Director, MIT Libraries

A great benefit of involvement in the planning for MIT's 150th anniversary celebration has been the opportunity to learn more about MIT's fascinating history. Many of the characteristics of 21st-century MIT have their origins in the extraordinary effort it took to first create and then sustain MIT's novel and visionary educational philosophy of "mens et manus." MIT's future-oriented culture is deeply rooted in the Institute's need to continuously define itself and distinguish itself from other educational institutions.

"MIT has always been a forward-looking place, rarely dwelling on its past," writes David Kaiser in his editor's introduction to *Becoming MIT: Moments of Decision*. Over the past 150 years, the vision of an educational institution combining a solid foundation in the natural sciences with hands-on instruction has been reinterpreted many times, with the result being an institutional confidence few organizations can rival.

Not surprisingly, MIT's future-oriented culture produced a university library system that is, like MIT itself, inventive and forward looking. From an early expectation that libraries were not vaunted temples, but rather collections of relevant and timely materials meant to be readily available and conveniently used, to a passionate and persistent interest in exploring the use of data processing for information storage and retrieval, the MIT Libraries have thrived in MIT's risk-tolerant culture. MIT faculty and students in return value the Libraries not just for the grandeur of the facilities (although we have some of that) or the strength of deep, relevant collections (although we have those, too), but also for the ways the Libraries understand the work and culture of MIT and support the community's forward-looking productivity needs through student-oriented library facilities, highly skilled staff, and easy-to-use print and digital collections.

In 1976, Natalie N. Nicholson wrote of the MIT Libraries in the *Encyclopedia of Library and Information Science*, "As technology develops new methods of dealing with information, no institution will embrace them more eagerly than the Massachusetts Institute of Technology. Under the pressures of the information explosion, the increased demand for services, and the financial stringency that are experienced by all university libraries, MIT has been searching for solutions in technological and management innovation." The same is true of the MIT Libraries in FY2010.

In FY2010 the MIT Libraries began implementing the vision and strategy that will guide the Libraries for the next five years: "MIT Libraries: Achieving a Desired Future State for 2015."

The future state toward which the MIT Libraries are moving assumes two equally vivid and dynamic library service delivery systems, one of which is physical, focused primarily on our on-campus community, and one of which is virtual, focused on MIT faculty and students wherever they may be—on or off campus—and whatever their time zone. Just as successful retail enterprises deploy both online and brick-and-mortar operations, the MIT Libraries likewise need two vibrant service modalities to manage the bits and atoms that constitute the 21st-century research university, its students, and

its library. Reinventing the appropriate balance between the tangible and the virtual, adapting to MIT's evolving educational strategy, rethinking definitions of productivity, incorporating new tools and delivery mechanisms, and partnering effectively with other libraries will be among the Libraries' goals in the next five years.

The annual reports from the MIT Libraries associate directors that follow this introduction provide in-depth overviews of the work of the Libraries in FY2010 and—together with office and departmental reports—serve to complete and animate this report. The extraordinary effort of simultaneously downsizing and reorganizing the MIT Libraries dominated the year and is perforce the headline of most of these reports. As always with the MIT Libraries, however, there is more to highlight.

In FY2010 we were delighted to welcome Steven Horsch back to MIT and the Libraries when he accepted leadership of the Office of Donor Relations and Stewardship. We were also pleased to welcome Toni Green to MIT's Office of Individual Giving, Resource Development, and we encourage and support her efforts on behalf of leadership gifts for the Libraries. Particularly noteworthy among the many important accomplishments the associate directors chronicle are our deepening relationship with our colleagues at the Harvard University Library and Harvard College Libraries, the growth and success of TechTV and Academic Media Production Services (AMPS), the Libraries' work in support of the MIT faculty open access policy, the growth in the use of Libraries facilities following much-needed space improvements, the Institute Archives' contributions to sesquicentennial planning, and a number of highly successful outreach events and exhibits.

In many ways, however, the most remarkable aspect of FY2010 was the courage, compassion, and resilience exhibited by the staff of the MIT Libraries during many months of difficult—often wrenching—downsizing. Staff were laid off, term appointments could not be renewed, hours were reduced, acquisitions were cut. And the hard work is not yet done. Two five-day all-staff furlough periods during FY2011 will reduce staff income by 4% across the board, and another round of serials cancellations is anticipated as many publishers continue to raise prices. MIT's faculty and students have been, for the most part, understanding of the consequences of a 15% reduction in General Institute Budget (GIB) support to the Libraries. I am personally grateful to the thoughtful and supportive members of the Faculty Committee on the Library System for their contributions to our planning. The Chair of the Faculty and my colleagues in the Dean's Group were likewise helpful and understanding of the difficult choices the Libraries faced.

This report would not be complete without recognizing and thanking the MIT Libraries Visiting Committee. At the end of FY2010, Patrick McGovern stepped down as chairman of the Libraries Visiting Committee, a responsibility he has shouldered since 1991. Over the years Pat's confidence in the mission and importance of the libraries at MIT was matched only by his invaluable insights on issues ranging from designing customer service to anticipating publisher strategies. We are deeply grateful to Pat McGovern for his service. We are also especially grateful to individual members of the MIT Libraries Visiting Committee for their support—both moral and financial—during a very difficult year.

Looking forward to the challenges facing the MIT Libraries in FY2011, information technology and educational technology continue to command attention. Writing in 1964 on the impact of postwar data processing on research libraries in his book *The Future of the Research Library*, Verner W. Clapp, first president of the Council on Library Resources, noted that neither information storage and retrieval devices nor data processing were new to libraries, nor was the expectation that generations of devices will be integrated into the work of research libraries far into the future. Indeed, information technology so infused the MIT Libraries in FY2010 that we would not have been able to provide service to the MIT community without it.

Our challenge now, as in the past, is to experiment boldly, invest wisely, anticipate the educational and research priorities of MIT, and maintain focus on the mission of the MIT Libraries. We continue to evaluate and assess the utility of a cornucopia of new devices that, in Clapp's words, "combine at one and the same time fantastic capabilities of one kind with complete incapabilities in other respects." Always, the bridge from the way things are to things as they may be will be a continuous work in progress, relished by the exceptional staff of the MIT Libraries.

Ann J. Wolpert
Director of Libraries

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

Achieving a Desired Future State for 2015

As the MIT Libraries approach the end of the current strategic plan (FY2005–FY2010), we are focused on what we need to be in the future to assure our continued success in support of research and teaching at MIT. All North American research libraries face extraordinary challenges, driven by internal dynamics, institutional priorities, and fast-moving external forces. These various forces and their implications, some of the most significant of which are listed below, are catalysts for change within the Libraries. They must be acknowledged and addressed appropriately if we are to continue to succeed in our mission.

A force of a different nature, which will also impact how we respond to these trends, is the volatility of the General Institute Budget. As a core academic resource, the Libraries will need to closely follow the priorities set by the Institute itself in the coming years, as over 90% of MIT Libraries' funding is provided by the GIB. Focused collections and excellent, innovative services will continue to be the gold standard by which we judge the effectiveness of our mission and our contributions to the Institute.

Forces Acting as Catalysts for Change

The MIT Libraries have never been a traditional research library. The Libraries have long benefited from the experimental and entrepreneurial culture of MIT, and they are known for their innovation and for a willingness to take calculated risks. In comparison with many of their peers, the MIT Libraries are more client focused, more comfortable with technology, and more flexible than many others are able to be.

Critical external uncertainties abound in the international, interdisciplinary, interinstitutional environment in which MIT operates. The downstream impact of MIT's response to various opportunities will, of course, affect the MIT Libraries over time. In the near term, we can see emerging trends that require more immediate attention. At least nine significant forces continue to or will soon require considered action by the Libraries.

User demands and expectations: Users want and expect content to be digital, easy to discover, accessible at any time from anywhere in the world without mediation, and usable with new and emerging technologies (e.g., mobile devices).

Search and discovery: Services such as Google, Amazon, YouTube, Flickr, and WorldCat Local are redefining traditional roles for discovery and metadata provision, and users are gravitating quickly to these systems to search full-text content, images, and video as well as for recommendations from other users.

Content management: The increasing demand to digitize print, video, and other analog content and to capture content already in digital form, including research data, is challenging libraries to develop new strategies for organizing, curating, and preserving the scholarly record for both born-digital and digitized collections.

Content delivery: The growing shift to digital books and e-journals, the increase in production and sharing of research data, and the prevalence of multimedia content and related services (e.g., Print on Demand, custom teaching collections, and rich media production services) require us to rethink traditional strategies for delivering new and dynamic content.

Collaboration: There is increasing opportunity and necessity for broader collaborations with other service and content providers, including units at MIT, other libraries, publishers, commercial entities, and open source communities to leverage limited resources and share specialized expertise.

Scholarly communication: Scholarly publishing is in transition; new models of open access publishing coupled with mandates for authors and universities to retain the rights to their own works are increasing. Effective use of technology (e.g., data mining), in combination with new models of publishing, has the potential to transform communication of research at reduced cost to universities, to allow more flexible reuse, and to provide access to enhanced publications that include the underlying data collections and models.

Interdisciplinarity: The continued trend toward interdisciplinary research demands that we reexamine our current approach to disciplinary support in building and organizing physical and virtual collections and providing research support services at the point of need.

Pedagogy: There is increasing demand for using technology to deliver teaching and course material (e.g., course management systems, interactive teaching materials, and rich media) as well as for collaborating with faculty to ensure that MIT students

graduate with essential lifelong learning skills, including the ability to find, evaluate, manage, and use a wide variety of information resources effectively.

Space: There is growing user demand for technology-rich learning and multipurpose spaces that are functional, comfortable, and aesthetically pleasing and an imperative to optimally configure collections, services, and staff to meet changing user needs.

Mission and Vision

Mission

The mission of the MIT Libraries (adopted in 2003 and revised in February 2009) is to create and sustain an intuitive, trusted information environment that enables learning and the advancement of knowledge at MIT. We are committed to developing innovative services, strategies, and systems that promote discovery, preserve knowledge, and improve worldwide scholarly communication. We empower MIT through knowledge.

Vision

Guided by a user-centered approach to service, the Libraries will be an agile, creative, and data-driven organization that:

- Enables seamless discovery and access to scholarly information sources
- Manages knowledge, with an emphasis on MIT-created content
- Provides faculty, students, and staff with expert support and training to find, evaluate, manage, and use resources
- Creates high-quality spaces for both reflective and collaborative work and study
- Leads initiatives to inform and shape the future of libraries and scholarly research

Key Strategic Directions to Achieve the Desired Future State

Create the Next-Generation Research Library Organization

In order to be flexible and agile in response to the evolving needs of the MIT community, we must realign our organization and staff to better manage our content and design and deliver information services that are based on the needs of a broadly networked interdisciplinary, international, and virtual community rather than on the legacy of a 50-year-old geographical footprint. We must use sound assessment practices to make strategic choices about where to place our resources in service to the community.

Build and Strengthen Relationships with Faculty, Students, and the MIT Community

We must continue to seek community input and build strategic alliances with the constituencies we serve if we are to remain relevant and define new services that meet user needs. Our success depends on both broadening and deepening our engagement with faculty, students, and research staff; developing relationships that appropriately integrate the Libraries' services and collections into the teaching, learning, and research

life cycle; embedding services where our users work; maximizing their productivity; and effectively promoting and communicating our services.

