenges for successful assessment.
- More assessment work is going on than is being reported internally and externally.
- Important assessment catalysts include: accreditation, facilities renovation, student learning, data-driven administrations, LibQUAL+® results, and the "should be doing this" movement.
- Increase in interest in assessment and analysis is reflected in creation of new assessment positions and groups.

Some of their recommendations were to:

- Involve library staff in responsibility and coordination of assessment
- Create better communications structures and practices
- Prioritize assessment activities; ask critical questions at the start
- Upgrade staff skill base
- Demonstrate the library's value to the research and learning enterprises
- Review internal statistics
- Incorporate data into library management by building management information systems and integrating with campus data "warehousing"

Background to the Interviews

To develop a more informed picture of what I perceive as reticence to use data and analytics in library decision-making, I interviewed a number of library leaders and listened to their experiences and insights about these matters.[44] Since I was mainly interested in a qualitative analysis of their observations, feelings, and views, I focused on short list of library directors, mainly from ARL institutions. This short list was non-random. At least half of the interviewees have started to introduce a culture of assessment within their institutions and continue to advocate the need for assessment and new performance measures in libraries. By concentrating on assessment-oriented directors, I hoped to better understand how much progress is possible in library assessment and data-driven decision-making when there is a comparatively strong commitment to it within the library's top leadership, as well as acquire a better understanding of the challenges to this paradigm.

As mentioned, my interview sample is drawn from the academic library sector, with which I am most familiar, and most of the results may be viewed as applicable to higher education. However, I believe that many of the behavioral issues are relevant to the library profession as a whole.

I decided to focus on directors of university libraries because they are the primary decision-makers within their library organizations and are primarily accountable for the success or failure of their institutions and also because of the influence they exert on their staffs and on the profession. Their leadership role gives them a commanding influence not only on the culture of the profession but also on the local institutional culture. Librarians have developed, over time, a set of leadership and management styles, a set of organizational structures, and a set of skill sets that are familiar and readily recognized. Our mental model is quite set. Our values are also set and strongly held. Accepted professional values are known and readily applied. Any external change to them is frequently viewed with suspicion. Consequently, changing "how we do business" is impossible without strong leadership. A culture of assessment sounds good, both as a need and a goal, but creating it is difficult for a number of reasons: lack of data collection and data analysis skills, the power of established ways of work, fear, and a general lack of risk-taking in the profession.

The Interviews and Discussions

I conducted short half-hour discussions around the following questions:

1. Where do you get the information or data needed to make your decisions?
2. Does your organizational structure have a unit/person responsible for data collection and analysis?
3. Do (university) administrators expect data-driven decisions/recommendations/requests from the libraries?

I contacted a non-random list of 30 university library directors and campus administrators through e-mail. I received positive responses from 21 university librarians and administrators. Seventeen interviews were conducted by phone, and four were conducted in person.

Summary of Interview Results

The first discussion item focused on sources of available data, what type of data are available, how easy or difficult are the data to collect, the varying levels of available analysis, and the structure or process for data collection, organization, and analysis. The following are some general synopsized results:

- Almost all directors are aware of the kind of data that are collected locally, especially those available for in-house processes and for externally mandated surveys such as the ARL annual data. They tend to focus on budgetary, collections, and collections-use data. They are also aware of the challenges in collecting "qualitative" information, the challenges of e-resources use, and the need for better user feedback analysis.

- Over half of the interviewed directors are trying to implement electronic and Internet resource data and usage analytics systems.
- All the directors would like to focus on customer expectations, which is evident in their support for LibQUAL+® surveys.
- Although almost all directors want better cost information, only some mentioned the need for "activity-based costing" information.
- Most directors are not satisfied with their ability to get the data from their staff when they need it. Almost all described resistance from their staff to developing systematic data collection frameworks. They noted considerable negative reactions from staff to their requests for statistical data and distrust by staff, in general, about the use of these statistics.

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- Some directors noted considerable confusion between the need for process analysis and data collection and personnel performance reviews.
- Most directors are aware that collecting and analyzing the data involve a large effort in staff resources but comment on the lack of analytic skills, interest, and time of their current staff.
- Some directors noted that ARL rankings are still expected by the campus administrators. Administrators from libraries that consistently appear in the upper tier in the ARL rankings see no need to move away from them, even if they acknowledge that these ranking as meaningless.
- Some directors expressed an awareness of their own personal difficulties with systematically using data and analysis in their own decision-making processes. They acknowledged that, even when they had a data framework, they did not use it while making decisions. They wondered whether established work practices, such as relying on intuition and on "accepted" assumptions, were more difficult to change and overcome than they originally expected.
- Most directors expressed the desire for more staff with skills for data management and analytics.
- They all agreed that the quality of decisions would be better, more reliable, and more effective if based on actual data and trend analysis.

