

Director, MIT Libraries

Academic year 2009 was a singular one in the life of the MIT Libraries. Notable for both highs and lows, the year played out against a backdrop of new directions for undergraduate education at MIT, the continued growth of research funding at the Institute, a solidifying interest on the part of MIT faculty in the importance of more open access to their research articles, and the most serious economic downturn the Institute has seen in decades. Throughout this year of ups and downs, the staff of the MIT Libraries and Academic Media Production Services (AMPS) continued to exhibit the creativity and resilience for which they are recognized and justifiably proud.

It would have been an extraordinary year, by any measure, had it included only the “highs.” The detailed reports of the associate directors, which follow this introduction, illuminate the exceptional progress made by the Libraries in AY2009. An abbreviated list illustrates both the breadth and depth of this progress:

- A systematic planning process was undertaken to review and update the Libraries’ strategy for the next five years.
- Dewey Library and the Barker Engineering Library were the grateful beneficiaries of much-needed, thoughtfully executed facilities renovations and repairs. Long-standing leaks in the Hayden Courtyard were successfully addressed.
- The Institute Archives began a major engagement in planning for the Institute’s 150th anniversary.
- A variety of new public service initiatives were introduced and enthusiastically embraced by MIT faculty and students. Improvements to YourAccount, enhanced search functionality, and desktop delivery of articles were among the innovations.
- The Libraries’ newest associate director made great advances in working with colleagues in the Information Resources Directorate to define the scope and focus of this reconfigured directorate.
- TechTV grew to host 2,400 videos, which were visited more than 200,000 times.
- With significant staff support from the Libraries Office of Scholarly Publishing and Licensing, MIT faculty explored and subsequently adopted a policy of open access for their scholarly articles. The MIT Libraries have been asked to develop an implementation program for the policy with the benefit of oversight from the Faculty Committee on the Library System.
- Our associate director for technology played a key role in the Libraries’ participation in MIT’s National Science Foundation (NSF) DataNet proposals.
- Possibilities for increased collaboration with research library peers were explored.

Again in AY2009, the Libraries benefited from inspiring and gratifying support from MIT alumni and friends. The Libraries welcomed and benefited greatly from the Corporation Visiting Committee’s biennial meeting and review in March. The Visiting Committee structure informs and improves all of the academic programs of MIT, and the MIT Libraries deeply appreciate the contributions of the committee members. The generosity

of friends of the MIT Libraries likewise made important progress possible on many fronts, in both large and small ways. Gifts in support of the Libraries' rare and special collections continue to transform the visibility of MIT's unique archives and special collections.

The "lows," on the other hand, were sobering and notable for their urgency. The effect of budget reductions in the Libraries was direct and deep to a degree not experienced in decades. To allow for future flexibility, decreases in spending were instituted as soon as the magnitude of General Institute Budget (GIB) reductions became clear midway through the academic year. Those staff, faculty, and students who were most immediately affected were understandably dismayed when two branch libraries were closed, staff positions were eliminated, hours were reduced, the operations budget was compressed, and a process was initiated to downsize the licensed and purchased information resources available to the community. Those who were not immediately affected became affected as implementation of the budget reductions played out over the remainder of the year and planning for FY2010 commenced. The fact that other premier research libraries and other departments within MIT would follow suit within weeks or months provided context, but slim comfort.

Change of the magnitude and speed required by the decline in value in MIT's endowment would be unnerving to any organization. To an institution like MIT, however, which deeply values its traditions and cultural compacts, the accommodation was especially difficult. Faculty, students, and staff rely on the Libraries for their own productivity, and to this end an emphasis on predictable quality and continuous improvement has long been a hallmark of Libraries services and resources. The leadership council of the Libraries deserves great credit for its constructive actions during the year, and I am personally grateful to the many Libraries staff members whose professionalism and poise enabled the Libraries to remain focused on the future while coming to grips with the new economic reality.

The leadership and staff of AMPS were equally responsive to the changed financial environment, reviewing their business plans and projections to ensure that costs would remain in alignment with expenses as the in-house market for their services reacted to the evolving financial climate at the Institute.

The MIT Libraries were fortunate to have begun in October the process of rethinking the next five years of strategy in furtherance of their mission. In response to the altered budget situation, the time frame for this process was accelerated, and a new time line for anticipating and adapting to the future was developed. In a participatory process that included all interested staff, working in conjunction with Library Council and AMPS leadership, a new framework for meeting the mission of the MIT Libraries had been developed by June 2009.

This strategic framework is defined by findings imbedded in a document titled "Achieving a Desired Future State for 2015." This document identifies critical, converging externalities involving new and potentially disruptive technologies that have the potential to profoundly alter research libraries in the 21st century. The document is available at <http://libstaff.mit.edu/futurestate/DesiredFutureState2.0.pdf>.

Lessons learned and conclusions drawn from the process of developing the “Desired Future State” document reflect a growing understanding within the Libraries that incremental change may no longer be sufficient if the Libraries are to continue to fulfill their mission for MIT. Although surveys consistently demonstrate that the MIT Libraries are at present a popular, highly valued academic unit within MIT, technological advances increasingly have the potential to radically alter many of the assumptions that underpin research libraries worldwide. Predicting which technological innovations will survive, which market forces will prevail, what role government policies will play, and what the internet will become in the future is a challenge all research libraries face.

In the year ahead the MIT Libraries will closely monitor such potentially redefining external influences as the Google Book Search settlement, the continuing conversion of scholarly research publishing to digital formats with license-only access, and the continued digitization of research library collections by third parties on a massive scale. Other trends we will watch closely and experiment with are the growth of high-quality, low-cost video; the emergence of new electronic book publishing strategies; and the production of vast libraries of research data in virtually every discipline. All have the potential for profoundly altering the economics and behaviors of research and teaching and by association the role of research libraries in the academy. Whether the record of scholarship is ultimately locked down or finally liberated remains to be seen. Nevertheless, the MIT Libraries must continue to navigate this volatile environment, with the resources available to it, on behalf of MIT faculty and students.

It is thus a profound pleasure to read the annual reports of the MIT Libraries associate directors and appreciate the extent to which these urgent challenges are being actively addressed. Working in collaboration with key stakeholders inside and outside MIT, and informed by systematic data collection, the staff of the Libraries continue to transform the definition of a research library through innovation and experimentation. Investments in the future, begun in earlier years, support new directions in scholarship and research emerging at the Institute. A review of the progress accomplished during FY2009 becomes a celebration of the talented staff of AMPS and the MIT Libraries.

The enterprises with which the Libraries are currently affiliated (MIT Press and Technology Review Inc.) demonstrated equally strong leadership and the highest standards of effective, responsive management. It is a privilege to be associated with these well-run, visionary organizations.

As always, the success of the MIT Libraries occurs in the context of the many productive, professional collaborations we enjoy with academic and administrative units at the Institute. I thank our colleagues in Information Services and Technology (IS&T), the Dean for Undergraduate Education (DUE), the Office of the General Counsel, Resource Development, the Alumni Association, the Office of the Provost, and the Office of the Vice President for Research and Associate Provost for their support to our mission. And I thank the faculty of MIT for the confidence and respect they extend to the staff of the Libraries.

Ann J. Wolpert
Director of Libraries

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

Public Services

Guided by input from the community, the Libraries address key needs and fulfill their mission through service improvements and experimentation. To ensure that efforts are correctly calibrated to community needs, the Libraries undertook its [triennial service survey](#) of faculty, students, and research staff this past fall. First launched in 2005, this survey provides important data to guide planning. The [2005 results](#) spurred a number of service initiatives during the past few years. While the results from this fall are currently being analyzed, the high-level themes remain the same as before—the desire for easier searching to find content, more online content, improved facilities, and better promotion of library services. Faculty and students continued to express an extraordinarily [high level of satisfaction](#) with the MIT Libraries.

A key initiative this past year was the [renovation of Dewey Library](#). Funded by the Institute's Committee for the Review of Space Planning (CRSP), construction began during the summer of 2008 and is scheduled for completion in September 2009. Staged so that services could be delivered throughout the project, the new Dewey is designed to improve study conditions, provide better access to collections, and improve the overall atmosphere of the facility. While renovations are not 100 percent completed, results to date indicate success in meeting the goals:

Everything looks great! The new study rooms are terrific, great job!

—*Sloan student*

MIT has finally come through for the social scientists. Dewey Library is gorgeous.

—*SHASS student*

Due to the incredible efforts of Dewey staff, the library operated smoothly and met users' needs throughout the renovation.

Funds were identified and a project was initiated to renovate the Barker Engineering Library reading room. One of the Institute's iconic spaces, it had not been renovated since 1970 when fixed shelving for current journals was constructed. The now outdated and inflexible design for seating, lighting, and library services hampered optimal use of space. Key elements of the renovation include removing the journal racks, refinishing perimeter reading carrels, reupholstering soft seating, repainting the "barrel" portion of the interior dome, purchasing new study chairs and carrels, upgrading ambient and task lighting, and installing large area rugs. The reading room will reopen for use in late August.

The Institute's fiscal challenges mandated planning of a different nature. With the mandate to reduce funds for the coming fiscal year across all aspects of library operations, the difficult decision to close two of the Libraries' smaller service branches—Aero/Astro and Lindgren—was made. Staff worked diligently to ensure the smooth transition of collections and services with a minimum of disruption to the primary communities affected. In addition, subject selectors across the Libraries have been managing the necessary reduction of subscriptions to databases and journals in a professional manner, communicating the reason for these cutbacks and soliciting community input on the choices being considered.

This past year saw popular pilot services designed to improve access to the Libraries' collections go into production:

- [Requesting books through Your Account](#) allowed users to request a book in the stacks to be delivered to the library service desk of their choice for pickup. The service has proven very popular, with over 18,000 requests this past year. A pilot within this service was also offered—the ability for faculty to request that books be delivered to their offices. Over a thousand requests of this type were made, and this pilot too will now become a standard service for faculty.
- Another successful delivery service that moved into production this year was the delivery of an [article PDF](#) from collections held in offsite storage.
- [Vera Multi-Search](#) enabled users to find journal articles and other materials from different library research databases all at once.

The Libraries launched a new beta service, [MIT's WorldCat Local](#), which provides an easy way to search for items owned not only by MIT but by libraries around the world. Other features include faceting browsing to conveniently narrow a search, user ratings and reviews, and images of book covers for many items. Evaluation of this beta continues.

Due to the efforts of staff across several departments, the Libraries integrated [Barton's Your Account with MIT's Touchstone](#) initiative. This brought the Libraries closer to the long-standing community request toward “single sign-on.” Work will continue to extend this across all library resources and services.

