Vice President for Open Learning

Overview

The mission of the Office of Digital Learning (ODL) is to transform teaching and learning at MIT and around the globe through the innovative use of digital technologies. To accomplish this, under the leadership of Vice President for Open Learning Sanjay Sarma, ODL brings together the Institute's principal educational technology resources to focus on the following strategic priorities.

- **Residential education:** collaborate with faculty to instigate, explore, test, and institutionalize pedagogical models that enhance MIT's unique brand of education through digital and open learning technologies and practices

- **Open education:** build out the MITx on edX portfolio with exemplary courses and modules for a worldwide audience and publish new and updated MIT course materials and other teaching/learning resources through MIT OpenCourseWare (OCW), enabling global access to MIT course materials

- **Strategic education initiatives:** undertake open education experiments and implementations driven by MIT's strategic priorities

- **Professional education:** support and enhance MIT's capacity to serve businesses, executives, and professionals in lifelong learning

- **Digital learning research:** encourage and support digital learning research across MIT and seek opportunities to exchange data, research, and lessons about digital learning

- **Support the Institute-wide Task Force on the Future of MIT Education:** collaborate across MIT to implement the recommendations of the task force that pertain to digital learning

- **Infrastructure and support:** provide infrastructure, tools, and related services that support digital teaching and learning at MIT

- **Resources and stewardship:** attract and steward enthusiastic fiscal and organizational support for ODL initiatives and services from colleagues and funding sources at MIT and beyond

This report includes the unit-level reports of the groups that make up ODL. Constituent units covered are as follows:

- Residential Education
- MicroMasters program
- MITx on edX
- MIT OpenCourseWare
- Strategic Education Initiatives (SEI)
- Incubation

- Digital Learning Solutions (DLS)

- Business Development (BD)

- MIT Video Productions (MVP)

- Engineering and Technical Operations

- Business Operations

Highlights of the Year

In AY2016, there were significant achievements in terms of ODL strategic projects and programs as well as high levels of production and other activity in the office's established business units.

Strategic Projects and Programs

- **MIT Integrated Learning Initiative (MITili).** Launched this year, MITili is a cross-disciplinary, Institute-wide effort that will foster rigorous, quantitative research on how people learn; combine research in cognitive psychology, neuroscience, economics, engineering, public policy, and other fields to investigate what methods and approaches to education work best for different people and subjects; and improve learning and teaching from K–12 through college and continuing education. MITili will consider the fundamental processes behind motivation, curiosity, knowledge acquisition, retention, mastery, integration, creativity, transfer, and self-efficacy at the individual level from pre-kindergarten to adulthood. At the system level, MITili researchers will consider topics such as school effectiveness, school system design, social factors, education policy, the economics of education, and the impact of socioeconomic status.

- **Online Education Policy Initiative (OEPI).** OEPI's final report, "Online Education: A Catalyst for Higher Education Reforms," was issued in April 2016. The report presents findings and recommendations on the implications of online teaching and learning for higher education from a policy perspective, aiming to foster productive public discourse on online learning and to influence policymakers. The Online Education Policy Initiative was undertaken as a follow-up to the 2014 final report of the Institute-wide Task Force on the Future of MIT Education. The Carnegie Corporation provided generous support for OEPI.

- **MicroMasters.** This new credential for online learners will be granted by MITx to students who participate in a given set of graduate-level online courses and pass a demanding, proctored exam. A key feature of the program is "inverted admissions," by which any learner around the world with access to edX can take the first-semester courses online. Those who do well in each course, and then score well on a subsequent comprehensive proctored exam, can earn an MITx MicroMasters credential. The credential was piloted in the Supply Chain Management Program and consisted of five online courses with a final capstone exam. MITx ID-verified enrollments increased threefold in this program.

- **Connected Learning Initiative (CLIx).** CLIx aims to improve the professional and academic prospects of high school students in underserved communities

in India, with a goal of reaching more than 1,000 schools and 150,000 students, and to conduct professional development for over 4,000 teachers. CLIx catalyzes access to quality learning opportunities at scale that are capable of changing what Indian students and teachers know and can do. The initiative, a collaboration between the Tata Groups (Tata Trusts, Tata Institute of Social Sciences Center for Education Innovation and Action Research) and MIT, was officially launched in January 2016.

- **Open Learning Scholars (OLS).** The OLS program is aimed at expanding access to and use of digital learning environments in science, technology, engineering and mathematics (STEM), with a focus on Arab youth, including displaced refugees. OLS will deliver professional education for a mobile Arab population and design curricula and courses. Plans include leveraging digital learning in the Arab world, especially for displaced populations; developing two new MicroMasters credentials, one in data science and management and the other to be determined; supporting educational transformation and capacity building through blended learning (using one MITx course and two local courses); and developing K–12 activities focused on youth entrepreneurship. OLS was launched in May 2016 in collaboration with the Abdulla Al Ghurair Foundation.

- **pK-12 Action Group.** Launched this year, the pK-12 Action Group is an effort that will bring MIT's unique "mind and hand" learning approach beyond the campus to pre-kindergarten through grade 12 learners and teachers around the world, building upon existing efforts and developing new ones. The group, co-chaired by Professors Angela Belcher and Eric Klopfer, will fill a growing need in STEM education by initiating new research, technologies, curricula, and outreach activities. The group will design targeted solutions that range from low-cost laboratory instruments to innovative computing environments and will advance understanding of teaching and learning through a diverse set of research methodologies, from basic cognitive science and neuroscience to design-based research and classroom experiments.

Business Units

- **Residential Education.** This group continued to expand use of the Residential MITx course platform, creating 123 course sites for 75 courses, a record high. As of spring 2016, 83% of undergraduates had taken at least one course leveraging the platform. Residential Education developed a library of templates and other support resources to help faculty take advantage of digital tools in their teaching.

- **MITx on edX.** MITx launched 70 edX courses (22 new courses and 48 reruns), up from 50 last year. Approximately 544,000 learners participated in these courses. MITx generated $1.9 million in gross revenues from ID-verified certificates and licensing arrangements.

- **OpenCourseWare.** OCW published 132 courses (78 new courses and 54 updates), of which 43 have OCW Educator "This Course at MIT" pages; eight of these courses have complete video lecture series, and 11 more have other substantial video assets. Traffic averaged 2.3 million visits per month.

- **Strategic Education Initiatives.** SEI launched a number of new projects and programs this year, including Open Learning Scholars, the Connect Learning Initiative, the pK-12 Action Group, and the AIM Photonics Academy. SEI also advanced several other ongoing projects and developed a number of new tools to support digital learning efforts.

