Instilling a Culture of Assessment that Encourages Data-Informed Decision-Making as a Process

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I. Introduction

UCLA Library is on the road to integrating assessment and data-informed decision-making throughout the organization by instilling a culture of assessment, but it is unclear where we are on that road without examining its signposts. Assessment and data-informed decision-making are mutually contingent and have both cultural, or affective, components, and procedural, or technical, components. So, constructing metrics that examine the quality of these affective and procedural components requires multiple forms of data obtained from differing perspectives to gain an overall picture. We used three forms of data to examine how UCLA Library perceived and used assessment within the organization. A survey helped us to understand the perceptions and observations of those within the organization toward assessment and acted as a proxy for assessment culture. However, surveys lack the richness that can be gained through interviews. Interviews of library leaders gave us a more nuanced understanding of the assessment culture and of our organization and how it operates in the context of our library. Thirdly, we used evidence from actual projects to measure how well members of the organization engaged in assessment understood and used procedural and instrumental processes to gauge where the organization stands. Taken together, these three qualitative and quantitative data streams paint a clearer picture of where we are on the road to data-informed decision-making and where we need to go.

The frame around which this project developed features the concept of a maturity model (MM). To that end we describe the development of our survey instrument and its results, the interviews of library leaders and how they influence an MM, and how two simple rubrics employed to analyze projects and reports show the impact of education and data-informed decision-making on the library. As the survey and interviews took shape, it became clear that though several excellent MMs exist, the data we collected and observed did not align well with those models. We could not use the sample models to generate actions. The MMs we looked at were sequential, which did not fit with the nature of the actions we were measuring. Sometimes data-informed decisions took place without prerequisite requirements found in most models. So, we simplified what we saw in those models to consider the organizational and procedural characteristics evidenced and to formulate actions that could be taken. Unfortunately, we have not yet accounted for how those characteristics change based on the position of those engaging in assessment and data-informed decision-making—whether leader, participant, observer, or other stakeholders.

II. Background: Library Initiative to Instill a Culture of Assessment

The UCLA Library consistently ranks among the top academic libraries in the United States serving 46,000 students[1] in over 200 majors.[2] The library employs approximately 170 librarians and 200 full-time staff[3] working in ten campus locations, not including ten affiliated library units.[4] Library staff support over 3.2 million in-person visits annually, 17 million print and electronic volumes, and more than 10.8 million virtual visitors via the website.[5] Organizationally, library units report to the university librarian through four associate university librarians and approximately 25 management staff. Since its last strategic planning process, there has been some success establishing a matrixed environment within the organization.

The 2015/2016 UCLA Library strategic plan, written and guided by external consultants with the input of library staff across the organization, contained a mission statement and goals that made the need for assessment apparent. In 2017/2018, seven volunteer members from across the organization joined the newly formed Assessment for Change Team (ACT) to initiate steps toward the goal of instilling a culture of assessment that encourages data-informed decision-making as a process across the enterprise. To achieve that goal, ACT has been using a three-pronged approach that relies on engagement, learning, and change.

Through engagement, ACT spreads its message and creates buy-in. As a group, ACT is supported by library leaders to use public venues, such as all staff library meetings, and meetings with individual departments and divisions, to re-frame assessment as a positive term—addressing head-on fears of punitive associations with the term. We continue to educate people about the value of assessment for the organization and as a means of growth and potential resource capture. Emphasis is placed on the process of data-informed decision-making and how to report assessment findings and recommendations to decision-makers/resource allocators.

Learning takes place through two-way communication that occurs as education and workshops are offered and through the development of tools that help organizational members employ assessment methods. ACT initially partnered with UCLA's Student Affairs Organization (SAIRO) to introduce assessment as it was practiced throughout the campus. The first workshops and assessments centered on using the logic model approach. As we educated our colleagues about assessment methodologies, we listened to them, performing needs assessments tailored around assessment activity within the UCLA Library. A large part of the needs assessment related to the use of the tool we developed to guide users through the assessment process.

We call the assessment tool we developed Data Lake.[6] Created in Confluence, Data Lake acts as a planning platform, and an abstracting and indexing repository, or inventory, for data, tools for assessment, and locally created reports. Most importantly for the organization and its decision-makers, Data Lake serves to centralize assessment and highlights its importance to the organization. Data Lake is an evolving tool that is changing based on the needs and observations of those using it. For example, while useful in the abstract, the logic model has proven itself less amenable to use by staff and has relinquished its central role as part of the assessment process. Another tool we developed is the UCLA Library Fact Book which is a LibGuide web page with dynamic content generated from Google Data Studio. This content is one of the many types of data needed to inform decision-making.

Finally, change has underpinned all of the effort ACT puts into assessment. Our initial education defined assessment as the process of creating change and that definition continues to have relevance.

III. Purpose: Determine Library Assessment Maturity Using an Adopted Maturity Model

A maturity model (MM) aids an enterprise in understanding its current and target state.[7] In our case, the target state is a culture of assessment that encourages data-informed decision-making as a process. The purpose of this study is to measure where UCLA Library is in its assessment maturity and to provide a potential roadmap for success. Our MM will help us to determine how the services offered by ACT to library staff could result in measurable changes in beliefs and behaviors by examining the questions: (1) What categories of assessment can provide useful information? (2) To what extent are attitudes and beliefs signaling a move toward data-informed decision-making using the precepts of assessment within the organization? (3) What evidence shows library staff adopted the practices and principles of assessment as a process of change? (4) What evidence shows decision-makers' use of assessment practices resulted in making data-informed decisions?

