

The Changing Landscape of Library and Information Services: What Presidents, Provosts, and Finance Officers Need to Know

Richard Holmgren and Gene Spencer
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New, lower cost educational programs are undermining the perceived value of traditional programs.

Rapidly evolving digital technologies and services are enabling change that is undermining the financial model supporting many colleges and universities while simultaneously offering solutions to address those challenges. Nearly ubiquitous access to the Internet, coupled with a range of freely available learning resources such as Carnegie Mellon's Open Learning Initiative, EdX's massive open online courses (MOOCs), and the Khan Academy's video tutorials, is feeding a perception that traditional higher education costs too much. Lower cost, competency-based programs such as College for America, offered by Southern New Hampshire University; Personalized Learning, offered by Northern Arizona University; and Flexible Option, offered by the University of Wisconsin system are redefining the college degree and further undermining the perceived value of traditional programs. All of these initiatives are still in their infancy; as they mature and other entries join the field, we can expect the challenges facing higher education to intensify.

In December 2013, the Council on Library and Information Resources (CLIR) sponsored a workshop that explored the ways in which library and information technology services (LITS) organizations and academic institutions will need to evolve in the face of new challenges and opportunities. The workshop discussions, reflected in this paper, offer insight into how the transformative potential of an evolving digital infrastructure can help relieve the pressures faced by our institutions. Members of CLIR's chief information officers (CIOs) group, comprising CIOs responsible for integrated library and information technology services organizations, organized the workshop. Although most of the group's members work at small, private, residential colleges, their observations may resonate with leaders from other types of institutions, including larger colleges and universities, as well as institutions that do not have integrated LITS organizations.

CLIR Chief Information Officers Group Members

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The semi-annual meetings of the CLIR CIOs group, which was formed more than a decade ago, serve as a forum for mutual support and inspiration. Meeting participants discuss the changing nature of their combined LITS organizations and explore opportunities and challenges presented by the blended organization model. The varied backgrounds of its members enhance the group's effectiveness. Some are library directors who have taken on additional responsibilities for information technology (IT) services; others are IT professionals who have expanded their purview to include library services; and still others are faculty members, academic administrators, or student affairs personnel whose career trajectories have prepared them to lead a merged information services organization even though they may not have a formal background in either library or IT services. This blend of disciplinary viewpoints and the expanded vision that these professionals must have to lead an integrated LITS division allow the group to consider libraries and IT in a broader institutional context.

A Decade of Change

To set the context for discussion of the future, the group cast an eye back to identify what has changed over the past decade. A few overarching themes emerged from the discussion:

- **Increasing focus on the end user:** The provision of basic services and infrastructure now requires proportionally fewer resources, while the resource investment in individualized services is growing. For example, many fewer resources are now used to provide e-mail, and more are invested in providing services customized for the user, such as access to academic degree planning information for students and data analysis tools for specific departments or functions. In the library, the use of drop-in reference assistance for quick questions is declining, while the demand for longer, specialized consulting on research strategies is increasing.
- **Shifting control:** Control of the information services environment is shifting from a central IT department or the library to the community. If community members believe that their campus library or IT organization is not meeting their needs, they are able to purchase sophisticated services directly from providers. The most successful LITS organizations work with their communities to craft an information environment for their campuses that benefits both the central information infrastructure and decentralized needs.
- **Changing ownership and scale:** Emphasis is shifting from building or buying technology and content to licensing or leasing both. This is evident in services such as e-mail, which is now often delivered by Google or Microsoft rather than by an institutionally owned and managed system, and in library collections where library materials are often leased rather than purchased. As a result of this change, the scale of services and resources is shifting from a locally crafted environment to large "above-the-campus" systems that serve hundreds or even thousands of organizations.

- **Escalating expectations:** Rapidly developing consumer technologies and anywhere, anytime access to information are continuously raising user expectations. LITS organizations are expected to provide uniformly high-quality, ubiquitous access to a growing set of services on almost any conceivable device.
- **Evolving roles and culture in LITS organizations:** These larger trends require LITS staff to continually reimagine their roles and interactions with the community. Rather than serving as information and technology providers, LITS staff increasingly serve as consultants or facilitators who collaborate with campus constituencies to identify best-fit solutions. Although excellent technical skills are still necessary, they are no longer sufficient. Successful LITS organizations are responding to changing needs by developing their communication, facilitation, and collaboration skills.

