Director, MIT Libraries

Academic research libraries have long been appreciated as essential university assets. For well over a century, the quality and quantity of academic library collections have defined their excellence and their value to the universities with which they are affiliated. The efficiencies and advantages afforded to faculty and students who are privileged to work in proximity to outstanding institutional libraries contributed to a view (correctly, judging by institutional rankings) that research libraries were, and continue to be, a critical component in the quality calculation of their host institutions.

Faculty and students choose higher education affiliations based at least in part on the quality of the university's library, and university administrators readily acknowledge the importance of libraries as a factor in a research-oriented institution's ability to distinguish itself both in research and education. Proximity to relevant research collections (and the services that enable their effective use) continues to contribute to productivity, educate better scholars, and increase the speed with which new knowledge is generated, shared, and attributed. This was and is a reinforcing circle of quality in which research and education are tightly coupled and in which libraries play a critically important role.

In the days before the internet, web browsers, and ubiquitous networks, a straightforward business model for libraries was predicated on the comparative advantage conveyed to institutions that could and did build substantial and credible physical research libraries. There can be no doubt that an equally sustainable business model for research libraries in the future will emerge, as in the past, as a function of the research and education strategy of their host institutions. A research library is, first and foremost, an asset of the institution that hosts it and whose mission and values it in turn supports.

The degree to which research libraries reflect the special focus of the institutions for which they have been built is vividly revealed in a published analysis of the collections of the five initial Google library partners. Of the 18 million book titles for which there are holding records in the Online Computer Library Center (OCLC) database, the five Google libraries combined held only 33 percent. And of those titles, 61 percent were held by only one of the five libraries, while an additional 20 percent were held by only two of the five. Clearly, these research libraries are not interchangeable, even before each individual library's service strategy, instructional role, and facilities distinctions have been factored into the mix.

In the future, as in the past, the value proposition that will enable research libraries to endure as a critical asset in higher education will be arrived at and agreed upon by a shared definition of the ways research libraries contribute to institutional excellence in education and research. In the 21st century, value will of course include traditional collections, but the benefits conveyed by world-class research libraries will inevitably reach well beyond such traditional distinctions. The research library of the future will proactively support interdisciplinary and interinstitutional research and education, will develop the ability to deploy information resources and services in furtherance of broad

institutional priorities (both domestic and international), and will be a key productivity and quality-of-life component in an institution's ability to attract and retain the faculty and students it seeks.

It has become fashionable to ask of all long-standing institutions (universities and their libraries included) when they will be rendered obsolete by the internet. The question is typically posed as "when" rather than "if" and comes from both predictable and surprising quarters. For universities and libraries, the question too often reflects an outdated or inaccurate understanding of the work and societal value of basic research and higher education. The complex relationships and organizational systems through which new knowledge is created; ideas, conclusions, data, and materials are shared; and discoveries are converted into educational experiences (and subsequent research) are largely invisible outside the academy.

MIT president Susan Hockfield has confronted this question by articulating a farsighted and optimistic view of MIT's future. As a research institution, she asserts, MIT has two overarching responsibilities to the nation and to humanity. The first of these responsibilities is to advance knowledge in ways that will serve humankind. The second is to educate students to be leaders of the next generation. In both these responsibilities the MIT Libraries and their new partners, Academic Media Production Services (AMPS), have critical roles to play in the life and work of the Institute.

In describing a compelling future for a research university of the caliber of MIT, President Hockfield reminds us that advancing the frontiers of knowledge is always and necessarily cumulative. For more than a century it has been the mission of the MIT Libraries to ensure that students and researchers can find, rely on, and build on previous work and to ensure the unfettered transmission of knowledge within and beyond the Institute. This obligation is substantially more complicated in the digital library environment than it was in the print environment, but a review of the systems developed and the research conducted by the MIT Libraries in AY2007 demonstrates the ability to continue to create learning and research environments customized for MIT.

From DSpace's open-source platform to rapid prototyping of beta services, from instructional innovation to rethinking the power of the network to deliver information services and resources, the creative efforts of the Libraries' staff are described in detail in the reports of the Libraries' associate directors.

President Hockfield likewise articulates a compelling future for MIT emphasizing a need to educate next-generation leaders who can integrate a range of disciplinary and critical thinking perspectives. MIT graduates must be accomplished in, and able to lead others in, environments that require competency in the realms of both "mind and hand." Here again the MIT Libraries have a mission-based responsibility to support the pursuit of truth across disciplines, across time, across modes of analysis, and across points of view.

In and through the MIT Libraries, students, scholars, and researchers will find definitive information resources organized for personal and collective productivity and supported by tools essential to investigation, exploration, and communication. In the Libraries and on the Libraries' websites, students can also find study facilities, the history of MIT, strategies for effective information seeking and evaluation, and—just as important—skilled people who are ready to encourage (and enable) discovery, reflection, and the communication skills so integral to the education of a 21st-century leader.

In AY2007, the MIT Libraries made it possible for the MIT community to explore new tools and databases, learn about geographic information systems and data navigation; obtain training on an array of bibliographic management tools; experiment with personal productivity tools; search high-quality, relevant information resources from on or off campus; learn about the complexities of archiving computer-aided design (CAD) systems; videotape an event, conference, or class; study in spaces that accommodate any mood, mode, or methodology required; request and receive needed information items; look at an early OpenCourseWare (OCW) course; browse recently received titles; mine rich historical and digital library collections; deposit and view research; and receive support and advice to retain author's rights when publishing (http://info-libraries.mit.edu/scholarly/), helping to ensure the unfettered transmission of knowledge. In AMPS, which merged with the Libraries in January 2007, the MIT community finds expertise and services to support the video capture, encoding, and delivery of classes, events, symposia, lectures, and assignments.

These library services are uniquely valuable to MIT because they reflect the Institute's stated goals of educating leaders of the next generation and advancing knowledge in ways that will serve humankind. Whereas students and faculty once found inspiration primarily in proximity to MIT's research libraries, they now find equal and additional value in the products of the Digital Library Research Group; in the distributed information resources of many genres and formats that are selected, supported, and supplied by the Libraries; and in the 24/7 customized information services the MIT Libraries make available to them whenever and wherever they need them.

Through collaborations with faculty and instructors, research labs and centers, and academic and administrative administrators, the MIT Libraries play a role on campus that far exceeds the traditional definition of guardians of existing knowledge. Nontraditional in the 19th century, the MIT Libraries of the 21st century continue to reflect the Institute's passion for discovery, determination to educate leaders for the future, and empowerment of the pursuit of knowledge for its own sake.

The following reports demonstrate a capacity within the MIT Libraries that is truly worthy of MIT's legendary students and faculty. I remain grateful to the Libraries' Visiting Committee for its wisdom and insights; to the Faculty Committee on the Library System for its interest, time, and support; to the Graduate Student Council for its commitment to our services; to the provost and our generous donors for their

willingness to support our vision; to collaborations with individual faculty; and to partnerships with the dean for undergraduate education and Information Services and Technology (IS&T) that make common cause a reality.

As always, it is the extraordinary staff of the Libraries and their affiliated organizations whose vision and energy make genuine leadership possible.

Ann J. Wolpert
Director of Libraries

More information about the MIT Libraries can be found at http://libraries.mit.edu/.

Public Services

Four years ago the MIT Libraries adopted their current mission: to create and sustain an intuitive, trusted information environment that enables learning and the advancement of knowledge at MIT and to develop strategies and systems that promote discovery and facilitate worldwide scholarly communication. Since then we have transformed the Libraries' service model to deliver the standard of quality that our core customers—faculty, students, and staff—require in a time of rapidly changing technology and expectations. Knowing our clients' needs is the key to our success. We accomplish this goal thanks to the talent and industry of the MIT Libraries' staff, who work collaboratively with faculty, students, and other departmental staff across MIT to develop innovative programs, tools, and solutions that provide the productive environment for research, teaching, and learning essential for MIT's future.

Instruction

Efforts this year have focused on maintaining the high level of engagement we have developed in working with faculty and students to educate them on the vast array of information resources available and the productivity tools associated with these resources. This remains a critical priority reinforced by the Institute's comprehensive and deliberate review of the undergraduate experience by the Task Force on the Undergraduate Educational Commons. The task force report emphasizes the importance of critical thinking and analysis and the necessity of ensuring that undergraduates understand the value of libraries and information resources and how to use them effectively. We are well positioned in this role as a result of the strong collaborations we have developed with the faculty members who teach undergraduates, including those in the Program in Writing and Humanistic Studies and initiatives enabled through the d'Arbeloff grant program.

This year we again exceeded the previous year's instructional activity, achieving an overall 8 percent increase in the number of sessions offered and a 3 percent increase in the number of participants attending these sessions.

In addition, compared to 10 years ago, we have more than doubled the number of sessions (from 201 to 416, and from 2,733 to 7,428 participants). While this is certainly good news, I believe we have reached the limit of what is achievable through traditional methods and existing staff. That is why we are exploring new techniques for delivering quality instruction that is responsive to the pace and pressure of the MIT environment. The d'Arbeloff grant awarded to the Libraries last year for our collaboration with Professor Donald Sadoway in teaching 3.091 Introduction to Solid State Chemistry has provided us with a test bed for innovation. One of the immediate results has been the development of web tutorials on key topics that enable quality information discovery, evaluation, and use. These prototypes, evaluated by students and faculty, show great promise and form the basis of a new pilot program we will be launching this fall providing a core set of short online tutorials on key information resources and tools for the entire community.

Each of the divisional libraries has now adopted an instruction plan to focus its activities, and we are in the process of putting these individual plans into a system-wide framework to ensure cohesiveness. Key to this strategy will be providing the necessary support infrastructure to maintain our efforts and developing better methods to assess the value of the program.

Table 1. Instructional Activity

Category	2006 Sessions	2006 Attendees	2007 Sessions	2007 Attendees	Change FY06/FY07: Sessions	Change FY06/FY07: Attendees
Course integrated	48	285	45	180	−6%	−37%
Course related	154	1,815	126	1,597	−18%	−12%
Independent seminar	16	201	15	173	−6%	−14%
Orientation/tour	47	2,691	59	2,471	+26%	−8%
Special event	16	1,140	38	1,733	+138%	+52%
Special workshop	102	1,063	129	1,274	+26%	+20%
Total	**383**	**7,195**	**416**	**7,428**	**+8%**	**+3%**

Outreach

A key finding from the fall 2005 survey of all faculty, students, and research staff was that awareness of library resources and services was not as high as expected. In response we have increased our efforts to promote the Libraries with these constituencies. Fortunately, the departmental liaison librarian model that underlies the Libraries' organizational structure provides a strong infrastructure for these efforts. These departmental/lab/center/subject liaisons have strong ties to their clients and typically

use departmental email lists and meetings to stay informed on departmental activities and to keep their clients informed of important library information. In particular, we focus on introducing new faculty to the wealth of library resources, services, and expertise available to them. However, undergraduates, particularly first- and second-year students, are more difficult to target for a number of reasons: their departmental affiliations have not yet developed, the decentralized MIT library system is initially foreign to their previous experience, and adapting to MIT in general can be a daunting experience, even for exceptional students.