The second discussion item focused on the creation or the availability of some kind of organizational framework or staff position with responsibility for data collection. Implicit in this question was the creation of some kind of management information system (MIS), a data warehouse, or data farm.

- About half of the interviewed directors indicated that they are already creating positions that concentrate on assessment activities. The content and goals of the positions vary; they can include data collection, coordination of surveys, creation of reports, analysis, or other duties.

- The position titles and responsibilities vary. Some of the full-time positions have titles such as director of assessment and planning, librarian for research and communication, process improvement officer, assessment officer, or statistics and assessment coordinator.
- Most of the current assessment positions are part time or are part of an AUL position. It is not yet clear how effective the part-time positions are, but the trend of actually creating these positions is encouraging.
- Creating a dedicated team for assessment such as the team at the University of Virginia is unique. Most interviewed directors do not perceive that they have financial resources or the human resources for such a framework.
- Reporting lines for assessment staff vary—only a minority report directly to the university librarian.
- Most library directors are pleased with the results from the assessment frameworks they have created.
- A minority think that just embedding assessment responsibilities as part of a senior administrative position (such as an AUL) will eventually produce some results.
- Those directors who do not have such assessment frameworks or positions note the following challenges that, from their perspective, seem to be mainly internal and concentrated within the professional librarians but also related to the professional culture:
  1. Ongoing internal staff opposition to such a position or undertakings
  2. Staff not used to working with data and not interested in working with data and assessment
  3. Lack of skill sets in project management, accounting, information technology, analytics, statistics, and so on
  4. Lack of staff vision and lack of a risk-taking culture, especially a reluctance to stray from traditional library positions
  5. Difficulty of integrating such a position into the existing organizational culture

Most directors are aware that a management information system (MIS) or some other assessment framework will cost in excess of $100,000 per year. Most are willing to consider this expenditure as a positive investment.

- Most of the interviewed directors were aware of the difficulty in shifting positions (costs) from traditional library frameworks and positions to new services and areas of focus.
- In an ideal world, in the absence of the above mentioned challenges, the interviewees expressed the following wishes:
  1. Over half would like up-to-date data on their desktop (close at hand).
  2. All respondents expressed the need to focus more on local user behaviors and expectations.
  3. Many directors acknowledge the need for their position to focus more on long-term trend analysis.

4. Most mentioned the need to move away from traditional performance measures to focus more on campus learning and research-impact measures.
5. All directors mentioned the need for budgetary and cost data, yet only a minority mentioned their need for activity-based costing data.
6. All directors are aware of the need to focus mainly on electronic and digital services and their impacts.
7. Most directors are aware of some library management information services (MIS) frameworks but preferred to be part of a campus based MIS.
8. Almost all directors wish to have more readily available regional and national data and benchmarking studies.
9. Some directors identified the University of Virginia assessment framework and the University of Pennsylvania Datafarm as models to which they aspire.

- A very small minority preferred to stay at arm's length from assessment and would work through existing staff structures to eventually develop some assessment capabilities.

The third discussion item focused on the library expectations of campus administrators, especially regarding data-based analysis and reports.

- Most senior campus administrators do not expect reports with detailed data.
- Some senior administrators, especially from research institutions, are still very interested in any type of institutional rankings or benchmarks, even when they are aware that they are irrelevant or incorrect.
- Most senior administrators expect mainly budgetary information.
- Some directors identified interest from their campus administrators in impact data related to learning outcomes but acknowledged that the library is not yet viewed as central to these outcomes.

> **Some directors identified interest from their campus administrators in impact data related to learning outcomes but acknowledged that the library is not yet viewed as central to these outcomes.**

- A minority of campuses have campus-wide data frameworks; and, at those institutions, there is more expectation for real data from the library. It seems that interest in these analytics frameworks is dependent on the personal experiences and interests of campus leadership.
- Many library directors developed relationships based on trust and personal confidence with their superiors. These relationships are not based on the availability or lack of data and analytics.
- Senior administrators' expectations from the library are based mainly on local institutional culture or on the personality of the senior administrator.
- Library directors invest time and effort in studying and adapting to the personal qualities of their superiors. They understand the importance of understanding

and using this knowledge for their own and the library's success at the institution.

The following are some general conclusions based on these interviews.

