

## Report of the President

### Finding Strength in Community

Throughout the year, we have been guided, supported, comforted, and inspired by many remarkable voices among us. Our community is a source of brilliant ideas, rigorous analysis, true compassion, and the courage to imagine previously unconsidered paths forward.

To help us better understand the problem of [sexual misconduct on our campus](#), Chancellor Cynthia Barnhart and her staff conducted an online survey, the first of its kind at MIT, that asked all undergraduate and graduate students detailed questions about unwanted sexual behavior at MIT.

More than a third of students replied. While they are a self-selected group and not a random sample from which we can reliably extrapolate, they do indicate the extent and nature of the problem: Among female undergraduates who responded to the survey, nearly 17% reported that they had experienced sexual assault under conditions of force, threat, or incapacitation. Although this is comparable to the 19% of undergraduate women reporting attempted or completed sexual assault in the frequently cited [Campus Sexual Assault \(CSA\)](#) study, it is absolutely unacceptable. Sexual misconduct is a violation of our core values, and has no place at MIT.

Chancellor Barnhart and her staff have taken swift action, removing barriers to support services for those who experience unwanted sexual behavior, increasing the help available, launching a Sexual Assault Education and Prevention Task Force, and teaching students about effective bystander intervention and the role that alcohol and drugs play in sexual assault.

We can and we must do a better job of taking care of each other. And we must continue striving to build a culture of true inclusion at MIT.

Separately, this year Institute Community and Equity Officer Ed Bertschinger released a [report](#) that outlined recommendations for advancing a respectful and caring community. The report considers the elements of MIT's community and culture that support our mission and those that limit our success, and closely examines our core values—including excellence, humility, integrity, openness, and service—as a spur to positive change.

This spring, more than 3,000 members of the MIT community gathered to dedicate a memorial to MIT Police Officer Sean Collier, who lost his life on April 18, 2013, while protecting MIT in the wake of the Boston Marathon bombings. The memorial became a permanent replacement for the monument of flowers, candles, photos, and stuffed animals that appeared in tribute to Officer Collier and his warmth, bravery, and sacrifice.

When members of our community came together this winter in a silent protest to demonstrate that [Black Lives Matter](#), we embraced this action, which has encouraged us to work harder to achieve equality and justice at MIT.

And Fossil Free MIT continued to call our attention to the impact of climate change. When I first met with the group's leaders, I was struck by their passionate argument that MIT should divest from the fossil fuel industry. However, I continue to believe that it is not the "MIT way" to claim that the only solution to the climate crisis is to stop investing our endowment in fossil fuel companies. Those students inspired the MIT Climate Change Conversation, which brought our community together to explore the many ways we can lead on this issue.

## Pioneering Online Learning

This year, MIT further advanced the revolution in education that is [online learning](#), with its great potential to offer an affordable and accessible education to those far away from our campus and its ability to teach us about the very nature of learning, so that we can offer the best possible residential education here at MIT.

The [Institute-Wide Task Force on the Future of MIT Education](#), which I commissioned to explore the implications of this revolution, issued its final report in the summer of 2014. Co-chaired by Professor Sanjay Sarma, Professor Karen Willcox, and Executive Vice President and Treasurer Israel Ruiz, the Task Force included faculty, staff, and students—and sought guidance from the broader MIT community through surveys, discussions, and an Idea Bank that generated 180 suggestions over the course of just a few months.

The report's 16 recommendations for catalyzing educational innovation—intended to make MIT more flexible, affordable, accessible, and influential for the next generation of learners—were received with a great deal of interest on campus and across academia. Recommendations included establishing a faculty-led initiative for educational innovation, which would in turn create a "sandbox" for experimentation in undergraduate and graduate education; deepening the MIT community's engagement with the world by creating a lasting community and knowledge base for MITx learners; using online learning to expand our professional and executive education offerings; and defining a strategy for the many K–12 programs that have grown up at MIT at the grass roots.

The edX partnership, which now includes more than 70 universities, colleges, and other educational institutions, is growing at the rate of about 150,000 course enrollments per week. This year, in a demonstration of blended learning's ability to cut costs and create opportunities, edX launched the Global Freshman Academy in conjunction with Arizona State University (ASU). It offers an entire first-year curriculum online for ASU credit, with open admission, no limits on enrollment, and a "pay if you pass" model.

Expanding its reach, edX also launched a suite of 40 high school/Advanced Placement (AP) prep courses, and joined the White House–led initiative ConnectED, which offers free AP prep courses for students in high-need areas, as well as professional development courses for teachers. Demonstrating the power of online learning to improve lives around the globe, edX and the Kingdom of Saudi Arabia's Ministry of Labor launched Doroob, a massive open online course (MOOC) portal to help women, young people, and rural citizens in Saudi Arabia and throughout the Arab world learn skills to advance their careers. We are seeing extraordinary demand for an MIT education around the globe, with MITx courses on edX reaching 1.4 million participants.

Our experience this year with MITx confirms how central it has become to our on-campus educational model. More than 80% of MIT undergraduates have now used MITx as part of an on-campus course, with more than 4,500 active students participating in 38 MITx courses in the spring semester of this academic year.

With our first MITx Global Entrepreneurship Bootcamp this year, we launched a new experiment in blended learning. The program brought to our campus some of the best students from around the world—47 of the 55,000 who enrolled in the MITx on edX course 15.390x, “Entrepreneurship 101: Who is your customer?” For one intense week, MIT professors challenged these brilliant budding entrepreneurs to launch innovation-driven startups.

We also took swift action to protect our online community following a determination that a retired physics faculty member had engaged in sexual harassment of an online learner. We revoked his emeritus title, took down his lectures from MIT OpenCourseWare, and removed his MITx courses from edX.

Students place their trust in their teachers, and MIT must do everything we can to ensure our students’ safety, whether in the classroom or online.

### **Championing Research, Basic and Mission-driven**

This year, the MIT Committee to Evaluate the Innovation Deficit published the report “The Future Postponed” to illustrate the benefits of federal investment in basic research. The authors cited examples from the health care, energy, and high-tech industries to demonstrate how insufficient investment is holding the nation back.

It is a testament to the excellence of MIT that even in this difficult climate, our federal research volume held steady in fiscal year 2015—and the US Air Force has renewed our contract to operate Lincoln Laboratory, established in 1951 to design and develop the first air defense system for the United States. Other sources of funding for the MIT research enterprise—industry, international, and foundation support—are increasing.

Coordinating the research resources of all five of our schools has allowed MIT to focus our attention on the most pressing global challenges. Last year, we launched an [Environmental Solutions Initiative](#) and persuaded one of the world’s leading climate scientists, Professor Susan Solomon, the Ellen Swallow Richards Professor of Atmospheric Chemistry and Climate Science, to serve as founding director for its first year. We have now seeded our first nine interdisciplinary projects and are poised to name a permanent director.

Our new [Abdul Latif Jameel World Water and Food Security Laboratory \(J-WAFS\)](#) is already influencing the way water resources are stewarded. In November, J-WAFS convened a group of international experts to consider the construction of the Grand Ethiopian Renaissance Dam, which will cross the Blue Nile River, and its implications for the downstream nations of Sudan and Egypt, in order to offer an independent assessment to guide policymakers in the region. Shortly after sharing the group’s report, the three governments agreed to settle the remaining issues surrounding the dam’s operations.

We made great progress this year in improving and expanding the infrastructure required for transformative research. We have broken ground on a new 200,000-square-foot MIT.nano hub, where 150 research groups are expected to work on nanotechnology development. Overall, we focused intensely on renewing the campus. As a result, this is the first year in decades in which our deferred maintenance did not grow.

### **Accelerating Innovation and Entrepreneurship**

At MIT, we see basic and mission-driven research as the first steps in the complex process of innovation. Together, the public and private sectors make investments in higher education and scientific research. These investments support ideas that, partly through adoption by established industries and partly through venture capital-funded startups, pay off in innovations that serve society.

MIT is positioned to observe both the successes and the limitations of this model. While the model works well for digital technologies and for tangible technologies with market-ready applications, it leaves another category of innovation stranded: new ideas based on new science that represent potential breakthroughs. It takes time for new-science technologies to make the journey from lab to market, and waiting as long as a decade for a return on investment simply does not fit into the business model of most risk capital investors.

To help close such gaps and allow MIT to make the greatest possible contribution to global innovation, we have charged a faculty advisory committee led by Fiona Murray, the William Porter (1967) Professor of Entrepreneurship, and Vladimir Bulović, the Fariborz Maseeh Professor of Emerging Technology, to develop a campus-wide [Innovation Initiative](#). The committee released a preliminary report this year, with a final report expected in 2016. Former Massachusetts Governor Deval Patrick, the Initiative's first Innovation Fellow, will have a regular presence on campus, helping us better understand the role government can play in expanding innovation.

We also joined with Harvard University, Massachusetts General Hospital, and *The Boston Globe* to found HUBWeek, a festival to showcase Boston's innovations at the intersection of art, science, and technology. In conjunction with HUBWeek, we will launch an event called [Solve](#), which will bring together technologists, philanthropists, business leaders, and physician-scientists to seek solutions to the most complex global challenges in four key areas:

- Learn, which will focus on access to education
- Cure, which will examine the affordability of health care, advanced diagnostics, and therapeutics
- Fuel, which will focus on environmental sustainability
- Make, which will explore manufacturing, infrastructure, and the future of work

Finally, we considered ways to support the two-step process of moving potential innovations from idea to investment and from investment to impact beyond what MIT or any university alone can do. We proposed the creation of "[innovation orchards](#)" — coalitions of funders from the public, patient for-profit, and not-for-profit sectors that

could provide the physical space, mentorship, and bridge funding for entrepreneurs to begin turning new science into workable products.

We also explored ways to shorten the full span from idea to impact. One possibility is to imitate, with tangible products, the process of rapid, low-cost refinement and iteration that is so powerful in advancing purely digital concepts. Another is to help entrepreneurs master the best practices of science-based startups, including developing products and production processes in tandem.

### **Heightening Our Global Impact**

In October, MIT and Tecnológico de Monterrey, one of Latin America's largest universities, established a program in nanoscience and nanotechnology that will bring students and faculty from Mexico to MIT for fellowships, internships, and research.

And in April, the MIT Sloan School of Management announced a partnership with Bank Negara Malaysia, the nation's central bank, to establish the [Asia School of Business \(ASB\)](#), which will run a traditional two-year MBA program, opening later this year with an inaugural class of more than 50 students. MIT Sloan Professor Charles Fine will lead ASB as president and founding dean.

To support these and other international efforts, we have created a new leadership position, the associate provost for international activities, to be filled by Richard Lester, the Japan Steel Industry Professor and head of MIT's Department of Nuclear Science and Engineering.

**L. Rafael Reif**  
**President**