Advocate for Sound Information Policy

We must expand and enhance our advocacy for developing and promoting sensible information policies for copyright and intellectual property and technical policies for identity management. In addition, we need to implement licensing principles and public policy consistent with these policies and collaborate with faculty on new authors' rights and scholarly communication initiatives.

Improve Infrastructure for Digital Content Management and Delivery

MIT's intellectual output is increasingly produced in digital form; similarly, we increasingly manage digital content that we acquire, license, or digitize. It is essential that we identify, build, and maintain infrastructures to ensure that we acquire, store, preserve, manage, and provide access to these resources for the long term and in the most efficient way possible.

Transform Library Space

Key aspects of space considerations for the Libraries include the following: providing quality spaces for both reflective and collaborative work, providing technology-rich collaborative tools and the expertise and specialist services to support them, and rethinking the role and location of tangible collections to support these realigned spaces and services. We must better integrate discovery of and access to both online and physical information assets to improve the coherence of our multifarious but deep, rich collections.

Collaborate with Strategic Partners Outside the Libraries

Another priority is to expand and extend our strategic partnerships with the Office of the Dean for Undergraduate Education (DUE), Information Services and Technology (IS&T), Harvard, MIT research labs, OpenCourseWare (OCW), publishers, commercial companies, and open source communities. We need to enlist new partners in order to leverage expertise, maximize resources, and provide infrastructural support and specialized services to our community.

Enhance Staff Capabilities

We must align and develop staff skills with our strategic directions to ensure success. Also, we must continue to recruit talented staff with strong and diverse backgrounds and create mechanisms to ensure necessary professional development in a dynamic environment.

Information Resources

Led ably by the department heads for Acquisitions and Licensing Services, Cataloging and Metadata Services/Technology Operations, Collection Management Services, and Institute Archives and Special Collections, Information Resources (IR) staff have continued to build strong collaborative relationships with respect to the acquisition, discovery, and management of information resources and the enterprise systems that

support and promote their access and use. IR has remained committed to working with colleagues across the MIT Libraries to:

- Support MIT's teaching and research programs with critical information resources in formats that best serve their needs

- 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

- Ensure access to current and retrospective research records for future students, faculty, and researchers to the best of our ability and with the resources available to us

- Support the production systems used by both the public and the staff to accomplish their work, as well as support new technological initiatives that streamline work processes and enhance user services

This year has been especially noteworthy. In addition to the "normal" high creativity and productivity of the staff to meet departmental goals and improve services and work processes, the MIT Libraries concluded their strategic planning for our desired future state in 2015 and the associated reorganization plans and weathered significant budget reductions. If there is one word, though, that describes the staff of the Information Resources Directorate, it is engaged. They have been engaged in every aspect of strategic planning within their own departments, as well as throughout the Libraries, for the future of the MIT Libraries. Their level of commitment, participation, and leadership during a challenging year has contributed to the success of the reorganization and to setting the stage for the 21st-century MIT Libraries.

Several themes emerged from IR departmental reports that illustrate our efforts to be smarter about how we execute our "business" and demonstrate our commitment to working with and for the MIT community. These themes are as follows: more efficient workflows and streamlined operations, clearly marked transitions from print to electronic collections, creation of successful partnerships with the MIT community to promote our resources, and contributions to developing a vision for the MIT Libraries in FY2011 and beyond.

Highlights: New Initiatives and Strategic Developments

In advance of the major reorganization planning in FY2010, several IR departments led the way in merging workflows and redefining programs that met community needs and addressed reduced staffing. Leading the way were several cross-departmental and cross-directorate teams whose hard work resulted in significant advancements in the way they do their work.

Acquisitions, Cataloging, and Collections Support

A new transition team, the Collections Support Unit, was created in summer 2009. Members of the team led a major transformation in the MIT Libraries as they centralized significant work formerly accomplished in the divisional libraries. The success of the unit was a tribute to the participating staff members, who streamlined workflows,

accomplished major project work in processing backlogs and moving collections to storage, merged special locations, processed journal and serial cancellations, and more.

Staff in Acquisitions and Licensing Services (ALS) successfully implemented a redefined and streamlined gift program as a strategy for using limited resources wisely. The new program, created in collaboration with colleagues in Collection Management, resulted in significantly fewer materials being accepted and managed by library staff. The emphasis now is on unique and specialized materials that we are unlikely to acquire in another way and that will enhance our collections in a more deliberate manner.

Full implementation of the YBP Library Services shelf-ready program this year meant that 75% of the monographs we received arrived shelf ready and, of these, nearly 80% had full cataloging records, thus greatly reducing the time it takes for most of these library materials to be available to users.

Electronic book plating was also implemented with a policy and methodology developed in conjunction with staff in the Office of Donor Relations and Stewardship. This will be more efficient for staff and will provide better and more visible acknowledgment for donors.

A strategic realignment of Cataloging and Metadata Services (CAMS) staff to provide high-quality metadata for MIT-produced content was successful in two areas: MIT theses and MIT open access content. Theses are now being catalogued using the digital version, thus greatly reducing the length of time before theses are made available to library users; the backlog was also completely eliminated as a result of these new workflows.

Metadata Services staff established a content standard and production workflow for metadata for journal articles submitted to DSpace@MIT in accordance with MIT's open access policy. ALS and CAMS staff were instrumental in ingest and metadata creation for this new content.

Information Resource Development and Management

Staff on two long-standing committees in Information Resources were tasked with reviewing their charge and recommending improved approaches to doing their work in the future. The analyses done by both the Networked Electronic Resources Decision Group and Collection Management Group were folded into the reorganization process and both of these groups held their last meetings in the spring of 2010.

With a very generous $1 million gift from Thomas F. Peterson Jr. '57, longtime supporter of the MIT Libraries, the Vail Access Project was begun. We hired two cataloguers and a conservation technician for a multiyear project to catalog and preserve this extraordinary collection of books and pamphlets on electricity, electrical engineering, magnetism, lighter-than-air travel, and animal magnetism. Staff members in the Institute Archives and Special Collections and Preservation and Conservation Services partnered on the proposal and implementation of this exceptional project.

System Enhancements

"One-stop shopping," the holy grail of online access, leapt forward this year due to the work of a dedicated staff member in Technology Operations. The Libraries are now using Touchstone, MIT's implementation of the Shibboleth System, to authenticate in Barton, ILLiad, EZProzy, and the Wharton Research Data Services.

Led by the head of Technology Operations and her staff in conjunction with other library senior management, the work of the library's systems administrators and desktop support staff was redefined and refocused based on careful analysis. Various environmental and organizational changes were assessed, and a program plan was developed for the migration off legacy hardware, the deployment of VMWare in a major virtualization project, and a stepwise plan to co-locate key production servers to an IS&T data center. Desktop support staff ran a successful pilot program to utilize the services of a central MIT computing group for library support to supplement their own service program.

Information Resources Overview

The MIT Libraries have rich print collections with obvious strengths in science and engineering and special collections in those areas as well as in MIT history, music, and architecture. While acquisition of and access to electronic journals, serials, and databases have accelerated and dominate both budgets and increasingly infrastructure support, we still steward and manage a wide range of materials and formats as highlighted here. In addition, we continue to expand our collections in several other areas: numeric, observational, and geospatial data; digital maps; architectural images; electronic theses; born-digital technical reports; and most recently articles authored by MIT faculty—the latter in response to the MIT faculty open access policy adopted in March 2009.

Table 1. MIT Libraries Information Resources, 2009 Selective Profile

Print	Electronic	Other Formats
2,909,662 printed volumes and serials	49,999 journal subscriptions*	2,420,041 microforms
10,410 serial subscriptions*	672 reference databases	406,139 image slides
1,664,086 printed volumes†	148,311 e-books	55,315 photographs
127,106 maps	65,444 computer files‡	7,501 videos/films
149,531 MIT theses	26,278 e-theses in DSpace@MIT	34,022 sound recordings
36,250 music scores		
19,788 archives/manuscripts (in cubic feet)		

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

†Includes monographs, pamphlets, and technical reports.

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

Information Resources Profile

Transition from Print to Electronic Collections

The Libraries continued their transition from print to electronic collections in both expenditures for information resources and actual number of journals and monographs purchased. In FY2010 we converted 819 journal titles from 173 publishers to e-only. Table 2 shows the percentages of our journal collection that are now print only, electronic only,

Table 2. Trend toward Electronic-Only Journals

	FY2006	FY2007	FY2008	FY2009	FY2010
Print only	38%	34%	24%	23%	21%
Print plus electronic	40%	35%	44%	37%	17%
Electronic only	22%	31%	32%	40%	62%

or held in both formats. In 2010 for the first time, the percentage of e-only subscriptions exceeded the percentage of print and print plus electronic subscriptions.
The dramatic shift in expenditures for information resources to electronic content over the last 10 years continued as well, as did the associated reduction in binding of physical materials.

Table 3. Expenditures for Information Resources (Percentage of Whole), 2000–2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Print serials	57	51	53	53	51	43	42	39	26	20
Print books	18	18	17	17	15	17	14	14	10	9
Binding	4	4	3	3	2	3	3	2	2	2
Electronic resources	18	24	24	25	29	35	40	43	60	67
Document delivery	2	3	2	2	2	1	1	1	1	1

Acquisitions Highlights

Expenditures on electronic resources increased even though we experienced an overall reduction in our collections budget. Library liaisons and subject selectors analyzed user feedback and the marketplace to determine how best to spend our limited resources on content that would potentially have the greatest impact on the work of faculty, staff, and students and further our goal of providing access to resources where our users choose to do their work. Following is a selection of these resources.

Over 19,000 electronic books published from 2005 through 2010 were added to the collections, in part due to the generous support of the James B. (1970) and Marianne H.

Rothnie Endowed Library Fund and the Joseph R. (1924) and Jan William (1960) Mares Fund. This Springer collection covers every scientific discipline and many social sciences and is available 24 hours a day, seven days a week, to the delight of library users. MIT users can also download these materials to a PDA or e-book reader at no cost or print their own personal copy for a modest fee.

The Eighteenth Century Collections Online (ECCO), an ambitious project to digitize key English and foreign language titles in Great Britain during the 18th century, is now part of the MIT collection. We partnered with several departments and faculty to purchase the collection, which includes more than 185,000 books, directories, pieces of sheet music, sermons, and advertisements.

We added the new IEEE-Wiley eBook Collection of 400 titles to an increasing core collection of e-book content in science and engineering.

The Libraries' Interdisciplinary Biosciences Group analyzed a variety of medical and bioscience-related journal backfiles for which we have great demand but little coverage. As a result, we filled the gap with several key purchases in immunology and microbiology, medicine, and biomedical and health sciences, adding over 500 e-journals.

Digital Projects

The Edgerton Digital Collections Project, a collaboration of the Edgerton Center, the MIT Museum, the Office of Educational Innovation and Technology, and staff from the Libraries and Institute Archives, was completed, and the collection is available at http://edgerton-digital-collections.org/.