To improve outreach to undergraduates, we developed our first-ever ad campaign. Five advertisements were developed highlighting library spaces, key tools (Barton and Vera), new tools (e.g., RSS feeds for new books, toolbar enhancements for Firefox), librarian assistance, and the 24/7 availability of resources. Each ad ran in *The Tech* multiple times during the spring term, and there were slide showings in the Infinite Corridor and poster hangings in Lobby 7. In late April, we held a series of focus groups with undergraduates to evaluate the success of the campaign. This feedback suggested that the campaign has been successful to date, and we received a number of constructive suggestions both for improving the campaign in the future and for other ways of reaching out to undergraduates. We will incorporate many of these ideas into our efforts this coming year.

Supporting Scholarly Communication

Notable this past year was the establishment of a new position: scholarly publishing and licensing consultant. Made possible by generous support from the provost, this position is designed to facilitate the use of scholarly resources—whether created by MIT authors or licensed for use by the MIT community—in a manner consistent with MIT's mission to generate, disseminate, and preserve knowledge that will help MIT and others advance knowledge and educate students. This new position provides faculty and other MIT authors with support in understanding how to retain the necessary rights to use their own research and teaching output for purposes consistent with this mission, including assistance in using the MIT copyright amendment form. It also provides support for other copyright-related issues, including the understanding of fair-use principles.

Another important responsibility of the consultant is negotiating the appropriate licensing terms for the use of online scholarly resources (e.g., journal and database subscriptions). This past year saw two important tests of MIT's commitment to fair terms for use. Last fall Hoover's, a business database, changed its terms of agreement, stipulating that MIT would be financially responsible for any activity Hoover's deemed—or even suspected—was fraudulent, putting MIT at financial risk and setting an unacceptable precedent. Following the MIT Libraries' cancellation, the higher management at Hoover's reconsidered and removed the language that would have made MIT responsible for suspected fraudulent use. Hoover's also incorporated into the contract a reasonable protocol for handling such incidents. This allowed access to be restored on terms consistent with our principles. Our consultant worked with the staff of Dewey Library to ensure that faculty and students understood our position and supported it.

An important second incident occurred in the spring when we canceled access to the Society of Automotive Engineers' (SAE) web-based database of technical papers, rejecting SAE's requirement that MIT accept the imposition of Digital Rights Management (DRM) technology, technology that severely limits use of SAE papers and imposes unnecessary burdens on readers, forcing users to download a DRM plug-in to read SAE papers. This plug-in limits use to on-screen viewing and making a single printed copy and does not work on Linux or Unix platforms. Again the consultant worked hand in hand with other library staff, this time in the Engineering and Science Libraries, to make sure that faculty, researchers, and students understood the reasons for our decision and to work out alternative methods for accessing SAE material when and if needed. Members of the user community understood and agreed with the decision to reject these terms, and their support was strong.

New Tools, Services, and Resources

This year saw the creation of a new "betas" program, http://libraries.mit.edu/help/betas/, in the MIT Libraries. Designed to allow experimentation with new technologies that make it easier to access information, these tools are released in beta form so that we can adapt and improve them based on user acceptance and feedback. They have provided us with a new ability to interact with the community and be more receptive to trying out innovative ideas quickly. Among the new tools developed:

- *LibX:* a Firefox web browser extension that adds a toolbar for quickly searching the Barton catalog, Vera, and Google Scholar and embeds links to MIT resources in Amazon, Google Scholar, and more
- *Dewey Research Advisor:* a web-based starting point for specific research questions in the fields of business, management, and economics
- *RSS Feed for New Books:* notifies users of the arrival of new books in specific subject categories in the MIT Libraries
- *Humanities Virtual Browsery:* provides RSS feeds for new titles, the ability to comment on books and discuss them with the rest of the MIT community, links to informative book reviews, information about the availability of books in the Humanities Library, and links to other books by the same author

As mentioned earlier in the section on instruction, online web tutorials were developed as prototypes for the d'Arbeloff project (3.093 Information Exploration: Becoming the Savvy Scholar, a sister course to 3.091 Introduction to Solid State Chemistry). Based on this work, a series of short web tutorials will be made available in the fall showing library users on demand how to use a variety of resources and tools.

Another important development this year was the launch of the Stellar Images tool, a collaboration between the Libraries and IS&T, previously the Stellar group within Academic Media and Production Services. The Libraries created the first collection in Dome, our new digital library system, using images from the Rotch Visual Collections. This new service, which was piloted in both the fall and the spring with the assistance of faculty in the History, Theory, and Criticism Section of the Department of Architecture, has now become a production service supported by the Libraries and IS&T.

Also notable were improvements in the area of interlibrary borrowing and document delivery. Following the installation of the interlibrary loan internet-accessible database (ILLiad) system for interlibrary borrowing requests in January 2006, this past July we implemented the rapid appraisal protocol internet database (RAPID) service. RAPID has provided greater operational efficiencies in handling requests for articles, cutting the average fill time from four days to less than a day. Together with ILLiad, which allows users to track the progress of their request, self-populates request forms, provides for the delivery of returnable items to the library of the requester's choice, and is integrated with SFX (the Libraries' web link resolver), these service improvements contributed to a 25 percent increase in interlibrary borrowing requests this year.

Table 2. Interlibrary Borrowing Requests

	2006	2007	Change FY06/FY07
Photocopies requested	8,468	12,403	+46%
Originals requested	4,090	3,450	−16%
Found at MIT	1,416	1,385	−2%
Unfilled	292	554	+90%
Total	**14,266**	**17,792**	**+25%**

We also experimented with providing desktop delivery of articles (web delivery of a PDF) from the Library Storage Annex (LSA) in lieu of delivering the physical volume for pickup at a local library. This pilot was enthusiastically received by users (more than a thousand items were delivered), and a team has been established to transform the new delivery system into a fully supported production service this coming year.

The Libraries have made a concerted effort to respond to requests for more online access to resources, including historical runs of journals. Subject selectors, working closely with faculty and researchers to identify when electronic access only is appropriate for resources, have been successful in acquiring access to more journal back files (see http://libraries.mit.edu/about/backfiles.html) with the able assistance of their colleagues in Collection Services.

New help resources have also been developed to support bibliographic software at MIT (see http://libraries.mit.edu/help/bibliography/index.html). The Libraries now provide support for RefWorks, EndNote, and Zotero, each of which offers unique features. This program—providing specialized workshops, online documentation, and license support for RefWorks—is one of our more popular offerings.

Table 3. Regular Circulation and Reserve Activity (Loans, Renewals, and Holds)

Library	2006	2007	Change FY06/FY07
Aero			
Regular	4,278	3,785	−12%
Reserves	852	787	−8%
Total	5,130	4,572	−11%
Barker			
Regular	32,229	28,541	−11%
Reserves	1,606	1,325	−17%
Total	33,835	29,866	−12%
Dewey			
Regular	43,671	36,585	−16%
Reserves	3,945	3,035	−23%
Total	47,616	39,620	−17%
Hayden			
Regular	98,953	91,284	−8%
Reserves	11,809	9,365	−21%
Total	110,762	100,649	−9%
Lewis Music			
Regular	25,731	23,789	−8%
Reserves	2,960	1,977	−33%
Total	28,691	25,766	−10%
Lindgren			
Regular	3,528	4,534	+29%
Reserves	220	420	+91%
Total	3,748	4,954	+32%
Library Storage Annex			
Regular	3,231	1,973	−39%
Reserves	N/A	N/A	N/A
Total	3,231	1,973	−39%
Rotch			
Regular	36,233	35,140	−3%
Reserves	3,444	3,006	−13%
Total	39,677	38,146	−4%
Rotch Visual Collections			
Regular	6,532	1,496	−77%
Reserves	N/A	N/A	N/A
Total	6,532	1,496	−77%
"Your Account"			
Total	143,282	147,808	+3%
Total Regular	397,668	374,935	−6%
Total Reserves	24,836	19,915	−20%
Total	**422,504**	**394,850**	**−7%**

New Competencies

A hallmark of the MIT Libraries is the staff's ability to develop new competencies to respond to customer needs. Important examples from the recent past are the geographic information system (http://libraries.mit.edu/gis/) and Social Science Data Services (http://libraries.mit.edu/guides/subjects/data/). The former is a collaboration between the Libraries and the Office of Educational Innovation and Technology within the Office of the Dean for Undergraduate Education (formerly in IS&T), and the latter is a collaboration with the Harvard-MIT Data Center. Both programs have been met with enthusiasm by their user communities and continue to grow.

This year the Engineering and Science Libraries have focused on developing a better understanding of the data needs across the wide range of disciplines in their purview. One effort that has proven very successful during the past year has concentrated on developing instruction in bioinformatics, an important collaboration with the Center for Cancer Research, the Whitehead Institute, the Broad Institute, and the Countway Medical Library at Harvard. A second effort is focused on developing an enhanced understanding of the data needs of faculty, students, and researchers across the engineering and science groupings at MIT, with the goal of increasing the Libraries' understanding of how to better support those needs.

Access

Use of the Libraries and its resources remains heavy. The increase in digital content, along with the development of better tools for providing online access to this content (e.g., Google Scholar and Stellar's e-reserves functionality), has led to a modest decline in overall circulation of printed materials and direct accesses to the Vera home page.

The changes represented in these categories are attributable to service improvements. Expanding access to historical journal content online, along with key electronic subscription packages to heavily used monographic packages (e.g., Books 24x7, Safari, and Knovel), has contributed to the lower number of regular loans. The Libraries' new program to provide free scanning support for items placed on electronic reserve in the Stellar course management system when the material falls within fair-use copyright guidelines has contributed to the 20 percent decline in printed reserve circulation.

Table 4. Unique Hosts Served by Vera Home Page, Monthly Average

	2006	2007	Change FY06/FY07
No. of hosts served	42,978	36,646	−15%

The 15 percent decline in Vera use is actually an indication of the success we have had in integrating the discovery of the Libraries' electronic resources with popular tools used by many in the community. Because of our collaboration with Google, users of Google Scholar can link directly to most of our licensed content without needing to go through Vera. The integration of Vera into the LibX toolbar has also contributed to this decline.

