

Academic Media Production Services

Vision

Academic Media Production Services (AMPS) provides educational technology services to the MIT community in areas such as multimedia, video, web, videoconferencing, and course management. In its third year of operation as a cost-recovery unit, AMPS is pleased to report the progress made in meeting its mission to provide services for educational initiatives at MIT and in achieving its vision of being recognized as the provider of choice for educational technology projects that support the Institute's strategic goals (<http://web/amps/about/vision.html>). Key elements that characterize our progress in the past year are as follows:

- *Services:* AMPS articulated a clear set of services on its newly redesigned website (<http://web/amps/services/index.html>), including pricing and key contacts to make it easier for faculty and our client community to use our services.
- *Customers:* AMPS provided services to a range of departments, laboratories, and centers across the Institute. Clients chose to work with us because of our creative expertise, commitment to delivery, and knowledge of MIT.
- *Organization:* AMPS merged the video production and streaming media service groups to create a single operational unit that seamlessly captures an event on camera and delivers it to the desktop.
- *Technology:* AMPS updated its distance education classrooms and editing suites to ensure delivery of high-quality services with predictability and reliability. Improvements were made in the Stellar course management system and updated versions were released.
- *People:* AMPS initiated professional development processes at the managerial level in order to make AMPS the workplace of choice.

Strategic Support

AMPS Advisory Board

The AMPS Advisory Board, appointed by Provost Robert A. Brown and chaired by Professor Steven R. Lerman, provided strategic guidance to AMPS and monitored its value in supporting MIT's educational technology initiatives. Over the past year, the board deliberated on services, business models, business development, and communication in support of AMPS' mission.

For more information about the board, see <http://web.mit.edu/amps/about/advisors.html>.

Stellar Faculty Advisory Board

The Faculty Advisory Board for the Stellar course management system was appointed in fall 2003. The board was instrumental in representing faculty priorities and concerns to the Stellar development team and provided input on topics ranging from features and

functionality for the Stellar course management system to policy issues. Some emerging considerations in this context were as follows:

- Supporting faculty through sustainable and innovative pedagogic tools
- Aligning Stellar with the IT enterprise infrastructure and with other educational services
- What tools and services should be supported centrally
- The Institute's leadership role in educational technology – for example, through initiatives such as OpenCourseWare (OCW), iCampus, Open Knowledge Initiative (OKI), and DSpace
- Content Life Cycle in the context of web publishing (OCW), interactive course management (Stellar), and digital repositories (DSpace)
- Cost of ownership of software systems

For more information on the board, see <http://web.mit.edu/amps/about/stellar-advisors.html>.

Services Offered

AMPS delivered a rich complement of services in support of MIT's educational technology initiatives, including the following:

- *Video production*: on-location production, studio production, media link, digital media editing and duplication, custom video production
- *Web and multimedia*: website development and maintenance, web application development, interactive multimedia design, CD and DVD authoring
- *Streaming and digital technology*: streaming media encoding, streaming media hosting, digital video distribution, webcasting, digital video storage
- *Distance education and videoconferencing*: distance education delivery, videoconferencing facility access, videobridging, distance ed delivery and videoconferencing support, technician support
- *Stellar course management and administration*: software platform for a variety of course interactions and delivering educational materials to the MIT community
- *Event support*: video and webcast distribution, web support
- *Consulting*: videoconferencing system design, advanced network application development, on-demand video system design

Details and pricing are available at <http://web.mit.edu/amps/services/index.html>

Organizing for Service

In its third year of operation, AMPS continued to refine its organizational structure to remain responsive to the MIT community in an efficient and cost-effective manner. The group made significant advancement through the formation of a streamlined service delivery organization for video and digital technology services. With this change to the organization, the following service delivery groups emerged:

- MIT Video Productions and Digital Technologies (MVP&DT)
- Educational Design and Development Group (EDDG)
- Web Tools and Operations (WTO)

AMPS also adopted a number of practices and strategies to shape the organization as a competitive service provider, including the following:

- Developed a high-performance team with the necessary competencies for each project
- Implemented improved business processes and systems, such as an activity-based costing system
- Standardized service offerings and provided pricing and contact information on the web, making it easier for clients to engage our services
- Aligned client-facing activities, such as the web service group integration work, and back-end activities, such as working with the Office of the Registrar to receive registration information for Stellar websites early in the semester
- Built partnerships with other support organizations, such as Information Services & Technology (IS&T) for Help Desk support of Stellar course management system
- Increased our reach in the MIT community through client-centered communications such as the new website and web services brochure
- Continued work toward a unified process with OCW

MIT Video Productions and Digital Technologies

Until March 2004, MIT Video Productions (MVP) and Digital Technology and Streaming Operations (DTSO) operated as two distinct units within AMPS. Given the convergence of technologies, the challenging financial times, and the opportunity to realize systemic efficiencies in workflow, the two groups merged to form a single operational unit.

Through a facilitated workshop, the two groups discussed how to streamline the process of delivering video and digital technology services to clients. MIT Video Productions and Digital Technology (MVP&DT) emerged as the single operational unit, with Larry Gallagher as director and David Mycuc as associate director and principal strategist for digital technologies.

Initiatives to Advance Operational Efficiency

MVP&DT implemented the following initiatives to facilitate ease of service delivery and client engagement:

- Upgraded the LiNC, Kaufman, and Ford classrooms in Building 9 for fall 03; the upgrade included new cameras, audio components, and a control panel
- Updated two editing suites
- Developed a disintermediated acquisition system to allow long session acquisition without an operator

- Investigated, deployed, and supported a virtual private network to allow remote access for SMA professors to attend videoconferences
- Integrated the acquisition process for SMA to allow digital archiving of assets, thereby reducing the storage requirements and associated costs
- Implemented a new billing database that simplified billing, report generation, and estimating for new projects

People

The last year saw a few significant personnel changes. Shannon Rutherford, streaming media coordinator, left to focus more on his long-term goals, including going back to school. Doug Bolin joined the group as a digital video specialist/producer, and Andrew Nyberg joined as streaming media coordinator.

Educational Design and Development Group

The Educational Design and Development Group (EDDG) continued to provide website development and maintenance, web application development, and interactive media services to the MIT community. Over the past year, EDDG put greater emphasis on web application services in response to strong client demand.

Clients were pleased with the results, which provided greater efficiencies or additions to their information management capabilities. After satisfaction with a website revision, the Center for Real Estate engaged EDDG for two successive projects. A significant number of clients, most notably the Singapore–MIT Alliance (SMA) and Sloan CourseFest, also requested the means to perform self-publishing tasks. Providing clients with this ability allows them to update their web sites more frequently at lower cost.

Changes in Personnel and Funding

Over the course of the last year, EDDG saw a change in both management and funding. Katie Livingston-Vale managed the group for the first eight months before moving to Academic Computing–IS&T as senior educational technology consultant. In February 2004, Mark Brown took over management responsibilities. Primarily as a result of reduced work from SMA, Francie Chase, web designer, left to work as a freelancer, and Gayle Willman, faculty liaison, left to pursue other interests.

In March 2004, EDDG suffered a loss in funding when SMA eliminated web publishing and web tool development services from its budget. In response to the funding loss, EDDG developed a communications plan to define services and generate new revenue. As part of this effort, EDDG put emphasis on improving client interaction and structuring the development cycle. EDDG was able to completely offset the loss of SMA funding by developing new revenue streams.

The success in offsetting the funding loss was also due to collaborating with the Web Communication Services and Publishing Services Bureau to coordinate web service

delivery and publishing across MIT. The alliance with these groups helped promote AMPS as the provider of choice for website work at MIT.

The alliance also brought with it an expanded understanding of the richness of the constituent groups, a willingness to share knowledge and resources, and a set of best practices for various publishing disciplines. In the upcoming year, the group will try to identify opportunities for alignment that could simplify the current landscape of services for web applications at the Institute.