A new service model for printing, copying, and scanning was launched this year. [New book scanners](#) were placed in Barker, Dewey, Hayden, and Rotch libraries, providing easy-to-use, free, high-quality scanning. Photocopy machines were also upgraded to enable scanning on request. Fee-based printing, scanning, and copying were integrated into MIT's Tech Cash program. These changes have been well received, with over 300,000 scans made this past year.

Working with faculty and other instructors to provide MIT students with the information-seeking, evaluation, and usage skills required for success in their courses and research and to enable their lifelong learning remains a constant and key goal for the Libraries. A particular priority has been undergraduate students, since embedding these skills early in students' careers can benefit them throughout their later studies and work. Current activity will focus on assessing the learning outcomes of students exposed to course-integrated and course-related instruction. Preliminary results are positive:

- The d'Arbeloff-funded 3.091 project, working with professor Donald Sadoway and the Teaching and Learning Laboratory, demonstrated that students believe their online search skills improved due to the scholarly research curriculum integrated into the course. The Libraries are approaching faculty teaching the alternative chemistry General Institute Requirements to consider including this same curriculum in those courses. If successful, this would provide all undergraduates with exposure to key research skills during freshman year.

- Library instructional staff began an initiative to assess the learning outcomes of undergraduate students exposed to other course-related library instruction. One hundred fifty-four students involved in 14 different courses from a variety of disciplines participated in this pilot. Preliminary results suggest that the library research skills the students developed were beneficial: 56 percent agreed or strongly agreed that, because of the library training, they were able to identify appropriate databases/tools to complete class projects; 60 percent agreed or strongly agreed that they were more likely to experiment with unfamiliar databases/tools in different subject areas as a result of the training; 53 percent indicated that they had used what they had learned in other classes; and 26 percent responded that they had used what they had learned for purposes unrelated to coursework.

In tandem with these in-classroom efforts was the continued growth of the Libraries' [online help and tutorials](#). This past year also saw the complete overhaul of the [research guides](#) that staff provide to assist faculty, students, and researchers in navigating specific fields of study and other topics.

This spring the Libraries began planning for a new homepage design for its website. Survey and other community feedback made it clear that the current home page is too dense with information, creating barriers to easy navigation and quick access to needed information and services. The new design will be tested in August and ready for the new school year. In collaboration with IS&T's mobile group, the Libraries are also developing a library presence for MIT's mobile website (<http://m.mit.edu>) that will be ready as a beta service later this summer.

[DSpace@MIT](#) continued to be a highly valued service for the MIT community and the world. It contains more than 32,000 items, and its content was downloaded over 7 million times this past year. The new MIT Faculty open access policy will provide new content for DSpace, giving it even more visibility and impact. Staff continued to explore ways to help faculty, students, and researchers in managing their data, creating a detailed checklist of [best practices for data management](#). Also, in collaboration with faculty member Nicolas Roy, a pilot community on robotics data was developed and will be launched in DSpace later this summer.

The Libraries' [Dome](#) initiative made important new collections available online:

- [Perceptual Form of the City](#)—materials from the Kevin Lynch and Gyorgy Kepes study of Boston funded by the Rockefeller Foundation in the 1950s, with some material also available through Flickr
- [Project Whirlwind](#)—documenting the pioneering digital computing research conducted at MIT in the 1940s and 1950s
- [MIT Communications Forum](#)—valuable summaries and transcripts from the forum's earlier years (1983–1995) documenting cutting-edge discussions about the cultural, political, economic, and technological impact of communications, with a special emphasis on emerging technologies

Other digital library initiatives this past year included [FACADE](#), developing workflows and tools for archiving digital computer-aided design (CAD) models used in architectural design; an investigation into how the Libraries could assist in preserving

conference papers when MIT faculty have significant involvement; and the [SAHARA](#) project, developing a shared online archive of architectural and landscape images in cooperation with scholars for teaching and research.

Collaboration with service providers involved in educational technology at MIT remained active. Under the oversight of ACCORD, a new [image services and resource initiative](#) was launched. The Council on Educational Technology asked ACCORD to develop strategy options regarding the use of video for teaching. Those options will be presented this fall. The Libraries are also working directly with IS&T and OpenCourseWare (OCW) on the DOS Project to integrate the course material life cycle by developing the necessary interoperability between Stellar, OCW, and DSpace to improve the faculty and student experience. In addition, the Libraries worked with IS&T, DUE, and the Undergraduate Association to provide students with textbook information within Stellar. The [Online Textbook Information Service](#) was designed to provide students with information allowing them to shop for competitive retailers and possibly reduce textbook expenses.

All of the above work occurred during an active and intense year during which the Libraries developed a new vision for its future, a “[Desired Future State](#).” Based on the knowledge that the world around us is changing at an unprecedented rate and that the MIT Libraries must be proactive in developing strategies to successfully fulfill its mission, the staff of the Libraries continued to push the boundaries of what can be accomplished with the resources available. Their dedication, professionalism, and commitment to service excellence bode well for the future. As always, this report cannot possibly cover the full range of activities and accomplishments during the past year.

Table 1. Instructional Activity

Category	2008 Sessions	2008 Attendees	2009 Sessions	2009 Attendees	Change FY2008/ FY2009: Sessions	Change FY2008/ FY2009: Attendees
Course integrated	49	827	46	904	-6%	9%
Course related	86	1,589	66	1,504	-23%	-5%
Independent seminar	42	698	47	474	+12%	-32%
Special workshop	86	963	63	679	-27%	-29%
Orientation/tour	48	2,136	59	2,389	+23%	12%
Special event	37	1,380	28	1,125	-24%	-18%
Total	348	7,593	309	7,075	-11%	-7%

Table 2. Interlibrary Borrowing Requests

	FY2008	FY2009	Change FY2008/FY2009
Articles filled	8,937	9,288	4%
Loans filled	3,598	4,203	17%
Found at MIT	1,320	1,794	36%
Unfilled	693	1,034	42%
Fill rate	95%	94%	-1%

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

Library	FY2008	FY2009	Change FY2008/ FY2009
Aero			
Regular	3,257	2,844	-13%
Reserves	366	405	11%
Total	3,623	3,249	-10%
Barker			
Regular	26,909	26,144	-3%
Reserves	1,324	1,459	10%
Total	28,233	27,603	-2%
Dewey			
Regular	35,073	29,362	-16%
Reserves	3,135	2,595	-17%
Total	38,208	31,957	-16%
Hayden			
Regular	88,077	92,379	5%
Reserves	7,986	7,640	-4%
Total	96,063	100,019	4%
Lewis Music			
Regular	22,144	20,301	-8%
Reserves	1,484	1,750	18%
Total	23,628	22,051	-7%
Lindgren			
Regular	1,960	2,298	17%
Reserves	N/A	N/A	N/A
Total	1,960	2,298	17%
Library Storage Annex			
Regular	4,155	4,026	-3%
Reserves	213	223	9%
Total	4,368	4,249	-3%
Rotch			
Regular	33,207	35,199	6%
Reserves	2,637	1,813	-31%
Total	35,844	37,012	3%
Rotch Visual Collections			
Regular	642	173	-73%
Reserves	N/A	N/A	N/A
Total	642	173	-73%
"Your Account"			
Total	163,280	170,280	4%
Total Regular	378,704	383,006	1%
Total Reserves	17,145	15,885	-7%
Total	395,849	398,891	1%

Table 4. Unique Hosts Served by MIT Libraries Website, Monthly Average

	FY2008	FY2009	Change FY2008/ FY2009
Number of hosts served	178,734	157,473	-12%

Table 5. Library Occupancy

Library	FY2008	FY2009	Change FY2008/ FY2009
Aero	16,963	15,408	-9%
Barker	83,160	102,062	23%
Dewey	106,605	91,559	-14%
Hayden	297,847	288,723	-3%
Hayden 24-Hour Study	N/A	8,732	N/A
Institute Archives	1,534	2,204	44%
Lewis Music	33,520	29,172	-13%
Lindgren	16,579	18,583	12%
Library Storage Annex	139	94	-32%
Rotch	96,041	107,746	12%
Rotch Visual Collections	N/A	N/A	N/A
Total	651,388	664,283	2%

Table 6. Other Key Indicators of Circulation and Reserve Activity: Print

Activity	FY2008	FY2009	Change FY2008/ FY2009
Items processed for print reserves	3,964	2,339	-41%
In-house use of material	70,127	43,390	-38%
Reshelving loaned items	256,838	261,296	2%
BookPage requests	7,350	18,326	149%
Book searches	6,042	8,743	45%
Library Storage Annex requests	7,781	8,133	5%

Table 7. Help Requests (Reference and Other)

	FY2008	FY2009	Change FY2008/ FY2009
Reference questions at public service desks	14,913	11,174	-25%
Reference questions away from public service desks	10,393	9,873	-5%
Total reference questions	25,306	21,047	-17%
Other help questions	19,754	15,984	-19%
Total help requests	45,060	37,031	-18%

Readers are encouraged to consult the reports from individual Public Services units when they become available at <http://libstaff.mit.edu/deptannual/top.html#public>.

Steve Gass

Associate Director for Public Services

Information Resources

The new Information Resources (IR) Directorate, formed in 2008, made significant strides this year in strengthening and building strong collaborative relationships among the acquisition, discovery, and management of information resources and the processes and systems that support and promote their access and use. IR is a group of talented staff with diverse responsibilities that are knit together by common purposes:

- To support MIT's teaching and research programs with critical information resources in formats that best serve their needs
- To ensure access to the current and retrospective research record for future students, faculty, and researchers to the best of our ability and with the resources available to us
- To move deliberately and appropriately from print-based collections to a future of information resources primarily in digital forms in response to user preferences and trends in scholarly publishing
- To support the production systems used by both the public and the staff to do their work, as well as to support new technological initiatives that streamline work processes and enhance user services

The seamless integration of Technology Operations that began at the end of last fiscal year was made possible with the leadership of Nina Davis-Millis wearing two department head hats for most of the past year. Nina added interim head of Cataloging and Metadata Services to her responsibilities as head of Technology Operations in August 2008. Acquisitions and Licensing Services, Collection Management Services, and Institute Archives and Special Collections complete the IR departmental picture. Their varied and rich contributions are fully described in the annual reports of each IR department. Please refer to them (<http://libstaff.mit.edu/deptannual/top.html>) to see the amazing breadth and depth of the departmental contributions of the highly motivated staff making up the IR Directorate. A combined overview and synthesis of their key achievements appears below.

Highlights: New Initiatives and Strategic Developments

The initiatives and planning processes undertaken this year in Information Resources, or with significant input from IR staff, focused on operations improvements and service enhancements for library users and staff. Many of them were cross-library efforts that emphasized the deep collaboration that exists between the IR and Public Services directorates. All of them leveraged the deep expertise of the library staff.