- Senior university administrators are focused on faculty, research funding, student learning and life. The library is not always viewed as directly connected to these issues or as a central priority for university administrators.
- Assessment or analytics is not currently a central cultural tenet of universities. The importance of assessment initiatives are dependent on parent institutional culture and needs. This lack of institutional culture is central to the slow development of a culture of assessment in libraries.
- The library profession is challenged in recruiting in large enough numbers librarians with statistical and other analytical and IT skills. Library directors are very concerned about the lack of candidates with these skills from inside the library profession, as well by the resistance of existing librarians to the recruitment of staff who possess such skills without an MLIS to the "professional" ranks.
- Library leaders have succeeded in their careers without having an assessment framework. This may be one of the main reasons for the slowness in creating local structures for analytics. Past managerial success and entrenched management structures and workflows may account for the challenges posed to library leaders in integrating available data and analytics into their decision-making frameworks.
- Library leaders are aware of the need for an assessment culture and framework but are stymied by lack of vision and legacy systems and staff. Some library directors express exasperation with the level of staff pushback to assessment and to change initiatives that seem to fly in the face of established library "values."
- Library directors are slow in identifying external sources of analytics, reports, and skills as alternatives for lack of local services. Learning from other non-library industries and allowing for imagination to thrive may help.

Forecasting Five to 10 Years Ahead

The rapid growth of the information economy is transforming the educational, media, and publishing frameworks and businesses. At the same time, external pressures on educational institutions by their stakeholders (students, parents, governments, accrediting bodies and boards, and so on) will force them to focus on delivering measurable research and learning outcomes. It is very possible that the speed, quality, and inevitability of technological change will be the primary driver of educational change. Studies relating to the changing ways young people adopt, adapt, and use information are straining the capabilities of educational institutions to anticipate, predict, and plan. All these forces—together with the increasing influence of the accountability movement's power inside the walls of higher education—may signal that, as the goal of demonstrating measurable "evidence of student learning" becomes universally accepted, libraries may have to refocus their services and work processes toward helping achieve this goal. The potential changes relevant to the future of libraries need to be understood within

this context. The need to demonstrate measurable evidence will eventually force librarians to change their vision and values and, as a result, develop services and processes that are based on working toward realistic learning, research, and scholarly outcomes. Only clarity of purpose will inform the skills needed within the profession to deliver the requisite services efficiently and effectively. Librarians will have to be able to learn to measure the right things and change from a culture of intuition-based decision-making to a decision-making framework based more on evidence, analytics, and results.

The Centrality of Leadership

Taking all the above-mentioned factors that influence the library environment into account, I want to forecast the future relating to assessment in libraries. Effective implementation of data-driven and evidence-based decision-making requires vision, leadership, and risk-taking. This leadership depends on character, understanding of economics, changing technology, and expected impacts. Without focused, effective, and supportive leadership, assessment and evidence-based management will not scale. Without direct and consistent support from the library director, assessment activities lose traction and do not penetrate the local library culture. Local assessment frameworks cannot succeed without continuous support from library directors. Leadership needs to demonstrate purpose, consistency, and determination in the use of evidence-based management. Leaders need to walk the talk.

The Need for New Skills and Practices in the Profession

Lack of needed analytical skills is a key argument for outsourcing local analytics. Only a reevaluation of library outcomes can enable institutional reorganization that will incorporate analytics into its framework. From the current perspective, it seems doubtful that the profession will have enough skilled personnel to sustain healthy local analytics and assessment work. The importance of the availability and use of activity-based costing and cost-benefit analysis will increase. Evidence-based decision-making has to be built into efficient, effective, and continuously examined practice and process framework.

The Move from Local to Networked and Collaborative Systems and Services

The self-contained, independent local resource and service model is not sustainable in the new information framework. Collaborative frameworks (consortia, state, national, and global) will be organized to maintain, analyze, and distribute analytics to local members (local libraries). Only by leveraging collaborative-networked knowledge bases that are more accurate and more cost effective will libraries be able to deliver needed services in a timely and cost-effective way.

Local libraries will need to transition from a competitive resource framework to a collaborative model. Library consortia and other collaborative frameworks will fill the current analytics gap, building analytical frameworks from which they will distribute reports and analyses as needed to their members. Possible examples include the Ontario Council of University Libraries, OCLC Research and Marketing, and the California

Digital Library (CDL) Communication, Outreach, and Assessment Programs. Increased capability for leveraging large information networks for services and analytics may make local assessment frameworks redundant. The information environment is increasingly networked and, because of this, most data can be networked and generated for local use. This transformation will also need an institutional and professional culture change.

Outsource or Acquire Analytics and Reports as Needed

Most local statistical- and user-information analytics and reports will be outsourced either to a (local) consortia or external professional services. Libraries will buy information and reports as they need them. Library leadership will need to transition from trying to do everything with local resources to buying services as needed. Finally, understanding the costs as well as the opportunity costs and the need to build and maintain cost-effective systems will become part of library values.

Amos Lakos is librarian at the Rosenfeld Library, Anderson School of Management, University of California Los Angeles, CA; he may be contacted via e-mail at: aalakos@gmail.com.

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