

# ROLE AND MISSION OF ACADEMIC LIBRARIES: PRESENT AND FUTURE

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## Introduction

It is a singular pleasure to be here with you today. I am honored and humbled that you have invited me to participate in this very timely conference, and I hope that I will live up to your confidence. I congratulate you on taking up this important subject and look forward to lively discussions during the panel session.

I want to start this talk by referring to Pogo, an animal cartoon character that was very popular in the United States in the mid-twentieth century. He appeared in newspapers daily and often made pithy yet wise statements. Despite their poor grammar, many of his utterances are still relevant, such as this one that seems particularly appropriate for today's topic: "We are faced with insurmountable challenges."

Many days it certainly seems that way. However, I hope you will agree that the challenges academic libraries face – both today and tomorrow -- are not insurmountable. Instead, they present new and exciting opportunities for us to carry out our traditional roles differently as well as opportunities for us to play new roles within our institutions. Although obviously my perspective is as a North American, I hope that my remarks will be relevant to you, not only because I want them to be helpful and a bit provocative, but because we need to think of ourselves, and the roles of our libraries, as increasingly global, and also because we seem to share some commonalities in our societies. Our young people appear to share a voracious appetite for new technologies, new access methods, and new ways to get and use information, and we seem to be facing some similar changes in higher education.

It is useful to think about what we want to achieve, our collective vision if you will, as we think about how we might amend our roles to accomplish it. OCLC, in its recent environmental scan, articulates this vision well. "What if libraries...erased the organizational charts, the artificial separations of content, the visible taxonomies, and the other edifices real or otherwise built to bring order and rationality to what we perceive as a chaotic universe? What if we built an infosphere rich in content and context that was easy to use, ubiquitous and integrated, designed to become woven into the fabric of people's lives; people looking for answers, meaning and authoritative, trustable results..."<sup>i</sup> What greater mission could we have than to reach this vision on each of our campuses and to link them inexorably to create a global infosphere for higher education and beyond?

To understand how we might do this and thus to understand better what our more specific roles in the future will be, it is important to see what major the organizations in our field

are planning for their futures and it is important to understand societal trends and changes in higher education. Before I turn to that, however, I want to look briefly at how academic libraries carried out their roles in the past few decades.

Academic libraries in my country have long been represented by tangible symbols: the 'jewel' in the university's crown, the heart of the university, the campus' treasure. These images are remarkably similar from campus to campus. Large "main" library buildings are typical and important iconic representations of the library's place within the university: centrally located, critically important, very large, separate and distinct. These images are static; they suggest our traditional roles, which even we often describe as supportive of teaching, learning and research. These static supportive images are grounded in a world once dominated by, even now at a time when the world in which we operate is being transformed to one dominated by silicon. We academic librarians have not yet fully faced the grand challenges presented by this transformation and we have not yet developed fully the fundamentally different conceptualizations of the role of the library and librarians within the academy that this transition demands. It is time for us to do that.

During most of the twentieth century, academic libraries were characterized by activities that built similar collections of tangible materials and by systems of access and services that mediated between individuals and content to serve expressed information needs. We treated all materials with the same descriptive schema. In general, the library became an organization that served all disciplines not only with similar tools but in similar ways; on my campus, as on many others, departmental or branch libraries all looked and operated pretty much alike; and libraries on different campuses looked and operated very much as one another. You can walk onto any campus today and recognize its libraries, their collections, and their services. Since we looked to each other to find good models, this similarity is hardly surprising.

But now things are changing. The global e-future looks as dangerous as it does adventurous. The incredibly exciting transformation from a carbon-based universe to one that increasingly is silicon-based poses what is perhaps the most important challenge of the twenty-first century to academic librarians—defining our roles within traditional but changing universities. Today, the outlines of this future are being drawn by scientists and engineers. But, we unless librarians, and others, join the design process, the silicon future will be less rich than the carbon one has been and our roles could be seriously diminished. As the barriers of time and space dissolve, we must interact with others in their own spaces, however those spaces change, to rediscover the energies of learning together and innovating collaboratively. This will happen differently on each one of our campuses. The transformation to a silicon-rich world and the ways it which it forms different cultures on different campuses will influence the choices each academic library makes about how to shape its roles. Thus, each of them will look less and less like one another.

### **Library Association Strategic Planning Trends**

We often look to our professional associations to provide thoughtful leadership on important issues. To set the context for the more specific remarks I will make a little later about roles and missions for academic libraries, I think it will be useful to examine

the directions of two influential U.S. organizations, the Association of Research Libraries (ARL) and the Council on Library and Information Resources (CLIR). Both currently are engaged in developing strategic plans that are designed to be relevant for the next three to five-plus years.

ARL is an important and distinguished organization whose membership includes the top 123 research libraries in the U.S. and Canada; its member libraries are part of comprehensive, research-extensive institutions that share the same research missions, aspirations, and achievements. These institutions comprise notable communities of scholars across many disciplines who are actively engaged in research and who have high levels of need and expectations for library collections and services.<sup>ii</sup>

ARL's strategic planning came about in 2004 in realization that it was time for a comprehensive membership-wide review and assessment of the ARL agenda. The Association recognized that a research library adds value to the enterprise it serves through its expertise, services, and the resources it collects and preserves; it also understood that research libraries are undergoing enormous changes. It wrote:

Research libraries today are not like those of the past nor will research libraries look as they do now in the future. The more recent dramatic changes within libraries, as within the disciplines and research institutions themselves, are the result of information technology applications and ubiquitous networking. Even as research libraries change in response to the environment, their core responsibilities are sustained: research libraries continue to collect, preserve, and provide services to enable discovery and use of research knowledge in all formats. Especially as research and higher education subdivide knowledge into disciplines and sub-disciplines, research library collections and services offer bridges that can facilitate the synthesis of information that advances interdisciplinary understanding and inquiry.<sup>iii</sup>

ARL identified three strategic directions: scholarly communication; information and public policies; and teaching, learning, and research. Its goals for each strategy are ambitious. It strives to be a leader in the development of effective, extensible, sustainable, and economically viable models of scholarly communication that provide barrier-free access to quality information in support of teaching, learning, research, and service to the community. It strives to influence information and other public policies, both nationally and internationally, that govern the way information is managed and made available. And it strives to promote and facilitate new and expanding roles for ARL libraries to engage in the transformations impacting research and undergraduate and graduate education.