- **Professional Education.** Online professional education generated considerable revenue with ongoing offerings of courses, including the big data and cyber-security courses. Digital Learning Solutions launched an entrepreneurial negotiations course and partnered with several large industrial companies to develop a series of systems engineering courses.

- **Incubation.** Incubation organized several new bootcamps, including the first to be held outside MIT in Seoul. The group also licensed three entrepreneurship courses and developed several translations.

- **MIT Video Productions**. MVP continued to provide video and post-production services for customers throughout MIT. This year MVP was heavily involved in the "MIT 2016: Celebrating a Century in Cambridge" program, as well as in establishing support for the Samberg Conference Center.

- **Engineering and Technical Operations.** This internal technical support and operations group delivered a new product, LORE (Learning Objects Repository for Education), and continued development and enhancement work on other products including Custom Courses on edX (CCX), MITx MicroMasters Portal, and three new code libraries.

- **Business Operations.** The ODL Business Operations group supported the launches of MicroMasters and MITili, continued to advance the ODL strategic plan, and developed a number of enhancements to internal processes in the areas of budgeting, financial reporting, human resources, marketing, and internal communications.

- **Resource Development.** The main fundraising effort during FY2016 was coordinating ODL participation in the MIT Capital Campaign. Efforts in the past fiscal year focused on identifying and cultivating new donors and stewarding those who have already given.

The reports of the ODL constituent units below provide further details on the year's accomplishments.

Finances and Funding

In FY2016, ODL had total funding of $23.7 million (versus $24.6 million in the prior year). Other than gifts, revenues increased. External fees increased from $1.4 to $2.3 million, with an additional $0.9 million in non-degree tuition. Internal fees increased from $2.0 to $2.5 million. However, gifts decreased from $6.3 to $1.3 million, in part because fundraising in the prior year was bolstered by an individual gift of $5 million and also because $1 million pledged in FY2016 was not received by the close of the fiscal year. Provost funding was flat at $13 million.

Total expenses increased from $18.5 to $22.4 million as ODL continued to invest, especially in MicroMasters, the MIT Integrated Learning Initiative, Digital Learning Solutions, and marketing. ODL ended FY2016 with a net surplus of $0.5 million (versus $4.0 million in the prior year). Table 1 summarizes ODL financial results for the year.

Table 1. Summary of Office of Digital Learning Income and Expenses*, FY2016

	Total (000s)
Income	
Revenues	
Sponsored revenues	3,198
External revenues	2,347
Non-degree tuition revenues	921
Internal fees	2,478
Gifts	1,309
Investment income	113
Transfers	306
Total revenues	**10,672**
Provost funding	**13,031**
Total income	**23,703**
Expenses	
Direct expenses	
Salaries and benefits	11,651
Other expenses	6,668
Department support	3,798
Revenue distribution	358
Total direct expenses	**22,475**
Indirect expenses	**720**
Total expenses	**23,194**
Net surplus	509

*Figures are rounded

Staffing

Figure 1 shows the overall ODL organizational structure as of June 30, 2016. Table 2 identifies the ODL management team, and Table 3 summarizes key personnel changes during the year.

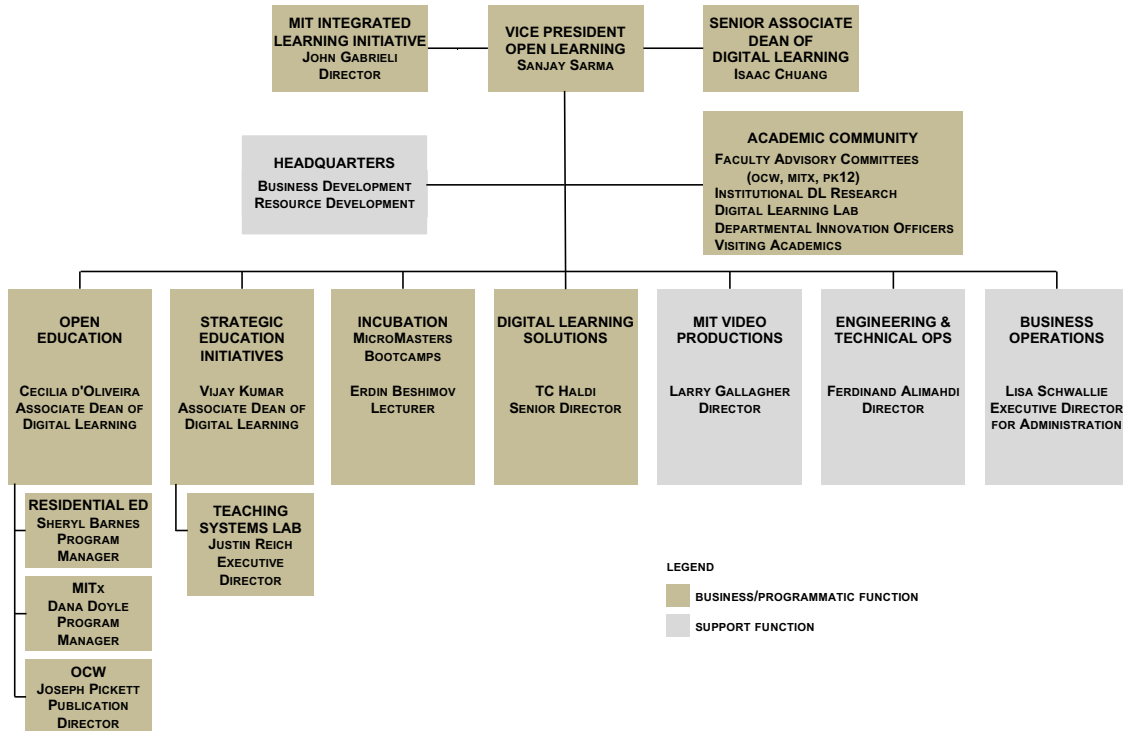**Figure 1. Office of Digital Learning organizational structure, as of June 30, 2016.**

Table 2. ODL Management Team, as of June 30, 2016

Name	Position
Sanjay Sarma	Vice President for Open Learning
Isaac Chuang	Senior Associate Dean of Digital Learning
Erdin Beshimov	Lecturer and Director for Incubation
Cecilia D'Oliveira	Associate Dean of Digital Learning
Vijay M.S. Kumar	Associate Dean of Digital Learning with responsibility for Strategic Educational Initiatives
Ferdi Alimadhi	Director of Engineering
Lawrence Gallagher	Director, MIT Video Productions (MVP)
TC Haldi	Senior Director, Digital Learning Solutions
Lisa Schwallie	Executive Director for Administration