Acquisitions, Licensing, and Rights Management

Our scholarly publishing and licensing consultant began the year experimenting with author rights language to add to licenses for e-journal content that would meet the needs of MIT authors as well as satisfy the key publishers with whom we conduct a major portion of our business. We were pleased that one forward-looking publisher worked with us to craft acceptable language. The agreement was described in an article in the Association of Research Libraries's *Research Libraries Issues* (RLI 263, April 2009).

The volumes of licenses negotiated this year increased only slightly from last year, but several of them involved new territory and collaboration among library staff as well as legal counsel to develop arrangements to acquire content and transfer rights accordingly: a map digitization agreement, copyright transfer of purchased photographic services, and agreement for purchased aerial photos. In addition, our already-exemplary license principles were further honed with a renewed emphasis on avoidance of nondisclosure clauses, in part a commitment to an Association of Research Libraries initiative.

In order to comply with license terms, Technology Operations staff devised an inventive new model for more restricted access to electronic resources, dubbed "e-control." This new system assures compliance in cases where this level of access control is required.

The Vendor Cataloging and End Processing Implementation Team, led by a member of Acquisitions and Licensing Services, implemented a shelf-ready program with YBP Library Services for firm orders and is now moving on to standing orders and approvals. Their goals are (1) to reduce the time it takes for materials to be available to library users with quality comparable to current in-house efforts and services, so that staff currently engaged in these activities have the capacity to catalog materials that require deeper MIT knowledge or expertise, and (2) to gain efficiencies in our end processing workflows. This effort was a continuation of using outsourcing services to best advantage and speed arrival of materials on the shelf.

Information Resource Development and Management

The implementation of the Archivists' Toolkit, an open-source software package tailored for archives, ushered in a new era for the Institute Archives. The system allowed the archives to automate and streamline a bevy of manual workflows for management and description of archival collections, including manuscript collections and MIT administrative records. The system also allows for easy web publishing of searching aids to greatly improve discovery of these unique MIT and special materials.

The Collections Management Group (CMG) and the Networked Electronic Resources Decision group conducted significant evaluative reviews to envision their work of developing and managing collections based on the changing publishing environment and shifts in spending on electronic resources. In part as a result of their analysis, the Dome Selection Group's work to identify collections for digitization was folded into the routine work of CMG and the subject specialists, and a Digital Operations Team was created to establish workflows across departments for digitization projects and ingesting of born-digital content and metadata into library systems. These reviews will continue to

inform the Libraries' strategic planning process as we reorient our collections strategy in response to new opportunities, trends in scholarly publishing, and budget constraints.

As a follow-on to the report of the R2 consultants, a number of groups were given responsibility to "productionize" several of the report's recommendations. The Task Force on Data Access for Storage Decisions finalized its report. The development of routine reports and subject profiles will go a long way toward systematizing storage decisions, saving staff time in the process. Using system-produced data as a starting point for major storage projects is not new, but using them more routinely to move materials to storage on a regular basis is.

In the last quarter of the fiscal year, the Processing Task Group both was tasked with and accomplished its charge—a comprehensive analysis of local processing workflows across the library system with the goal of responsibly integrating this work into a new unit within IR. Local processing staff were key intermediaries between circulation, technical processing, and collections staff to assure seamless services to library users. The recommendations in the task group's excellent report are detailed and wide reaching. The report will serve as a road map for the challenges and opportunities we face in streamlining workflows while striving to maintain acceptable service levels.

Service and System Enhancements

Building on the innovative thinking begun in the planning phase for an article delivery service, Technology Operations staff worked with staff in the Library Storage Annex and Document Services to create a new request interface within Barton for a delivery service for the MIT community. This creative use of SFX linking technology caught the attention of other libraries, and MIT library staff copresented the project results at the Ex Libris Users of North America conference this year. This new service was popular among those who used it to have journal articles housed in storage delivered to their desktops. More promotion will be done this year to assure that more of the MIT community takes advantage of this new service.

The Barton Advisory Group, led by a member of Technology Operations, accomplished another Aleph software upgrade. More than 40 staff throughout the Libraries participated in this effort. An entirely new course reserves module was the primary benefit.

The Local Technology Experts experimented with departmental services provided by IS&T to augment local technology support and implemented help desk software to manage the questions they receive. These efforts will allow us to use our resources wisely and tailor technology support based on data we collect about the types of requests made by library staff, some of which support public computer use in the Libraries. Upgrading to Windows Vista was a major accomplishment of this group.

Touchstone, MIT's implementation of the Shibboleth System, a standards-based, open-source software package for web single sign-on across or within organizational boundaries, was successfully implemented by Technology Operations staff working closely with IS&T. This is a real service improvement for users who will no longer be inconvenienced by having a separate login for Barton's Your Account.

Vera Multi-Search, our long-awaited new discovery interface for licensed resources for journal articles and other e-resources, moved into production in fall 2008. A Technology Operations staff member designed the sophisticated backend operations that assure that data from multiple systems converge in one interface.

The MIT Libraries are an early participant in using WorldCat Local, the initiative of the Online Computer Library Center (OCLC) to provide an easily accessible online catalog interface with contemporary features and the ability to point users to local holdings and a wider universe of materials. Considerable work and assessment by staff across the Libraries have contributed to this ongoing beta that was refined throughout 2009 and will continue into FY2010.

New Staffing Opportunities

As a result of a yearlong strategic planning exercise in FY2008, the Institute Archives was poised to make a number of changes to its staffing complement as opportunities arose. The Libraries prioritized the need to focus on rare and unique materials in the Institute Archives by establishing a rare books program coordinator. We were fortunate to have on staff a well-established expert who moved into this position in late summer 2008. The impact of this additional staff member in the archives has already made a difference, from working with donors and becoming a member of the Exhibit Committee to assessing the strengths of the existing collections. During this same period, we appointed an MIT 150 archivist for a three-year term; the generous support of the Institute administration funded this new position to create a timeline for MIT's anniversary celebration in 2011.

As a result of these shifts in responsibility and as a follow-on to several key projects, archives staff reframed a vacancy and created a new two-year position for a MIT thesis and publications coordinator. This position brings together the responsibility for coordinating the acquisition and processing of MIT theses and MIT publications in both paper and electronic forms, as well as working with staff across the libraries on the digitization of existing MIT research publications (technical reports and working papers). Finally, after the retirement of a long-time archives staff member, we reformulated that position and created an administrative/reference assistant position in keeping with departmental needs.

Elsewhere in IR, we recast a senior cataloguer vacancy resulting from a retirement into our second metadata librarian position to expand our ability to provide original metadata support particularly for unique and MIT-produced content and especially for digital library materials, a growth area for the MIT Libraries. A binding assistant position in preservation services was broadened to be a digital scanning and binding assistant position, and a storage assistant position vacancy was expanded to a digital scanning and storage assistant position—all in keeping with new directions and future needs.

Information Resources Overview

The Library User Survey 2008 results show a clear preference for electronic content, as did the 2005 survey. We have been responding to these requests and are gratified to see that usage of many electronic databases and journals far surpasses usage of their print equivalents. Not all research content is available in digital form, though, and so we must balance our resources and services wisely to meet these needs as well. Our rich print and other format legacy collections require that we manage, conserve, and preserve them as appropriate. Several digitization projects are under way to deliver and preserve some of these analog materials; we have only just begun to address this challenge.

Table 8. MIT Libraries Information Resources Profile, 2008 (Latest Full Year Available)

Print	Electronic	Other Formats
2,881,493 printed volumes and serials	43,391 journals*	2,294,414 microforms
11,448 serial subscriptions*	570 reference databases	395,028 image slides
1,221,011 monographs	32,560 e-books	55,249 photographs
126,514 maps	59,069 computer files**	6,607 videos/films
19,304 archives/manuscripts (in cubic feet)	22,000 e-theses in DSpace@MIT	32,191 sound recordings

*The categories of print serials subscriptions and electronic journals partially overlap. Some journals are still purchased in both print and electronic formats; others are print-only or electronic-only subscriptions.

**Includes numeric, observational, and geographic information system (GIS) data; digital maps; architectural images; and federal documents.

Acquisitions Highlights

We expanded our portfolio of electronic resources to meet the demand for more content delivered to the desktop. With the second year of a recurring \$25,000 allocation from the provost, we were fortunate to be able to subscribe to ProQuest Digital Dissertations (full text), a resource that demonstrated value to researchers with particular importance to graduate students. In preparation for continued constraints in the collections budget, we converted several key annual subscriptions to perpetual access/ownership models in order to greatly reduce our overall spend on these electronic resources over time: American Chemical Society (ACS) Legacy Archive, 1879–1995; Encyclopedia of Life Sciences; and Treatise on Geochemistry. And with a combination of endowed funds, savings from negotiating more favorable pricing for e-resources, and end-of-the-year contingency funds, we purchased the final segment of the American Institute of Aeronautics and Astronautics Technical Papers, 1963–1974 and a long-sought-after backfile of the Web of Science, 1900–1972. Researchers from a wide range of departments, labs, and centers have requested the latter frequently.

We continued to support MIT's Energy Initiative utilizing a portion of the \$75,000 of provost funds earmarked to support educational and research needs relating to the many projects making up the initiative. In FY2009, we purchased 600 monographs and purchased or licensed 21 journals and databases in this area. We expect demand for resources in this area to expand.

Several significant gifts were gratefully received. Among these gifts were a selection of hand-colored lithographs from John James Audubon's *Viviparous Quadrupeds of North America*, a gift of Ron Juster and family; monographs related to 19th-century hydraulic engineering; 2,500 monographs covering American history and immigration from the collection of Oscar and Lilian Handlin; 2,000 monographs and pamphlets in literature, philosophy, and linguistics from Richard Cartwright; and nearly 300 videos and films donated by Stephen Brophy. Our collections are richer for these donors' generosity.

The Institute Archives was pleased to begin new collections with donations documenting the work of Rafael Bras, Alex d'Arbeloff, Simon Foner, Donald Hartman, Leo Marx, Frank McClintock, Harriet Ritvo, and Robert Whitman. The archives was also fortunate to add material to existing collections, including those of Leo Baranek, Noam Chomsky, Jacob den Hartog, Jeffrey Steinfeld, and Laurence Young. Administrative records continued to be transferred; of note are the earlier records of the Alliance for Global Sustainability and the Energy Laboratory, records of the Comparative Media Studies program, and a set of iCampus project records. These unique MIT materials are predominantly print-based but no less valuable to researchers.