The other organization on which I want to focus is the Council on Library and Information Resources (CLIR), formerly the Council on Library Resources (CLR), which currently is celebrating 50 years of work that has influenced libraries of all types around the world. "CLIR works to expand access to information, however recorded and preserved, as a public good. Through projects, programs, and publications, CLIR works to maintain and improve access to information for generations to come."<sup>iv</sup> In recent decades, CLIR's work has concentrated, although not exclusively, on academic libraries. For the past five years, three major themes have permeated its work: (1) to foster new approaches to the

management of digital and nondigital information resources so that they will be available in the future ; (2) to expand leadership capacity in the information professions; and (3) to analyze changes in the information landscape and help practitioners prepare for them.

Under new leadership, and looking towards the future, CLIR has identified several new themes for its work over the next three to five years: (1) the place as library; (2) scholarly communication; (3) preservation and stewardship; and (4) leadership. I think it is important to understand the nature of the inquiries CLIR will be undertaking, for I believe that they will be as influential on our collective future as CLIR's previous work has been in the past.

Recognizing that the 'library as place' will continue to be critical to meeting the missions of academic libraries, particularly in providing space for collaboration and engagement with and about ideas, CLIR also aims to think broadly about the library as a set of resources and services that can be delivered and configured without regard to physical location. Its focus, as articulated several years ago in its publication *Diffuse Libraries: Emergent Roles for the Research Library in the Digital Age*,<sup>v</sup> will now turn to how to make the library and its resources more pervasively diffused throughout the academic setting, so that the university – the place – is synonymous with the library.

Scholarly communication issues are immense and complex, and there are many organizations around the world that are attempting to address ways to change the system to make it more open and affordable. CLIR's role in these discussions will focus on "certification" by thinking deeply about how the peer review process that is valued by scholars, and the additional certification that librarians bestow on a work when they include it in library collections, will be preserved through the many turbulent changes expected in the system of scholarly communication. It will ask these questions: (1) If certification attributed by inclusion in a library collection disappears, what is lost for the scholar or student? (2) What common ground do libraries and publishers share when each approaches the topic through the perspective of enlightened self-interest? (3) What does it mean to build a collection of certified digital assets?

CLIR has long been interested in issues of preservation and stewardship. In the U.S., however, academic libraries seem to be less and less committed to investing in preserving collections, regardless of format. Publishers seem to have little interest in archiving their digital works so long as academic librarians remain uncommitted to preservation in general and there appears to be no economic demand for archived digital materials. This leaves us in a catch-22 situation. CLIR plans to focus its work on publisher-librarian dialogs to address issues relating to the economics of information creation, distribution, and preservation, with the goal of identifying areas where discussion of alternative solutions would yield mutual benefit.

Finally, CLIR plans to continue investing in programs to develop leaders in academic institutions. For the last five years, its Frye Leadership Institute has provided continuing education opportunities for individuals who currently hold, or will do so one day, positions that make them responsible for transforming the management of scholarly information in institutions of higher education. One of CLIR's most recent undertakings, the CLIR Postdoctoral Fellowship Program, seeks to attract to librarianship recent PhDs

in the humanities and social sciences. Offered in conjunction with a consortium of academic research institutions, the program strives to establish a new kind of scholarly information professional by educating new scholars about the challenges and opportunities created by new forms of scholarly research and the information resources that support them, both traditional and digital.

As you can see from these very short reports, both of these influential organizations are in the midst of their own transformations that will help guide us academic librarians through these challenging times. They provide us with some good guideposts to keep in mind as we turn to what is happening in society in general and higher education in particular, after which I will speculate on the challenges and opportunities they present and offer you some possible models. I think it is important for us to understand what is changing around us in society, in universities, and in libraries as we think about how they might impact our mission and role.

Let us start with what's happening in society at large.

### **Societal Trends**

We live in an on-demand, 'me' centered world. The internet has become the most important source of current information for most people today. Most people want simple entry points to this complex realm and they want simple authoritative results in return. Google's success is predicated on these needs: simple web sites comprised primarily of white space with a single entry box and proprietary algorithms that create search results that appear to the unknowing user to be both complete and ordered by relevance and credibility. Basic Google search results now include more than web sites – images, book citations, and more – as well as advertisements clearly marked but easily confused with what might be more objective or more relevant web sites.

We are starting to learn some very useful things about internet users. The vast majority of teens in the United States, 87% of those aged 12 to 17, and nearly two-thirds of American adults, now use the information highway. The more experience users have with the internet, the less television they watch, although your young people apparently now carry around the capability to watch television through their cell phones. A new Pew Internet & American Life Project report tells us that 81% of U.S. teen internet users play games online and 76% get news online. Close to half of all American teens own a cell phone and 33% have used a cell phone to send a text message. Texting on cell phones is particularly common among those who already go online frequently and who use other internet tools often.

For what seems to have been many years now, email has been the most popular application on the internet. But although the presence of email in teens' lives has persisted, and the number who use email continues to surpass the number who use instant messaging, when asked about which modes of communication they use most often when communicating with friends, online teens consistently choose IM over email in a wide array of contexts. Teens who participated in focus groups for the Pew study said they view email as something you use to talk to "old people" or institutions or to send complex instructions to large groups. When it comes to casual written conversation, particularly when talking with friends,

online instant messaging is clearly the mode of choice for today's online teens. 32% of all teens surveyed use IM every single day.<sup>vi</sup>

The ramifications for countries whose population once spent a large portion of time in passive activities, such as watching television, and who now transfers that to interactive ones, are profound. It could affect every aspect of culture, the economy, politics, and social behavior. It likely will affect reading habits, with people moving from print to online publications and from static to dynamic documents. The increasing access to full text documents, exemplified by Google's new Google Scholar, which provides access to some scholarly materials, and Google Print, which will digitize millions of printed books in the next decades (assuming that copyright issues are resolved), will have profound effects on how people access and use information. They will further blur the boundaries between 'scholarly' and 'popular' works. The ubiquity of information on the internet, the 'long tail' that reveals lesser known works, and the ability to access almost anything in what appear to be authoritative forms in an instant, raise expectations and demands that librarians will need to meet independent of time and place.

