MIT Washington Office

The Washington, DC, Office of the Massachusetts Institute of Technology was established within the Office of the President in 1991. The office reports to MIT's president and works closely with the vice president for research and other senior administrators. The staff of the office for MIT fiscal year 2014 included William Bonvillian, director; Philip Lippel, assistant director; Amanda Arnold, senior policy advisor; Helen Haislmaier, program coordinator; and Lisa Miller, office representative.

The mission of the MIT Washington Office is to support the science advocacy activities of MIT's president, other senior officials, and faculty in Washington, DC, and to support MIT's historic role as one of the nation's premier research universities, providing leadership on national science and technology issues. The Washington Office contributes to a steady flow of information and ideas between MIT and Washington institutions, including executive branch offices, departments, and agencies; Congress; and university, industry, and science organizations.

Connecting the Institute with the Policy Agenda in Washington, DC

The office supports MIT's national role in science and technology policy at several levels. Washington Office staff members facilitate Institute leaders' engagement with key officials from the legislative and executive branches of the federal government and with other national figures. They also help identify and then work with appropriate campus experts to inform specific policy discussions.

In 2014 the Washington Office actively supported MIT's major national policy initiatives on energy, online education, advanced manufacturing, and the convergence of the life, engineering, and physical sciences. Additionally, the office assisted in laying the groundwork for federal interactions regarding the newly announced environmental initiative and innovation initiative.

The appendix to this report provides an overview of key meetings and other interactions this year between Washington, DC, officials and MIT administration, faculty, and staff.

Science Research and Development Support

Sequestration and the FY2014 Federal Budget

The federal research and development (R&D) funding environment for MIT in fiscal year 2014 was dominated by of the strict limits Congress placed on federal discretionary funding for the decade commencing October 1, 2012. R&D spending for the first half of the year was further restricted by Congress's failure to approve a 2013 budget within these constraints, triggering a self-imposed requirement to sequester additional funds. Research agencies and other government activities were thus forced to operate with reduced funding through the end of calendar year 2013, based on their 2012 appropriations minus sequestration. Some relief was provided for the second half of the MIT fiscal year under a compromise agreement, finalized in January 2014, which set overall levels for the 2014 and 2015 federal budgets (covering the period from October

2013 to September 2015). The Consolidated Appropriations Act of 2014, signed by President Obama on January 17, provided $1.012 trillion in discretionary spending, representing a partial rollback of the cuts under sequestration.

The Budget Control Act of 2011 (Public Law 112-25) set the background for these actions by cutting overall federal discretionary spending levels by $1 trillion for a ten-year period between 2013 and 2023 in an attempt to reduce the federal deficit. It included provisions to sequester an additional $1.2 trillion if Congress could not agree on a budget that conformed to the prescribed spending cap. The entire $1.2 trillion 10-year sequestration cut was to be equally divided between federal defense discretionary programs and non-defense discretionary programs.

The sequestration provision was triggered in 2013, forcing a $105 billion cut below 2012 funding levels. Discretionary programs, which account for less than 40% of the total federal budget, include almost all federally funded research and development activities. The FY2013 sequestration requirements forced significant cuts in R&D funding for that fiscal year.

In December 2013, the House and Senate Budget Committee Chairs, Representative Paul Ryan (R-Wisconsin) and Senator Patty Murray (D-Washington), developed a budget compromise which somewhat moderated the sequestration cuts for FY2014 and FY2015. This freed up the House and Senate Appropriations Committees to pass an omnibus spending bill for FY2014 with 12 individual appropriations bills contained within it. In effect, the Ryan-Murray agreement put the Appropriations Committees—which had been unable to pass appropriations bills because of a political impasse for two years—back in business.

Committee members and staff worked through the holidays to put together the details of the Ryan-Murray budget deal. On January 15, the House passed the omnibus bill by a vote of 359–67. The Senate had approved the $1 trillion bill the previous week, with the support of all 55 Democratic senators, 17 Republicans, and both Senate independents. Two days later President Obama signed the Consolidated Appropriations Act into law.

R&D Funding by Agency

For many R&D agencies, the Consolidated Appropriations Act restored well more than half of the funding cut by sequestration. Some ended up above FY2012 pre-sequestration funding levels. The chart below, prepared by the American Association for the Advancement of Science, compares funding provided by the bill with prior year funding, the Presidential Budget Request, and the levels proposed by the House and Senate prior to the compromise agreement. It is followed by summaries for key federal agencies.

FY2014 Congressional Action on Select R&D Agencies (Preliminary)

	FY2012 Actual	FY2013 Est*	FY2014 Budget	FY2014 House	FY2014 Senate	FY2014 Conf	Percent Change FY12	Percent Change FY13
Total Budget Authority (includes non-Research and Development components)								
Department of Defense								
6.1–6.3	12,058	11,056	11,984	12,315	12,050	12,185	1.1	5.9
Medical Research	1,272	1,205	730	1,390	1,319	1,552	22.0	28.8
National Institute of Health [A]	30,702	28,993	31,173	NA	31,176	30,003	-2.3	3.5
Department of Energy								
EERE	1,781	1,723	2,776	878	2,281	1,902	6.8	10.3
Fossil Energy [B]	524	507	429	430	421	562	7.2	10.8
Nuclear Energy	760	721	735	656	735	889	16.9	23.3
ARPA-E	275	252	379	70	379	280	1.8	5.9
Office of Science	4,935	4,621	5,153	4,653	5,153	5,071	2.8	9.7
NNSA	11,006	10,578	11,652	11,266	11,758	11,207	1.8	5.9
NASA								
Space Technology	574	598	743	576	670	576	0.4	-3.8
Science	5,074	4,795	5,018	4,781	5,154	5,151	1.5	7.4
Exploration	3,707	3,623	3,916	3,612	4,209	4,113	11.0	13.5
Aeronautics	569	531	566	566	559	566	-0.6	6.5
National Science Foundation	7,105	6,884	7,626	6,995	7,426	7,172	0.9	4.2
Department of Agriculture								
ARS	1,095	1,020	1,279	1,074	1,123	1,122	2.5	10.0
NIFA	1,202	1,145	1,288	1,209	1,278	1,277	6.2	11.6
Department of Commerce								
NOAA	4,906	4,896	5,440	4,916	5,590	5,315	8.3	8.6
NIST [C]	751	768	928	784	948	850	13.2	10.6
Department of Homeland Security								
Science and Tech	673	793	1,527	1,225	1,218	1,220	81.3	53.9
DNDO	290	302	291	291	289	285	-1.6	-5.5
Department of the Interior								
US Geological Survey	1,068	1,013	1,167	967	1,095	1,032	-3.4	1.9
Environmental Protection Agency	8,586	7,961	8,153	5,670	8,482	8,200	-4.5	3.0

* Some FY2013 figures are AAAS' best estimates following final appropriations and sequestration. They reflect official agency-reported data only where available.

Source: Agency budget documents and appropriations bills and reports

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

[A] Includes superfund transfer (typically $75–$80 million).

[B] Excludes rescissions.

[C] Discretionary only.

Revised January 15, 2014

National Institutes of Health

The bill provided $29.9 billion for the National Institutes of Health (NIH), which is $827.4 million, or 2.8%, above the FY2013 post-sequestration level. In comparison to the FY2013 level after transfers, NIH funding was increased by $1 billion, or 3.5%, but, again, remained below the FY2013 pre-sequester level.