Lastly and certainly not least, we received an extraordinarily generous donation from Thomas F. Peterson Jr. '57, a great friend of the MIT Libraries, for the purpose of cataloging the Vail Collection. Tom's thoughtful gift to the Libraries will make it possible for us to catalog the Vail Collection, in its entirety, over the next three years. This collection is one of the world's most expansive compilations on electricity, electrical engineering, magnetism, lighter-than-air travel, and animal magnetism.

Transition from Print to Electronic Collections

After more than a decade of incremental shifts of emphasis toward acquiring and building digital collections, evidence indicates that we have crossed the threshold. Expenditures for electronic resources surpassed those for print, with 60 percent of the collections budget dedicated to e-resources. Ten years ago, only 15 percent of the budget was expended on electronic content. Many interrelated factors have contributed to this change, among them in recent years, our continuing systematic conversion of print plus electronic journal subscriptions to electronic only, provided the electronic version of the title is available in a digital archive such as Portico. The cost of electronic content, especially for journals, continues to increase disproportionately to the Consumer Price Index. Our database holdings have increased from 200 titles 10 years ago to nearly 700 titles today; they account for an ever-increasing portion of our collections budget.

Table 9. Expenditures for Information Resources (Percent of Whole) 1999–2008

	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
Print serials	60	57	51	53	53	51	43	42	39	26
Print books	19	18	18	17	17	15	17	14	14	10
Binding	4	4	4	3	3	2	3	3	2	2
Electronic resources	15	18	24	24	25	29	35	40	43	60
Document delivery	2	2	3	2	2	2	1	1	1	1

In 2009, we converted over 650 journal titles to e-only. Reducing the costly handling of print titles is a byproduct of this shift.

Table 10. Journal Subscription Formats (Percent of Whole), FY2006–FY2009

	FY2006	FY2007	FY2008	FY2009
Print only	38	34	24	23
Print plus electronic	40	35	44	37
Electronic only	22	31	32	40

We are beginning to see an upswing in demand for electronic books and began to standardize the way we acquire and make e-titles available. Several notable e-collections were purchased this past year, including Econometric Society Monographs Online and the ACS Symposium Series.

Digital Projects

The Libraries continue to move forward with our Dome/DSpace@MIT initiatives to digitize unique MIT materials and ingest born-digital MIT content. We are especially interested in vulnerable born-digital content to host in Dome/DSpace@MIT. Funding for these projects was a combination of library resources and generous donor funding. Working with staff in Public Services, we established a Digital Operations Team that developed common practices and standard workflows to allow us to move projects into a production environment more quickly. The following are some of the successes from this year:

- *MIT Communications Forum*: Summaries and transcripts from the forum, which has hosted more than 25 years of cutting-edge discussion of the cultural, political, economic, and technological impact of communications, have been digitized.
- *Technical Reports*: The *Artificial Intelligence Lab Working Papers*, *Sloan Working Papers*, and *Center for Energy and Environmental Policy Research Working Papers* were successfully ingested and are now available in DSpace@MIT. See <http://dome.mit.edu/handle/1721.3/36880>.
- *Kepes-Lynch*: The Kevin Lynch/Gyorgy Kepes “Perceptual Form of the City” project was completed. The project included digitization of 2,000 photographs and digitization and transcription of more than 1,000 pages of field notes. This demonstration project was one of the first to be available in Dome. See <http://libraries.mit.edu/digital/lynch/index.html>.
- *Project Whirlwind*: A total of 1,600 PDFs of digitized research reports (out of 1,800 PDFs overall) were ingested into Dome. Metadata work on this project was performed by staff of Cataloging and Metadata Services, with input from archives staff. See <http://dome.mit.edu/handle/1721.3/37456>.
- *Edgerton Online*: This collaborative effort involving the MIT Libraries, MIT Museum, Office of Educational Information Technology (OEIT), and Edgerton

Center really ramped up in 2009. Scanning of all the microfilm was completed, and five additional original notebooks were scanned.

- *Vail Balloon Prints*: Scanning was completed in June, and basic metadata has been created. A sample of images appeared in Flickr (see <http://libraries.mit.edu/archives/exhibits/balloon/>).
- *Eliot Bible*: During the digitizing of the Edgerton Notebooks, we took the opportunity to have the Eliot Bible digitized. The Eliot Bible, published in Algonquin, is a second edition of the first book printed in America. After the scanning, the book was stabilized by special collections conservator Nancy Schrock.

Selected Outreach and Special Events

On September 17, 2008, the MIT Libraries, in conjunction with the Arthur D. Little Inc. (ADL) Alumni Association, were delighted to host an event in celebration of the gift of the ADL archives to MIT in recognition of the long-standing connections between ADL and MIT. Several unique and special items, some loaned for the occasion, were on display in the Maihaugen Gallery, including the materials from Little's time at MIT, the original company board minutes, and the notable silk purse made from sows' ears.

On the educational front, the Lewis Music Library hosted a talk titled "enChanting Musical Artifacts in Unlikely Places: Rare Resources in MIT's Lewis Music Library" on March 3, 2009. Michael Scott Cuthbert, MIT assistant professor of music, and Nancy Schrock, the MIT Libraries' Thomas F. Peterson Jr. conservator for special collections, demonstrated the value of original sources by examining three items containing medieval and renaissance chant, two of which were acquired during the past year through donations to the Lewis Music Library. During the talk, Nancy described the physical characteristics of these items while Michael discussed them from a musicological perspective. The presentation raised and answered many questions about manuscript use, musical context, and the changing role of chant in the church, questions that can be discussed only through a close examination of the physical form of these valuable sources. See <http://mitworld.mit.edu/video/653/>.

The Maihaugen Gallery's second exhibition was unveiled on April 1, 2009. The *Fascination of Flight* showcased both the dream and the reality of flight through historical materials, archival records, and current collections owned by the MIT Libraries. It also highlighted the pioneering work of the Institute's faculty, students, and heroic graduates and acknowledged their contributions to the science of powered flight.

A reunion of the Project Whirlwind team and a celebration of MITRE's 50th anniversary were held on June 30, 2009. The celebratory lunch acknowledged the transfer of the Project Whirlwind records back to the Institute Archives, where they are now available to the public. The Project Whirlwind collection is a compilation of records of the pioneering digital computing research conducted at MIT in the 1940s and 1950s. Whirlwind was developed as part of a project initiated by the Office of Naval Research to design a universal flight trainer that would simulate flight.

Looking Forward

IR staff were actively engaged in the strategic planning process that was a priority of the MIT Libraries this year. The planning begun last summer took on a greater sense of purpose as it became clear midyear that budget constraints would serve as a backdrop. IR staff joined their colleagues across the Libraries in planning and implementing early decisions for consolidating several workflows and collections. We will begin this fiscal year by integrating many of the staff associated with local processing into IR and will work together to streamline processing. We are grateful for this opportunity to work more closely with staff in Public Services to provide services for the MIT community.

We will continue to implement new services and systems to enhance discovery and delivery of collections, experiment with ways to do our work more efficiently in order to have more staff resources to expand services in new directions, collaborate with partners across the Institute to prepare for MIT's 150th anniversary, and work to ensure that the preservation of digital collections and electronic records is as robust as our stewardship has been for our print collections.

It is my great pleasure to work with the dedicated and enthusiastic staff in Information Resources.

Diane Geraci

Associate Director for Information Resources

Administrative Services

Highlights of the Year

Administrative highlights of FY2009 include the following:

- The economic downturn and its impact on the Institute's finances turned the budgeting process for FY2010 on its head. Plans were put in place to close branches, reduce information resources, and cut positions beginning in July.
- Efforts to increase staff diversity were made a priority, and numerous library staff actively engaged in them.
- A full renovation of Dewey Library began in December 2008 and will be completed before the start of the 2009 fall semester.

Budget and Finance

Fiscal year 2009 began with a sense of plenty: resources allocated through the GIB as well as the increased payout on endowed funds positioned the Libraries to make strong progress in key strategic directions. By October it was clear that the economy was contracting precipitously and that there would be significant impacts on MIT's finances. In November and December we learned that all areas of the Institute would face substantial cuts beginning in FY2010, requiring major changes to the way we operate and the extent to which we are able to provide information resources to the

MIT community. That new reality has been borne out over the past six months as the Libraries have slowed spending and planned a series of changes for the next fiscal year aimed at streamlining operations and ultimately lowering costs. With a 6 percent cut to the GIB allocation for FY2010, those changes—regrettably—included staff layoffs and reductions in hours. We know that the GIB will be cut by as much or more in FY2011 and FY2012, so fundamental change is needed if the Libraries are to continue to meet the needs of the Institute. Fortunately, strategic planning began in the summer of 2008, long before anyone knew the depth of this recession or its impact on MIT's finances. By recasting our organization in ways that foster increased consolidation and efficiency, we are confident that we can mitigate the dramatic fiscal consequences of this downturn.

Key fiscal points are as follows:

- The Libraries were told to expect GIB reductions of 6 percent in each of the three fiscal years beginning in FY2010.
- Despite the cut for FY2010, a special allocation of new base funding to offset a portion of serials inflation was generously provided by the provost to help mitigate the serious negative impact on support for teaching and research. It was made clear, however, that there would be no such support in FY2011 or FY2012.
- To achieve required reductions for FY2010 (\$1.4 million), the Libraries cut \$600,000 from staffing, \$600,000 from collections, and \$200,000 from operations. Staffing reductions are detailed below in the Human Resources section.
- Pool A payout grew by over 30 percent in FY2009. Since most of the Libraries' endowed funds are used to purchase books, book selectors gained purchasing power for the first time in many years. Also, the Libraries were able to put aside a portion of the increased payout for costs associated with cataloging and end processing.

The following principles established by the Libraries' Steering Committee guide decisions about budget reductions:

- The Libraries will be guided by mission, experience, data, and feedback received from recent surveys of students and faculty.
- We will benefit from insights provided by the Faculty Committee on the Library System and the ideas that have started to flow from the strategic planning process begun earlier this year.
- Reductions will be made on a programmatic basis, to the degree possible, to reduce the need for across-the-board cuts.
- Reductions in collections and operations will play an essential role in the Libraries' strategy, but we recognize that such reductions alone will not achieve the scale of budget reductions required.
- Library staff will be encouraged and provided with the means to contribute their ideas.
- Budget planning will be as open and transparent as possible.

Human Resources

Moderate gains in some Human Resources areas in the Libraries were countered with a number of staffing challenges in FY2009. The Institute's growing activities around interdisciplinary, interinstitutional, and international programs led to even greater demands for new content and services. MIT's user community continues to be among the most innovative, mobile, and information-intensive in the world. These demands translate to a need to attract, retain, and develop first-rate, expert staff across all departments of the Libraries.