The change from passive to active engagement with information clearly will affect the ways in which we will communicate with the young people who are flooding our campuses. So, too, will the proliferation of gamers impact how we provide services to students today and tomorrow. Pew reports that about 81% of wired teens play online games<sup>vii</sup>. These young people spend enormous amounts of time in this activity, often with global opponents reached through the internet. The multimedia strategy guides that accompany these games are often rich sources of information about culture, society, and the world at large. These new information habits, coupled with the global nature of many new media content, have implications for librarians that extend beyond obvious expectations of instant and ubiquitous delivery.

Many aspects of society are being changed by the transition from a carbon-based to a silicon-based world, not all of them centered on youth culture. Perhaps nothing exemplifies this better than mass marketing, which has been upended by the shifting emphasis from selling to a vast and anonymous crowd to selling to millions of individual consumers. For marketers, the evolution from mass marketing to micro marketing represents a fundamental change driven as much by necessity as opportunity. The proliferation of digital and wireless communication channels is diluting yesterday's mass audience, which was accessible through a handful of media outlets, to individual audiences that are spread across hundreds of media outlets, including broadcast and cable television, radio channels, specialized magazines, computer terminals, video game consoles, personal digital assistants, cell-phone screens, and who knows what else in the future. More than ninety years ago, Americans all wanted black Model T Ford automobiles. Today, more and more people order their autos on the internet, choosing the features, and the colors, that are just right for them. The incessant search for products and services that are 'right for me' will continue to drive demand and expectations in all market segments, including academic libraries.

The changes from mass marketing to micro marketing also reflect significant changes in societal attitudes. Old consumers passively received network broadcasts; new consumers are empowered media users who control and shape content. Old aspirations were to keep

up with the crowd. New aspirations are to stand out from the crowd. Old brands were big and ubiquitous; new brands are niche brands and product extensions. Old library users came to a building to use or borrow materials and to ask for help; new ones access content and services independent of time and place, unfettered by the geography of a single physical collection, and often unaware that they are using library content or services.

The same technological advances that are fragmenting traditional mass audiences are also empowering a new class of digitally-savvy consumers who compile, edit, and otherwise customize the media they consume to their own personal requirements. What were common experiences for people in my generation are evolving into more individualized experiences for members of the current generation. Ultimately, this is all about offering a degree of customization and control for everyone, everywhere. I think these trends have particular relevance for academic librarians who are now faced with delivering all sorts of content and services that, if not now then soon, will be expected and demanded to be customized by the millions of students who will be entering our universities in the next five to ten years.

Our students and their young faculty will expect the same from us: services that they can control and that are customized – or mass customized --just for them. Although our role will continue to be to provide them access to information content and an array of services designed to help them find, evaluate, and use that content, and to learn those skills so they can operate more independently, we will have to evolve our generic services to more customized ones. So, for example, we will integrate our services and access to our collections into campus learning management systems (through which we will deliver course readings), and campus portals, and we will design these integrative tools so they personalize content, collections, pathfinders, or nearly every other service we offer. No longer can we think about the library as a stand-alone service. Rather, we must see it as our students and faculty do: as one piece of an integrated customizable set of indispensable services.

There are many other societal trends that are important to our thinking about the roles and mission of academic libraries. Lack of time precludes us from exploring them all, but there is one set of trends that is too important to overlook: public information policies. These have always been important to the flow of ideas, information, and knowledge. The global place of our countries, the specter of fear of enemies from abroad or from within, and philosophies that position our freedoms in current contexts have varied from era to era. Recent global developments in copyright protections in the digital age and reactions to 21st-century terrorist attacks around the world have given rise to current policies that reflect underlying philosophies of greater protection for creators of creative works and greater government powers to intrude on what had been interpreted previously to be private activities. As the United States struggles to define its place in a world it no longer dominates and in which it is no longer the center of higher education to which the rest of the world is drawn, coming generations of librarians will undoubtedly struggle with policies that threaten the fundamental values of librarianship. More than a decade ago, many of us predicted that copyright legislation would present the biggest barrier to information access in the future. Unfortunately, our words are becoming reality. We cannot sit by and let others fight our battles. Without our aggressive advocacy, intrusions of governmental entities into access and greater barriers to use are certain to increase.

Although I could spend the rest of the day talking about societal trends, our time together is too short. It is equally important that we understand what is happening within higher education around the world.

### **Context of Higher Education**

I hope you will agree that we are exceedingly privileged to work in colleges and universities. They are unique institutions, defined by their underlying mission to generate and disseminate knowledge in all spheres. They are the only institutions I know that bring scientists, scholars, and artists together to carry out this work as well as to transmit the values and tools of their fields to the next generation. The challenges and choices academic research libraries will have to make in the future cannot be understood fully without understanding current and anticipated changes in academic institutions.

Colleges and universities in Japan and the United States are facing many similar challenges at the start of the 21st century. Financial constraints are causing fundamental shifts from dependence on state funding to dependence on tuition and private fund raising. In addition, they are confronting profound changes in electronic and networking technologies, new interdisciplinary collaborations, increasing dependence on corporate-sponsored research and technology transfer, increasing focus on teaching undergraduates in research universities, assessment outcomes linked increasingly to government subsidies, changes in scholarly communications, and, in the United States, the withering of the vast pool of international students. These are just some of the forces that are creating conditions for changes as deep and important as those experienced during other transformative periods.