Table 5. Unique Hosts Served by MIT Libraries Website, Monthly Average

	2006	2007	Change FY06/FY07
No. of hosts served	143,226	149,802	+5%

While the continuing increase in use of our website indicates that our online resources and services remain popular, we need to improve our capacity to track the use of specific titles and services. Efforts are under way in this area with the initiation of the Scholarly Stats service this coming year. This new service will provide us with detailed use data for some of our most popular licensed resources. We will also begin adding Google's new analytics service to our web pages to develop a better understanding of how the community discovers our web resources and services.

Although our service model allows for easier remote access to services and resources, the role of the MIT Libraries as an important place for the community continues with nearly 700,000 visits annually. Our efforts to create comfortable physical learning environments continue despite the severe challenges we face owing to an aging and inflexible physical infrastructure.

Table 6. Library Occupancy

Library	2006	2007	Change FY06/FY07
Aero	19,615	19,538	0%
Barker	78,651	79,745	+1%
Dewey	122,798	124,254	+1%
Hayden	338,293	307,956	−9%
Institute Archives	2,570	2,655	+3%
Lewis Music	38,180	35,433	−7%
Lindgren	16,863	16,652	−1%
Library Storage Annex	193	148	−23%
Rotch	105,775	97,745	−8%
Rotch Visual Collections	N/A	N/A	N/A
Total	**722,938**	**684,126**	**−5%**

Other metrics show a mixed story of declining work associated with reshelving physical items and increases in requests from users to have physical items delivered to their library of choice and in requests for staff assistance in locating books.

The Task Force on Public Access to the Libraries was formed this past winter to review current policies regarding access to library spaces and public computing and make appropriate recommendations to ensure that these policies do not disadvantage our core constituencies. The group is in the process of finishing up its work and is expected to present final recommendations this fall. The goal is to make it easier for the Libraries to

meet our obligation to provide a respectful and conducive environment for supporting the educational and research needs of the MIT community.

Table 7. Other Key Indicators of Circulation and Reserve Activity: Print

Activity	2006	2007	Change FY06/FY07
Items processed for print reserves	9,511	5,422	–43%
In-house use of material	126,635	89,396	–29%
Reshelving loaned items	281,666	160,323	–43%
BookPage requests	1,686	1,820	+8%
Book searches	5,013	6,921	+38%
Library Storage Annex requests	9,148	8,822	–4%

Reference and Help

Providing assistance to the community when needed is a basic service that the Libraries fulfill at a consistently high level. Our librarians and other staff possess incredible depth and breadth of expertise in the discovery of information along with great knowledge of MIT and its overall service environment. When asked to rate their level of satisfaction with more than two dozen services provided by the Libraries in the fall of 2005, members of the community said they were most satisfied with the assistance they received from staff. Over the past few years, we have evolved our help model to make it more effective and efficient, developing the "Ask Us!" online reference service (http://libraries.mit.edu/ask-us/). While there has been a decline during the past decade in reference requests as a result of our success in developing more intuitive discovery systems, the reference requests we do receive have grown in their complexity. And, surprisingly, this year questions of a nontraditional library reference nature grew, driving up total help requests five percent.

Table 8. Help Requests (Reference and Other)

	2006	2007	Change FY06/FY07
Reference questions at public service desks	21,913	18,551	–15%
Reference questions away from public service desks	12,311	11,363	–8%
Total reference questions	**34,224**	**29,914**	**–13%**
Other help questions at public service desks	16,642	23,318	+40%
Total help requests	**50,866**	**53,232**	**+5%**

Facilities Improvements

With the decision not to include Dewey Library in the new Sloan expansion, we were able to move forward with much-needed renovations to Dewey's existing space thanks to funding from the Committee for the Review of Space Planning. The old entrance was replaced with a new design that vastly improved security and the library's book drop. The service desk was renovated and much-needed additional space for circulation staff

was created. The public computing space was improved and new furniture purchased, and a reading lounge was created to serve as a new welcoming area. More of the wood carrels, tables, and chairs were refinished. These changes have been met with great approval by users and staff.

In Hayden Library, both the Humanities and Science libraries improved user spaces. Humanities purchased new furniture to improve and expand its popular browsery collections in the second-floor reading room, while Science created a new informal reading lounge on the first floor and expanded high-use public computing space.

Barker Library transformed its outdated video room into an attractive multipurpose media suite, which can be used for group viewing of a wide range of media as well as for small group instruction and team meetings.

Rotch Library began a comprehensive review of its space for staff, its reference collection, and special-format items (e.g., slides, maps, and pamphlets). This planning exercise is a critical step forward in the integration of the operations of Rotch and its branch, the Visual Collections.

Progress in developing an approved plan for a new Engineering, Science, and Humanities Library complex was slow but steady. The use of Walker Memorial was explored and rejected. Current scenario planning is looking at how automated high-density underground shelving might be incorporated into design options.

Significant time and effort were devoted to working with the MIT Police to develop strategies to make the library facilities less vulnerable to theft and (infrequent) improper behavior from library users outside the MIT community. New security and reporting measures were put into place, and awareness was raised to minimize either type of occurrence.

Organizational Changes

Public Services reorganized its structure for cross-departmental work by redefining its committee structure in a manner that more accurately reflects the transformation in library work that is occurring as we move into an increasingly digital environment. This new structure is off to a solid start with groups focused on service integration, client outreach, access to collections, and the synergies between instruction and reference.

In January the Institute reorganized its structure for academic computing support, asking the Libraries to take responsibility for media production and distance education programs within AMPS. In addition, we were asked to work with IS&T and the new Office of Educational Innovation and Technology (OEIT) within the Office of the Dean for Undergraduate Education to oversee Academic Computing Coordination (ACCORD) across the MIT campus.

The Libraries continued their major effort to reduce the time spent managing print collections responsibly in order to devote more staff and effort to support digital resources. Last fall a project team was formed to develop an implementation plan based

on the report provided by R2 Consulting. While much work remains to better rationalize our distribution of effort supporting digital and print resources, substantial progress was made this year in several areas.

- Guidelines and criteria for eliminating the receipt of printed journals when online versions are available were developed and adopted.
- Processes for handling the receipt of printed books and journals were streamlined.
- Routines for handling unfulfilled orders, including claiming and binding decisions, were reviewed and improved.
- A new procedure for cataloging items with no available metadata was approved and put in place for the coming year. This will eliminate the problematic "pre-cat" collections in the Libraries, making these items more easily accessible.

Work during the upcoming year will focus on a comprehensive review of the approval plan used to purchase monographs, an analysis of the level of cataloging required for items acquired by the Libraries, and a review of options to diminish the time required to make acquired items available on the shelves for faculty, students, and staff.

The Coming Year

Our efforts going forward will build on the tremendous momentum we have created over the past few years in improving services and resources for faculty, students, and staff. Further improvements in access are expected both in the desktop delivery of articles from the LSA directly to users and in the ability for users to request books from the collection of any MIT library to be picked up at the library location of their choice. As part of the beta program, we will offer cross-database searching for the first time, allowing users to search Barton, Google Scholar, and some of our core licensed databases (e.g., Web of Knowledge, Proquest, and Compendex) at the same time. We also expect to experiment with the OCLC's WorldCat Local initiative, which will allow easier discovery of resources at other institutions and attractive features such as faceted browsing of search results. Along with the rollout of web-based tutorials, we are also planning to install video capture and encoding technology in the Digital Instruction Resource Center (DIRC), the Libraries' classroom. This should broaden and improve the reach of the instruction program. We will continue our planning efforts to improve facilities. Work with IS&T and OEIT under the ACCORD framework will be an important priority for improving the academic computing infrastructure for faculty and students. Finally, we will continue to invest in the development of library staff, our most precious resource.

Steve Gass
Associate Director for Public Services

Collection Services

The activities described below reflect the highlights of the past year's accomplishments by staff members in Collection Services, composed of four departments: Acquisitions and Licensing Services, Cataloging and Metadata Services, Collection Management Services, and the Institute Archives and Special Collections.

Acquiring Information Resources

Acquisitions Highlights

The Libraries purchased 23,000 tangible books this year through a combination of single orders, approval plans, and standing orders for books in series. We also added 3,400 books through our Gifts Program, the most significant being a gift of 900 fiction titles from Michael Bronski. We have purchased collections of books in electronic form for many years, but this year for the first time we ordered more individual e-book titles and e-reference sources. The number of vendors capable of EDI (electronic data interchange) invoicing was expanded, and many subject specialists began to use an electronic selection tool with our primary book supplier. We continued to purchase many print journal subscriptions and have standing order arrangements with organizations for their printed publications, but 43 percent of subscription titles are now electronic and 54 percent of the total serials budget is being spent on electronic versions.

Acquisition of administrative records in the Institute Archives included significant additions to existing sets from the Office of Sponsored Research, the Office of the Dean of the School of Humanities, Arts, and Social Sciences, and the Office of the Vice President for Research. New programs represented include the Office of Study Abroad and Campus Activities Complex Talbot House. A total of 618 cubic feet of administrative records from 28 offices were received.

New faculty manuscript collections were acquired from several individuals: William Schreiber (information on the Advanced Television Research Program), Vernon Ingram (early research on sickle-cell anemia), James W. Driscoll (work on the Scanlon Project), and Lotte Bailyn (study of the workplace). Materials were added to existing collections of previous faculty donors: Douglas Ross, Arthur Steinberg, and Laurence Young, as well as donations for the Arthur D. Little Inc., collection. Manuscript collections from 18 donors totaled 154 cubic feet.

Transition from Print to Electronic Collections

The MIT Libraries have been in a gradual transition from print to electronic collections for several years. User demand for online resources in every discipline has grown as the availability of published scholarly output in online form has increased. This year we took steps to actively move the transition forward more quickly through collection development decisions as well as operational changes.

We continued to subscribe to print plus electronic because for many years print was the only guaranteed archive available. The recent launch of the trusted digital repository Portico allowed us to reconsider that policy. We became a library member of Portico in July 2006. This electronic archiving service has proven to be of great interest to many significant publishers that have joined in the last year. We defined a process to review dual-format titles from member publishers for potential cancellation of print copies, beginning with Elsevier. We considered more than 400 subscribed titles, canceling 96 percent of our print Elsevier subscriptions effective January 2007.

One of the top requests from the 2005 Library Services Survey was to expand the historic depth of our online collection by providing more electronic access to older journals. Although we added a number of journal back runs in the past, the high pricing remained a barrier. Using the savings generated by canceling Elsevier print subscriptions, we created a fund designated to purchase back files of journal content. Through this strategy, we were able to purchase six Elsevier subject back files as well as selected other publisher back files. We will continue to add retrospective content over the next few years by reviewing print subscriptions from other Portico publishers as they begin depositing their content.