Library staff, predominantly from the Institute Archives and Special Collections, are deeply involved in the planning for MIT150 along with the MIT150 project staff in the Office of the President. Our MIT archivist is hard at work on a multimedia timeline of MIT's history. Work is also under way with the MIT Museum to coordinate exhibits for the 150th anniversary celebration that will include important historical materials on display in the Libraries' Maihaugen Gallery.

Metadata Services, a specialized cost-recovery service in CAMS, completed another successful year of working with MIT OpenCourseWare to produce metadata for newly published courses, as well as revised OCW metadata definitions and workflows in support of this world-renowned, web-based publication of virtually all MIT course content.

Selected Outreach and Special Events

One special event from this past year will be difficult to top in terms of distance and flair. Mike Massimino, astronaut and MIT alum, reached to the stars and took a rare facsimile limited edition of an MIT Libraries book from the Institute Archives collection, Galileo's *Sidernius Nuncius* (Starry Messenger), into space and back on his mission to the Hubble Space Telescope. The Libraries cosponsored a standing-room-only public lecture upon his return in October 2009 (http://techtv.mit.edu/videos/4308-astronaut-mike-massimino).

A more grounded event, "Paper and Bookbinding: The Making of Diderot's Encyclopédie," was hosted by the Institute Archives in March 2010 and engagingly presented by Nancy Schrock, Thomas F. Peterson (1957) conservator. She discussed Diderot's *Encyclopédie, ou Dictionnaire raisonné des sciences, des arts et des métiers* as an example of 18th-century French papermaking and bookbinding (http://techtv.mit. edu/videos/5910-paper-and-bookbinding-the-making-of-diderots-encyclopdie). This well-attended lecture was part of a series of events associated with *Technology and Enlightenment*, an exhibition in the Libraries' Maihaugen Gallery (14N-130) that explores one of the most important and controversial publications of the 18th century.

In December 2009, the Institute Archives also hosted a talk and book signing for Harriet Ritvo, Arthur J. Conner professor of history, in recognition that the archives collections served as a basis of the analysis in a portion of her new book, *The Dawn of Green: Manchester, Thirlmere, and Modern Environmentalism* (University of Chicago Press, 2009).

Looking Forward

The Information Resources Directorate name will remain the same with the reorganization of the Libraries, but the combination of departments and responsibilities will be reconfigured and optimized to best advantage to support research and teaching at MIT.

I am exceptionally pleased with the new roster of departments and the synergy that will result from our working together as a team. I am confident the IR departments will contribute to the overall vision of the MIT Libraries ("guided by a user-centered approach to service, the Libraries will be an agile, creative, and data-driven organization") as well as that of Information Resources (access to information where and when it is needed). If the easy agreement on an IR directorate-wide vision is any measure, we are already off to an auspicious start.

According to the new Information Resources Directorate summary scope, IR will support MIT's teaching and research programs by providing leadership in collection development and management at a moment of transformation within the library, publishing, and scholarly communities. Our operations include acquiring and describing information resources in digital and physical formats, supporting the tools and production systems essential to their management and use, and providing a range of preservation programs and services that ensure that the MIT Libraries' information assets in all formats remain accessible. We have archival responsibility for the collection and presentation of unique information that documents MIT, its history, people, and their work. We also provide high-quality, point-of-need information assistance and seamless delivery of both physical and digital content that enables members of the MIT community to access the information resources they need where and when they need them.

IR departments and department heads are as follows:

- Acquisitions, Metadata, and Enterprise Systems: Nina Davis-Millis and Marilyn McSweeney

- Collections Strategy and Management: Millicent Gaskell

- Information Delivery and Library Access: Christine Quirion

- Institute Archives and Special Collections: Tom Rosko

- Preservation and Conservation Services: Jennifer Banks

Finally, this summary annual report characterizes only the highlights of the many outstanding accomplishments of IR department staff; it barely touches the breadth of activities they carried out this year in support of the faculty, staff, and students at the Institute. See the individual IR departmental annual reports at http://libraries.mit.edu/about/annual/ar10/inforesource.html for more complete overviews.

I continue to be amazed at the energy and dedication of these individuals and grateful for their engagement in their work, willingness to envision the future of the MIT Libraries, and vigor in implementing the necessary changes to make the Libraries successful—and all of this while rising to the fiscal challenges we currently face. It is a real pleasure and privilege to work with them.

Diane Geraci
Associate Director for Information Resources

Public Services

A year ago the Libraries created a new vision and strategic plan: "MIT Libraries: Achieving a Desired Future State for 2015." This plan envisioned an agile, creative, and data-driven organization. Further, it outlined key strategic directions for the next several years. These are to:

- Create the next-generation research library organization

- Build and strengthen relationships with faculty, students, and the MIT community

- Advocate for sound information policy

- Improve infrastructure for content management and delivery

- Transform library space

- Collaborate with strategic partners outside the Libraries

- Enhance staff capabilities

At the core of this vision and plan are the MIT faculty, students, and staff who are the focus of the Libraries' mission. This past year has seen the Libraries moving forward on these newly articulated directions while building on the tremendous momentum of past accomplishments. And this has all been done under the severe strain of substantial budget reductions.

Creating the Next-Generation Research Library Organization

Over the past year the Libraries have transitioned from an organization defined by physical libraries with disciplinary-focused print collections to a new model defined by Libraries-wide services and online systems to better position us to meet the mobile, location-independent needs of an MIT that is increasingly interdisciplinary, interinstitutional, and international. For Public Services this has meant the creation of five new departments: Liaisons for Departments, Labs, and Centers; Instruction and Research Services; MIT Video Production; Specialized Content and Services; and User Experience. By organizing in a system-wide manner, the Libraries are positioned to better align their resources to advance our vision of the 21st-century research library. Additionally, these changes will better integrate AMPS educational technology services within the Libraries.

Building and Strengthening Relationships with Faculty, Students, and the MIT Community

Relationship building with the Libraries' core constituencies is based on the creation and delivery of valued services. From instruction to reference to content delivery to consultation services on GIS, data, and knowledge management, the Libraries continue to provide MIT faculty, students, and staff with highly sought expertise and guidance in navigating and leveraging the scholarly information environment. Remarkably for a year that saw staff reductions, instructional activity once again increased, with over 300 sessions offered and more than 7,000 participants. Course-integrated and course-related instruction continues to be popular. Instructional assessment activity focused on undergraduate students, with a strong majority of students who participated in these sessions indicating that the training they received improved their ability to complete class projects and that the skills they learned would make them better prepared for work in other subject areas. Also remaining very popular are the specialized instructional sessions offered on GIS and citation management software such as EndNote, RefWorks, and Zotero.

Reference activity remains active and showed substantial growth this past year, with an 18% increase in reference questions and a 22% increase in other types of help questions. However, this may be due to a change in the process for collecting statistics. In the past questions were counted continuously, leading to the perception that staff often forgot to record the interaction. This year the process was changed to quarterly sampling.

Another important initiative, built on work begun last year, resulted in an updated guide for faculty and student researchers on data management and publishing. Offering a holistic perspective on the data life cycle, this new guide has been well received and praised as a model approach by experts outside of MIT. With the recent announcement of the National Science Foundation (NSF) that it will begin requiring grant proposals to include data management plans, this will be an increasingly important service area.

As mentioned last year, work continues on FACADE and SAHARA, two important projects whose goal is to develop the digital infrastructure to ensure that vital digital documents and images are available for future teaching and research in architecture and planning.

While last year's closure of two branch libraries—Aero/Astro and Lindgren—was a difficult experience, staff worked diligently to mitigate the impact of these budget reductions on the affected user communities. Collections were merged appropriately in Barker, Hayden, and the Library Storage Annex, providing an opportunity to digitize the backfile of Earth, Atmospheric, and Planetary Sciences (EAPS) theses to allow better access to these still vital resources.

Collection decisions based on mandated budget reductions continued to play an important role in the ongoing building of relationships between the Libraries and the community. As is their normal process, subject librarians consulted broadly with their faculty and student communities to solicit their important feedback on the difficult choices necessitated by budget reductions.

Staff have also explored web 2.0 technologies this past year for better ways to engage the community. Using social media, including Twitter and Facebook, has proven to be a great way to market our services and resources. At present, the Libraries have over 1,500 Twitter followers and 530 Facebook fans. These mediums are different from our traditional means of marketing (posters, news blog, etc.) in that they set up a forum to have quick, informal dialogues with our user community. Users choose to follow us or friend us, so messages are sent to a willing and open audience. Twitter and Facebook are great venues to send last-minute event reminders and updates, and interested users retweet messages to their followers. Searches have been set up to find users' comments on Twitter about the MIT Libraries, and when we find complaints or suggestions, we can quickly respond to address the issue and improve our services.

TechTV, MIT's user-generated video website, continues to grow, offering the MIT community an easy way to publish and disseminate videos that highlight research activities, educational content, and outreach efforts. It now contains nearly 6,000 individual videos from over a hundred communities, more than doubling in size this past year. During this same time period videos in TechTV received nearly 2 million views.

Three new services introduced last year to make it easier for the community to access our print collections continue to grow in popularity. The Libraries' service for paging books for delivery to any library service desk or faculty office saw a 25% increase in requests over last year, and the scanning service from the Library Storage Annex that delivers PDF's of articles to user desktops grew 58%.

Building on the successful cooperative program between the MIT Libraries and the Harvard College Library for faculty, researchers, and graduate students, a pilot initiative to provide undergraduate students with similar privileges was launched in April. The program, which will be evaluated after 14 months, offers undergraduates from both institutions access to the complementary circulating collections of each institution's libraries. In addition, an online application process for applying for Harvard cards was launched and has resulted in improved user convenience and staff efficiencies.

Access to content not owned by the MIT Libraries remains a core requirement for meeting research and educational needs. Interlibrary Borrowing (ILB) continues to provide outstanding service, filling 95% of all requests. Requests for returnable items increased 18% while article requests, often filled in less than a day, remained relatively stable at over 9,000. ILB also integrated with MIT's Touchtone service, allowing for single sign-on and making it easier for MIT users to set up accounts and initiate and track requests.

Advocating for Sound Information Policy

In support of MIT's faculty open access policy, the Libraries created an open access policy outreach team to develop strategies to communicate with departments, labs, and centers (DLCs) about the new policy and develop appropriate strategies for the recruitment of content subject to the policy. To date over 1,200 scholarly articles and other materials have been successfully added to the MIT open access article collection in DSpace@MIT, based on workflows developed by the outreach team. This is an impressive beginning to an important effort to make MIT-generated scholarly content available openly for educational and research purposes and to ensure the preservation of that work for generations. This new collection has only added to the value and impact of DSpace@MIT, the Institute's institutional repository built to save, share, and search MIT's digital research materials of conference papers, images, peer-reviewed scholarly articles, preprints, technical reports, theses, working papers, and more. This past year saw its content grow 31% to over 41,000 items, with an increase of almost 50% in the number of downloads—to more than 14 million!