IV. MM: Challenges to Definition

We found defining data-informed decision-making and constructing the metrics to assess how well the library is managing its assessment activities in the context of MMs challenging. For guidance, we examined various publications about MM frameworks, types, and applications. Practices within data-informed decision-making are not standardized and outcomes are not easily measurable. Knowledge management is quite amorphous compared to the clearly defined capabilities of fields such as software engineering or data science.[8]

We needed to understand current and target states in data-informed decision-making by identifying what practices to measure. Our literature review revealed many types of MMs in different settings, but none were a complete fit. So, we created an informed decision-making MM to use in the library setting as a map for drafting survey and interview questions.

IV.1 Some Models Described

Maturity models can be broadly classified as process-oriented capability or knowledge management capability and then each can be further classified. A process-oriented capability model includes success factors evidenced in methods, information technology, people and culture within the context of strategic alignment and governance. A knowledge management capability model includes success factors evidenced in lessons learned, knowledge documents, data, and expertise within the context of a culture of knowledge management.[9] For data-informed decision-making within a culture of assessment in an academic library, we needed to seek guidance from both process-oriented as well as knowledge management capability models. The respondents to the model we created were to be management and staff and they were also the audience as this is the start of an internal assessment.

We considered the purpose for which we needed a model to be applied including whether the resulting maturity assessment needed to be descriptive, prescriptive, or comparative in nature.[10] A descriptive model is good for assessing the here and now. A prescriptive model enables creation of a roadmap to be followed to gain improvements. A comparative model enables benchmarking across domains or industries. UCLA Library developed a descriptive MM which enabled us to benchmark where we are now on the roadmap for data-informed decision-making as a process. With the understanding of the current situation, the library can work on the evolution (see Table IV-1) of the model to being prescriptive. An example of a prescriptive model we are influenced by is Knowledge Management Maturity (KMM).[11]

Table IV-1. Evolutionary Phases of MM Life Cycle

Descriptive	Prescriptive	Comparative
Assessing the here-and-now	Enables the development of a road-map for improvement	Enables benchmarking across industries or regions

In addition to examining various models' maturity assessment as being descriptive, prescriptive, or comparative, we also considered their scope (academic library), architecture, and metrics being measured. We required the scope to be domain specific to academic libraries and the audience to be internal as this is a self-assessment. Domain specific models that influenced us were the *Library Assessment Capability Maturity Model (LACMM)*[12] and the *Library Culture of Quality*.[13] We were also influenced by models with data science as their domain. These models included the *Data Science Maturity Model*[14] and the *Data Competency Maturity Model*.[15]

IV.2 Why We Rejected Some Maturity Models

When seeking to define maturity stages, we had the option to define maturity stages either via a top-down approach or bottom-up approach.[16] As an academic library pursuing self-assessment for an internal audience, we focused on defining our maturity stages in a top-down approach. A top-down approach has the definitions written first followed by the creation of measures to fit the definitions. The top-down approach is better suited if the organization and/or the domain has a limited understanding of assessment within the context of maturity. A top-down approach concentrates on what represents maturity and then how it can be measured. Compare this with the bottom-up approach where the measures are ascertained first and then definitions are written to reflect these.

In our environmental scan of maturity models, many had rigid levels that build upon sequential mastery of highly defined capabilities. Some, although excellent and highly regarded, were comparative, built upon a bottom-up approach, suited to business environments and quite complex such as the *Capability Maturity Model Integration* (*CMM*) [updated to the *CMMI*] for the domain of management developed by Carnegie Mellon University.[17] Our goal was to develop a model that struck a balance between simple and complex so that it would adequately reflect the complexities of our particular domain and not appear too complicated so we did not limit interest of create confusion.[18]

IV.3 MM for Data-Informed Decision-Making

We developed a simple MM to inform our evaluation of the library's data-informed decision-making capabilities based on the data we gathered from our survey, interviews of library leaders and evaluation of assessments and reports (see Table IV-2 below). A further consideration when designing our MM was how maturity stages could be reported to the audience and how to design and deploy instruments to measure the maturity of model practices. We view the following MM as our first edition.

Table IV-2. MM | Data-Informed Decision-Making

PRACTICE	CHARACTERISTICS
READINESS	engaging competently in both assessment and data-informed decision-making, including being aware of and having access to data and knowledge
TRANSPARENCY	regardless of role, there is a belief that communication with stakeholders occurs to ensure data is used appropriately and efficiently trust exists in the data, data sources, adequacy, and analysis
COLLABORATION	reinforces the process of assessment across the organization and beyond
ALIGNMENT	follows organizational values and goals
RESOURCE ALLOCATION	relationship among resources, assessment, and data-informed decision-making as a valued process

V. Methodology

While identifying the characteristics to measure the maturity of data-informed decision-making, it was also important to identify the questions we needed to ask of data as well as the process to acquire the data. It was necessary to conduct two types of assessments. First, a "perceptual assessment" where we examined the attitudes of library workers toward data-informed decision-making and assessment in the library. Second, we conducted an "infrastructure assessment" where we took an inventory of assessment related tools and practices.