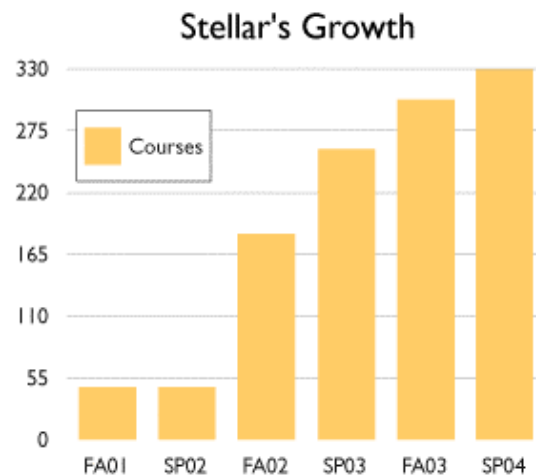
Web Tools and Operations

Headed by Craig Counterman, the Web Tools and Operations (WTO) group continued to provide technical and operational assistance for the development of web tools that provide learning management functionality. Over the last year, WTO produced the following web tools:

- Stellar course management system: <http://stellar.mit.edu/>
- Qtools: <http://amps-tools.mit.edu/qtools/>, an application that creates question sets for a variety of purposes, such as polls, surveys, quizzes, and assessments
- Back-end programming for MITREX (<http://cre-mitrex.mit.edu/>), developed for the Center for Real Estate, and the Museum Loan Network (<http://loanet.mit.edu/>), a national collection-sharing initiative administered at MIT

Stellar Course Management System

Thanks to increased collaboration with and requirements gathering from faculty and instructors, the use of the Stellar course management system increased over the last year. AMPS released a new version of Stellar for the fall 2003 and spring 2004 semesters. Spring 2004 saw the introduction of Stellar 1.6, which delivered greater integration with MIT's enterprise infrastructure, primarily the Office of the Registrar, plus many ease-of-use improvements. AMPS will release Stellar 1.6.2 in fall 2004, which continues to incorporate greater integration and ease-of-use improvements.



A snapshot of Stellar's growth.

Moving to Sakai

In January 2004 the Stellar development team began work on the Sakai Project (<http://www.sakaiproject.org/>), a project that represents the next generation of the Stellar course management system. Sakai is led by the University of Michigan and is a

collaboration among MIT, University of Michigan, Indiana University, and Stanford University. The project will develop a collaboration and learning environment and share this open-source software for learning environment tools that use specifications from the Open Knowledge Initiative (<http://web.mit.edu/oki/>) as the underlying framework.

AMPS will conduct a limited pilot project during fall 2004 in parallel with the release of Stellar 1.6.2 and will deliver a production version of a Sakai-based course management system in fall 2005. The new framework will embody our experience to date, as well as that of other universities using similar educational technology. The results will include a broad range of new features, plus tools and applications developed in collaboration with other universities and commercial vendors. The framework will ultimately allow the incorporation of tools and services developed by other groups at MIT.

Amitava Mitra, executive director of AMPS, and Jeff Merriman, senior strategist for academic computing, serve on the Sakai Project Board (<http://www.sakaiproject.org/people.html>).

Unified Strategy with OpenCourseWare

Web Tools and Operations and OpenCourseWare continued to work together to promote the Stellar course management system as a key content acquisition vehicle for OCW. WTO developed a tool that easily exports class materials from a Stellar class website that are ready for OCW's publication process.

Financial Operations and Administrative Liaison Unit

Headed by Bill Fitzgerald, the Finance Team continued to support the mission and vision of AMPS. Through timely and effective budgeting, tracking, and reporting, the team continued to provide strong fiscal and resource management to operational units.

Financial and Business Support

The focus this year was completing the implementation of an activity-based costing (ABC) and accounting system, leading to a better understanding of the financial impact of business decisions. The flexibility of the ABC system allowed the financial structure to easily adjust in two business days during the forming of MVP&DT. Enhancements included monthly financial meetings with unit managers, new business models for videoconferencing service level agreements, revised tracking and billing databases for all business units, and an asset management tracking system. In addition, the team also completed significant work on a new service catalogue, launched on the redesigned AMPS website.