Within that total, the bill provided:

- $100 million for Alzheimer's research, which is $20 million above the President's request;
- $30 million for the new Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative;
- $273.3 million for the Institutional Development Award, an increase of $11.7 million above the FY2013 post-sequester level; and
- $474.7 million for Clinical and Translational Science Awards.

Language was included to keep all current NIH Science, Technology, Engineering, and Mathematics (STEM) education programs at the agency, despite the administration's proposal to eliminate them and consolidate STEM education efforts at a limited number of agencies.

National Science Foundation

The National Science Foundation (NSF) received $7.172 billion in FY2014, an increase of $288 million above the FY2013 post-sequester level, but below the pre-sequester level. Within that total, the measure allocates $5.8 billion for Research and Related Activities and $846 million for Education. Contentious provisions limiting the Agency's discretion in funding political science research, instituted as part of a continuing resolution approved in March 2013, were eliminated.

National Aeronautics and Space Administration

The National Aeronautics and Space Administration (NASA) received $17.65 billion overall, an increase of $781 million above the FY2013 post-sequester level. From this the Science Mission Directorate received $5.151 billion, the Aeronautics Research Directorate received $566 million, Space Technology received $576 million, and Education received $117 million, including $40 million for the Space Grant program.

The measure also prohibits both NASA and the White House Office of Science and Technology Policy from participating in bilateral activities with China or Chinese-owned companies, unless authorized by Congress.

Department of Defense

Overall research and development at the Department of Defense (DOD) was cut by nearly $7 billion below the FY2013 post-sequester level, but basic and applied research funding increased. Funding for 6.1 basic research was $2.167 billion, or $64 million above

the FY2013 post-sequester level, and funding for 6.2 applied research was $4.542 billion. The major R&D cut fell largely in the area of technology development.

Department of Energy

The Department of Energy (DOE) Office of Science received about $5 billion, a $450 million increase above the FY2013 post-sequester level. The increase included $22.2 million to restore operations at Alcator C-Mod, the MIT-based national user facility for fusion research. The Advanced Research Projects Agency-Energy (ARPA-E) received $280 million, which was $29 million above the FY2013 post-sequester level. The Republican-controlled House had proposed cutting ARPA-E to a $70 million subsistence level. Programs at the Office of Energy Efficiency and Renewable Energy (EERE) similarly saw an increase, despite large cuts proposed by the House.

Department of Agriculture

The Agriculture and Food Research Initiative (AFRI) of the US Department of Agriculture (USDA) received $316 million, which is $40 million above the FY2013 post-sequester level.

Department of Education

The FY2014 omnibus bill maintained level funding for the Pell Grant student aid program at $22.8 billion, which, when combined with mandatory funding, provided a maximum Pell Grant award per student of $5,730, an increase of $85.

The bill included $75 million for the administration's First in the World Initiative within the Fund for Improvement in Postsecondary Education, to support innovative and effective strategies that improve student outcomes and reduce the net price paid by students. It also required the Department of Education to report within four months on enrollment, graduation, and default rates for Pell Grant recipients, disaggregated by institution, and to develop strategies to boost Pell Grant graduation rates.

Although the FY2014 bill rolled back some of the very adverse cuts on the R&D budget due to sequestration, progress on the FY2015 budget was very limited as of July 2014. The Ryan-Murray budget agreement set the bottom line total discretionary spending level for FY2015, but philosophical differences between the Republican-controlled House and the Democrat-controlled Senate—compounded by contentious election year politics—prevented agreement on any individual appropriations bills. As the Congressional summer recess approached, it became increasingly clear that a continuing resolution would be required to keep the federal government operating at least through the end of the calendar year.

MIT Policy Initiatives

MIT continued to focus on national policy efforts with a technological or scientific dimension, and sought to stimulate innovation in three major areas: advanced manufacturing; convergence of the life, engineering, and physical sciences; and energy technology. The MIT Washington Office provided extensive support for these efforts,

each of which emerges from the identification of policy issues affecting critical national or global need and where MIT contributions span multiple schools and disciplines.

Work began on campus and in Washington on an additional policy initiative focusing on educational innovation via online technologies, supported by professor Sanjay Sarma, director of the Office of Digital Learning, and professor Karen Willcox. The Washington Office assisted in the early development of this new initiative. The office was also involved both in a policy effort around big data and privacy in March and in laying the groundwork in Washington for a new initiative on the environment focused on global water and food security.

Advanced Manufacturing

MIT leaders have played a major role in the design of national efforts to confront structural problems in the manufacturing sector. The Washington Office provided extensive support for both the President's Advanced Manufacturing Partnership and for the MIT Production in the Innovation Economy study. The office continued to support the development of a network of regional institutes to promote manufacturing innovation and added to a series of surveys and reports on manufacturing, available on the MIT Washington Office website. The office's efforts helped to define an emerging campus initiative on innovation that will include advanced manufacturing research, education, and outreach.

Advanced Manufacturing Partnership 2.0

The Washington Office supported President Reif in his role as co-chair of the steering committee for President Obama's Advanced Manufacturing Partnership 2.0 (AMP2.0); provost Martin Schmidt, as AMP2.0's technical co-lead; and professor Krystyn Van Vliet, co-lead for MIT participation. This second partnership builds on the recommendations of the original AMP steering committee, co-chaired by former MIT president Susan Hockfield, as reported by the President's Council of Advisors on Science and Technology in July 2012.

AMP2.0 is scheduled to release a follow-up report in fall 2014, including recommendations on advanced manufacturing technology strategies, apprenticeship and training programs, a network of manufacturing institutes, and policies to support financing of production scale-up for advanced manufacturing processes and technologies. In addition to President Reif and Provost Schmidt, MIT efforts were led by Professor Van Vliet, who co-chaired AMP2.0's technology development workgroup, preparing manufacturing strategies on digital manufacturing, advanced materials for manufacturing, and sensors/measurement/process control areas. President Reif and Provost Schmidt led the AMP2.0 Steering Committee—along with the President's National Economic Council director, science advisor, and commerce secretary—at major work sessions on December 3 and April 21. They also participated in numerous meetings and discussions with administration officials on AMP efforts throughout 2013–2014.

MIT hosted the New England AMP2.0 regional meeting in the Stata Center and invited over 200 leaders from area industries and universities to contribute. Participants included Senator Edward Markey, Massachusetts s*ecretary* of housing and economic

development Gregory *Bialecki*, and federal officials from NSF and the National Institute of Standards & Technology (NIST). The MIT Washington Office helped organize the regional meeting.

AMP and administration education efforts also highlighted the growing "maker movement," which encourages community use of additive manufacturing and computer design technologies for new kinds of fabrication. At a "Maker Faire" on the grounds of the White House on June 18 , MIT professor Neil Gershenfeld and a team of students from his Fab Lab demonstrated maker technology to President Obama. MIT staff contributed a chapter on maker activities at MIT to the "Maker Book" distributed in conjunction with the event.

Production in the Innovation Economy Study

The Production in the Innovation Economy (PIE) study at MIT issued its final report in two volumes from MIT Press (released in September 2013 and January 2014). The Washington Office worked closely with PIE leadership to bring it to the attention of national leaders.

