

The University of Texas: Looking Forward

Research Libraries in the 21st Century

Recommendations drawn from a symposium held September 11-12, 2006
at The University of Texas.

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Background

For the University of Texas at Austin, libraries reflect the eminence of the academic programs they nurture. From the 1960s until today, the University has invested almost \$650 million in its libraries, excluding the costs of its considerable physical facilities. Across the university membership of the Association of Research Libraries (ARL) the total investment reaches forty billion dollars during that time. These steadfast, sustained investments over many decades across our great public and private universities have created a cumulative record of the significant accomplishments and other deeds of humankind that have enabled critical inquiry, fueled research, and advanced teaching and learning across the continent. Yet, as higher education itself is beginning to show signs of considerable strain, research libraries themselves are battling the disruptive effects of rapidly rising costs, the branching of disciplines, and the rise of new areas of scholarly inquiry, as well as the impact of digital technologies upon information-seeking behaviors.

In 2002, as public higher education specifically struggled with rising costs and faltering state support, James Duderstadt, president emeritus of the University of Michigan, and a host of distinguished colleagues authored the report *Preparing for the Revolution: Information Technology and the Future of the Research University*. In their report for the National Academies, the authors observed that the rapid evolution of the digital environment brought with it threats as well as opportunities. “Universities,” they said, “will have to function in a highly digital environment along with other organizations, as almost every academic function will be affected, and sometimes displaced by modern technology.”

Technology, they found, has profoundly impacted the historical advantages of *place*. An educated consumer is less compelled to travel to a particular campus and avail herself of a particular instructor. Faculty and research behave in much the same way, coming together in closely bonded collaboratories that acknowledge no geographical location. Some, such as the National Virtual Observatory—which has complemented the telescope with digital data sets—are developing entirely new methods of knowledge accumulation.

Duderstadt’s distinguished panel even allowed itself to speculate about “the end of the university, an institution that has existed for a millennium.” That scenario is possible to imagine, the panel offered, for the “...changes being induced by information technology are different because they alter the fundamental relationship between people and knowledge. Thus the technology could profoundly reshape the activities of all institutions, such as the university, whose central function is the creation, preservation, integration, transmission, or application of knowledge.”

Inasmuch as the libraries of the University of Texas, vitally associated with each of the above functions, are subject to the same forces as the larger university, the Office of the President elected in 2005 to convene a national invitational symposium on *The Research*

Library in the 21st Century. On September 11-12, 2006, some 35 national leaders from the corporate sector and higher education joined a like number of their colleagues—faculty, deans and other administrators, librarians and technologists—to respond to the charge of the *Commission of 125*, itself convened to express a vision of how the University of Texas can best serve Texas and society during the next 25 years. At the conclusion of its deliberations, the Commission declared that the path to pre-eminence among America's research universities must include continued support of its great libraries.

Symposium attendees were asked to help the University, already ranked among the top ten libraries in North America, chart a path that sustains its ascendancy toward pre-eminence, and answer the challenges of the current environment. In return, the participants could perhaps take back to their own campuses, corporations, and associations lessons that could be applied in their respective settings.

Collections of Record

As the panelists and plenary speakers observed, the primary purpose of the research library is unaffected by the disruptive forces of the current era. First and foremost the research library identifies, acquires, disseminates, and preserves the record of scholarly communication as well as all other resources needed for teaching and learning, for critical inquiry and research.

Print Resources. Importantly it was agreed, print resources—in both their broad, rich, circulating form and in their meticulously assembled and carefully curated special collections—will continue to be a defining aspect of the research library. The nine million volumes on the shelves of the University of Texas Libraries place it among the six largest in North America. *Circulating collections* in law, geological sciences, South Asia, the Middle East, architecture, fine arts, engineering and countless other disciplines, have been carefully assembled over the decades. Those collections provide instructional support for students and research support for faculty. *Special collections* are a defining characteristic of the University of Texas, with world renowned collections at the Harry Ransom Center (HRC), the Center for American History (CAH), and the Nettie Lee Benson Latin American Collection as well as several others. These collections support and encourage primary research in specialized areas and provide a distinctive identity for the institution. Almost 200,000 volumes continue to be added annually, and the print record of the twentieth century inexorably and inevitably makes its way toward archives and special collections such as the CAH and the HRC.