In the United States., state-supported public universities continue to have a mandate to educate the majority of America's higher education students. But the states that traditionally funded them, now faced with increasing costs of health care, security and law enforcement, and primary and secondary school education, are increasingly unable, and unwilling, to provide the levels of funding that their compact with higher education requires. Previous reductions in state funding in the last quarter of the twentieth century were fairly quickly reversed by rebounds in states' economies. State support then averaged well more than one-third of public universities' incomes.

But the tale of the first decade of the twenty-first century has so far had a very different story line. Large state commitments and more unfunded mandates, coupled with a strong reluctance to impose new taxes, even – or perhaps especially – at a time when federal tax rates were being reduced, have led to cuts in funding for higher education in the United States. State support now averages less than twenty percent of public universities' incomes and that number is expected to decline. For there is widespread realization that even when state economies rebound, increased funding for higher education is very unlikely. Governments in both of our countries are calling for reductions of administrative costs and tying financial subsidies to demonstration of outcomes.

Academic libraries are not immune from similar pressures. Continually high inflation in the price of scholarly materials, the proliferation of new content in multiple formats,

increasing demands for new services, and stable or decreasing budgets put unrelenting demands on us. Our challenge is to think differently about our roles within the academy and to develop new models to carry them out.

Precisely at the same time as we are facing these pressures, we are developing some very promising models for teaching, learning, student engagement, delivery of information content and information instruction, and the use of technology. It will be testament to our creativity and willingness to take risks to take advantage of these opportunities during these times. I do not think it is an overstatement to say that fundamental changes will characterize those institutions that will thrive throughout the twenty-first century.

Many universities in my country are fundamentally changing the ways in which they will be focused in the future. Comprehensive universities, such as mine, are beginning to develop real strategies, concentrating their efforts on a few “themes” rather than trying to be ranked highly in everything. For example, my institution, the University of Illinois at Urbana-Champaign, is considering focusing on five interdisciplinary strategies for which they intend to strengthen infrastructural services and overall investments:

- Build distinctive strengths related to human health and wellness
- Extend multi-disciplinary research in computing, information systems, and materials
- Promote interdisciplinary social/behavioral sciences research addressing important societal problems in areas of distinct opportunity and campus strength
  
- Develop research on energy and sustainability
- Cultivate the vital contributions of the arts, humanities, and social sciences to explore and deepen understanding of the world’s diverse cultures and the human dimensions of problems

Although scholars organize themselves by discipline, and often show more loyalty to their disciplinary societies and colleagues than to their own universities, research and teaching across and among disciplines is not new. What seems to be new is the accelerating materialization of new interdisciplinary studies and the prominence they are assuming on university campuses worldwide. Libraries such as mine, which have long organized their collections and services into disciplinary categories, are finding it particularly challenging to meet the needs of interdisciplinary groups as effectively as we have met the needs of traditional disciplines in the past.

Academic libraries are not alone in their struggle to deal with newly emerging fields. Even though they are choosing themes on which to focus, universities themselves have not yet grappled with their disciplinary-based organizational structures. Thus far, and for the most part, the rise of interdisciplinary studies has been accommodated by overlaying new organizational structures on the traditional forms. Perhaps those outside of higher education have a point when they accuse universities of creating large administrative overheads, for all these layers and structures require new layers of management and they incur additional costs. It will be only the most daring of universities that take a zero-based approach to create new ways of organizing and managing themselves. It will similarly take bold academic librarians to do the same.

The United States faces a set of challenges that threaten its predominance in global higher education. The terrorist attacks of September 11, 2001 and subsequent attacks on European and Middle Eastern soils have led my country to erect significant barriers to entry. At the same time, institutions of higher education in many other countries have developed highly competitive alternatives for students seeking international educational experiences. China alone plans to build 200 new comprehensive four-year colleges and between 20 and 30 major research universities over the rest of this decade. Competitive alternatives to U.S. higher education create conditions that will change the educational experience for Americans, who will no longer have the opportunity to attend school at home with so many people from so many countries; these alternatives could change America's long-time friendships with many countries whose government, political, and business leaders have had positive educational experiences in the United States.

These powerful forces are changing higher education. So, too, is scholarly communication, the arena in which information and knowledge are created and disseminated. Scholarly communication is undergoing an extraordinary transformation, a transformation that may be more important to higher education than the invention of the printing press or the development of scholarly societies. The transformation is being fueled by new technologies such as e-mail, which are changing fundamentally the ability of scholars and students to collaborate across time and place. The transformation is also being fueled by economic and regulatory forces that create high price points and copyright regimes that restrict scholars' ability to share their work. Although current trends of distributed computing and open networks, coupled with emerging models for scholarly communication, have eased the boundaries among stakeholders, which allows more permeable and overlapping roles, [viii](#) legal constructs are creating counterbalancing forces to this emerging technological capability.

Although transformations from carbon to silicon have enabled scholars to collaborate more easily with one another, the products of scholarly communication have not changed substantially in form, at least not yet. Authors still make arguments and convey information, ideas, and insights. However, changes are on the horizon. Some new genres of scholarly communication that expand the capabilities of the traditional monographic form, as exemplified by *The Shadow of the Valley* at the University of Virginia, are beginning to emerge. Many of these new genres will require new tools to exploit their capabilities. One of these, the Aquifer project of the Digital Library Federation, is designed to enable scholars to bring digital content directly into their own workspaces, where they can use it as if they had created it themselves. Many others will follow. In the coming years, we can expect to see scholars who have grown up from the very beginning of their careers working in digital environments, creating new forms and formats and multimedially integrating works that will diminish the privileged place that text has historically occupied. Libraries' roles will include collecting, authenticating, archiving, and making accessible in perpetuity all these new forms, formats, and genres; they also will include building technologies and operating service layers such as those being worked on by the Aquifer project.