Table 3. Office of Digital Learning Position and Staff Changes, AY2016

Position	Person	Form of recruitment	Notes
ODL Headquarters			
Head of Strategic Relationships	Enrique Shadah	Internal hire	New position
MITx			
Program Manager, MITx Operations	Dana Doyle	Internal promotion	Replaces Caroline Soares
Manager, Digital Learning	David Chotin	Outside hire	Replaces Ellen Friedman
Media Specialist	Robert MacBain	Outside hire	Replaces Caitlin Stier
Program Manager, Online Accessibility, ODL	Mary Ziegler	Internal hire	New position
Media Specialist	Douglass McLean	Outside hire	Replaces Jess Kloss
OpenCourseWare			
Publication Manager	Curtis Newton	Internal promotion	
Digital Publication Specialist	Brian Remlinger	Outside hire	Replaces Christopher Tam
Digital Publication Specialist	Alessandra Rico	Outside hire	Replaces Laura Royden
Strategic Education Initiatives			
UI/UX Developer	Kathleen McMahon	Outside hire	New position
Senior Software Developer	Cole Jim Shaw	Internal promotion	Position upgraded from Software Developer
Associate Director, Strategic Education Initiatives	Brandon Muramatsu	Internal promotion	Position upgraded from Senior Educational Technology Consultant
Incubation			
Instructional Designer, Entrepreneurship and Innovation	Rebekah Ellis	Internal hire	Converted from MITemps to a one-year term position
Manager, Entrepreneurship Program	Andrew Ngui	Outside hire	New position
Digital Learning Solutions			
Video Producer	Tsinu Heramo	Internal promotion	Position upgraded from Media Support Specialist
MIT Video Productions			
Multimedia Specialist	Benjamin Aron	Internal hire	Converted from MITemps to one-year term position
ODL Engineering			
Product Designer	Robert House	Outside hire	Replaces Peter Wilkins
Senior Software engineer	Gavin Sidebottom	Outside hire	Replaces Shawn Milochik

Table 3. Office of Digital Learning Position and Staff Changes, AY2016

Position	Person	Form of recruitment	Notes
Software Engineer	Alice Pote	Outside hire	Replaces Andrew Shapiro at a lower level
DevOps Engineer	Brandon DeRosier	Internal promotion	Position upgraded from Junior Developer
Senior DevOps Engineer	Tobias Macey	Outside hire	Replaces Carson Gee
Business Operations			
Director of Digital Learning Experience	Mark Brown	Outside hire	New position
Development Associate	Lana Cook	Internal promotion	Position upgraded from Senior Admininstrative Assistant; reclassified from support to staff
Marketing and Communications Manager	Maria Elena Cruz Lopez	Outside hire	New position
Office Assistant	Peter Janetos	Outside hire	Replaces Christine Kerney
Senior Administrative Assistant	Stephen Nelson	Outside hire	Replaces Sarah Jane Vaughan
Administrative Assistant II	Meagan Riley	Outside hire	New position
Administrative Assistant II	Amy Taber	Internal hire	Replaces Mary Curtin
Financial Assistant II	Murad Wornum	Outside hire	New position
K-12 Teaching Systems Lab			
Product Owner	Kevin Robinson	Outside hire	New position

Residential Education

The mission of the ODL Residential Education unit is to catalyze the revolutionary transformation of teaching at MIT, making it more effective and efficient for MIT students and faculty. We do this by collaborating with MIT faculty to instigate, explore, test, and institutionalize pedagogical models that enhance on-campus education through the use of digital technology. Our key strategies are to:

- Support digital learning experiments at MIT by providing technical expertise, consultation, facilities, funding collaboration, training, and support for such experiments

- Encourage wider institutional adoption of pedagogical approaches enabled by digital learning tools by proactively supporting faculty and the MIT community in leveraging digital tools to improve teaching at MIT

- Collaborate with faculty, departments, the Office of the Dean for Undergraduate Education, and the Office of the Dean for Graduate Education to encourage and enable faculty digital teaching and learning tools, to help departments grow their course production capacity, to build academic computing support mechanisms that leverage existing Institute resources, and to explore synergies with other initiatives across MIT

In pursuit of these strategies, Residential Education provides the following services:

- Instructional design and assessment consulting for instructors to promote more effective and efficient teaching and learning at MIT
- Support of experimental/innovative learning spaces
- Technical support for the Residential MITx course platform
- Outreach and events (xTalks and others) to promote innovative teaching and learning

Summary and Highlights

This was the first full year of operation for the Residential Education group. The group hit its stride in supporting faculty use of the Residential MITx course platform, creating 123 course sites for 75 courses and servicing 90 support tickets. Residential Education developed a library of templates and other support resources to help faculty take advantage of digital tools in their teaching. The unit also hosted or presented dozens of classes, seminars, and workshops relating to educational technology.

Goals and Objectives

As noted, the Residential Education unit strives to help faculty make MIT on-campus education more effective and efficient by supporting digital learning experiments at MIT and encouraging wider institutional adoption of pedagogical approaches enabled by digital learning tools.

Accomplishments

During AY2016, there were many ODL accomplishments in support of residential education, as described below.

ODL created 123 sites for 75 courses on the Residential MITx platform (Figure 2). There were 7,782 active MIT student enrollments in these courses.

Figure 2. Growth in use of the Residential MITx platform for MIT courses.
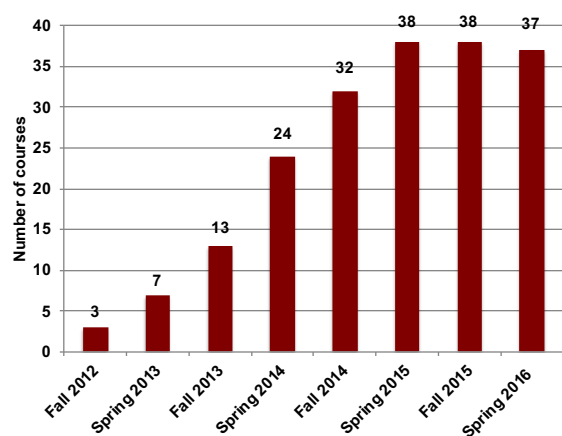
We improved automation for course provisioning, created new templates for authoring strategies to support users, improved communications and messaging, and resolved 90 tickets from 51 individual users.

We hosted 18 xTalks during AY2016. The "xTalks: Digital Discourses" seminar series facilitates awareness, deep understanding, and transference of educational innovations at MIT and elsewhere. Total attendance for the year was 788 (including 136 confirmed faculty and key stakeholders), with an average of 44 attendees per session.