Further, the notion of what constitutes a collection is becoming more complex, more difficult to define. The scholarly record is no longer comprised merely of books and articles. Scholarly societies and research councils are increasingly producing scholarly research information in the form of data sets, archived listservs and blogs. Web-distributed texts may never appear in print, may employ a variety of media formats, and experiment with alternative means of publication outside of the purview of the scholarly societies and commercial publishing. Increasingly, library collections are housed not just on the local campus, but are accessible through a web of contracts for licensed digital

information, providing linkages to digital data that may reside anywhere in the world, with perpetual access ensured through trusted third party repositories.

Digital Resources. At the same time, almost to a person, the attendees agreed scholarship and critical inquiry have been fundamentally transformed by digital technology. It is essential for faculty research and student learning that the University of Texas continue to invest heavily in the rapidly expanding world of digital resources. Over the past decade there has been a fundamental shift in information-seeking behaviors of scholars. Today, online journals and other digital resources increasingly constitute the research tool of choice for faculty, especially in the sciences. Statistics on e-book use indicate that given a choice between a printed volume and its electronic counterpart, University of Texas students are *fifty times more likely* to choose the latter. Print backfiles of significant journal titles, relegated to remote storage centers, languish as scholars are increasingly comfortable with electronic counterpart versions that can be delivered directly to the scholar's own electronic desktop.

Further, the evolving technologies make possible new types of collections with their own challenges as regards acquisition, organization, discovery and access. The formats can be as simple as the Perry-Castañeda collection of approximately 10,000 digitized maps, an internationally acclaimed resource visited 100,000,000 times annually. It can be as fundamental as the digitized audio files of the Archive of Indigenous Languages of Latin America (AILLA), a concerted, collaborative effort to preserve the record of isolated, endangered, and in some cases extinct, languages native to this hemisphere. Or it can be as brilliantly sophisticated as the HRC's digitized image of the Gutenberg Bible, the fifteenth century masterpiece that can be turned page by digital page by any curious researcher anywhere in the world. Increasingly, the University of Texas is making its unique scholarly resources accessible online, overcoming the barriers of economic restraint and long distance that heretofore confronted the remote user.

But the great research libraries of the future will be those that exploit to the fullest the promises of the digital revolution. To date, five universities have been involved in massive digitization efforts with a major corporation, Google. The goal is to digitize the bulk of their collections and to make those in the public domain fully available to the public. Books under copyright protection will also be digitized in many instances, and their existence disclosed to researchers, who may then elect to obtain the book from a library or purchase copies from the publishers. The University of Texas Libraries are now in confidential negotiations to join those libraries and to contribute its collections to scholarship. Soon the digitization of millions of volumes will begin, and the riches of the Benson collections and other resources will be discoverable by and often available in digital form to scholars worldwide.

Further, forward looking libraries recognize that many publications and historical records never make their way into print, but will exist only temporally on web sites, often displaced in the blink of an eye by the next news story or governmental edict. Today, a few libraries are beginning to employ powerful web-based tools that regularly harvest web sites and pull to secure servers the relevant digital documents for permanent curation. In this manner, the history of the Katrina disaster was harvested and preserved

for the historical record. And in a similar manner, the University of Texas Libraries have identified and are harvesting from 300 ministerial web sites across Latin America, significant public domain governmental publications that otherwise could have been lost to scholarship. Systematic harvesting of the sites could yield hundreds of thousands of unique digital documents for future scholarship that otherwise may not have been available.

Disclosure, Discovery, and Curation. Over the course of the twentieth century, North America's research libraries continued the task of building the great collections of record that fuel critical inquiry and scholarly communication. With the rise of the Online Computer Library Center (OCLC) and computerized abstracting and indexing services, the discovery tools used by researchers and students finally caught up with the mounting information explosion. With each passing decade, discovery became easier and easier for scholars. Until 1994. With the advent of the World Wide Web and the exploding digital universe of information available upon it, the task of discovery assumed daunting new proportions.

In the section above, we have talked about the acquisition of digital information, either through acts of reformatting, as with the Google project, or the active harvesting of "born digital" information. But it is not enough to simply gather digital information together; it must be made accessible to scholars on campus and around the world. The universe of digital information amassed by the University of Texas and other research universities must be exposed, or *disclosed*, to powerful web crawlers or search engines. Without effective disclosure it is impossible to effectively collaborate in the digital arena; it is impossible to avoid inefficiencies and needless duplication of effort in the construction of a universally accessible digital universe.