Three methods were designed to measure the two types of assessments. First, a survey was conducted to gather staff perceptions. Next, analysis of existing assessment projects and reports took place using identified rubrics and finally, the authors conducted one-on-one interviews with library leaders built around two uniform questions. This paper describes how the instruments (survey, interview, project evaluations, and report evaluations) were developed, administered, and analyzed and what was learned from the results. In effect, this project is an assessment of an assessment initiative.

V.1. Survey Instrument

The survey instrument was designed to capture the library staff's impressions and observations of assessment and data-informed decision-making within the organization. Questions on the survey were mapped to specific characteristics of the developed MM. A Likert-type scale of 1 to 5 was employed for ease in answering the questions as well as for analysis of the results. Open ended questions allowed us to gather even more information from the library staff. The survey was pilot tested on a few colleagues, edited, then administered to all library staff. (See Appendix 1: Survey Instrument.)

V.2. Rubric for Assessments and Reports

The authors applied a rubric (see Table V-1) scaled from 1 to 3 on the quality of assessments and reports created over the past two years. The scores were compared against one another for consistency. The rubric was developed to help evaluate evidence of adherence to the characteristics identified in the MM. Fifty-one assessments created over the past two years were evaluated, and the authors discussed and resolved discrepancies in their evaluation.

Table V-1. Rubric for Assessments in Data Lake

Y/N	(3 is highest, 1 is lowest)	(3 is highest, 1 is lowest)
(Y = member of ACT helped) Was there any consultation &/or mentoring given?	Did the creator of the assessment project understand what they were doing and it is stated clearly?	Appropriate data is described in the assessment.

Another rubric (see Table V-2) was established by the authors to review the quality of 27 reports created over more than two years for adherence to evidence of the MM. Normed scoring for each dimension from 1 (not adequate) to 3 (best) was employed.

Table V-2. Rubric for Reports in Data Lake

(3 is highest, 1 is lowest)	(3 is highest, 1 is lowest)
A data-informed decision or recommendation was made OR the report held some part of the organization accountable.	The report acknowledges stakeholder(s); The manager or Associate University Librarian was informed or tagged; the report was a cross functional effort involving multiple parts of the library; a publication was published; some other form of transparency is evident.

V.3. Interview Library Leaders—Perceptions and Positionality

Once the authors drafted and pilot tested questions, they conducted informal interviews of selected representative UCLA Library leaders to obtain their perceptions and positionality of where the library is in terms of creating a more data-informed decision-making organization. Participants were assured that, "neither you nor your specific position would be identified, and only written notes would be taken during the conversation." Each interview was conducted over a 20 minute Zoom session. Interviewees were supplied with two questions (see Table V-3 below) prior to the interview. Notes from the interview were analyzed for data regarding assessment and data-informed decision-making then items were cross-walked to one of the practices from our MM (alignment, collaboration, readiness, resource allocation).

Table V-3 Two Questions for Library Leaders

QUESTION A	In terms of assessment and data-informed decision-making, what have you observed in the way of collaboration, organizational transparency, and resource allocation over the last 2 years? What has changed? What has remained the same? What would you like to see happen? Keep in mind that by assessment we mean measuring to foster change and improvement or holding the organization accountable.
QUESTION B	Over the last 2 years, as a library leader, what have you observed in moving towards data-informed decision-making? What has changed? What has remained the same? What would you like to see happen? By data-informed, we mean that data, experience, and other inputs are used to make decisions.

VI. Findings

Data collected from the all library staff survey, evaluation of assessments, reports, and interviews of library leaders were analyzed according to their appropriate rubric. Each type of data source and evaluation is explained below.
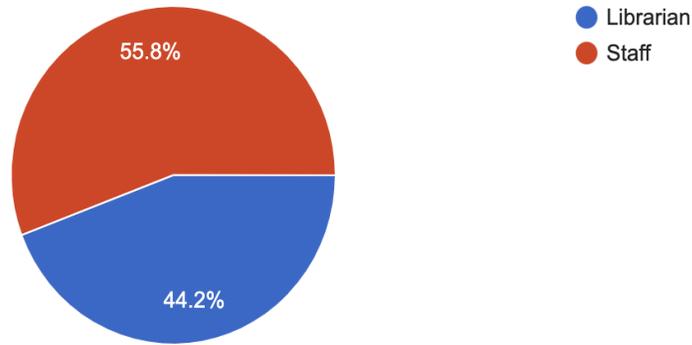
VI.1. Findings: Survey Data

We received 52 anonymous responses out of a population of approximately 400 possible. The population received two emails and two Slack messages sent out simultaneously over the span of one week. The majority of respondents were staff (see illustration VI-1). There was some over-representation of workers from the Digital Initiatives and Information Technology Team. The sample is not representative, but given the nature of the survey content, we were not surprised. Generally speaking, respondents graded the performance of the library and their units as somewhere between a C+ and a B when examining the responses to the scale (1–5) questions. The questions that visually skewed to the left were more positive and those to the right, more negative.

Illustration VI-1. Survey Population

What BEST describes your position at UCLA Library?

