Research Libraries, Risk and Systemic Change

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Introduction

Everything sort of looks the same, but everything has changed.
—Michelle Rabinowitz, a producer at MTV News[1]

In 2008, OCLC Research engaged an organization experienced in conducting risk assessments for corporate, governmental and educational clients with the objective of identifying the most significant risks facing research libraries. We thought that the techniques used to examine risks facing an individual enterprise could be productively deployed to arrive at a measured assessment of risks facing a distributed industry or enterprise— in this case, United States research libraries.

For this group of related organizations, rather than any individual library, we wanted to examine the following:

- In a rapidly evolving information environment, what are the greatest risks to research libraries?

    o   Individually—as local service providers
    o   Collectively— as a distributed enterprise

- Which of these risks is susceptible to mitigation?

    o   Feasibility— is it a controllable risk?
    o   Impact—is it worth the investment to mitigate?

- Where can collective action make a difference?

We recognized that the research library within an academic setting is unlike the independent individual organizations that usually undergo this kind of risk assessment process. The research library is not independent of the mission of its home institution. It is not entirely free to set and change goals and objectives. It is a cost center within the academy not a revenue-generating entity. It is often the recipient of specific directions and constraints dictated by the university in which it delivers its services. Because of these differences the range of responses that research library managers can muster to address acknowledged challenges and risks is considerably circumscribed relative to their counterparts in private industry.

Risk assessment within a private company is usually based on interviews with senior managers and board members with the process having two distinct stages. In the first stage, identified risks are characterized, rated, ranked and evaluated based on their likelihood and estimated impact. In the second stage, the resulting risks are assigned to individual managers who take responsibility for action plans that mitigate each specific risk. In the first stage of this investigation our consultants interviewed library directors and summarized the reported perceptions of the source and intensity of risks. Then we in OCLC Research considered the distribution and implications of these risks and explored which might be mitigated by collaborative action and collective resources. No effort was made to assign responsibility for risk management to traditional library operating units (collection management, systems, technical services etc.), since few of the risks appeared susceptible to local institutional control.

Despite differences between the business and academic sectors, we found the methodology to identify, characterize and rank risks effective. It revealed a convergence of perceived risks. It yielded a shared perspective on a landscape of challenges facing US research libraries. It may support movement toward cooperative mitigation of critical risks. We hope that our descriptive categorization of risk clusters will provide libraries with a common vocabulary for identifying, evaluating and responding to shared challenges. Finally, we believe that assimilating, ranking and analyzing these risks will provide a sound basis for OCLC Research to formulate a collaborative action agenda in partnership with the research library community.

Methodology

The risk assessment entailed interviews of 15 library directors from members of the Association of Research Libraries (ARL) in the United States with whom OCLC Research works via their participation in the RLG Partnership. The participating library directors were distributed across the ranked ARL membership.