Early in the fiscal year we focused attention on two specific areas that affect the Libraries' workforce: (1) improving the market and competitive position of both administrative and support staff salaries and (2) establishing the MIT Libraries as an organization that seeks greater diversity among its staff. The latter effort was specifically in response to MIT president Susan Hockfield's challenge to make diversity and inclusion a top priority at the Institute.

On the heels of progress in both of these areas, the Libraries faced and continue to face significant staff cuts in order to meet the budget reduction targets for the next three years. Trying not to lose ground in the progress in diversity and competitive salaries, we will now focus our attention on moving forward in a way that meets strategic needs but with considerably fewer staff. Fortunately, a strategic planning process was begun in the Libraries in the summer of 2008. This effort has provided a new framework for reshaping the Libraries' organization while at the same time coping with the new financial realities.

Staffing and Recruitment

Staffing activity in the Libraries in FY2009 was minimal—attributable, in part, to the budget forecasts received midyear. The reason for the diminished activity early in the fiscal year was that a number of critical positions had been filled in FY2008. It is worth noting that approximately one fifth of the 16 positions filled in FY2009 were underrepresented minorities.

Three administrative staff positions were filled, a modest number considering there were 16 appointments in that category the previous year. Two were critical librarian positions focusing on areas of metadata and bioinformatics, and the third was a term archivist position to support the MIT150 initiative. The latter provided us with an opportunity to promote an underrepresented minority from within—a support staff member in the Institute Archives who had recently obtained her master of library and information science (MLIS) degree with a concentration in archives from Simmons College. Additionally, our search to fill the head of donor relations and stewardship position was completed in FY2009, but the appointment will begin in early FY2010. It will fill the vacancy created by the former director of development, who moved to MIT's central Resource Development in summer 2008. The Libraries' internal position was redefined to work closely with a future appointment within central Resource Development; the individual filling this latter position will serve as the major gifts officer for both the Libraries and OCW.

Support staff recruitment was equally light in FY2009. Thirteen positions were filled, representing only half the number of vacancies filled in FY2008 and a little more than 10 percent of the support workforce. Two of these appointments were filled by underrepresented minorities; six of the individuals hired either were currently enrolled or had stated plans to enroll in the MLIS program—reinforcing the strategy to “grow our own” professional staff and feed the librarian pipeline. Continuing a strategy used in recent years, eight of the appointments are term positions, which have historically allowed the Libraries flexibility to be responsive to new initiatives, services, and fiscal challenges. Only a quarter of the positions were traditional library assistants, demonstrating the variety of skills currently required to support a library enterprise such as MIT: conservation, scanning, desktop support, resource development and communications, and metadata quality assurance, among others.

Recruitment activity for sponsored research staff included only one position. This was a three-year term librarian appointment to support the Society of Architectural Historians (SAH) Architecture Visual Resource Network, which is a Mellon-funded project based at SAH involving several MIT Libraries staff at Rotch Library.

In FY2009 the Libraries employed about a dozen associates through the MITemps program, both as library assistants and librarians. This program continued to be a valuable resource and enabled us to complete ongoing work as well as carry out short-term projects in the face of budget and staffing challenges.

Retention

The retention rate for library staff in FY2009 was over 90 percent. A combined total of 16 staff members left the Libraries for various reasons.

Three staff members retired from the MIT Libraries this year. Louisa Worthington Rogers, biology, medicine, and neurosciences librarian and branch librarian of the former Schering-Plough Library, retired after more than 17 years of service to MIT and 37 years to the library profession. Two long-term support staff also retired in FY2009: Virginia Such, reserves assistant in Hayden Library and formerly of the Reserve Book Room, left the Institute after 38 years of service, and Lois Beattie, administrative assistant in the Institute Archives and Special Collections, retired after a 28-year career in the Libraries. We congratulate and thank them for their long-term service and dedication to the Libraries.

There were 11 support staff departures for reasons other than retirement. Two were the result of family relocations, one was the end of a term appointment, and two were a result of full-time educational pursuits. Three individuals accepted librarian positions at other institutions. While it is unfortunate that we cannot retain newly degreed librarians, we recognize the important role we play as an institution and as an organization in feeding the professional librarian pipeline. The financial support provided through the Institute’s tuition assistance program and the valuable preprofessional experience gained in the MIT Libraries are significant factors in the growth and development of these young professionals. It is unfortunate to note that three of the support staff departures in FY2009 were from underrepresented minorities.

Only four administrative staff members left the Libraries in FY2009. Of those, one was recruited by MIT Resource Development, one librarian accepted a position at Harvard, and two—one librarian and one information technology staff member—relocated from the Cambridge area for family reasons. One of the four departures was from an underrepresented minority.

One sponsored research staff member completed his appointment in FY2009. Following the close of the Mellon-funded SIMILE Project, research scientist Stefano Mazzocchi departed in September 2008.

Layoffs and Reductions

The depth of the budget cuts required reductions of substantial amounts from labor costs in addition to operating and collections budgets. Guided by the principles stated above, the Libraries' Steering Committee, in consultation with department heads, formulated strategies for staff cost savings that could be realized in FY2010. A total of five staff members—three support staff and two administrative staff—received layoff notifications in February 2009 with effective dates at the beginning of FY2010. In addition to the layoffs, a similar number of other positions were reduced in hours per week or percentage effort, and several unfilled positions were eliminated. These reductions represent the first round of staff cuts. Additional cuts are anticipated and will be implemented as programs are reassessed and the Libraries' organizational structure is reconsidered.

The immediate impact of staff reductions for FY2010 will be in seven functional areas: (1) branch libraries, (2) gifts program, (3) central print acquisitions and processing, (4) local print processing, (5) administrative support, (6) archives reference, and (7) monograph cataloging.

Affirmative Action and Diversity

Below are snapshots of the current staff profiles in the Libraries and Academic Media Production Services. People from underrepresented minorities account for 11.4% of the total Libraries' staff; unfortunately there is no representation among current AMPS staff.

Table 11. Current Staff Profile: Filled Positions

Staff Category	Total	Male		Female		White		Black		Asian		Hispanic		Native American		Total Minorities	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Libraries																	
Admin	96	33	34%	63	66%	86	90%	4	4%	3	3%	2	2%	1	1%	10	10.4%
Support	97	44	45%	53	55%	85	88%	4	3%	4	5%	3	5%	1	1%	12	12.4%
Total	193	77	40%	116	60%	171	89%	8	4%	7	4%	5	3%	2	1%	22	11.4%
Academic Media Production Services																	
Admin	13	11	85%	2	15%	13	100%	0	0%	0	0%	0	0%	0	0%	0	0%
Support	4	3	75%	1	25%	4	100%	0	0%	0	0%	0	0%	0	0%	0	0%
Total	17	14	82%	3	18%	17	100%	0	0%	0	0%	0	0%	0	0%	0	0%

In FY2008, the Libraries began to strengthen its commitment to recruiting and developing a diverse workforce through the establishment of a diversity council that explored how we might shape and refocus some of our staff programs to encourage and support greater diversity. FY2009 was marked by events at both the Institute level and the library level that moved us forward in our thinking and our actions.

- We continue to be proactive in our search processes to include candidates from minorities in our interview pools whenever possible.
- Eleven library leaders attended MIT's Diversity Congress in November 2008 and were engaged and inspired by the event.
- The Libraries established meaningful connections with others on campus who are committed to this issue, in central Human Resources as well as within other departments, labs, and centers (DLCs).
- We formally incorporated diversity and inclusion as a factor to be considered by staff in the annual performance review process.

A particularly noteworthy venture that advanced our commitment to diversity was the October 2008 program titled "An Exploration of Academic Research Libraries in Cambridge." MIT Libraries joined forces with Harvard College Library to cohost this program for members of minorities who were currently in library school or who are new to the profession. The two-day event was the first joint program of its kind and provided participants an occasion to learn about the initiatives and opportunities for librarians serving research and teaching communities. Thirty-one guests—all of whom were current or past participants in the Association of Research Libraries's Initiative to Recruit a Diverse Workforce or the American Library Association's Spectrum Scholar Program—spent a full day at each host library and were provided glimpses into the dynamic and distinctive environments of these two world-renowned institutions. Extensive staff participation from both libraries provided guests opportunities to interact directly with those who have chosen careers in academic librarianship and to hear some of the reasons so many professionals are drawn to these stimulating environments. MIT Libraries' staff were grateful for the opportunity to meet and interact with this impressive group of new or soon-to-be library professionals and were inspired by the level of interest, engagement, and enthusiasm that they brought to the program.

By all accounts, this event was a tremendous success. Nearly two-thirds (19) of the participants responded to an MIT Libraries' survey conducted via Zoomerang. Data clearly indicated that we achieved two fundamental goals: broadening participants' career considerations to include academic libraries and softening the mystique of MIT so that they might consider employment in the MIT Libraries as a career option. We received overwhelmingly positive feedback about the event, including the following statements:

"I think I'm redefining my own professional identity. This experience has really begun to crystallize my thoughts and has renewed my initial inspiration."

"I can see myself working here!"

“Contrary to stereotypes about MIT as a techie campus, the people-centric feel of everyone—including the students who had no idea who we were or why we were there—was palpable in everything about the campus.”

Not only did participants encourage us to provide similar opportunities to others in the future, our own staff were inspired as a result of their personal involvement in the day as presenters or partners and were eager to plan another such program in the future.

Of course, events such as this require substantial financial resources. While the total expense was evenly shared with Harvard, the cost to the MIT Libraries was about \$25,000, funded from the recruitment budget. Certainly some cost-saving measures could be employed in the future, but it will still require a significant commitment of funds to host another such event.

The timing of this event, on the cusp of the dramatic economic downturn, was unfortunate in terms of follow-up recruitment. We identified at least two individuals from among this group of 31 who had particularly impressive qualities and relevant skills for some of our current initiatives and who also demonstrated a keen interest in working at MIT. Unfortunately, we did not have the headcount or budget to place them in the MIT Libraries this year.

Other activities to advance diversity required only a modest level of funding. These included attendance at job fairs and diversity conferences, exploring the creation of internship opportunities within the MIT Libraries, providing financial support for skills and leadership training of our own minority staff, and offering hiring bonuses or substantial relocation support to staff recruited from underrepresented minorities.

We remain committed to diversity and inclusion within the MIT Libraries and at the Institute and have been successful in engaging a significant number of our staff in these efforts. One of our head librarians served as a cofacilitator in the first of a series of diversity dialogues organized by MIT Human Resources. Institute staff were invited to these sessions, held last spring, which focused on the topic of unconscious bias.