Of special mention, the AMPS Finance Team has gained a reputation for financial acumen. Marine Brown was asked to consult with the Libraries staff on their chargeback activities and to assist OCW and the Center for Educational Computing Initiatives during their transition between administrative officers.

Space Planning and Utilization

The Space Planning and Utilization unit continued to support the colocation of various educational technology departments within Building 9. All OCW staff were moved to the same floor, and AMPS staff who worked on the Stellar development team were brought together in Building 9.

Systems Administration

Stefan Stasik joined the AMPS staff as the systems administrator to provide support, maintenance, and general administrative services to the computing environment of AMPS. He assumed responsibility for all UNIX administration and brought strong management to the desktop environment and systems.

Projects

Ongoing Projects

AMPS provided ongoing educational technology services to the following projects, programs, and initiatives, to name a few:

- OpenCourseWare
- Stellar course management system
- Singapore–MIT Alliance
- MIT World
- Malaysian University of Science and Technology
- Cambridge–MIT Institute
- System Design and Management
- VLSI seminars in the Department of Electrical Engineering and Computer Science
- Technology and Culture Forum

Project Highlights

AMPS also provided services to support educational initiatives in departments, laboratories, and centers across the Institute. For each project, AMPS formed a high-performance team from within its operational units. The following is a representative list of projects over the last year:

— Good Practices in Clinical Research (<http://hstelearning.mit.edu/gcp/eng/>). The Health Sciences and Technology Center of the Experimental Pharmacology and Therapeutics Division of Web Education required a web site to host a series of video and audio lectures with accompanying slide shows and interactive exercises, as well as a topic index and library. They wanted to offer lectures in English, Spanish, and Chinese. AMPS provided user interface, graphics, and instructional design; streaming media and digitization; video and audio production; content transformation; and programming and support planning.

–International Space Station Videoconference (<http://web.mit.edu/amps/spotlight/nasa.html>).

–Lt. Col. Mike Fincke '89 had been living on the International Space Station (ISS) since April 21 as the Expedition 9 flight engineer and ISS science officer. Unable to attend his 15th reunion in person, Fincke joined the festivities via video screen in Kresge Auditorium thanks to field production and video conferencing services provided by AMPS. "When we were setting this [videoconference] up with NASA, they were wondering if we would be able to get good audio and video," remarked Fincke. "I said that if anyone can do great audio and video, it's MIT!" Associated Press reported on June 5, 2004 that "Massachusetts Institute of Technology President Charles M. Vest applauds as Lt. Col. Mike Fincke greets members of his 15 year reunion at MIT from aboard the International Space Station, Saturday, June 5, 2004, in Cambridge, MA. Fincke, who has been aboard the space station since April joined classmates and other alumni on Saturday by a video and audio hookup between MIT and the space station."

–MIT Commencement (<http://web.mit.edu/commencement/2004/>). As in previous years, AMPS captured on video the 2004 hooding ceremony and commencement exercise, produced a live webcast, created an on-demand streaming video for later viewing on the web, and handled online purchase of the DVD that was created for this major event.

–OpenCourseWare Video Pilot. OCW was asked by its users to elaborate on how to use the mostly text-based course materials it publishes on the web. AMPS and OCW collaborated to produce a series of videos that show faculty members delivering classes (some cover all lectures, others just a sampling), special events such as student presentations, and interviews with faculty on pedagogical models used. AMPS provided pedagogical consulting, field production, and project coordination.

–Sloan CourseFest (<http://coursefest.mit.edu/cfest/>). MIT Sloan wanted to bring life to course information beyond the traditional catalog description. AMPS produced Sloan CourseFest, a multimedia course overview catalog of elective courses. AMPS shot a series of interviews with faculty, designed a web site as a catalog, and delivered streaming videos for students to assist them in preregistration and course bidding.

–Division of Student Life (<http://web.mit.edu/dsl/index.html>). The Division of Student Life (DSL) wanted a series of videos covering different aspects of student life and learning, as well as the important role of current student life activities in educating the whole student. AMPS developed the concept with DSL and the Department of Athletics, Physical Education, and Recreation, then searched its extensive stock library for the necessary footage. AMPS interviewed students, alumni, faculty, and staff as needed and authored and produced a series of five videos.

—Stata Center Dedication Ceremony (<http://web.mit.edu/spotlight/stata-webcast/>). On May 7, AMPS produced a live webcast and video recording of the festivities for the MIT community. The occasion represented a milestone for AMPS in that it was our first webcast in 16 x 9 format. Also at the ceremony, AMPS staff collaborated with the computer graphics group in the Computer Science and Artificial Intelligence Laboratory to create the kickoff presentation—a series of time-lapsed images that compressed the six-year construction process into a few seconds, juxtaposed with historic images of Building 20, first impressions of staff and students, and wide-screen aerial shots of the nearly completed building.

—MIT Real Estate Exchange (<http://cre-mitrex.mit.edu/>). The Center for Real Estate wanted to create a knowledge base for the real estate industry where interested parties could share information and find others with similar interests. AMPS provided project management, graphic and user interface design, programming, and documentation to produce MIT Real Estate Exchange. The tool provides a forum for information sharing among alumni, faculty, students, and representatives of member companies.

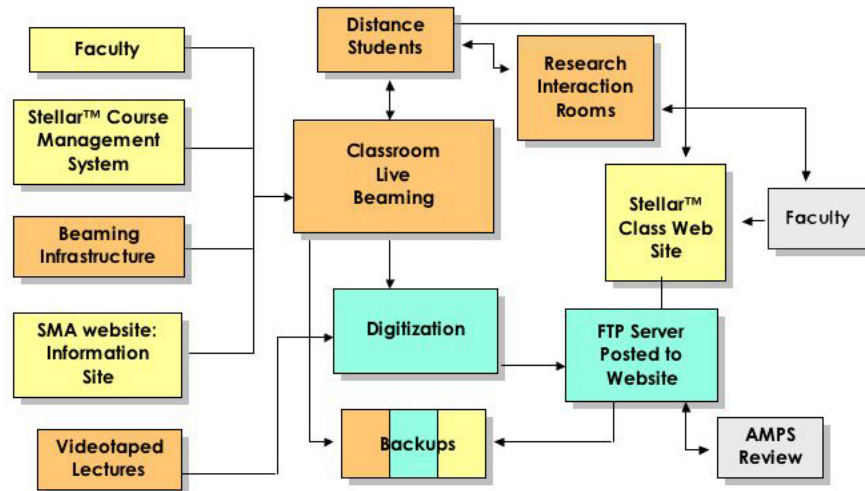
—Qtools (<http://amps-tools.mit.edu/qtools/index.html>). AMPS developed QTools to provide a tool to the MIT community to use to gather information for a variety of purposes, such as polls, surveys, quizzes, and assessments. AMPS provided project management, web design, programming, and documentation services.

Singapore–MIT Alliance

The Singapore–MIT Alliance has evolved from an innovative distance-learning experiment to a mature, stable program. AMPS facilitated the transformation through improved production and service processes, technology innovation, and cost efficiencies.

In March of 2004, due to budget constraints, SMA reduced the need for distance-education delivery services and eliminated the need for web publishing and web tool development services. AMPS dealt with the loss of expected revenues for distance-education delivery services through reductions in staffing, part-time and freelance labor, and materials cost reductions. The loss of revenue for web services was entirely offset by the creation of new revenue streams.

Distance Education Infrastructure & Support for Singapore-MIT Alliance (SMA)



Through February 2004, AMPS and SMA achieved many innovations, efficiencies, and improvements.

Innovations to SMA Program Delivery

- Improved web strategy and coordination with Singapore team
- Achieved significant savings by reducing setup time for MIT-originating classes from one hour to half an hour
- Improved posting time of new lectures, with over 80 percent posted in under four hours
- Coordinated use of DSpace for substantial savings of publishing resources
- Reduced number of expensive ISDN reversions through network monitoring
- Implemented Anystream system for high-quality, efficient capture and transfer of video signals

Improvements to Hardware, Process, and Tools

- Upgraded LiNC, Ford, and Kaufman classrooms to improve distance education experience
- Installed SMART Sympodiums at all lectern workstations for improved presentation and annotation capabilities
- Renovated streaming media encoding facility for a more efficient, higher quality encoding process
- Implemented Rapid Deployment System for capture of SMA courses outside Level 5 classes, which vastly improved quality of tapings and relieved administrative scheduling conflicts
- Upgraded equipment in Room 8-408 to improve and simplify user experience
- Diversified SMA publishing team to reduce risk and provide SMA with access to a range of publishing expertise and talent
- Promoted emphasis on development of web tools for enhanced communication

- Implemented training for system allowing National University of Singapore staff to publish remotely on the MIT website
- Completed central beaming data tracking system for substantial reduction of time spent reviewing beaming reports
- Delivered survey tool for Singapore and MIT use for gathering data

Ongoing Enhancements

- Managed website revision project that included architecture, navigation, and page design
- Identified and remedied discrepancies among lectern PCs in Level 5 classrooms
- Created a self-publishing model for SMA to update frequently at a lower cost

Meeting Expanded Scope of SMA Program

- Responded to faculty need for expanded videoconferencing options from home and office by researching options, engaging vendor negotiations, designing content, and presenting material to faculty
- Prepared content and provided technical demonstrations for operational overview of SMA technology during high-profile Distance Education presentation
- Implemented and upgraded monitoring system for network tools and migrated to secure server system
- Coordinated with staff at MIT, National University of Singapore, and Nanyang Technological University to address and improve performance issues
- Provided technical support for diverse use of research interaction rooms: student discussions, SMA2 proposal planning, and internal training sessions
- Responded to increasing use of PDFs by developing a system for allowing PDF-based presentations to be served in native formats and integrated into streaming files
- Represented SMA need to facilitate sharing of institutional resources and program content in order to create richer offerings at a fraction of the cost

Responding to Unexpected Issues

- Resolved problem with access of People's Republic of China to SMA website through design of system for website mirroring
- Operated with zero downtime despite impact of viruses on campus due to diligent security updates to PC systems
- Identified, resolved, and documented application-sharing problem in research interaction room technology

Representative Metrics for AMPS Deliverables

	FY2002	FY2003	FY2004
Stellar ^a (classes)	110	400	732
Web production			
Websites (projects)	15	17	20
Web tools	1	3	2
DE facility access (hours)	2,570	2,567	2,497
Video Bridge (connection hours)	330	472	654
Videoconferencing			
AMPS facility access (hours)	260	231	124
Maintenance and support (SLAs)	1	3	3
Video production			
Field and studio production (recordings)	759	667	771
Editing (hours)	855	1,004	653
Encoding (content hours)	1,000	1,569	1,710
Webcasts (events)	25	29	22

^aAnnual Stellar class sites (on-campus and SMA courses)

Facilities

AMPS operates facilities (<http://web.mit.edu/amps/facilities/index.html>) for video production, streaming media, and distance education. In September 2003, the Ford Room in Building 9 was converted from a standard videoconferencing room to a high-end distance-education facility with four new cameras and other equipment. The enhanced capacity aided in the efficient delivery of distance-education services.

Awards, Conferences, and Programs

Craig Counterman received the 2004 Infinite Mile Award for the Office of the Provost to recognize his technical and intellectual leadership for development of the Stellar course management system. Past winners of the Infinite Mile Award in AMPS are Craig Milanesi (2001) and David Mycue (2001). The MIT Video Production team received the Excellence Award in 2001.

Katie Livingston-Vale received the 2004 Steven Wade Neiterman Award to recognize her abilities in collaborative problem solving, coaching colleagues, and team building. She also received a doctorate in education (curriculum and teaching/educational media) from the Boston University School of Education in May 2004.

Conference presentations included Ben Brophy's "Gradebook: Developing a Sakai Tool," a paper presented at the Sakai Educational Partners' Program Conference, Denver, Colorado, 2004; and a paper by Phillip D. Long, Jean Foster, Amitava Mitra, and Virginia Williams, "Services Alignment in Faculty Support," presented at EDUCAUSE 2003, Anaheim, CA.

Amitava Mitra was a 2004 fellow in the MIT Leader to Leader Program.

Future Plans

In FY2005, AMPS will continue to strengthen its position at MIT as a preferred provider of services to support and advance MIT's educational technology efforts. The emphasis will continue to be on making it easier and easier for faculty, departments, laboratories, and centers to create and deploy educational technology. Key initiatives for FY2005 and beyond will continue to be as follows:

- Continue in the direction of strengthening Stellar as a mature product and sustainable service. This entails providing quality assurance and testing for performance and usability; using OKI services for integration with enterprise systems such as Student Information Services and DSpace; interoperating with other educational tools created at MIT and elsewhere; as well as collaborating with Academic Computing, the Office of the Registrar, and OCW to promote and support the use of the Stellar course management system.
- Develop and define the Sakai implementation plan for fall 2005 for the Institute in consultation with the Stellar Faculty Advisory Group and key constituencies on campus. This will involve matching MIT needs with Sakai version 2.0, slated for release during summer 2005, including transitioning appropriately from Stellar, OKI-based infrastructure, OCW needs, faculty and student support, and related considerations.
- Identify, develop, and acquire solution and service options in the delivery of media-rich content for educational and research purposes to meet the programmatic needs of the MIT community. AMPS sees three types of clients: large Institute-wide initiatives, schools and departments, and individual faculty members. AMPS will continue to promote knowledge sharing across its client community to encourage efficient usage of educational technology. The department's approach to offering solution and service options includes partnering with other key infrastructure organizations, such as IS&T and the Libraries.
- Develop, operate, and manage media-enabled teaching and learning spaces. With the goal of improved support of innovative educational practices, AMPS will continue to consult on and provide responsive, flexible technology solutions. AMPS will deploy new video capture methods, such as rapid deployment systems through MVP&DT, as well as provide assistance in designing and building state-of-the-art videoconferencing facilities, such as the one created in Room 66-319, and support requirements of the Stata Center as well as those at the brain and cognitive sciences building currently under construction.

- Identify the appropriate service model and metrics. This involves clarity and communication on services offered as well as benchmarking AMPS' processes against industry standards, such as the ISO 9001, SEI-CMM, and Malcolm Baldrige models.
- Advance the unified strategy for supporting faculty's educational technology needs. AMPS will continue to promote alignment with partner organizations for providing support as well as for investing in performance-monitoring systems and improvement tools and processes.
- Continue to be the vital provider of technology and services to support the Institute's enterprise-wide communication needs, events, and programs.
- Lead efforts in developing a comprehensive video strategy for MIT that leverages MIT's infrastructure and the richness of its video resources.

Overall, through these initiatives AMPS expects to continue its role in sustaining and evolving the significant educational technology initiatives that have gone into production over the past few years.

In conclusion, we should note that the groundswell of interest generated by the MIT HawkCam experiment (<http://web.mit.edu/amps/spotlight/hawkcaml.html>) conducted by AMPS was a pleasant and gratifying surprise to us. More importantly, it illustrated the potential of these media for outreach, community building, and educational and research purposes. AMPS services will be a key enabler for realizing this potential.

Amitava "Babi" Mitra, Executive Director

M. S. Vijay Kumar, Assistant Provost and Director, Academic Computing

More information about the Academic Media Production Services can be found on the web at <http://web.mit.edu/amps/>.