Improving Infrastructure for Content Management and Delivery

A key improvement to the Libraries' virtual delivery infrastructure was the renovation of our homepage last summer. The goal of the new homepage design was to consolidate searching in our various tools and make our resources and services easier to find. The design was informed by feedback and usability testing conducted over the summer with students, faculty, and staff members. This has been a received by library users enthusiastically. As one student commented, "I like the new homepage. The quick access to Vera journals and articles is especially useful. Thanks!"

The latest version of MIT Geoweb was released in spring 2010. It now searches the MIT Geodata Repository, the Harvard Geospatial Library, and MassGIS, offering access to thousands of more records from one simple search interface. This helps address the challenge our users regularly face of finding the data they need to get started on a project. And the new version of the Geodata Repository Search Tool for ArcGIS provides enhanced spatial and geometry search options.

The DSpace software underlying both DSpace@MIT and Dome, the Libraries' growing collection of digitized content, was upgraded to version 1.6, providing new features and a better environment for support and maintenance. New Dome collections included the David Taylor Model Basin Reports, the Aga Khan Visual Archive, the Hyderabad Municipal Survey, 1915, and Landslides Aerial Photography.

Transforming Library Space

This past year has seen significant improvements to library physical space, a need highlighted in the triannual library services surveys. With generous funding from the provost, Dewey Library was transformed into a contemporary research library to support the management and social sciences. Highlights include:

- Over 175 individual study seats with power outlets, including a new quiet study room
- 12 group study rooms equipped with large LCD screens with laptop connector cables, white boards, and conference phones
- New study space available 24 hours a day, seven days a week
- Compact movable shelving, increasing collection capacity
- New staircase to the lower level
- A brighter, more open and inviting space

The Dewey Library project serves as an illustration of the popular quote from the movie *Field of Dreams*: "If you build it, they will come." Visits to Dewey increased a dramatic 63% over the previous year to 148,000 visits, and this represented a 40% increase over the pre-construction year of FY2008—demonstrating that students value high-quality spaces to support their study, research, and work.

Though more modest, the renovation of the Barker Reading Room has also been a great success. Made possible by endowment funds, the iconic reading room was updated for the first time since 1970, resulting in improved lighting, comfortable and contemporary furniture, and more inviting and flexible space for quiet study. As a result, visits to Barker increased 5% despite the fact that the reading room was closed for the summer for the renovation.

The Music Library removed four listening carrels (16 individual stations) and replaced them with four large custom-made tables suitable for studying and housing computers with music software along with music keyboards to keep up with the study and research needs of students. This project, made possible by the Class of 1982 Music Library Fund, has resulted in the library's second floor becoming much more active compared to recent years.

Rotch Library and the Rotch Visual Collection (RVC) were approved by the Committee for the Review of Space Planning (CRSP) to merge the visual collections and staff into Rotch Library. This will better integrate service delivery for the Rotch community. This move will be accomplished this summer, and plans for the former RVC space are being developed along with funding strategies for space changes that may be required.

Collaborating with Strategic Partners Outside the Libraries

Collaboration is a hallmark of the Libraries, and this year has once again seen partnerships established both across MIT and outside the Institute. Beyond the normal collaborations, the Libraries engage in working directly with faculty, students, and staff in supporting their research and teaching. Several initiatives are noteworthy, as follows.

The Libraries' involvement in ACCORD led to a fall presentation to MIT's Council on Educational Technology (MITCET) on strategy options regarding the use of video for teaching. With the endorsement of MITCET, work was begun to develop a new video portal with the Teaching with Technology website. This initiative will be ready for launch for the fall semester. To create a better infrastructure for educational video, a new platform for TechTV was recommended as well, and migration to the Kaltura platform will also be ready for the fall. This new platform will enable future feature enhancements such as integration with Touchstone, closed captioning, web-based video editing, and more. Working with the Registrar's Office, the Libraries also began investigating possibilities for low-cost capture of lectures using Openeya, an open-source capture solution.

The Libraries are also working directly with IS&T and OCW on the DOS project, which will integrate the course material life cycle by developing the necessary interoperability among Stellar, OCW, and DSpace to improve the faculty and student experience. Although issues regarding Stellar have prevented the original vision of the project from being realized, the project has concluded with the migration of OCW's content management system with interoperability with DSpace. Also, the Libraries continue to work with IS&T, DUE, and the Undergraduate Association to provide students with textbook information from the online course catalog and within Stellar. This initiative became an even more important priority due to federal regulations requiring that this information be provided to students as of July 1, 2010. While we are in compliance at this point, an enhanced version of the Online Textbook Information Service will be available later this year. In other important collaborations across the Institute, the Libraries worked with MITCET's Faculty Advisory Committee on Learning Management Systems to make recommendations on the future of Stellar and with the Athena Working Group to make short-term recommendations on Athena printing and space utilization and long-term recommendations on the future of student computing services.

As highlighted earlier, the Libraries continue to work with Harvard on improved borrowing privileges and investigating other strategic opportunities for collaboration. Work also continues with the Boston Library Consortium to implement the WorldCat Local DirectBorrow initiative, which will allow MIT users to request books from consortium member libraries directly without the need for ILB staff mediation. This project now appears ready to launch in the fall.

Enhancing Staff Capabilities

The accomplishments detailed above are a credit to the talents, skills, creativity, and dedication of the MIT Libraries staff. At all levels of the staff there is a focus and commitment to user service that consistently marks the Libraries as one of the most highly regarded service providers on the MIT campus. But maintaining this high level of service (and user satisfaction) has never been more challenging than in today's fiscal environment, where significant budget reductions have forced the Libraries to make difficult choices in the face of increasing user expectations, especially regarding digital services and content.

The reorganization of the MIT Libraries is a critical effort to enhance our ability to leverage and align critical staff resources in the best manner to create the 21st-century research university library that MIT needs in support of its mission. But the reorganization itself will not be enough to accomplish this. Continued investments in staff development, recruitment, and retention will be required to ensure that the Libraries have the critical skills and experience necessary to accomplish their new vision of an agile, creative, and data-driven organization.

Table 4. Instructional Activity

Category	2009 Sessions	2009 Attendees	2010 Sessions	2010 Attendees	Change FY2009/FY2010: Sessions	Change FY2009/FY2010: Attendees
Course integrated	46	904	43	1,242	–1%	+37%
Course related	66	1,504	66	1,238	0%	–18%
Independent seminar	47	474	34	497	–28%	+5%
Special workshop	63	679	91	975	+35%	+44%
Orientation/tour	59	2,389	58	2,311	–2%	–3%
Special event	28	1,125	25	1,200	–14%	+7%
Total	309	7,075	317	7,463	+3%	+5%

Table 5. Interlibrary Borrowing Requests

	FY2009	FY2010	Change FY2009/FY2010
Articles filled	9,288	9,366	+1%
Loans filled	4,203	4,957	+18%
Found at MIT	1,794	2,167	+21%
Unfilled	1,034	871	– 16%
Fill rate	94%	95%	+1%

Table 6. Physical Item Circulation and Reserve Activity (Loans, Renewals, and Holds)

Library	FY2009	FY2010	Change FY2009/ FY2010
Aero			
Regular	2,844	N/A	N/A
Reserves	405	N/A	N/A
Total	3,249	N/A	N/A
Barker			
Regular	26,144	22,647	−13.3%
Reserves	1,459	1,360	−6.7%
Total	27,603	24,007	−13.0%
Dewey			
Regular	29,362	27,337	−6.8%
Reserves	2,595	2,317	−10.7%
Total	31,957	29,654	−7.2%
Hayden			
Regular	92,379	73,771	−20.1%
Reserves	7,640	8,068	+5.6%
Total	100,019	81,839	−18.1%
Lewis Music			
Regular	20,301	17,444	−14.0%
Reserves	1,750	1,209	−30.9%
Total	22,051	18,653	−15.4%
Lindgren			
Regular	4,026	241	−94.0%
Reserves	223	0	−100%
Total	4,249	241	−94.3%
Library Storage Annex*			
Regular	2,298	1,484	−35.4%
Reserves	N/A	N/A	N/A
Total	2,298	1,484	−35.4%
Rotch			
Regular	35,199	34,829	−1.0%
Reserves	1,813	1,552	−14.3%
Total	37,012	36,381	−1.7%
Rotch Visual Collections			
Regular	173	366	+111.5%
Reserves	N/A	N/A	N/A
Total	173	366	+111.5%
"Your Account"			
Total	170,280	179,109	+5.0%
Total Regular	383,006	357,228	−6.7%
Total Reserves	15,885	14,506	−8.6%
Total	398,891	371,734	−6.8%

*For the number of articles delivered from the Library Storage Annex by PDF to users' desktops, see Table 10.

Table 7. Unique Hosts Served by MIT Libraries Website, Monthly Average

	FY2009	FY2010	Change FY2009/ FY2010
Number of hosts served	148,307	154,432	+4.1%

Table 8. Other Website Statistics, FY2010

	Unique Visitors	Unique Page Views
MIT Libraries site (libraries.mit.edu)	749,068	2,042,901
GeoWeb	2,844	5,382
LibGuides	102,917	287,470
Wordpress sites		
Dewey Library	11,281	32,844
News blog	105,630	122,624
Rotch Library	13,600	24,803
Scholarly publishing	8,630	16,722
Total	**993,970**	**2,532,746**
Vera/SFX (A–Z lists)	63,937	501,711
Vera Multi-Search	41,953	147,466
Total	**105,890**	**649,177**

Table 9. Library Occupancy

Library	FY2009	FY2010	Change FY2009/FY2010
Aero	15,408	N/A	N/A
Barker	102,062	107,385	+5.2%
Dewey	91,559	148,195	+61.8%
Hayden	288,723	294,034	+1.8%
Hayden 24-Hour Study	8,732	8,479	–2.8%
Institute Archives	2,204	2,204	0%
Lewis Music	29,172	30,641	+5.0%
Lindgren	18,583	N/A	N/A
Library Storage Annex	94	70	–25.5%
Rotch	107,746	122,973	+14.1%
Rotch Visual Collections	N/A	N/A	N/A
Total	**664,283**	**713,981**	**+7.4%**

Table 10. Other Key Indicators of Circulation and Reserve Activity: Print

Activity	FY2009	FY2010	Change FY2009/FY2010
Items processed for print reserves	2,339	2,683	+14.7%
In-house use of material	43,390	53,819	+24.0%
Reshelving loaned items	261,296	259,700	–0.6%
BookPage requests	18,326	22,928	+25.1%
Book searches	8,743	5,611	–35.8%
Library Storage Annex PDFs delivered to users' desktops	2,339	3,681	+58%
Library Storage Annex items delivered to other library service desks	4,708	4,772	+1%

Table 11. Help Requests (Reference and Other)

	FY2009	FY2010	Change FY2009/FY2010
Reference questions at public service desks	11,174	13,235	+18.4%
Reference questions away from public service desks	9,873	11,571	+17.1%
Total reference questions	**21,047**	**24,806**	**+17.8%**
Other help questions	15,984	20,223	+26.5%
Total help requests	**37,031**	**45,029**	**+21.5%**

Steven Gass
Associate Director for Public Services

Administrative Services

Highlights of the Year

Administrative highlights of FY2010 include the following:

- A new organizational model for the Libraries was planned and developed over the course of the year, based on a strategic planning process that produced a desired future state. Some implementation began late in FY2010, but most of the changes will take effect at the beginning of FY2011.