Special residential education projects included the following:

- Developed the Teaching with Digital Technology Awards, a new set of official MIT student-nominated awards for faculty; produced a montage video of the award winners; and hosted a luncheon for the winners and nominees that was attended by more than 40 faculty

- Led the fall 2015 MITx grant proposal process

- Launched consulting and instructional design services for faculty and developed support materials for these services

- Conceived and managed the first faculty survey regarding prior-year use of Residential MITx (with an 85% response rate), identified shared concerns, and communicated concerns to relevant stakeholders

- Researched and wrote five mini case studies and annotated eight additional digital initiatives with brief descriptions linked to resources for further information (many to OCW content), and promoted these in xTalks mailings

- Co-wrote and received an MITx grant to pilot a series of promising instructional experiments in 18.03x Linear Differential Equations with wider applicability; and continued to work with the course team to design, deliver, and assess the course and the experiments

- Launched an instructional design journal club

- Consulted with many course and project teams to assist with the development of their online/blended courses

With respect to collaborations and committee work, we strengthened relationships with campus partners, particularly Dean for Undergraduate Education Dennis Freeman, Janet Rankin (Teaching and Learning Laboratory), Genevieve Filiault (Office of Faculty Support), Sally Susnowitz (Division of Student Life), Karrie Peterson (MIT Libraries), and Oliver Thomas and Jeanne Chiang (Information Systems and Technology [IS&T]). In addition, we actively collaborated with IS&T on technical issues and Stellar road maps, served on the Academic Technology Ivy+ group and the MITx Faculty Advisory Committee, and participated in the Woodrow Wilson Academy (WWA) Biology Focus Group and the MIT-Haiti Initiative, and the HHMI-MIT Education Group participant.

Also, we supported innovative MIT learning spaces and related equipment, as detailed below.

We provided primary teaching space for 16 classes and supplemental teaching space for an additional eight classes throughout the fall and spring semesters and hosted 16 seminars, workshops, and Independent Activities Period (IAP) sessions during the year in those spaces.

We constructed a LightBoard (video capture) facility for quasi–self-service video production. Through close collaboration with MITx, this facility is intended to scale up development of video resources through the creation of a self-service video kiosk for faculty and staff. The facility will be used for MITx programs and residential classes including 8.01 Physics, 8.04 Quantum Mechanics, 10.40 Thermodynamics, 15.053x Optimization Methods in Business Analytics, 2.008x Design and Manufacturing, 11.405x Political Economy and Society.

We gave presentations highlighting ODL and residential work/accomplishments and participated in Media Day @ Harvard, MIT Graduate Student Orientation, MIT Office of Minority Education, MIT Parent's Weekend. We hosted visitors and delegations from Iceland, India, South Africa, Sweden, Switzerland, Colombia, Argentina, The Netherlands, and Norway. Sheryl Barnes and Lourdes Aleman facilitated a STEM massive open online course (MOOC) study group. Lourdes Aleman designed and taught IAP course on theories of intelligence and their relationship to student learning and achievement, served as an instructor for the Teaching and Learning Laboratory's Kaufman Teaching Certificate Program, designed and led a faculty and teacher training workshop for Haitian faculty, conducted a workshop on a four-component instructional design model, and delivered two invited talks on growth mindset (one to graduate students [sponsored by Office of Dean of Graduate Education], the other to the MIT Summer Research Program).

Administrative Accomplishments

- Developed a cohesive Residential Education unit during the team's first full year in existence and worked closely with each team member to increase productivity, tangible outcomes, and collaborations in support of ODL and team missions

- Served on the ODL Product Council

- Served on the ODL move committee and technology subcommittee

- Improved the process of tracking use of and experiences with the residential platform and advocated for priority changes and improvements

- Defined and drafted campaign giving opportunities for residential learning at MIT

MITx MicroMasters Initiative

This year MIT began piloting a new academic credentialing program called MITx MicroMasters. The program blends online MITx courses and on-campus study. As noted, a key feature of MicroMasters is "inverted admissions," through which any learner with access to edX can take the first-semester courses online. Those who do well in each course and on a subsequent comprehensive proctored exam can earn an MITx MicroMasters.

Good performance significantly enhances their chances of being accepted to the full master's program, which they can then complete in a shortened period on campus.

Summary and Highlights

The launch of the MITx MicroMasters program creates a path to MIT course credit for course work performed online. The MicroMasters initiative is the next step in MIT's innovation in education, taking the world from democratization of access to democratization of performance. The innovation has been in the form of establishing a new admissions process called inverted admissions. This process offers learners the pathway of taking a series of MIT MOOCs that are equivalent to a semester's worth of course work at MIT, applying to an MIT master's program (with their performance in the MOOCs weighing toward their admission), and receiving credit for their course work upon their admission to and matriculation at MIT.

Goals and Objectives

The mission of the MITx MicroMasters Initiative is to democratize educational performance and broaden the reach of leading-edge professional education. The objectives of the initiative are to broaden the network of MIT's academic partners that grant course credit for the MITx MicroMasters, build a network of industry partners that creates professional opportunities for MicroMasters learners, and launch more MicroMasters programs.

Accomplishments

Key accomplishments during the initiative's pilot year included:

- Launched the MITx MicroMasters Initiative in October 2015
- Launched the first MicroMasters course, CTL.SC1x: Supply Chain Fundamentals, in February 2016, with an enrollment of more than 3,600 learners
- Launched, the second course, CTL.SC2x: Supply Chain Design, in May 2016, with an enrollment of more than 2,000 learners

Administrative Accomplishments

The MicroMasters initiative already serves several thousand learners, yet it has only one full-time employee. This is possible only because of the aggressive effort to share resources across ODL, with several ODL units contributing to the various aspects of the MicroMasters development. This is a welcome sign as it points to MIT's increasing potential to conduct far-reaching experiments in a rapid, resource-efficient way.

MITx

MITx on edX is the Institute's interactive learning initiative that offers online versions of MIT courses on edX, a collaboration in online education between MIT and Harvard University. MIT instructors teach MITx courses to learners around the world. With support from the Residential Education team, and using the resources, platform, and

pedagogical innovations of MITx, faculty also develop digital learning courses and modules for use in on-campus education.

Many people refer to MITx courses as MOOCs (massive open online courses). The learning experience features multimedia and video content, embedded quizzes with immediate feedback, online laboratories, and peer-to-peer communications. Course materials are organized and presented in ways that enable learners to proceed at their own pace and allow for individual assessments of each person's work. Learners who demonstrate their mastery of subjects can earn certificates of completion. MITx on edX operates on a cost-free, open-source, scalable software infrastructure. MITx and edX are building a global community of online learners.