Library Staff Salaries

It is critical that the MIT Libraries attract and retain the best talent in order to serve the needs of the MIT community. Competition for qualified library professionals and support staff has always required that we be proactive with regard to salary issues. We are mindful of the high cost of living in the Boston area and its impact on our ability to recruit library professionals from national pools. To this end, the interim increase pools and contingency funds for market adjustments provided through MIT Compensation had a significant impact on improving our competitive edge in the marketplace this year.

Interim increase pools for both administrative and support staff have been enormously helpful in maintaining effective compensation strategies in the Libraries. We have applied these funds for purposes of staff retention, promotions, and addressing internal equity issues. A significant portion of the pools was also used for off-cycle merit increases in accordance with the Libraries' performance review process, specifically for

those staff completing their initial 6- and 12-month employment intervals. The charts below show the percentage distribution of those funds. Noteworthy is the percentage used to retain highly valued, critical staff—the highest in both staff categories.

Table 12. Interim Increase Pool Distributions, FY2009

	Total interim increase	Purpose			
		Retention	Promotion	Internal equity	Out-of-cycle reviews
Administrative staff	\$51,800	36%	29%	8%	27%
Support staff	\$27,000	43%	11%	12%	34%

Market Reviews

The Libraries' human resources administrator worked closely with MIT Compensation to analyze market data, establish benchmarks, and apply available funds judiciously. Although we remained cognizant of our standing among our national peers in the Association of Research Libraries, we consulted local data for the FY2009 market reviews. The Boston Area College and University Survey (BACUS) provided relevant and up-to-date data, as well as good job matches for both support and professional staff. This survey group, which included Babson College, Bentley College, Boston College, Boston University, Brandeis University, Harvard University, MIT, Northeastern University, Suffolk University, Tufts University, and Wellesley College, is particularly relevant since we face similar cost-of-living challenges in recruitment and retention.

In November 2008, a review of support staff salaries relative to external market and internal equity was conducted. All support staff positions were included in the review—library assistants, administrative and financial assistants, computer support assistants, and library liaisons. Analysis of the salary data in comparison to BACUS revealed the need for adjustments to approximately one-third of our support staff positions. A total of \$34,400 was applied to address these market issues; \$26,500 was provided through the Compensation Office's contingency fund and the remainder from the Libraries' interim increase pool.

A comprehensive review of the Libraries' administrative staff salaries was conducted in January 2009, again to ensure that they were competitive. BACUS was the primary data source but we used other salary surveys as well, including COMPBASE, which covers over 175 companies and colleges/universities in the Northeast US. This survey provided sound benchmarks for many of our nonlibrarian professional positions. To ensure pay equity within job families across the Institute, internal MIT salary data were also consulted. Approximately 30 percent of the administrative staff positions required adjustments, totaling \$89,000. As with the support staff, a significant portion of these adjustments was funded by the Institute's contingency fund (\$85,000), with a minor supplement from the FY2009 interim increase pool for administrative staff.

As a result of these recent and past efforts, we made steady progress bringing our salaries in line with the market and making sure they are competitive. The latest data from the Association of Research Libraries annual salary survey cited below are from

FY2008. Although these data show MIT as holding steady over the past three years in average professional librarian salary, we believe the data from FY2009 will reflect improvement in our standing.

Table 13. Association of Research Libraries Annual Salary Survey Ranking of MIT Average Professional Librarian Salaries

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
Average professional salary ranking	16	13	21	21	24	25	24

Among a group of 21 selected peer institutions in the Association of Research Libraries, MIT advanced three steps in average professional salaries reported for FY2008. Harvard advanced two steps and still remains ahead of MIT. However, we can take some satisfaction in realizing one step toward closing the gap.

Table 14. Association of Research Libraries Annual Salary Survey Ranking of MIT and Harvard Professional Librarian Salaries Among Selected Peer Institutions*

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
MIT	9	9	7	11	11	10	7
Harvard	8	8	8	9	7	6	4

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

MIT's Compensation Office has been a highly collaborative and supportive partner in managing the Libraries' salary program to meet the challenges of talent management. We are grateful for that partnership and the efforts made on our behalf. The Libraries also recognize and gratefully acknowledge the enormous support received from the Provost's Office and the Corporation's Salary Subcommittee in these efforts.

Librarian/Archivist Promotions

The Libraries' promotion policy provided an opportunity for advancement by developing increasing levels of competence and contribution within any given librarian position. In accordance with the Libraries' promotion policy (librarians/archivists who demonstrate ongoing professional growth within the context of established criteria around knowledge and experience, commitment to service excellence, leadership ability, and outside contributions are eligible for promotion from II to III), one Archivist II was promoted to Archivist III in FY2009. There were no I to II promotion cases brought forward in FY2009.

Staff Recognition

Rewards and Recognition Program

The Libraries recognized four individuals and four teams at the ninth annual Infinite Mile Award ceremony on June 10. The Rewards and Recognition Committee was

particularly challenged this year in carrying on with this celebratory event, traditionally marked by fun and frivolity, in light of the announcement of staff cuts in February. However, as evidenced by the strong number of nominations received in this peer recognition program, staff found value and importance in recognizing colleagues' exceptional contributions and achievements in a meaningful way.

Recognizing a total of 21 colleagues in the Libraries and AMPS, awards were given in the categories of Innovation and Creativity; Communication and Collaboration; Results, Productivity, and Outcomes; Community; and Unsung Hero at this year's event. All Infinite Mile awardees received a cash award and a certificate of recognition. The ceremony, held in Killian Hall, was followed by a celebratory barbecue luncheon in Walker Memorial where staff were treated to the sounds of Dewey and the Decimals, a group of talented library staff whose musical participation in the event set a festive tone.

Now in its eighth year, the Libraries' Spot Award Program continued with great popularity. In fact, participation in the program increased by 8 percent, with a total of 3,100 thank-you notes submitted—an average of 258 per month. The program provides an opportunity for staff to express everyday appreciation for a job well done, lending a helping hand, or the little things that contribute to a collaborative and supportive work environment. Random drawings from these entries were held each month, and gift certificates were presented to four lucky winners.

For the fourth consecutive year, library staff members were proud to see a colleague receive an MIT Excellence Award. Ryan Gray, administrative assistant in the Barker Engineering Library, received an award in the category of "Fostering Community: Making MIT a Great Place to Work." This award recognized the positive impact Ryan has on the community spirit within his local work environment, the library system as a whole, the extended MIT community—and beyond. Organizing social and recreational outings for his coworkers, serving as the Libraries' coordinator for the Independent Activities Period and Community Giving, tirelessly promoting MIT recycling efforts, collaborating with Red Fire Farms to establish a community-supported agriculture program on campus—these were but a few of the ways Ryan has made MIT a great place to work.

Annual Staff Reception

The Libraries held its annual staff reception in January. Although we cut back somewhat on the fare for this annual breakfast, the event still served very nicely in recognition of the dedicated staff of the MIT Libraries. New staff, as well as those celebrating service milestones of 10 (4 staff) and 20 (3 staff) years, were recognized.

Training and Professional Development

In an effort to educate new supervisors and to ensure consistent understanding and practice across the system, the Libraries' human resources officer and human resources administrator delivered a series of information sessions for library supervisors. Developed by the MIT Human Resources Employee and Labor Relations team, these sessions covered the topics of leaves, corrective action/discipline, interviewing and hiring tips, job/position evaluation, performance management, and preventing sexual harassment. The collaboration between Human Resources and the Libraries provided

supervisors and managers information about Institute policy and procedures as well as library-specific practices and applications.

A number of staff took advantage of local training opportunities offered through the Boston Library Consortium (BLC) on topics such as Google Advanced Search Techniques, Re-Purposing Print Documents, and Grant Writing and Funding Strategies for Preservation and Digital Projects. In response to the overwhelming interest expressed and the limited spaces available through BLC's offering of "Developing and Managing Digital Projects," the Libraries arranged to hold the one-day workshop on campus. Twenty-five library staff members attended the workshop, which was led by instructors from the Northeast Document Conservation Center. The class covered the principles of digital objects, preservation and access, metadata, and project workflow and management.

In an effort to provide support to library staff members impacted by layoffs or hours reductions, several information sessions were organized to assist staff in making connections to helpful resources and MIT contacts. A representative from MIT Staffing Services conducted a session on job searching, resume writing, and interviewing tips; two representatives from the Benefits Office provided information on COBRA, the impact of the American Recovery and Reinvestment Plan, retirement benefits, and other topics; and one of our own head librarians provided an overview of LinkedIn as a valuable professional social networking and job searching tool.

The Libraries place a high value on professional involvement and contribution, which not only benefits individuals in their professional development but also benefits our own growth and success as an organization. To that end, we provide financial support to administrative staff who are engaged in professional organizations through committees, conferences, presentations, and other collaborations.

In FY2009, nearly 60 percent of the Libraries' travel budget went to support professional development activities. This represented 105 events attended, undertaken by 60 of the Libraries' 100 administrative staff. Partial support was provided for approved activities; this support was not intended to cover expenses fully but most often provided coverage of 75 percent to 80 percent of expenses incurred.

Support for skill development, which accounted for about 15 percent of travel expenses, covered travel and registration expenses for approximately 20 staff members who attended workshops or training sessions to gain or develop critical skills or expertise relative to ongoing library initiatives. The remaining 25 percent of the travel budget was spent for administrative or other business travel, including that undertaken by the director and associate directors, as well as other designates, to conduct official business on behalf of the Libraries or to represent the Libraries in an official capacity.

A small task force was formed in late FY2009 to analyze travel and training expenditures in light of the budget cuts and to revise the Libraries' current travel funding policies. Several strategies will be implemented in FY2010 intended to strike a reasonable balance between cost savings and meaningful financial support for these important activities.

Facilities and Operations

In addition to projects noted below, the Libraries have been participating in the Institute's long-range capital planning effort, Vision 2030, since early spring. To date this initiative has been gathering information about current library spaces and our near-term planning around them. We expect Vision 2030 to move into a more active phase in FY2010.

FY2009 Space Projects

A complete renovation of Dewey Library (Building E53) began in December and will continue through the end of August 2009. Completed in three phases (one per floor) with the library remaining open throughout, this project represents a major improvement in library services to the Sloan and SHASS communities. Funded by CRSP over three fiscal years (FY2008–FY2010) and totaling \$4.6 million, it is remarkable for its transformation of the very dated facility into a modern, attractive, and efficient space for users and collections.

