



Toward a Framework for Assessing Library and Institutional Outcomes

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abstract: The Association of Research Libraries (ARL) E-Metrics project sought to understand how academic libraries might specify, produce, and assess institutional outcomes. This paper reviews the findings from a discussion forum, site visits, an analysis and review of accreditation standards, and a survey of ARL member directors, and offers a framework for approaching the outcomes assessment process. The paper concludes by suggesting that much work remains to integrate outcomes assessment successfully in a university setting. Moreover, multiple approaches to assessment, of which outcomes assessment is but one, are still needed for a comprehensive assessment of libraries in the broader university and societal context.

It is not enough simply to develop measures and to collect statistics related to library networked resources and services. Indeed, as state legislatures increasingly tie budgets to performance and regional accreditation boards begin emphasizing the need to articulate outcomes, it is important for research libraries to decide what their outcomes should be and to determine how to connect measures and statistics to these outcomes at both the library and the university levels.

From May 2000 to January 2002, the Information Use Management and Policy Institute in the School of Information Studies at Florida State University conducted the E-Metrics project for the Association of Research Libraries (ARL).¹ Part of ARL's New Measures Initiative, this project explored issues regarding defining and collecting data on the use and value of electronic resources in a group of twenty-four participating ARL members. Within the E-Metrics project, the study team undertook a number of outcomes-related activities, engaging in an extensive effort to develop frameworks for understanding and depicting measurable library inputs and outputs in the context of indicators of institutional outcomes. This article reflects our work on these issues.

The study process began with a review of literature concerning library and institutional assessment to understand better what other efforts had accomplished, with an eye toward finding documented linkages between library outputs and institutional outcomes. We found that while the problem was clearly defined and its significance well appreciated and often noted in the literature, there has been little work towards actually identifying linkages and developing models that ARL member libraries could use to determine how best to measure their impact on the outcomes of the universities they support. Accordingly, the study team (consisting of faculty and students at the School of Information Studies) undertook laying a foundation upon which such efforts could succeed as an ongoing research program.

This article reports on the E-Metrics study's efforts and findings; discusses a process framework for approaching the issues and practices of institutional outcomes assessment in academic and research libraries; and raises continuing questions and issues that should be considered at individual libraries and in future research, particularly with respect to the organization's cultural context where outcomes assessment occurs.

Background and Methodology

An important component of the E-Metrics project involved developing a preliminary framework that can ultimately link the study's proposed network statistics and measures to: (1) educational, research, and service outcomes in higher education institutions; and (2) educational, research, and service outcomes in higher education libraries. In order to engage in this task it was important at the outset to specify a working definition of the key term "outcome" as it has varying meanings for different users in different contexts. As a working definition that captures various related aspects of the term "outcome," we have used the following:

An outcome is a clearly identified result or end product that occurs as a consequence of individual or combined activities from units at the institution. It is a preferred or desired state and ideally clarifies specific expectations of what should be products from the institution. An institutional outcome can be defined and measured in such a way that evidence is available to determine the amount or degree to which the outcome does, in fact, occur.

It is particularly important to distinguish between outcomes of interest, desired outcomes, and actual outcomes. Among the myriad if not infinite outcomes of the research university enterprise (i.e., its results; that which "comes out" of a university in a mechanistic sense), *outcomes of interest* are those outcomes—relatively few in number—on which a particular university chooses to focus its attention at a given time, taking into account the complex, ever-changing array of relevant, local values. Of great significance, these outcomes must not only be important to the university's leadership and constituency, but they must also be ones the university determines it can affect *and* measure meaningfully.

For the selected outcomes of interest, *desired outcomes* are the aspirational levels of achievement or production an institution should set in advance to determine whether



it has attained success at a future time on some important dimension of its operation. In other words, they are specific goals or quality standards for outcomes of interest. *Actual outcomes* are the real achievement or production levels for an outcome of interest as measured at a given time.

Our work in this aspect of the E-Metrics project began with an extensive literature review; its summary follows this section and highlights some of the key work identified in the area of outcomes assessment. We also conducted a content analysis of selected ARL member strategic planning documents at the library and institutional levels. This analysis revealed a number of commonalities in the institutional goals of ARL members and the manner in which those goals are devised and articulated. With the insights gained, supplemented by the team's prior work in this area, we conducted structured interviews in order to solicit feedback, to identify key work and actors in the field, and to ground our framework development in (a) related efforts already underway and (b) the concerns of representative participants.

Altogether, these efforts substantially informed initial attempts to create an analytic framework and to depict an idealized institutional process focused on key institutional outcomes of concern to university administrators that can be affected by libraries. An earlier version of this paper was drafted to convey the framework developed to date. It was distributed early in April 2001 to stimulate constructive dialogue on the listserv for project participants and at a project discussion forum held during the Coalition for Networked Information (CNI) Spring Task Force Meeting on April 9, 2001.

With this foundation, the study team refined its working framework by then employing other methods to approach the complex issues at hand, including: (1) a discussion forum; (2) site visits; (3) a policy analysis of accreditation standards; and (4) a survey of ARL deans and directors (including a request for and review of their relevant strategic planning documents). A summary of our findings from these efforts follows in a subsequent section, and an overview of all methods employed is shown in table 1.

Other projects within the ARL New Measures Initiative have pursued parallel inquiries into many of the outcomes-related issues explored in the E-Metrics project.² Of particular note, the study team benefited from the work done by Ken Smith, who is investigating educational outcomes for university libraries, and Doug Jones, who is studying education and research outcomes for university libraries. Their work helped us understand better the role electronic and networked services play in these areas. Similarly, the study of user perceptions of quality in the LibQUAL+ program has been of keen interest and we have explored it for possible connections.