The MITx platform is also used in a growing number of on-campus MIT courses to bring advanced digital learning technologies to residential education. MITx residential modules support online assessments with rapid feedback, active learning classrooms, flexibility in course delivery, and other emerging digital teaching and learning innovations. A digital learning ecosystem is emerging whereby a faculty member can develop a course on the MITx platform to support teaching and learning in the classroom. Building on the experience, and benefiting from student feedback, the faculty member can then decide to transform the course for use on edX by global learners.

The vast array of data gathered through MITx global and residential use is helping educational researchers better understand how learners learn and how technology can facilitate effective teaching both on campus and online. Research findings are then introduced into new generations of learning tools, creating a continuous loop of educational innovation.

Summary and Highlights

During the 2015–2016 academic year, MITx on edX continued building more courses, supported new ODL initiatives such as MicroMasters, successfully reorganized the unit, and refined course production processes both internally and externally. The MITx team had a number of accomplishments over the past year. For example, we:

- Launched 70 online courses, up from 50 last year (22 new MOOCs and 48 MOOCS that had previously run in prior semesters). (The full list of courses is shown in Table 5.)

- Provided additional support for several CCX and DLS courses.

- Enrolled about 1 million learners from more than 200 countries across these 70 MOOCs. Of these individuals, approximately 544,000 actually participated in the courses.

- Generated $1,897,977 in gross revenue through ID-verified certificates and licensing arrangements ($1,475,737 for ID-verified certificates, $420,000 for license agreements, –and $2,240 for CCX licenses).

- Refined the MITx service model across the MITx subunits (e.g., Media Services, Educational Technology, IP, and Project Management), resulting in improved collaborations across teams, fewer errors, and streamlined communications.
- Began development of the MITx Business Management System, with full implementation expected in fall 2016.

Table 4 shows the cumulative impact of MITx on edX since its inception in 2012.

Table 4. Cumulative Worldwide Impact of MITx, since 2012

Metric	Number
Total enrollment	4,000,000*
Total participation	2,300,000
Certificates of completion	142,000
ID-verified certificates	48,000

*1.9 million unique enrollments

Goals and Objectives

The mission of MITx is to support the development of free, openly licensed, scalable, MIT-quality courses for academically talented learners worldwide; support the use of digital learning tools and techniques in the delivery of MIT residential programs; and further the understanding of best practices in emerging digital and scalable learning environments via data collected from MITx learners. MITx goals are as follows.

- **Reach:** expand access to education worldwide
- **Residential:** improve teaching and learning across campus
- **Research:** advance teaching and learning through educational research
- **Revenue:** generate revenue to help sustain MITx and other ODL units

MITx major operational priorities during FY2016 were:

- Experiment with new MOOC production models, eventually settling on a hybrid service/project management model
- Document and manage production costs, including staff time, and identify efficiencies in the business model, particularly in regard to reruns
- Increase revenue from certificates, sublicensing, and other business development opportunities
- Develop synergies, improved efficiencies, and communications with other ODL units, the MIT community, and external resources

Accomplishments

During AY2016, MITx created and implemented MITx Services Online, offering self-service orientation and training to course teams. In addition, we streamlined the MITx Grant

Program and successfully implemented a second call for proposals; 18 proposals were submitted by 14 academic departments and programs, and eight projects were funded.

With the Digital Learning Lab, we launched the first-ever MOOC Makers Workshop, a one-day program to share lessons learned from working with and on MOOCs; to showcase innovations in design, assessment, and implementation; and to enable discussions and learning from others working on MOOCs. Sixty people from all over the world attended the workshop. Also, we worked with ODL senior leadership to introduce the MicroMasters credential on the edX platform.

MITx supported course teams in a variety of innovative MOOC projects, as follows.

- **7.00x competency exam:** While the 7.00x course materials are left open, a competency exam for a certificate is offered separately, at specific intervals. The first exam will take place in July 2016.

- **24.00x Staff Graded Assignment tool:** To enable more humanities MOOCs, our Educational Technology and Engineering groups worked with this course team to create a tool that allows a number of assigned staff members to manually grade papers and upload grades to learning management systems.

- **6.302.0x:** We conducted the first experiment involving use of hands-on lab kits in a MOOC.

- **3.054x:** Media Services worked with MIT faculty member Lorna Gibson and MIT Video Productions on a documentary-style video series about how woodpeckers avoid brain injury when pecking. The videos were developed both as a stand-alone series and for use within the MOOC.

- **18.01.2x:** Innovative, real-life concept videos were created for this course.

- **8.421x:** This was the first MITx MOOC taught by a Nobel Laureate, Professor Wolfgang Ketterle.

- **CTL.SC1x:** We implemented the first "value-added cohort" by manually moving ID-verified certificate earners into a private cohort receiving additional content.

- EdTech Kyle Boots created a **new problem type for the edX platform called SIPPY** that allows users to get feedback through incremental point gains and losses. It is also adaptive – the problems get harder as the student gains points and easier as points are lost.

- **X-Series** (sequences of related courses) Relaunched EdTechX Series Produced final courses for Foundations of Computer Science X-Series Transitioned Supply Chain Management X-Series to new MicroMasters

We participated in outreach events such as the MIT Open House, Careers Across MIT, Family Weekend, and LINC Conference; collaborated on initiatives with the MIT Libraries, the MIT Press, and the Media Lab; and met with several international guests to discuss MIT's views on digital learning.