And without effective disclosure, *discovery* is limited; without effective disclosure, the scholar has access to only a segment of the information universe. At the local level, every research library must ensure the availability of powerful discovery tools that enable practiced scholars and emerging students to navigate effectively an enormous, expanding, and wildly fragmented information universe. The University of Texas must procure, implement, and operate discovery tools that perform inquiry simply and transparently across a global array of digital information resources and repository sites.

Once disclosure and discovery are attained, another difficult task remains. For half a millennium, university libraries have performed an indispensable cultural role by carrying the printed record of human achievement across distant time. By shelving copies of that printed record across hundreds, or thousands, of libraries, the perils of fire, flood, and warfare have been largely overcome. Since the invention of the printing press, libraries—collectively and accidentally—have preserved the printed record almost intact. *Curation* in the digital arena is a markedly more difficult task.

The digital "bit" is an inherently more fragile conveyer of the human record than the printed word. Formats in which data is presented evolve; operating systems upon which access is dependent regularly disappear; storage devices on which data is warehoused have an alarmingly short life. Departmental servers may be turned off when a senior

faculty member retires—and a lifetime of work may vanish. The crux of the issue is whether research universities and their libraries must move beyond the bounds of the print warehouse or repository and collectively engage the fragile and growing digital information universe. Should the answer be decided in the affirmative, creation of a *digital information repository* is *sine qua non*. Research universities must decide collaboratively what information each will take into its local repository and what standards each will employ as it shepherds its share of the digital information universe across the millennia. As will be seen in a later section, the University of Texas has already taken its first steps to discharge its responsibilities.

Library as Place

Individual Research and Learning. Libraries as physical spaces remain important educational environments in the digital age. The libraries mean different things to different people. For some faculty and visiting scholars, the HRC, the Benson, and the Center for American History are emblematic of the University's sustained investment in the life of the mind. For the harried undergraduate burdened with a noisy apartment or messy dormitory room, the extended hour facilities across the university's libraries are an essential getaway or refuge. The branch libraries, Tarlton Law Library, and PCL continue to be inundated by students as they use collaborative spaces, electronic equipment, and quiet study nooks to maximum advantage.

Nevertheless, there are significant changes in the way libraries are being used. From *LibQUAL+* survey data, we know that undergraduates—probably for the reasons outlined above—value library space the most. Conversely, faculty everywhere rank it as the least important dimension of library service quality. The spiraling volume of digital information that the libraries make available to the faculty desktop, and the ease with which faculty are able to exchange information across the web, are the likely explanations for faculty responses. Graduate students, many of whom have access to shared or private spaces within their colleges, and like access to the digital information, fall somewhere in between the other two groups. The following are some of the considerations that must be taken into account when renovating older libraries or constructing new library space.

Collaborative Learning. The digital environment and evolving information seeking behaviors have implications for space planning and building utilization in academic libraries of the twenty-first century. Digital technologies bring with them an insatiable demand for electrical power; constantly shifting platforms for the delivery of digital information underscore the requirement for flexibility in design. Space planning with the undergraduate learner in mind seems to require design that enables interactive communication rather than the passive consumption of information. Increasingly, research libraries will need spaces that provide tools, services, and expertise in an environment that encourages social interaction.

Group Instruction. The large research library today is a complex entity. To use it effectively, to mine its resources optimally, the library user must achieve a high level of competence in information-seeking. What databases are best employed when researching

in a specific discipline? Can I search multiple databases at one time? What if I am off-campus; are my options restricted? What if our libraries do not have the item(s) I need? At the University of Texas, it is impossible to hone information literacy skills in a student body of 50,000 through traditional methods of classroom instruction. Sustaining the staffing costs for classroom instruction would prove too costly. Instead, the University must explore other solutions, such as concentrating its staffing resources in support of the signature courses in the emergent curriculum reform, and by aggressively incorporating the potentials of course management systems (Blackboard, etc.) to deliver appropriate content to each course and of interactive communication technologies (Instant Messenger, MySpace, etc.) for access to relevant subject or college librarians.