With this context established, the group focused on four discussion prompts:

1. What are the essential qualities of our information services organizations when they are at their best?
2. What changes are we likely to experience in our organizations and the environment in the next 10 years?
3. Given what is likely to have changed by then and the skill sets that information services have already developed and are likely to develop in response to future changes, what framework is a successful information services organization at a small college likely to have in 2024? Describe the organization's primary focus, critical skills, organizational culture and values, staffing, and position within the college.
4. What strategies should we employ to prepare ourselves for this future?

The responses to these individual prompts reveal a great deal about the potential of LITS organizations to address pressing institutional issues of quality, accountability, revenue, and cost.

Higher Education Challenges Today

Building multiyear financial models with balanced budgets and realistic assumptions for revenues and expenditures over a five- or ten-year period has always been difficult; in recent years, it has become nearly impossible. Net revenues are being eroded by stagnant or declining median family income, the limited ability of students or their families to take on educational loans, flat or declining government support, and the resulting growth of financial aid discounting as colleges compete more fiercely for tuition dollars. On the expense side of the balance sheet, student and family expectations for amenities are increasing, needs for individualized student support are expanding, employee health care costs are ballooning, and compliance burdens are continuing to grow. To compete for students' allegiance and tuition dollars, many colleges and universities are borrowing to invest in facilities and technologies, and the resulting debt service adds to the problem.

Colleges and universities must identify and seize new opportunities to move to sound financial footing.

Unfortunately, balancing budgets is unlikely to get easier. New challenges to the traditional model are emerging, even as past stresses continue to haunt the sector. For example, as experiments in online adaptive learning and competency-based education bear fruit and lead to workable models, it is reasonable to expect that a few large organizations will be able to leverage massive scale to offer relatively inexpensive programs that meet the needs of many older adult learners. If so, it is likely that many, perhaps most, adult students will opt for these less expensive and more flexible options over traditional classroom and online programs, thus undercutting a common source of new revenues for smaller colleges and universities that lack the scale necessary to compete with these much larger programs. On the expense side, efforts to organize adjunct faculty and graduate student unions will almost certainly increase the cost of instruction from these groups, which will limit institutions' ability to hold down costs through increased use of an itinerant workforce. The writing is on the wall: Institutions that rely solely on old solutions to address the growing challenges to the higher education business model are unlikely to thrive. Colleges and universities must identify and seize new opportunities to move to sound financial footing.

The Information Services Utility—Leveraged Efficiency or Lost Opportunity?

Although those who lead libraries or IT organizations do not usually think of their services as utilities, their services could be classified as such when considering related management questions. For our purposes, we define a *utility* as any unit within a college that delivers infrastructure required to support the core mission of fostering student learning. Utilities provide important parts of the infrastructure of learning, but do so in a supporting role. From that perspective, essentially all LITS are utilities, whether they are acquiring, organizing, and making library materials available; providing network connectivity for teaching and study spaces; or delivering e-mail. Just as lighting, heating, cooling, and an appropriate physical space are necessary for effective face-to-face instruction and administrative function, library services, network connectivity, and productivity tools help create an effective learning environment. Yet delivering these services is not a part of the institution's core mission. In an ideal world, utilities merge into the background; like the air that surrounds us, they are essential, but unseen.

Management's objective is to provide reliable utilities that meet the organization's needs as inexpensively as possible. With the growing pressures of the current financial environment, containing utility costs has become a management imperative, and CIOs have responded. A few examples illustrate the point:

- A decade ago, campus IT teams were working hard to provide a phone in every residence hall room, to support complex and growing data centers, and to manage a reliable e-mail service

To compete effectively, smaller institutions must view LITS as an internal investment, and develop a strategy that leverages that investment to improve student outcomes, increase revenue, manage cost, and limit downside risk.

for the entire campus. Today, the ubiquity of student-owned cell phones has eliminated the need for phones in the residence halls and shifted the cost outside of the institutional budget. Virtual server infrastructure has replaced physical servers while reducing cost and improving the reliability of services. Microsoft and Google are providing e-mail along with calendaring and a suite of related services at little or no cost to the institution.