- General Institute Budget reductions came into effect as a result of the global economic downturn. To meet required budget targets, the Libraries cut staff, closed branches, and reduced funding for collections and operations.

- Two major space projects were completed: a full renovation of Dewey Library and refurnishing of and minor renovations to the Barker Library Reading Room.

Budget and Finance

FY2010 was the first year of major budget cuts, anticipated to be in the range of 6% for each of three years, FY2010 through FY2012. At 6%, the reduction for FY2010 amounted to nearly $1.4 million and was accomplished by cuts to staffing, information resources (both print and online collections), and operations. Since operations amount to less than 10% of the total library budget, and since a substantial portion of them are financed through lapsed salary savings, the bulk of the FY2010 cuts were realized in the labor and collections budgets.

Three actions helped to mitigate the fiscal challenges. First, the provost granted a one-time base increase of just under $400,000 to help offset serials inflation, thereby allowing the Libraries to avoid an additional cut of that amount on top of the $1.4 million reduction, which effectively would have amounted to a nearly 8% total cut for the year. Second, the Pool A payout rate was maintained at the FY2009 level, allowing the gains—which are mostly in the area of monograph collections—to help reduce the cuts to materials purchasing levels. Finally, spending was pulled back wherever possible in all areas of the budget for the second half of FY2009, which allowed us to carry forward enough funds to soften the blow in FY2010. We continued this conservative spending throughout FY2010, holding enough in reserve to allow for modest but strategic opportunities as they arose.

As noted above, strategic planning that began in the summer of 2008 yielded the decision in the summer of 2009 to move forward in the development of a new organizational model for the Libraries, one that would help reshape the structure of the Libraries and thereby allow us to maintain and even improve service delivery with reduced resources. Our geographic-based model—which duplicated workflows and structures many times throughout the organization—is being replaced by new functional teams cutting across all library locations. The new model promises to shape the organization in such a way that it will be much more tolerant of the resizing caused by budget cuts.

In the fall of 2009, the Institute made the decision to complete budget reductions in two years rather than stretch them over three. Difficult as it was to cope with the prospect of an even larger than expected cut for FY2011, there was at the same time some sense of relief with completing the process if, in fact, the economy holds and FY2012 does not require further cuts.

More information about the staffing cuts appears under Human Resources below. The impact of budget cuts on the Libraries' collections was detailed above in the Information Resources section of this report. There was a reduction of $200,000 in the Libraries' operations, representing a nearly 20% decrease in that portion of the budget. Within operations, all local department budgets were cut by 15% as were some central lines such as travel and computer equipment. As a result of the need to cut the travel budget significantly, the Libraries reviewed the travel guidelines and practices that have been

in place for many years, revising them so as to preserve the important professional development benefits to the staff as much and as fairly as possible but also to ensure that we could trim the bottom line. Further cuts to the operations budget lines, if they are required, will severely limit the Libraries' ability to maintain a basic level of service and operations.

Human Resources

Two major forces impacted staffing activities in the Libraries in FY2010: budget cuts and the reorganization project. While these two forces began and operated independently of one another, decisions for budget cuts (i.e., reductions in force) were heavily influenced by the future direction of the Libraries.

The combined FY2010 and FY2011 cuts to the Libraries budget totaled 15%. To achieve a reduction of this magnitude, it was necessary to realize substantial reductions in labor costs in addition to operations and collections. FY2010 reductions in force included the elimination of five positions (layoffs) and a reduction in effort of five positions. Although this report is focused on FY2010 activities, FY2011 staffing cuts were announced in February of 2010, so they bear mention here. FY2011 labor cuts were somewhat deeper than FY2010, resulting in eight layoffs and four reductions in effort, along with the elimination of six vacant positions and the ending of two term positions. All of those who were laid off this year were given an end date of July 1, 2010, which in some cases was months earlier than prescribed by Institute policy. However, this end date provided for a more effective transition to the new organization and coincided with the beginning of the Libraries' scheduled furlough week around the July 4 holiday. The Libraries equalized the financial impact relative to health and retirement benefits to each laid-off individual who was affected by this early end date.

The MIT Libraries are shifting from a location-centric organization to one defined by service needs and organized to a greater degree by function. The new high-level organizational chart, along with the identification of key leadership roles, was rolled out to staff in September 2009. Focus then shifted to developing an implementation plan for the reorganization, and a project planning team was created and charged by the Steering Committee to focus on the tasks required for a successful transition. All staff were heavily engaged in reorganization activities during FY2010, keeping to an ambitious project timeline in order to meet the target transition date of July 1, 2010. Staff input was strongly encouraged and received through open sessions with the Libraries' senior managers and through an anonymous online feedback mechanism. Staff were kept well informed of activities and progress through weekly email updates and a project wiki. In addition, staff participated in the hard work of planning and preparing for the new organizational structure through group assignments and regular reviews of and input on numerous plans and documents. Department heads in particular did yeoman's work and deserve special recognition for keeping this project on track. The new organizational structure took effect as planned with the start of FY2011.

Recruitment and Retention

An integral part of the reorganization project has been a review of the work being done in the Libraries, which has provided a meaningful context for our recruitment and

retention strategies for the future. The same factors (listed below) that were applied to this review of work were applied in the decision making regarding FY2011 budget reductions.

- Priorities of the unit or function

- Continued need for the work

- Redundancies in the work

- Opportunities for streamlining and consolidation

- Impact of dissolution of divisional library structure

- Emerging trends and technologies in the field that impact our processes

The staff positions affected by layoffs or other actions in FY2010 are listed below.

Table 12. Staff Positions Affected in FY2010

Position	Staff Category	Reason
Supervisor, technical processing	Admin	Layoff, position eliminated
Reference archivist	Admin	Layoff, position eliminated
Metadata librarian	Admin	Pursued another position
Serials acquisitions supervisor	Admin	Obtained full-time position; position had been reduced due to budget cuts
Systems administrator	Admin	Terminated
Branch assistant	Support	Layoff, position eliminated
Gifts assistant	Support	Layoff, position eliminated
Administrative assistant	Support	Layoff, position eliminated
Copy cataloger	Support	Term ended
Copy cataloger	Support	Family relocation
Processing assistant	Support	Further education
Processing assistant	Support	Obtained librarian position
Serials assistant	Support	Obtained librarian position
Customer service assistant	Support	Further education

Recruitment activity in FY2010 was minimal. Six critical positions were filled—three of them fully supported by a donor-funded project. Of the three GIB positions, two were filled as term appointments to enable us to move ahead with critical initiatives while maintaining flexibility for alternative use of these headcounts in the future. All three of these positions had been posted prior to the budget reduction process. All were

reviewed within that context and each was determined to be critical to our mission and future directions; thus, the searches were continued.

Table 13. Recruitment Activity in FY2010

Position	Staff Category	Notes
Head, stewardship and donor relations	Admin	Nonterm position
Web developer	Admin	Term position
Metadata archivist/librarian	Admin	Term, support staff promotion
Cataloger	Admin	Term, Vail Cataloging Project (donor funded)
Cataloger	Admin	Term, Vail Cataloging Project (donor funded)
Conservation technician	Support	Term, Vail Cataloging Project (donor funded)

Staff Salaries

In order to support and collaborate effectively with an academic community as demanding as MIT, the Libraries need to attract and retain staff of the highest caliber. Fortunately, given the vibrant teaching and research environment, the Libraries can offer interesting and challenging work to a wide variety of information professionals. The challenge we share with all academic institutions in the area is to provide competitive salaries that can attract these professionals and their families to one of the country's most expensive areas to live. We recruit nationally for professional librarians and need to do everything possible to ensure that salary is not an obstacle to attracting and retaining the best talent.

In the three years prior to the Institute's budget cuts the Libraries, in collaboration with MIT Compensation, worked to increase the competitive position of our salaries in the marketplace. Steady and substantial progress in improving salaries put us in a relatively good position entering FY2010, even considering the virtually flat impact of FY2009. Since most institutions have found themselves in similar financial straits, we expect the Libraries' relative position to remain roughly the same. We must continue, however, to be attentive to salaries and proactive in ensuring our competitive position among both local and national peers.

Standing among Peers

The latest data from the Association of Research Libraries (ARL) annual salary survey cited below are from FY2009. These data, which offer a five-year picture of MIT's average professional librarian salary in comparison to our library peers, indicate that salary programs of our peer institutions are experiencing similar constraints.

Table 14. Association of Research Libraries Annual Salary Survey Ranking of MIT Average Professional Librarian Salaries

	FY2005	FY2006	FY2007	FY2008	FY2009
MIT rank in average professional salary	21	24	25	24	24

Among a group of 21 selected ARL peer institutions, MIT fell one step in the average professional salary rankings. Harvard fell two steps, remaining ahead of MIT but by one ranking position less.

Table 15. Association of Research Libraries Annual Salary Survey Ranking of MIT and Harvard Professional Librarian Salaries Among Selected Peer Institutions*

	FY2005	FY2006	FY2007	FY2008	FY2009
MIT	11	11	10	7	8
Harvard	9	7	6	4	6

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

Affirmative Action and Diversity

Below are snapshots of the staff profiles in the Libraries and Academic Media Production Services for year-end FY2010. Members of underrepresented minority groups accounted for 12% of the total Libraries staff.

Table 16. FY2010 Year-End Staff Profile: Filled Positions

Staff Category		Male		Female		White		Black		Asian		Hispanic		Native American		Total Minorities	
	Total	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Libraries																	
Admin	93	32	34%	61	66%	83	89%	3	3%	3	3%	3	3%	1	1%	10	11 %
Support	86	41	48%	45	52%	75	87%	4	5%	3	3%	3	3%	1	1%	11	12 %
Total	**179**	**73**	**41%**	**106**	**59%**	**158**	**88%**	**7**	**4%**	**6**	**3%**	**6**	**3%**	**2**	**1%**	**21**	**12 %**
Academic Media Production Services																	
Admin	12	10	83%	2	17%	12	100%	0	0%	0	0%	0	0%	0	0%	0	0%
Support	4	2	50%	2	50%	4	100%	0	0%	0	0%	0	0%	0	0%	0	0%
Total	**16**	**12**	**75%**	**4**	**25%**	**16**	**100%**	**0**	**0%**	**0**	**0%**	**0**	**0%**	**0**	**0%**	**0**	**0%**

Given the current budget climate, it is likely that recruitment efforts will remain minimal in FY2011, which leaves little possibility for increasing the diversity of our workforce. In the meantime we are focusing on maintaining and building relationships in the field and establishing the Libraries' position as a partner in increasing diversity within the profession. To that end, we contributed heavily to the ARL Leadership Institute that was held in Boston in January. The 35 library school students and new librarians who attended the institute are fellows from the ARL Career Enhancement Program and the ARL Initiative to Recruit a Diverse Workforce, both dedicated to attracting underrepresented minorities to the research library profession. The institute is an intense three-and-a-half day program focusing on skill development and careers in research libraries. Three MIT librarians were presenters in the session on "Emerging Roles in the Profession," and five other librarians served as resume reviewers in the session on "Job Searches and Interviews". MIT sponsored a pizza party on one of the evenings, providing a dozen MIT librarians the opportunity to mix and mingle with the group. Involvement in the institute represented a very modest outlay of funds and staff time for which we received a significant return in terms of making connections and establishing relationships. We had learned through our experience with the MIT/Harvard-sponsored program in 2008 that these connections serve us well in establishing MIT as an employer committed to diversity. A recent correspondence with one of those program participants is illustrative:

> "PS: While I am thinking of it, please feel free to share with your own leadership that I'm keenly aware that MIT is a great supporter of the various diversity initiatives in librarianship, and am very grateful for this. I have been to two ARL Midwinter sessions and one ALA Spectrum pre-Annual session and, of course, the MIT-Harvard event. There are strong institutional leaders in the area of Diversity and these institutions stand out in high relief especially during this particular economic period. I just thought I would let you know that I count MIT as one of three or four top institutions in the country for support of diversity in librarianship, and I know that many others can name the same institutions I can! So congratulations to MIT on that count!"

