

Report of the President

The Institute expanded its academic outreach in many important ways this year. MIT's longstanding commitment to undergraduate need-blind admissions and need-based aid was reaffirmed through an increase in financial aid to undergraduates despite uncertainties in the world economy. The commitment to building a diverse and thriving intellectual community also found expression through the publication of course materials for 1,800 MIT undergraduate and graduate courses through OpenCourseWare, now in its seventh year. OpenCourseWare makes course materials available free of charge to anyone in the world with an Internet connection, and over 20 million users have used OCW materials since its launch in 2001. These and other important efforts amplify the impact of our on-campus world-class research and education, campus development, and international engagements that promote intellectual discovery around the world

Undergraduate and Graduate Education

Student Enrollment

The Institute experienced another record-breaking admissions season with 13,396 applicants, which represents an increase of 7.6 percent over last year and 28.3 percent in the last three years. Only 11.9 percent of the applicant pool was admitted for the Class of 2012, and 1,048 students accepted MIT's invitation. Women comprise 46 percent of the Class of 2012, and underrepresented minorities 25 percent. Forty percent of the incoming class were valedictorians, 91 percent graduated in the top 5 percent of their high school classes, and 18 percent are the first generation in their families to attend college.

The Institute introduced a Graduate Community Fellows program this year for its graduate students. The program strengthens the experience of graduate students by engaging them in a range of projects from diversity initiatives to career development programs. Fellows have the opportunity to interact with administrators, advocate for student interests, and gain valuable leadership experience. Five students participated as fellows this year to support programs for international and women students, diversity efforts, and the Graduate Student Life Grants program.

Financial Aid

The Institute has a long history of supporting the full financial need of its undergraduate students. In practice, as tuition costs have risen, financial aid has risen even faster. Between 1998 and 2008, MIT more than doubled its undergraduate financial aid budget, from \$27 million to \$66 million. Over this period, the Institute's tuition and fees increased at an average annual rate of 4.2 percent, while the financial aid budget increased 9.1 percent. This rapid rise in aid means that MIT's students and families today pay net tuition (i.e., tuition after financial aid) that is almost 15 percent less than 10 years ago, after adjustments for inflation.

MIT has taken this aggressive position on aid because our students often demonstrate a much higher level of need than students at most of our peer schools. According to the "America's Best Colleges 2008" report from *U.S. News & World Report*, the percentage

of MIT undergraduates with demonstrated need is more than 15 points higher than at other top schools. Seventeen percent of MIT undergraduates come from families earning less than \$45,000 a year, and 22 percent come from families earning less than \$60,000. MIT also educates a high proportion of first-generation-to-college students, including 16 percent of current freshmen. MIT will maintain the principled, steady course of aggressive and consistent increases in financial aid that attract extraordinary students from a full range of economic backgrounds. The Institute's fundamental principles remain steadfast: that MIT admits students in a need-blind process, that MIT bases all financial aid solely on the financial need of families, and that MIT meets the full demonstrated need of all admitted students.

Currently, 60 percent of MIT students receive MIT-funded grants that do not have to be repaid, and 90 percent of MIT students receive financial aid of some kind from a range of sources. This year's launch of the Campaign for Students will play a vital role in expanding the financial aid available to students by increasing the approximately 13 percent of the endowment that is now designated for financial aid. Endowed funds supported 67 percent of undergraduate financial aid last year, with the remaining 33 percent coming from the Institute's unrestricted funds. One important goal of the Campaign for Students is to relieve the demand on unrestricted funds for financial aid by increasing endowed scholarship funds.

This year's 22.1 percent endowment return will add further financial strength to our education and research priorities. Also notable this year were the record-setting Alumni Fund results of more donor participation and more dollars donated than ever before, with more than 33,300 alumni contributing almost \$42 million. Three classes (1927, 1962, and 1972) set new reunion giving records and the Class of 2007 also set a new Senior Gift record (surpassing the record set by 2006) with 52 percent of the class participating.

OpenCourseWare

In line with the Institute's mission of fostering innovation and bringing knowledge to bear on the world's greatest challenges, MIT reached an important milestone this year. Through [OpenCourseWare](#) (OCW), the Institute now offers materials for 1,800 undergraduate and graduate courses, online and free of charge to anyone with an internet connection. This innovative effort began in 2001 under President Charles Vest, from an idea promoted by an MIT faculty committee. Its goal was to make material for approximately 1,800 courses available by 2007, and this year MIT celebrated the achievement of that goal, with content for nearly all of MIT's undergraduate and graduate courses available to people around the world. OCW draws on a tradition of open sharing at MIT that reaches back to the 1950s, yet no previous project matches OCW in its scope, ambition, or elegance. The impact of OCW is already clear: the website draws 1.8 million visits by learners and educators per month. Sixty percent of OCW users are from outside the United States.

OpenCourseWare has evolved to fit the needs of different groups of learners. As part of this year's celebration, the Institute announced a new OCW portal called Highlights for High School, designed largely by MIT students to make OCW more accessible and more useful for high school students preparing for Advanced Placement exams in

biology, physics, and calculus. In January, Bill Gates wrote in *Fortune* magazine that OpenCourseWare is “an exciting example of how technology can help make great educational materials scale quickly and affordably across great distances to a great many people, and [this] makes it an essential ingredient in our efforts to transform education.”

Faculty

MIT faculty and staff continually make important and lasting contributions to the world. This year’s contributions to science and technology were highlighted with the selection of three MIT pioneers for the nation’s highest science and technology honors. Institute Professor Robert Langer and Professor Emeritus Daniel Kleppner received the National Medal of Science, which brought to 47 the number of MIT scientists to win the medal. President Emeritus Charles Vest received the National Medal of Technology; he joins four engineers and inventors from MIT who have previously won that award.

Initiative on Race and Diversity

Under the leadership of Provost L. Rafael Reif, the Initiative on Race and Diversity, designed to address faculty race issues, released its preliminary report this summer. The report, Initiative for Investigation of Race Matters and Underrepresented Minority Faculty at MIT, provides a framework for the next steps in an initiative to create a culture of inclusion at MIT that will substantially help the Institute further advance its education and research mission.

Research Initiatives

While it is impossible to encapsulate all of the research initiatives that take place at the Institute in any given year, several highlights underscored the importance of open connections not only between disciplines, but also between the Academy and industry, and among countries globally.

MIT Energy Initiative

This year saw the expansion of the MIT Energy Initiative (MITEI). One year since its launch, MITEI is advancing its mission both to develop innovations that will dramatically improve today’s established energy systems and to develop transformational technologies for tomorrow’s energy systems, such as solar, biofuels, and new energy storage technologies. Four inaugural MITEI sponsors will support specific areas of research: Founding Member BP for coal conversion technologies; Sustaining Member Ford Motor Company for automotive technologies; Associate Member Ormat Technologies for geothermal technologies; and Affiliate Member Philip Rettger for solar research. Additional industry partners include Founding Member Eni, the Italian power company, with a new Solar Frontiers Research program, and Sustaining Members B-Tech of Spain, Enel, Schlumberger, Bosch, and ABB. Under the chairmanship of former secretary of state George P. Shultz PhD ’49, MITEI’s External Advisory Board met for the first time this year.

MITEI’s Seed Fund attracted 45 proposals from faculty over the past year, many of whom had not previously pursued energy research. MITEI continued its evolution, guided by white papers submitted by more than 15 percent of the MIT faculty on

directions for the Initiative; the Task Force on Campus Sustainability began its operations; MIT alumni clubs around the country conducted programs on energy; and the Cambridge Enterprise Forum ran its third annual Ignite Clean Energy Competition. For the first time, a group of MIT students competed in the US Department of Energy's annual Solar Decathlon by building a solar house on the Mall in Washington, DC, which demonstrated the beauty and capability of off-grid energy. The student-led MIT Energy Club grew to more than 700 members, most of whom were graduate students, pursuing a variety of projects related to energy technology, conservation, and research. The Club also ran the MIT Energy Conference, which has become one of the most influential conferences of its type in the country.

Novartis-MIT Center for Continuous Manufacturing

This fall, MIT and Novartis launched a long-term research collaboration that invents new ways to produce pharmaceuticals. The new Novartis-MIT Center for Continuous Manufacturing partnership, which brings together the industrial expertise of Novartis with innovative science and engineering from MIT's Departments of Chemical Engineering and Chemistry. The goal of the 10-year collaboration is to replace the outmoded, inefficient batch method of drug production by inventing a continuous manufacturing process for pharmaceuticals, delivering a transformation to pharmaceutical manufacturing processes.

Legatum Center for Development and Entrepreneurship

MIT launched the Legatum Center for Development and Entrepreneurship, which will operate from the School of Architecture and Planning. The Legatum Center will provide students from developing countries with the means to develop and commercialize new technologies into businesses, enabling them to explore the application of practical, enterprise-based solutions to address deep-rooted problems in developing nations. In addition, the center will provide a venue for competitions and prizes, seminars, workshops, debates, and forums, engaging visiting scholars and industry leaders on topics relating to entrepreneurship, leadership, and business development.

Lunar Gravity Recovery and Interior Laboratory

This year NASA announced that MIT will lead a \$375 million mission to map the moon's interior and reconstruct its thermal history. Maria Zuber, head of the Department of Earth, Atmospheric and Planetary Sciences and the E.A. Griswold Professor of Geophysics, will be the primary investigator for the [Gravity Recovery and Interior Laboratory](#) (GRAIL) mission. The GRAIL mission will put two satellites into orbit around the moon to map at high precision variations in the moon's gravitational forces. These variations will reveal differences in density of the moon's crust and mantle and will be used to answer fundamental questions about the moon's internal structure and its history of collisions with asteroids. The information gained through the GRAIL mission will facilitate future missions to land on the moon. Former astronaut Sally Ride, the first US woman in space, will lead the project's educational outreach phase.

International Initiatives

International initiatives are essential to the vibrancy of discovery both here on the MIT campus and around the world. The Institute established a new International Advisory Committee, co-chaired by Associate Provost Philip Khoury and Vice President for Research and Associate Provost Claude Canizares, to help develop strategies and coordinate activities in countries and regions that call increasingly for MIT's international participation.

Singapore

Among the Institute's many important international endeavors, MIT signed an agreement this year to form the [Singapore–MIT Alliance for Research and Technology \(SMART\)](#). It represents a novel experiment in international research that evolved from a nine-year educational collaboration through the Singapore-MIT Alliance (SMA), and represents a collaboration among MIT, the National University of Singapore, and the Nanyang Technological University. The SMART Center in Singapore is slated to house five research groups, the first of which, focusing on infectious diseases, began its work in July; a second, a Center for Environmental Sensing and Modeling, followed in the fall.

India

A new partnership between India's Department of Biotechnology and the Harvard-MIT Division of Health Sciences and Technology (HST) produced the Translational Health Science and Technology India (T-HST-I) program, which encourages research and interchange based upon the HST model. The new educational campus for T-HST-I will be built near Delhi with the goal of fostering innovation through the convergence of medicine, science, technology, and business. In particular, the agreement will create a new Faculty Development Institute, that will bring scholars from India to spend two years at MIT to develop courses, curriculum, and research programs that they will then bring back to T-HST-I in India. This faculty development project will create opportunities for [future collaborative research projects](#) between MIT and Indian faculty.

I-Cubed

Based upon the success of MIT's Deshpande Center for Technological Innovation, a new International Innovation Initiative (I-Cubed) was established this year to strengthen, connect, and accelerate MIT's innovation efforts around the globe through partnerships with other institutions. Professor Charles L. Cooney, director of the Deshpande Center, will direct I-Cubed.

Campus Development

The design of the Institute's campus and buildings has been an important catalyst to education and research. The proximity of schools, laboratories, and residences to one another has created countless intersections of discovery for nearly a century, since MIT moved from Boston to our Cambridge campus in 1916. Among the many milestones celebrated this year, the Whitehead Institute for Biomedical Research celebrated its 25th anniversary. The Whitehead Institute is one of the early fixtures of Kendall Square and one of the primary MIT sites of the emerging field of genomics. This year also saw the

re-lighting of the iconic Great Dome of Building 10, a fixture of the campus recognizable around the world. Additional restorations to the Great Dome are also planned. With these and other developments, the physical campus continues to support William Bosworth's vision for hands-on education and research. To guide the Institute's long-term planning for its physical plant, a process has begun to understand the MIT campus and its needs. This includes the Institute's use of building space over time, the status of campus buildings and their need for renovation, parking, and transportation, as well as a need to understand the interplay between academic and non-academic use of MIT's real estate holdings. (This process became the framework study, MIT 2030, to guide campus development.)

David H. Koch Institute for Integrative Cancer Research

Announced last year, the [David H. Koch Institute for Integrative Cancer Research](#) (KI) had the groundbreaking this March for a new building designed to enable cancer biologists and engineers to work side by side, increasing the ease of interdisciplinary collaborations in cancer research. Located at the intersection of Vassar and Main Streets, at the center of a "Great Circle" of world-class research centers and institutes, the facility will house core technologies that support work at the convergence of the life, physical, and engineering sciences and will be available to researchers from around the campus. The Koch Institute has its roots in the MIT Center for Cancer Research, established in 1974 by Nobel laureate Salvador E. Luria and originally comprised entirely of biologists from the Department of Biology. The convergence of the life, physical, and engineering sciences at the Koch Institute will accelerate MIT's contributions to the diagnosis, treatment, and prevention of cancer.

PDSI

MIT dedicated the transformative PDSI project (Department of Physics, Department of Materials Science and Engineering, Spectroscopy Lab, and Infrastructure) this year. This magnificent in-fill building provides a new space for the [Green Center for Physics](#) and the infrastructure to upgrade classrooms and laboratories to support state-of-the-art teaching and research in the 21st century. In addition to the provision of new space, the completion of the PDSI building and renovation program improves facilities for the Departments of Physics and Materials Science and Engineering in the surrounding wings of the original Bosworth Buildings 4, 6, and 8.

Kendall Square, Sloan, Ashdown House, and Related Construction

Construction continued this year on the new building for the MIT Sloan School of Management. When complete, the new facility, at the east end of the campus, will provide improved space for contemporary teaching and research. The project also includes an underground garage that will accommodate 425 vehicles. Nearby, Kendall Square continues to grow as one of the leading research and innovation centers of the world. Among the activity, a collaboration began this year with the research laboratory of the Schlumberger Corporation, newly relocated to Kendall Square. There was also an agreement between MIT and Novartis to support the physical infrastructure for the Novartis-MIT Center for Continuous Manufacturing.

At the other end of campus, a newly acquired building at 600 Memorial Drive will be renovated to house the offices of Resource Development and the Alumni Association, fostering synergy between the two organizations and physically consolidating the work that currently occurs in 19 different locations. The new quarters will be ready for occupancy by the summer of 2008.

The improvements to the landscape on Vassar Street from Massachusetts Avenue to Simmons Hall and beyond continued this year. The construction of the newest graduate student residence hall in the northwest quadrant of the campus, currently known as NW35, is on schedule. Upon its completion, the hall will take the name Ashdown House and open up the former Ashdown House in Building W1 for renovation into a new undergraduate residence.

Construction also continued on the Media Lab extension that will provide much-needed space for the Media Lab, the School of Architecture and Planning, and the Comparative Media Studies Program.

All of these projects are designed to bring people together in new ways and to encourage collaboration across disciplines.

Closing Thoughts

America's colleges and universities strengthen society and expand the nation's economic prosperity. From transforming American agriculture and building America's modern industrial state, to sending a man to the moon and developing the World Wide Web, higher education is critical to the nation's growth. MIT has proudly served in this effort by not only educating talented and worthy undergraduates regardless of need, but also by making the knowledge shared in MIT classrooms available to anyone in the world with a connection to the web. The Institute is also engaged in its local community. Last year, MIT led the development of the Cambridge Science Festival, the first science festival in North America, and this year this community-building event grew even larger, attracting more than 15,000 adults and children and featuring more than 150 events to celebrate science and technology in the city of Cambridge. Whether our projects take place on campus, in the local community, or in cities in the far reaches of the world, MIT changes the lives of people to equip them to make the world a better place.

Susan Hockfield
President