The purchase of subject collections added online back runs for approximately 650 Elsevier titles in the areas of computer science, engineering and technology, high energy/nuclear physics and astronomy, materials science, mathematics, and neuroscience, as well as several JSTOR collections of journals: Arts and Sciences Complement, Arts and Sciences V, and Ecology and Botany.

Selected individual-title back files were also added:

- *Angewandte Chemie*, 1962–1997
- *Nature*, 1950–1970
- *Journal of Fluid Mechanics*, 1956–1996
- Proquest Historical Newspapers: *Atlanta Constitution*, 1868–1929; *Chicago Tribune*, 1849–1985; and *Los Angeles Times*, 1881–1985
- *Locus* (Society for Industrial and Applied Mathematics), 1952–1996
- *Times Literary Supplement*, Centenary Archive

Operational Change

In June 2006, R2 Consulting delivered a report following a review and analysis of our workflows supporting print collections. Using R2's report and recommendations as a blueprint, we defined a systematic approach to identify ways to streamline our operations and move us toward a future with fewer printed materials. An implementation team examined options and worked with staff across the Libraries to develop the implementation plan for improving print processes and reducing our staffing effort over time. Some changes have already occurred; more will be implemented in the next year.

Emerging Focus on Energy

To address the campus-wide focus on MIT's Energy Initiative, a subgroup of the Collections Management Group surveyed our existing collections to determine strengths and identify subject areas that will require more support. In FY2008, we intend to increase our energy-related resources with the assistance of funds allocated by the provost. Our choices will be informed by a growing list of titles requested by faculty and graduate students as well as resources in energy-related fields identified by our subject specialists. Because the Energy Initiative addresses problems in a wide spectrum of areas, our collections similarly must support a broad range of interests.

Access to Information Resources

Improved Access to Collections

Access to the Libraries' collections takes many forms. Several units within Collection Services create metadata to identify items within our collections or tools to facilitate access to collections. A number of different efforts were made this year to improve bibliographic access to specialized collections, as well as to enhance access to underutilized materials.

The Cataloging and Metadata Services (CAMS) staff initiated changes to the indexing of records within Barton, the online catalog, to improve the sorting of search results. Sources of bibliographic records were expanded by outsourcing projects with new vendors. Working with external vendors, CAMS staff managed projects to catalog foreign language materials for which we have no in-house expertise. We also found a solution to improving access to an important but largely inaccessible historic collection of industrial relations materials, creating digital bibliographic records by scanning typed cards. These new records are being matched to physical volumes and loaded into Barton. By partnering with staff in Rotch Library, CAMS organized a pilot project for cataloging a collection of Boston maps. Workshops in cataloging visual images were held for both CAMS and Rotch staff.

A study was conducted to evaluate the costs and benefits of the historic practice of locally tailoring a portion of the call number for works by and about literary authors, artists, and architects. This practice groups works together to enhance shelf browsing. The alternative is to accept call numbers assigned by the Library of Congress as we do for most other materials. A task group from CAMS, Humanities, and Rotch investigated options, sampled user opinions, and recommended that Library of Congress call numbers be accepted from now on for this material. To preserve shelf browsing for humanities disciplines, there will be a conversion of existing nonstandard call numbers to match the new system. In Rotch, where materials were already split by artist's medium, it was agreed that no conversion of the existing collection was necessary.

As part of the R2 implementation, CAMS staff participated in an exploration of ways to eliminate the separate precataloged books collection in each library. In FY2008, staff will develop a workflow that will allow us to discontinue the practice of sending uncataloged materials to the divisional and branch libraries.

Some of the primary tools for providing access to archival collections are finding aids to specific collections and virtual exhibits via the Institute Archives and Special Collections website. As an example, this year the Institute Archives staff made available digital finding aids for the papers of Roman Jakobson and the records of Arthur D. Little Inc. Web exhibits were created for the 55th reunion of the Class of 1951, "Student Life: Then and Now," as well as for Arthur D. Little, complementing the newly processed collection of business records. A grant from the J. William Brotherton Jr. Foundation provided funds to assist with the conservation of and improved access to the William Barton Rogers papers. One hundred letters were selected for conservation treatment, and the existing finding aid was encoded to provide digital access via the Archives website. Work on this collection will be completed in FY2008.

Enhanced Article Delivery

An important step in improving access to print-only journal articles stored off site was a pilot project conducted this winter to test a new service that will provide free delivery of digital copies of article-length resources from these stored collections to MIT faculty, students, and staff. Beginning in November 2006 the Library Storage Annex staff, assisted by Document Services staff, explored the technical, staffing, and workflow requirements of this type of service. The user response was very positive, and we are now ready to apply that learning in the rollout of a full-scale service in 2008 with increased scanning capability and desktop delivery of content.

Library Management System Changes

In summer and fall 2006 the Ex Libris library management software, Aleph, was upgraded to Version 18. This upgrade offered a number of small enhancements to operational tasks as well as some improvements to the online public catalog. More staff time and effort have been invested over the last two years in codevelopment and testing of another Ex Libris product, Verde, an electronic resources management system. Verde 2.0 was tested during FY2007 and found to be acceptable, with a few outstanding issues that are being resolved by Ex Libris. We anticipate implementation during FY2008 to replace the operational functions of our locally developed management tool, Vera. The public display portion of Vera is also to be replaced with a locally enhanced interface utilizing two other Ex Libris products, Metalib and SFX. The new interface will serve as a discovery and display system for both e-journals and online databases.

The Institute Archives staff began testing an open-source archives management system, the Archivist's Toolkit. This addresses a long-unmet need within the archives community for a standardized tool for collection management and description. There is great interest in the project to test this product and to evaluate its usefulness; testing will continue into the next fiscal year when a final recommendation will be made.

Preservation of Collections

Another aspect of increasing access to collections is the preservation of our physical collections, the work that is coordinated and performed by the staff of Preservation Services. After filling four vacancies during the past year, the unit was fully staffed by December 2006. Now at full strength, this reinvigorated unit has been engaged

in training, reorganization, and team building. New activities included disaster preparedness planning and training, outreach and education of staff, and participation in R2-related workflow changes. Conservation efforts included condition and treatment assessment of the Vail balloon prints and, as mentioned, the conservation of 100 William Barton Rogers letters, funded by a grant from the Brotherton Foundation.

Community Outreach and Development

The Institute Archives serve a vital function within the MIT community by providing reference assistance and specialized information to a broad range of campus offices regarding the collection of administrative records and faculty manuscripts. Through outreach and instruction, and with the help of several faculty members, a growing number of students became aware of the use of archival and primary resources as a complement to their classroom work.

Records Management

The Archives staff worked with manuscript donors and administrative officers on records management and potential donations and transfers. More than 100 contacts were made, and Archives continued to be involved in a variety of complex access and intellectual property issues.

The Institute archivist and the Institute auditor met regularly throughout the year to discuss MIT's enterprise-wide records management needs and concerns. The primary role of the Archives continued to be consulting with offices on records review, establishing their functionality and long-term value, creating or updating the records schedules, and advising on creating in-office records management procedures. In the course of the multiyear effort with MIT's Environment, Health, and Safety Office, staff worked on a standard records management operating procedures document intended for distribution to all departments, laboratories, and centers in the future.

Reference Service and Research Use of Archival Collections

The Institute Archives continue to experience steady use by MIT community members as well as numerous external scholars seeking information from both administrative records and a broad range of manuscript collections. Some of the most frequent users of the Archives collections were MIT administrative offices, with requests ranging from information about specific MIT figures to legal questions and historical facts. The most heavily used records were from the President's Office over the span of MIT's existence, followed by the records of the deans of the schools and several specific departments. In all, materials from 136 different archival administrative collections were examined. Researchers from outside MIT also made extensive use of the Archives' resources, consulting 130 manuscript collections over the past year.

Outreach efforts included tours for alumni groups, donors, class groups, development staff, and library committees as well as slide shows, exhibits, and formal presentations. As a member of the Institute-wide planning group for the MIT 150th anniversary in 2011, the Institute archivist has been involved in one of the earliest projects: gathering oral histories from notable MIT personalities. Another contribution to the 150th

anniversary initiative is the growing research assistance provided to several authors who have begun writing two separate books related to MIT's history.

Space Improvements

The Libraries benefited from several much-needed space improvements this year. With funding provided by the Committee for the Review of Space Planning (CRSP), the first floor of the Library Storage Annex gained a dramatic boost in quality and usability of space through the installation of compact shelving (donated by the departing Burndy Library). The thorough cleaning, scraping, and repainting of the first-floor walls, ceiling, and support columns significantly raised the standard of this space for housing library materials. Next fiscal year will see replacement and reconfiguring of the shelving on the fourth floor to accommodate journal volumes available only in print for easy retrieval or article scanning.

Through the generosity of several donors, a state-of-the-art exhibit gallery was constructed in space adjoining the Institute Archives. A Libraries staff team worked diligently with the architect, contractor, and MIT Facilities staff to address the challenges presented by the space, the needs, and the budget. The new exhibit space is scheduled to open in fall 2007. This will provide for the first time a secure, climate-controlled space for the MIT Libraries to present exhibits demonstrating the strength and depth of the Libraries' archival and book collections in a way that reflects sound stewardship of the valuable materials entrusted to us.

Digital Library Infrastructure and Projects

One of the most exciting developments this year has been the foundation of the MIT Libraries' Digital Collection infrastructure. Begun with a pilot to convert architecture teaching images from analog to digital, deliberations have continued about how best to expand the infrastructure, how to focus the identification of the next appropriate collections, and, most important, how to move beyond the pilot into more mainstream activity. Although we are still very much at the beginning, the demands for this kind of service are many. We will ultimately need not only to create the technical infrastructure to store and serve born digital materials from MIT and outside publishers but also to develop the policies and procedures for determining what from our existing print collections might warrant digitization—whether it is unique, exists in a fragile medium, or is deemed by users too difficult to use in print. Many paths may lead to expanding our ability to provide members of our user community whatever digital materials they need, regardless of whether these materials are commercially published or locally identified as significant and appropriate for digitization.

Work on several projects this year has helped us begin to form ideas about the possibilities for digital collections; funds provided by Thomas F. Peterson Jr. (1957) will allow us to conserve and digitize 1,200 printed items related to ballooning from the Vail Collection. This effort is currently in the project planning stage.