An interview questionnaire was provided in advance to each interviewee and included a section to identify risks and their level based on a predefined risk category. Throughout this process risk was defined as the possibility that an event will occur and adversely affect the achievement of the library's objectives. The risk categories provided consisted of general themes common across industries as well as some library specific categories. Figure 1 shows the categories that were used by the interviewees when contemplating current risks. This is a comprehensive typology intended to encourage the interviewees to consider the fullest possible range of risks that research libraries might be facing. Many are not applicable to the research library within the academy (although they may be relevant to the library's home institution) and interviewees used this to prompt their reflections.
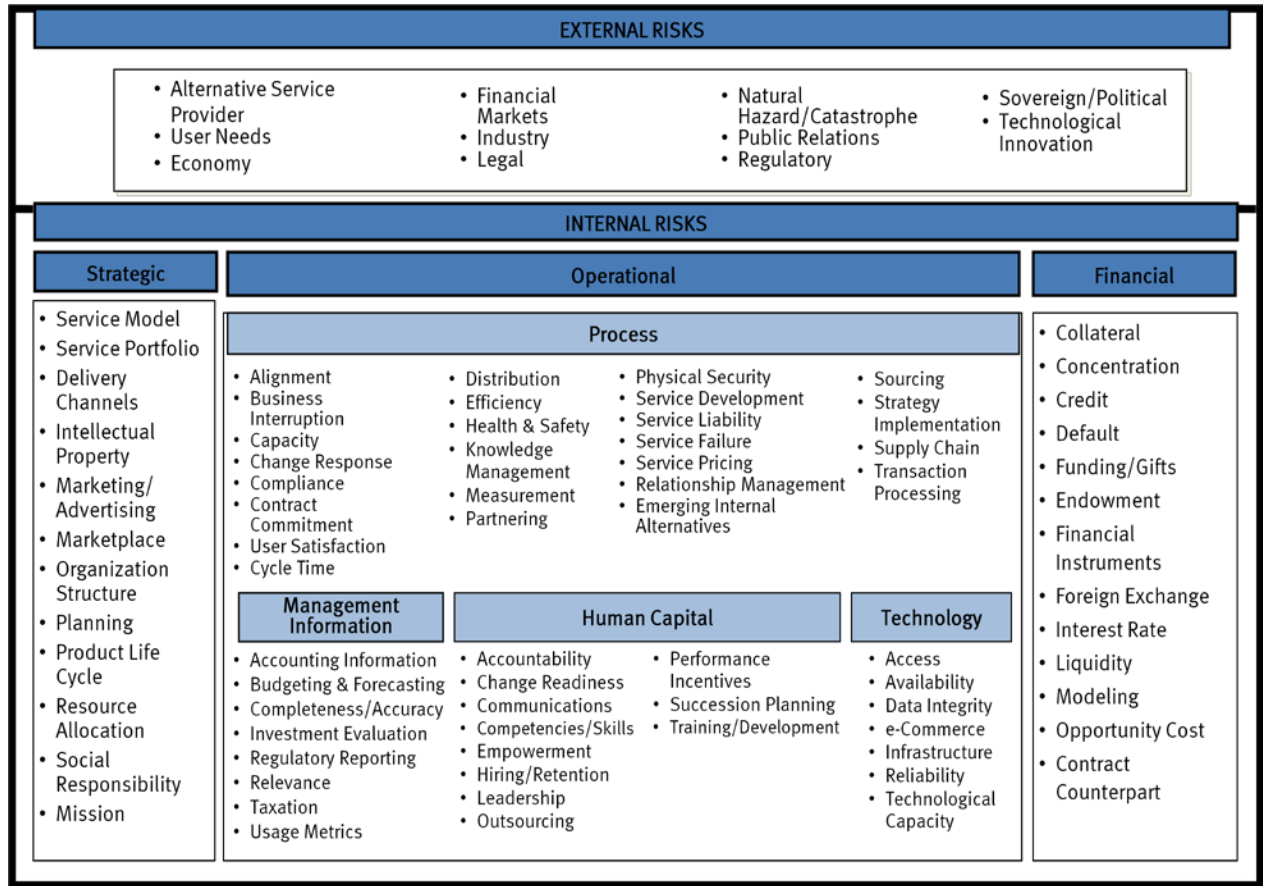
EXTERNAL RISKS			
• Alternative Service Provider • User Needs • Economy	• Financial Markets • Industry • Legal	• Natural Hazard/Catastrophe • Public Relations • Regulatory	• Sovereign/Political • Technological Innovation

INTERNAL RISKS

Strategic	Operational	Financial
• Service Model • Service Portfolio • Delivery Channels • Intellectual Property • Marketing/Advertising • Marketplace • Organization Structure • Planning • Product Life Cycle • Resource Allocation • Social Responsibility • Mission	**Process** • Alignment • Business Interruption • Capacity • Change Response • Compliance • Contract Commitment • User Satisfaction • Cycle Time • Distribution • Efficiency • Health & Safety • Knowledge Management • Measurement • Partnering • Physical Security • Service Development • Service Liability • Service Failure • Service Pricing • Relationship Management • Emerging Internal Alternatives • Sourcing • Strategy Implementation • Supply Chain • Transaction Processing **Management Information** • Accounting Information • Budgeting & Forecasting • Completeness/Accuracy • Investment Evaluation • Regulatory Reporting • Relevance • Taxation • Usage Metrics **Human Capital** • Accountability • Change Readiness • Communications • Competencies/Skills • Empowerment • Hiring/Retention • Leadership • Outsourcing • Performance Incentives • Succession Planning • Training/Development **Technology** • Access • Availability • Data Integrity • e-Commerce • Infrastructure • Reliability • Technological Capacity	• Collateral • Concentration • Credit • Default • Funding/Gifts • Endowment • Financial Instruments • Foreign Exchange • Interest Rate • Liquidity • Modeling • Opportunity Cost • Contract Counterpart

Figure 1. Categories used by interviewees in contemplating current risks

The interviewees were asked to rank their inventory of risks (high, high/medium, medium, medium/low or low) and provide supporting reasons for their rankings, as well as specific examples. The questionnaire was used only to facilitate discussion during the interview. Interviewees were then asked to assess the impact and likelihood of the risks they had identified. The grading scale used in making an assessment is shown in table 1.