Funded completely by earnings from the Vail Endowment, the Barker Reading Room (Room 10-500) is in the process of receiving a partial facelift. Planning commenced last summer and work began this spring with the removal of journal shelves and repainting of the walls at street level. Installation of the new furnishings and minor lighting upgrades will be completed this summer to be ready when classes begin in September. Although the scope of this project does not include general lighting, dome skylights, or acoustics, it is a major step in improving one of the Institute's most important and iconic spaces. CRSP funded a project to waterproof portions of the Hayden Courtyard (Building 14) during the summer and fall of 2008. The purpose was to stop all leaking into the stacks beneath the courtyard, this being the third attempt to do so within the past 10 years. To date, there have been no leaks in the areas that were repaired.

Minor projects, all completed with library funds, were as follows:

- Completed reorganization of the fourth floor office space in the Barker Engineering Library
- Refurbished two small restrooms in Barker (sixth and seventh floors) and converted to unisex
- Painted the entrance foyer and stairwell of the Library Storage Annex (N57)
- Upgraded lighting and painted the wall behind the podium in the Digital Instruction Resource Center (14N-132) to improve video image quality for instruction
- Reopened the Americans-with-Disabilities-Act-compliant restroom in the Hayden 24-hour study space following infrastructure changes to mitigate plumbing and noise problems
- Upgraded space alarms in several libraries and offices with the support and assistance of MIT's Security and Emergency Management Office and added new alarms in Rotch, Barker, and Hayden libraries

Capital and Space Projects Pending for FY2010

- Completion of the Dewey Library renovation (September 2009)
- Completion of the Barker Reading Room refurnishing (September 2009)
- Repointing and waterproofing of the Building 10 dome exterior (June–October 2009)
- Roof replacement of Hayden Library, Building 14 South (Summer 2009)
- Replacement of the passenger elevator in Hayden (October–December 2009)
- Coordination of the closing of the Aero/Astro Library and Lindgren Library (Summer 2009)
- Completion of the new AMPS studio in Building 24 (September 2009)
- Relocation of the AMPS Distance Education group from Building 35 to Building 10 (Summer 2010)

Looking Ahead

The Libraries expect to focus considerable attention in FY2010 on the following administrative areas:

- Design and preparation of a new organizational structure in the Libraries, with the accompanying Human Resources-intensive activities
- Formulation of a significantly smaller budget that aligns with the Libraries' strategic priorities
- Maintaining a focus on increasing the diversity of the Libraries' staff at a time of reduced resources and opportunities for employment

Academic Media Production Services

Projects and New Initiatives

The development of MIT TechTV as a free video publishing platform and its adoption by the MIT community increased significantly in FY2009. Technical improvements implemented in the fall of 2008 facilitated greater use by a wide variety of MIT clients. MIT TechTV had over 900 unique contributors, 224 collections, and a total of 2,400 videos. From January through June 2009 it received over 200,000 visits from more than 200 countries. Since its inception, there have been more than 6.5 million viewings. Effective July 2009, the TechTV service will move out of beta in AMPS and into production in the Libraries.

With the collaboration and support of CRSP and MIT Facilities, a location was identified and detailed planning for a new production studio in Building 24 was completed. Construction is expected to be complete by October 2009.

The AMPS website was totally remade and launched in September 2008. The new site offers a much clearer picture of products and services to potential clients.

The video conferencing business line moved from the Video Production group to the Distance Education group at the end of FY2009. This decision was based on the much more rational alignment of technology and service infrastructure. The Distance Education group began a systematic revisiting of many DLCs that acquired video conferencing equipment in recent years but have failed to use it regularly. In addition, a new, very-low-cost video conferencing service will be implemented in the summer of 2009 to broaden options for Institute users.

A new, experimental project is under way to offer low-cost video capture using open-source openEyA software. The estimated hardware cost for a single installation is expected to be under \$1,200 and will allow for very-low-cost capture of chalkboard work in classrooms for student referral. The initiative will be tested over the summer of 2009 and deployed in a single classroom for the start of the fall semester. If successful, it will expand into other registrar- and DLC-controlled classrooms across campus.

Participation in a video strategy initiative led by Steve Gass and ACCORD to provide low-cost alternatives for video capture on campus was ongoing. Findings are due to be delivered to MIT's Council on Educational Technology in September 2009.

Technology Enhancements

- Migrated the MIT TechTV back end from external vendor Blip TV to Viddler, transitioned the TechTV website from an external vendor to IS&T, and implemented numerous enhancements to the functionality of the service in response to user feedback
- Developed a direct-to-digital lecture/event capture and publishing process using MIT TechTV for transcoding, hosting, and delivery
- Took steps to prepare for the transition from Real Media to Flash-only delivery of rich media content to Singapore in support of the Singapore-MIT Alliance
- Migrated MIT World video content from Akamai to AMPS servers for hosting
- Collaborated with IS&T to upgrade the 100-Mb connection to a 1-Gb connection for the AMPS 18.39 subnet, allowing an increase in streaming capacity and hosting services to clients
- Invested more than \$300,000 in classroom and streaming facilities infrastructure:
 - New Cisco routers for the AMPS Distance Education network, including a new router for NE48 postproduction connectivity to Building 9
 - Upgrade of the AMPS Network Operations Center (9-045), including raceways, power, and cabling
 - Server upgrades for Flash encoding
 - Acquisition of Echo360 capture appliances to reduce hands-on process flow and increase stability for rich media capture, with a goal of deploying these systems on field productions with the Video Productions group for lower-cost capture

- Replacement of audio equipment in Level V classrooms to comply with new Federal Communications Commission regulations (whitespace bandwidth that would interfere with wireless audio equipment is now being sold to vendors)
- Upgrade of the video conferencing infrastructure to provide improved capability for managed services such as desktop video conferencing support and recording and system monitoring for client service-level agreements
- Acquisition of logging software to provide statistical data for streaming media to clients
- Creation of a disaster recovery plan for streaming servers

Business Volume

Business volume as measured by revenue was up in all categories of AMPS services for FY2009. In addition to the general uptick in most areas, major factors contributing to this trend included a substantial increase in System Design and Management distance education sessions, a project to reformat MIT World video content in preparation for MIT World's new website, and numerous crafted video programs created for special events at the Institute.

Human Resources

- September 2008: hired a nine-month technical assistant (videographer) to provide production support throughout the fall and spring semesters
- November 2008: promoted a videoconferencing technician (support staff) to distance education technology administrator (administrative staff)
- February 2009: replaced the vacant part-time financial assistant position with a part-time operations assistant position focused on operations coordination and invoicing
- June 2009: extended the TechTV webmaster position through June 2011 and transferred it to the Libraries

Keith Glavash
Associate Director for Administration

Technology Planning and Administration

Strategic Technology Areas

Technological innovation in the domains of publishing, information, and knowledge management continued apace in the past year, leaving the MIT Libraries (as with so many other organizations in these industries) challenged to keep up. Rapid iPhone adoption made mobile access to information more pressing than ever, as did the ubiquity of inexpensive laptops and notebooks. Every student at MIT now has access to a computing device, most of them mobile. The Amazon Kindle seems to have finally made e-books acceptable to the mainstream and attracted a critical mass of publishers and readers to the online reading experience beyond journals and reference material. Cloud computing has become a pervasive computing meme, ranging from basic infrastructure (e.g., for storage) to complex software application platforms such as Google Docs and Facebook, and threatens to overtake open-source software as the biggest challenge to the traditional specialized software companies on which the Libraries continue to depend. For example, OCLC, the library world's largest nonprofit technology company, made great advances with its cloud computing services such as WorldCat Local (a system designed to replace locally run library public catalogs), and the DSpace Foundation moved to a cloud-based business model for fee-based storage services to Libraries. The interactive web (i.e., Web 2.0) continues to grow in popularity, and our clientele increasingly expect to be able to participate in the systems and services we provide, not just passively consume them. Finally, the vision of a next-generation, "semantic" web turned a corner last year with the popularization of the "Linked Open Data" concept, which the Libraries have been pursuing for years in the guise of the SIMILE Project. Despite the poor state of the economy and its impact on MIT and the Libraries, the rate of technological change hadn't slowed at all, and neither did our efforts to analyze and respond to changes to meet these new demands.

Digital Libraries and Archives

Open Access

Technology has provided much easier access to a vast amount of research and scholarship in digital formats, but the legal framework in which that access happens has changed from the days of print-only and relatively straightforward copyright guidelines. Today libraries license networked access to many journals and books, as well as a range of newer modes of sharing research, rather than purchasing them. Because of this, we may be subject to licensing terms that prevent activities we took for granted in the past. As access to research and scholarship is continuously squeezed, the MIT Libraries have made providing broad public access to scholarship (referred to as open access) a priority. That ambition was behind the creation of the DSpace repository for digital research, as well as efforts to license digital resources in a manner that allowed us to continue to exploit critical concepts such as fair use of copyrighted works in teaching. In early 2009, the MIT Faculty voted to adopt a policy on scholarly publishing whereby a copy of all peer-reviewed articles would be licensed to MIT for deposit in the Libraries' DSpace archive for open access. While this archive has been available to faculty since 2002, it was initially designed for entirely voluntary use. With DSpace now potentially supporting open access to every publication, its modes of use will be changing dramatically. MIT

faculty members publish on the order of 3,000 articles each year with hundreds of journal publishers, and implementing the new policy requires both technological and operational adaptations. The new policy has also necessitated tracking information about who has published what, making tools like Citeline (a new product of the SIMILE Project for publishing bibliographies on the web) more central to our planning for future services.

Digital Preservation

Protecting and preserving digital collections, whether they were born digital or digitized from analog media, remains a central concern for the MIT Libraries as for all cultural memory institutions. Digital material is fragile and expensive to manage and preserve over time, but without it there could be no research or teaching in this increasingly digital era. The MIT Libraries are studying the scope of the problem to decide what our role might be, and this past year we saw success in some aspects but a failure to progress in others. For example, the Libraries' FACADE research project recently completed its three years of work on capturing, processing, and archiving digital architecture data, including 2D drawings, 3D models, and all of the other digital byproducts of modern architectural projects. For this project, we played to MIT's strengths, bringing together talented staff from the Libraries and the Department of Architecture to work on solving the digital preservation problem for a defined type of research data for a defined audience. Because of that work, we now understand what will be required to build a 21st-century archive for architects, instructors of architecture and design, and architectural historians. We hope to put that knowledge into operational practice very soon. In other areas of digital preservation, such as the growing collection of digital research in DSpace@MIT, the range of our digital preservation activities has been very limited, and we are already seeing some data loss due to inevitable technology obsolescence. The necessary infrastructure and expertise is within our reach, but funding and competing priorities have made it difficult to finish the job.