The Planning for E-Thesis Enhancement (PETE) project to develop a user-friendly and sustainable system for submission of electronic theses was completed this year. The project manager gathered data from faculty, graduate students, graduate administrators,

and Libraries staff to create specifications for online e-thesis submission. The final report and recommendations will be reviewed in summer 2007.

Conclusion

Collection Services staff have worked collaboratively with colleagues across the Libraries, around MIT, and beyond to meet the daily challenges of building, managing, and servicing the Libraries' collections in all their forms. Their work contributed significantly to meeting the following Collection Services goals:

- To support MIT's teaching and research programs with critical and necessary information resources
- To provide information for current users in formats that best serve their needs
- To ensure access to the retrospective research record for future students, faculty, and researchers
- To move deliberately from primarily print-based collections to a future of information resources in digital form

It has been both a privilege and a pleasure this year to work with such creative and dedicated staff members who proactively endeavor to support the missions of MIT and the MIT Libraries.

Marilyn G. McSweeney
Acting Associate Director for Collection Services

Administrative Services

Administrative Services, whose primary role is to maintain the operational infrastructure of the Libraries, accomplished an impressive number of initiatives designed to improve administrative processes and to make the most effective use of the resources allocated to the Libraries by the Institute. In areas of space, finance, and human resources, there were ample opportunities to improve the library system, ultimately adding value to its support of MIT's teaching and research. The Institute strongly supported the Libraries in all three of these areas—enhancing critical library spaces, providing continued budgetary support for key information resources and programs, and offering a renewed commitment to human resources practices that address important aspects of staffing.

A significant and broad-ranging organizational change within the Institute had considerable impact on the Libraries in FY2007: the report to the provost from the ad hoc committee for academic computing organization review recommended that portions of Academic Media Production Services be moved to the domain of the Libraries. The two units of AMPS that joined the Libraries on January 1 were MIT Video Productions and

Distance Education Acquisition and Delivery. These two groups comprise just under 20 staff and operate on a cost-recovery business model. Their physical location is dispersed over three buildings: NE48, which is leased space in Technology Square, houses most of the Video Productions and central administrative staff; Building 9 houses a television studio, the master control room for Distance Education classrooms, and the encoding facility; and Building 35 is where the Distance Education staff have their office space. The administrative requirements of implementing an organizational change such as this—as with all the various aspects of the academic computing reorganization—have been significant. We expect to continue to incorporate the important work and activities of AMPS into the Libraries' organization over the course of the next year.

Budget and Finance

Budget Support

FY2007 marked the second year of a return to more traditional budget allocations following the constricted years of FY2004 and FY2005. In addition to fully funding serials' inflation as a base addition to the budget, the provost responded to numerous other library requests by allocating a substantial amount in nonbase discretionary funds, allowing flexibility to prioritize needs over the course of the year and apply resources where and when they could be used most effectively. The top priority in this category was the development of an image tool for the School of Architecture and Planning, a long-standing need voiced by faculty and librarians alike. Discretionary funds were also targeted toward an initiative to deliver journal articles to student and faculty desktops, to aspects of our digital library infrastructure, and to disaster preparedness for library enterprise-wide servers. A substantial portion of these discretionary funds earmarked for digital library infrastructure is being carried forward to FY2008 in order to take advantage of the most rational project sequencing. In addition to providing serials inflation and discretionary funds, the provost also responded to our request for support to the faculty in the area of scholarly communications. A three-year commitment for a half-time staff position was made, and the results of that additional resource have already been acknowledged very positively by the faculty. The Libraries are deeply grateful for the level of support demonstrated by the Institute's budget commitment.

Other Budget and Finance Topics

- *Rebalancing:* This key component of the Institute's strategy for long-term financial sustainability—set to be implemented in FY2008 but planned in detail in FY2007—will affect the Libraries primarily in the area of monograph purchasing, to which the majority of our endowed funds are restricted. In most subject areas, rebalancing was easy to accomplish because general funds are combined with endowed funds to create the total budget allocation. In only a few cases were restrictions and circumstances such that we could not accomplish the necessary rebalancing, and those were small dollar funds. The Aga Khan fund for the study of Islamic architecture is the Libraries' largest endowment, supporting collections, staff, and operations for the entire program. Because there are no corresponding general funds, it was necessary to identify indirect support for the program, which is currently paid for by general funds. In the end, after

considerable study and reassurances to the collection managers on the staff, the Libraries were able to accomplish 97 percent of their rebalancing goal.

- *Audit of collections procurement:* The Audit Division carried out a periodic examination of the Libraries in FY2007, this time focusing on our materials procurement processes. Results were reassuring, with only two suggestions for minor improvement of controls. The report noted that the "core procurement processes and activities within the MIT Libraries are functioning as designed and provide a good control structure."
- *Completion of transition to SAP Payroll system:* The first year of the new SAP Payroll system was successful in that the system further automated and improved several key processes. While continuing to maintain central oversight and coordination of the weekly payroll process, the Libraries used the new system implementation as an opportunity to delegate more responsibility at the local level for timesheet approval, as is appropriate under audit requirements. New processes were also put into place and successfully carried out for salary certification.
- *Sponsored research staff vacation tracking:* The Libraries' payroll team reviewed the process for tracking vacations and recently implemented steps to ensure adequate tracking and use of vacation leave by sponsored research staff.
- *Online Computer Library Center services through the Boston Library Consortium:* Last July the MIT Libraries began purchasing OCLC services (cataloging and interlibrary loan utilities, as well as some electronic resources) through the Boston Library Consortium. We formerly purchased these services through NELINET, a regional affiliate of OCLC. The move to the Boston Library Consortium has been marked by significant improvement in terms of customer support and financial transactions.
- *Administrative assistant/branch assistant group formed:* All administrative and branch assistants in the Libraries were asked to join a new support group formed by Administrative Services in FY2007, the primary purpose of which is to discuss and provide training in the Institute's administrative systems and practices. Each of these bimonthly forums highlights a particular topic (e.g., travel, payroll, account reconciliation, procurement) and provides the latest information on how the process under discussion should be carried out at the local department or branch level.
- *Aleph upgrade from Version 16 to Version 18:* This upgrade, implemented in October 2006, resulted in relatively minor changes to the accounting features of the Integrated Library System.
- *Server support costs:* IS&T continued to stabilize its server support pricing model, reflecting substantial improvement in affordability and predictability for "captured market" customers such as the Libraries.
- *Cost analysis:* The senior financial analyst in AMPS has begun work on two cost analyses for the Libraries, one on photocopying and a second on DSpace storage.

Human Resources

Performance Review Process

An updated process for performance review was put into place in summer 2006, affecting administrative and support staff. This was the first update in at least two decades. Following the new salary benchmark and salary review processes implemented in FY2006, revision of forms and of the timetable for performance reviews was a natural follow-on project. There are two key features of the new process: timing and content.

First, in the past all support staff performance reviews were carried out in December and January, immediately preceding the support staff salary review, which occurs in late January. Administrative staff performance reviews were scheduled throughout the year on the six-month anniversary of the staff member's original appointment date, bearing no particular timing relationship to the administrative staff salary review, which occurs in April. The fact that many administrative staff performance reviews did not immediately precede the administrative staff salary review was a disadvantage from the standpoint of creating a strong connection between annual performance review and the merit ranking that guides the salary review. The new process is designed to strengthen the connection in the administrative staff by grouping all performance reviews into the months immediately preceding the salary review, as was already the case with the support staff. Hence, the following schedule has been put into place: support staff complete their performance reviews in the months of October, November, and December, followed by their salary review in January. Administrative staff complete their performance reviews in January, February, and March, followed by their salary review in April. Although this had the effect of compressing administrative staff performance reviews into just three months—whereas they had formerly been spread over 12 months—the closer connection to the salary review was determined to be more important. Because only one cycle has been completed using this schedule, it is too early to predict its ultimate outcome; however, early signs have been positive.

Second, in terms of content, many of the criticisms of the old performance review process had to do with the criteria that were prescribed by the forms, which has very little room for alternatives. Therefore, much of our revision effort went into creating forms that allow more flexibility in applying the particular criteria supervisors believe are meaningful and appropriate at a particular point in the career of a staff member. There are also more explicit opportunities for employees to call attention to their needs for development from their supervisor or from the Libraries.

Staffing and Recruitment

The Libraries' recruitment program was moderately active in FY2007. Ten administrative staff positions were filled, representing a slight decrease in recruitment activities from the previous year. Only six positions were filled as a result of the serious search process, which is somewhat unusual for the Libraries. Four searches were waived. In two of these cases candidates within the organization who were highly qualified and whom we wanted to retain were appointed to the positions. To fill the endowed conservator vacancy, a highly respected and qualified expert in the field of conservation was

recruited and hired. Finally, the traditional search process was waived and targeted recruitment strategies were used to fill the position of executive director for the DSpace Consortium, a critical position with unique qualifications and experience requirements.

Interestingly, only half of the Libraries' 10 administrative staff vacancies in FY2007 were librarian vacancies, demonstrating the changing landscape of libraries. Two of the remaining five DSpace positions—product manager and DSpace Consortium executive director. Two positions were technology-focused, with responsibilities for programming, domain management, and desktop support. The remaining appointment was a circulation supervisor position, which, while filled through the serious search process, was filled by one of the Libraries' own support staff members.

There was no recruitment activity among the sponsored research staff in FY2007.

While there was a decrease in recruitment activity involving administrative staff and sponsored research staff, there was a significant increase in support staff recruitment. A total of 25 positions were filled in FY2007, approximately 25 percent of the support staff. This represents a 45 percent increase from FY2006 and more than a 60 percent increase from FY2005. Ten of the positions were term positions of one to three years in duration, enabling the Libraries to assign staff resources more effectively as priorities and services shift and evolve. The majority of newly filled support staff positions were library assistant positions, with just two administrative assistants and one computer support assistant appointed.

Applicant pools for support staff positions remain strong, with a significant number of applicants possessing solid library experience. In many cases, successful candidates were enrolled or planned to enroll in library school, which supports the value placed by the Libraries, as well as potential employees, on the MIT tuition assistance benefit. One support staff recruit was a former MITemps program worker in the Libraries, and two new hires came from elsewhere at the Institute.

The MITemps program continues to be a valuable resource that enables the Libraries to maintain their standard of high-quality service and to carry out short-term projects in the face of staff vacancies and student recruitment difficulties. In FY2007, the Libraries employed about one dozen "associates" through the MITemps program as library assistants as well as librarians.