- The maturation of open-source software support models have allowed many colleges and universities to realize significant savings by switching from expensive commercial learning management systems to open-source systems such as Moodle and Sakai.
- Digital tools have helped libraries shift from an expensive ownership model in which libraries collect and house physical media just in case they might be needed to an access model that provides just-in-time access to needed information.
- Electronic databases allow library patrons to locate materials in almost any academic library; digital communications tools provide an easy means to request items; and in most cases, digital copies are delivered to requesters within a few hours if the required material is not already available through their home library.
- To limit the cost of acquiring and managing those physical objects that libraries still need to own, consortia of libraries have developed electronic tools that support buying and sharing policies. The consortium members agree to purchase, collectively, only a single copy of each work; in this way they pool their resources to purchase a larger and richer collection for the entire consortium.

Opportunities to Leverage Investments

Unfortunately, however, viewing libraries and information technology solely through the utility lens misses the opportunity for these groups to contribute to broader institutional goals. Such a limited view encourages the campus to think of these services largely as cost centers, which is a dangerous trap. Given the economies of scale available to very large institutions, small and medium-sized colleges and universities are unlikely to be the low-cost providers of higher education. To compete effectively, smaller institutions must look beyond cost containment, view LITS as internal investments, and develop a strategy that leverages those investments to improve student outcomes, increase revenue, manage cost, and limit downside risk.

The Promise of Information Technology in 2024

Digital tools already enhance the student experience at many schools, improving institutional and student outcomes, and reducing cost. Prospective students can easily explore the campus using a rich set of web resources. Modern customer relationship management systems can help promote an educational institution to prospective students, and can also improve productivity by allowing one

Data captured from student interactions with campus systems can help predict who is at risk of leaving the institution, who would benefit from more or different interventions to support their learning, and what strategies are most effective to respond to the needs of which students.

enrollment representative to develop personalized messaging for more prospective students than is possible without such support. Web tools provide students with immediate access to their grades while eliminating the cost associated with printing and mailing grades to their homes. Similar tools have replaced the long and frustrating lines of arena registration with the ease of real-time, online course enrollment, and the addition of degree audit and related tools allows students to extend their academic planning well beyond the next semester. Early alert and retention management systems can support effective multichannel communications about and with current students, improving student outcomes and retention, while also bolstering the bottom line.

As these systems grow in sophistication, student engagement with them will deepen. Increased collection and analysis of data captured from student interactions with campus systems can help predict who is at risk of leaving the institution, who would benefit from more or different interventions to support their learning, and what strategies are most effective to respond to the needs of which students. Such tools can increase student persistence to graduation, which improves student outcomes, the institution's bottom line, and a key indicator of institutional effectiveness.

Similar gains are possible in all areas of the institution. Future software-as-a-service (SaaS) solutions now in development promise to provide better functionality at a lower total cost in key administrative areas (e.g., finance, student information, human resource management, and library management).¹ These tools shift the software support burden to off-campus providers and allow local staff to focus on implementing best practices in campus business units.² By spreading the cost of software support over thousands, or even millions, of users, SaaS companies achieve savings that they can pass on to clients. In contrast, traditional on-premises solutions require every school to set up and run its own instance of the software, thus duplicating work already performed at hundreds or even thousands of other organizations.

Although savings might initially attract campuses to SaaS offerings, much greater savings and better services to end users—students, families, other constituents—are obtained if institutions also commit to optimizing their business processes during the implementation of new technologies. For example, when implementing a customer relationship management system for enrollment, institutions can move to a paperless system that limits data entry, speeds processing, and offers applicants immediate access to review and update any

¹ E-mail, calendaring, and collaboration tools available from Google as Gmail and related products, and Microsoft tools available as Office 365 are good examples of SaaS offerings already being used by many colleges.

² The EDUCAUSE Center for Applied Research offers an excellent paper that summarizes the benefits that institutions can gain from the SaaS model: see Tim Flood, "The Soft Side of SaaS: Implications for IT in Higher Education" (2011). Available at <http://net.educause.edu/ir/library/pdf/ERB1106.pdf>.

Effective use of analytics has the potential to change every area of campus administration, from enrollment to alumni affairs, and from the physical plant to student services.

required application information. With appropriate restructuring of business processes, staff positions that had been committed to clerical tasks can be reclaimed or focused on other, more critical service and analysis tasks.