For the same reason, the study team investigated work done outside of ARL's New Measures Initiative. One interesting study of the library's impact on sponsored research funding conducted by Brinley Franklin found that "electronic services use supporting sponsored research generally mirrored the same level of support exhibited by the general use of library materials and services at almost all types of libraries."³ Franklin also found "a high correlation between total research and development funding at an educational institution and total library expenditures at research universities."⁴ This work suggests that electronic services use be quantified to reflect the degree to which a library's investment in electronic services supports specific institutional outcomes.

Table 1
Methodologies for Institutional Outcomes Framework Development

Technique	Function/Purpose
Content Analysis	Gather various documents to review development of current outcomes-oriented requirements, strategic plans, activities, and future directions at a variety of ARL institutions, including project participants.
Discussion Forum	Explore key issues identified to date regarding understanding and assessment of library and institutional outcomes. Findings informed broader and ongoing data collection activities and framework development.
Policy Analysis	Identification and review of policy instruments adopted or under consideration by accreditation bodies, with a focus on institutional outcomes assessment requirements. Findings helped to inform an understanding of regional and national trends in an area critical to all ARL members and institutions of higher education.
Site Visits	Extensive interactions and observations of institutions selected for in-depth study. Findings were critical to contextualizing and integrating insights gained from individual case documents and interviews, as well as for making significant refinements to the process framework.
Structured Interviews with Small Groups and Individuals	In-depth exploration of outcomes-related concerns and activities with key informants at selected institutions and their libraries, including site visits.
Survey of ARL Membership	Uniform collection of responses to open-ended questions regarding outcomes-related concerns and activities at academic ARL institutions and their libraries.

Selected Literature

Charles R. McClure and Cynthia Lopata found that measures of teaching, learning, and research in higher education were generally inadequate, making it more difficult to assess the influence of networked services in those areas. Library administrators “must rely on intuition and anecdotal information as a basis for assessing the usefulness and value of a particular service.”⁵ Without appropriate measures of impact, library administrators are less able, or in some cases unable, to justify expenditures for networked services. Additionally, they found feedback mechanisms allowing administrators to improve networked services for users are weak.



Sarah M. Pritchard also calls attention to the “lack of performance measures that make sense across institutions and that link library processes to educational and research outcomes.”⁶ She notes that as university administrators begin publicly questioning the need for conventional libraries, it is vital that libraries are able to link their information resources to the effectiveness of academic programs. One approach that may be helpful in doing this, she points out, is Total Quality Management, which can be used to improve the processes of university libraries.⁷

In a report of the American Association of Higher Education’s 53rd National Conference, Laverne Simoneaux and William Miller (1998) stated that the provosts in attendance generally saw the value of libraries in terms of supporting learning and information literacy, but that the high cost of information resources and technology was a major concern.⁸ The Association of College and Research Libraries (ACRL) “Standards for College Libraries 2000 Edition” shows sensitivity for this concern by stating that outcomes assessment “should take into consideration libraries’ greater dependence on technology, their increasing use of online services, their growing responsibility to provide information literacy skills, their increasing reliance on consortial services, the possibility of dwindling financial resources for collection development, and new ways in which scholarly information is published and distributed.”⁹

Kenneth R. Smith, in a paper prepared for ARL, states that outcome assessment for the library should be treated like any other academic department. “Like the Physics department, the Library should be able to contribute to the achievement of learning outcomes for various academic programs across the University.”¹⁰ He suggests that a step in the right direction might start with the library asking its partners in academic departments to help it determine how best to support and achieve learning outcomes and then to tailor the roles of its professionals accordingly.

The ACRL Task Force on Academic Library Outcomes Assessment was charged with, among other things, “developing a philosophical framework for assessing libraries in terms of desired campus outcomes.” It viewed outcomes as “the ways library users are changed as a result of their contact with the library’s resources and programs.” The Task Force reports that, while libraries should be concerned with outcomes, measurement is difficult and that the rigor involved in linking inputs to outcomes will require much research.¹¹

LibQUAL+, which adapted and built upon SERVQUAL for the research library community, calculates the gap scores “between *minimum* and *perceived* expectations and *desired* and *perceived* expectations.”¹² By identifying areas that users say are below their minimum expectation, libraries can begin to address problems both of user perception and library quality. While measuring outcomes directly is more difficult, an instrument like LibQUAL+ could be developed to measure *perceived* outcomes.

The work of Rowena J. Cullen and Philip J. Calvert examines, among other models, the constituency satisfaction model. The researchers developed a questionnaire that asked stakeholders to rate the usefulness of ninety-nine indicators, which were determined through a review of the literature. Means were taken and the indicators were ranked for each constituent group.¹³ Bonnie G. Lindauer found that there was overlap between the Cullen and Calvert findings and the impact measures listed in McClure and Lopata’s 1996 manual and used both in her work.¹⁴

Lindauer presents a useful framework for assessing the library and its networked services in terms of institutional outcomes. Her framework depicts the foundational role that infrastructure plays and shows the importance of student learning outcomes in a teaching institution by placing them above other domains.¹⁵ Meanwhile, Richard H. Orr discusses the basic internal processes of the library.¹⁶ These particular works were quite valuable in providing much of the basis for our preliminary framework.

Lindauer has also produced an outcomes assessment manual to “offer guidance for improving the measurement and documentation of the impact of community college library and learning resources programs.”¹⁷ This manual employs a core assessment method Lindauer identifies as “ADICAC”: Align, Define, Identify, Chart/Collect, Analyze, and Communicate. The ADICAC process, though designed specifically for community colleges, could be modified to function as an assessment methodology for university research libraries.