Table 1. Grading scale used in assessing risk

Impact	
Catastrophic	• Organization would not likely survive in present form • Sustained, serious loss in user share • Loss of library value where the cost of future library investment outweighs the recovery
Major	• Major impact on library—serious damage to library's ability to service users • Serious diminution in library value and use with adverse publicity
Moderate	• Significant impact on library—would affect users • Use and/or library value will be affected in the short term
Minor	• Impact on internal organization only • There is a minor potential impact on use and library values
Insignificant	• Insignificant impact on internal organization • No potential impact on use • No impact on library value
Likelihood	
Almost certain	• Event is expected to occur in most circumstances
Likely	• Event will probably occur in most circumstances
Possible	• Event might occur at some time—moderate probability
Unlikely	• Event could occur at some time—low probability
Rare	• Event may occur only in exceptional circumstances

The risks identified by the interviewees were consolidated in a risk register and an average risk rating was calculated. This average rating took into account the frequency with which the risk was mentioned, the impact assigned and the likelihood forecast across all the interviews. Based on these three factors, an overall risk rating was computed and a designation of high, medium or low was applied to each risk.

The resulting synthesis is a basis for assessment of the overall significance of these risks and the degree to which they threaten the academic research library enterprise as it is currently organized. It is important to note that this risk assessment is a snapshot amid continual changes in the challenges faced by research libraries, such as new technology, regulatory requirements, organizational restructuring, new leadership personnel, etc. It is also important to acknowledge that in research libraries, as in all industries, a risk and challenge may be the shadow of an opportunity. The risks enumerated in this report were assessed against the prevailing library business model, and hence represent greater or lesser threats to the current institutionally-organized model of library service rather than threats to the survivability of the research library enterprise as a whole.

Risk Clusters and Register

The full register of categorized risks is shown in table 2. Risks identified in the assessment effort are grouped in thematic clusters defined by OCLC Research. Individual risks within each cluster are presented in a sequence that Research staff found to be helpful in illuminating patterns and dependencies within each group.

Value Proposition	. . . a reduced sense of library relevance from below, above and within
Human Resources	. . . uncertainties about adequate preparation, adaptability, capacity for leadership in face of change
Durable Goods	. . . changing value of library collections and space; prices go up, value goes down—accounting doesn't acknowledge the change
Legacy Technology	. . . managing and maintaining legacy systems is a challenge; replacement parts are hard to find
Intellectual Property	. . . losing some traditional assets to commercial providers (e.g., Google Books) and failing to assume clear ownership stake in others (e.g., local scholarly outputs)

Figure 2. Risk clusters

Table 2. Register of categorized risks

Value Proposition: A reduced sense of library relevance from below, above, within		
No.	**Risk**	**Risk Rating**
1	Availability of online and other resources (e.g., Google) may weaken the visibility and necessity of the library.	High
2	User base erodes because library value proposition is not effectively communicated.	High
3	Library user satisfaction deteriorates due to lack of understanding of changing user needs.	Medium
4	Operations are not managed effectively because library metrics are not established, tracked or utilized and management's accounting and budgeting reporting is not relevant, timely or useful.	Medium
5	Changes in academic leadership and administration result in changes in perceived value and strategic function of research libraries.	Medium
6	Strategic planning in the library is not aligned with university goals and objectives.	Medium
7	Library funding or budget decreases as a result of increased internal competition within the university.	Medium
8	Decreased institutional support for library fund-raising; lack of focus on capital campaigns or endowment opportunities.	Medium

Table 2. Register of categorized risks *(continued)*

Human Resources: Uncertainties about adequate preparation, adaptability, leadership in face of change		
No.	Risk	Risk Rating
9	Recruitment and retention of resources is difficult due to competitive environment and reduction in pool of qualified candidates.	High
10	Difficulty identifying candidates for evolving library management roles.	High
11	Human resources are not allocated appropriately within the library or university to provide the training, development, cross-training and re-training required to manage change in the current environment.	High
12	Current human resources lack skill set for future needs (changing technology, etc.).	High
13	Library workforce fails to embrace implementation of organizational change as a personal and professional responsibility.	Low
14	Conservative nature of library inhibits timely adaptation to changed circumstances.	High
Durable Goods: Changing value of library collections and space (prices go up, value goes down; accounting doesn't acknowledge the change)		
No.	Risk	Risk Rating
15	Increased challenges with building and maintaining collections as a result of rising costs, limited budgets, and turbulence in foreign exchange rates.	Medium
16	Library physical storage space is not appropriately managed or optimized, placing constraints on collection growth.	Low
17	Lack of investments in deteriorating physical space leads to declining user satisfaction with library as place.	Medium
18	Loss of library assets, content or access due to natural hazard.	Medium
Legacy Technology: Managing and maintaining legacy systems is a challenge; replacement parts are hard to find		
No.	Risk	Risk Rating
19	Library cannot adjust fast enough to keep up with rapidly changing technology and user needs.	High
20	Increased inefficiencies and expenses due to lack of functionality of legacy systems and IT support.	High
21	Due diligence and sustainability assessment of local or third party services and initiatives is not completed, tracked or analyzed.	High
22	Digital content is lost as a result of not being properly managed and preserved.	Medium