In June, the MIT Libraries were represented at the Tenth Anniversary Program of the ARL Initiative to Recruit a Diverse Workforce, which was held in Washington, DC, during the annual meeting of the American Library Association. This was a key opportunity to maintain our visibility among this group of librarians and to reestablish and make new connections.

We remain committed to diversity and inclusion within the Libraries and at the Institute and have been successful in engaging a number of our staff in these efforts. This commitment will be reinforced with the newly created position of librarian for strategic initiatives. Identified as a new position in the recent reorganization, this position will report to the director of Libraries and includes responsibilities for promoting diversity and inclusion and convening the Libraries' Diversity Council. Additionally this past year, one of our librarians served as a member of the Institute's Council on Diversity.

Librarian/Archivist Promotions

The librarian/archivist promotion policy provides an opportunity for advancement by developing increasing levels of competence and contribution within any given librarian/archivist position. In FY2010, one librarian was promoted from the rank of Librarian I to Librarian II by successfully completing the established criteria. One librarian who demonstrated exceptional accomplishments within the context of established criteria around knowledge and experience, commitment to service excellence, leadership ability, and outside contributions was promoted from Librarian II to Librarian III.

Training and Professional Development

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 librarians and other professional staff who are engaged in the profession through local and national committee work, presentations, and other important collaborations.

Acting on the recommendation of a small task force formed in late FY2009, the Libraries implemented several strategies in FY2010 intended to strike a balance between cost savings and adequate financial support for professional development activities. The travel funding policy was revised to include a maximum amount per individual staff member for reimbursable expenses associated with these activities.

In FY2010, approximately 60% of the Libraries' travel budget went to support professional development activities. This represents 115 events attended, undertaken by 59 of the Libraries' 96 administrative staff. Partial support is provided for approved activities; this support is not intended to cover expenses fully but most often provides coverage of about 75%–80% of expenses incurred.

Support for skill development, which represented a much smaller percentage of FY2010 expenditures, covered travel and registration expenses for approximately 12 staff members who attended workshops or training sessions to gain or develop critical skills relative to ongoing library initiatives. Another small percentage of travel expenditures was spent for administrative or other business travel, including that undertaken by the director and associate directors, as well as other designates, to conduct business or to represent the Libraries in an official capacity.

A number of workshops were organized during the year to provide staff with useful information and support. To better equip staff and managers to work through the significant changes brought about by the reorganization, the Libraries contracted with MOR Associates to facilitate two workshop series. All staff were invited to attend "Navigating Change," a two-part series with one session offered in the fall and a follow-up session in the spring. A separate series of three workshops on "Leading Change" was developed and facilitated by MOR Associates to assist department heads in planning and transitioning to the new organization.

MIT retirement benefits counselors provided two valuable information sessions for interested staff in early FY2010. In this time of economic turmoil, staff found this overview and in-depth look at retirement benefits valuable.

Also, a number of support sessions similar to those conducted last year were held for staff who were impacted by layoffs and reductions in effort. These sessions were helpful in reviewing benefits and resources and in introducing staff to contacts in central Human Resources who could provide support throughout this process.

Staff Recognition

Rewards and Recognition Program

The Libraries celebrated the 10th anniversary of the Infinite Mile Award this year. In a ceremony on June 9, four individuals and four teams were recognized for their exceptional contributions to the work of the Libraries and AMPS. The Rewards and Recognition Committee was once again faced with the challenge of planning this celebratory event in the shadow of the announcement of staff cuts earlier in the year. However, a healthy number of award nominations were submitted, indicating that staff recognize the value of maintaining a culture of recognition even in challenging times. The ceremony, held in Killian Hall, was followed by an "Afternoon in Tuscany" luncheon in Walker Memorial, complete with a birthday cake to mark the 10-year milestone.

The Libraries' Spot Award Program remains strong and popular, providing the opportunity for staff to express everyday appreciation for the "little things" that contribute greatly to our collaborative and supportive work environment. Approximately 2,900 thank you notes were submitted in FY2010, an average of 240 submissions per month. Random drawings from these entries were held each month, and gift certificates were presented to the winners. The program was revised to draw six names in the monthly drawing (up from four) for gift certificates in the amount of $50 each (down from $100). This approach was a cost-saving measure that also allowed us to increase the number of monthly winners.

Annual Staff Reception

The annual staff reception was held in January. It is heartening to see that, while we have scaled back on our costs for this annual breakfast, the event is the highlight of the year for many staff. Seven new staff members who began employment in the Libraries after the last January event were introduced, which is a relatively low number. In contrast, the 16 staff members recognized for service milestones represented an all-time high. Eight individuals were recognized for 10 years of service, four for 20 years, and three for 30 years. And for the first time since we began this milestone recognition tradition, we applauded our colleague Carol Robinson for her achievement of the 40-year milestone.

Robin Deadrick
Human Resources Administrator, MIT Libraries

Facilities and Operations

Space Projects Completed in FY2010

The Dewey Library renovation was completed in August of 2009, allowing the reopening of the entire space in time for the beginning of the fall semester in September. Fully funded by CRSP at a cost of $4.6 million, this project was a success by all measures and has proven to be enormously popular among students as well as faculty. A new 24-hour study space adds that important and heavily used feature to East Campus library services.

Barker Engineering Library's Reading Room was completely refurnished during the summer of 2009 in a project financed by the Libraries' Vail Fund. Although capital improvements to lighting, the dome skylights, and acoustics remain to be done in the future, the Libraries' investment in this major facelift represents a vast improvement to the appearance and usability of the space. The MIT Corporation used the space this past June for its luncheon and meeting.

Closely tied to the Barker Reading Room was the complete exterior renovation of the Building 10 dome, which took place from June through November of 2009. The persistent leaks over many years into the Barker stacks had made it necessary to relocate collections from the eighth floor in the spring of 2009 to avoid further damage to materials. Now that the waterproofing is successfully completed, the Libraries have a number of options to consider with regard to the best use of the eighth floor. Due to the adjacent mechanical room, ambient noise levels in the space are very high, so it is unlikely to be considered for study or staff locations. The eighth-floor and portions of the seventh-floor spaces received new lighting, carpeting, and paint as a result of the dome renovation.

The roof of Hayden Library (Building 14S) was replaced during the summer of 2009, and the library's passenger elevator was replaced over the winter of 2009–2010. The latter has been on the list of "must do" capital projects for many years, since the movement of materials around the building, not to mention users and staff, is so reliant on this elevator. The new elevator is great!

The Aero/Astro and Lindgren (EAPS) branch libraries were permanently closed in the summer of 2009 as part of the Libraries' FY2010 budget reduction strategy. Both spaces (Buildings 33 and 54) were moved from the Libraries' inventory to that of the Department of Aeronautics and Astronautics and EAPS, but the "space credit" received by the Libraries for the closed branches will be used in the near future for important relocations, including the AMPS Video Production group (currently in NE48) and the IT group (currently in E25).

In order to clear the way for academic use of Building 35, CRSP moved the AMPS Distance Education group from that building to a space in Building 10 that formerly housed the Teacher Education Program. This is an excellent location due to its centrality and proximity to distance education infrastructure operations, which will continue to reside in Building 9.

A portion of the Lewis Music Library mezzanine was refitted with custom study tables and additional lighting with the support of donor funds. This change reflects evolving user needs as new digital audio capabilities have replaced many of the former analog playback stations.

The former Women's Study Reading Room on the third floor of Building 14E was converted to a new group study space as the collection was integrated into the Humanities Library. After removal of the stacks lining the walls, the changes include new carpet, paint, furniture, and a large flat-screen monitor.

An office was constructed in an alcove of Preservation Services in the basement of Building 14, facilitating a much-needed addition to bench space for conservation projects as well as providing appropriate privacy for the supervisor of the unit.

Space Projects Pending for FY2011

The Science Library (Hayden first floor and mezzanine) will be fitted for fire protection sprinklers as well as upgraded lighting, new carpet, and fresh paint over the summer of 2010.

The north wing of Hayden (Building 14N)—of which the Libraries occupy only the first floor—will also be fitted for fire protection sprinklers during the summer of 2010.

Building N57, the Library Storage Annex, will receive a new fire pump and additional sprinklers.

NSTAR is partnering with the Institute to make substantial improvements to the infrastructure of Building 14 in order to reduce long-term energy consumption. Most of the changes involve lighting and heating, ventilation, and air conditioning systems.

The Rotch Visual Collection (7-304) will be consolidated into Rotch Library (7-238) over the summer of 2010 in order to integrate and improve services for users. Additionally, some Rotch main floor spaces will be reconfigured to consolidate the map collection.

Michael Smith
Facilities and Operations Administrator, MIT Libraries

Communications

Public Relations and News

Conveying organizational changes resulting from Institute-wide budget cuts and the Libraries' reorganization was a significant focus of Communications in FY2010. Strategic communications plans were formulated and messaging was drafted and conveyed to the MIT community in a series of timely email announcements, web postings, FAQs, and campus news stories.

The Libraries also garnered publicity with a number of different news stories about the Institute's open access initiatives, the announcement of Harvard borrowing privileges for undergraduates, the opening of a new AMPS studio, and various library events.

New opportunities to promote Libraries news and initiatives will be a focus in FY2011 as campus news channels continue to evolve and social media becomes another important outlet.

Outreach, Events, and Exhibits

Outreach efforts with MIT departments and faculty led to several successful events in FY2010. Collaboration with the Department of Aeronautics and Astronautics and professor Dava Newman resulted in the Libraries' co-sponsorship of an event with astronaut Mike Massimino. Communications was involved in planning, advertising, and producing a video of the event.

Communications also played a key role in the success of two exhibits in the Maihaugen Gallery, including an exhibit curated by MIT faculty members. Work on the exhibits included contributing content and design for text panels, managing the production of videos and the operation of touch-screen displays, and creating event programming and promotional materials. Plans to expand online exhibit content will continue in FY2011 with the creation of web-based slideshows and further collaboration with faculty on an online teaching resource that includes content from the last exhibit.

Other events supported by Communications included open houses in the new spaces of both Dewey and Barker libraries, as well as smaller exhibits in individual units.