Peter Hernon and Robert E. Dugan describe outcomes assessment in their recent book, *An Action Plan for Outcomes Assessment in Your Library*. A primary focus of the book is the answer to the question “How are users of our library changed as a direct result of their contact with our collections and services?”¹⁸ Given that focus, the book presents a variety of approaches for libraries to consider in planning, understanding, and undertaking outcomes assessment in their library settings. It does not, however, address a range of measurement and outcomes issues related to services and resources in a networked environment. The book does encourage an end-user and library focus and, thus, does not necessarily provide a means through which academic libraries can link their services and resources to the larger university institution. The tools, best practice examples, and other material in the book are useful, however, to libraries that wish to consider developing a user-based assessment approach for their library services.

Recently, the *Journal of Academic Librarianship* published a special issue focused on outcomes assessment in academic libraries. Martha Kyrillidou discusses various historical models of libraries and considers how their evolution has affected the associated issues of assessment with respect to inputs, outputs, quality, and outcomes.¹⁹ Dee Stallings looks at outcomes assessment issues in the context of distance education and unrelenting technological advances.²⁰ Regarding the impact of regional accreditation bodies and their increasing emphasis on achievement of institutional outcomes, Ronald L. Baker reviews the role and philosophy of accreditation.²¹ In a revised report of work done for the E-Metrics project, Bonnie Gratch-Lindauer analyzes current and draft accreditation standards to explore how the outcomes emphasis affects academic libraries.²² Peggy Maki provides an “Assessment Guide” designed to help institutions formulate a plan for systematically assessing student learning.²³ In separate articles, Kathleen Dunn and Elizabeth L. Carter report on outcomes assessment efforts at California State University and The Citadel, respectively.²⁴ Hernon concludes the issue by stating that inputs, outputs, service quality/satisfaction, and outcomes are all of concern, but only the latter two “stand out as central assessment concepts for librarianship.”²⁵ His conclusion is not supported by work described here nor in the overall E-metrics project.

The literature reflects that underlying the operations of a research library are the core values and goals of its larger institution. In order to know whether the values are served and the goals achieved, we cannot merely rely on counts of networked resource

use. Rather, it is critical that a library measures itself strategically with an eye toward fulfillment of institutional goals.

Findings

This section reviews the findings from four major techniques of data collection employed in the outcomes aspect of the E-Metrics study: a discussion forum; the site visits; the policy analysis and review of accreditation standards; and the survey of ARL member deans and directors.

Discussion Forum. During the CNI Spring Conference in April 2001, the study team conducted a number of discussion groups and individual interviews regarding issues related to institutional outcomes and the role of such outcomes in terms of library planning and evaluation. The following list provides a brief summary of the key issues raised during these meetings that have ongoing significance:

- *Clarifying Outcomes versus Goals.* Some considerable discussion occurred regarding the similarities and differences between the terms “institutional outcomes” and “institutional goals.” There is a need to resolve definitional issues and to differentiate the notion of institutional outcomes from goals and objectives.
- *Need for Specifying Clear, Meaningful Outcomes Statements.* A number of participants commented on the use of institutional outcomes statements that were essentially meaningless since they had not been adequately defined and/or operationalized.
- *Whether One-to-One Linkages Can Be Established between the Library and Institutional Outcomes.* There was considerable skepticism among a number of participants that specific individual activities of the library could be linked in a direct or significant manner to specific institutional outcomes. Some participants thought that for many instances the library’s role would be more indirect or as a supporting service that only contributed to institutional outcomes along with a variety of factors.
- *Concern about Linking Library Inputs to Institutional Outcomes.* One participant noted that she worked at a university library with a relatively small (compared to other ARL libraries) collection count/size. Nevertheless, the university was ranked in the top twenty of all institutions receiving federally funded research grants. She stated (and others agreed) that direct relationships between library input and process measures and institutional outcomes could “backfire” on library administrators if such relationships were inverse. Arguments, participants believed, that more library inputs (however defined) would naturally improve the accomplishment of institutional outcomes should be carefully considered before being put forth to university administration.
- *Making Appropriate Comparisons and Identifying Peers.* There was some discussion that comparing a specific ARL institution in terms of accomplishing certain outcomes may not make sense unless there is an agreed-upon peer group. The following concern was raised: One person asked, “will institutional outcomes become another ‘tool’ to compare one university to another—oftentimes with unintended, undesirable results?”

There was a general sense that ARL libraries should develop a process to identify and operationalize library outcomes that contribute to institutional outcomes.

- *Importance of Process in Setting Institutional Outcomes.* There was a general sense that ARL libraries should develop a process to identify and operationalize library outcomes that contribute to institutional outcomes. The library is critical in

informing the university of institutional outcomes to which the library meaningfully and demonstrably contributes. Setting such a process is an important method for informing key stakeholders in the university of both the library's institutional role and ensuring that the outcomes to which the library has (or may have) links are appropriate in context.

- *Importance of Situational/Institutional Factors.* There was wide agreement that a useful outcomes model ultimately should recognize the wide range of situational and institutional factors that might affect the role of the library in the development of and impact on institutional outcomes at a particular campus. Situational and institutional factors that may be relevant include:
 - Different missions of the university, including missions that might evolve from state legislatures and other external factors;
 - Process by which resources are allocated across campus;
 - Importance placed on institutional outcomes and how they are defined at a particular institution;
 - Culture and traditions for roles and responsibilities of faculty, etc.;
 - The physical location of the university, especially in terms of a urban versus nonurban setting;
 - Organizational structure and governance structures of both the library and the larger institution;
 - Planning process used in the library and at the institution;
 - Role and extent of branch and/or departmental libraries on campus;
 - Faculty involvement in library governance through a faculty senate library committee, etc.;
 - Technological infrastructure and management of that infrastructure in both the library and the larger institution, and;
 - "Responsibility-based budgeting" of units in which each unit accounts for its own income versus expenditures.