In response to the ever-present challenge to find librarians with sci-tech backgrounds, the MIT Libraries took a creative and direct approach to "growing our own." With the departure of the physics librarian, the opportunity arose to use the head count to create an opportunity for a highly qualified library support staff member who is an MIT alumnus with a strong interest in the library profession. The three-year position of library liaison for physics was created to be mutually beneficial: the Libraries and the user community will benefit from this person's background in math and physics, and he will benefit from the Libraries' and MIT's support of his library degree. This is a unique opportunity for the Libraries to fill a critical void in the organization as well as

the library profession and for a support staff member and MIT graduate to gain valuable preprofessional and professional-level experience in the MIT Libraries environment.

For the first time in the Libraries' history, we engaged the services of a search firm in FY2007 to fill the vacated position of associate director for collection services. The position, now retitled associate director for information resources, merges within one directorate the acquisition and management of information resources with the processes and systems that support and promote their accessibility. We anticipated that the unique scope of this position, coupled with the critical position it plays within the Libraries' senior administration, would pose particular recruiting challenges and warrant aggressive and concentrated strategies for which we did not have the resources. The firm of Isaacson, Miller was retained to facilitate this search, which is ongoing.

Affirmative Action and Diversity

Despite our focused efforts to create a more diverse workforce, none of the appointments to the administrative staff in FY2007 were underrepresented minorities. With the departure of one minority staff member early in the year, the administrative staff percentage dropped to 8 percent. Minority representation among the support staff has consistently been and remains slightly higher at 10 percent.

In FY2007, approximately 15 percent of all applicants for administrative staff positions were identified as possible underrepresented minorities. This is a slight decrease from last year but still a significant percentage relative to previous years. Unfortunately, half of these minority applicants did not meet the basic education or experience qualifications of the positions for which they applied. Although we did not find a successful candidate in the remaining half, we did conduct telephone screenings with these 12 candidates to give us a better understanding of their qualifications and to establish connections with them for possible future consideration. Of the 12, only two met the basic job qualifications of the positions for which they applied and were brought to campus for full interviews. In the end, however, the successful candidates had both the basic and the preferred qualifications.

Through our increased efforts to learn more about applicants who may be underrepresented minorities, we have become acquainted with several individuals whom we would like to recruit to the MIT Libraries in the future. In particular, we interviewed a candidate for a nonlibrarian supervisor position who is an underrepresented minority and who we believe could be successful in another type of position in the organization. Although he did not have the level of experience required for the open position, we believe that the MIT Libraries would be an excellent environment for him to develop his skill base and to support his interest in librarianship as a profession. We have maintained contact with this candidate and hope to find a place for him on the Libraries' support staff, where he can take advantage of the numerous experiences and development opportunities that exist within our organization. MIT's tuition assistance benefit will be an attraction to employment here as well.

It was learned after the close of one of our librarian searches that our candidate pool included an underrepresented minority. We are on the lookout for positions within our

organization that match her qualifications, with the hope that we may be able to recruit her in the future.

The Libraries also committed resources to development opportunities for minority librarians currently on staff. Our encouragement and nomination support resulted in the acceptance of a Librarian I into the Leadership and Career Development Program (LCDP) of the Association of Research Libraries (ARL). The LCDP is an 18-month program designed to prepare midcareer librarians from underrepresented racial and ethnic groups to take on increasingly demanding leadership roles in ARL libraries. Funding for this librarian's participation (between $8,000 and $10,000) covers tuition, travel, meeting registrations, and so forth. This is an exciting opportunity for the librarian to develop leadership skills and to learn more about the research library environment. Beyond our support of this individual, this also represents a rare opportunity for the MIT Libraries to support ARL's initiative to address the needs of research libraries as a whole for a more diverse professional workforce.

Travel funding was provided to one of our librarians for participation in the Joint Conference of Librarians of Color. Again, this was a welcome opportunity for the MIT Libraries to support a librarian in her own growth and development and as she contributes to discussions surrounding diversity issues and initiatives in the profession.

Finally, the agenda for June's Library Council Retreat—an annual event for library department heads and senior managers—focused the morning session on recruiting a more diverse workforce. We enlisted the assistance and expertise of individuals from MIT Human Resources, including its Organization and Employee Development team, who helped facilitate and participated in a lively discussion of the challenges we face in identifying, recruiting, and retaining a diverse staff. We explored and brainstormed strategies for what we or they as managers can do to break down barriers, develop and support diversity within our organization, and identify and develop underrepresented minority librarians in the profession. This resulted in a list of action items for implementation next year and in ensuing years.

Retention

The Libraries' overall retention rate for FY2007 was roughly 85 percent, which is about 5 percent lower than the previous year. This is due in large part to the high volume of support staff departures: 19. Six of these were recent master of library and information science (MLS) graduates, five of whom found librarian positions in other organizations and one who took an administrative staff supervisor position within our own organization. One employee left to focus full time on earning the MLS degree. Although the departure of these experienced and highly skilled staff members has had a significant impact, it is inspiring to us as an organization to contribute to the growth and development of these future librarians and to witness the value that employers place on preprofessional experience in the MIT Libraries. Relocation was the reason for five other departures, with educational pursuits and health issues among some of the remaining reasons. In one instance, that of the only support staff member to leave a technology position, compensation issues were cited.

The retention rate for the administrative staff was higher than that for the support staff, at 92 percent. The assistant to the director, after working for several years toward an MLS, received her degree, along with a professional librarian position in the Boston area. Another departure was that of the associate director for collection services, who retired after nearly 18 years of distinguished service at MIT. Both departures were of significant impact to the Libraries' administration. Of the remaining staff departures, one was due to the end of a term appointment and the others were the result of individual life choices associated with parenthood and outside interests. One librarian and one nonlibrarian took positions in other libraries in the Boston area.

Two of the Libraries' six sponsored research staff members left in FY2007 at the end of their term appointments.

Library Staff Salaries

The latest data from the ARL Annual Salary Survey of 113 academic and research libraries (Table 9) are from 2006–2007. Although our ranking presents a disappointing picture of MIT's average professional librarian salary in comparison to our library peers, we are optimistic about gaining ground in the future. The impact of recent allocations of salary funds to address equity and market issues will be reflected in the survey data next year and perhaps more significantly the following year.

Table 9. Association of Research Libraries Annual Salary Survey Ranking of MIT Average Professional Librarian Salaries

	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006	2006–2007
Average professional salary ranking	18	16	13	21	21	24

Among a group of 21 selected peer institutions, MIT advanced a single step forward in average professional salary. However, since Harvard advanced a single step as well, the gap between Harvard and MIT remains the same.

Table 10. Association of Research Libraries Annual Salary Survey Ranking of MIT and Harvard Professional Librarian Salaries Among Selected Peer Institutions*

	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
MIT	12	9	9	7	11	11	10
Harvard	9	8	8	8	9	7	6

*MIT, Harvard, UC Berkeley, UCLA, Connecticut, Princeton, Columbia, USC, Dartmouth, Yale, UMass Amherst, Brown, Michigan, Northwestern, Virginia, UT Austin, Duke, Wisconsin, Penn, Georgia Tech, Purdue.

As mentioned above, several salary allocations were received by the Libraries this year that will have a positive impact on our future standing among ARL peers. A small pool of money from the Compensation Office's contingency fund was made available to the Libraries and applied late last year. These funds were used to address internal equity and compression issues that existed among a few individuals at the Librarian I and II levels. As with all salary funds, the increases were applied judiciously and against a set of criteria that included individual job performance and organizational retention objectives. Not surprisingly, these increases were very well received, and each librarian recipient expressed sincere appreciation for the Libraries' and the Institute's attention to salary issues.

Interim increase pools for both the administrative and support staffs were made available by the Compensation Office in FY2007. These funds were used for a librarian promotion that was a result of the established promotion process, for off-cycle merit increases when appointment dates disqualified individuals from participation in the annual merit review, and for interim increases to retain several individuals. A comprehensive market review of librarian salaries is currently in progress in consultation with the Compensation Office. On the support staff side, the interim increase pool represented a rare opportunity to address internal equity and compression. The Libraries were able to adjust the salaries of 14 individuals (about 15 percent of the support staff), bringing their salaries to a more reasonable position in their respective salary ranges. Criteria for the distribution of the funds included the staff member's position in the salary range, years of experience, and performance rankings. Again, these increases were very well received by staff members and were seen as recognition by the Libraries and the Institute of the value of their contributions.

A market review of computer support assistants conducted by the Compensation Office resulted in increases for a small number of library support staff in these positions in FY2007. Unfortunately, these adjustments came too late to retain one staff member, who departed for a higher paying position outside MIT. We are grateful, nonetheless, to the Compensation Office for its support in helping us bring these salaries closer to the market norm.

The interim increase pools, market reviews, and special allocations are tangible demonstrations of the Institute's commitment to recruiting and retaining high-quality staff. We gratefully acknowledge the support of the Office of the Provost and the Compensation Office in monitoring and addressing salary issues in the Libraries. Attention to these issues is critical to ensuring our ability to attract and retain the best and brightest amid the challenges of a competitive marketplace and the high cost of living in the Boston area.

Rewards and Recognition

The Infinite Mile and Spot awards continue to be valuable and meaningful programs for library staff. Although nominations for the Infinite Mile Award were down this year, the heartfelt appreciation and enthusiasm for colleagues and for the program were stronger than ever at this year's event. The June 13 award program, "directed and produced" by the Rewards and Recognition Committee, was a spoof on "a night at the Oscars" and

was a testament to the creative and fun-loving spirit of the library staff. From the 29 nominations received, one team and seven individuals were recognized for contributions in the categories of innovation and creativity; communication and collaboration; results, productivity, and outcome; and community.

The Spot Award continues to be a heavily used program for expressing everyday appreciation for a job well done, lending a helping hand, or recognizing the "little things" that support a colleague or contribute to a collaborative effort. Participation remains steady at a monthly average of about 225 thank-you notes. Four names are drawn monthly from the "thank-you" pool, and recipients receive $100 in gift certificates. The annual Infinite Mile Award event also includes the opportunity for a "last-chance drawing" when four additional names are drawn from the pool of "nonwinners" over the past year.

Plans for the coming year include a review and redesign of the program for the purposes of incorporating our new colleagues from AMPS and rekindling the interest of library staff in the Infinite Mile program.

For the second consecutive year, library staff members took great pride in the recognition of a colleague through the MIT Excellence Award program. Our library systems manager received an individual award for innovative solutions for managing and developing Barton, for finding creative and innovative ways to solve problems and enhance system capabilities, and for sharing her knowledge and expertise with not only the MIT community but with the national and international Aleph community.

