5   Global Engagement

Global Engagement

The expanding global connections of the 21st Century provide MIT with increasing opportunities to engage in projects and collaborations outside the U.S. As former President Susan Hockfield noted in a speech delivered to the Confederation of Indian Industries in Mumbai, India, in November 2007,

It has never been more clear that the future of innovation will be told in many, many different languages. In a world with so much talent, no one has a monopoly on good ideas. As researchers, if we are driven to find the most gifted collaborators and the most intriguing ideas, we must be prepared to look far beyond our own backyards. And as educators, if we fail to help our students learn to live and work with their peers around the world, then we have failed them altogether.

MIT strives to encourage the free flow of people and ideas by engaging in international research collaborations, providing international study and research opportunities for its students, and hosting international students and scholars. The following are some of MIT's many international research collaborations.

International Innovation Initiative
The International Innovation Initiative (I³, pronounced "I-cubed") provides a focal point for interactions between MIT researchers and the global venture capital community. The mission of I³ is to explore and establish opportunities for the MIT education and research community to come together with international partners to stimulate innovative technological approaches to present and future global problems moving technologies from the laboratory to the marketplace.

MIT Energy Initiative
MIT Energy Initiative (MITEI), established in September 2006, is an Institute-wide initiative designed to help transform the global energy system to meet the needs of the future and to help build a bridge to that future by improving today's energy systems. MITEI strives to address the technical and policy challenges of the coming decades, such as meeting the world's growing demand for energy; minimizing related impacts on the environment; and reducing the potential geopolitical tensions associated with increased competition for energy.

To solve these problems, MITEI pairs the Institute's world-class research teams with varied entities across the global research spectrum. For example, the Initiative is launching a new multi-disciplinary program addressing the energy challenges of the developing world. It has also formed international alliances with research institutions in key regions of the world. One of these alliances is the Low Carbon Energy University Alliance, which is a partnership among MIT, Tsinghua University, and the University of Cambridge. MITEI is also a resource for policy makers and the public, providing unbiased analysis and serving as an honest broker for industry and government.

The following are examples of MITEI's research:

MIT researchers and their collaborators from South Africa and England have demonstrated that it is possible to create elegant, energy-efficient buildings with little energy consumption and essentially no energy-intensive materials.

MIT researchers are working with Chiquita Brands International Inc. to help gauge the carbon footprint of the supply chain that transports bananas by truck and ship from Central America to the United States. The case study will lead to a Web-based tool that will help other companies calculate and potentially reduce the energy consumption of products moved by land, water, and/or air.

MIT-Singapore

Singapore University of Technology and Design

In 2010, MIT and the Singapore University of Technology and Design (SUTD) officially began a partnership that includes both education and research components. Under the education component, MIT will share its expertise with SUTD in a broad range of areas, including pedagogy, curriculum development, and faculty recruitment and development. MIT will also assist in designing programs to encourage innovation and entrepreneurship. A key feature of the research component is the new SUTD-MIT International Design Centre (IDC). The IDC is a joint research project with facilities at both universities. The IDC aims to become the world's premier scholarly hub for technologically intensive design and serve as a nucleus for the growth of the MIT-SUTD Collaboration.

Singapore-MIT Alliance

The Singapore-MIT Alliance is a global partnership in graduate education created by MIT, the National University of Singapore, and Nanyang Technological University. Setting a new standard for international collaboration in graduate research and education, the alliance educates young engineers to serve as leaders in a technologically advanced economy, and creates a cohort of students and faculty with creativity and entrepreneurial spirit.

Singapore-MIT Alliance for Research and Technology Centre

The Singapore-MIT Alliance for Research and Technology (SMART) Centre is a research enterprise established by MIT in partnership with the National Research Foundation of Singapore. The SMART Centre serves as an intellectual hub for research interactions between MIT and Singapore at the frontiers of science and technology. This partnership allows faculty, researchers, and graduate students from MIT to collaborate with their counterparts from universities, polytechnics, research institutes, and industry in Singapore and throughout Asia. The SMART Centre is MIT's first research centre outside of Cambridge, Massachusetts, and its largest international research endeavor.

MIT Greater China Initiative

The MIT Greater China Initiative has outlined a 20-year plan for collaboration with the region, investing in three key areas: internationalizing the MIT curriculum, facilitating partnerships and joint research ventures between China and MIT, and producing high-level, regional field expertise for Chinese and American scientists and engineers.

Some of the initiatives between MIT and China, including the following:

Tsinghua-MIT-Cambridge Alliance

A collaboration between MIT, Tsinghua University, and the University of Cambridge in the area of low carbon energy research was established in October 2009. The Alliance will advance collaborative projects in carbon capture and sequestration, nuclear power, efficient buildings, biomass, and heat management. The core program will, in addition to workshops and seed funding, support a very important initiative to provide and utilize analytical tools for understanding the impacts of carbon policy in China.

MIT China Educational Technology Initiative

The goal of MIT China Educational Technology Initiative (CETI) is to promote cultural exchange between American and Chinese students by exploring science and technology. Each summer since 1996, CETI sends MIT students to high schools in the cities and towns across mainland China, Hong Kong, and Taiwan. Teaching in teams of three, some of the past CETI participants have taught curriculums on web design, programming, robotics, electrical engineering, sustainable development, civil engineering, biology, aerospace engineering, and more.

MIT-India Initiative

The primary mission of the MIT-India Initiative is to foster collaboration between the faculty and students at MIT and those at academic and research institutions in India. Among its specific goals are enabling the creation of long-term projects involving groups from both MIT and Indian institutions and promoting inclusive growth, sustainable development, educational leadership, entrepreneurship, new models of governance, and advanced, results-focused research in India.