Clearly, there are likely to be a significant number of additional situational and institutional factors that would vary from university to university. The degree to which any model can take into consideration the range of situational and institutional factors may be problematic.²⁶

- *Point-of-View Toward Outcomes from Different Stakeholder Groups.* What might constitute institutional outcomes, or *appropriate* institutional outcomes, will vary from one group to another (legislators, administrators, deans, faculty, trustees, students, etc.). It could be that the outcomes from the library (as agreed-upon by

library staff and administration) may or may not be those seen by university administration as important or appropriate. Is there some type of hierarchy of outcomes from different units in the institution as opposed to the institution overall? The key to setting meaningful and effective *institutional* outcomes is that they should be end results that *all* units of the institution have a stake in achieving—not just the library.

- *If/Then Models to Depict Libraries and Institutional Outcomes.* There was some support for developing multiple models for depicting the various possible situations and relationships between libraries and institutional outcomes. To pursue this possibility would require a better understanding and operational description of specific situational and institutional factors that *could* affect the way in which the library is associated with institutional outcomes.
- *Possible Candidates of Outcomes.* Some participants thought that it would be useful to identify a set of possible institutional outcomes from which an institution might select local outcomes of interest.
- *Joint Activities/Roles Between the Library and Other Institutional Units.* Participants believe that oftentimes direct linkages from the library to a specific institutional outcome might be difficult to identify and measure. Some suggested the possibility of identifying *groups* of institutional units that might all be working toward a specific institutional outcome. Such might be a better approach for the library to be linked to outcomes rather than considering a library activity as a single factor in producing an outcome.

The issues briefly described in this section are not intended to be a comprehensive listing of those identified and discussed by the various participants in the meetings. The discussions reveal (a) where there is sufficient understanding of institutional outcomes, and (b) the relationship of institutional outcomes to library activities and outcomes. Discussion about (c), how an outcomes focus should be used in planning/evaluation of library services, requires much additional thought and research.

Site Visits. In May 2001, two members of the E-Metrics project team conducted site visits at the University of Arizona (UA) and Arizona State University (ASU), particularly at their main libraries. Exploring issues from both institutional and library perspectives, the visits focused on better understanding the manner in which each university: (a) sets its strategic direction with both institutional and library outcomes of interest; (b) articulates those outcomes and the results desired; (c) assesses whether the desired outcomes have been achieved; and (d) uses outcomes-related concerns and data in decision-making.

On both campuses the team conducted a number of in-depth interviews and group discussions, with both a variety of line and administrative librarians, as well as with senior university planning officers. In addition, they were able to review and discuss a wide range of relevant documents, many of which were collected for further review and analysis. Finally, they benefited from observing library activities at both locations. The study team gained great insights into both institutions from very helpful informants who were without exception extremely generous with their time and contributions.

The study of these institutions, separately or together, was not an end in itself, and neither was in any way evaluated. Rather, both were selected as two rather different organizations within the same state university system, providing an excellent opportunity for making comparisons and identifying contrasts.

The University of Arizona Library is well known for having undergone a major reengineering nearly a decade ago by implementing an extremely flat organization managed almost entirely by teams. While the teams themselves are arranged in a structure with some formalities that have evolved (and continue to evolve), and the dean operates within the larger structure of the university, every individual staff member has the opportunity and is expected to participate—at one time or another—in virtually every facet of library operations. One of the hallmarks of this approach is the overt empowerment of each individual with corresponding responsibilities, and mutual reliance on everyone else exercising his or her team-based power responsibly. What is more, everyone interviewed or observed—regardless of regular job duties or position—was mindful of and conversant with the full array of the library's strategic and operational issues, including budget details, short-term objectives, and long-term goals.

As with all human endeavors, there are always inefficiencies and uncertainties. Along with many instances of routine progress made through unusually egalitarian methods, the team also observed a fair amount of time expended on inter- and intra-team monitoring and adjustments, orienting and reorienting. This was not necessarily counterproductive, but it appeared that the absence of explicit goals, directions, and standards from the top down resulted in much confusion over the need to generate such from the bottom up. By and large the uncertainties and confusion were viewed as an investment in a continuously learning organization where every individual, ideally, is highly knowledgeable and focused on quality customer service and the organization's greater good (i.e., the university's outcomes of interest).

The organizational structure of the Arizona State University Libraries is relatively traditional with a hierarchy of administration, departments, and line staff; and yet there are teams within the more traditional structure and other instances of flexibility or experimentation as situations warrant or seem worth exploring. In contrast with the fluid UA Library, the ASU Libraries seem mechanical with a top-down management system. But this is not a pejorative characterization as a general matter, and the observations of ASU's more familiar operation mode did not suggest anything other than a well-run system.

While the traditional hierarchical system has become associated in the minds of many with the negative connotations of bureaucracy, that is a misleading image and disguises significant efficiencies when the system is well managed. A more rigid structure with well-established and clearly communicated goals, directions, and standards can be quite empowering for employees at any level, albeit in a different sense from that of a flat organization. Line employees can focus on their particular jobs and not on being an integral part of managing the organization. And that appeared to be the case at ASU. Moreover, the organization's managers are mindful of the university's mission, values, and outcomes of interest, which are conveyed throughout the library even if every line employee is not conscious of it in the same manner as those at the UA Library.



The key insight regarding the outcomes framework development that arose out of the site visits was that, notwithstanding the obvious—and in ways profound—differences, both universities invest a very high importance in the library deans. The deans' role and the way they exercise it is not to the exclusion of the importance of other library staff, for all interact in one way or another with various campus customers and stakeholders, and the staff are at the heart of the day-to-day operations. But the deans are the public and official champions of the library on campus among other deans, the provost, and the president.