Emerging data collection and analysis tools that are bundled with many of these systems promise new windows into institutional performance and offer myriad possibilities for increasing institutional effectiveness. Predictive analytics tools using data harvested from e-communications (e.g., tracking opened e-mail messages, website visits) and institutional data (e.g., applicant profile, student interests, financial aid packaging) could transform the application process further, allowing more targeted messaging and packaging while increasing the confidence with which the institution can predict the outcome of any particular investment in marketing or financial aid packaging. As another example, data from building-monitoring tools, maintenance logs, user feedback, and inventories of building characteristics can help physical plant managers better target investments to manage maintenance costs and energy use while simultaneously improving the user experience of campus spaces. Indeed, effective use of analytics has the potential to change virtually every area of campus administration, from enrollment to alumni affairs, and from the physical plant to student services.

Information technology's potential to improve campus outcomes is not limited to administrative functions. The Texas Language Consortium, which is sponsored by five small Texas colleges, and the Sunoikisis project, which was developed by the Associated Colleges of the South, are successfully using technology to share language programs, thus expanding student access to educational opportunities while avoiding the cost of stand-alone programs. Recent work by Bowen and associates supported by Ithaka S+R has shown that blended learning can deliver learning outcomes as least as good as those of traditional approaches, while offering students more flexible schedules and using a more cost-effective delivery model.³ Although many institutions do not have the scale and resources necessary to develop interactive, online, adaptive learning platforms or to support MOOCs, every institution can gain from considering how adoption of such tools, even if they are supported by other, above-the-campus entities, can improve teaching and learning on their campuses and reduce cost.

Realizing the promise of new technologies will not be easy or straightforward. If digital tools are to serve as engines of innovation to address pressing institutional concerns, IT leaders must do more than provide an information utility. They must partner with other institutional leaders to develop the staff skills and institutional nimbleness necessary to address strategic priorities and transform

³ See William G. Bowen et al., *Interactive Learning Online at Public Universities: Evidence from Randomized Trials*. New York: Ithaka S&R (May 2012). Available at <http://www.sr.ithaka.org/research-publications/interactive-learning-online-public-universities-evidence-randomized-trials>.

institutional processes in response to emerging opportunities. Providing the technology platform is the easy part of the work. To realize the full potential of new technologies, institutions will need to regularly revisit and redefine the ways in which they communicate with core constituencies, conduct their work, and use data to inform decision-making. Anything less risks a slow decline into obsolescence.

The Promise of Library as Place in 2024

As described by the historian Shelby Foote, “a university is just a group of buildings gathered around a library.”⁴ Certainly this has been true for most of the last millennium. Until the advent of the Internet, gaining access to the information needed for scholarly work and teaching required good physical access to a library. In fact, the library was so important to the work of scholarship and learning that a university’s prestige was often linked to the quality of its library and the size of its holdings. Given the importance of the physical collection, the current and projected space needs of the library’s collection typically drove the design of new library buildings; other aspects of the library’s role in academic life were often lost within that focus. As materials shift to digital formats and physical collections shrink, institutions have an opportunity to rethink the role of the library. If the primary value of the library has been its function as a warehouse for content, it is reasonable to ask what would be lost if colleges sought to replace most physical library resources with an electronic collection and repurposed the library building to house administrative functions, academic departments, or much needed classroom or social space.

By 2024, many library buildings will have been transformed into an academic commons.

In response to such inquiries, library professionals, architects, and others have been reconsidering the contributions of the library to academic life. Yale University librarian emeritus Scott Bennett argued in a pair of CLIR-sponsored publications that libraries are the academic commons of the college, the essential neutral ground on which students from all disciplines can meet to share and collaborate in the academic enterprise.⁵ As virtual collections replace their physical analogs, freeing up library space, we have an opportunity to rethink the role of the building as academic hub. Many colleges and universities have already begun this transformation, renovating library buildings to create a learning commons,⁶ which brings new

⁴ Ron Chepesiuk, “Writers at Work: How Libraries Shape the Muse.” *American Libraries* vol. 25, no. 11 (December 1994).