Other Human Resources Topics

- *Promotion*s: One archivist was promoted in FY2007 in accordance with the established librarian/archivist promotion policy. In this case, the archivist was promoted from Librarian/Archivist I to Librarian/Archivist II. The process for this particular promotion through the professional ranks requires that the entry-level archivist, together with his or her supervisor, prepare a promotion plan that outlines development goals. This plan is begun approximately six months after appointment, and promotion generally occurs after two to four years in the position. Criteria for promotion include independence and initiative in fulfilling responsibilities, a demonstrated understanding of the mission and philosophy of the organization and the Institute, system-wide contributions, a commitment to skill development, and increasing involvement in outside professional activities.
- *Annual staff reception:* The Libraries' held its annual staff reception in January. This event is a time to celebrate the staff of the MIT Libraries, to introduce new employees, and to recognize the 10-, 20-, and 30-year service milestones of library employees. Seven staff members were recognized this year: four for 10 years of service, two for 20 years of service, and one for 30 years of service. It is noteworthy that since we recognized our first group of 30-year service awardees 10 years ago, there have been between one and five staff members in that category every year. This is a testament to the dedicated and loyal staff in the MIT Libraries organization. The staff reception was also an opportunity

to introduce and welcome staff members from AMPS, who became part of the Libraries organization at the beginning of the calendar year. Library and AMPS staff alike were excited to meet new colleagues and to begin to think about the numerous opportunities for synergy and mutual benefit that this new organizational structure provides.

Facilities and Operations

New Engineering, Science, and Humanities Library

For the second consecutive year, the Libraries worked to gain momentum and put firm plans into place for a new Engineering, Science, and Humanities Library. FY2006 saw emergence of a potential scheme involving the combination of space in Hayden (Building 14) with space in the Walker Memorial (Building 50). But by fall 2006 this so-called Hayden/Walker concept was determined to be fatally flawed for a number of reasons. With the spring 2007 meeting of the Corporation Visiting Committee on the horizon, MIT's senior administration acted aggressively to identify other potential solutions to the growing inadequacy of the Libraries' physical facilities. The essence of that planning involves renovation and expansion of the whole of Building 14 in several stages over a number of years, the final of which would include the north wing, once the School of Humanities occupants move elsewhere. By including the entire building and by adding high-density book storage, the facilities and program of the Libraries stand a very good chance of meeting the needs of the Institute for the next 30 years.

FY2007 Space Projects

CRSP funded the renovation of the entrance and front desk in Dewey Library (Building E53). This deferred maintenance was triggered by the exclusion of Dewey from the new Sloan School building project. It amounts to a substantial improvement in the appearance and functionality of the Dewey first floor. Now that we know Dewey will continue to be located in E53, there are a number of further space improvements to be made. As a precursor to that, a CRSP-funded study was completed in FY2007 that determined that the floors on all three levels of the library can accommodate the weight of compact shelving.

IS&T carried out a major upgrade of the network in Building 14. Network problems in this building have plagued the Libraries for many years as a result of the location of our server facility in the Hayden basement. The positive impact of the upgrade has been felt throughout the building and beyond, with a bump up in speed from 10 to 100 megabits per second.

A study was completed by MIT Facilities in FY2007 to examine potential water damage to library collections. Problems were noted in Rotch, Hayden, and Barker, with corrective actions begun and continuing into FY2008.

A new exhibit space was begun with a generous gift to the Libraries from an anonymous donor; other gifts are expected to complete the project. This handsome space is located

on the first floor of the north wing of Hayden, between the Archives and the DIRC. Once completed, it will be used to display treasures from the Libraries' Special Collections.

Minor changes to several areas of Hayden Library were carried out with library funds: shelves and workstations at the front end of the Science Library were rearranged to improve user space; a small private conference room was created out of a former closet in 14E-210, our central cataloging and acquisitions staff space; and a former darkroom in Document Services was emptied for repurposing as a workroom.

Pending Space Project for FY2008

In early spring 2007, we learned that valuable compact shelving was to be discarded as a result of the razing of the Dibner Institute (Building E56). This shelving was nearly identical to what the Libraries had requested to be installed on the first floor of the Library Storage Annex (Building N57) for the FY2008 CRSP cycle. Because the Institute had already approved that project for FY2008, we were able to persuade CRSP to preapprove the expense of removing and installing the compact shelving in the annex. By doing so, the Institute realized savings of approximately $250,000 relative to the cost of new compact shelving and completed the first-floor portion of the project earlier than expected. In addition, CRSP will fund new standard shelving on the fourth floor, allowing us to realize maximum capacity in the entire building. Unfortunately, the first floor is the only one that can bear the weight of compact shelving.

Other Operations Topics

- *Delivery services:* A new support staff employee was hired to replace a worker from the MITemps program, stabilizing staffing in the unit, which performs an increasingly important role in the Libraries' print materials delivery strategy. That strategy included extending the delivery of interlibrary borrowing requests to all public service units in FY2007.
- *New administrative assistant in Administrative Services:* A new MITemp joined the staff in August 2006 and was appointed permanently in November.
- *Streamlined computer capital equipment request process:* For many years, the Libraries have used a time-consuming process for requesting, reviewing, and approving new computer equipment. Much of that time and effort had to be spent on routine upgrade and replacement requests required to sustain the Libraries' desktop computing infrastructure. Led by the head of systems and technology services, a small group of staff members designed a new process near the end of FY2007, to be implemented beginning in FY2008, that separates routine equipment upgrades from those that support new service initiatives. By doing so, we will reduce discussion and process time in deploying standard equipment, focusing instead on understanding and justifying the potential equipment investments that will move the Libraries forward in strategic ways.
- *Capital equipment and special project funding:* This was formerly known as the noncomputer capital equipment process. Just under $100,000 was allocated to library departments in FY2007 for the purchase of furniture, noncomputer equipment, and minor space changes. This followed a year of no allocation at

all for this type of expense, so the list of needs was extensive. We hope to avoid deferring such expenses if possible in the future, favoring instead a regular investment of annual funds.

- *Incorporation of AMPS:* In addition to the organizational, fiscal, and human resources effects of the incorporation of AMPS into the MIT Libraries, AMPS's space administration requirements are quite substantial, both in terms of location and complexity. AMPS staff are currently spread among three buildings—NE48, 9, and 35—all of which will be in flux over the next few years. There will be many space moves in the future as AMPS staff members' roles are redefined and solutions are identified.

Looking Ahead

In addition to its regular operations, Administrative Services expects to focus special attention in FY2008 on several areas, including:

- Continued engagement in building and space planning for the proposed renovation and expansion of Hayden Library
- Implementation of proactive strategies for increasing diversity in our recruitment, staffing, and retention processes
- Implementation of any organization and process changes resulting from the appointment of a new associate director for information resources
- The second round of staff salary market studies
- Updating and revamping of the Rewards and Recognition Program
- Continuation of the process of incorporating of AMPS into the Libraries organization

Keith Glavash
Associate Director for Administration

Technology Planning and Administration

The past year was once again characterized by dramatic changes in the information technology landscape that affects every aspect of the MIT Libraries' business: the ongoing rise of the "Web 2.0" social networking phenomenon, the continued shift of information searching to the "network level" with services such as Google and Google Scholar, the growing pressure to digitize everything that the Google Books Project and Open Content Alliance have generated, the emergence of network-based desktop computing environments and hosted computing services from Amazon and other new players, new modes of publishing and scholarly communication emerging from the data mining community and companies such as Intelligent TV, and virtual world environments for teaching and research.

MIT is involved in all of this, naturally, and like a rapidly evolving species it is adapting to the new landscape at the surface, but the deep infrastructure of the organism changes much more slowly. The Libraries are similarly learning to adapt, becoming more agile and flexible at the periphery but continuing to provide the core systems and services that so much still depends on and will for the foreseeable future. But in an increasingly diverse technology environment, not evolving is not an option.

Technology Operations

The Libraries' technical infrastructure and production systems operation is managed by the Systems and Technology Services department, which is responsible for managing the computing equipment, systems, and services that support the work of the Libraries' staff and users. The department's mission is to provide an excellent and stable production environment and to plan and implement improvements that offer benefits for the immediate future.

One of the year's highlights was the move into full production of Dome, the Libraries' new digital library system. The flagship collection, Rotch Visual Collections' digital images, interoperates with the Institute's course management system, Stellar, via a new Stellar Images tool. Dome is envisioned as the future home of other digital collections of the MIT Libraries, including of images from the Vail Collection, a project that has been funded by the generosity of a donor; planning for this project is now under way.

The year saw a growing concern about the experience of users who interact with our networked, electronic collections and services. The reconstituting of the Web Advisory Group as the User Interface Group acknowledges the need to coordinate all of our interfaces into a cohesive, well-planned whole. Project SimpLR seeks to improve the user experience, offering a more rational and less fragmented way to discover our increasingly distributed and fragmented collections. New software and services such as MetaLib (for distributed network searching) and WorldCat Local (for aggregated searching from a hosted service) are likely to be important features of an improved discovery environment, and much time over the past year was spent in planning for the deployment of these tools and services to the MIT community.

Vera, our electronic resource management tool, reached a point of great instability this past year and is in urgent need of a hardware and software upgrade. We spent

considerable effort in FY2007 continuing to test a new commercial electronic resource management system—Ex Libris's Verde—as a replacement for Vera but have not yet completed the migration to that product.

Major Accomplishments in FY2007

- A report on Project SimpLR, a significant effort of the past year to identify ways to improve the information resource discovery environment for our users, including but also reaching beyond replacing the Vera system interface. The report resulted in a major project to replace the Vera (ERM) public user interface with a new, custom system that combines commercial software from Ex Libris (MetaLib and X-Server) with local software to support searches of e-resources by the MIT community.
- A report from the Metadata Aggregator Task Force, another project that evaluated available technologies to aggregate local resources into a single system with faceted browsing support. This led to a short-term plan to evaluate the new WorldCat Local service from OCLC, which has the potential to be an aggregator of various resources with a faceted browse interface.
- Implementation of RSS feeds for new materials cataloged in the Libraries' online Barton catalog.
- Implementation of a new betas page on the Libraries' website to offer experimental services such as RSS feeds.
- Implementation of new websites for potential donors to the MIT Libraries and for the Libraries' new Scholarly Publishing and Licensing program. These sites also support distributed content management to enable easier maintenance by site owners.
- A major overhaul of the Libraries' staff website, including new hardware, site redesign, and improved procedures for maintenance.
- Beginning of implementation of the Archivists' Toolkit for the MIT Archives, a new, open-source software system for record creation and collection management.
- Beginning of implementation of Dome, the Libraries' new digital library system. The system currently contains visual images from Rotch Library and interoperates with Stellar (MIT's course management system) through a new Stellar Images tool developed for this purpose. There are now more than 12,000 images cataloged and digitized for use by faculty in course lectures.
- Significant development of DSpace@MIT to support new communities and collections of faculty research material, including the OCW archived course websites. Improvements were made to the DSpace hardware and operating support environment and to end-user support procedures via MIT's standard bug-tracking software.
- Completion of a significant upgrade to Ex Libris's Aleph system (the Barton catalog) to Version 18. The upgrade provided improved backend functions such as the NCIP server (needed to support consortial interlibrary borrowing

programs), major corrections to authority records for cataloging, and interoperability features such as MARCXML export.