The administrators at both universities apparently convey to the library an appreciation (or assumption) of the library's role in contributing to the larger institutional values, and rely on the library deans to present the achievements and contributions of their libraries in a manner the deans deem appropriate. Thus, our understanding is that in both cases the library deans are free to present the library to senior administrators and peers in whatever manner argues best for what the library does to contribute to its university, without any imposed requirements as to substance (although the ASU administration has directed via memorandum all departments, including the library, to tie budget requests to the university's strategic plan).

This is highly significant: at present these two very different library organizations are similarly situated vis-à-vis presentation of the library as a whole to the academic community it serves. The deans and associated staff must define the library—and redefine it continually as their local and larger environment evolves; they must make their contributions to their respective communities, ultimately in terms of current outcomes of interest; and they must demonstrate how they are actually contributing to the achievement of desired outcomes. But in the absence of internally imposed measures, and in the absence of widely recognized measures that support such a demonstration, clear linkages between library resources and services—electronic, networked, or otherwise—and the institutional outcomes they must ultimately support, remain unspecified. ASU and UA share this situation. They also seem to share the same solution: excellent communication of what the library does.

Accreditation Review. The study team engaged the services of Bonnie Gratch-Lindauer to follow up on one aspect of her previous work and conduct a review of relevant accreditation standards as they relate to outcomes and networked services in academic libraries (an update and revision of her review has since been published).^{27,28} The major focus was to help illustrate: (1) the need for university research libraries to demonstrate the outcomes of electronic and networked services; (2) the need for such libraries to demonstrate any outcomes apart from electronic and networked services; and (3) the need for research universities to show the connection between the use of electronic and networked services and the fulfillment of their missions/goals.

With regard to the need for university research libraries to demonstrate the outcomes of electronic and networked services, the standards and supporting documents contain few references to electronic and/or networked resources and services. Only five instances of the terms *network* and/or *electronic resources and services*—or similar terms such as *electronic bibliographic databases* or *online catalogs*—were found. However, relatively general but related terms like *information resources and services*, *information technology resources and services*, or *information technologies*, were more commonly used

in context. This broader terminology clearly includes electronic and networked resources and services, and its increasing importance in accreditation standards underscores the growing expectation that academic libraries demonstrate how these resources and services support student learning and faculty research.

Regarding the need for libraries to demonstrate any outcomes apart from electronic and networked services, the emphasis on assessing student learning and other outcomes is generally stronger in those standards that have been revised since 1998 or are currently undergoing revision. Moreover, as the Middle States Commission on Higher Education detailed, Title IV of the 1998 Higher Education Amendments requires universities receiving federal monies to have an outcomes assessment plan that includes “a review of the institution’s success with respect to student achievement in relation to mission. Institutions should include in the self-study a review of course completion, graduation rates, state licensure exam pass rates, and other data as appropriate to the mission of the institution and the programs it offers.”²⁹

Regarding the need to show the connection between the use of electronic and networked services and the fulfillment of missions/goals, we found that while there may not be a need to demonstrate the *outcomes* of electronic and networked resources and services, there is a need to provide evidence that documents the *connections* between their use and fulfillment of the institution’s goals. Four of the standards documents reviewed support this. Lindauer also found that university libraries should make more explicit and public the connections among the following:

- How their resources and services support institutional goals (in some of the standards, appraisal of annual institutional goals and progress in their accomplishment is suggested as a type of evidence contributing to institutional effectiveness);
- How their resources and services are used, by whom, and the effects of this use; and
- How their strategic plans and assessment plans support the institution’s planning documents and assessment process, and how the findings of the library’s assessment activities contribute to the achievement of the institution’s mission and goals.

The key observations from Lindauer’s review (as updated) follow:

- The majority of the outcomes and outcomes-related statements that refer to libraries and information resources are located in sections of the standards that deal with the education program and institutional effectiveness.
- The use of library and information resources is connected to student learning outcomes in six of the documents. Inclusion in course syllabi and integration of library use into the undergraduate curriculum are offered as measurable indicators for assessment purposes in two of the documents.
- The library’s role in helping students develop information literacy skills is an important student learning outcome directly referenced in four of the documents and in the “Best Practices for Electronically Offered Degree and Certificate Programs” developed and endorsed by all eight accrediting commissions.

- Assessing student needs, perceptions, and levels of satisfaction with educational support services (i.e., library and learning/information resources and services) and demonstrating that the findings from these user studies are employed in program improvement are fundamental expectations of all the regional accrediting commissions.
- Appraisal of annual institutional goals and progress in their accomplishment may constitute evidence contributing to institutional outcomes, or in some of the documents the phrase used is “institutional effectiveness.”
- All of the standards describe the need for an assessment or evaluation plan to document that the findings are utilized for program improvement. Some of the documents clarify this requirement to mean that each program or unit should have an assessment plan.
- Several of the standards documents refer to the campus climate or the institutional environment that supports teaching and learning. Three specifically connect library and information resources and services to the quality of the learning environment. The implication is that university libraries should clearly describe their resources and services that directly support the learning environment, how these are used, and what effects they have on students and faculty.³⁰

The role of accrediting bodies is widely acknowledged but its import cannot be overstated. First, there is the obvious matter of gaining or maintaining accreditation with a regional commission, as the failure to do so would supersede all other organizational concerns. Secondly, their increasing focus on outcomes assessment could be a bellwether for more requirements of systematic outcomes measurement and outcomes-based justification from a range of stakeholders, including universities and state legislatures.