### **Implications for Academic Research Libraries**

Let us now turn to the direct implications of some of these trends in society and in higher

education to academic libraries and academic librarians, with the backdrop of ARL's and CLIR's new strategies. How will our roles, and the ways in which we carry out our roles, need to change? What does it mean for those of us who lead, manage, and work in academic libraries when tradition collides with digital promises and digital realities? When new generations of students have grown up in a 'me'-centered world of digitally-enabled power and control? When boundaries of time and place no longer exist? When scholars work in new collaborative forms and develop new genres, formats, modes, and models of scholarly communication? When universities are facing unprecedented financial challenges and when their focus on fund-raising threatens to overshadow their focus on mission? When changes in public policies create an environment so severely restrictive that information cannot be sought or shared freely or used without the specter of someone looking over one's virtual shoulder? When organizational cultures of universities and scholarly communication stakeholders clash, and when they are unsuited for the future yet appear to be impervious to change?

We are now at a critically important crossroad characterized by profound transformations from carbon to silicon. As we have seen, the arena in which ideas are created, shared and documented – our arena -- is undergoing a transformation of unusual scale and impact, equivalent, or perhaps even more phenomenal, than the invention of the printing press. Content once fixed in ink on paper, bound and shelved one by one, has become unfettered and is now available to a broader audience that wants it when it needs it and wants it customized and individualized -- an audience that wants to control it at almost any cost. As a result, our focus must shift from inanimate collections to specialized expertise.

Yesterday's academic libraries were defined primarily by their collections. Today's libraries are characterized best as a *mélange* of collections, content, services, and expertise. Most of our libraries bear more than a little resemblance to one another and most of our libraries still operate, for the most part, as separate entities within our universities. By this I mean not so much that we manage ourselves, which we do of course, but that we are as distinct as – if not more distinct than -- a college or school or information technology operation within our institutions.

As an increasing number of libraries cease collecting very much print, or even begin to divest themselves of large portions of their print collections, that is, as many libraries provide access to more current digital than tangible content, academic libraries and academic librarians will begin to carry out their traditional roles, and take on new ones, in ways that resemble OCLC's fabric metaphor. Today, we are still organized into traditional library structures, delivering our content and services from and to a large part in our traditional library buildings. Tomorrow, we will be diffused and infused, commingled yet distinctive. The most vibrant libraries may not be seen as separate organizations at all as the place – the university – becomes the library. Academic librarians will change their roles from supporters to collaborators and co-creators. Although library space will remain important and distinct, librarians and the content to which they provide access through a panoply of services will be diffused and infused into the university – in departments, laboratories, learning communities, learning systems, residence halls, and nooks and crannies and more, in ways that we barely can imagine today.

Today, we still think iconically about academic libraries as those static images I evoked at

the beginning of this talk. Tomorrow, it may be difficult to bring to mind a single common visual image, a single symbolic representation of the academic library. For unlike twentieth-century libraries, each of which bore remarkable resemblance to one another, and despite a core of services and digital content that we will probably all offer, it is likely that by the end of the twenty first century, no two academic libraries' array and delivery of services will even be similar. As the century unfolds, and as academic libraries' collections become increasingly homogenous, libraries' services and delivery mechanisms will diverge; their special collections, which will include such large print collections as the one held by my library, will become increasingly important, and they will bear less and less in common. Librarians – the library -- will each be infused into classrooms, laboratories, offices, and virtual spaces as teachers, collaborators, and co-creators of scholarship and scholarly communication vehicles. Each will be infused to different degrees and in different ways. Librarians will be path breakers, but the paths they break will be characterized more by their divergence than their similarity.

Unfortunately, or perhaps fortunately, very few of us in this room today will be alive at the end of this century to know if my prediction was at all correct. Fortunately, there will be some markers along the way that will allow you to hold me accountable for my somewhat provocative statements. I think that a decade from now, many libraries will be much more integrated into the fabric of their institutions than they are today. Librarians will be skilled professionals who understand and work comfortably, integrally, and much more collaboratively within a wide range of disciplines and among the mass of newly developed and developing interdisciplinary areas that I think will come to dominate our universities. The library of the future will be about enabling the quest for knowledge through carbon and silicon – and increasingly through silicon -- in ways that are much more collaborative and co-creative than they are today. By this I mean that librarians not only will work where faculty and students work, but that their work will be part of the work of those colleagues – part of their lab groups and seminars, as collaborators on research projects, co-instructors, and co-creators of scholarly works and learning tools. Users will expect services and librarians, as service deliverers, to be visible in their environment and seamlessly accessible, rather than needing to enter the library environment or call upon a librarian as a separate activity.

In talking about libraries and networking, Lorcan Dempsey of OCLC recently highlighted three points that support my vision. He noted first that the library should “fit in” with the working practices of its users, which in the network world increasingly means fitting in with emerging network workflows through demand-side user flows pulled together from RSS feeds, toolbars and the like and from supply-side flows, as in learning management systems. Dempsey pointed out that being in the flow requires making resources available in different, interoperable, and recombinant ways. In other words, we need to flexibly recombine such things as metadata from several sources in new aggregate services, content from several sources in course materials or exhibitions, and different network services in portal frameworks. Finally, Dempsey focuses on the double themes of deep collaboration and sourcing, the first having to do with the complexity of the changing environment in which libraries benefit from leveraging the wisdom of groups of libraries and the second in which libraries rely on deep collaborations with each other and third party suppliers.<sup>ix</sup> Although we will be different, we still will need to work with one another to leverage our assets.

As I noted earlier, during most of the twentieth century, librarianship took shape by continuing to build collections of tangible materials and developing systems of access and services that mediated between individuals and content to serve expressed information needs. These systems generally treated all materials with the same descriptive schema and the library's actions had little effect on the structure or functionality of published works. In general, the library was an organization that served all disciplines with similar tools and it served them generally the same ways on most campuses. Today, that is changing. I want to share some examples and models of how one library – my library --is changing the ways in which it carries out its role within its university.