Table 2. Register of categorized risks *(continued)*

No.	Intellectual Property: Losing some traditional assets to commercial providers (e.g., Google Books) and not assuming clear ownership of others (e.g., local scholarly outputs)	Risk Rating
	Risk	
23	Potential exists for increased cost burden to research libraries as access to content previously owned and distributed by libraries (research outputs; digitized collections) is increasingly controlled by commercial agents and online service providers.	Medium
24	Collection development strategy fails to address changing nature of scholarly record; appraisal and selection processes are out of step with proliferation of new content.	Medium
25	Public-private partnerships with external organizations (e.g., Google) are not properly evaluated, balancing costs with potential benefits.	Medium
Uncategorized		
26	Increased administrative burden due to changes to the library funding model.	Low

General Observations

- The plurality of risks (30%) is associated with concerns about an uncertain library value proposition.

- The second largest class, and second priority in terms of medium to high risks, is related to staffing and human resources.

- Risks associated with legacy technology are all high.

- The high risks are chiefly operational in nature and the results of general organizational weaknesses.

- The high risks represent circumstances that require continuous monitoring and are mostly controllable—that is, either the occurrence or the impact can be managed. This confirmed for us that there is an opportunity to collectively consider these risks so that research libraries can appropriately calibrate local and group responses.

- We expected to see serious concerns emerge about the custody of intellectual property (peer-reviewed literature, locally created content) that supports the research enterprise. Interestingly enough they did not. Libraries do not seem to perceive an immediate threat to core operations or services from this.

Twenty-six key risks were identified by all participants, ten (38%) were judged to have a high potential impact and likelihood; three (11%) were considered to have a low impact and likelihood. Overall there were three times as many risks considered to be high versus low. This provides some

measure of the pressure and uncertainties under which research library directors are currently operating: the heat is on and it's intense.

Risk Cluster Observations

Interviewees offered some illustrative observations about the changing **library value proposition,** which we paraphrase here. A notable tautology emerges, in which a weakened value proposition becomes a self-fulfilling prophecy:

- Alternative service providers in the network are providing a more compelling research environment and support tools.

- Our current value proposition can't compete with the alternative service provider.

- Our users have noticed this.

- We're continuing to rely on the old success metrics.

- The university has noticed.

- We haven't responded (with an aligned strategic plan).

- Our internal competitors for dollars are winning.

- We can't get other funders to help.

Interviewee observations about **staffing and human resources** conveyed a mix of frustration and resignation:

- I can't attract people to support the old (or new) tasks.

- I'm not certain where to find the next generation of leaders, I only know they won't look like me.

- The current staff isn't qualified or motivated to support new library functions.

There is considerable uncertainty about the value of continuing investments in the traditional "**durable goods**" of research libraries—collections and facilities—and the technologies that support them:

- I'm not able to acquire additional print collections due to price increases—and am not certain that they are worth the investment.

- I don't have the space for these collections, and I'm not sure they're worth the effort to find it.

- I can't attract users to my sofas and workspaces.

- My physical collections and facilities are still at risk—but does it matter?

- Our infrastructure is ill adapted to new needs—built around old workflows and collections.

- It's also inefficient.

- We're hesitant to embrace alternatives—should we migrate now?

- We haven't invested in systems to manage or preserve a different kind of research collection.