Survey of ARL Members. As part of the data collection for the outcomes portion of the E-Metrics project, we posted a web survey on the ARL website in June 2001, and sent a request to the ARL membership. We asked for academic members' responses to six open-ended questions; the

survey also solicited any supporting or amplifying documents relevant to the issues raised. Given the length and requests of the survey, the study team was pleased to receive nineteen excellent responses, many including documents sent separately or by identifying appropriate URLs on the Web. The responses represented a cross-section of the membership, revealing a variety of insights, circumstances, and perspectives that underscore the importance of this inquiry as well as its complexity.

The following two lists contain a series of insights and conclusions drawn from the survey as a whole. The first list pertains to the university level, while the second focuses on the university's library. Regarding the university:

- University mission statements tend to be similar. All such statements submitted for the survey contain education, research, and service components.

The role of accrediting bodies is widely acknowledged but its import cannot be overstated.

- Most university strategic plans make some mention of the library, particularly with regard to information technology and electronic resources in support of teaching, research, and learning.
- Several universities have goal statements that either apply to, or otherwise make mention of the library, especially regarding increasing information literacy of students and supporting academic programs and faculty research.
- The documents reviewed, for the most part, do not contain specific outcome statements per se, but typically state a vision for the university and goals that describe an ideal or future state of the university.
- No document mentioned specific ways to assess programs or units on campus. It may be that this kind of information would be found in other university documents or that assessment tends not to be a high priority on campus, at least not at the institutions which responded.
- At universities where budgets appeared especially constrained, the university

Many libraries' vision statements expressed an increase in the amount of information technology and electronic resources owned and used by the library, and asserted that this would help them serve customers better.

seems to be more focused on budget justification. At such a university the library is typically expected to demonstrate how it helps the university toward its mission.

- Communication from the provost (or other senior administrators) articulating specific goals to the library seems to be vital in maintaining a library that can meet the needs of the campus.

Respondents who stated that goals were more vague or not formally articulated seem to have the most difficulty with getting bigger budgets.

Regarding the library:

- Almost every library mission statement included in this analysis stated that the library existed to support the teaching, research, and service mission of the university.
- Many libraries' vision statements expressed an increase in the amount of information technology and electronic resources owned and used by the library, and asserted that this would help them serve customers better.
- As the staff at one library pointed out, environment is the most variable factor in strategic planning. Libraries must know their current environment well and be able to plan well for their future environment.
- Many libraries started creating strategic plans in only the last few years, but find them vital for guiding the work they do.
- Many libraries are required to support the goals of the university and use that as a starting point for setting their goals.
- Few libraries have outcomes explicitly stated in their strategic plans. Many, however, do articulate desired states for the library.
- Libraries have to be selective in the resources and services they offer because

budgets do not allow them to do and buy everything they want. Some libraries noted that budgets are so low that they have had to cut vital resources (such as journals) and services. These libraries see creating a strong digital collection as a way to offer more access and to share resources with other libraries.

- Libraries are doing many things to support other units on campus. They work to make sure that programs have the necessary information resources, work with new programs to get resources in place, go into classrooms to teach information literacy/research skills, and help faculty create digital collections.

Many of these conclusions concern similar topics also identified in the discussion forum findings.

Discussion

Lindauer's study on libraries and campuswide outcomes particularly informed early versions of a framework that was distributed for discussion in a preliminary version of this paper at the 2001 CNI Spring Task Force Meeting of the ARL E-Metrics project participants.³¹ In her articles, Lindauer describes five assessment domains for libraries and connects goals of the university with activities and measures within the library. Assessment domains for the teaching-learning library that she listed include: (1) learning outcomes and enabling instructional outputs; (2) faculty/academic staff teaching effectiveness, scholarly productivity, and professional development; (3) institutional viability and vitality; (4) access, availability, and use of teaching-learning resources; and (5) infrastructure—human resources, collections, and equipment/facilities.³²

Our initial framework depicted a basic process by which an academic research library helps meet the goals of particular departments and functional units within a university, which in turn contribute to institutional goals, while acknowledging that libraries may also contribute more directly. In the early model, this idealized process begins with the university administration. From a standpoint of maintaining viability, vitality and core values, the model reflects goals that match the institution's various academic and support units. From these goals and the needs of the various units, decisions about budget allocations are made. The library receives funding, gains awareness of the needs of the university generally and of other campus units, and makes decisions about which resources and services to purchase and to offer its patrons.

We hypothesized that there is either an explicit or tacit expectation on the part of the library and university administration; an expectation—in the absence of feedback to the contrary—that actual investments in the library and customer use of library resources and services match the values and goals of the institution and meet the needs of other academic units. In the ideal case, benefits result, other units are supported, and the goals of the institution are achieved. Outcomes at the institutional level are measured against values and goals and help shape future goal setting and budgeting decisions.

Based on substantial constructive input from many participants in the project, the current preliminary framework of the outcomes assessment process is a refinement of the same underlying framework (see figure 2). Although it does not show how *particu-*

lar services and resources contribute to outcomes, the model does describe how a library dean or director can begin thinking about targeting library services toward the outcomes of interest to the university, and measure their contributions and impacts more effectively in actual outcomes. Libraries' contributions to actual university outcomes will typically be indirect and/or partial; thus, actual outcomes at the university level will not necessarily give a clear indication of achievement (or not) of success from the library level. Linking measures to outcomes cannot be done without first considering what outcomes are desired and what effects achieving those outcomes could have. Library personnel can then explore surrogate and/or composite measures that are accurate and reliable indicators of actual outcomes of interest.