The Library at the University of Illinois at Urbana-Champaign is a major academic research library. We hold the largest public university collection in the world and we are committed to maintaining and building our print holdings for use in perpetuity. At the same time, our mission compels us to provide access to digital content and an array of services designed and delivered by functional and subject experts; it also compels us to develop and apply new technologies and tools to enhance access to content in all formats. My library built and maintained the many libraries in our system over a period of more than 135 years. Today, to achieve our goal of considering the entire university to be the library (“the place as library”) and of offering seamless access to content and services, we are both using our departmental library model and diverging from it; we are using new models, and testing others, that will both put us in closer physical proximity to our users and expand the collaborations in which we have long engaged. Here are some examples.

Several years ago we hired a Biotechnology Librarian; she is our first librarian without a physical library. She works with groups of biotechnologists across the campus, helping them find, certify, and evaluate the information they need to do their work. She has been included in many of their grant proposals as a key member of their teams. She uses her collection funds to license and purchase digital content and, working in virtual space, she has created web sites of immense value to faculty and students; unlike physical space, they change as they need to change and they can be customized for individuals' use. A trained biotechnologist, she participates actively in the various list serves that permeate these interdisciplinary groups and she manages several of them herself. This librarian has become such a valued colleague to the biotechnologists on campus that they have insisted on finding her a small office space in a new facility they are building on campus. I do not know about your campuses, but on mine, space is a very precious resource, so this is a particularly important indicator of her importance to large numbers of interdisciplinary groups. She is a collaborator, a co-creator of scholarly content, and a valued colleague.

Thirty five years ago, faculty in Women's Studies at my university fought hard to have a library devoted to their interdisciplinary needs. It became an important iconic recognition of the legitimacy of their program. The Library system created a very small space that housed a collection of about 2500 books and journals, pulled from our general collections, and hired a Women's Studies librarian. Not too long ago, we renovated that space and created a very attractive facility, albeit it in a somewhat remote part of our Main Library building. Last fall our Women's Studies librarian came to see me. She was distressed that no more than two people ever came to the library in a single day, and because she was tied to the space to provide coverage when the full-time staff member

assigned to that library was at lunch, on break, or gone for the day, she couldn't spend much time where Women's Studies faculty and students worked. She proposed closing the library and finding space for her to work in the Women's Studies Center, and that's what we've done, despite a few political issues that stemmed primarily from the loss of the iconic value of that library space. This summer, she dispersed her collection back to its subject homes and we are turning the space into a badly-needed conference room, available to Library and Women's Studies staff. We will assess these changes regularly, but I am confident that this will be quite successful. She will be right where her users need her reference and instructional help, and her virtual space, her website, will be more responsive to the needs of her users than her physical space could be.

One of her colleagues, the Spanish, Italian, and Portuguese Librarian, who is situated in the Modern Languages & Linguistics Library, is in the process of doing something similar. Noting that fewer and fewer of the faculty and students she serves come into her library, she is going to them. We have negotiated a small space in the Foreign Languages Building and she is taking her website and laptop 'on the road' to them.

This model won't suit all disciplines. Our Chemistry Library has been in the same second-floor location in the School of Chemical Sciences' building for more than a century – and I do not think it was ever renovated in all that time. Fortunately, it is in the way of the expansion of an undergraduate lab and is being moved to a larger prime first-floor location. But, even though we will have more space, we are moving about 60 percent of the print collection to our high-density storage facility and we are incorporating our reserves services – electronic and print – into a centrally-run service. Most of the remaining space will be devoted to study space for groups and individuals, access to computers, a wireless network, sufficient electrical outlets, and space in which the librarian can give instruction to groups and individuals. Oh yes, there will be traditional circulation and reference desks, although both will see diminishing use (and they eventually will be repurposed). Because most of the chemists on campus are located in the same building, our chemistry librarian will continue to be located at the heart of their work, as she has been for years. She, too, is seen as an important collaborator; she is written into some of their grants and she and a senior professor have coauthored more than one peer reviewed article. She has transitioned from supporting their work become an integral part of their school. Through her website and other physical and virtual efforts, she is also accessible to non-chemists on campus who from time-to-time need chemistry content or services.

As disciplines evolve and as new interdisciplinary studies emerge, our library is working hard to divest ourselves of some of our small disciplinary-oriented departmental libraries so that we can serve more broadly-based groups of students and scholars more effectively and more efficiently. As I mentioned earlier, our budgets also have been under enormous pressures and we can no longer work as we once did. Our Education and Social Science Library has long incorporated content and experts who serve a variety of disciplines within the social sciences – education, political science, sociology, speech communications, psychology, anthropology, global and social work, among others. Even though it has been quite successful in meeting the needs of thousands of students and faculty each year, its experts are not content to leave it unchanged. Several years ago the Library collaborated with a group of faculty members who successfully sought federal funding to establish a

global studies center, one that focused on issues in the world rather than on specific areas and regions, as has been the traditional approach. As a collaborator, the Library received funding that enabled our political science librarian to spend half of her time as the Global Studies Librarian. She works in the Center's space, maintains parts of its web site, runs a blog, participates in their list serves, and is part of everything the Center is doing. As the time nears to propose renewal of funding, the Center's director has asked that the Global Studies Librarians' appointment be extended to full-time. Similarly, as our School of Social Work plans for its first building, it has asked us not to plan a library in the space, but rather to plan ways in which our Social Work librarian can be incorporated into the life of the School, both in and outside of its physical location.