Social Interaction. Despite the changes sweeping around them in the modern digital environment, libraries as places retain their prominence on campus. The HRC stands as a regal statement of the importance the University of Texas places on the life of the mind. The Tarlton Law Library elegantly expresses the professionalism of its clientele, while PCL and the branch libraries continue to be beehives of activity and discovery. All of the libraries, including the Center for American History and the Benson, serve as venues for lectures, receptions and other events for faculty, students and the general public. PCL even boasts a perpetually busy coffee shop where students and faculty meet and confer. Such uses of libraries are likely to become more important over time.

Collection Size. The research university library is anything but paperless. The flow of printed resources continues unabated with no end in sight. At the largest research libraries, such as the University of Texas, as many as 200,000 volumes are added annually—more than three times the median collection size of North America's 3,500 universities. The annual infusion of printed materials creates a shelving demand of almost 10,000 square feet, enough to entirely fill five personal residences! Atop the annual tsunami of scholarly publication, the largest research universities also stand to inherit the twentieth century collections of newspapers, corporations, government offices, and foundations as the move to digital collections renders superfluous the local need for legacy collections. The pressures upon the Center for American History, the HRC, and the Benson are potentially enormous.

Yet, constraints and the expense of open stack libraries suggest there is little likelihood of new construction on the main campus for the foreseeable future. Indeed, while existing facilities will require on-going refurbishment and renovation, it is possible to imagine that the current square footage of existing main campus library space may never be exceeded.

Dense Storage Facilities. How, then, shall the university cope with the problem of over-capacity libraries, as is the case in almost every building? Unlike Ohio State University, now investing approximately \$100,000,000 in a new main library facility that will hold fewer books than the current antiquated facility, the University of Texas is electing to manage the space crisis with remote storage facilities, where books are densely stored in tall cubical structures at a far lower cost. The libraries are planning to build two one-million volume storage modules for approximately ten million dollars. The facility is a collaboration with Texas A&M University, and will operate with a *resources in common*

philosophy. All resources are jointly accessible by all participants, but only one copy of an individual item will be added to the warehouses. Timely completion of the proposed dense storage complex will alleviate existing space pressures here at the University and on the campuses of other participants.

The Human Dimension: Service and Expertise

As faculty costs are the single most expensive component of classroom teaching, so too are personnel costs the most costly item in research library budgets. Across all ARL libraries, personnel costs almost uniformly exceed the annual investment in resources for teaching, learning, and research. At the University of Texas, for example, in the last year for which data is available (2005), almost \$20,000,000 was spent on personnel costs while \$13,000,000 was invested in books, journals, and databases.

And as the attendees at the Symposium pointed out on several occasions, the research portfolio and expertise held by individual research libraries may be a distinguishing feature of the future research library. Deep expertise in the ranks of curators and bibliographers is required to build the comprehensive collections that define great universities. As disciplines branch, and the knowledge universe explodes, libraries will likely need to expand the corps of subject based specialists who work with faculty on research and teaching needs. Far-ranging subject competence is required to help scholars navigate and work with the entire constellation of resources. The emergence of large discipline-based datasets, for example, has revealed a need for a new breed of data scientists based in libraries to help scholars and researchers efficiently mine the burgeoning universe of information. Technicians and preservationists are needed to stabilize fragile papers and even more unstable nonprint formats such as optical and magnetic data. Information technologists are needed in greater numbers to maintain the networks and workstations and to sustain the petascale data repositories that will emerge. Far greater expertise will be required in the area of digital rights management and intellectual property. In the digital world there is a paramount need to authenticate our research and scholarship, and to achieve the precise balance between the requirements of unimpeded access and the rights of the creator and the publisher.

While there is expectation that re-engineering will allow some current library jobs to be accomplished more cost effectively through technology, it is unlikely that there will be any significant divergence of funding from the staffing side to resources. Rather, the continued branching of the disciplines, the knowledge explosion itself, and the expanding role of the information technologies in teaching and learning will mean that the pressures for more and more highly expert staff will continue unabated in the research library. The following section on the Institutional Digital Repository provides a case in point.

Information Science. To address immediate needs, there is a requirement for the limited number of information/library schools that serve the profession to address with alacrity the rapidly changing environment of research libraries – to revise curriculum, recruit the faculty, and attract students to fill the demand for new and evolving skill sets. The Information School of the University of Texas understands those imperatives and with

the help of sustainable investments can quickly begin to fill the needs of the research community. Recognizing the changing nature of librarian and information specialist skill sets, the Information School will respond as appropriate within its curriculum. Libraries themselves will recognize the need to continually broaden and deepen the expertise required there by employing a broader range of technical, legal, and behavioral professionals.