Intensity of Risks

When these risks are arrayed on a graph that accounts for their perceived impact and forecast likelihood a visual heat map emerges highlighting risks that require significant mitigation.
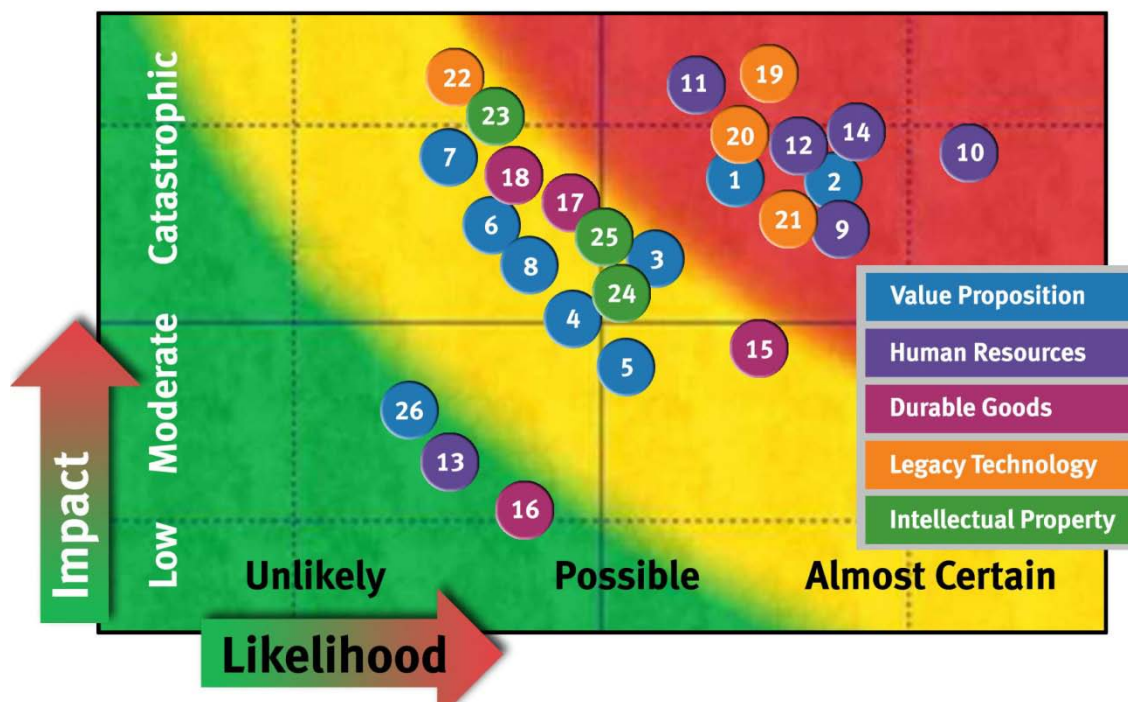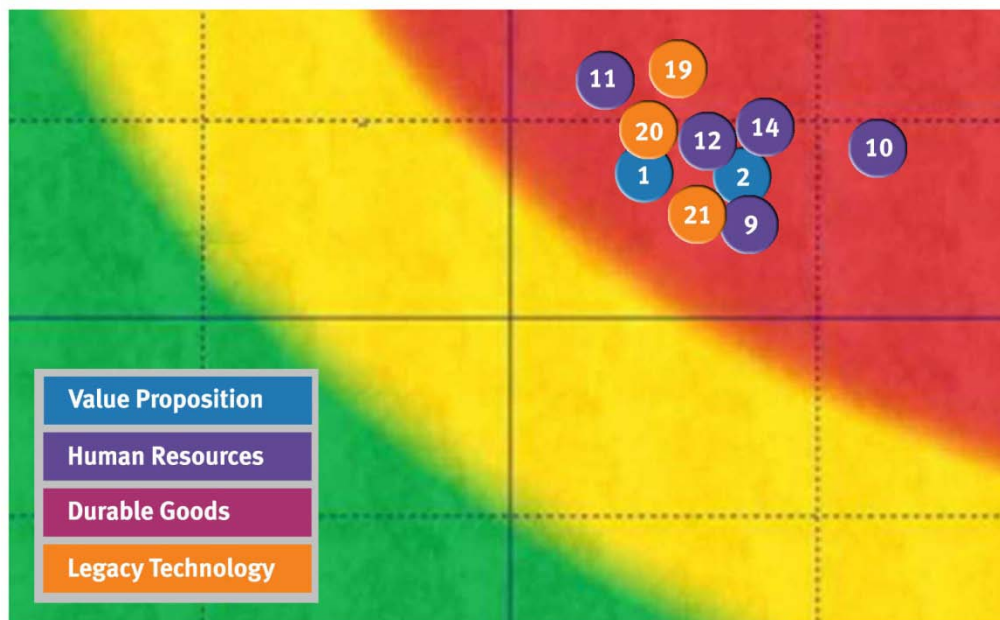

Figure 3. Sensitivity analysis: risk groups

Notably, risks that were rated as potentially catastrophic and almost certain are dominated by human resource and legacy technology concerns. These are, of course, the challenges that libraries must address if the current organizational model is to be preserved. However, one might conclude that a future research library model will be less dependent on local human resources and systems. Risks considered possible but of limited impact include mismanagement of library space and low motivation levels among library staff.

Mitigation

An inventory of the high risks prior to any mitigation is shown in figure 4 below. These are the high risks that are perceived by library directors to constitute an immediate and debilitating threat to the future of the research library. (Please note: Only risks identified as High in table 2 are included in figures 4, 5 and 6; medium and low risks are not included.)

Availability of online information resources (Google, etc.) weakens visibility and value of library (Risk 1).

User base erodes because library value proposition is not effectively communicated (Risk 2).

Recruitment and retention of resources is difficult due to reduction in pool of qualified candidates (Risk 9).

Difficulty identifying candidates for evolving library management roles (Risk 10).

Human resources are not allocated appropriately to manage change in the current environment (Risk 11).

Current human resources lack skill set for future needs (changing technology, etc.; Risk 12).

Conservative nature of library inhibits timely adaptation to changed circumstances (Risk 14).

Library cannot adjust fast enough to keep up with rapidly changing technology and user needs (Risk 19).