For years, we have operated a format-specific branch library devoted to newspapers. We hold the second largest collection of newspapers – print and microform – in my country and are a charter member of the International Coalition on Newspapers (ICON) program which, among other things, is helping us provide bibliographic access to many currently inaccessible titles. When the head of the Newspaper Library announced her retirement, we decided to consolidate the History and Philosophy Library with the Newspaper Library in a single space under the direction of a single librarian. The rationale? The confluence of economic, technological, cultural, and behavioral factors created a mandate for change. Organizing library material by format alone confounds, rather than facilitates, library use. We felt that failure to make changes in the materials and services we offer would put us at risk of marginalizing our collections and alienating our users. The consolidated unit is now serving students and faculty engaged in historical scholarship from all departments and programs on campus where such research is performed. For both novice and expert users, this newly consolidated library brings together source material for their research and provides assistance in discovering and locating these resources, as well as guidance in formulating their research strategies. The format of the source material may be digital, print, or microform, but the organizing principle of the collection is the content. We have changed our staffing mix in the new library, saving some money, but more to the point, we have greatly improved service to the scholars in many disciplines. We are also well poised to work with teaching faculty and students to determine the formats in which they want to read current news media and how best to preserve and archive newspapers for future generations to access and use. And we are much better prepared to collaborate in instruction about how to find information content in a wide variety of related and interrelated disciplines.

The colleges and schools on my campus are also making changes in their structures, although no two colleges have yet agreed to merge nor have any divested themselves of their discipline-based organizational structures. For the sake of our time today, I want to focus on only one example. The Departments of Atmospheric Sciences, Geography, and Geology are consolidating to form the School of Earth, Society, and Environment. With the help of a consultant, we now have a blueprint to merge physically our Geology and Map and Geography Libraries, incorporating some content and expertise from our Grainger Engineering Library. However, neither we nor the School can merge physically for at least five, and more likely ten, years. But, if they can consolidate virtually, so can we. With the help of our consultant, and working with the leadership of the new school, we are making plans to offer virtually consolidated services to these new interdisciplinary programs where their faculty and students work. This will be a particularly hard

challenge for us, and although we haven't figured it all out yet, I think we are up to the task.

I have been spending quite a bit of time on the notion of 'the place as library.' Due to time constraints, I cannot focus much on the importance of the 'library as place.' Although I think the former model will be more predominant later in the century, we will still operate physical library spaces that are important for building communities, communities of learners, communities of scholars, communities of interdisciplinarians, and communities of students who need places to study or socialize. Thus, it is still our role to ensure that these spaces are up-to-date, pleasant and clean, and configured to meet the needs of the twenty-first century student and scholar. Although time precludes me from expanding these thoughts now, perhaps you would like to explore them in the session that follows my talk.

We probably could also spend all day examining various parts of the services and collaborations we have offered traditionally and thinking about how to expand our roles and change our delivery mechanisms. It would require us to think carefully about new conceptions of all the functions we perform and how to carry them out. It is tempting to focus on our bibliographic apparatus, for it is an albatross around our collective necks. But that is not where my expertise lies and I will leave it to others to transform those functions. Instead, as a former reference librarian, I want to concentrate on our reference services for just a moment or two.

Academic librarians have a long tradition of providing valuable research assistance, but until recently it has remained remarkably passive – and remarkably ill-named. Today, we offer a confusing array of services, not to mention a baffling set of entry points, to users who often prefer not to approach our facilities or personnel physically. Many of us offer interactive online reference services. Just as the first online catalogs were used by technical services personnel, and the first electronic reference tools were digital replicas of their printed versions, so our electronic reference services, for the most part, are digital replicas of our in-person services. It is time to look for other ways to provide the very useful reference services we have developed during the last century. I want to offer a few ideas.

Evolving from information commons, learning commons -- spaces that provide students with access to electronic and physical content and specialized help from librarians and information technologists -- are becoming familiar sights in academic libraries in the United States. Collaborating with staff in the campus's academic information technology unit, my library is in the process of building a large learning commons in our Undergraduate Library; in fact, it is being funded by money raised for the Library by the Athletics Department, an occurrence that is very rare in my country but for which we are extremely grateful. We are planning to do two things that may create new models for others. First, we intend to distribute the learning commons concept, both physically throughout campus and virtually. Under the direction of our Information Literacy Coordinator, who is cited by others in the University as an important collaborator in campus-based learning initiatives, the concept of a distributed learning commons has great potential to diffuse and infuse our learning services successfully.

Second, we are developing plans to create a Scholars Commons. An analogue to the Learning Commons for faculty and doctoral students and an extension of traditional models of reference service for scholars, the Scholars Commons will provide access to specialized equipment, a wide array of specialized content, and librarians and information technologists who will assist faculty and graduate students in an environment separate from that used by undergraduates. The concept is still being developed, but I hope that some of you will be able to visit it – physically and virtually – once it has been established. The Scholars Commons also builds on technological developments my library has made over the past decade in collaboration with computer scientists, information scientists, information technologists, and other pertinent experts on and off our campus. At present, we are developing methodologies for selecting content for institutional repositories, developing more effective OAI metadata harvesters, and developing and applying new data mining technologies. I consider this to be a very important role for my library.

All of these developments take time, and often they take longer than should or could. To be successful, we must develop ways in which to make changes relatively quickly, and I think we would be well advised to look outside of our normal frames of reference – the academy – for some new models. Academia is often characterized by the bureaucracies that stand in the way of rapid development of new services or products. In a recent report, the U.S. National Research Council warned that procrastination and inaction are dangerous courses for higher education during times of rapid technological change. It called for universities to adapt themselves to a radically changing world while protecting their most important values. Suggested strategies include developing sufficient in-house expertise to track technological trends and assess various courses of action, providing opportunities for experimentations, and enabling alliances to be formed.<sup>x</sup>

I want to share with you the development of one small service that my library has introduced this fall: a specialized toolbar for the Internet Explorer™ browser. We have a wonderful product that allows the user to search the Library's website, go directly to the website of any one of our departmental libraries, connect to our reference chat or IM service, or link directly to other services such as the catalog, interlibrary loan, an online reference collection, course reserves, RefWorks™, or several campus services, including the course management system. However, it took us the better part of a year to develop this tool for one browser type. No for-profit corporation could thrive at this pace.