The PIE report was presented at a major campus forum on September 20 and 21. A series of panel discussions featured MIT faculty who contributed to the study and outside experts from regional industry, government, and higher education. President Reif was a lead speaker along with Dow Chemical CEO Andrew Liveris. Federal officials included David Danielson, DOE assistant secretary; acting deputy secretary of commerce Pat Gallagher; commerce chief economist Susan Helper; NSF engineering deputy director Steven McKnight; NSF division director of undergraduate education Susan Singer; National Economic Council senior advisor JJ Raynor; and Karen Mills, former administrator of the Small Business Administration. President Reif hosted a dinner at Gray House for over 75 forum participants on September 20.

In the historic Lecture Room at their Washington headquarters, the National Academy of Sciences (through its Program on Technology, Innovation, and Entrepreneurship, directed by Charles Wessner), hosted key PIE researchers at a November 1 presentation of the PIE report. PIE Commission co-chair Suzanne Berger summarized the study results for a packed house of federal officials and representatives from industry, universities, and nongovernmental organizations. Professor Berger subsequently testified about the PIE findings before the Senate Banking and Senate Commerce Committees, and briefed forums at the Brookings Institution, the Council on Competitiveness, the DOE, and the NSF. Many of the PIE report findings had a direct effect on national policy, including through the AMP process discussed above.

Convergence

The MIT Washington office continued to support the "convergence" research model across life, engineering, and physical sciences for biomedical research, drawing on the 2011 MIT white paper "Third Revolution: Convergence of the Life Sciences, Physical Sciences and Engineering." The White House featured a section on "Fostering

Convergent Science" in its *Blueprint For Action*, released in January 2013, that placed advancing the convergence approach among four goals for the year.

In the spring of 2013, President Obama announced the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, a major public-private partnership consciously utilizing a convergence approach. Federal participation in this initiative by NIH, NSF, and the Defense Advanced Research Projects Agency (DARPA) is complemented by contributions from companies, health systems, patient advocacy organizations, philanthropists, state governments, research universities, private research institutes, and scientific societies.

Five MIT faculty members attended the White House event. Professor Emery Brown subsequently chaired the NIH Advisory Committee to the Director's Working Group for the initiative. The working group delivered a strategic plan to NIH director Francis Collins in the fall of 2013, and a follow-on NIH report on research support and direction was issued this year. MIT Brain and Cognitive Science researchers were actively involved in supporting the BRAIN initiative.

At the 2014 American Association for the Advancement of Science (AAAS) annual meeting in Chicago from February 15 to 18, professor Phillip Sharp delivered the annual AAAS Presidents' Lecture on Convergence to a group of over 1,000 scientists. In addition, former MIT president Susan Hockfield led a multi-hour convergence workshop at the meeting. AAAS later released a report summarizing the findings. The discussants included University of North Carolina professor Joseph DeSimone, President Emerita Hockfield, professor Chad Mirkin of Northwestern University, Belinda Sato of the National Institute of Biomedical Imaging and Bioengineering, and Dennis Ausiello of Massachusetts General Hospital.

Washington Office staff worked throughout the year on the design and support for Key Challenges in the Implementation of Convergence, a workshop led by the Board on Life Sciences of the National Academies. Held September 16 and 17, the workshop was co-chaired by former President Hockfield and featured professor Philip Sharp. A book from the National Academies Press summarizing the workshop findings, *Convergence: Facilitating Transdisciplinary Integration of Life Sciences, Physical Science, Engineering and Beyond*, was published in May.

Meanwhile, the Defense Advanced Research Projects Agency (DARPA) has been expanding its focus on convergence model research. This year it formed a Biological Technologies Office with a planned research portfolio that includes bio-fabrication and participation in the BRAIN Initiative.

Energy

This was a transitional year for the MIT Energy Initiative (MITEI), following founding director Ernest Moniz's departure from MIT in May 2013 to assume the role of US Secretary of Energy. The Washington Office continued to work with closely with professor Robert Armstrong, the new MITEI director (and previous deputy director), to connect MITEI's nationally recognized work to Washington-based energy policy and R&D

strategy. Several other key members of MITEI staff also moved to Washington to join the Department of Energy, and the office began to develop relationships with new leaders as they joined MITEI or assumed promotions, including deputy director for science and technology Robert Stoner, executive director Martha Broad, director of research Francis O'Sullivan, and associate director Louis Carranza. Washington Office staff participated in Center for Energy and Environmental Policy Research (CEEPR) workshops and the MIT Energy Conference in Cambridge, and in Washington worked with key staff at Department of Energy components including ARPA-E, the Office of Energy Efficiency and Renewable Energy, and the Energy Policy and Systems Analysis Office.

Legislatively, energy issues remained deadlocked in Washington. The bipartisan Shaheen-Portman Energy Savings and Industrial Competitiveness Act failed to move forward in light of debates over permitting for the Keystone XL pipeline and the Environmental Protection Agency's (EPA) regulatory authority. The Obama administration continued to implement the Climate Action Plan announced at the end of last year; major actions included EPA's release of long-awaited proposed rules limiting the emission of carbon dioxide from power plants under the Clean Air Act.

Emerging Initiatives

Online Education

The office facilitated meetings throughout the year for President Reif, a national leader on online education, with senior education policymakers, including director of the White House National Economic Council Gene Sperling and his successor Jeff Zients; Department of Education undersecretary Ted Mitchell; and deputy White House domestic policy advisor James Kvaal.

Following the November 21 release of the preliminary report of the MIT Task Force on the Future of MIT Education, the MIT Washington Office supported President Reif and professors Sanjay Sarma and Isaac Chuang, who lead MIT's Office of Digital Learning, with a new policy initiative on online education. This initiative aims to bring lessons in online education and blended learning from MITx and edX to the national level, building on the work of the MIT Task Force.

Working with principal investigators Sanjay Sarma and Karen Wilcox, the MIT Washington Office helped draft an application to the Carnegie Foundation for a study of the policy aspects and implications of online education. President Reif submitted the grant to the foundation in April, and it was approved it in June. Coupled with new support from the National Science Foundation for a workshop on the intersection of learning science and online technologies, this allowed a major year-long project on online and blended learning to start up in the summer of 2014 as an anchor for the new initiative.

Also as part of the initiative, the office organized a visit from professor Carl Wieman (Class of 1973) of Stanford University, a leader in effort to reform science, technology, engineering, and mathematics education. On May 19, Wieman, a Nobel Prize winner in physics and former associate director of the White House Office of Science and

Technology Policy, lectured to a packed MIT audience on approaches to improving STEM learning outcomes at the postsecondary level. He also met with President Reif and the leaders of *MITx* and edX, and with MIT graduate students working on education projects.

Big Data and Privacy

The Washington Office continued to work with faculty and staff from the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL), the Sloan School, the Koch Institute, and the Center for Biomedical Innovation to identify new NIH and FDA program opportunities for the use of large data sets in health-related fields. Following the announcement of a federal Big Data Research and Development Initiative in 2012, intended to advance the state of the art in technologies for collecting, restoring, preserving, managing, analyzing, and sharing massive datasets while addressing workforce needs, CSAIL has been increasing its research work in this field.

On March 3, presidential advisor John Podesta and commerce secretary Penny Pritzker participated in Big Data Privacy: Advancing the State of the Art in Technology and Practice, a major forum held at MIT and hosted by CSAIL. The Washington Office helped support the event, at which President Reif provided introductory remarks. Discussion topics included big data opportunities and issues in health care delivery and online education. MIT set up expert panel presentations to Podesta and Pritzker and their staff, who were gathering input for a significant report to President Obama which will guide federal policy on Big Data and Privacy issues. President Reif met with Podesta and his senior staff in the White House on April 10 to discuss recommendations emerging from the forum, which are available in an MIT-issued report.

Environmental Initiative

As MIT began to shape the recommendations of the environmental committee into a new campus-wide initiative—formally announced in May—the Washington Office worked with vice president for research Maria Zuber to establish relationships with key federal agencies that will benefit from the Institute's cross-disciplinary approach to environmental issues. This included meetings with Glenn Paulson, the science advisor to the administrator of the Environmental Protection Agency; Kathryn Sullivan, acting administrator of the National Oceanographic and Atmospheric Administration; as well as follow-up on earlier meetings with Sonny Ramaswamy, director of the USDA National Institute of Food and Agriculture.

Agency Activities

Department of Defense

While defense basic and applied research increased slightly for FY2014, after sequestration 7% cuts in research funding were proposed in the President's budget for DOD R&D for FY2015. As of the end of MIT's fiscal year, Congress had not passed defense appropriations bills. While the House-proposed appropriations level reflected the cut in the administration budget, the Senate's proposed bill restored funding to basic and applied research, reversing the administration cut. However, Congress appeared unlikely to resolve these appropriations differences until December, particularly in light of fall Congressional elections. Reflecting the cut, MIT's Institute for Soldier

Nanotechnologies, long supported by Army leaders, faces an FY2015 cut of over 30%. Other u*niversity-affiliated research centers* face similar cuts.

The Washington Office worked closely with MIT Lincoln Laboratory senior staff this year in seeking support for a proposed $400 million West Lab facility expansion and modernization. Strong Congressional support from both the Massachusetts delegation and the House and Senate Armed Services Committees was obtained for these plans. However, because the construction would take place on an established Air Force base, DOD approval, under the complex Office of Management and Budget (OMB) guidelines for federal financing, was still pending at the end of MIT's fiscal year. MIT president Rafael Reif met with DOD undersecretary of acquisition, technology, and logistics Frank Kendall on April 10 to discuss these issues.

DOD deputy secretary Ash Carter visited MIT on July 15 to attend faculty presentations on areas of opportunity for defense technology research. He was joined at the afternoon briefings by former defense secretary William Perry.

National Institutes of Health

The Washington Office worked throughout the year to highlight the importance of NIH-funded research, which faced significant sequestration cuts, in improving health outcomes. Office staff worked with the university-industry group United for Medical Research to increase public understanding of NIH's role. The Information Technology & Innovation Foundation (ITIF) report *Leadership in Decline: Assessing U.S. International Competitiveness in Biomedical Research*, one of several UMR documents to which the Washington Office contributed in June, was cited in July by NIH director Francis Collins as particularly valuable in explaining NIH's challenges.

NASA

As a result of sequestration, NASA funding for Space Technology, Planetary Science, and Space Grant programs have faced particular challenges. The Washington Office worked closely with campus researchers and other universities in making the case for NASA funding in critical fields. Two administration proposals generated considerable controversy during the MIT fiscal year: 1) the President's 2014 Budget Request proposed a new Asteroid Retrieval Initiative, to dispatch a robotic probe to capture a 500-ton asteroid and move it into the Earth-Moon system, where astronauts could explore it; and 2) as part of a proposed re-organization of STEM education efforts across federal agencies, the budget request consolidated, effectively eliminating, much of NASA's funding for education. Congress showed little enthusiasm for either proposal, with committee hearings continuing on the asteroid proposal. Washington Office staff worked with the Association of American Universities (AAU) and APLU, in coordination with involved MIT faculty, to oppose the proposed curtailment of NASA educational activities. As part of the FY2014 omnibus appropriations bill, Congress rejected the proposed consolidation of education programs.

National Science Foundation

It was an unusual year for the National Science Foundation. Usually perceived as uncontroversial and apolitical, with a history of bipartisan support, this year the agency found itself in the Congressional spotlight. As work proceeded on reauthorization of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act, which includes reauthorization for NSF, it became clear that House Republicans sought to alter the agency's relationship with Congress. Separating COMPETES into two separate bills, the chairman of the Science, Space, and Technology Committee, Lamar Smith of Texas, introduced the Frontiers in Innovation, Research, Science, and Technology (FIRST) Act to replace portions of the original bill related to NSF. (The bill also authorizations for the National Institute of Standards, and some general R&D policies overseen by the White House Office of Science and Technology Policy.) The legislation included strict oversight provisions and modifications to NSF's internationally renowned peer review system that subsequently drew sharp criticism from universities, scientific associations, and many others with a stake in federal R&D. Without attempting to extend the Coburn amendment, which contains narrow guidelines for NSF funding of political science that virtually shut down grants in that field in federal fiscal year 2013, it continued pressure from extreme conservatives to narrow the scope of federally supported research by curtailing NSF support for social, behavioral, and economic sciences (SBE). The FIRST Act attempted to impose these restrictions by incorporating specific authorization levels for each NSF directorate, and by sharply cutting the allocation to SBE.

Despite negative reaction from the research community and strong opposition from Science Committee Democrats (led by Smith's fellow Texan, ranking member Eddie Bernice Johnson), the bill was reported out favorably by both the Research Subcommittee and the full Science, Space, and Technology Committee. It had not, however, been brought to a vote on the House floor as the year drew to an end.

Acting NSF director Cora Marrett shepherded the agency through much of this episode, responding to the committee's requests for all review materials pertaining to a few individual grants (the confidentiality of which the agency considers to be essential to its merit review process) and appointing an internal working group to propose alternative approaches to the committee's stated concerns regarding transparency. In March, France Cordova, who President Obama nominated in July 2013, was confirmed by Congress and took the reins of the agency. Washington Office staff worked closely with other universities, AAU and APLU staff, and the Coalition for the National Science Foundation in attempts to move the legislation closer to the spirit of the original COMPETES Act of 2007 and its 2010 reauthorization. This included numerous meetings with NSF staff and the majority and minority staffs of the Science, Space, and Technology Committee.

Department of Energy

Secretary Moniz began his term at the helm of the Department of Energy in May 2013, placing many of the policies he advocated for as director of the MIT Energy Initiative on the department's agenda as part of President Obama's all-of-the-above strategy to move towards a low-carbon future. But Congress's failure to complete the confirmation process left nine key DOE positions unfilled as of June 30.

This left the Office of Science in a poor position to institute program changes or propose new initiatives, since among the pending nominations were MIT professor Mark Kastner as office director and Stanford professor Franklin Orr as undersecretary for science and energy. A Congressionally imposed transition in the funding mechanism for multi-year awards put additional pressure on many Office of Science programs, including those in nuclear physics and high energy physics.
After a year on standby, MIT's Plasma Science and Fusion Center was able to resume experiments at the C-Mod Tokamak within a few weeks of restoration of funding as part of the Consolidated Appropriations Act of 2014. Senator Elizabeth Warren and Representative Katherine Clark led a ceremonial restart of the fusion experiment on February 24.

All DOE Energy Frontier Research Centers were recompeted year. Twenty-two existing centers—including the MIT-Harvard Center for Excitonics, led by professor Marc Baldo, and the Solid-State Solar-Thermal Energy Conversion Center, led by professor Gang Chen—received funding for up to four additional years. Ten new centers were created.

In January, the Department established the Next Generation Power Electronics National Manufacturing Innovation Institute to accelerate the development of wide-bandgap semiconductor devices. An MIT-SUNY team, collaborating with industrial partners including GE and IBM, competed unsuccessfully for the institute, the first DOE-led hub in the evolving National Network for Manufacturing Innovation. Competitions for two additional DOE-led institutes were announced during the year.

Legislatively, efforts to reauthorize energy research programs faltered as the Republican leadership of the House Science, Space, and Technology Committee first separated DOE from other agencies included in the 2007 and 2010 America COMPETES Act and then, in late June, introduced a bill that would drastically limit funding for ARPA-E and the Office of Energy Efficiency and Renewable Energy. The Energy Research and Development Act of 2014 would also curtail DOE-sponsored research into climate change and restrict the use of DOE-sponsored research by the Environmental Protection Agency in the regulation of greenhouse gas emissions. After Energy Subcommittee Democrats used procedural methods to obstruct markup of the bill, no further action was taken by the end of the year. With the Senate still in the early stages of work on a comprehensive COMPETES Act reauthorization and the November elections impending, resolution of the differences among the chambers of Congress and with the administration is highly unlikely.

US Agency for International Development

The US Agency for International Development (USAID) continued its move to expand direct engagement with universities in the United States and abroad. The agency re-organized its innovation-based programs, including the Higher Education Solutions Network (HESN), under the auspices of a new Global Development Laboratory (GDL). Washington Office staff facilitated discussions of MIT's work for USAID, including possibilities for future expansion, among President Reif, Vice President Canizares, and the leadership of MIT's two HESN project teams. The office also participated in HESN and GDL activities in Washington and a visit by USAID's Power Africa team to campus, where they met with the new student-led e4Dev group and MITEI leaders.

Cross-Agency Activities

Intellectual Property

Patents

Despite major changes to patent law codified in the 2011 America Invents Act, the House passed major new patent legislation in response to the problem of so-called "patent trolls"—entities that acquire patents to enable future litigation challenges, that have no intention of utilizing the patents in production. The legislation was pressed by major west coast technology firms and opposed by pharmaceutical and biotech firms, along with small inventors. University groups led by the AAU and APLU expressed concern about aspects of the legislation detrimental to university research and technology transition. Other university issues included modifications to the one-year grace period for patent filing following public disclosure and new dispute procedures for issued patents, which are seen as disadvantaging small businesses and start-ups. Despite House passage, the Senate was unable to reach agreement on comparable legislation, and in June the chair of the Senate Judiciary Committee announced an impasse. Meanwhile, the House Energy and Commerce Committee made progress in advanced more narrowly drawn legislation, supported by universities, to halt the widespread and predatory issuance of patent "demand" letters.

Public Access to Results of Federally Funded Research

Federal agencies continued to develop policies for public access to results of research they support, responding to guidance issued last year by the Executive Office of the President [Office of Science and Technology Policy (OSTP) and OMB]. Legislators included access provisions or requirements in several pending bills, including the FIRST Act and the Energy Research and Development Act. The House Science Committee, even while pressing for greater transparency and broader access to research results, sought to limit the use of federally funded research for regulatory purposes.

MIT and the university associations pressed for uniformity in policies across agencies, and recommended that articles in research journals should be freely available one year after publication. For data access, the university community emphasized the need to balance the desire for transparency and broader access with the need to protect privacy, honor intellectual property rights, and give researchers a reasonable period of time to exploit their own discoveries prior to full disclosure.

Higher Education

A major presidential initiative to improve access to postsecondary education and to help more students succeed at the college level gained momentum this year through both executive and legislative actions. The Department of Education introduced new programs, including the First in the World opportunity within the Fund for the Improvement of Postsecondary Education program, encouraging innovative efforts to meet these goals. Congress sought to hold institutions of higher education accountable for student success by introducing new data collection and reporting requirements for Pell Grant recipients.

The administration also announced its intention to create a college rating system by fall 2014 and to ultimately tie an institutions eligibility for Title IV federal education funds to its rating. Research universities and other selective institutions, including MIT, are skeptical that the Department of Education can develop a fair and accurate system on the proposed timescale, given the great variety among postsecondary institutions and the student populations they serve. The Washington Office worked with the university associations to make these concerns known.

Congress began preliminary efforts to reauthorize the Higher Education Act, both with drafts of comprehensive legislation, distributed by the Senate Health, Education, Labor, and Pensions Committee, and with smaller bills unveiled by the House Education and the Workforce Committee intended for later consolidation. The Washington Office is closely monitoring these activities, along with proposals for major revisions to the tax code that could affect student credits or deductions, charitable donors, and University accounting practices.

The Department of Education constituted three negotiated rulemaking panels during the year as part of its process for developing new regulations for institutions of higher education.

MIT's executive director of Student Financial Services, Elizabeth Hicks, was the primary negotiator for private nonprofit universities on the program integrity panel, which considered new regulations for distance learning and several student financial issues. The department is likely to propose regulations closely following the panel's recommendations in the areas where consensus was reached, including the underwriting standards for PLUS loans and authorization for international affiliates. As the year drew to a close, secretary of education Arne Duncan announced that the issuance of regulations on distance-learning—which could affect *MITx* and edX—would be delayed in order to allow this rapidly changing field to develop. Initially, the department had proposed that institutions offering off-campus learning would have to seek approval from accreditation authorities in every state from which students enrolled.

The department revisited a "gainful employment" rule that would provide a mechanism for ensuring that students who graduate from vocational programs and for-profit colleges are, as a cohort, are sufficiently employable to repay their student loans. A previous attempt was invalidated by federal courts in 2012. After panel negotiations failed to bring consensus, the Department proposed a rule in March and collected public comments, which are currently under review.

A third negotiated rulemaking panel successfully agreed to a series of changes to the implementation of the Clery Act, which requires colleges and universities to collect and disclose information regarding crimes committed on or near their campuses. This was necessitated by the passage of the Violence Against Women Reauthorization Act of 2013. The consensus rule was posted in June for public comments, which are currently under review.

Both Congress and the administration initiated additional actions intended to reduce sexual assaults on campuses and create safe, non-hostile environments for all students. President Obama, calling the prevalence of sexual assault at colleges and universities "both deeply troubling and a call to action," appointed a White House Task Force in January to better protect students by developing a coordinated federal response to the problem. Public awareness campaigns, sharing of best practices among institutions and student groups, and actions to enforce existing law are all expected to be part of the recommended response.

In Congress, legislators who had led efforts to address the issue of sexual violence in the military turned their attention to campuses. In May, Senator Claire McCaskill surveyed 300 universities, including MIT, and held a series of roundtable discussions of this issue. She announced her intention to introduce legislation requiring campuses to be more active in reducing violent sexual behavior, protecting victims of assault, and coordinating responses with local law enforcement agencies.

Developing MIT Citizen Scientists

The MIT Washington Office continued to provide opportunities for MIT students in policy activities and in developin their roles as citizen scientists. The office, as summarized in the appendix, also worked to bring MIT faculty and administrators to Washington and federal officials to MIT.

Support for MIT Student Groups

The office provided advice and assistance to the MIT graduate student group Science Policy Initiative (SPI) in its efforts around science policy this year. An article in the Spring 2014 issue of MIT Spectrum summarized SPI's activities during the year in advocating for federal R&D support.

Science and Technology Public Policy "Boot Camp"

Washington Office director William Bonvillian, working with a committee of graduate students affiliated with SPI, conducted an intensive "boot camp" in science, technology, and innovation public policy for the eighth year. The course, with 18 class hours over five days, took place during MIT's Independent Activities Period and drew approximately 35 students.

For the second year, the boot camp was offered for credit as part of the new MIT science and technology policy certificate program. The certificate program was developed by SPI students working with an interdisciplinary faculty committee led by MIT professors Susan Solomon and Charles Stewart, and was supported by the MIT Washington Office. Over half of this year's boot camp students enrolled for credit and completed course papers.

Internships in Washington, DC

The Washington Office hosted four interns throughout the year, including two MIT undergraduate students during the summer. The interns contributed to research policy studies on convergence, federal support for R&D and education in advanced

manufacturing, and the role of federal research funding in seeding innovation. The latter study was republished by the Innovation Technology and Innovation Foundation and widely distributed in the science and university community.

Washington Office summer interns are supported through programs run by the Department of Political Science and the Technology and Policy Program, which place MIT students in various agencies and organizations around the nation's capital. The MIT Washington Office staff helped arrange visits for all the MIT interns and a similar group of University of Virginia students with senior science policymakers from federal agencies including the State Department, DARPA, OSTP, NSF, NIH, and DOE.

Congressional Visits and Executive Agency Visits

The Washington Office worked with the SPI students to plan two trips to Washington. For Congressional Visits Day in April, some 25 MIT students joined with representatives of other science and engineering groups to advocate broadly for congressional support for research funding. MIT students participated in over 40 Congressional office visits. In October, the Washington Office helped some 20 SPI students organize visits to discuss policy issues and policy related career paths with staff from federal R&D agencies and nongovernmental organizations.

Coalitions and Working Groups

The Washington Office amplified its activities through cooperation with other universities and stakeholders in the R&D and innovation enterprise. Participation in the following associations, organizations, and working groups is an essential part of those efforts.

- Ad Hoc Group for Medical Research
- Ad Hoc Tax Group
- American Council on Education
- Association of American Universities, Council on Federal Relations
- Association of Public and Land-Grant Universities, Council on Governmental Affairs
- Coalition for National Science Funding
- Coalition for National Security Research
- Coalition for Plasma Science
- Council of Graduate Schools
- Council on Competitiveness
- Council on Governmental Relations
- Energy Sciences Coalition
- Fusion Energy Sciences Day
- National Association of Independent Colleges and Universities
- New England Council

- Personalized Medicine Coalition
- Research! America
- STEM Education Coalition
- Task Force on American Innovation
- The Science Coalition
- United for Medical Research

APPENDIX

Meetings in Washington, DC

MIT Faculty/ Staff	Date	Topic	Meeting
Suzanne Berger	7/17/13	Production in the Innovation Economy (PIE)	
Martin Schmidt	7/25/13	Advanced Manufacturing	Brookings Manufacturing Forum with Gene Sperling.
Andrew McAfee	9/9/13	The business impact of technology.	ITIF
Rafael Reif	9/16/13		James R. Kvaal, deputy director of the Domestic Policy Council.
Philip Sharp and Susan Hockfield	9/16/13 9/17/13	Convergence	National Academies workshop on convergence. Sharp offered a keynote address and Hockfield co-chaired the workshop committee.
Lita Nelson	9/27/13	Virtuous Cycle: The Role of Patents in Driving Investments in Innovation	Invention, IP, & Jobs, sponsored by the Innovation Alliance. Other speakers included Irwin Jacobs (founder of Qualcomm), Dean Kamen (creator of Segway), and a series of former senior federal officials.
Lee Rubenstein and Chris Dodge of edX	9/30/13	edX technology platforms and its open source model.	Dr. Henry Kelly, senior advisor to DOE Secretary Moniz, and key technical staff from the National Training & Education Resource (NTER). DOD officials at the DOD Advanced Distributed Learning program center, led by Jonathan Poltrack.
Suzanne Berger	10/2/13	PIE/International trade issues and regional advantages that impact the prospects for renewal in the US manufacturing sector.	Roundtable discussion with Senators Jeff Merkley (chairman of Senate Banking Committee's Subcommittee on Economic Policy), Christopher Coons, Kay Hagain, Jack Reed, Jeanne Shaheen, and Elizabeth Warren. (NB: Professor Berger was to have testified before the Senate Subcommittee but the hearing was cancelled due to the federal shutdown.)
14 x SPI students	10/23/15–10/25/13	Third annual Executive Visits Program	Officials from: US State Department; USAID; the National Academy of Sciences (NAS); the DOE/EERE; DARPA; NSF; ITIF, Science and Technology Policy Institute (STPI), Brookings Institute; the British Embassy, and the White House OSTP.
Midlred Dresselhaus, Chris Kaiser	10/24/13	Kavli Prize in Nanoscience presentation and scientific sessions on Nanotechnology	Kavli Foundation symposium at the Carnegie Institution for Science.

Suzanne Berger, Paul Osterman, Jonas Nahm, Liz Reynolds, Julie Shah, Kripa Varanasi, Sanjay Sarma, Tonio Buonassisi	11/1/13	Forum on MIT's Final Report on Advanced Manufacturing	NAS Forum. Charles Wessner (NAS director for Technology, Innovation, and Entrepreneurship); Dan Mote (under secretary of commerce for Economic Affairs); Luis Proenza (University of Akron); Gary Fedder (Carnegie Mellon University); Roy Church (Lorraine County Community College); Susan Singer (NSF); Mike Russo (Global Foundaries); and Jeff Wilcox (Lockheed Martin) also participated.
Krystyn Van Vliet, Don Rosenfeld, Brian Anthony, Jim Kelly, and Martin Schmidt	11/12/13	Advanced Manufacturing Partnership 2.0	Planning meeting at the White House. Other MIT participants phoned in to the meeting.
Bish Sanyal and Derek Bine	11/19/13–11/20/13	Detailed briefing on HESN project.	Staff from the offices of Senator Markey and Senator Warren offices. Alex Dehgan, Science Advisor to the USAID Administrator and HESN program director Ticora Jones.
Kripa Varanasi, Rod Brooks	11/21/13	Fostering Innovation Robotics	Time magazine and Qualcomm program at the Newseum on "The Future of Invention."
Rafael Reif, Martin Schmidt, and Krystyn Van Vliet	12/3/13	Advanced Manufacturing Partnership 2.0	First meeting of Steering Committee at the White House:,co-chaired by Rafael Reif and Andrew Liveris, Dow Chemical CEO.
Suzanne Berger	12/12/13	American Energy and Manufacturing	Council on Competitiveness/DOE Forum.
Miklos Porkolab	12/9/13	US research program in fusion energy, including the status of Alcator C-Mod.	Staff from the House Energy and Water Appropriations Subcommittee of the Senate Energy Committee. He also met with staff from the offices of Senators Markey and Warren, and Congressmen Kennedy and Tierney.
Miklos Porkolab	11/9/13	Work funded by DOE's Office of Fusion Energy Sciences, in particular the balance between a strong domestic research program and participation in the international ITER project; the community's desire for better communication with OFES; and the need for a long-range strategic plan for US research into magnetically confined fusion.	Deputy undersecretary for Science and Energy Mike Knotek, along with other leaders of the US fusion research community.

Rafael Reif	12/19/13	BRT's interest in advanced manufacturing and related workforce issues. Online education issues. AMP2.0 A range of issues including energy, education, and research policy. The Directorate's broad interests including robotics, data analytics and online learning.	Former Michigan Governor, John Engler. AAU president Hunter Rawlings. Acting deputy secretary of commerce Patrick Gallagher. Senator Edward Markey. Farnam Jahanian, assistant director for computer and information services and engineering at NSF.
Maria Zuber	1/17/14	The university community's concerns with the FIRST Act. Higher education funding issues and the administration's proposed university rating system. Quadrennial Energy Review **MIT's ideas for an initiative focused on the environment, and EPA's models for university interaction and research.**	AAU vice president for policy, Toby Smith. American Council on Education vice president Terry Hartle. Senior DOE officials Henry Kelly, William Hederman, and Judi Greenwald. EPA science advisor to the administrator, Glenn Paulson, along with his deputy, Mary Greene; Al McGartland (director of the National Center for Environmental Economics); James Johnson (director of the National Center for Environmental Research); Robert Kavlock (d**eputy assistant administrator, Office of Research and Development); and Barbara Martinez (Oak Ridge Institute for Science and Education (ORISE) fellow). Jim McFarland and Mike Asara, MIT graduates who are now EPA program managers, also participated.**
Andrew Lo	1/30/14	Metrics for the return on R&D investments.	American Chemical Society's Science & the Congress Project.
Richard Lester	2/25/14	The innovation needed to transform electric utilities to low-carbon generation while also improving system reliability and resiliency.	ARPA-E Summit.

Maria Zuber	2/27/14	NASA Future US plans in fusion energy science. MIT Environmental Initiative DARPA's BRAIN Initiative activities.	Filmed interview with Alma Clayton-Pederson and meetings with Ellen Stofan, chief scientist, and James Adams, acting chief technologist. Ben Hammond and Taunja Berquam, professional staff at the House Appropriations Committee Energy and Water Subcommittee. Acting National Oceanic and Atmospheric Administration (NOAA) Administrator Kathryn Sullivan. Justin Sanchez, DARPA's program manager for neurotechnology, brain science and systems neurobiology (in the Defense Sciences office).
Philip Sharp	3/12/14	Life science reforms. Sharp discussed the need for the convergence research model, blending life, engineering, and physical sciences as a key step in the creation of the next generation of biomedical technologies and therapies.	Addressed a bipartisan task force on biomedical research and innovation. The group is led by Representatives Joe Barton (R-Texas), chair of the House Energy and Commerce Committee, and John Dingell (D-Michigan), long a senior member of that committee, and included members from both Energy and Commerce and the House Appropriations Committee. Sharp was joined by former NIH director Elias Zerhouni, former HHS secretary Michael Leavitt, and other life science leaders.
Claude Canizares and Bernd Widdig	3/13/14	Global Development Lab (which will include HESN program). Science diplomacy, including the international use of online education technologies. MIT Skoltech engagement.	USAID's Ticora Jones and Amit Mistry from the Higher Education Solutions Network. Norman Neureiter, director of the Center for Science, Technology, and Security Policy at AAAS. William Colglazier, science advisor to the Secretary of State, with members of his staff Christopher Cannizarro and Elizabeth Dougharty from the Bureau of Oceans, Environment, and Science; Rod Schoonover of the Office of the Geographer and Global Issues; and Adam Bobrow, senior policy advisor for international affairs at OSTP.
Brian Anthony	3/11/14	Educating the manufacturing workforce.	Workshop with leaders of various teams developing recommendations for the Advanced Manufacturing Partnership 2.0.
Miklos Porkolab, Earl Marmar, and NS&E graduate student Bob Mumbaard	3/13/14	Fusion Day	Staff from the offices of Senators Elizabeth Warren and Edward Markey, and Representatives Michael Capuano, Katherine Clark, Joseph Kennedy III, Niki Tsongas, and John Tierney.

18 x SPI students	3/25/14–3/26/14	13th Annual Science-Engineering-Technology Congressional Visits Day (CVD).	CVD works to encourage greater exchange between members of the scientific community and Congress.
Krystyn Van Vliet	3/26/14–3/27/14	AMP2.0	Along with technical leaders from Dow and Honeywell, she met with officials from DARPA and DOE to discuss AMP's efforts to develop new advanced manufacturing technology strategies. The next day she held a discussion with NSF AMP participants as well.
Elizabeth Reynolds	3/26/14	New models for financing production scale-up.	Three-city video conference with approximately 15 leading venture capitalists, strategic and corporate venture leaders in major firms, and bankers to discuss a major policy focus for the AMP project. The participants gathered in Cambridge, Washington, and Mountain View. At the MIT Washington Office in DC, attendees included officials from the White House, National Economic Council,Treasury Department, Small Business Administration, and other agencies.
MIT Students	3/31/14–4/1/14	Catalyzing Advocacy in Science and Engineering (CASE)	A pilot policy-training program for scientists organized by AAAS. Upper-class undergraduate and graduate students from several universities learned about Congress, the federal budget process, and effective science communication from federal agency and university-based science policy professionals. Students from Massachusetts schools had the opportunity to meet with senior staff from the major House and Senate Science Committees, as well as from the Massachusetts delegation offices.
Claude Canizares and Amy Smith	4/3/14	Global Development Lab Launch/Co-Creation Workshop (Smith)	Represented MIT at USAID's new $1 billion-per-year Global Development Laboratory. MIT, through its two HESN projects, is considered a Cornerstone Partner.
Christine Ortiz	4/3/14–4/4/14	Graduate fellowship support, higher education and immigration legislation, and reauthorization of the America COMPETES Act.	Staff from the offices of Representative Tierney, Senator Warren, and the House Science Committee.

Rafael Reif	4/10/14	R&D issues/DARPA's aims for its new biological technologies, new areas of emerging research and advanced manufacturing. Advanced manufacturing and other issues. Manufacturing and AMP2.0. Big Data and privacy issues.	Arati Prabhakar, Director of DARPA. Frank Kendall, under secretary for defense for Acquisition, Technology and Logistics, and Al Shafer, acting assistant secretary for Defense Research and Engineering, on Lincoln Lab. National Economic Council director Jeffrey Zients and NEC staff members Jason Miller and JJ Raynor. Presidential counselor John Podesta.
Rafael Reif Martin Schmidt & Krystyn Van Vliet	4/21/14	AMP2.0	Co-chaired steering committee with Dow CEO Andrew Liveris. Commerce secretary Penny Pritzker, OSTP director and PCAST co-chair John Holdren, and National Economic Council director Jeffrey Zients led the team of senor administration personnel participating in the meeting, including NIST director Patrick Gallagher and DOE assistant secretary Dave Danielson. MIT provost Martin Schmidt, professor Krystyn Van Vliet, and Dow Chemical global business advisor Ravi Shanker led the team presenting preliminary recommendations to the steering committee.
Suzanne Berger	May 2014	PIE/STEM workforce development trends and educational responses.	Joined Jonathan Rothwell from the Brookings Institution and Patrick Kyllonen from Education Testing Services as an invited lecturer on a panel at the May 1 meeting of the Federal Advisory Committee for NSF's Education and Human Resources Directorate.
Claude Canizares	5/21/14	Skolkovo Foundation	*OSTP a*ssociate director for national security and international affairs Patricia Falcone hosted Canizares' meeting with OSTP and National Security Council representatives, including Adam Bobrow, Kevin Covert, and Mahlet Mesfin. At the State Department, Canizares met with Christopher Cannizzaro from the Office of Space and Advanced Technology, and Benjamin Pierce from the Russia Desk. All the federal officials assured Vice President Canizares that, while relationships with Russia are constantly being re-evaluated in light of the situation in Ukraine, most citizen-to-citizen scientific collaborations are not restricted at this time; State and the NSC consider MIT's work to help establish SkolTech as a beneficial to overall US-Russia relations.
Neil Gershenfeld	6/18/14	Fab Lab	White House Maker Faire

Rafael Reif	6/24/14	AMP2.0 and concerns about the effects of sequestration on innovation. AMP2.0 Digital learning technologies/how MIT and the Department are trying to anticipate the impacts new online learning tools will have on both distance learners and students in residence. Support for Research & Development	ITIF president Rob Atkinson. Senator Chris Coons. US Department of Education undersecretary Ted Mitchell. Deputy undersecretary Jamienne Studley and senior advisors Hal Plotkin and David Soo also participated. Representative Katherine Clark.

Federal Officials—Visits to MIT

Government Official	Date	Topic	Meeting
Ash Carter, DOD assistant secretary, and former secretary William Perry	7/15/13	Faculty presentations on areas of opportunity for defense technology research.	
Patricia Falcone and Reed Skaggs	9/6/13	Advanced Manufacturing	
ManTech Visit: Steve Linder, director of manufacturing, ODASD (MIBP); Adele Ratcliff, director, Manufacturing Technology, ODASD (MIBP); Robert 'Scott' Frost, ANSER; Mark Gordon, director, Defense Research Programs, National Center for Advanced Technologies; Michael F. McGrath, ANSER. Steve McKnight and Susan Singer from NSF	9/19/14–9/20/14	Manufacturing technologies and PIE workshop	Faculty from ISN, MITx, CSAIL and the Koch Institute.
David Danielson, DOE assistant secretary for EERE; Patrick Gallagher, acting deputy secretary of commerce, NIST director and co-chair of AMP2; Susan Helper, chief economist at the US Department of Commerce; Steve McKnight and Susan Singer from NSF; Karen Mills, former administrator of the US Small Business Administration	9/20/14		PIE Workshop
JJ Raynor	9/20/14		PIE Workshop
David Danielson	9/20/13		PIE Workshop

Power Africa coordinator Andrew M. Herscowitz and USAID Energy Division chief Allen Eisendrath	10/17/14–10/18/14	How MIT can assist USAID's efforts in economic development by expanding access to electricity in under-developed nations.	e4Dev co-chairs Sarah Dinesen and Yael Borofsky (students), Ignacio Perez-Arriaga, Rob Stoner, Robert Armstrong, and Don Sadoway
Belinda Seto	11/25/13	Convergence	CSAIL
National Center for Advancing Translational Sciences (NCATS)-NIH Team	1/26/14–1/31/14	Innovative funding options for translational research.	Andrew Lo, director of the Laboratory for Financial Engineering at the MIT Sloan School of Management, convened a group from both the public and private sectors to discuss innovative funding mechanisms for rare and neglected therapeutics. The meeting emerged from Professor Lo's article, "Financing Drug Discovery for Orphan Diseases," that ran in *Drug Discovery Today*. The meeting was co-hosted by MIT and NIH's National Center for Advancing Translational Sciences.
White House chief of staff John Podesta (by phone link due to the snowstorm in DC that day), commerce secretary Penny Pritzker, White House deputy CTO Nicole Wong, assistant commerce secretary Larry Strickling, and David Edelman, senior advisor for Internet, Innovation, and Private Policy at OSTP and the National Economic Council (by phone link).	3/3/14	"Big Data Privacy: Advancing the State of the Art in Technology and Practice"	Public workshop co-hosted by the White House and MIT. This workshop is the first in a series of events being held across the country in response to President Obama's call for a review of privacy issues in the context of increased digital information and the computing power to process it.

Valerie Jarrett, senior White House advisor in the Office of Public Engagement and Office of Intergovernmental Affairs, chair, White House Council on Women and Girls.	3/13/14	Compton Lecture	Jarrett called for greater inclusiveness in education, casting the issue as key to future prosperity. She also outlined a series of policies that President Barack Obama's administration has undertaken to encourage participation in the STEM fields by the nation's entire population.
Representative Chaka Fattah	4/24/14	BRAIN Initiative	Brain and Cog researchers hosted by professors Jim DiCarlo and Emery Brown. Fattah was briefed by a group of MIT neuroscience experts on their research advances and expressed strong support of neuroscience research and the administration's "Brain" initiative. He met with faculty members, researchers, administrators, and graduate students, including: Emery Brown; Maria Zuber, vice president for Research; Jim DiCarlo, department head; Bob Desimone, director, McGovern Institute for Brain Research; Li-Huei Tsai, director, Picower Institute for Learning and Memory; Feng Zhang; Kwanghun Chung; Rebecca Saxe; John Gabrieli, and Josh Tenenbaum.
Senator Edward Markey, Susan Singer from NSF, and Philip Singerman from NIST	5/16/14	Advanced Manufacturing	AMP Regional Forum, co-hosted with the Commonwealth of Massachusetts and addressed by secretary of housing and economic development Greg Bialecki.
House Majority Leader Eric Cantor	5/13/14	Briefings from MIT cancer researchers and possible "megafund" financing mechanisms for cancer research.	Professors Andrew Lo, Tyler Jacks, Phillip Sharp, Robert Langer, Darrell Irvine, Paula Hammond, and president emeritus Susan Hockfield. Provost Martin Schmidt thanked the Congressman for his visit.

Janet Woodcock, Director, US Food and Drug Administration's Center for Drug Evaluation Research	5/20/14–5/21/14	International Symposium on Continuous Manufacturing of Pharmaceuticals/ ways to accelerate the adoption of continuous manufacturing by the pharmaceutical industry, and discussion of how international research groups might better collaborate in support of this effort.	Professor Bernhardt Trout, director of the Novartis-MIT Center for Continuous Manufacturing, and co-chair, Singapore-MIT Alliance, Chemical and Pharmaceutical Engineering; and Clive Badman, OBE, vice president, Investigational Material Supply, GlaxoSmithKline.

GLOSSARY:

ACE – American Council on Education
AMP – Advanced Manufacturing Partnership
ARPA - Advanced Research Projects Agency-Energy ARPA
AAU – Association of American Universities
CMMI – Civil, Mechanical & Manufacturing Innovation
DARPA – Defense Advanced Research Projects Agency
DOE- Department of Energy
EERE- DOE Office of Energy Efficiency and Renewable Energy
HESN - Higher Education Solution Network
ITIF - The Information Technology & Innovation Foundation
NAE – National Academy of Engineering
NAS – National Academy of Sciences
NEC – National Economic Council
NIST – National Institute of Standards & Technology
NSF – National Science Foundation
NSIAD - National Security & Internal Affairs Division
OMB – Office of Management and Budget
OSTP- Office of Science and Technology Policy, Executive Office of the President
PIE – Production in the Innovation Economy
SBA – Small Business Administration
SPI – Science Policy Initiative
STPI – Science and Technology Policy Institute