

## **MIT Innovation Initiative**

The [MIT Innovation Initiative](#) collaborates across all five schools at MIT to strengthen innovation and entrepreneurship. It develops programming that meets the critical needs of the community and strategically fills gaps in the curriculum.

The Innovation Initiative's mission is to ensure that, within the wealth of activities in the innovation and entrepreneurship landscape, clear and effective pathways are established for the MIT community to move powerful ideas from conception to impact. By understanding the needs of the community, the Innovation Initiative has been able to expand hands-on innovation and entrepreneurship education, build a more extensive and user-friendly innovation infrastructure across campus, and foster a connected group of innovation science researchers focused on global relevance to decision makers in governments and corporations.

### **Education and Practice Programs**

The Innovation Initiative supports a number of programs across MIT in an effort to expand the Institute's capacity to reach more students and partners. The initiative also creates new educational offerings that fill key gaps in the innovation and entrepreneurship curriculum.

#### **Project Manus**

Expanding MIT's pioneering role in linking education and practice, Project Manus continued its work to build a comprehensive maker ecosystem to meet the needs of a new generation of innovators and set the gold standard in academic maker systems worldwide.

Under the leadership of Martin Culpepper, professor in Mechanical Engineering and MIT's so-called maker czar, Project Manus made a number of programmatic advances during academic year 2017. In March, the Mobius app was released to enable users to connect to maker resources on campus through a powerful database that catalogs more than 45 major makerspaces and more than 300 different kinds of maker equipment. In September, freshmen began their initiation into MIT's maker culture with hands-on training led by student mentors on three-dimensional printers, laser cutters, drill presses, and more through the new MakerLodge program. In November, Project Manus gathered more than 330 professionals and students at MIT for the inaugural International Symposium on Academic Makerspaces (ISAM). The first event of its kind, ISAM is an effort of the Higher Education Makerspaces Initiative, a collaboration of leading universities co-founded by Project Manus to focus on solving the challenges of academic makerspaces and of sharing best practices.

#### **Entrepreneurship and Innovation Minor**

Launched by the Innovation Initiative in fall 2016, the undergraduate minor in entrepreneurship and innovation educates students to serve as leaders in the innovation economy with the knowledge, skills, and confidence to develop, scale, and deliver

breakthrough solutions to real-world problems. It was designed to respond to clear demand from undergraduates for subjects tailored to their needs, schedules, and interests (rather than, e.g., master's of business administration subjects).

The minor is jointly offered through the School of Engineering and the Sloan School of Management and led by an Institute-wide group of faculty. The Innovation Initiative developed the learning objectives and structure for the minor with participation from 10 different departments and facilitated passage through MIT's curriculum and governance committees.

In addition, the initiative created two new core subjects as foundations for the minor: 15.359[J] Innovation Engineering: Moving Ideas to Impact and 15.373[J] Venture Engineering. Taught by Professors Vladimir Bulović and Fiona Murray, co-directors of the Innovation Initiative and associate deans of innovation in the School of Engineering and the Sloan School of Management, respectively, 30 students completed the pilot of Innovation Engineering. In the second offering of Venture Engineering, 45 students completed the subject, an increase from the 37 students who had taken the pilot during the previous academic year. Venture Engineering is taught by Scott Stern, David Sarnoff Professor of Management; Eugene Fitzgerald, Merton C. Flemings–SMA Professor of Materials Science and Engineering; and Bill Aulet, managing director of the Martin Trust Center for MIT Entrepreneurship.

### **MIT Hong Kong Innovation Node**

To expand education and knowledge of innovation in a global context, and to connect the MIT community with unique resources—including advanced manufacturing capabilities—the Innovation Node (under the faculty leadership of Professor Charlie Sodini) links students and faculty to key stakeholders in Hong Kong and the neighboring Pearl River Delta through a range of educational activities.

Held twice each year, the MIT Entrepreneurship and Maker Skills Integrator (MEMSI), the flagship program of the node, takes an international cohort of MIT and Hong Kong-based students for an accelerated journey through two weeks of entrepreneurship, making, and factory visits in China. The January 2017 cohort included 14 MIT students and 16 Hong Kong students; the June 2017 cohort included 12 MIT students and 14 Hong Kong students. MEMSI culminates in a showcase where students present their business ideas and proof-of-concept prototypes to an audience of more than 100 industry professionals, alumni, and partners on the last day of the program.