- Major work on the Libraries' computer server room in Building 14, including network and cooling system upgrades, improved cable management and system labeling procedures, and new hardware for various systems.
- Significant transition work to move Unix services, software products, and data to virtualized consolidated servers and solutions in numerous areas; rebuild the Windows domain server; and make upgrades to a number of FileMaker database applications to improve reliability and backup.

Other Initiatives

The lengthy process of reorganizing the Libraries' desktop support group was completed in FY2007. The desktop technology consultants now specialize in particular areas, with a Windows domain manager concentrating on server support and a support manager overseeing the work of the desktop support staff. Desktop support staff continue to be physically distributed across the Libraries and are working toward improved coverage as a coherent team.

Two of our important technology-centered committees redefined their charges and membership this year to better reflect communication needs around our information technology (IT) operations. The Web Advisory Group has become the User Interface Group, responsible for overseeing user interfaces for all of our public-facing tools. This reflects our commitment to user-centered design and acknowledges user experience as a guiding principle in organizing and presenting our services. The Technology Advisory Group has provided a forum for communicating local technology-related needs and concerns to the IT staff.

Finally, two of the Libraries' senior IT staff were recognized for their significant contributions to MIT. Christine Moulen received an MIT Excellence Award in the innovative solutions category, and Rich Wenger received two Infinite Mile Awards in the community and collaboration category. These awards reflect the high quality of the Libraries' IT experts, as well as our commitment to recognizing exceptional achievements.

Technology Research and Development

During FY2007, the Digital Library Research Group concluded two long-standing projects: CWSpace and DSpace@Cambridge.

CWSpace was a research project funded by the Microsoft iCampus program for innovations in e-learning; the Libraries worked to archive the amazing collection of openly accessible teaching material that the OCW project has compiled. As a result of the project, DSpace@MIT is now regularly archiving older OCW course websites (400 to date and more each term) and making these materials available to students and teachers worldwide. This is already one of the most popular collections in DSpace@MIT and is adding value both to the Libraries' digital archives and to the OCW project.

DSpace@Cambridge was a three-plus-year project funded by the Cambridge-MIT Institute to develop the DSpace platform for use beyond MIT, and in particular by the Cambridge University Library. This very successful collaboration led to a full production implementation of DSpace at the Cambridge University Library with funding for five years, plus many new features in the software that we discovered were needed along the way and ultimately many more adopters of the platform in the United Kingdom and Europe, which has been very valuable to the DSpace community overall. One particularly interesting outcome was the emergence of a new, commercial, institutional repository hosting service from BioMed Central, based in the United Kingdom. Given the Cambridge-MIT Institute's mission to promote entrepreneurial activities in the United Kingdom that are driven by university research, this is a testament to the value of such partnerships.

Ongoing Research

The Libraries are also conducting two ongoing projects of note: PLEDGE and SIMILE.

The Policy Enforcement in Data Grid Environments (PLEDGE) project is an ongoing collaboration between the MIT Libraries and the San Diego Supercomputer Center (SDSC) with funding from the National Archives and Records Administration and the National Science Foundation. The project is investigating how policies affect digital research archives at every level and how those policies should be captured, encoded, enforced, and shared across preservation environments. To do this, we are integrating a number of systems, including DSpace, Storage Research Broker and iRODS (a new rules-based preservation system from SDSC), and the Harvard DataVerse archive for statistical data sets. By using MIT and its existing policies as an exemplar, we can test a range of archival activities and how to automate and audit them at a large scale in a distributed, networked environment.

Semantic Interoperability of Metadata and Information in unLike Environments (SIMILE) is the MIT Libraries' most advanced and ambitious research project. A collaboration among the Libraries, Professor David Karger from the Computer Science and Artificial Intelligence Laboratory (CSAIL), and Eric Miller from the World Wide Web Consortium (W3C; now at Zepheira), the project has been ongoing for five years, first with funding from HP Labs and now with funding from the Mellon Foundation. The project is leveraging semantic web technology (particularly Resource Description Framework) to improve the Libraries' ability to support rich metadata in new digital search and display systems and to improve interoperability across a wide range of collections and data types that were formerly prohibitively expensive. SIMILE has attracted a great deal of attention internationally, and our open-source software tools are in use in a wide variety of websites ranging from the Encyclopedia Britannica site to the American Museum of Natural History site. We now have a high-quality and mature set of tools that we can begin to exploit in the Libraries to build new services for the MIT community in scalable, economical ways.

FACADE

Perhaps the most exciting event in FY2007 on the research front was the funding by the Institute of Museum and Library Services of the Future-proofing Architectural Computer-Aided DEsign (FACADE) project. This project involves work with the School of Architecture and Planning, and Professor William Mitchell in particular, on the challenges and opportunities of collecting and preserving digital computer-aided design (CAD) models and related material for important architecture of the 21st century. Our flagship project is the MIT Stata Center, which was designed by Frank O. Gehry using a state-of-the-art 3D CAD system called CATIA. The records of that building include 3D CAD models, 2D CAD drawings, and myriad digital files related to the project from its initial design to its final reality. For architects and architectural historians of the future, having access to archives of this type will, of course, be critical, and no other research library anywhere is tackling this problem.

An aspect of FACADE that makes it especially valuable is that our findings in relation to architectural 3D CAD models will be applicable to a wide range of other 3D material, including CAD models from other fields of research and 3D visualizations from almost every discipline. We now see the enormous need for an archiving strategy for 3D material, so we are delighted to have a project that begins to work on the problem together with MIT faculty and students in the thick of creating new digital productions.

Strategic Initiatives

The MIT Libraries are involved in several strategic IT initiatives that we believe will affect our business in the future and deserve our attention today.

DSpace

DSpace continues to be the premier open-source platform for building institutional digital research archives worldwide. It is currently in use by 250 research-producing organizations (primarily research universities and libraries), which collectively contain more than a million items of research material, almost all openly accessible to the public. This pattern of growth has not diminished over the past year despite the software being nearly five years old—a lifetime for software these days—and that is a testament to the ability of open-source software to improve rapidly and innovate continuously. Many hands make light work.

FY2007 saw a major turning point for DSpace: the completion of a new architectural design for the next generation of the platform and the launch of the DSpace Foundation as an independent 501(c)(3) nonprofit company to govern the growing DSpace community of users. These were both recommendations of a high-level advisory group convened in 2006, and both have now been successfully implemented. MIT and HP have hired a new executive director for the DSpace Foundation, Michele Kimpton; formerly an executive director at the Internet Archive, Kimpton has deep experience with running nonprofit companies and with the enormous challenges of digital preservation. The nonprofit company will be based at MIT initially; we are working with the DSpace Foundation on implementation of the new architecture in the coming year.

Achieving this milestone in the life of the DSpace platform has been the work of many individuals over many years, so it is difficult to credit those who have been particularly instrumental; however, we cannot fail to acknowledge the hard work and dedication of purpose that Julie Harford Walker, DSpace business strategist, brought to the project before her departure last September. Deciding what to do and how to do it was very challenging as the story evolved, and Julie was a key figure in guiding us to this point.

Discovery to Delivery

In FY2007 OCLC launched a service of great interest: WorldCat Local. This service allows libraries that use OCLC to provide a customized "view" of the impressive WorldCat database of library holdings to their local patrons. The localized view provides state-of-the-art user interface features for searching, browsing, and navigating complex bibliographic content, as well as a much richer collection than any single library can maintain, while still providing local branding and giving priority to local material. Even before the launch of the new service, the MIT Libraries were in discussions with OCLC staff about how we could participate, and we are actively evaluating the service now, with plans for a pilot test in FY2008. While the new service would not contain everything the Libraries wish to make available to our users, and there is still a need to research next-generation user interfaces and search tools, we feel this is a promising way in which to move our users to search more effectively at the "network level" without sacrificing our ability to promote our collections to them.

Enhanced Publishing

An interesting new theme in scholarly communication is the emergence of "enhanced publishing," which leverages digital scholarship to build more complex and sophisticated products from digital sources: for example, the ability to interweave published articles in digital formats with the research data that they describe so that the reader can move seamlessly between text and data, or mining digital articles for keywords that can be used to generate taxonomic data from the source text (i.e., generating new research data from narrative descriptions of completed research). These innovations, largely the result of this digital material being openly accessible for reuse by scholars, are in turn generating more digital scholarship for libraries to acquire and manage. The MIT Libraries, with the DSpace@MIT digital research archive and our collaborations with the Science Commons, W3C, and other groups working on scientific informatics, are able to experiment with these new forms of publication and engage researchers in thinking about how libraries can serve this new form of publishing.

Cyberinfrastructure

The specter of a national "cyberinfrastructure" for digital research continues to grow in scope and complexity. In FY2007, reports on cyberinfrastructure needs for the humanities and social sciences joined those of the science and engineering communities to form a larger picture of requirements. Cyberinfrastructure includes technology, of course—networks, hardware, software, and standards to make it all work together—but it also includes new business and governance challenges, including many questions about roles and responsibilities as we migrate relentlessly into the digital realm. Libraries are part of this new infrastructure, but this is a critical time for the library

community to define its role before events overtake us. MIT has been very involved in these discussions in both national and international forums, and we have invested serious effort this past year to ensure that we remain engaged in the evolving story.

Conclusion

Every year we imagine that the achievements of the past year were greater and more impressive than any previous year and that we could not possibly achieve such grandeur again—but of course we do. The MIT Libraries are strategic in their approach to the major issues and challenges facing libraries and their institutions today so that we can make the right choices at the right moments and continue. MIT has a culture of embracing change with enthusiasm and glee—even demanding change where others would urge caution—and its Libraries are no different. But wanting change and managing change successfully are different, and we tread carefully to make sure that the MIT Libraries of the future can be as successful and as much the heart of the campus as ever. To do this, we will continue to pay attention to our environment, take risks, experiment, assess results, and adapt where appropriate. No doubt next year will be even more impressive.

MacKenzie Smith
Associate Director for Technology

More information about the MIT Libraries can be found at http://libraries.mit.edu/.