So let's look briefly at how the corporate sector operates, for I think that there are some interesting models there that may be pertinent. Many companies have developed simple fast-track processes that include observation, brainstorming, rapid prototyping, refining, and implementing. Others extend their models beyond content collection towards a more selective and distributed array of services designed to provide content value to their customers. We only have to look at our users' habits to see how successful these companies have been. Many of our faculty and students turn to Amazon before using their own library catalogs to find a citation, or they start their searches on Google's home page rather than in any of our expensive data bases or even on our federated search sites. Other corporate models abound, including the extension of weblog news reading software to provide content aggregation services on the desktop, RSS feeds, services that suggest recently released materials through 'push' technologies, and portal firms that repurpose general content for local markets, to highlight just a few. We must emulate these

corporate technologies, products, and processes or develop new models of developing and implementing new services quickly. We can't continue to lag behind.

I do not want to imply that we always lag behind. In fact, the academic library sector has been aggressive in its development of institutional repositories, that ill-named capability that provides the means for a university to permanently capture its scholarly output, especially 'gray' works: conference papers, pre-prints, datasets, and other forms of scholarship that do not usually see formal publication. Thus, faculty who now post papers on their web sites will have a place that ensures their perpetual accessibility, learning objects created for instruction will be reusable, and data sets created on research grants will be at keyboard's length for being checked, used, and updated. At Illinois, we feel strongly that it is the Library's role to lead the development and implementation of this capability, and so in collaboration with the campus information technology unit and with support from our Provost, we have created IDEALS, Illinois Digital Environment for Access to Learning and Scholarship. Although we are in the early developmental stage, we have faculty lining up to ask for the service and we try to be alert to opportunities to use IDEALS to solve campus problems. When we learned recently that the service our Graduate College plans to use to enable students to deposit their theses and dissertations digitally will charge large sums for us to keep copies in IDEALS, we began planning to offer the same service to our university for much lower costs.

I know you are aware of many other good models and that you have ideas about the future that exceed mine. The opportunities are very exciting. However, with the financial pressures we face, we will have to do more than consolidate a few service points to find sufficient funds to reallocate to support these developments. My library is also examining ways to centralize core functions that are now distributed among many different locations: at present we have more than 20 service points in our Main Library alone, which not only uses more money than necessary but confuses our users no end. We have centralized information literacy coordination and preservation, and are in the process of reuniting some technical services units that were divorced more than twenty years ago. We are also working hard to find money from other sources.

Our library invests considerable resources in trying to raise money from private individuals and foundations. At present, the University is sponsoring a campaign to raise \$30 million to support three of the Library's top priorities: collections and preservation, endowing librarians' positions, and renovating or building new facilities. About one-third of my time is devoted to fund-raising, and our university system's new president has told us deans that we must spend even more time in this activity. Fifteen years ago, when I led another, smaller, research library, I was able to do much more hands-on direction than I can today. It goes without saying that as academic libraries' roles change, so do the roles of academic librarians and academic library leaders.

## **Conclusion**

I have talked about a wide range of opportunities for academic libraries to change the ways in which they carry out their roles. My coverage, of course, was far from complete, and for every idea I have offered, I am sure you have already thought of two or three others.

Before I leave you with the impression that I live in a “la-la land” environment in which it is easy to implement these changes, I want to assure you I do not. There are many barriers to our success. The more obvious ones include: lack of financial resources; local, national, and global information policies; not understanding societal trends; and the predilections of our students and future students. But, I don’t think any of these is the most serious. Remember Pogo? That cartoon character I mentioned at the start of my talk? He had another memorable and appropriate saying: “We have met the enemy and he is us.” We are our most intractable barrier to our success when we cling to our old ways, to our bibliographic apparatus, to our reluctance to think differently about what we do and how we do it, and our constant striving for perfection. If we are serious about achieving the vision OCLC painted for us, we must first overcome ourselves.

We have many choices to make about the future as we strive to make valuable content and services available to more people with less effort. Every library will take the path it thinks will best meet its mission and goals. Our choices will be dependent on a number of factors, including institutional aspirations, organizational cultures, changes in scholarly communications, new opportunities, changing values, public policies, our tolerance for risk, and our own will. None of us will make exactly the same choices, and we will come to look less and less alike, but, if we are successful, we will be more a part of our institution’s fabric – as collaborators, partners, and co-creators. We cannot do it alone, we must form strong alliances within and outside of our own institutions. But, we cannot succeed if we take no risks, stand in our own way, become our own enemies. I encourage you to break new paths and continue on this exciting adventure.

Thank you very much.

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<sup>i</sup> OCLC Online Library Computer Center. *The 2003 Environmental Scan: Pattern Recognition*. Dublin, OH, 2003.

<sup>ii</sup> “ARL Strategic Plan 2005-2009.” *ARL: A Bimonthly Report on Research Library Issues and Actions From ARL, CNI, and SPARC*. 238/239 February/April 2005, p. 2.

<sup>iii</sup> *Ibid*, p. 3.

<sup>iv</sup> <http://www.clir.org/>

<sup>v</sup> Lougee, Wendy Pradt. *Diffuse Libraries: Emergent Roles for the Research Library in the Digital Age*. Washington, DC: Council on Library and Information Resources, 2002.

<sup>vi</sup> Lenhart, Amanda et al. *Teens and Technology: Youth are Leading the Transition to a Fully Wired and Mobile Nation*. Washington, DC: Pew Internet & American Life Project, July 27, 2005.

<sup>vii</sup> *Ibid*.

<sup>viii</sup> Lougee, Wendy Pradt. *Scholarly Communication & Libraries Unbound: The Opportunity of the Commons*.” Workshop on Scholarly Communication as an Information Commons. Bloomington, IN: Indiana University, March 31-April 2, 2004.

<sup>ix</sup> Dempsey, Lorcan. “Serving Network People.” *Lorcan Dempsey’s Weblog on Libraries, Services and Networks*. July 17, 2005. <http://orweblog.oclc.org/archives/000714.html>

<sup>x</sup> National Research Council (U.S.). Panel on the Impact of Information Technology on the Future of the Research University. *Preparing for the Revolution: Information Technology and the Future of the Research University*. Washington, D.C.: National Academies Press, 2002.