The Institutional Digital Repository

The future of research universities and libraries depends upon how well we respond to the networked world. As one of the speakers at the symposium put it, universities will be measured by how well they manage and disseminate knowledge in the digital age. Librarians must play a leadership role in this discussion at the societal level. Very clearly, *knowledge management* will become increasingly important to scholarly activity.

Data Management. Heretofore, research libraries have devoted the bulk of their resources to collecting, organizing, and preserving the corpus of scholarly and official communications as they are published and made available in various languages and formats all around the world. Those efforts have been richly complemented by the stellar archives and special collection units that collect the corpus of an artist's or scholar's work, the life's work of a statesman, or the entire history of corporations, foundations, and associations.

Now, scholars and researchers are confronted with a vastly larger information challenge. The potentially accessible digital information universe is orders of magnitude larger than the print world, characterized by what was and is a relatively finite world of the end product of scholarly research—books, journal articles, proceedings and the like. Upstream from that traditional finite set of resources there exists a vast and fragile mountain of digital information the size of which no previous generation of scholars has ever confronted. The opportunities that exist for its potential fruitful exploitation are boundless.

In the future, the success of scholars and researchers will be dependent upon the ability of each to interact with their own scholarly records. Some disciplines have already succeeded in developing and maintaining discipline-centered repositories of datasets or publications. The high energy physics resource initially developed by Paul Ginsparg at Los Alamos is a prime exemplar of the latter, where the corpus of research by scientists around the world is openly available to all in the form of electronic pre-prints. Publication in traditional formats, where it occurs, takes place subsequent to its deposit in the database. The National Virtual Observatory, mentioned at the beginning of the paper, is an example of the latter.

The Institutional Role. Relatively few disciplines, however, have succeeded in creating and sustaining discipline-based repositories that will enable research for future generations of scholars. Many important funded research projects have generated large datasets that at the end of the grant cycle and mandated archival period teeter on the brink of extinction. The life work of individual scholars or small groups of researchers reside

on servers with a finite life and stand to be lost unless the issues of curation are engaged at the institutional level.

Libraries are the obvious place for institutional digital repositories to reside, for there the responsibility for carrying information intact across deep time has been faithfully discharged for centuries. In the digital age, said one plenary session speaker, scholars will require an information environment that allows users to contribute results and to share them, to make use of intermediate artifacts in the research process, and to collect user provided data. Scholars, he added, are building workflows in a networked environment where their needs are moving from the discovery process to a concern with the disclosure and dispersal of information. Research libraries must begin moving from the idea of managing *content* and adopt the practice of managing *consumption*. It will be, as James Duderstadt affirmed, a vital partnership between librarians and the scholars whom they support.

While funding sources such as NSF and NIH are increasingly attuned to the importance of insuring that research data created through grants is preserved and shared, there are as yet no cost models that ensure petascale institutional digital repositories can be scaled across the research university community and sustained. Experience drawn from other large digital ventures certainly suggests that petascale institutional initiatives will entail significant costs. Yet, offered an executive from a major philanthropic foundation, the task of mining these huge data sets, of search and retrieval, is a formidable task that goes beyond the capabilities of the large search engines now in the marketplace. The solutions will have to be developed within the academy and its libraries.

Ultimately, the library will be shaped in response to *local* desires about how it can best interact with the worldwide publishing and scholarly communication environment. The University of Texas has taken the first step with the creation of the Texas Digital Library (TDL), designed as a federated repository operated by the four major research libraries in Texas (UT, Texas A&M, Texas Tech, and Houston) in concert with several other Texas universities. TDL envisions itself as a petascale operation whose costs are shared among the participants. It will closely monitor the work of the Digital Library Federation (of which UT is a member) to ensure interoperability with other repository developments across North America's research university community.

Looking Forward

In her concluding remarks, Betty Sue Flowers of the LBJ Presidential Library observed that administrators and developers must not fret overmuch about the level of redundant experimentation in support of durable solutions to the challenges of the digital era. As in nature itself, she observed, excess is a condition of sustainability and creativity. From her perspective as a library director, she suggested that the future of the research library may be less about acquisition, and more about collaboration.