52 responses

- Librarian
- Staff

55.8%

44.2%

Which broad division do you belong to?

51 responses

- Affiliate library
- Collection Management and Scholarly Communication
- Digital Initiatives and Information Technology
- Distinctive (e.g. East Asian Library, International Studies, Special Collectio…
- Film and Television Archive
- User Engagement

31.4%

17.6%

9.8%

27.5%

Scores about 'unit' trend toward 'strongly agree' while scores about 'library' trend toward 'strongly disagree' for statements about conducting assessments and making data-informed decisions. The perception of assessment activity within the unit is visually skewed positively.

Table VI-2. Positive Perception of Assessment Activity for Unit as Opposed to Library Level

Assessment Concept	Skew left | Strongly agree (% over library's left-side total) Unit	Skew right | Strongly disagree (% over unit's right-side total) Library
Allocate resources by making data-informed decisions	10%	4%

Assessment Concept	Skew left | Strongly agree (% over library's left-side total) Unit	Skew right | Strongly disagree (% over unit's right-side total) Library
Decisions made by leaders and colleagues are expected to be data-informed	3%	7%
Encouragement/reward of data and assessment skills	9%	no difference
ENGAGES in transparent decision-making	21%	20%
WORKING ON creating a transparent decision-making environment	19%	10%

Survey responses for the MM practice of 'alignment' (see Table VI-3) showed a fairly strong C when it comes to the perspective of the library. Responses exhibit a B and A for the unit perspective on alignment.

Table VI-3. Measurement of Survey Responses and MM Practice of Alignment

Skew Left | Strongly agree	Symmetrical | 3	Skew Right | Strongly disagree
✓✓✓ Library workers in my unit ask questions of data to guide their work towards fulfilling unit goals. My unit encourages / rewards data and assessment skills. Decisions made by leaders and colleagues within my library unit are expected to be data-informed.	✓✓✓ Library encourages/rewards data and assessment skills. Decisions made throughout library are expected to be data-informed. Library is WORKING ON creating a transparent decision-making environment.	✓ How do you feel about the following statement? "As we look at changes in the organization and how we do things in the library, our goals are NOT well supported by data." *[Note: this actually was visually skewed very left, but the scale was backward so this is a practice we need to work on]*

Survey responses for the maturity practice of 'collaboration' (see Table VI-4) indicated more negative impressions except for collaboration with other UC Libraries which was more positive. When
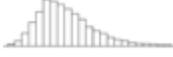
interviewing library leaders, we discovered that our survey lacked a question about collaboration with other campus departments outside the library, but still within UCLA.

Table VI-4. Measurement of Survey Responses and MM Practice of Collaboration
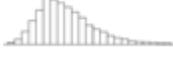
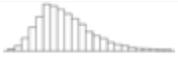| Skew Left | Strongly agree	Symmetrical | 3	Skew Right | Strongly disagree
✓ How much do library workers and other UC Libraries' workers collaborate on conducting assessments?		✓✓ I've noticed that cross-unit projects in the library employ formalized assessment. What best describes the relationship between library workers conducting assessments and library resource allocators?

Survey responses for the maturity practice of 'readiness' (see Table VI-5) skewed visually more negatively when it came to employing assessment using best practices. Responses visually skewed more positively when considering frequency of data collection and assessments are sometimes employed by workers in the library.

Table VI-5. Measurement of Survey Responses and MM Practice of Readiness

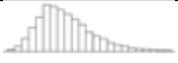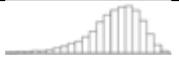| Skew Left | Strongly agree	Symmetrical | 3	Skew Right | Strongly disagree
✓✓ Workers in my unit collect or examine data frequently enough to recognize and respond to changes. I've noticed that assessment is sometimes employed by workers in the library.		✓✓✓ I've noticed that units are expanding their use of assessment. My unit formally employs assessment using best practices as appropriate. The library as a whole formally employs assessment using best practices as appropriate.

Survey responses for the maturity practice of 'resource allocation' (see Table VI-6) visually skewed more positively when considering it from the unit perspective. However, the responses visually skewed more negatively when considering resource allocation from the library perspective.

Table VI-6. Measurement of Survey Responses and MM Practice of Resource Allocation

Skew Left | Strongly agree	Symmetrical | 3	Skew Right | Strongly disagree
✓ My **unit** allocates resources by making data-informed decisions by workers in the library.		✓ **Library** allocates resources by making data-informed decisions.

Survey responses for the maturity practice of 'transparency' (see Table VI-7) scattered across the Likert scale. A strong C (Likert 3/5) is shown for the question about the library working on creating a transparent decision-making environment. Again, a visually left skew is shown for unit perspectives versus library perspectives when it comes to the process of engaging in transparent decision-making.

**Table VI-7. Measurement of Survey Responses and MM Practice of Transparency**

Skew Left | Strongly agree	Symmetrical | 3	Skew Right | Strongly disagree
✓✓ My **unit/department** ENGAGES in transparent decision-making. My **department/unit** is WORKING on creating a transparent decision-making environment.	✓ **Library** is WORKING ON creating a transparent decision-making environment.	✓ **Library** ENGAGES in transparent decision-making.

Survey responses about education in assessment (see Table VI.8) indicated a good start in training activities, but there is room to expand education and training efforts within the library.