FY2011 Outlook

With the reorganization of the Libraries, it will be important to establish a workflow for centralized, operational marketing practices within the new system. Key library leaders/stakeholders will be brought into the development of a marketing strategy for the Libraries.

Communications will continue to lead these efforts by establishing and overseeing a marketing team focused on all aspects of promoting the Libraries: virtual marketing, outreach and relationship management, marketing research, marketing distribution, and graphic design.

Heather Denny
Communications Officer, MIT Libraries

Information Technology Core Services

The Libraries' Desktop Support and Systems Administration functions moved from the Technology Operations group into Administrative Services in the spring of 2010 as early implementations of the Libraries' new organizational structure.

Desktop Support

Staffing Changes

The Desktop Support Team responded to over 1,300 support requests over the past year, utilizing four hours per week of subcontracted support from IS&T's Departmental Services group in addition to the five full-time equivalent positions on staff. Two staff positions were eliminated at the end of FY2010, leaving three remaining for FY2011. These three staff members, helped by a substantial increase in outsourced support from IS&T staff, will implement a modified service model for FY2011 that promises greater efficiency and effectiveness going forward.

Exchange Migration

A two-phase (exchange email and calendar) migration project that spanned the period of October 2009 to March 2010 involved the coordination of daily account migrations with the IS&T Exchange Team for 170 library staff members. All Libraries staff were upgraded to Office 2007 in anticipation of the project, and Thunderbird users were also migrated to Outlook. Staff were offered training and drop-in sessions by IS&T to acquaint them with the new applications. The Exchange Team experienced some challenges during the migration, as a result of both staffing changes and the fact that the Libraries' heavy use of resource calendars was not fully appreciated by IS&T. In addition, library Macs in the system (only about 20 total) posed numerous migration difficulties, to the frustration of users as well as tech staff.

Reimaging of Public Machines

More than 70 computers in library public spaces were reimaged in an effort to improve performance and reliability. The oldest hardware was retired.

Equipment Moves

The Desktop Support Team moved and set up Dewey Library's public and staff PCs during the extensive renovation of Dewey. It also relocated processing staff from several divisional libraries to the new Collection Services Unit in Hayden.

Documentation

Major strides were made toward the goal of having accurate computer documentation available on the wiki:

- Detailed policies and procedures for use by the Desktop Support Team
- Pages on library-specific configurations for use by IS&T consultants
- Documentation on the use of Exchange with Outlook, Apple Mail, and iCal for library staff

Improvements in PC Setup

The move to much greater standardization and automation that began in late 2009 delivered major overall improvements to the computing environment this year:

- Automatic updates, improving accuracy of inventory

- Master boot image DVD for staff machines, regardless of model

- Software packaging and automatic deployment of upgrades to staff

- Quick replacement of broken hardware, thanks to spare standard hardware (laptops, desktops, monitors, printers) and the use of scripts to transfer personal data

- Monitoring of TSM backups via custom reports

- Simplification of the sale of deactivated equipment to staff

Pam Nicholas
Library Technology Consultant Support Manager

IT Infrastructure/Systems Administration

FY2010 was focused on cost savings, stability improvements, and compliance with Institute technology standards such as operating platforms and equipment locations. A continued focus on skills transfer and redundancy among staff has also been a priority. We continue to advance toward a highly available, redundant, and robust infrastructure with minimal downtime and a high quality of service.

In response to the cost savings requirements of this fiscal year, we pushed our virtualization project ahead in order to allow us to run with less hardware and more optimally utilized resources. The completed virtualization of our production systems allowed us to shut down and deactivate more than 20 legacy servers that had significant ongoing maintenance costs.

We also began the process of relocating the Libraries' production servers to the IS&T W91 commercial-grade data center. These moves promise to result in better up time, improved network redundancy and transmission speed, and greater protection of our equipment from potential disasters such as a flood or fire.

To bring the Libraries in line with the operating platform that IS&T is using for its infrastructure, we have started transitioning from the VMWare Server platform to the VMWare vSphere and ESXi platforms. We established our first vSphere/ESXi infrastructure in W91 with the newly relocated equipment. vSphere/ESXi is an enterprise-level virtual infrastructure platform and management system that will allow us access to exciting new technologies. The use of those technologies will result in more reliable, secure, and easily manageable servers and storage.

Sufficient skills transfer and training was done over the past year to allow a single Infrastructure Team member to administer and manage all systems and services during

this year's furlough periods. This is a level of staff cross training and redundancy that we have been working toward over the last few years. Both team administrators were able to administer and manage all systems and services for a period of one week without any complications or difficulties.

We have also increased our focus on ease of use of the Libraries infrastructure for the staff. Several changes have been made to systems and services to improve workflow processes and reduce the staff's support needs. The most visible of these changes was the establishment of a new Libraries Domain password policy that requires staff members to change their passwords only once per year in sync with IS&T expiration of the MIT certificates. We plan to continue to analyze all support tickets on a regular basis with a goal of finding long-term resolutions to any difficulties encountered by Libraries staff.

Normal maintenance activities such as software upgrades, security patches, operating system upgrades, and system monitoring were also performed. The quality and granularity of monitoring has continued to improve, and there were no security incidents resulting in data compromise in 2010.

Finally, the Infrastructure Team supported major internal software development and deployment work. This work included the upgrade of the DSpace institutional repository software from version 1.5 to version 1.6 for both DSpace@MIT and Dome. The 2011 focus will be on achieving full vSphere/ESXi deployment, improved usability, and process formalization.

Alex Brennen
Senior Unix Systems Administrator, MIT Libraries

Academic Media Production Services

Distance Education Group Projects, Initiatives, and Technology Enhancements

Webcastnow

The Distance Education group concentrated on streamlining and reducing the costs of webcasting services for the MIT community. Webcastnow is a fixed-price Flash video webcast service (http://web.mit.edu/webcastnow) that has allowed more clients to do webcasts on campus. This, along with the acquisition of a Viewcast Niagara streamlining appliance, has allowed us to push a live stream from any point on campus, greatly reducing the costs for campus locations that are remote from our streaming servers in Building 9. With these changes, clients such as the MIT Museum have begun to resume presentations to off-campus viewers.

Openeya

As part of the initiative to find more cost-effective video capture solutions for clients, AMPS experimented with a new, low-cost alternative called Openeya. This open source

solution, created by a physics group in Italy, was installed in several classrooms for an initial test period in the spring of 2010. There will be further deployment and testing in the fall.

Desktop Video Conferencing: Movi

To support increased and diverse needs on campus, as well as the needs of faculty, students, and staff who find themselves traveling constantly, AMPS launched an alternative desktop video conferencing system. This service allows end users who do not have installed hardware to conference with those people who do in a secure manner. Movi is a standards-based platform that allows people to travel and still connect to those back on campus, giving them the option to connect to remote partners from their home or office at any time. This has been particularly popular among Singapore-MIT Alliance for Research and Technology (SMART) faculty who need to collaborate with their partners over many time zones. We are also planning to promote this to on-campus clients as an alternative to physical meetings. The Sloan School of Management has signaled its intention to use Movi for its traveling students and Executive MBA program participants.

Video Conference Recording: Tandberg Content Server

As part of the backbone infrastructure that we began to put into place this past year, the content server allows end users to record video conferences for later referral or for people who are unable to attend the actual meeting. This lower-cost capture alternative will allow anyone with an installed video conferencing endpoint or using Movi to record sessions. We successfully moved Woods Hole Oceanographic Institute (WHOI) classes this spring from DVD to the content server and have had great response from students due to the much faster turnaround time. This system will also provide the basis for lecture capture in the new Sloan building once construction is finished.

Maihaugen Gallery Display

AMPS assisted the Libraries in the acquisition and installation of a video display for presentations in the Maihaugen Galley. The AMPS Post Production group also produced content for some of the exhibits.

Libraries Video Conferencing Initiative

AMPS collaborated with partners in Barker and Dewey libraries to provide video conferencing systems for use by the community free of charge. The two systems, one standard definition in Barker and the other HD in a Dewey collaboration space, are available to anyone for use during regular library hours on a self-service basis. This offers students an opportunity to use IP-based video conferencing technology for research, collaborative initiatives, and job interviews with companies around the world.

Digital Instruction Resource Center Instruction Sessions

AMPS continues to provide library users with video playback of instruction sessions from the Digital Instruction Resource Center (DIRC) in Hayden Library. These videos allow viewers to experience a rich media capture of the presentation that can be navigated in the manner that best suits their own learning style.

Sloan Webcam

The Distance Education group is nearing the completion of a two-year project providing a live video stream of the E62 Sloan building construction. Originally set up to allow

major funders to view the site during construction, an additional goal was added to facilitate a multiple-camera time lapse video for the building dedication.

Singapore–MIT Alliance II

Spring 2010 saw the completion of the bulk of the Singapore–MIT Alliance (SMA) II distance education initiative with Nanyang Technological University and the National University of Singapore. This completed 10 continuous years of distance education classes for SMA . AMPS continues to serve this content as needed and will begin archiving all of it (about 10 terabytes) to LTO backup in FY2011.

Elaine Mello
Manager of Distance Education and Streaming Operations, AMPS

MIT Video Productions Group Projects, Initiatives, and Technology Enhancements

MIT TechTV

AMPS continued to worked closely with the Libraries in the further development and application of TechTV as a "free" video publishing platform for the Institute. More than half of the video content that AMPS captures for the Institute is now published on TechTV. The ease in video delivery made possible by TechTV has contributed to the stability of the production and multimedia development business lines.

MIT150

AMPS staff were closely involved in the development of programmatic and web-based video content in support of the upcoming MIT150 celebration.

New Studio

A newly constructed video studio in Building 24 began operation in April 2010. This state-of-the-art facility allows AMPS to execute multicamera recordings in high definition, and fiber-optic connectivity allows the convenient, on-campus connection of MIT experts with media/news organizations in real time or on demand. Video recordings in support of the MIT150 Infinite History Project were transitioned to the studio in May.

Event Capture

AMPS provided capture and delivery of many high-profile events, including MIT visits by President Obama, David Milliband, and Bill Gates.

Technology Enhancements

AMPS doubled its digital storage capability in the Building NE48 multimedia development suite. It also employed direct-to-digital flash card–based capture solutions for lecture and event production processes, significantly streamlining processing and publishing workflows.

Larry Gallagher
Director of MIT Video Productions, AMPS

Business Volume

Considering the general economic downturn and budget cuts throughout the Institute, FY2010 revenue in most AMPS business lines held steady. Distance education classrooms and encoding were down, as expected, due to a drop in volume for SMA. We now know that SMA revenue in FY2011 will be reduced to a fraction of the past, so major changes in those classroom business lines are being developed. Due to the MIT150 celebration beginning in January 2011, FY2011 is quite promising in terms of video production business.

Looking Ahead

In terms of administration, the Libraries expect to focus considerable attention in FY2011 on the following areas:

- Managing with a smaller budget: Smart, responsive fiscal management is needed to effectively support the critical products, services, and spaces that the MIT community has come to expect from the Libraries.

- Full implementation of the Libraries' new organizational structure. This will require intensive activities in all administrative areas—financial, HR, facilities, communications, and IT infrastructure.