⁵ See Scott Bennett, *Libraries Designed for Learning*. Washington DC: Council on Library and Information Resources (2003). Available at <http://www.clir.org/pubs/reports/pub122/pub122web.pdf>. See also *Library as Place: Rethinking Roles, Rethinking Space*. Washington, DC: Council on Library and Information Resources (2005). Available at <http://www.clir.org/pubs/reports/pub129/pub129.pdf>.

⁶ See “7 Things You Should Know About The Modern Learning Commons.” EDUCAUSE Learning Initiative (April 2011). Available at <https://net.educause.edu/ir/library/pdf/ELI7071.pdf> for a brief overview of the learning commons concept.

services (e.g., writing centers, student advising offices, innovative teaching centers, collaborative spaces, and media creation centers) into the library. Following this trend to its logical conclusion, it is reasonable to postulate that by 2024, many library buildings will have been transformed into an academic commons whose primary role is to host academic support services while also providing space for what remains of the library's physical collection. Rather than being designed to accommodate library materials, such spaces will be designed to enhance student learning and facilitate collaboration among students, faculty, and the professional staff who support them. With the possible exception of the library's special collections, which may be highlighted to distinguish the institution, the physical (and virtual) collections will be accommodated around those academic services.

Facilitating this transformation and attending to the library's critical role as a physical place on campus offer benefits on every level—improving the student experience, enhancing the college's market position, supporting student retention and associated revenues, and containing costs. For example:

- Libraries that have introduced learning commons report much greater student use of the library space.
- New collaborative spaces encourage student engagement with each other and professional staff, and the presence of new services provides more reasons for students to use the commons.
- Rebranding the library as an academic commons and demonstrating its role as a collaborative interaction and study space provide an argument for the value of the residential college experience, and the creation of a visible center for academic support demonstrates to prospective students and their families the college's commitment to supporting student success.
- The coordination and collaboration possible through a one-stop academic support center provide the infrastructure for a holistic retention program.
- Housing previously discrete services in a single center creates opportunities to reduce support costs and expand services in response to increased student service use and need.
- Finally, even modest diversions of former library space toward academic support services can address campus space needs by freeing up spaces previously used for those services in other buildings, thus reducing the physical plant investment needed to meet growing student expectations.

Just as the transformation of IT services requires significant effort beyond providing technology, reconceiving the library is not an easy task. Many groups—students, faculty, alumni, library staff, the administration—have an important stake in the library, and those attempting to make changes without adequate consultation face stiff resistance on multiple fronts. Reclaiming and harnessing library space to address larger institutional issues require extended, thoughtful, and responsive dialog with all constituent groups, and

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the entire campus leadership team must engage in the process if it is to be negotiated successfully. Transforming the library is a process that has just begun, and the challenges of the next decade will require library and campus leadership to think even more creatively about the evolving role of the building, staff, services, and collections at the campus' academic core.

New Roles for the Information Services Organization—Seizing the Opportunities

Any college that is serious about seizing the opportunities inherent in new technologies should reconsider the role of the LITS organization on its campus. To successfully harness the power of new systems, a campus leader must be charged with defining a campus-wide vision for information systems, aligning institutional processes with the vision, and supporting its implementation. The person in this role will need the positional authority to effect change within the LITS organization and the personal authority to influence change in other areas of the campus—which suggests someone such as the provost, chief financial officer, or other senior leader who has the time and energy to invest in this work. For the institutions represented in the CLIR CIOs group, the person in this position is the CIO. The results of the CLIR CIOs workshop offer some clues about the work that needs to be done.

CLIR CIOs say their teams will need to develop core competencies in communication and facilitation, external relationship management, systems integration, and data management.

When asked to identify the attributes present when their integrated organizations were at their best, CLIR CIOs articulated many of those that are needed to facilitate change management: good, multi-channel, multidirectional communication that includes all stakeholders in appropriate ways; clarity of goals with a focus on outcomes that matter to the larger community; a focus on the end user or consumer of the service; participatory decision-making; delegation of responsibility; and pride in the quality of their work. They also identified less tangible qualities that develop and strengthen partnerships with the college community: a generosity of spirit, shared values, mutual trust, and a collaborative focus.

When asked to define the core competencies that their organizations would need to support positive institutional change in the decade ahead, the CLIR CIOs built on the attributes of past successes and extended the historical trends identified earlier. According to the CLIR CIOs, over the coming decade, their teams need to develop three core competencies in addition to maintaining their technical strengths: communication and facilitation, external relationship management, systems integration, and data management.