University research libraries are established to support the broad research, education, and service goals fundamental to the mission of the institutions they serve. Beyond helping to fulfill the university mission, a research library must be able to help the

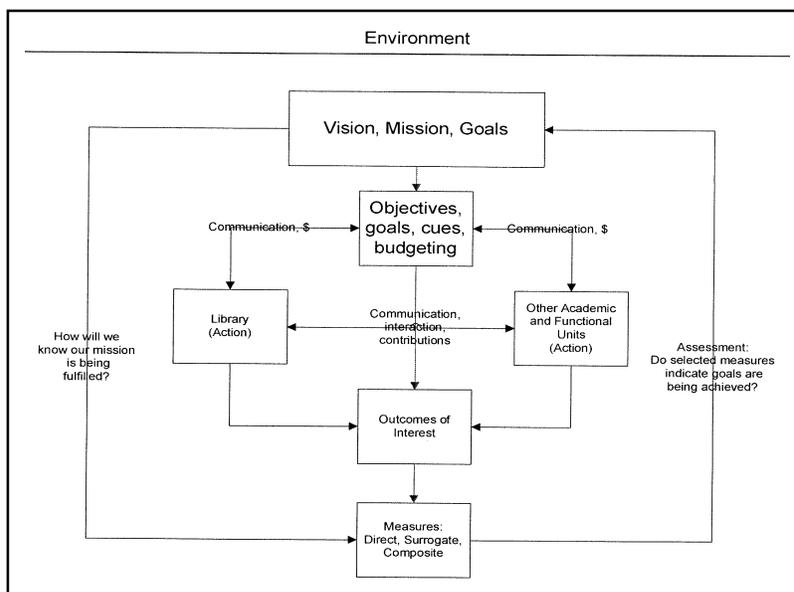


Figure 2. Preliminary Framework of the Outcomes Assessment Process

larger institution reach its more concrete but shifting goals. These goals may be articulated in strategic planning documents, in conversations with the provost or academic deans, in fulfilling regional accreditation standards, or in state legislation.

It is important to be highly aware of these goals and to be able to target library resources, services, and programs to help meet institutional goals. Doing so is critical to the university research library being seen as a vital, contributing part of the university. To address these goals and measure them effectively, it is important to ask three key questions:

1. What is the desired operational state of the university?



2. How can the library help the university achieve this state?
3. How will the library know when it has been successful in helping the library achieve this state?

The first question helps the library better understand its operating environment. Knowing what the university wants to be now and in the future helps library administrators understand what customers need.

The second question helps in making decisions about which of the many goals of the university are helpful for the library to focus on. In addition, answering this question helps the library make decisions about what action it must take to contribute to the fulfillment of those goals. Existing services and programs may address them, programs may have to be fine-tuned and resources upgraded, or new programs and resources may need to be developed and acquired.

The third question helps the library craft the measures that will provide indications of success. This is extremely important and must be thought about carefully because direct outcomes measurement is often difficult or impossible. It may be necessary to develop several measures that work together to indicate an outcome state or to use surrogate measures such as perception surveys. One approach for developing such measures is described below.

The order in which these questions are addressed is also vital. Before measurements can be derived, library administrators must know what they want to measure and how the library's impact is likely to occur. Without this perspective and focus, outcomes measurement cannot be targeted and loses meaning. In other words, it is very difficult to gain useful insights about outcomes when measures are not designed with outcomes explicitly in mind.

ARL libraries may currently collect measures that can provide some indication of success of a particular program or service provided to customers, such as user satisfaction surveys; however, it is important to think broadly—with the desired state in mind—and not simply use the measures on hand because they are easy to collect or because a lot of time and effort has been devoted to collecting them.

In most cases, a single measure on its own is not enough to indicate whether a research library is successful in a given area. To accurately assess the success or quality of an academic library, measurement should be implemented at three key levels:

- Resource Level (Inputs);
- Use/Capacity Level (Outputs); and
- Outcome Level.

Figure 3 lists some of the important questions that may be answered at different levels of measurement.

The following example illustrates this approach:

Imagine that information literacy is a theme for your university. How can you have a meaningful impact in this area? One way might be an effective bibliographic instruction

Resource Level (Input Measures)	Use/Capacity Level (Output Measures)	Outcome Level
What do we need to ensure success?	How much is a service, resource, or program being used?	What are the results of a program or process?
What funding level is appropriate or necessary for a particular program?	Who is using a service, resource, or program?	How successful or effective is the library?
Do we need more of a particular resource in order to have a more effective program?	Why are people using a particular program?	How effective do customers perceive your programs to be? What beneficial effects are you having on your customers? How could a program be changed to better suit the needs of your customers?

Figure 3. Using Measures to Answer Questions at Different Levels

(BI) program that reaches many students. Ask the question, “What would constitute success for our BI program?” Once you have articulated the answer, you can begin to develop measures for the effectiveness of your BI program (i.e., professor perception of student performance before and after BI program, etc.).

It is also important to know how many students can be reached with the program, so capacity and use measures are needed as well. Because the program needs staff and materials must be created, it is important to have resource measures that indicate what goes into the program and whether more or different resources influence the effectiveness or success of your program.

Here is another example in the networked context:

Imagine that your university wants to attract a “world class faculty.” There are many ways that the library can have an influence in this area. Capitalizing on resources unique to your university is one way to “brand” your library (and in turn university) as having expertise in a particular field (or many fields). By digitizing collections and making them widely available, the library can attract scholars all over the world to these materials. As a result, scholars will begin to associate these unique resources with your university and may even be attracted to your faculty. There are many ways to measure whether or to what extent there is a linkage. For instance, you could survey new faculty members and ask if they used your library’s materials before joining, which materials they used and for what, and whether this influenced their decision to join the faculty.



In this example, it is important to know who is accessing the collection, and which parts of the collection they are using most often. This can indicate which parts the digital collection users are most interested in and what collections should be more fully developed. Additionally, it would be helpful to know which resources are devoted to creating this digital collection, and if increasing, changing, or upgrading resources has an effect on the desired outcome.