- MIT's video infrastructure: From capture and production to broadcast and archiving, the video infrastructure requires focused attention in order to meet the Institute's changing teaching, research, and communications needs.

Keith Glavash
Associate Director for Administration

Technology Operations

Strategic Technology Areas

Technology in 2010 was marked by two trends. On one hand, we saw rapid advances in mobile and cloud technology, as exemplified by the Apple iPad launch and the emergence of affordable, large-scale network-based ("cloud") storage. These advances offered important opportunities to research libraries, which the MIT Libraries have taken advantage of to the degree possible in the current economic climate. This dizzying release of new hardware technologies and services required constant monitoring and reaction from technology staff of the Libraries, and as a result we now have projects under way to explore both new mobile applications and cloud storage of our digital collections. On the other hand, last year was characterized by a "hurry up and wait" phenomenon caused by the economy as well as the status of several large initiatives such as the Google Books Project (we are still awaiting a legal decision on whether Google can launch its digital library collection). In this category the Libraries invested significant effort into long-term strategies, such as the very large NSF proposal to build a state-of-the-art data curation service at MIT and for the world, whose results we cannot yet report on. This report reviews our work in both categories, as well as the ongoing and

absolutely critical work of maintaining the Libraries' current technical infrastructure on which the entire Libraries and MIT community depend.

Selected Software Development Activities

The Libraries' Software Development group (now a new department in the reorganized Libraries called Software Development and Analysis) completed a number of key projects last year, ranging from improving our current critical business systems to performing cutting-edge research in the areas of digital preservation and digital data navigation.

Expanded Competence and Coverage

After a lengthy search, a third developer with particular expertise in the area of customer-facing standards and technology was hired to join the group. This position, which complemented the existing strengths in middleware, database, and other back-end technologies already resident in the group, allows the group to offer software services and consulting across the entire spectrum of technical platforms the Libraries use or evaluate. This expertise has already been put to use by assisting the Technology Services group in usability improvements in many library web products.

DSpace

In March of 2010, the DSpace community released the next major version of the platform: version 1.6. Software Development made significant contributions to this release, based on our local service needs and strategic interests. Among the most significant new features we donated were the following:

- Support for content embargoes: Developed in collaboration with Harvard University's DASH open access repository, this provides a flexible and extensible system to impose and manage embargoes on digital material that cannot yet be made publicly available.

- Tools to manage batch updates of DSpace content: The Dome digital library has a number of collections whose source is an externally curated system, and these tools provide much better ways to synchronize updates across the two platforms.

- Support for the OpenSearch web standard: This allows DSpace to become a federated search target, embed easily in a browser toolbar, and expose RSS feeds for search results, making it a web-centric complement to the current search interface (SRW/U).

Search Engine Optimization

The Software Development group began an exploration of better ways to expose digital repository collections to popular search engines, especially Google Scholar, which is (according to research) the primary discovery tool of many who access MIT's information resources. For example, we have developed tools to publish a set of Google Scholar recognized tags that bear metadata in web page markup, and we hope to offer this functionality to the larger DSpace community in the next release.

Digital Preservation

Several initiatives were begun in FY2010 to further the digital preservation agenda for our repository content. For example, the Libraries joined a pilot program with the DuraSpace organization to utilize cloud computing infrastructure (primarily storage) to provide a highly scalable, managed replication store for DSpace content. We are exploring how we can utilize the service and integrate it into existing workflows and curation practices. All DSpace@MIT and Dome content will be copied to the cloud for preservation. The pilot should also help us begin to develop realistic cost models for such services. In addition, the group launched an effort to provide a framework or "bench" on which various preservation-focused activities can be performed. The replication services just mentioned will be included, as will virus checking. Looking to FY2011, format identification and content resuscitation should be added to the framework.

Electronic Theses

After a lengthy analysis of needs and requirements for MIT's e-thesis submission system, it was determined that the DSpace-based e-thesis platform from Texas Digital Library known as "Vireo" could serve as a solid foundation for the Libraries' development efforts. In addition to the fact that the platform is built on a stack familiar to library developers, we also enjoy a good collaborative relationship with its Texas developers from prior DSpace work. The group has started to customize Vireo to meet our needs, and we intend to pilot the service to selected departments in the next academic year.

DSpace Production Service Migrations

Recent experiences with DSpace@MIT, from the standpoint of both student usage and administrative usage (e.g., the open access anniversary), showed that system availability has not been optimal. The underlying reasons pointed to a need for better hardware and better control over the local DSpace application code. This required moving to new hardware and running several copies of the system simultaneously, as well as a more controlled process of installing and running these copies, to ensure that the service is stable and always available.

Network Security

As MIT's central IT organization (IS&T) rolled out Touchstone, its new MIT-wide network security solution that relies on the Shibboleth protocol to support cross-organizational authentication and authorization, the Libraries did their part to implement the solution in key online systems, including Barton and DSpace (see above for more on this).

Research Initiatives

FACADE Project

The FACADE research project was concluded in FY2010, after three years of groundbreaking work on the management and long-term preservation of digital architectural records, including 3D computer-aided design models. As one of the only projects in the world working on this problem, FACADE attracted a great deal of

attention and has established MIT as a leader in thinking about preserving complex digital formats and processing large, unstructured digital collections.

In FY2010, we explored several directions in which this work might be further utilized at MIT and beyond. First, an analysis was performed to determine what additional development work would be required to use the tools and processes to build a architectural archiving service at the MIT Libraries. Second, other components (e.g., the "Curator's Workbench" tool) that have value independent of the DSpace environment were shared/demonstrated with potential adopters. We end the year midway through the effort to move this research into production at MIT, and with great prospects to expand the research in several new directions next year.

DataSpace Project

In FY2009 MIT submitted a proposal to the National Science Foundation to fund DataSpace, a project to design and build a cutting-edge research data curation service for research universities. The Libraries are a key partner in this project, serving as the main implementation partner as well as working on several research problems in building such services for a variety of data types (e.g., fMRI images for neuroscience and sensor and metagenomics data for biological oceanography). In FY2010, MIT successfully hosted both a reverse and a standard site visit from the NSF DataNet site visit committee and is now one of four finalists in this process. We anticipate learning the final outcome in the first quarter of FY2011, but reaching this stage of the process has taught us an enormous amount about the need for data curation at MIT and how the Libraries should position themselves to be most effective at meeting that need. The reorganization of the Libraries described elsewhere addresses this positioning, and we are now ready to begin work in this area as soon as the NSF proposal results are known.

Simile Project

Finally, in FY2010 the MIT Libraries, on behalf of the Library of Congress, organized and ran a two-day workshop to define the next generation of the "Exhibit" tool that was produced by the Simile research project in prior years. Since that project's conclusion, Exhibit has been adopted by countless organizations around the world, including the Library of Congress, and has generated enough interest in its growth and continued viability that we have been asked to oversee its further evolution into an even more useful tool to aid in data management, navigation, and visualization. As a result of the workshop, the MIT Libraries are now drafting a proposal to the Library of Congress to fund the implementation of the next-generation Exhibit tool and will ourselves make extensive use of it in future years.

Selected Key Technology Initiatives

Below are brief updates on a few key initiatives of the MIT Libraries that were strategically important and technologically intensive.

DuraSpace

For the past 10 years the MIT Libraries have been closely involved with the DSpace platform, first in its creation with HP Labs, then in its transition to a global open source

software platform used worldwide and maintained by a diverse group of developers, and finally in the launching of the nonprofit DSpace Foundation to continue its evolution and support additional products and services. In early FY2010 the DSpace Foundation and a related effort known as the Fedora Commons merged to form DuraSpace, hosted in part at the MIT Libraries and with MIT board representation. The Libraries' technology staff continued their close involvement in DuraSpace as it defined, built, and launched a set of new services around provisioning "cloud" storage and services to the library and related communities. MIT is a pilot partner in using this service, as well as a contributor to its design and requirements. We are delighted to see this continued evolution of our vision for DSpace and believe that DuraSpace and these services are becoming a key part of the global infrastructure around digital content management and its long-term preservation.

Educational Technology

In FY2010 the Libraries concluded the two-year MIT DOS Project, whose goal was to integrate the systems behind DSpace, OpenCourseWare, and Stellar, which are MIT's primary systems to support educational materials. The project, a collaboration among Libraries, IS&T, and OpenCourseWare staff, entailed a lengthy analysis of how to improve the workflow of faculty as they conduct and publish their courses. This involved a number of studies, including how this material flows around campus from the faculty who create it or obtain it from the Libraries, through the course management system that students use to interact with it, and on to publishing via OCW and, finally, archiving by the Libraries in DSpace. As a result, we focused on the interoperability among the three systems and, in particular, revisited the interface between OCW and DSpace to replace the custom workflow used in the past with a more standard, and thus sustainable, approach built on the new SWORD deposit protocol. MIT completed a modest extension of the SWORD standard to meet the specific requirements of course material deposit, and this became operational with the migration of MIT's DSpace production systems to version 1.6. We continue to await the results of a review of the Stellar course management system and anticipate further work once that system is selected and implemented.

Open Access

FY2010 saw the transformation of the March 2009 vote of the faculty on open access to its research articles into a set of robust processes for discovering and acquiring articles falling under the policy guidelines. Much of this workflow was devised and managed by a team of individuals from throughout the Libraries, but a significant amount of work was done by the Software Development group to support those efforts. Specifically, extensions were made to DSpace to better support research articles for both submission and discovery, and an automated workflow in which publisher content is pushed to the repository was piloted with BioMed Central using the SWORD deposit protocol.

We continue to make support of this faculty policy a high priority, and we spent time in FY2010 identifying and evaluating software systems that would better support this workflow. For example, we are working with a UK company, Symplectic Limited, on whether its software—designed to support research assessments in the European Union context—could be adapted to meet MIT's needs for faculty article capture and

processing. This work continues, but our understanding of the technology market for article publication management has become much more sophisticated as a result of this analysis, better positioning MIT to implement its faculty policy quickly and effectively.

On a related track, one of the most time-intensive data management issues encountered in open access workflows is author disambiguation: how to identify the MIT authors of a published work given rather poor name representations. Common name-variant heuristic matching can be (and is being) performed, but match rates and accuracy are low. Thus, when the Open Research Contributor Identifier (ORCID) initiative was announced with considerable backing from major publishers, MIT Libraries staff joined both the technical and business working groups to ensure that whatever solution was developed would meet the technical as well as service needs of academic institutions. Based on donated work from Thompson-Reuters' researcher ID service, this fast-moving initiative is already forming a not-for-profit entity to manage the IP and service and hopes to pilot before the end of calendar year 2010. MIT will serve on the initial board of directors for this initiative.

Conclusion

FY2010 was dramatic and fast paced, as has become the norm in technology for libraries. MIT continues to respond quickly and efficiently to these developments with flexible and innovative short-term experiments as well as thoughtful, strategic longer term projects and initiatives. Our capacity and willingness to engage in research projects, both independently and working together with MIT faculty, continues to position us to do far more with our resources than many institutions so that we find ourselves weathering the current economic downturn with positive prospects. We enter FY2011 with a number of major technology projects queued up, and we look forward to tackling them with MIT's usual energy and spirit of adventure.

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