### **Translational Fellows Program**

Launched in 2013, the Translational Fellows Program became part of the Innovation Initiative in 2015; it embarked on its fourth year in AY2016 with a new structure to expand participation. Recognizing that postdoctoral associates are often critical human agents who bring ideas out of the laboratory and into the world, the competitive, two-part program was designed to provide the opportunity for professional development and commercialization of a technology that originated in MIT research. In February 2017, 48 fellows participated in a two-month short program called Essentials that introduced postdoctoral associates to the research-derived innovation process.

Postdoctoral associates who complete part one of the program are eligible to apply for the second phase, called Product–Market Fit, where 20% of their time on campus is covered to allow deep investigation into customer discovery and technology application development.

### **Research, Policy, and Ecosystem Engagement**

Drawing from many intellectual frameworks and academic disciplines, the Innovation Initiative aims to provide a clear and useful vision of today’s innovation economy while exploring its future potential for a greater diversity of participants, ideas, and outcomes. Driven by the [Lab for Innovation Science and Policy](#), it is developing the field of innovation science, and providing evidence-based analysis that informs on-campus innovation activities and those of key external stakeholders.

### **Fostering Innovation and Entrepreneurship in the European Area**

On March 13–14, 2017, the MIT Lab for Innovation Science and Policy presented a joint conference with the European Central Bank in Frankfurt, Germany, to highlight the key role technology-based innovation can play in fostering regional growth and to help identify evidence-based solutions. European Central Bank president Mario Draghi and MIT Provost Martin Schmidt provided opening remarks.

### **Success Factors for University Partnerships**

On June 29, 2017, the Lab for Innovation Science and Policy hosted a corporate impact seminar on university–industry collaboration based on a multiyear research project and forthcoming book by visiting innovation scholar Dr. Lars Frølund. Fifty participants from industry and universities across the country attended the workshop and expressed interest in building deeper relationships with MIT to continue to access innovation science and to use the Innovation Initiative as a roadmap for collaboration focused on innovation.

### **Connected Community and Infrastructure**

To ensure that MIT is positioned for long-lasting impact and leadership, the Innovation Initiative is enhancing the link between different innovator communities on campus, developing clearer pathways through the wealth of on-campus resources, connecting others to the MIT community, and building infrastructure to support current and future education, practice, and research.

### **Student Pathways**

[Student Pathway Stories](#) is an endeavor to capture the experiences of MIT student innovators and entrepreneurs, detailing how they navigate their way through the range of resources available on campus and beyond. A key project, introduced in pilot phase during AY2016, the stories are organized by student level and degree area. The tales follow how student teams managed to create their own unique pathways to launch their projects from idea to impact. The pathways provide critical insights into student experiences; they also serve to highlight key challenges, points of friction, and areas for improvement.

### **The Engine Working Group**

Professors Vladimir Bulović and Fiona Murray led a working group focused on MIT's link to the innovation ecosystem to develop recommendations on how to prepare the Institute's diverse population of students, postdoctoral researchers, faculty, and staff for entrepreneurial ventures beyond their time on campus—whether through The Engine or external programs.

The Innovation Initiative also presented a joint workshop with The Engine on June 5, 2017, for MIT faculty and staff to share tools, techniques, and experiences navigating the challenges of starting companies from within MIT. More than 30 persons from across the Institute's departments, laboratories, and programs attended the workshop; half of them were principal investigators.

### **Visiting Innovation Fellow**

The Innovation Initiative welcomed former Secretary of Defense Ash Carter as the next visiting innovation fellow; he joined the ranks of former Massachusetts Governor Deval Patrick and Ethernet co-inventor and 3Com co-founder Bob Metcalfe. Secretary Carter began his appointment on May 6, 2017, and participated in the [Solve program](#) during its annual flagship event on campus.

### **Student Grants and Startup Support**

The Innovation Initiative introduced two new grants to support interdisciplinary collaboration among student groups on technical projects.

Designed to encourage students to work together on effective projects and events, the Student Group Collaboration Grant was awarded in October in the sum of \$10,135 to 11 joint endeavors, with participation from 27 student groups across campus. In February, the Student Group Technical Project Grant supported the solar electric vehicle team, ambulance team, rocket team, and robotics team by awarding a total of \$4,000 to fund their technically innovative prototype or hardware/software projects.

Over the summer, the initiative extended its support of student startups by offering them the use of coveted office space in Kendall Square at its headquarters in E70, located at One Broadway in Cambridge, MA.

#### **Vladimir Bulović**

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#### **Fiona Murray**

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