Communication and facilitation: Technology implementations are complex projects, and the level of complexity increases many-fold when meaningful change to business processes accompanies the implementation. LITS staff not only must have effective project management practices, but also must become adept at listening to all

LITS staff will increasingly be called upon to negotiate and manage complex, interdependent contracts and vendor relationships.

constituents—students, faculty, other professionals, support staff, outside contractors—synthesizing the information and communicating new ideas and processes in ways that make sense to those affected by them. As implementations unfold, those using the new tools will need to take ownership of the technology if they are going to reap the benefits, and LITS staff will need to help community members become effective users of those new tools. It will not be enough for LITS staff to be excellent technicians; they will also need to be master storytellers, facilitators, and teachers.

External relationship management: As more information services move to the web on systems hosted by external providers—whether it be electronic access to academic journals provided by an information aggregator, SaaS tools to support administrative functions, or other services—LITS staff will increasingly be called upon to negotiate and manage complex, interdependent contracts and vendor relationships. To realize the cost savings and increased productivity promised by these new tools, staff will need to develop healthy relationships with service providers while maintaining enough distance to preserve their independence. They will also need to acquire the knowledge necessary to choose appropriately from what can be a dizzying array of options and then negotiate a contract that meets the college’s needs. This is a difficult challenge, one that will take sustained effort to master. Developing strong, mutually supportive relationships with peers at other colleges, as well as the skills necessary to collaborate effectively and meet shared goals, should be one part of the solution.

Data management and systems integration: As educational institutions move more of their data and processes to electronic systems, many of which are hosted by off-campus providers, managing the data in those systems becomes an increasingly challenging task. To extract useful information from those systems, it will be necessary to further develop abilities to integrate systems; track data; preserve data integrity and accuracy; and call up, combine, and manipulate the correct data when they are needed. As with other areas, these responsibilities cannot belong solely to the LITS organization; data managers within LITS will need the skills necessary to engage staff in campus functional units as effective stewards and consumers of institutional data.

More fundamentally, the CLIR CIOs believe that they must foster an organizational ethos that values and nurtures flexibility, nimbleness, a broad understanding of the college’s mission, and a passionate commitment to the college’s continued success. Colleges that shift the role of their LITS organizations to embrace these new demands will be well situated for continued success, even in the face of an uncertain future.

In Conclusion: A Most Promising Future

Making concrete predictions about the nature of technology in 2024 is undoubtedly a fool's errand, so it is impossible to predict the organizational structure required to support future technologies. However, the CLIR CIOs workshop did identify the characteristics, core competencies, and underlying principles that successful organizations will need.

As demonstrated by the changes of the last decade, forces far from the campus are shaping the ways in which the members of the campus community interact with technology and information, and new product announcements from Apple, Facebook, Google, and the next technology start-up will continue to shape the needs, habits, and desires of our students, faculty, and staff. Our experiences of the past decade have also shown that these same products will offer us opportunities to reduce cost, improve services, increase revenues, and limit risk. We must prepare ourselves if we are to adapt gracefully to whatever changes the larger environment brings us.

The CLIR CIOs are largely confident and optimistic about the future success of their integrated organizations; they believe the structure offers advantages as they grapple with the challenges that their organizations and institutions will face in the coming decade. Nonetheless, their insights about the future apply equally to any library or IT organization serving higher education today, whether functioning as part of an integrated LITS organization, working independently, or collaborating as separate organizations. Although it is impossible to know exactly what will be required to thrive in 2024, we can be certain that institutional health will depend on a culture within the library and IT organizations that is prepared for, embraces, adapts to, and extracts every potential benefit from change. Heraclitus' maxim has never been truer: The only constant in life is change.

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Gene Spencer was recently appointed the chief information officer and leader of a merging library and information technology (IT) organization at Ursinus College. Prior to assuming this new role, Gene served as an independent consultant to higher education library and IT organizations, focusing on areas of organizational effectiveness; organizational design; leadership development; leadership searches; work redesign; quality customer service; collaboration between IT and library organizations; and synergies between people, information, and technology. Gene was also the facilitator of the retreat of CLIR chief information officers that provided much of the content for this paper.

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