The following are some of the many elements that the Initiative encompasses.

J-PAL South Asia

J-PAL South Asia, a regional office of the Abdul Latif Jameel Poverty Action Lab (J-PAL) at MIT, is a focal point for development and poverty research based on randomized trials. J-PAL South Asia is based at the Institute for Financial Management and Research, a leading business school in Chennai, India. In 2011, J-PAL South Asia was selected to host the South Asia regional center for the Center for Learning on Evaluation and Results (CLEAR). CLEAR is a global initiative coordinated by the World Bank that aims to strengthen the monitoring and evaluation capacity of government and civil society.

MIT-India Program

The MIT-India Program, part of the MIT International Science and Technology Initiatives, arranges summer internships in Indian research, corporate, and nonprofit settings for MIT students. The program's efforts range from giving MIT students an immersion experience in Indian research settings to organizing India-based seminars in which leading representatives of India and MIT discuss key issues affecting India's growth and development.

Translational Health Science and Technology Institute

The Translational Health Science and Technology Institute (THSTI) in Delhi is modeled after the Harvard-MIT Division of Health Sciences and Technology (HST). Funded by the Indian government, THSTI will be a multidisciplinary, multiprofessional research and training center with close ties to HST. HST will help recruit and train new faculty members for THSTI, and the two institutions will collaborate on research and educational endeavors.

MIT Urban Laboratory India

The MIT Urban Laboratory (UrbLab) India is a collaborative effort between MIT and the southern Indian town of Erode. UrbLab responds to the challenges associated with India's rapid growth, increasing industrialization, and urbanization. The project builds on a long history of cooperation between India and MIT. As a result of MIT's efforts, the Indian government has taken steps to better integrate physical planning and economic planning at the local level. Future collaborations will target environmental and urban renewal.

Other Global Initiatives

Alliance for Global Sustainability

The Alliance for Global Sustainability is an international partnership between MIT, the University of Tokyo, the Swiss Institutes of Technology, and Chalmers University of Technology in Sweden to develop new technologies and identify policy directions that encourage global economic development while preserving and enhancing the environment.

Global Supply Chain and Logistics Excellence Network

The MIT Center for Transportation and Logistics (MIT-CTL) created the MIT Global Supply Chain and Logistics Excellence (SCALE) Network as an international alliance of leading research and education centers dedicated to the development of supply chain and logistics excellence through innovation. This international supply chain management program now encompasses four centers around the world: MIT-CTL in Cambridge, the Zaragoza Logistics Center in Spain, the Center for Latin American Logistics Innovation in Colombia, and the Malaysia Institute for Supply Chain Innovation. Each center fosters relationships between students, faculty, and businesses, teaching students to run successful supply chains for companies such as Walmart, BASF, and Starbucks. Faculty members from MIT oversee each center—traveling back and forth between them—but each is managed and run by local faculty recruited and trained by CTL.

MIT Portugal Program

The MIT Portugal Program was launched in October 2006 by the Portuguese Ministry of Science, Technology, and Higher Education as a large-scale international collaboration involving MIT and government, academia, and industry in Portugal. The aim of the program is to develop leading higher education and research programs related to engineering systems. The program is supported by a national initiative involving Portuguese universities and research centers, which, together with MIT, targets bioengineering systems, sustainable energy systems, engineering design and advanced manufacturing, and transportation systems as key areas for economic development and societal impact.

Skolkovo Institute of Science and Technology

In 2011, a three-year collaboration began between the Skolkovo Foundation, Skolkovo Institute of Science and Technology (SkTech), and MIT to develop a new graduate research university. The new institution aims to break new ground in bringing together Russian, U.S. and global research and technology, and in integrating teaching, research, innovation, and entrepreneurship. Education and research at SkTech will be organized around multidisciplinary technological challenges, rather than traditional academic disciplines. The new institution will focus on the following programs: energy science and technology, biomedical science and technology, information science and technology, space science and technology, and nuclear science and technology. Research centers under the SkTech organizational umbrella will be multidisciplinary and multi-institutional. In each center, faculty, researchers, and students from one or more Russian universities will collaborate with faculty, researchers, and students from one or more universities outside Russia. A defining component of SkTech will be its Center for Entrepreneurship and Innovation (CEI), which will integrate education, research, and practice in entrepreneurship and innovation, as applied to the research results of the SkTech research centers. MIT will assist in creating the CEI organization and education program.

OpenCourseWare

Launched in 2002, OpenCourseWare (OCW) makes materials for MIT's courses freely available on the Web. Materials from more than 2,000 MIT courses—including lecture notes, multimedia simulations, problem sets and solutions, past exams, reading lists, and selections of video lectures—are now posted on the OCW website. OCW records an average of over 40,000 visits a day, with nearly a million unique visitors every month.

About half of OCW usage originates outside of North America. OCW materials are used extensively in China (110,000 visits per month), India (100,000 visits per month) and the Middle East (77,000 visits per month). OCW materials have been translated into Chinese, Spanish, Portuguese, Persian and Thai. OCW also distributes and maintains mirror copies of the site at universities in bandwidth-constrained regions, primarily Sub-Saharan Africa. To date, the OCW staff has distributed more than 200 such mirrors.

MIT is pursuing two missions with OCW—sharing its educational materials freely and openly, and, by creating a model other universities can follow and advance, promoting a universally available storehouse for human knowledge. About 43 percent of OCW's visitors identify themselves as self-learners, 42 percent as students enrolled in academic programs, and nine percent as educators.