The collaborative future, she continued, is online and interactive, facilitating new ways of learning, communicating, and playing. The vast world of content that will be generated in the interactive future ensures an active and on-going role for archives and libraries which

hold the key to access and exploitation. The administrators of the University of Texas libraries and research centers are ready to move forward with the task of engineering and sustaining the research library of the twenty first century and have already taken many of the steps necessary to ensure success. The requirements, challenges, and opportunities identified in this white paper are synopsized below.

- **Sustainability.** The move to flat-rate tuition has removed from the libraries the most powerful tool at their disposal for dealing with the rapidly inflating costs of scholarly information—the library fee. Currently, subscription and database costs inflate almost one million dollars annually at the University of Texas. Libraries must compete for those credit-hour generated funds with the colleges, which have compelling programmatic needs of their own. The constant branching of disciplines and the spawning of new academic programs further add to the difficulties of sustaining these libraries as one of the university’s pre-eminent academic programs. The University must establish a model that effectively sustains the long-term investments made in the libraries and allows them to retain their place among the world’s elite. Faculty recruitment, faculty research, and the quality of graduate students are all at risk should we fail to redress the fundamental weaknesses in the budget structure.
- **Collections of Record.** The acquisition of collections of uniqueness and distinction is both enhanced and challenged by the advent of the digital age.

Special Collections. While the paper record of past and current centuries will continue to flow into the repositories of major research universities, these repositories are also grappling with the challenges of acquiring, preserving and providing access to born-digital unique records. The materials unique to scholarship—paper and digital—that define the Center for American History, the Harry Ransom Center, and the Benson Latin American Collection must be supported in the strongest possible fashion.

Circulating Collections. In their aggregate the collections of the University of Texas Libraries, CAH, HRC, and Tarlton Law comprise nine million volumes, making it the sixth largest collection among ARL libraries. Most of the materials exist as broad, deep, and diverse collections in open stack libraries across the campus libraries. Even as traditional print materials continue to flow into the libraries at record numbers, they are being dwarfed by an influx of digital resources that is larger, more diffuse, and more expensive to acquire and maintain. For the benefit of teaching, learning and research, these vast collections of record must continue to be supported.

- **Disclosure, discovery, and curation.** Until 1975 or so, the scholarly world struggled with effective bibliographic access to the print based universe. With the advent of collaborative cataloging and the rise of computerized electronic catalogs, the academy gained intellectual control of its printed assets, and scholarship flourished. The advent of the World Wide Web in 1994 introduced a

digital information explosion that to date evades effective management, from either a discovery or preservation perspective. The leading research libraries must play a major role in harnessing and preserving this significant asset. The parent universities must recognize these as costs that are additive to the costs of the traditional resources cited above. *Those universities that harness and control the digital information resources in the disciplines will control the scholarly conversation.*

- **Space considerations.** It is possible to conceive the idea that no additional square footage may be devoted to open stack libraries on the University of Texas campus. However, continual renovation of library spaces is essential in order to fully harness the promise of the digital technologies and to respond to the evolving learning behaviors of a “born digital” generation of students. As is the case with classrooms, laboratories, and other student spaces, libraries must undergo continual upgrade and modification. Equally important is the need to quickly increase, and then steadily expand, the availability of dense, remote storage of resources on the Pickle campus. Campus libraries are full. Every year, 200,000 volumes must come out of the libraries to make way for the new year’s acquisitions. The research centers are also bulging, and are pressured to accept the paper human record of the twentieth century, organizing it and preserving it for future scholarship. *A project is now underway to construct two new storage modules with a capacity of two million volumes.*
- **The human dimension.** The impact of the digital revolution upon higher education has been profoundly felt by libraries. Many of those needs will be addressed by accredited programs such as the Information School here at the University of Texas. The Information School must be fully supported as it revamps its program to respond to the evolving needs, as it revises its curriculum, recruits the faculty, and attracts the students to fill the demand for new and evolving skill sets. For their part, library administrators must recognize the need to continually broaden and deepen the expertise required thereby employing a broader range of technical, legal, and behavioral professionals.

The administrators of the libraries and research centers of the University of Texas are indebted to their local colleagues and to counterparts from around the nation who came together here in Austin to help us craft a strategic path into the twenty first century. We would like to thank the Office of the President for enabling this conversation, and for considering the recommendations contained in this document.