Table VI.8. Education in Assessment

Which of the following activities describe your participation in understanding assessment in the Library? (select all that apply)

46 responses
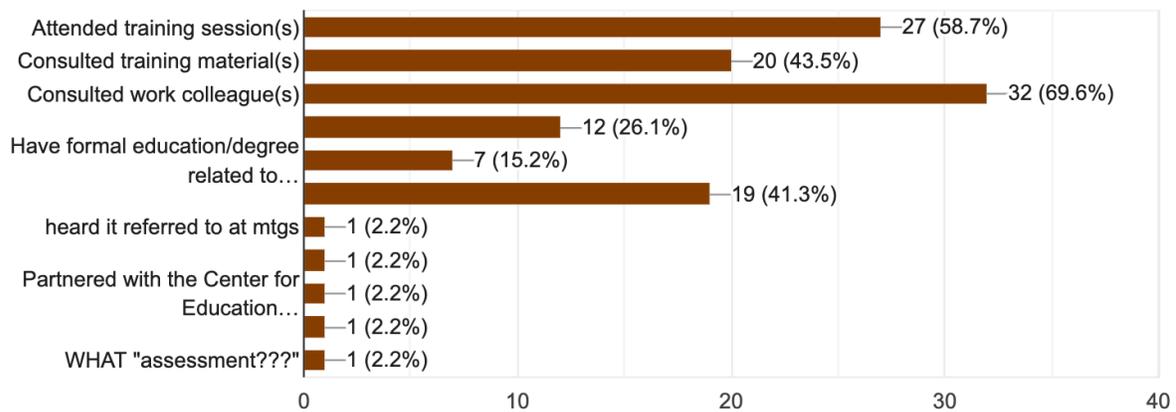
VI.2. Findings: Assessments and Report Data

The authors applied a rubric scaled from 1 to 3 on the quality of assessments and reports created over the past two years. The scores were compared against one another for consistency. Only two of the 52 assessments scored below a 3 for stating their assessment goal. Forty-four scored a 3, one a 2, and five a 1 in identifying appropriate data for their stated assessment. A lot of assistance from members of the Assessment for Change Team was needed to clearly state an assessment. Once an assessment was identified, users had difficulty identifying appropriate data. There is a need to work on readiness. Library staff need more training on how to specify an assessment clearly, gather and use appropriate data of high value and communicate consistently to stakeholders the outcomes or recommendations from an assessment. There is a need for library staff to understand the definitions of data, report and assessment.

VI.3. Findings: Interview Library Leaders Data

The authors were able to attain library leaders' perceptions about assessment and data-informed decision-making from the one-on-one interviews and then map the leaders' responses to MM practices (see Table VI-9). For the practice of 'collaboration,' the leaders pointed out that it was also necessary to go to the campus as well as other universities in the system. For the practice of 'readiness', leaders spoke about how important it is to have data and reports at hand for rapid decision-making in times of need. In particular, this need was amplified when related to budget constraints. For 'transparency,' leaders spoke of the importance of educating staff as to the differences in perspectives and the use of data. When speaking of 'resource allocation,' leaders pointed out that help is needed to tightly couple resources to qualitative and quantitative data at point of need.

Table VI-9. Library Leaders Comments Cross-walked to MM Practices

PRACTICES	FREQ. MENTIONED CHARACTERISTICS	ASSOCIATED QUOTES
READINESS	ask questions of data, informed decision making, awareness,	*"Many people make decisions anecdotally"*

PRACTICES	FREQ. MENTIONED CHARACTERISTICS	ASSOCIATED QUOTES
	access, gaps, external, urgency to access	*"challenge for executives to make decisions really fast"* *"We don't ask question early enough"* *"We need more training and tools"* *"Know one place to start, even though Data Lake still needs to be developed"*
TRANSPARENCY	internal/external dashboards, perspective	*"In general - library is opaque"* *"Patriot Act overcorrected in Libraries. Not shared in other areas of academic support"* *"Unless we get the answer we want, we fall back on 'not transparent' and/or 'not enough data'"* *"After years spent in academia, it's clear that transparency outside the library means obvious and simplistic. Transparency has value in context where library is not trusted. It's not clear to me that the more we try to be transparent, the more we are trusted"*
COLLABORATION	assessment across the organization, collaboration beyond the library	*"Collaboration is easy now with the Data Lake because it's a centralized source of data"*
ALIGNMENT	strategic plan	*"Haven't seen strong follow-ups"*
RESOURCE ALLOCATION	identified staff to focus on assessment	*"Need someone able to generate reports from all systems"* *"The institution needs to set aside resources for assessment."*

VII. Recommendations

Recommendations are assembled below to enable further development of the MM as well as incorporate perspectives associated with operational, tactical and strategic decision-making. Additional recommendations are assembled by the associated data stream that informed them.

VII.1. Recommendations: MM for Data-Informed Decision-Making

This is an opportunity to continue the evolution of our MM from descriptive to prescriptive. Our descriptive MM enabled us to benchmark where we are now on the roadmap for data-informed decision-making as a process in the organization. With the understanding of the current situation in data-informed decision-making as a process, we can continue to develop a roadmap for improvement. This was an internal study. Now we can start to examine data-informed decision-making in library environments outside of UCLA Library. It is hoped that these efforts could serve as a model for similar library organizations and continue to take our MM to a prescriptive level. Looking even farther down the road, the next sign post in the MM evolution would be development of a comparative model to enable benchmarking across domains or industries.