Increased inefficiencies and expenses due to lack of functionality of legacy systems and IT support (Risk 20).

Due diligence and sustainability assessment of local or third party services is not completed, tracked or analyzed (Risk 21).

Figure 4. Inherent risks: high impact & likelihood

Two of these relate to the changed value proposition resulting from the ascendancy of external information hubs like Google and the resultant defection of the library user base. We do not regard these as risks that individual libraries can reasonably hope to mitigate—rather, they demand joint action at the group and network level. We think the inattention (or lack of responsiveness) to changing user expectations is an area that demands further reflection and will reward immediate collective action. We think these risks are best addressed through cooperative—rather than local—actions.

Many of the risks rated as high (impact and certainty) pertain to:

- human resources and organizational culture, including a lack of attention to cross-training and reallocation of existing staff

- lack of critical skill sets for managing data sets, engaging directly with research faculty, or retooling technological infrastructure

- an organizational culture that inhibits innovation

- difficulty in attracting and retaining staff in a competitive environment where fewer credentialed library professionals are available

- uncertainties about the appropriate qualifications for library managers who may require skills developed in other sectors .

We believe that a significant number of these can be effectively managed on a local or group level to reduce the impact or incidence of specific risk events. While some of the risks identified are beyond the immediate control of research libraries, at least half of them can likely be mitigated through some combination of local and cooperative actions.

We note that there are a handful of risks that, while not ranked as immediate or catastrophic threats, are associated with the changing value of the library's traditional assets:

- long-term investments in redundant print collections create a counterweight to innovation in online service development

- legacy library management systems don't adequately support the transition to digital content

- inadequate attention is given to benchmarking or assessing the efficiency or value of current services.

If these underlying risks were addressed, a significant reallocation in library resources might be achieved, resulting in a service profile that is more visible and valuable to the research library clientele. In other words, some changes that are disruptive to the traditional

organization of library operations at research institutions may ultimately revitalize the library value proposition. These represent opportunities for a new generation of library leadership.

While many of the high risks identified in this study are inherent in the surrounding information environment, legacy library technology is <u>not</u> one of them; rather it represents an obstacle to effecting meaningful change in the library's operations and value proposition. It is not obvious that investment in renovating the library's traditional technology platform—upgrading or migrating from one local system to another—will substantially reduce the systemic risks facing research libraries. This is an area where less, rather than more, library investment may be needed.

Strategies for Mitigation

We think that several of the risks considered to have both high likelihood and significant impact will be effectively and perhaps inevitably managed via changes that are already emerging in the current research library landscape.

We believe that increased reliance on _shared infrastructure_ along with increased outsourcing and regional consolidation of services will enable more rapid deployment of the services that research library users want and need moving the following risks into a more acceptable range of impact and occurrence:

> Library cannot adjust fast enough to keep up with rapidly changing technology and user needs (Risk 19).

> Increased inefficiencies and expenses due to lack of functionality of legacy systems and IT support (Risk 20).

> Due diligence and sustainability assessment of local or third party services is not completed, tracked or analyzed (Risk 21).
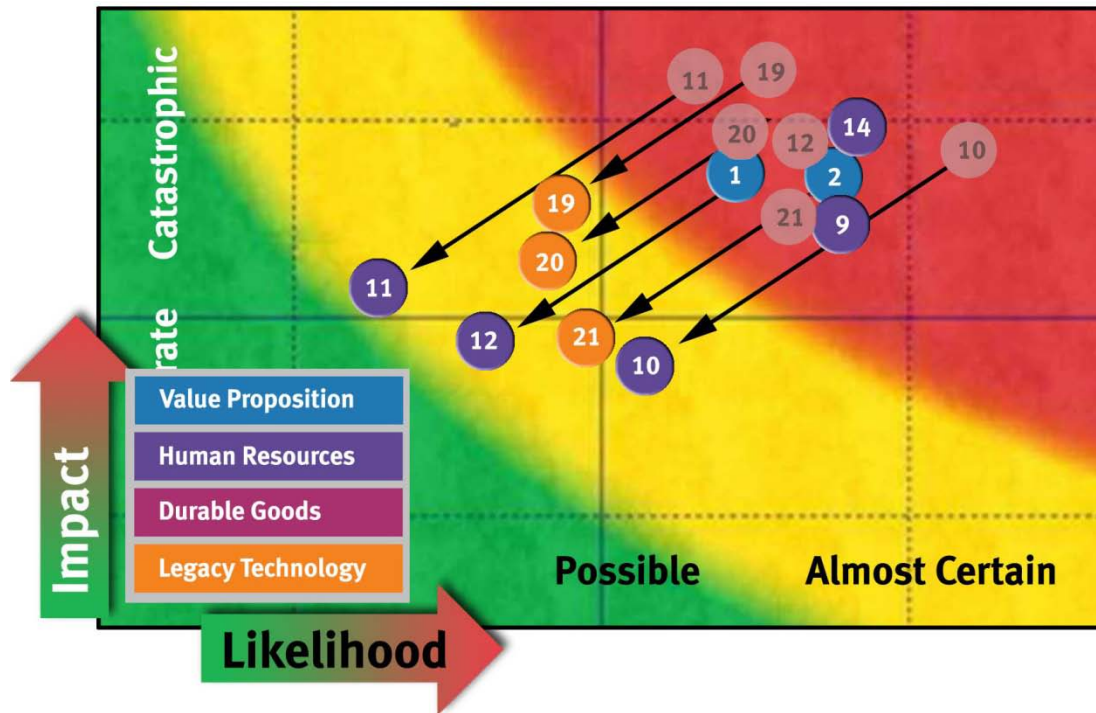
If research libraries _restructured workflows_ it would enable strategic re-deployment of resources that could significantly mitigate the human resource skill set challenges that were perceived as high risks, particularly:

> Difficulty identifying candidates for evolving library management roles (Risk 10).

> Human resources are not allocated appropriately to manage change in the current environment (Risk 11).

> Current human resources lack skill set for future needs (changing technology, etc.; (Risk 12).

We believe these mitigations can diminish some high risks as shown in figure 5.

Availability of online information resources (Google, etc.) weakens visibility and value of library (Risk 1).

User base erodes because library value proposition is not effectively communicated (Risk 2).

Recruitment and retention of resources is difficult due to reduction in pool of qualified candidates (Risk 9).

Difficulty identifying candidates for evolving library management roles (Risk 10).

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Current human resources lack skill set for future needs (changing technology, etc.; Risk 12).

Conservative nature of library inhibits timely adaptation to changed circumstances (Risk 14).

Library cannot adjust fast enough to keep up with rapidly changing technology and user needs (Risk 19).

Increased inefficiencies and expenses due to lack of functionality of legacy systems and IT support (Risk 20).

Due diligence and sustainability assessment of local or third party services is not completed, tracked or analyzed (Risk 21).

Figure 5. Proposed High risk mitigation strategy and sequence

Residual Risks

The risks that remain high after these mitigations may be intractable, or mitigation might require something more or something other than collective action among libraries, or it may be that an adequate response is a change in goals rather than operational change.
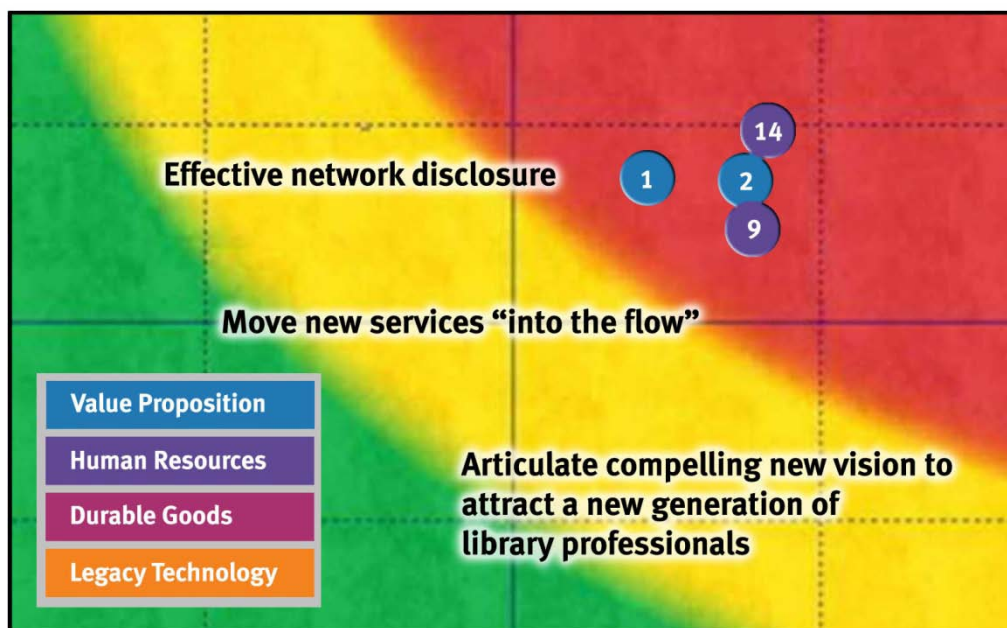
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Recruitment and retention of resources is difficult due to reduction in pool of qualified candidates (Risk 9).

Conservative nature of library inhibits timely adaptation to changed circumstances (Risk 14).

Figure 6. Residual High risks

Two of the residual risks seem best addressed by *new strategies and services*:

> Availability of online information resources (Google, etc.) weakens visibility and value of library (Risk 1).