Table 5. MITx on edX Courses, AY2016

Course	Title	Instructor(s)	Registrations	Participants	Honor certificates	ID-verified certificates
Summer 2015						
6.00.1x_7	Introduction to Computer Science and Programming Using Python	Eric Grimson, John Guttag	89,220	53,948	2,418	993
7.00x_3	Introduction to Biology: Secret of Life	Eric Lander	14,749	10,038	0	0
7.28.1x_1	Molecular Biology—Part 1: DNA Replication and Repair	Stephen Bell, Tania Baker	9,503	5,693	170	39
10.03x	Making Biologic Medicines for Patients: The Principles of Biopharmaceutical Manufacturing	J. Christopher Love, Anthony J. Sinskey, Stacy Springs	7,506	4,398	450	188
11.133x	Implementation and Evaluation of Educational Technology	Eric Klopfer	8,597	4,515	306	165
15.390.2x_SPA	Entrepreneurship 102: What Can You Do for Your Customer? (Spanish)	Bill Aulet	3,761	1,634	11	1
Fall 2015						
3.032.1x	Mechanical Behavior of Materials, Part 1: Linear Elastic Behavior	Lorna Gibson	9,793	6,234	388	57
3.032.2x	Mechanical Behavior of Materials, Part 2: Stress Transformations	Lorna Gibson	6,558	3,037	277	43
3.032.3x	Mechanical Behavior of Materials, Part 3: Time Dependent Behavior	Lorna Gibson	4,950	1,962	143	36
3.091x_5	Introduction to Solid State Chemistry	Michael Cima	7,699	4,626	93	6
4.605x_3	A Global History of Architecture	Mark Jarzombek	9,881	5,687	436	62
6.00.2x_4	Introduction to Computational Thinking and Data Science	Eric Grimson, John Guttag	20,564	12,319	250	1,266
6.002.Ax	Circuits and Electronics 1: Basic Circuit Analysis	Anant Agarwal	55,765	37,731	438	146
6.002.Bx	Circuits and Electronics 2: Amplification, Speed, and Delay	Anant Agarwal	14,029	6,003	140	29
6.002.Cx	Circuits and Electronics 3: Applications	Anant Agarwal	12,991	5,436	78	16
6.004.1x_2	Computation Structures—Part 1: Digital Circuits	Christopher Terman	21,066	14,061	259	118

Table 5. MITx on edX Courses, AY2016

Course	Title	Instructor(s)	Registrations	Participants	Honor certificates	ID-verified certificates
6.004.2x	Computation Structures—Part 2: Computer Architecture	Christopher Terman	12,994	7,481	250	156
6.341x_1	Discrete-Time Signal Processing	Thomas Baran, Alan V. Oppenheim	906	0	0	0
6.832x_2	Underactuated Robotics	Russ Tedrake	13,356	9,024	110	38
7.28.2x	Molecular Biology—Part 2: Transcription and Transposition	Stephen Bell, Tania Baker	5,180	2,829	293	40
8.05x_1	Mastering Quantum Mechanics	Barton Zwiebach	1,629	6	0	55
8.421.1x	Atomic and Optical Physics I—Part 1: Resonance	Wolfgang Ketterle, Isaac Chuang	8,419	5,592	181	18
8.421.2x	Atomic and Optical Physics I—Part 2: Atomic Structure and Atom	Wolfgang Ketterle, Isaac Chuang	2,767	1,072	86	8
8.421.3x	Atomic and Optical Physics I—Part 3: Atom-Light Interactions 1	Wolfgang Ketterle, Isaac Chuang	2,382	702	57	6
8.421.4x	Atomic and Optical Physics I—Part 4: Atom-Light Interactions 2	Wolfgang Ketterle, Isaac Chuang	2,321	590	42	6
10.03x_2	Making Biologic Medicines for Patients: The Principles of Biopharmaceutical Manufacturing	J. Christopher Love, Anthony J. Sinskey, Stacy Springs	4,347	2,569	272	164
14.74x	Foundations of Development Policy: Advanced Development Economics	Esther Duflo, Abhijit Banerjee, Ben Olken	13,858	7,432	203	157
15.671x	U-Lab: Transforming Business, Society, and Self	Otto Scharmer	41,368	22,990	1,606	0
16.101x_2	Introduction to Aerodynamics	David Darmofal	25,256	14,901	41	25
18.01.2x	Calculus 1B: Integration	David Jerison, Gigliola Staffilani	20,795	7,120	283	53
20.305x	Principles of Synthetic Biology	Ron Weiss, Adam Arkin	17,831	10,634	65	41
24.09x	Philosophy: Minds and Machines	Alex Byrne	17,374	9,985	304	79
CTL.SC2x	Supply Chain Design	Chris Caplice	22,579	14,587	688	1,162
JPAL101x_4	Evaluating Social Programs	Rachel Glennerster, Marc Shotland	7,619	4,143	190	0

Table 5. MITx on edX Courses, AY2016

Course	Title	Instructor(s)	Registrations	Participants	Honor certificates	ID-verified certificates
uINOV8x_TUR	User Innovation: A Path to Entrepreneurship (Turkish)	Eric von Hippel	666	414	6	1
VJx_S	Visualizing Japan (1850s–1930s): Westernization, Protest, Modernity	John W. Dower, Andrew Gordon, Shigeru Miyagawa	6,445	3,515	162	35
Spring 2016						
3.054.1x	Cellular Solids 1: Structures, Properties and Engineering Applications	Lorna Gibson	3,792	2,157	81	18
3.054.2x	Cellular Solids Part 2: Applications in Medicine	Lorna Gibson	1,499	405	44	9
6.00.1x_8	Introduction to Computer Science and Programming Using Python	Eric Grimson, John Guttag	115,741	62,692	2,315	1,429
6.00.2x_5	Introduction to Computational Thinking and Data Science	Eric Grimson, John Guttag	18,005	11,172	0	513
6.302.0x	Introduction to Feedback Control Theory	Joe Steinmeyer, Jacob White	11,659	7,611	127	0
7.QBWx_3	Quantitative Biology Workshop	Jeff Gore, Paul Blainey, Eric Lander, Ernest Fraenkel, Mary Ellen Wiltrout	5,788	3,177	0	70
8.05.1x	Mastering Quantum Mechanics Part 1: Wave Mechanics	Barton Zwiebach	9,819	6,989	0	55
8.05.2x	Mastering Quantum Mechanics Part 2: Quantum Dynamics	Barton Zwiebach	4,158	1,492	0	40
8.05.3x	Mastering Quantum Mechanics Part 3: Entanglement and Angular Momentum	Barton Zwiebach	3,425	857	0	35
8.421.5x	Atomic and Optical Physics I—Part 5: Coherence	Wolfgang Ketterle, Isaac Chuang	2,121	536	23	3
8.MechCx_2	Advanced Introductory Classical Mechanics	David Pritchard	8,678	5,661	101	0
11.126x_2	Introduction to Game Design	Eric Klopfer	12,660	6,565	0	0
11.132x_2	Design and Development of Educational Technology	Eric Klopfer	12,547	7,067	1	159
11.405x	Just Money: Banking as if Society Mattered	J. Phillip Thompson, Katrin Kaeufer	8,013	4,361	1	2
12.340x_2	Global Warming Science	Kerry Emmanuel	9,813	3,336	0	51