VII.2. Recommendations: Perspectives in Decision-Making

There are many ways of considering competency of decision-making within a culture of assessment. We choose to focus on the perspectives of library leaders, staff (unit perspective) and staff (overall library perspective). Table VII.1. (see below)[19] illustrates the interwoven characteristics of decision-making, knowledge resources, and perspectives. Between the survey of all library staff and the interviews of library leaders, we achieved a sampling of operational, tactical and strategic decision-making. However, we need to identify metrics to measure perspective when examining collaboration activities. It would be helpful to separate out those who supervise and ask questions related to how assessment and data have played a role in decision-making. We did not ask for role as much in our survey because it would identify the survey takers. To better anonymize the data, we would have to increase the population studied to include multiple institutions. We recommend interviewing multiple leaders across a few academic libraries to identify perspective related questions to include in the cross-institution survey.

Table VII.1. Comparison of Operational Tactical and Strategic Decision-Making (Kaner, p. 229)

Table 1
A comparison of operational, tactical and strategic decisionmaking

Factor	Operational decisionmaking	Tactical decisionmaking	Strategic decisionmaking
Level of management	Low to middle	Middle	Upper
Time frame decision	Immediate to days	Days to weeks	Weeks to months
Goals	To keep the organization running in accordance with tactical and strategic guidelines	To guide the organization in the short term governed mainly by strategic guidelines	To chart long term goals and routes for the organization
Participants in decisionmaking	Usually one	One or a team	Mostly teams of executive officers
Input	"Immediate past performance and instructions on current performance as well as information about the goods and services provided" [63]	"… concerns, schedules, revenues, profits, costs, and other economic indicators [63]	"… [includes] hypothetical policies, plans, budgets, and objectives … information often comes from sources outside the organization" [63]
Output	Operational decision (e.g. production plan)	Tactical decision (e.g. increase number of workers to achieve production plan)	Strategic decision (e.g. transfer to automated production)
Repetitiveness	Decisions are repetitive and an integral part of the operational work	Decisions are often repetitive – but less frequent than operational decisions	Decisions are usually infrequent
Ease of determining success	"… operational management tends to be measurable (there are fixed, well defined tasks to be performed)" [63]	Less measurable than those for operational management, since response time is longer, and cause-effect relationships are more complex	"… less measurable than those of tactical management because their work is more abstract and complex and difficult to evaluate" [63]

VII.3. Recommendations: Survey Data

The all library staff survey identified issues to act upon in the MM practices as listed below.

Readiness: Educational activities for assessment related activities need to continue and expand. The content of instructional sessions must emphasize definitions of relevant terms (data, information, assessment, report, knowledge, decision, and tool). It would be helpful to integrate our assessment workshops with other successful staff training programs such as the Carpentries workshops which teach staff how to manipulate data. We need to work on helping both staff and leadership ask assessment questions earlier and step away from making decisions anecdotally.

Transparency: The Data Lake and Fact Book are good centralized starting points for easy and transparent access to data, however, they need continued enhancement and more content to be truly useful. We should continue to identify, harvest, catalog, and maintain data in the Data Lake and Fact Book, but we must also examine the technical debt of maintaining these tools and evaluate the workflow issues.

Collaboration: For outreach we must re-launch an internal marketing campaign to staff so they are aware of the tools and services available (e.g., Data Lake, Fact Book, ACT consultation services) to help facilitate data-informed decision-making. We must continue to improve the all library staff survey by introducing additional metrics as well as performing additional survey validation. We have the opportunity to continue analysis of the survey responses such as taking variances in individual responses (positive versus negative), and then relating them with the individual's responses to questions about participation in training. We can take some individual positive responses and compare them with individuals who had negative responses to see if those with negative responses did not do certain

activities. E.g., if you had education of engaged in some sort of assessment, then you are more likely to look positively on some of the other questions or to have more insightful commentary re: priorities and suggestions. Also, participation could be viewed as a level of engagement in assessment by the organization in itself. Enhancement of the survey would include adding the following questions:

- How have you collaborated with UCLA units outside of the UCLA Library?
- How many decisions of which you have personal knowledge in the past year do you feel would have benefited from data that was not obtained?
- How much data are you able to gather related to your job? How much do you gather? How would you know if data you collect or monitor has been consulted?
- How much data related to your job is missing or inadequate?

Alignment: The study focused on the strategic plan in place at the time the study was conducted. Because the organization has newly drafted strategic directions, it is necessary for a future study to incorporate those changes. It would be helpful to identify needed reports related to the new strategic directions that are of particular use by library leadership for decision-making and then take the initiative to conduct the needed assessments and produce their associated reports preemptively.

Resource Allocation: We must assess the workflow for maintaining data in the Data Lake and Fact Book. This necessitates identifying stakeholders and related responsibilities for maintaining data. Resource allocation also requires identification of staff to focus on assessment activities in the library. The survey data uncovered a disconnect between how library staff and library leaders view the relationship between resource allocation and data-informed decisions. With organizational transparency in mind, it would be useful to share with colleagues the limits and use of data in given situations so that decision-making is better understood across the organization.