The following are examples of ways educators, students, and self-learners in the international community use OCW content:

Kuala Lumpur, Malaysia
A secondary school mathematics teacher in Kuala Lumpur, Malaysia, Kian Wah Liew introduces his students to a range of complex concepts, such as matrices, determinants, and differential equations. "I sometimes use the lectures in the classroom. I let the students watch a lecture—for example, the 18.03 Differential Equations video—accompanied by my own explanations," Liew says. Having access to the lectures has impacted his own teaching style, Liew says. "The Western style spends more time on 'ideas' than 'examples.' Here, we spend 20 percent of the time introducing ideas and 80 percent in demonstrating these ideas through examples. At MIT, most of the time is spent on clarifying the ideas, and very few examples are given during the lectures."

Zaria, Nigeria
Kunle Adejumo is finishing up his fourth year of engineering studies at Ahmadu Bello University in Zaria, Nigeria. Though the university boasts a large and well-maintained physical infrastructure, its Internet access—like that of almost all Nigerian universities—is extremely limited. When Adejumo was first introduced to MIT's OpenCourseWare through a CD-ROM in the university computer lab he had only 20 minutes to look through the material. "For example, last semester, I had a course in metallurgical engineering," offers Adejumo. "For one of the lectures, having to do with ion making, I didn't have notes, and I couldn't find the information I needed, so I went to OCW. I was able to download a course outline on this, and also some review questions. I actually took these to the university and gave them to the lecturer to answer. He was able to answer these questions, and helped me gain a deeper understanding of the material." To improve access to OCW for other Nigerian students, Adejumo hopes to work with a local radio station to broadcast OCW course material, as well as publicize the site.

Saint Lucia
Robert Croghan, an entrepreneur in Saint Lucia, has spent the past several years looking for a way to harness geothermal energy created by a dormant volcano underneath the island to create an alternative energy source for the region. Croghan is now developing a high-voltage grid that would deliver energy to several islands through an undersea cable. Crogan used OCW to research the topic of geothermal heat sources. "When I saw OpenCourseWare," Croghan concludes, "it went right to the very core of what I believe: if we hoard information, we can't have progress. We get stagnant, and it gets accumulated in the hands of a few. And if that happens, we miss all sorts of incredible developments and opportunities." http://ocw.mit.edu/

International Scholars

MIT hosts many international researchers and faculty who come to the U.S. for teaching, research, collaboration, and other purposes. These include "visiting" scientists, professors, artists, and scholars, as well as postdoctoral fellows and associates, lecturers, instructors, research associates and scientists, and tenure-track faculty. During the year July 1, 2011 through June 30, 2012, MIT's International Scholars Office (ISchO) served 2,175 international scholars affiliated with MIT and their accompanying family members ("international" is defined as non-U.S. citizen, non-U.S. permanent resident).

This reflects an increase of approximately 5.3 percent over last year (2,060). According to the most recent Institute of International Education Open Doors report (2010–2011), MIT ranked 11th nationally with regard to the numbers of international scholars at U.S. institutions. Postdoctoral associates and postdoctoral fellows accounted for 55 percent of MIT's international scholars.

Foreign national scholars came to MIT from 90 countries, with the highest numbers coming from China, Korea, India, Germany, Canada, Japan, Italy, Spain, France, and Israel. The top ten countries of origin of the entire international scholar population in the U.S. are roughly the same. Scholars from these top 10 countries constituted 68 percent of MIT's international scholar population. The greatest number of international scholars came to the School of Engineering, followed by the School of Science, interdisciplinary laboratories and centers, and the Sloan School of Management. Seventy-seven percent of international scholars were men and 23 percent were women.

Top Ten Countries of Origin, 2011–2012

Country	Count
China	420
Korea	174
India	144
Germany	137
Canada	121
Japan	114
Italy	105
Spain	93
France	90
Israel	75

International Scholars by Geographic Region

Africa, Middle East, Oceania 9%
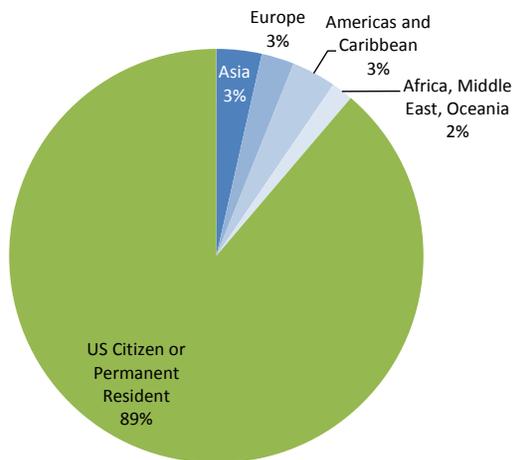Americas and Caribbean 9%
Asia 45%
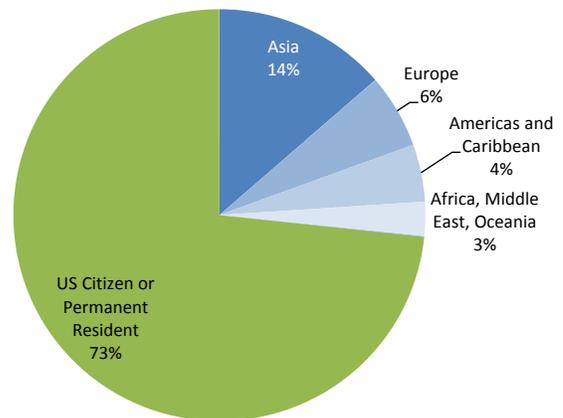Europe 37%
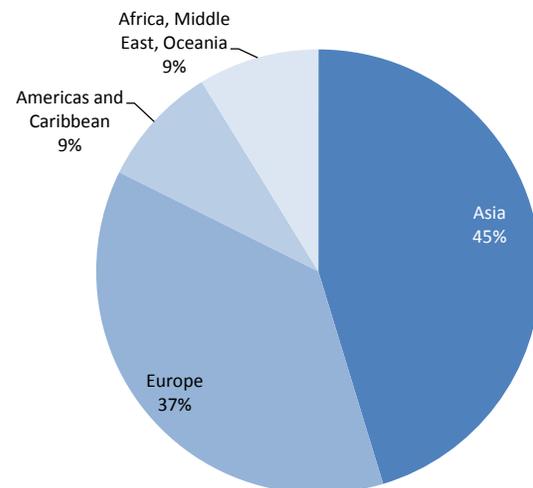
International Students