Following this approach, however, may lead to the formulation of a wide range of performance measures and statistics. Selection of the precise measures needed to evaluate an electronic resource or service can be especially difficult, even for libraries that have undertaken processes similar to those described above. Therefore, it is important to have a framework to assist in choosing measures to gain insights into the use and uses, management, and reach of networked services and resources in specific areas or across a number of areas.

Challenges Related to the Use of Institutional and Library Outcomes

Academic libraries should develop a process to identify and to operationalize library outcomes that contribute to institutional outcomes. The library must play a major role in informing the university of valued institutional outcomes to which the library contributes. Setting up such a process is an important method for informing key stakeholders in the university of both the library's role in institutional outcomes and ensuring that the institutional outcomes to which the library has (or may have) links are appropriate.

At some level, this process will be developed and/or refined collectively by the ARL membership and related academic library associations. However, fundamentally the process and implementation is necessarily local, and the need for better orienting internal library operations to external outcomes may be necessary for some institutions.

Because each university has different processes for information sharing, decision-making, and mission fulfillment, it is important that each university library identify, understand, and master the established local process. Libraries obviously must work within their particular organizational framework. Therefore, to maximize contributions to university outcomes, the library must orient itself within its local framework, and apply that situation to its fullest advantage.

An important factor that contributes to an understanding of the local situation is sensitivity to the differing points of view of various stakeholder groups. What might constitute institutional outcomes—meaningful and appropriate institutional outcomes—will vary from one group to another (deans, faculty, trustees, students, etc.). It may be that the outcomes from the library (as agreed-upon by library staff and administration) may or may not be those seen by university administration as important or appropriate. Developing a process to address these potentially conflicting stakeholder concerns at the local level is particularly vital.

The library must play a major role in informing the university of valued institutional outcomes to which the library contributes.

When this component of the study began, we developed and refined a number of questions for use in structured interviews and discussion forums. They were designed to help the study team explore the general issues and particular circumstances affecting a variety of institutions. However, asking and answering many of the questions will also help libraries when conducting an environmental scan, developing an assessment plan, or otherwise engaging in a strategic planning process. We intend and hope that these questions will help to stimulate the process of outcome-oriented organizational change at all academic libraries and their institutions.

- Is there a culture of assessment at your university? At your library?
- How does your university articulate its core values?
 - Are these values clear? Defined? Measurable?
 - Are these values clearly articulated in the context of the library?
- Does your university measure itself—its outcomes—in terms of its core values?
 - How?
 - What measures/statistics/indicators does your university routinely collect?
 - How does the analysis of these data reflect the values of the institution?
 - How does your university administration use its outcomes data and analysis to change and improve its operations?
 - How does your university administration use its outcomes data and analysis to articulate need for improvements or changes in the operations of the library?
 - How does your library use university outcomes data and analysis to improve the operations of the library?
- Has the culture of assessment remained constant at your university (and at your library), or has it changed relatively recently?
 - If it has changed, what were the causes of the changes? Does it change often?
 - If it has remained constant, does this reflect rigidity in the thinking of the administration as a whole? Does it reflect helpful stability?
- What does your university expect from the library in terms of contributing to university outcomes?
 - Does the university make these expectations clear?
 - What do you need to know to make them clearer?
- What does your university expect from the library in terms of reporting data?
- How receptive do you believe your university administration is or would be to library reporting based on outcomes assessment?



- Does your library currently focus on campuswide, university-based outcomes?
 - If yes, how does your library determine which outcomes to focus on?
 - How are you linking or matching the data you collect with those outcomes?
 - How do you identify those relationships?

- Does your library collect data on its outcomes (impacts, effects)—and/or on university outcomes—that occur outside the library’s domain?
 - If yes, how?
 - If no, is it clear how that could be done at your institution?
 - What obstacles do you know of—or perceive or expect—regarding collecting university outcome data across the campus?

- How do you see the way you assess your library’s performance changing in the next few years?
 - Why?
 - How should it change?

- Assuming your library does not already do so, if your library were to measure and report its data in terms of university outcomes, would that affect the way the library is viewed and funded by your university’s administration?
 - If yes, how would it change?
 - Why?
 - How difficult would it be to effect that change?

- What are the key activities that your library does to support the research, education, and service goals of your university?
 - What kind of formal or informal data does the library collect that let you know you are supporting these goals?
 - How does this play a part in determining the types of resources and services you offer?
 - How could this play a greater role?

Figure 4. Key Questions

The Need for New Perspectives and Additional Research

Although the thrust of the E-Metrics project was on developing statistics and measures for academic and research libraries in the networked environment, the study team also investigated institutional outcomes in higher education and the role of the library in facilitating the accomplishment of such outcomes. The study team’s work in this area over the past year underscores the need for new perspectives and assumptions regarding outcome-based assessment and the need to continue research in this area. The framework offered here for approaching such assessment is but a first step.

To some degree, the importance placed on institutional and library outcomes vary by institution and by its stakeholders. Some institutions of higher education believe an

outcomes-oriented view toward planning and evaluation is essential—others do not. There are widespread views about the usefulness, application, and need for such an approach. Thus, there is a great need for empirical studies that can pursue a number of the topics and issues outlined in this paper. Such studies could demonstrate to what extent and in what manner higher education institutions (including libraries) can be more effective and have a greater impact (however defined) because of an outcomes-based approach.

Finally, it is important to note that an outcomes-based perspective might best be seen as but one of a number of types of approaches to support planning and evaluation in higher education. Traditional input-output models of library operations and associated statistics and measures, goal-based assessment, service quality approaches, expert-based standards, and others can be used *together* as a means for improving the overall performance of institutions of higher education and their various units.³³ Indeed, additional research that explores how best to integrate these and related approaches might be most fruitful to pursue in the future.

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