VII.4. Recommendations: Interview Data

The interviews with library leaders identified issues to act upon in the MM practices as listed below.

Readiness: We need to establish a workflow that will call to attention a decision that is being made anecdotally when data should be available. We must identify the types of data that are most likely to be needed for quick decision-making and put that information as top priority for harvesting, cataloging and placement within the Data Lake and/or Fact Book. The workflow process when starting a project must have a recognized step to acknowledge asking questions and identifying data sources at the initial phase. In agreement with the survey data, we must continue to provide assessment training and tools to library staff. We must continue to develop and promote one centralized place (the Data Lake) to initially consult when faced with the need to make a data-informed decision.

Transparency: Leadership indicated the library is opaque in general and suggested some driving factors that may be contributing. One suggestion was that libraries in general over-reacted to the Patriot Act by locking down critical and useful data. The library should follow other functional areas in higher education institutions that had a more measured response to balancing privacy with institutional needs and job functions. Libraries should adopt a more nuanced approach to both ensuring privacy and enabling data-informed decision making. We must investigate this issue as it impacts collection and retention of data, assessments and data-informed decision-making in the library. There was an interesting comment, "Unless we get the answer we want, we fall back on 'not transparent' and/or 'not enough data'," that supports implementation of a decision template to increase transparency. The template would include the following fields: recommendation, reasoning, background, and dependencies. Questions on the template would identify those responsible, accountable, consulted, and informed. The quote, "After years spent in academia, it's clear that transparency outside the library means obvious and simplistic. Transparency has

value in context where library is not trusted. It's not clear to me that the more we try to be transparent, the more we are trusted," shows we must investigate the concept of trust and transparency as it relates to identifying a metric to incorporate into the MM. In themselves, both transparency and trust represent complex and contested constructs that organizations must continuously revisit and respond to.

Collaboration: Although the leaders indicated that collaboration is easier now with a centralized source of data, we must still continue to harvest additional data and make interface improvements.

Alignment: We must implement a process or workflow to ensure assessment activities and data-informed decisions are in alignment with the library's strategic directions and help guide the assessments or decisions that are not in alignment.

Resource Allocation: Quotes such as, "...need someone able to generate reports from all systems," "The institution needs to set aside resources for assessment," and "...need trained experts on a group that is charged with (assessment)" indicate ACT must create boilerplate assessment task descriptions and share them with leadership so that resources can be set aside for assessment activities.

VII.5. Recommendations: Assessments and Reports Data

The analysis of existing assessments and reports identified issues to act upon in the MM practices as listed below.

Readiness: Staff seldom used logic models (a fill in the blank chart within the assessment project template) correctly without substantial assistance. We must determine if the course of action should be to de-emphasize the model, remove it, or make enhancements to improve its usability.

Transparency: There were instances where assessment projects and their related reports, decisions, actions and resource allocation were not tied together and easy for a reader to discover. ACT should perform an environmental scan of UCLA Library's Confluence (wiki) to identify assessments and their associated decisions and then catalog those studies within the Data Lake. When performing this action, ACT must notify the authors of the assessments and decision pages that their work is now indexed in the Data Lake to encourage use of the Lake for centralization and transparency of future studies.

Collaboration, Alignment and Resource Allocation: ACT must point out examples in the Lake that highlight decisions involving resource allocation via a marketing campaign to UCLA Library staff. Another way to promote the data-informed decisions that have been made within the library is to enhance current assessment templates within the Data Lake to include a decision template that incorporates RACI fields (Responsible, Accountable, Consulted, Informed).

VII.6. Conclusion: Benchmark for Assessment and Recommended MM Enhancements

UCLA Library has obtained and analyzed data to obtain a benchmark which determines where we are on the road to integrating assessment and data-informed decision-making throughout the organization. Different data streams resulted in analysis and recommendations to take the organization forward to the next step on the assessment road while also proposing new MM practices to help fill in metric gaps found from data analysis. We found the characteristics of transparency, trust, knowledge management, competency in assessment, and resource allocation to be useful for providing information about data-informed decision-making. Attitudes and beliefs of UCLA Library staff signal a move toward data-informed decision-making using the precepts of assessment within the organization on a higher note for unit level than at the organizational level. Evidence from the survey questions, interviews with library leaders and examination of assessment projects and their associated reports showed some assessment practices have resulted in an increase of making data-informed decisions within the organization, but

there is a critical need to have data and reports at hand for rapid decision-making related to budget constraints.

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Dana Peterman is working on best practices, policies, and workflows within UCLA Library across multiple departments. As one of his job responsibilities, he encourages the adoption of best practices for the assessment of the library's primary functions as they relate to its strategic plan. He assists in the formation, planning, execution, and assessment of goals that reflect the strengths of the distinctive collections and services of UCLA Library. He has worked in academic libraries for over 25 years.

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Sharon Shafer is the head of Library Search and Assessment and has primary responsibility for developing an overall strategic framework for public visibility of UCLA Library resources and supporting data-informed decisions within the UCLA Library. Sharon advises systems developers on user interface design and specific SEO strategies based on best practices and research findings. Sharon analyzes and translates data from analytics tools and assessment studies into actionable SEO and search interface plans optimization plans in order to achieve and measure search campaign success.