Table 5. MITx on edX Courses, AY2016

Course	Title	Instructor(s)	Registrations	Participants	Honor certificates	ID-verified certificates
14.73x_1	The Challenges of Global Poverty	Esther Duflo, Abhijit Banerjee	8,200	4,042	1	172
15.071x_3	The Analytics Edge	Dimitris Bertsimas	46,321	24,579	0	0
15.390.1x_CHI	Entrepreneurship 101 (Chinese)	Bill Aulet	914	596	0	0
15.390.2x_CHI	Entrepreneurship 102: What Can You Do for Your Customer? (Chinese)	Bill Aulet	390	150	0	0
15.662x_2	Shaping the Future of Work	Thomas Kochan	4,471	2,305	0	50
16.110x_2	Flight Vehicle Aerodynamics	Mark Drela	17,357	6,825	30	11
18.01.3x	Calculus 1C: Coordinate Systems & Infinite Series	David Jerison, Gigliola Staffilani	14,153	2,963	195	37
21W.789.1x	Mobile Application Experiences Part 1: From a Domain to an App Idea	Frank Bentley, Ed Barrett	26,717	14,522	0	23
21W.789.2x	Mobile Application Experiences Part 2: Mobile App Design	Frank Bentley, Ed Barrett	11,570	3,877	0	27
21W.789.3x	Mobile Application Experiences Part 3: Building Mobile Apps	Frank Bentley, Ed Barrett	10,883	2,974	0	9
21W.789.4x	Mobile Application Experiences Part 4: Understanding Use	Frank Bentley, Ed Barrett	5,373	485	0	5
CTL.SC1x_2	Supply Chain Fundamentals (MicroMasters)	Chris Caplice	31,173	18,408	461	2,010
Launch.x	Becoming an Entrepreneur	Laurie Stach	31,855	17,826	0	239
StartX	Startup Success: How to Launch a Technology Company in 6 Steps	Michael Stonebraker, Daniela Rus, Charles E. Leiserson, Saman P. Amarasinghe, Stelios Sidiroglou-Douskos	329	289	0	0
Summer 2016						
2.01x	Elements of Structures	Simona Socrate	335	3	0	0
3.054.3x	Cellular Solids Part 3: Applications in Nature	Lorna Gibson	1,241	265	0	3
3.15.1x	Electronic Materials and Devices	Caroline Ross	13,980	6,630	0	93

Table 5. MITx on edX Courses, AY2016

Course	Title	Instructor(s)	Registrations	Participants	Honor certificates	ID-verified certificates
3.15.2x	Optical Materials and Devices	Caroline Ross	5,863	1,494	0	0
6.00.1x_9	Introduction to Computer Science and Programming Using Python	Eric Grimson, John Guttag	29,581	10	0	0
6.002.Ax	Circuits and Electronics 1: Basic Circuit Analysis	Anant Agarwal	55,765	37,731	438	146
6.002.Bx	Circuits and Electronics 2: Amplification, Speed, and Delay	Anant Agarwal	14,029	6,003	140	29
6.002.Cx	Circuits and Electronics 3: Applications	Anant Agarwal	12,991	5,436	78	16
6.004.3x	Computation Structures 3: Computer Organization	Christopher Terman	1,702	3	0	0
7.28.1x_2	Molecular Biology—Part 1: DNA Replication and Repair	Stephen Bell, Tania Baker	1,015	6	0	0
10.03x_3	Making Biologic Medicines for Patients: The Principles of Biopharmaceutical Manufacturing	J. Christopher Love, Anthony J. Sinskey, Stacy Springs	1,006	4	0	0
21W.789.5x	Mobile Application Experiences Part 5: Reporting Research Findings	Frank Bentley, Ed Barrett	4,549	126	0	4
CTL.SC1x_2	Supply Chain Fundamentals (MicroMasters)	Chris Caplice	31,173	18,408	461	2,010
JPAL101x_5	Evaluating Social Programs	Rachel Glennerster, Marc Shotland	6,558	3,403	0	166
Launch.x	Becoming an Entrepreneur	Laurie Stach	529	3	0	0
StartX	Startup Success: How to Launch a Technology Company in 6 Steps	Michael Stonebraker, Daniela Rus, Charles E. Leiserson, Saman P. Amarasinghe, Stelios Sidiroglou-Douskos	36	29	0	0

Note: In September 2015, edX eliminated the honor code (free) certificate. Courses that were open for enrollment prior to the announcement of this change still awarded honor code certificates. Courses opened for enrollment after the announcement offered only ID-verified (paid) certificates.

Table 6. MITx on edX Custom Courses (CCX) and Small Private Online Courses (SPOCs), AY2016

Course	Title	Instructor	Organization	Registrations	Start Date
15.390.1x	Entrepreneurship 101	Bill Aulet	Shanghai International Studies University	30	April 2015
15.390.2x	Entrepreneurship 102	Bill Aulet	Shanghai International Studies University	33	April 2015
15.390.1x	Entrepreneurship 101	Bill Aulet	Enderun	35	June 2015
15.390.2x	Entrepreneurship 102	Bill Aulet	Enderun	35	June 2015
uINOV8x	User Innovation: A Path to Entrepreneurship	Eric Von Hippel	Enderun	37	June 2015
15.390.1x	Entrepreneurship 101	Bill Aulet	California Lutheran University	33	September 2015
15.390.2x	Entrepreneurship 102	Bill Aulet	California Lutheran University	8	September 2015
uINOV8x	User Innovation: A Path to Entrepreneurship	Eric Von Hippel	California Lutheran University	13	September 2015
15.390.1x	Entrepreneurship 101	Bill Aulet	Highland & Island Enterprise	465	February 2016
BiCSC.1x	Best in Class Supply Chain	James Rice	Shell Chemical	34	February 2016
uINOV8x	User Innovation: A Path to Entrepreneurship	Eric Von Hippel	Jindal Global Business School	20	March 2016
CTL	Supply Chain Financial Analysis Prep Module	James Rice	MIT CTL Executive Education	85	May 2016
GCx	Excellence in Supply Chain	Katie Date	MIT CTL Graduate Certificate in Logistics and Supply Chain Management Program	28	June 2016

Note: CTL = Center for Transportation and Logistics.

Administrative Accomplishments

AY2016 was another year of important advances in bringing structure and good management practices to the MITx enterprise, with the following accomplishments.

- **Organization:** Hired an accessibility manager to help ensure access for disabled learners and changed the reporting structure of the Educational Technology team, which now reports to the MITx program manager.

- **Services and support:** Designed, built, and launched MITx Services Online, a digital home for course team documentation and instruction on how to work with MITx to create a MOOC. Also, we initiated a dedicated service area for the accessibility manager to support faculty and course teams and created a process for handling MITx learner disability accommodation requests.

- **Training:** Organized, developed, and executed a pilot in-person course team service orientation program focusing on MITx MOOCs as well as a series of three training sessions on media literacy and skills.