MIT has welcomed international students essentially since its inception. The first student from Canada came to MIT in 1866, the second year MIT offered classes. This student was followed by a steady stream of students from around the globe throughout the 19th century. By 1900, some 50 foreign-born students had traveled to Massachusetts for study; however, the number increased dramatically after World War II when an influx of these students began attending the Institute. The rapid rise of international students from East Asia, led by students from China, changed the demographics of this group beginning in the 1950s.

Changes in immigration law in 1965 opened up the doors to a steadily increasing pool of international talent. As world events and political decisions impact immigration, so do MIT's international student population fluctuates in response to a changing international environment. World wars decrease the international student population, while peacetime pressures, such as changing immigration laws, the demise of the iron curtain, the Vietnam War protests, and the Asian financial crisis cause their respective ebbs and surges.

US to International Students by Geographic Region of Home Country 1962

Europe 3%
Americas and Caribbean 3%
Asia 3%
Africa, Middle East, Oceania 2%
US Citizen or Permanent Resident 89%

US to International Students by Geographic Region of Home Country 2012

Asia 14%
Europe 6%
Americas and Caribbean 4%
Africa, Middle East, Oceania 3%
US Citizen or Permanent Resident 73%

The United States has been the destination of choice for international students and scholars for the past 50 years. The number of foreign students has risen steadily since the 1970s, and, according to the 2011 Open Doors Report published by the Institute of International Education, there were 723,277 international students enrolled in U.S. colleges during the 2010–2011 academic year. The same report found that these international students contributed over $20 billion to the U.S. economy through living expenses for themselves and accompanying dependents, as well as through expenditures on tuition, books, fees, and other education-related expenses. According to the Open Doors Report, 63.4 percent of international students receive the majority of their funds from personal and family sources.

International Students by Geographic Region of Home Country
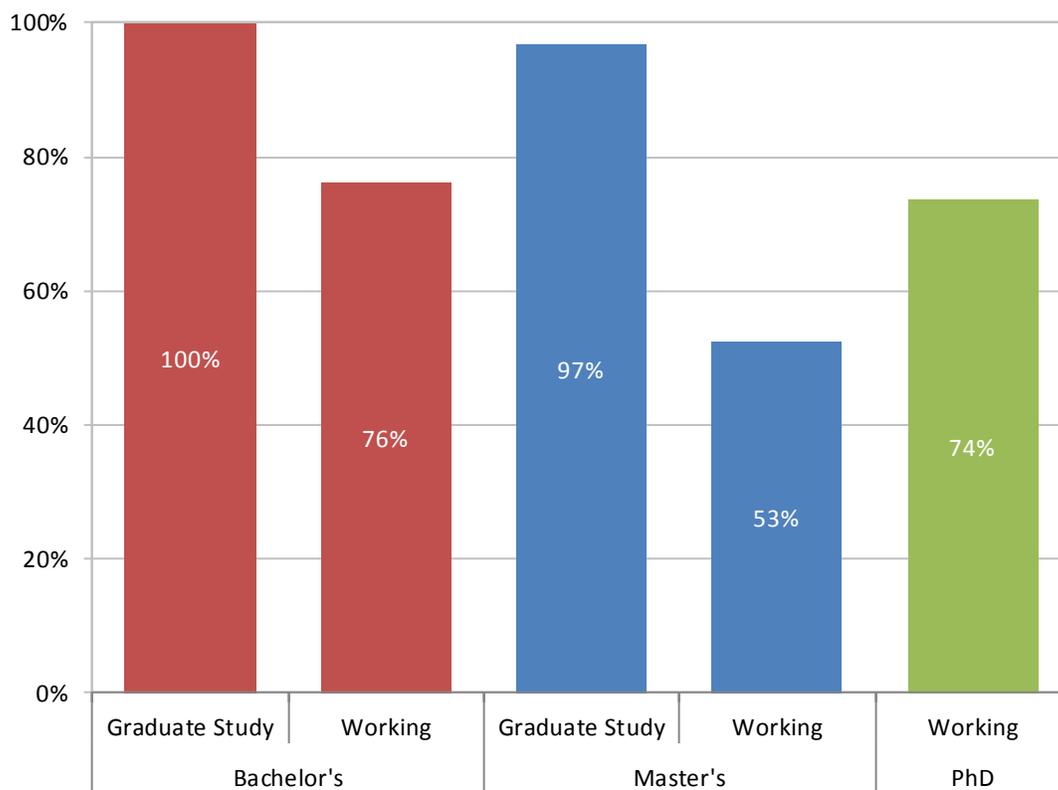**Academic Years 1904–2012**
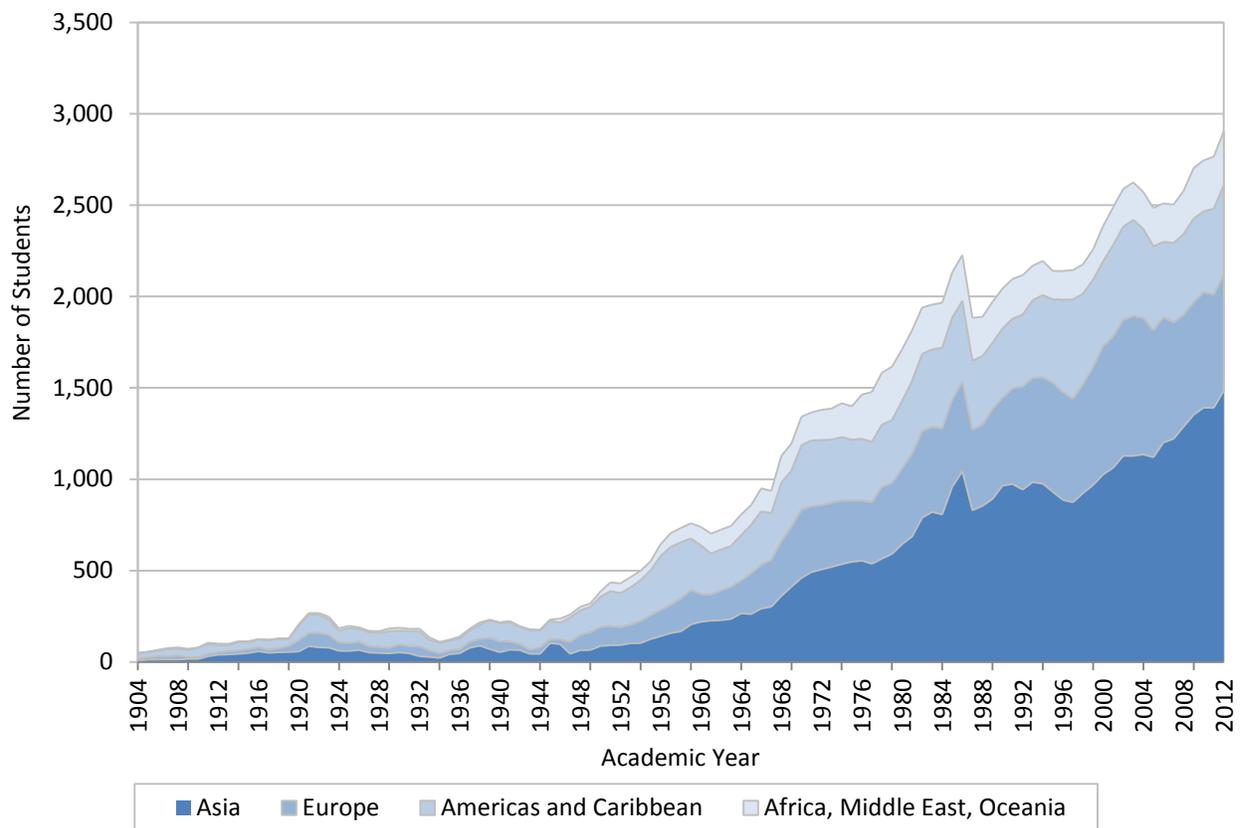
International Students
(continued)

Many international students remain in the U.S. after graduation. The graph below shows the post-graduation plans of international students graduating in 2011, as reported in a survey administered by MIT. Overall, 70 percent of international students plan to remain in the U.S. after graduation.

The majority of international students at MIT have F-1 Visa status. The majority of international non-student scholars at MIT were sponsored on MIT's J-1 exchange visitor program.

Percentage of 2011 International Student Graduates Remaining in the U.S. by Degree and Post-Graduation Plans

Degree	Post-Graduation Plan	Percentage
Bachelor's	Graduate Study	100%
Bachelor's	Working	76%
Master's	Graduate Study	97%
Master's	Working	53%
PhD	Working	74%

International Study Opportunities

Just as with other aspects of an MIT education, there is a broad range of global activities for students to choose from. These run the gamut from traditional study-abroad programs to innovative short term projects, but most are infused with the Institute's philosophy of mens et manus. In the spring of 2011, 41 percent of students graduating with a bachelor's degree, and 30 percent of students graduating with a master's degree reported having educational experiences abroad.

The following are examples of programs that provide students with experiences abroad:

Cambridge-MIT Exchange

Through the Cambridge-MIT Exchange Program (CME), undergraduate MIT students can spend their junior year studying at the University of Cambridge in England. The University of Cambridge consists of 31 self-governing colleges where students live and study in a supportive educational environment. Participating departments include Aeronautics and Astronautics; Biology; Brain and Cognitive Sciences; Chemical Engineering; Chemistry; Civil and Environmental Engineering; Earth, Atmospheric, and Planetary Sciences; Economics; Electrical Engineering and Computer Science; History; Materials Science and Engineering; Mathematics; Mechanical Engineering; and Physics.

Departmental Exchanges

The Department of Aeronautics and Astronautics offers study at the University of Pretoria in South Africa. The Department of Architecture has two exchange programs, one with Delft University of Technology in the Netherlands and the other with the University of Hong Kong. The Department of Materials Science and Engineering has an exchange program with Oxford University. The Department of Political Science and Program in Science, Technology, and Society are starting an exchange program with Sciences Po in Paris, France.

D-LAB and the Public Service Center

The D-Lab and the Public Service Center help students undertake hands-on public service projects in developing countries. See page 104 for more information on D-Lab and page 103 for more information on the Public Service Center.

Singapore-MIT Alliance for Research and Technology Centre

The Singapore-MIT Alliance for Research and Technology (SMART) Centre allows researchers from MIT to collaborate with their counterparts from universities, research institutes, and industries in Singapore and Asia to perform interdisciplinary, experimental, computational, and translational research. Five Interdisciplinary Research Groups (IRGs) are under the SMART Centre, each headed by a senior MIT faculty member: Infectious Disease, the Centre for Environmental Sensing and Modeling, BioSystems and Micromechanics, Future Urban Mobility, and Low Energy Electronic Systems. With many MIT faculty members, postdoctoral fellows, PhD students, and staff participating at SMART, these IRGs are helping promote a vibrant knowledge-based atmosphere in Singapore.

MIT-Madrid Program

The MIT-Madrid Program gives students the opportunity to study in Madrid for the spring term during their sophomore or junior year. Depending upon major and interests, students can choose science and engineering courses at the Universidad Politécnica de Madrid and/or humanities, arts, and social sciences courses at the Universidad Complutense de Madrid; instruction and coursework are in Spanish. These are leading universities in Spain, each with its own distinguished tradition and history.

Other Study Abroad Options

MIT students may also apply for admission directly to foreign institutions that offer study abroad programs or to a study abroad program administered by another U.S. institution or a study abroad provider.

International Alumni

MIT alumni and scholars have made extraordinary contributions in their home countries, the U.S., and the world. The following are some examples:

Kofi Annan, SM Management 1972

Kofi Annan, the seventh Secretary-General of the United Nations and recipient of the Nobel Peace Prize, was born in Kumasi, Ghana, and attended the University of Science and Technology in Kumasi before completing his undergraduate studies at Macalester College in St. Paul, Minnesota. He undertook graduate studies in economics at the Institut universitaire des haute etudes internationals in Geneva, and earned his SM in Management as a Sloan Fellow at MIT. Annan worked for the World Health Organization and the Ghana Tourist Development Company, but has spent most of his career at the United Nations. In 2001, Kofi Annan and the United Nations received the Nobel Peace Prize for "their contributions to a better organized and more peaceful world."

Benjamin Netanyahu, SB Architecture 1975
SM Management 1976

Current Prime Minister of Israel and formerly Israel's ambassador to the United Nations, Benjamin Netanyahu was born in 1948 in Tel Aviv, Israel and grew up in Jerusalem. He served as Israel's ambassador to the United Nations from 1984 to 1988, during which time he led the effort to declassify the United Nations' archive on crimes committed by Nazi Germany. Netanyahu, a member of the Likud party, was Israel's Prime Minister from 1996 until 1999. During his term as Prime Minister, Netanyahu implemented policy that combined fighting terror with advancement of the peace process. Its cornerstone was the conclusion of well-measured agreements with the Palestinians that insisted on reciprocity. During his three-year term, the number of terror attacks drastically decreased.

Ngozi Okonjo-Iweala, MCP 1978
PhD Planning 1981

Currently the Managing Director of World Bank, Ngozi Okonjo-Iweala was the first woman to hold the position of Finance Minister in Nigeria. During her term from 2003 to 2006, she launched an aggressive campaign to fight corruption. She implemented a series of economic and social reforms, including a zero-tolerance policy for corruption; international and local governmental contract bidding; privatizing state-owned refineries; and the Extractive Industry Transparency Initiative, which aims to bring openness to the oil sector. Under her leadership, the country has tripled its reserves from $7 billion to $20 billion; the annual GDP grew at 6 percent; and inflation is down from 23 percent to 9.5 percent. Okonjo-Iweala started her career at the World Bank, where she was the first woman ever to achieve the positions of vice president and corporate secretary.

I. M. Pei, SB Architecture 1940

Ieoh Ming Pei, influential modernist architect and founder of the firm Pei Cobb Freed & Partners, was born in China in 1917. He completed his Bachelor of Architecture degree at MIT in 1940. Pei has designed more than 60 buildings, including the John Fitzgerald Kennedy Library in Boston, Massachusetts, the Grand Louvre in Paris, France, the Miho Museum in Shiga, Japan, the Bank of China Tower in Hong Kong, and the Gateway Towers in Singapore.

Tony Tan, SM Physics 1964

Following his degrees from MIT and his PhD from the University of Adelaide in applied mathematics, Tan taught mathematics at the University of Singapore. Tan was elected to the Parliament of Singapore in 1979, and has served in numerous leadership positions in the Singapore government. In December 1991, Tan stepped down from the Cabinet to return to the private sector as the Overseas-Chinese Banking Corporation's Chairman and Chief Executive Officer. He rejoined the Cabinet in 1995 as Deputy Prime Minister and Minister for Defense. In August 2003, Tan became Deputy Prime Minister and Co-ordinating Minister for Security and Defense.

International Entrepreneurs

A 2009 Kauffman Foundation report on the Entrepreneurial Impact of MIT found the following:

Alumni who were not U.S. citizens when admitted to MIT founded companies at different (usually higher per capita) rates relative to their American counterparts, with at least as many remaining in the United States as are returning to their home countries....

About 30 percent of the foreign students who attend MIT found companies at some point in their lives. This is a much higher rate than for U.S. citizens who attend MIT. We assume (but do not have data that might support this) that foreign students are more inclined from the outset to become entrepreneurs, as they had to seek out and get admitted

to a foreign university, taking on the added risks of leaving their families and their home countries to study abroad. (MIT has only its one campus in Cambridge, Mass., and, despite collaborations in many countries, does not operate any degree program outside of the United States.) We estimate that about 5,000 firms were started by MIT graduates who were not U.S. citizens when they were admitted to MIT. Half of those companies created by "imported" entrepreneurs, 2,340 firms, are headquartered in the United States, generating their principal revenue ($16 billion) and employment (101,500 people) benefits here.

Estimated Number of Companies Founded by International MIT Alumni

Location	Total
United States	2,340
Europe	790
Latin America	495
Asia	342

Location of Companies Founded by International MIT Alumni
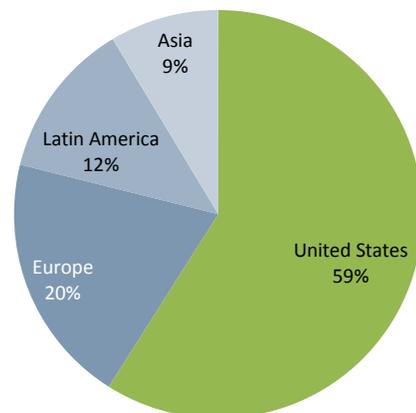
MIT International Science and Technology Initiatives

MIT International Science and Technology Initiatives (MISTI) program, MIT's primary international program, connects MIT students and faculty with research and innovation around the world. Working closely with a network of premier corporations, universities and research institutes, MISTI matches over 600 MIT students with internships and research abroad each year. After several semesters of cultural and language preparation on campus, MISTI students plunge into rigorous, practical work experience in industry and in academic labs and offices. Projects are designed to align the skills and interests of the student with the needs of the host. MISTI also organizes the MISTI Global Seed Funds, which encourage MIT students to work on faculty-led international research and projects. MISTI programs are available in Africa, Belgium, Brazil, Chile, China, France, Germany, India, Israel, Italy, Japan, Korea, Mexico, Russia, Singapore, Spain, and Switzerland.

MISTI's approach to international education builds on MIT's distinctive traditions of combining classroom learning and hands-on experience in Undergraduate Research Opportunities (UROPs), cooperative programs with industry, practice schools, and internships. In contrast to other universities' internationalization programs that mainly involve study abroad, MISTI matches individual students with work or research opportunities in their own fields. http://web.mit.edu/misti/

Here are a few examples from the more than 4,000 students MISTI has placed since it began by sending a handful of interns to Japan at the end of the 80s:

Chemical Engineering student Nathalia Rodriguez worked on gene therapy for muscular dystrophy at Genpole, a French biotech cluster.


Photo Credit: MISTI

Matthew Zedler, a Mechanical Engineering graduate, examined Chinese auto growth and energy at Cambridge Energy Research Associates in Beijing.

Physics major Jason Bryslawskyj designed superconducting magnetic bearings for electric motors at Siemens in German. He wrote two patents at Siemens.

Ammar Ammar, an EECS undergrad, designed and tested a Google/YouTube project at Google Israel.

MISTI Annual Internship Placements
1994 - 2012
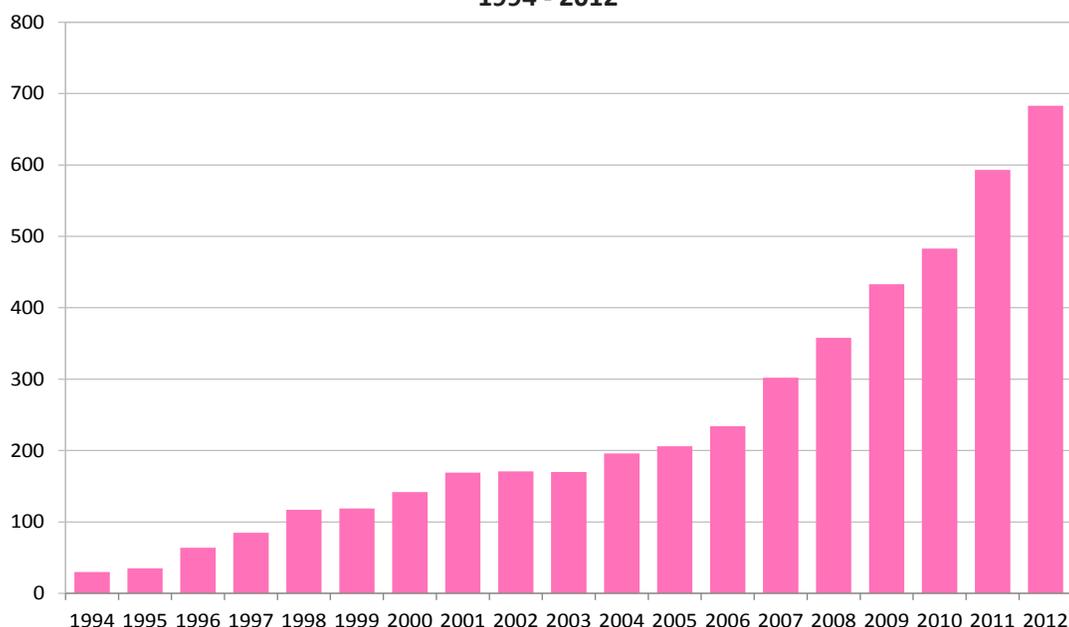
MISTI Student Internship Expansion

Year*	Japan	China	Germany	India	Italy	France	Mexico	Spain	Israel	Brazil	Chile	Korea	Russia	Singapore	MISTI
1983-1994	318														318
1995	33	2													35
1996	42	22													64
1997	36	27	22												85
1998	28	45	38	6											117
1999	35	34	33	16	1										119
2000	37	46	37	17	5										142
2001	23	59	38	11	9	29									169
2002	29	48	51	0	12	31									171
2003	37	14	50	6	14	49									170
2004	33	34	59	16	8	45	1								196
2005	30	27	69	24	13	34	9								206
2006	33	29	84	26	5	44	10	1	2						234
2007	32	33	85	38	33	35	19	27							302
2008	34	62	75	35	28	45	26	38	15						358
2009	30	53	96	42	26	81	24	48	33						433
2010	38	54	88	55	44	84	29	49	37	5					483
2011	24	65	107	47	50	97	36	49	50	6					531
2012	27	82	109	50	53	94	41	51	67	17	27	5	10	18	651
Total	872	654	932	339	248	574	154	212	137	11	27	5	10	18	4,784

*The MISTI year runs from September 1 - August 31

Campus Research Sponsored by International Organizations
Current Selected Projects

### Center for Clean Water and Clean Energy at MIT and KFUPM

A group of Mechanical Engineering faculty have entered into a seven-year research and educational collaboration with King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran, Saudi Arabia, leading to the creation of the Center for Clean Water and Clean Energy at MIT and KFUPM within the department. The Center's research focuses on water desalination and purification and on low-carbon energy production from both solar energy and fossil fuels. Additional research activities involve design and manufacturing, with a focus on technologies related to water and energy production. This collaboration began in fall 2008. During the first year, a diverse group of approximately 20 MIT faculty participated in the Center along with 35 MIT graduate students and 10 MIT postdocs. In addition, the Center includes a program to bring Saudi Arabian women to MIT for research and educational activities. The Center is directed by John H. Lienhard V and co-directed by Kamal Youcef-Toumi.

Reinventing the Wheel

A new bicycle wheel designed by MIT researchers can boost a rider's power while tracking the rider's friends, fitness, smog, and traffic. The wheel, called the Copenhagen Wheel, stores energy every time the rider brakes, which can then be used to assist the rider in going up a hill or add a burst of speed in traffic. In addition to storing power, the Copenhagen Wheel uses a series of sensors and a Bluetooth connection to the rider's iPhone to collect data about the bicycle's speed, direction and distance traveled, as well as picking up data on air pollution, and even the proximity of the rider's friends. The resulting data can both help the individual rider—for example, by providing feedback on fitness goals—and help the city (if the user opts to share the information) by building a database of air quality, popular biking routes, and areas of traffic congestion. The Copenhagen Wheel was developed by Carlo Ratti and was funded by the city of Copenhagen, the Italian company Ducati, and the Italian environment ministry.

Campus Research Sponsored by International Organizations (in U.S. Dollars)
Fiscal Years 2008-2012

International Sponsor Type	2008	2009	2010	2011	2012
Foundations and other nonprofits	11,299,312	17,314,194	23,170,052	20,233,545	25,025,346
Government	17,444,906	26,299,968	32,633,438	32,471,318	37,712,878
Industry	25,582,009	31,988,543	40,642,427	45,603,282	48,133,890
Total	**54,326,226**	**75,602,705**	**96,445,918**	**98,308,146**	**110,872,115**
Constant dollars*	58,396,824	80,148,565	101,265,060	101,188,454	110,872,115
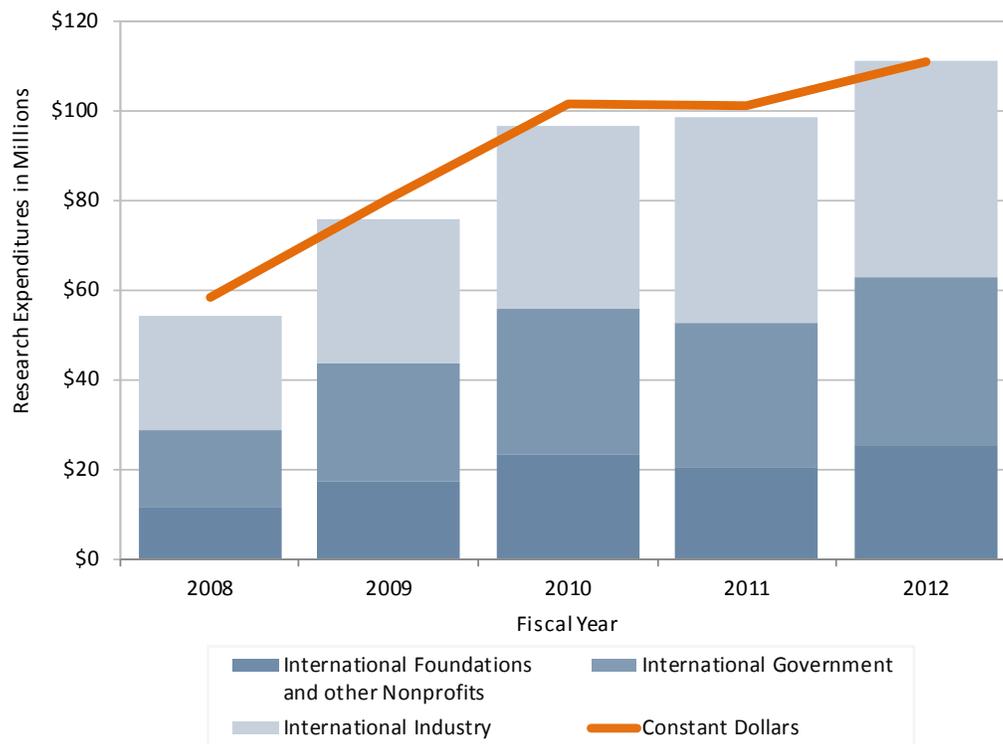
*Constant dollars are calculated using the Consumer Price Index for All Urban Consumers weighted with the fiscal year 2012 equaling 100.