Endnotes

[1] CODA at https://www.apb.ucla.edu/campus-statistics/enrollment.

[2] UCLA General Catalog at https://catalog.registrar.ucla.edu/ucla-catalog20-21-5.html.

[3] ARL 18–19 preliminary statistics.

[4] "About the UCLA Library," https://www.library.ucla.edu/about; "LAUC-LA Affiliate Libraries and Centers," https://www.library.ucla.edu/lauc-la-affiliate-libraries-centers and now including FATA.

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Appendix 1: Survey Instrument

Section 1 of 3: Data- informed decisions... where are we?

The purpose of this anonymous survey is to determine where UCLA Library is on the roadmap to integrating assessment throughout the organization and beyond. Once we know where we are on that road, it will be easier to identify opportunities to improve the library's ability to make data-informed decisions. This survey will take approximately 15 minutes to complete. None of the questions are mandatory. Thank you for your time & insights, Assessment for Change Team (ACT)

Which broad division do you belong to?

○ Affiliate library

○ Collection Management and Scholarly Communication

○ Digital Initiatives and Information Technology

○ Distinctive (e.g. East Asian Library, International Studies, Special Collections)

○ Film and Television Archive

○ User Engagement

○ Add option

What BEST describes your position at UCLA Library?

○ Librarian

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◯ Staff

Section 2 of 3: Assessment Best Practices

Assessment is measuring to foster change and improvement or holding the organization accountable

In an ideal environment, assessment thrives best with collaboration, organizational transparency, and appropriate resource allocation. Answer the following questions about assessment activities within UCLA Library as you have experienced them.

UCLA Library workers in my unit ask questions of data to guide their work towards fulfilling unit goals.

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

UCLA Library workers in my unit collect or examine data frequently enough to recognize and respond to changes. (how prepared are they to make decisions and act)

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

How do you feel about the following statement?

"As we look at changes in the organization and how we do things in the library, our goals are NOT well"

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

My library unit allocates resources by making data-informed decisions.

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

My UCLA Library unit encourages/rewards data and assessment skills.

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

UCLA Library encourages/rewards data and assessment skills.

	1	2	3	4	5	
Strongly agree	◯	◯	◯	◯	◯	strongly disagree

Decisions made by leaders and colleagues within my library unit are expected to be data-informed.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

Decisions made throughout UCLA Library are expected to be data-informed.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

My library unit/department ENGAGES in transparent decision-making.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

UCLA Library ENGAGES in transparent decision-making.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

My library department/unit is WORKING ON creating a transparent decision-making environment.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

UCLA Library is WORKING ON creating a transparent decision-making environment.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

I've noticed that assessment is sometimes employed by workers in the library.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

I've noticed that library units are expanding their use of assessment.

          1   2   3   4   5

Strongly agree ○   ○   ○   ○   ○   strongly disagree

I've noticed that cross-unit projects in the library employ formalized assessment.

	1	2	3	4	5	
Strongly agree	○	○	○	○	○	strongly disagree

My library unit formally employs assessment using best practices as appropriate.

	1	2	3	4	5	
Strongly agree	○	○	○	○	○	strongly disagree

The library as a whole formally employs assessment using best practices as appropriate.

	1	2	3	4	5	
Strongly agree	○	○	○	○	○	strongly disagree

Which of the following activities describe your participation in understanding assessment in the library? (select all that apply)

☐ Attended training session(s)

☐ Consulted training material(s)

☐ Used UCLA Data Lake's 'Begin an Assessment' form(s)

☐ Have formal education/degree related to assessment

☐ Conducted an assessment and shared the results for data-informed decision(s)

☐ Other

Section 3 of 3: Collaboration

Collaboration with Decision Makers. Decision makers can make data-driven &/or data-informed decisions. Data-driven: You let the data guide your decision-making process. Data-informed: You use data in addition to experience and other inputs to make decisions. Data is just one part of your decision-making process.

What best describes the relationship between UCLA Library workers conducting assessments and UCLA Library resource allocators?

	1	2	3	4	5	
No collaboration w/resource allocators	○	○	○	○	○	Seamless collaboration w/resource allocators

How much do UCLA Library workers and other UC Libraries' workers collaborate on conducting

assessments?

○ No collaboration exists

○ Some collaboration exists

○ Frequent collaboration exists

○ Other…

Add option

What example can you think of in the past 2 years that shows library STAFF/LIBRARIANS use measurement for change and improvement &/or for holding the organization accountable?

Long answer text

What example can you think of in the past 2 years that shows library MANAGERS/LEADERS use measurement for change and improvement &/or for holding the organization accountable?

Long answer text

What roles should be defined and developed in the library to support programmatic assessment activities? (select all that apply)

☐ No official assessment role. Library workers act on their own initiative to perform assessment

☐ Some library workers have formalized assessment expectations and corresponding skill sets to perform assessment

☐ Assessment/Data role(s) are introduced to help manage assessment & data as an organizational asset

☐ Chief Assessment/Data Science Officer role introduced at Administrative level

☐ Other…

Add option

Do you have any suggestions for prioritizing areas of assessment in UCLA Library over the next 2 years? What?

Long answer text: