Report of the President

Bringing Knowledge to Bear

For years, I have heard from faculty, students, and alumni—as well as corporate leaders—that America's system for funding and commercializing innovations, so effective with quick-to-market digital products, leaves behind "tough" technologies—tangible products based on new science that could take more than a decade to ready for manufacture at scale. In response, this year MIT launched a startup accelerator called The Engine, with a commitment of 26,000 square feet and $25 million. Headquartered in Central Square, The Engine offers innovators a unique combination of patient capital, affordable space close to campus, and access to equipment, expertise, and the MIT network.

What truly sets The Engine apart is its emphasis on impact: In assessing which startups to support, it will prioritize breakthrough solutions to the most urgent problems, such as clean water, climate change, sustainable energy, cancer, Alzheimer's, and infectious disease. Because many of these solutions depend on tangible technologies, we have high hopes that they will ultimately produce not only new companies, but new industries, new forms of manufacturing, and new jobs.

MIT also reached an agreement this year with the federal government that gives us the right to develop 14 underused acres nearly contiguous with our campus and in the thick of Kendall Square, an area known as the Volpe parcel. MIT's investment in developing the site with residential, retail, innovation, and community spaces will foster collaboration and connection while generating resources to support our mission.

We expect that both The Engine and the Volpe parcel development will accelerate the success and impact of the local innovation ecosystem.

For the second year, MIT Solve convened leaders from industry, civil society, academia, and grassroots organizations to identify and implement promising ideas for progress. While Solve began as a series of illuminating discussions, this year it brought together innovators from around the world who pitched potential solutions to global problems. Those with the very best ideas will participate in the 2017 Solve Challenge Finals in September in New York City. Solve will help the selected innovators build partnerships with cross-sector leaders to pilot, scale, and implement their solutions.

Pioneering Online Learning

This year, MIT joined forces with Community Jameel to found the Abdul Latif Jameel World Education Laboratory (J-WEL), which aspires to build a global community dedicated to improving education in developed and developing nations. J-WEL will offer MIT faculty the opportunity to scale their most successful *mens et manus* teaching practices for global application, in concert with colleagues around the world. J-WEL is dedicated not just to primary, secondary, and higher education, but also to workplace learning.

MIT has already broken new ground in hybrid learning for continuing education. Last year, we pioneered the MITx MicroMasters credential, which allows learners to take a semester's worth of master's level classes in supply chain management on the edX platform and earn a certificate. A year later, 1,100 learners have completed all five courses in the program, and 622 have passed the comprehensive final exam that allows them the option to apply for admission to the full master's degree program. There are now 35 MicroMasters credentials on edX offered by 23 universities, with 1.8 million enrolled learners.

In April, edX announced 15 professional certificate programs—a series of on-demand courses lasting two to six months, designed by leading companies and universities, to prepare learners for specific careers. In addition, edX has rolled out the first phase of a Spanish-language platform, to serve even more learners around the globe.

Championing Research, Basic and Mission-Driven

This year, members of the MIT community received two of the world's most prestigious academic honors. Bengt Holmström, Paul A. Samuelson Professor of Economics, and his colleague Professor Oliver Hart of Harvard University, received the 2016 Nobel Memorial Prize in Economics for their contributions to contract theory. And Sir Tim Berners-Lee of the MIT Computer Science and Artificial Intelligence Lab received the A.M. Turing Award—often referred to as the Nobel for computing—for his invention of the World Wide Web and the protocols that spurred its global use.

Unfortunately, the groundbreaking research under way on campus continues during a difficult climate for funding, as investment in research and development continues to decline as a share of the federal budget. While MIT leads member institutions of the American Association of Universities without medical schools in total research funding, the share of MIT research funded by the federal government has fallen from 71% in fiscal year 2012 to 66% in fiscal year 2016.

In an op-ed in the *Wall Street Journal* and an essay in *Foreign Affairs*, I made the case for federally funded research, which has driven innovation, built infrastructure, eradicated disease, powered and connected modern society, created new industries, and given the United States the most knowledge- and technology-intensive economy on earth. I outlined why neither industry nor philanthropy can replace the scale of public investment in research, especially in projects such as the Laser Interferometer Gravitational-Wave Observatory (LIGO) that represent a fundamental expansion of human understanding. Indeed, this year MIT created an office specifically dedicated to helping our faculty prepare very large research proposals.

President Trump's budget blueprint for fiscal year 2018 includes an abrupt acceleration of this public disinvestment, with cuts to science and health agency budgets that could cause a drop in overall federal funding of 8–10%. Vice President for Research Maria Zuber dramatically increased the time she spent in Washington, DC, as action on the federal budget shifted to Congress, and we have urged members of the MIT community to help us communicate the importance of federal investment in science and engineering.

Heightening our Global Impact

In May, we released A Global Strategy for MIT, prepared by Associate Provost Richard Lester, to help inform our institutional strategy for global engagement. The report addresses three important questions for MIT in the coming years:

- How can our international activities best contribute to advancing the frontiers of knowledge in science, technology, and other areas of scholarship?
- How can they help bring forefront knowledge to bear on solving the world's most challenging problems?
- How can they contribute to educating future leaders who will work creatively, cooperatively, effectively, and wisely for the betterment of humankind?

At the same time, federal policy changes required us to assert the global nature of MIT, and of science and engineering. In June, the White House announced that the United States would withdraw from the Paris climate agreement negotiated by 195 nations, citing its "draconian financial and economic burdens." As I wrote to our community at the time, although our nation appears to be ceding leadership at the federal level, I am encouraged to see leadership at the state and city level, in industry and at universities, here in Massachusetts and nationwide. I remain convinced that the people of MIT have a special role to play in guiding our response to climate change.

A month before the Paris agreement withdrawal, in our Plan for Action on Climate Change, MIT announced a goal to reduce our campus emissions by at least 32% by 2030. To help us advance that commitment and the plan's other goals, Vice President for Research Zuber established a Climate Action Advisory Committee of students, faculty, alumni, and members of the MIT Corporation. We have reduced campus greenhouse gas emissions by 7% since 2014, and announced plans to neutralize an additional 17% of carbon emissions by buying energy from a solar farm in North Carolina.

Cultivating a Caring Community

This year, MIT fought for the return of several researchers and students stranded abroad as a result of Executive Order 13769, issued January 27, 2017, which suspended the right of entry into the United States for citizens of the majority-Muslim nations of Iraq, Sudan, Syria, Iran, Libya, Somalia, and Yemen.

The story ended happily for two undergraduates able to return to MIT on February 3 thanks to the hard work of senior leaders, staff, students, faculty, and alumni, and to a court order that temporarily stayed the executive order for certain categories of individuals. Unfortunately, others in our community remained unable to travel to the United States and uncertainty prevailed as the travel ban wended its way through the courts.

Among many efforts focused on strengthening our community, we enhanced our ability to prevent and respond to sexual misconduct, including introducing an online sexual assault prevention and response training program that all faculty and staff must undergo. We also continued our work to address the recommendations of the Black Students' Union and Black Graduate Student Association to make MIT more inclusive

and welcoming. Among the measures taken, we introduced diversity programming during undergraduate and graduate student orientations, gathered and disseminated diversity-related data, and published statements affirming a commitment to community wellbeing, diversity, and inclusion from every academic unit.

L. Rafael Reif
President