DSpace

For the past six years, the MIT Libraries have supported the goals of open access to research and long-term preservation of digital research materials (see topics above) using a technology platform called DSpace. The platform was created by the MIT Libraries and Hewlett-Packard (HP) Labs in 2001–2002, and launched as an open-source software product in late 2002 to great enthusiasm from the library and research communities (see DuraSpace discussion below). As we pursue these objectives, we have made continual progress on improving the platform. This past year we completed a major upgrade of the software, enabling a new and improved user interface among a host of other new features. We also assisted with a completely new version of DSpace (referred to as DSpace 2.0) now available for early adopters to experiment with. Furthermore, we completed work to support a sophisticated assessment of the system for a variety of planning purposes and designed a major new addition to the product—a portal interface to provide web pages for individual faculty and researchers to publicize their publications and other research products.

Dome

Our efforts to digitize and publish online the important print collections from the Libraries have likewise met with success. In the past year we completed scanning for several major collections, including nearly 2,000 images from the Perceptual Form of the City collection built by MIT professor Kevin Lynch (1954–1959) and more than 1,500 documents from Project Whirlwind, which involved the development of one of the first large-scale high-speed computers ever built in the post-World War II United States. Now that we have the technical infrastructure and processing workflows in place, digitizing can continue at a rapid pace for any new collection that the MIT faculty identify as of high value to have online. More information about Dome collections is included in the Information Resources and Public Services reports.

Open Content Alliance

As part of our digitizing efforts, the Libraries joined the Open Content Alliance, a collaborative effort of a group of libraries and other organizations that are collectively building a permanent, openly accessible archive of digitized text and multimedia material. The archive was hosted by the Internet Archive for access, and the MIT Libraries received digital copies of all of its contributed books for long-term preservation.

Video and Rich Media

Efforts to integrate AMPS and TechTV into the Libraries' thinking and technical infrastructure continued last year, as described in detail in the reports of other directorates. The chorus of demand for video capture of lectures became louder in the past year and, with AMPS, we experimented with various solutions to increase coverage and lower costs for that service. We also worked on long-term solutions for managing and preserving video and other rich media materials, and to understand the scope of materials that should be maintained for the future.

E-Books and Google

In FY2009, Google reached a proposed settlement of a class action lawsuit brought by representatives of the publisher and author communities who objected to Google's ambitious Books Library Project to scan the contents of major research libraries for free online searching. The settlement was still before the court at fiscal year end, but it proposes a new full-text online collection of all books scanned by Google (7 million so far, with an ultimate goal of 15–20 million books). This enormous collection of online books would be licensed to academic libraries at an unspecified cost and would immediately become a must-have resource for students and researchers. Although the MIT Libraries have not been a direct contributor to the Google Books Library Project, we remain committed to advocating for affordable access to important scholarly works under conditions that enable the next generation of new knowledge.

DuraSpace

The past year was very successful for the new DSpace Foundation, the nonprofit organization established by MIT and HP Labs to support the large community of institutions using the DSpace software platform (nearly 600 at last count, the largest

market share for any digital repository system in use by the library community). In FY2009, the foundation completed the transfer of its technical infrastructure from MIT to the foundation itself and completed a round of funding to continue its operations independent of both MIT and HP. As part of its search for a sustainable business model (always a challenge for open-source software products), the foundation merged with another foundation that supports a complementary product (Fedora Commons) to leverage the resources of both communities and began to develop new services that the users of these two platforms need. The new organization is called DuraSpace, and its first offering will be DuraCloud, a cloud-based storage service that will allow libraries like MIT's to move their digital assets off of expensive, local hardware onto much less expensive and more scalable remote storage. The DuraSpace organization is already breaking new ground in the library technology arena and has successfully made the transition to independent status.

Library Enterprise Software

Integrated Library Systems

For the past few decades, libraries have relied on enterprise software known as integrated library systems to manage the complex business of acquiring, licensing, processing, and publishing information about their holdings—primarily printed books and journals but including many other formats like music, images, maps, computerized databases, and archival collections. As these systems age and need replacement, we are challenged to find new solutions for these business functions from the commercial sector, while open-source software solutions are beginning to emerge but are not yet capable of replacing the current systems. Meanwhile, the software industry is migrating toward a cloud computing model (i.e., hosted remotely) for software, and some of the libraries' major technology infrastructure companies (e.g., OCLC) have begun to offer such services as an alternative to locally run systems. The MIT Libraries will soon need to choose between the current mode (i.e., locally run, commercial software) and an open-source software platform with greater costs but more control or a hosted solution with lower costs but very limited control. For routine, traditional operations this decision might not be difficult, but in an era when many traditional operations are in flux and new operations are still emerging, the choice is less clear.

Electronic Resource Management Systems

As the Libraries have continued the transition to buying and licensing large numbers of digital resources instead of printed books and journals, the systems and technologies to manage those resources have become increasingly mission-critical. The MIT Libraries' system for managing its digital resources, Vera, is a locally developed computer application that is rapidly reaching its end of life. Identifying viable options for replacing the Vera system has been an area of active work for the Libraries for the past several years, and the option space continues to grow: rewriting MIT's locally developed system, investing in a commercial system to replace it, including the required functions in a next-generation integrated library system as mentioned above, or waiting for emerging cloud-computing services to become available (OCLC is planning to develop such a service in coming years). In the past year, we made significant progress in understanding MIT's requirements for managing digital resources and made modest

improvements to our current, locally developed system so that we can see if the market evolves to our best advantage.

Search and Discovery of the Libraries' Information Resources

As part of the Libraries' ongoing need to provide sophisticated search and browsing tools for our large collection of data (and metadata) from multiple sources, the SIMILE Project has for many years researched the applicability of semantic web standards and technologies to solving the problem. In the past year, SIMILE reached the end of its latest round of research funding and completed the conversion of more than five years of work into a new open-source software community for its ongoing maintenance. The many SIMILE tools continue to grow in popularity and are underpinning many websites today (including, for example, the Obama administration's <http://www.recovery.gov/> website). The SIMILE Project's mission—to advance our ability to integrate diverse data at the web scale and make it useful to people—continued to prove itself to be core to the mission of the Libraries and to have a major impact on our own field and many others. SIMILE has always spanned the continuum from personal collections to very-large-scale library collections, and in an era of unimaginable information overload our ability to understand the problem, produce solutions to it, and keep the Libraries relevant to our community in this regard will be critical. The Libraries can exploit SIMILE technology for a range of new services, from the public user interface to the FACADE archive of digital architecture data to an internal product portfolio management system for tracking the Libraries' many active projects to support better strategic planning by management.

On another front, the Libraries worked with OCLC to implement a new cloud service—WorldCat Local—for the MIT Libraries' holdings. The OCLC service allows members of the MIT community to search for books and other resources of interest and to see the Libraries' holdings (both print and digital) as well as the holdings of all of OCLC's thousands of other member libraries, representing every published book that any library has acquired. OCLC's service has additional benefits, such as WorldCat Mobile, a pilot service that allows users to search for and find books and other materials available in libraries near them through a web application they can access from a PDA or smartphone. We have been evaluating the WorldCat Local service to determine what changes are required (and whether those changes are possible) to allow us to adopt this service for our primary search and discovery user interface to the Libraries' holdings.

Finally, the Libraries launched a new user interface to our licensed e-journals and databases. The new user interface, Vera Multi-Search, supports federated search of the contents of some of these licensed resources in addition to its traditional service of simply finding what we license. This new service is also described in the Public Services section.

Educational Technology

Another strategic goal of the Libraries is to ensure that our collections and services are well integrated into other systems that students and faculty use daily, both on and off campus. This work is mainly coordinated by our participation in ACCORD (see the Public Services report for details). In the past year, the Libraries actively participated in the MIT DOS Project, whose aim is to integrate the systems behind DSpace, OCW, and Stellar (MIT's course management system). DOS hopes to achieve better efficiency across

these three systems and to develop a greatly improved user experience for faculty using any of these systems, or other Libraries services, in the course of teaching.

Network Security

This year MIT rolled out Touchstone, a new network authentication and authorization system based on the Shibboleth technology. This represented a major advance for MIT's network security infrastructure and was warmly welcomed by the Libraries as a means of achieving single sign-on for the MIT community to the range of networked resources provided by the MIT Libraries. As a first step toward using Touchstone, the Libraries implemented support for it in Barton—the online public catalog system that tracks what individuals have borrowed from the Libraries. We also made plans to implement Touchstone for a range of other Libraries systems, including Vera (for e-journal access), DSpace, and services such as interlibrary borrowing. In addition, Touchstone supports users who are not part of the MIT community via a mechanism that tracks them separately from MIT members, which will potentially solve a long-standing problem we have experienced with researchers who are not formally connected to MIT gaining access to our resources with temporary MIT accounts they no longer need. Touchstone is also covered in the section on Public Services.

Data Curation and Research Computing

The emerging US cyberinfrastructure for scientific and humanities research computing continued to dominate discussion of the future of research and research libraries. During the past year, the Libraries participated in the MIT Research Computing Task Force, whose charge was to make recommendations about MIT's support for the range of research computing needs for faculty, including both high-performance computing and research data management. While curating the unique, high-value research data produced at MIT has not been a traditional service of the Libraries, during the past year it became even clearer that this is a serious problem for the MIT community and an enormous opportunity for the Libraries given our traditional mission and expertise. The report of the Research Computing Task Force clearly expresses the role that the Libraries can play in supporting research data curation and recommends that we pursue that opportunity with full faculty support.

To pursue this objective, over the past year the Libraries helped develop a major NSF grant proposal to build a revolutionary new technology platform and service for global data research infrastructure, including sophisticated data curation and long-term preservation. Whatever the outcome of the NSF proposal, the Libraries determined that there is an unmet need at MIT to provide expert support to researchers in data management and long-term archiving and that the Libraries can and should play a major role in providing that service. To begin exploring that, we started a pilot project to archive data from robotics research into DSpace with faculty who believe that we can help them with this issue.

The final area of work on this problem was the Libraries' participation in the How Much Information? (HMI) project based at the University of California, San Diego, with the participation of MIT and the University of California, Berkeley. HMI is an industry-sponsored research initiative with the goal of discovering the quantity

and characteristics of data flowing through the internet. MIT provided a case study of scientific research data production on campus, via almost 30 faculty interviews, in six separate data-intensive research areas ranging from high-energy physics to neuroimaging. The six case studies produced for this project have been enlightening in terms of our understanding of the scope and nature of the need for data curation.

Conclusion

As we conclude FY2009, the MIT Libraries have continued to pursue multiple, complementary paths forward that exploit technology to meet our mission “to create and sustain an intuitive, trusted information environment that enables learning and the advancement of knowledge at MIT.” Across the knowledge industry, technology has opened up many new modes of discovering, accessing, and managing resources that libraries are challenged to support. The shift in the role of libraries from information buyers to information publishers will continue.

MacKenzie Smith

Associate Director for Technology