> User base erodes because library value proposition is not effectively communicated (Risk 2).

If the research library community could disclose its assets in the networked environment more effectively and with an associated set of common service expectations, it might be possible to retain some of the traditional user loyalty even as these services become one of many within the

Amazoogle information environment. A more direct approach to the value proposition challenge is to deploy new services within the academy that are in the flow of current networked research practices. Presenting assets and services where the research library academic clientele do their work might renew their view of and reliance on library services.

The other two residual risks are cultural ones:

> Recruitment and retention of resources is difficult due to reduction in pool of qualified candidates (Risk 9).

> Conservative nature of library inhibits timely adaptation to changed circumstances (Risk 14).

The pool of potential library workers might be very different after the library has restructured traditional workflows in favor of a new emphasis on and investment in research support services. That service set would attract a new generation and type of professional that emanates from a variety of disciplines rather than traditional library or information school training. Deploying these new professionals and support services in a parallel organizational structure may be the only way to bypass the obstacles created by the conservative nature of today's library organizations.

Epilogue

In the eighteen months since this work was undertaken, our analysis has been used as the basis for internal planning within OCLC Research as well as facilitated discussion in the broader library community. Initially, our findings were met with resistance and skepticism. Library administrators thought the risks were overstated and particularly resisted the idea that the library value proposition was threatened. More recently there has been a general acceptance that these challenges are real and need to be met with collective effort and a new vision of services. There is some evidence[2] that research libraries are now confronting these risks and identifying opportunities for cooperative action. In the absence of organizations within the U.S. library community that can address strategy, operational requirements and implement change on a system-wide basis some bolder institutions are implementing action plans at the local or regional level fueled by the fiscal imperatives of the current dire economic times.

This is heartening but likely to be inadequate. Most institutions continue to direct resources in traditional ways towards operations that are marginal to institutional and national research priorities, towards processes and services that are ignored or undervalued by their clients and towards staff activities that are driven more by legacy professional concerns than user needs. To properly respond to the risks identified here, research libraries need to come together around an action agenda aimed at improvement of the research enterprise they serve. Incremental revision of traditional operational models will only hasten the movement of important new research services to other entities within the academy, leaving the library with only the vestigial values of its book-determined legacy. It will look the same but everything will have changed.

Notes

[1] Carr, David. 2009. "Stoking Fear Everywhere You Look." *The New York Times* (December 12). Available online at: http://www.nytimes.com/2008/12/08/business/media/08carr.html

[2] The deficiencies in the institutionally-organized research library model have been pointedly addressed in
- Maloney, Krisellen, Kristin Antelman, Kenning Arlitsch and John Butler. 2010. Future Leaders' Views on Organizational Culture. Forthcoming in *College and Research Libraries* (July). Preprint available online at: http://www.ala.org/ala/mgrps/divs/acrl/publications/crljournal/preprints/Maloney-Antelman-Arl.pdf
- Kenney, Anne. 2009. Approaching an Entity Crisis: Reconceiving Research Libraries in a Multi-institutional Context. Presented at OCLC Research Distinguished Seminar Series, 23 September. Dublin, Ohio USA. Available online at: http://www.oclc.org/research/dss/ppt/dss_kenney.pdf

New collaborative action is taking shape around
- digital preservation and a shared repository infrastructure structure via HathiTrust http://www.hathitrust.org and
- National Science Foundation's Sustainable Digital Data Preservation and Access Network Partners (DataNet) http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503141

Cooperative print management projects are changing the approaches to physical collections
- Western Regional Storage Trust initiative http://cdlinfo.cdlib.org/blog/2009/11/03/mellon-planning-grant-awarded-to-uc-libraries-for-a-western-regional-storage-trust/
- OCLC Research is collaborating with several library partners in a project funded by The Andrew W. Mellon Foundation to explore cooperative service models for shared print and digital repositories. http://www.slideshare.net/RLGPrograms/cloud-library-precipitating-change-in-library-infrastructure
- Center for Research Libraries and University of California Libraries print archiving effort http://www.crl.edu/archiving-preservation/current-projects/shared-print-archive

Descriptive practice is getting approached differently in
- Cornell and Columbia University Libraries partnership (known as 2CUL) http://www.library.cornell.edu/news/091012/2cul

Decisions limiting further institutional investment in locally-managed systems are becoming common and vendors are providing some relief via for instance
- WorldCat Local http://www.oclc.org/worldcatlocal/default.htm
- Summon http://www.serialsolutions.net/summon/

Finally, the recent consolidation of regional library consortia is a sign of the community organizing itself into larger and potentially more capable systems
- LYRASIS: http://www.lyrasis.org/About-Us.aspx
- BCR announcement of discussions with LYRASIS: http://www.bcr.org/publications/bcreview/2010/02/bcr-and-lyrasis-explore-new-member.html