- **Marketing and communications:** Implemented an email marketing program utilizing the MITx learner list with one targeted email message per MOOC and completed a pilot experiment to test digital marketing tactics for MOOCs and inform future initiatives.

- **Capacity management:** Implemented new capacity management tracking in order to better plan efforts.

- **MITx Digital Learning Lab:** Made strides in growing and supporting the Digital Learning Lab community of practice. The lab held a second professional development retreat and was also able to fund 10 fellows and scientists to travel for professional presentations both nationally and internationally.

- **MITx Business Management System:** Transitioned to a new database system and began work on a fully customized system that will be used to manage the course pipeline and track relevant information for record keeping.

- **Pipeline and portfolio management:** Created the MITx Portfolio Committee with the intention of reviewing projects outside MITx Grant Program applications, including reruns of courses, externally funded courses, and leadership-led initiatives.

- **MITx Faculty Advisory Committee:** The program development manager became responsible for committee management and worked with co-chairs Sanjay Sarma and Hazel Sive to refine the committee's goals and identify key projects in which members' input could be most useful. The committee also became the official reviewers for the MITx Grant Program and reviewed two sets of grant proposals.

- **Community building:** Held two faculty special interest group events to bring the digital community together to share best practices and innovations. Also, we held the first Course Reflections Session, a facilitated discussion in which course team members who had recently completed MOOCs shared feedback and best practices with each other and with MITx.

- **ODL support:** MITx team members contributed to a variety of ODL-wide projects and committees, including the Capital Campaign, LINC 2016 Conference, the ODL Space Committee, and the ODL website.

- **edX:** Continued to work on the edX/MITx partnership through weekly touch-base calls, monthly pipeline review meetings, custom reports for edX program managers, and monthly Marketing/Communication team meetings.

- **Professional development:** MITx team members attended external conferences, including the Open Education Conference, NERCOMP, the edX Global Forum, the Ivy Media Plus Conference, SXSWedu Open edX Conference, LearnLaunch Conference, American Library Association Mid-Winter & Annual Meeting, Copyright Society of USA's Annual Meeting, Student Research Conference at Harvard Graduate School of Education, W3C Web For All Conference, and the Serious Play Conference. to grow their own knowledge and bring that knowledge back to share with the team.

MITx Faculty Advisory Committee

Purpose

The purpose of the MITx Faculty Advisory Committee (FAC) is to provide oversight and guidance for MITx courses. The committee:

- Provides clear guidelines on topics related to MITx and is responsive to the MIT faculty with regard to MITx governance.

- **Provides oversight on subjects or modules produced for MITx:** The residential benefit of each MITx proposal is considered; the budget, timing, and sustainability of each module (learning unit), subject, or subject sequence proposed are assessed based on the strategy described by each department; and each proposal is assessed for whether it adequately reflects the diverse "face of MIT," especially with regard to equity in the demographics of the faculty teaching each subject.

- **Promotes innovative approaches to an MIT education:** The FAC evaluates and facilitates innovative new approaches proposed for MITx courses and experiments in digital learning. Also, it guides MITx in seeking to bring innovative new approaches to digital learning and education for MIT students. Such new approaches for developing, employing, and maintaining online materials will emerge over the years ahead, in blended classrooms, modular content, novel approaches to video, animations, simulations, or production tools.

Membership

The committee's co-chairs are Sanjay E. Sarma, professor of mechanical engineering and vice president for open learning, and Hazel L. Sive, professor of biology. Members are as follows:

- W. Craig Carter, Professor, Department of Materials Science and Engineering
- Isaac Chuang, Professor, Department of Electrical Engineering and Computer Science, and senior associate dean of digital learning
- Woodie Flowers, Professor, Department of Mechanical Engineering
- Dennis Freeman, Professor, Department of Electrical Engineering and Computer Science, and Dean for Undergraduate Education
- Mark Jarzombek, Professor, Department of Architecture
- S.P. Kothari, Professor, Sloan School of Management
- Jennifer S. Light, Professor, Program in Science, Technology, and Society and Department of Urban Studies and Planning
- Krishna Rajagopal, Professor, Department of Physics, and Chair of the Faculty
- Iain Stewart, Professor, Department of Physics

OpenCourseWare

MIT OpenCourseWare, now in its 15th year, is a free, open, publicly accessible web-based resource that offers high-quality educational materials from more than 2,350 MIT courses, reflecting undergraduate- and graduate-level teaching in all five MIT schools and 33 academic units. This coverage in all disciplines makes OCW unique among open education offerings around the world. MIT continually updates OCW, adding new courses as they become available and refreshing existing courses with new materials. More than 1,000 MIT OCW courses have been independently translated into at least 10 other languages.

Through OCW, MIT faculty share their teaching materials with a global audience of teachers and learners. Educators use these resources for teaching and curriculum development, while students and self-learners draw upon the materials for self-study or supplementary use. On average, OCW attracts about 2.3 million visits per month, and to date more than 200 million people from virtually every country on earth have accessed these resources.

Beyond its service to a worldwide audience, OCW has a significant impact at MIT, where both faculty and students embrace it. Students use OCW resources such as problem sets and exams for study and practice. New freshmen often report that they checked out MIT by looking at OCW before deciding to apply. Instructors often refer students to OCW for part of their coursework. OCW staff work extensively with faculty to develop and refine course materials for publication, and faculty frequently use these updated materials in their classroom teaching. Alumni access OCW materials to continue their lifelong learning.

OCW course content includes thousands of individual resources such as syllabi, lecture notes, course calendars, problem sets and solutions, exams, reading lists, selected readings, videos, simulations, animations, sample programming code, and more. More than 100 courses and supplemental resources include complete, captioned video lectures for the entire course. Beyond core academic content, a relatively new feature known as OCW Educator allows MIT faculty to share their pedagogical insights, with tips on how they teach their courses to students on campus.

Course materials contained on the OCW website are offered under a Creative Commons license and can be freely used, copied, distributed, translated, and modified by anyone, anywhere in the world, for noncommercial educational purposes.

Summary and Highlights

The following were among the major highlights during AY2016:

- Published 132 courses and supplemental resources (78 new courses or resources, 54 updates).

- Published 43 OCW Educator "This Course at MIT" pages, of which 42 include Instructor Insights (one page was a retrofit).

- Logged an average of 2.3 million visits per month. OCW materials continue to be made available through other sites such as YouTube, iTunes U, VideoLectures. net, and the Internet Archive as well as through translation affiliates. Figure 3 shows how traffic to the OCW website has grown over the years.

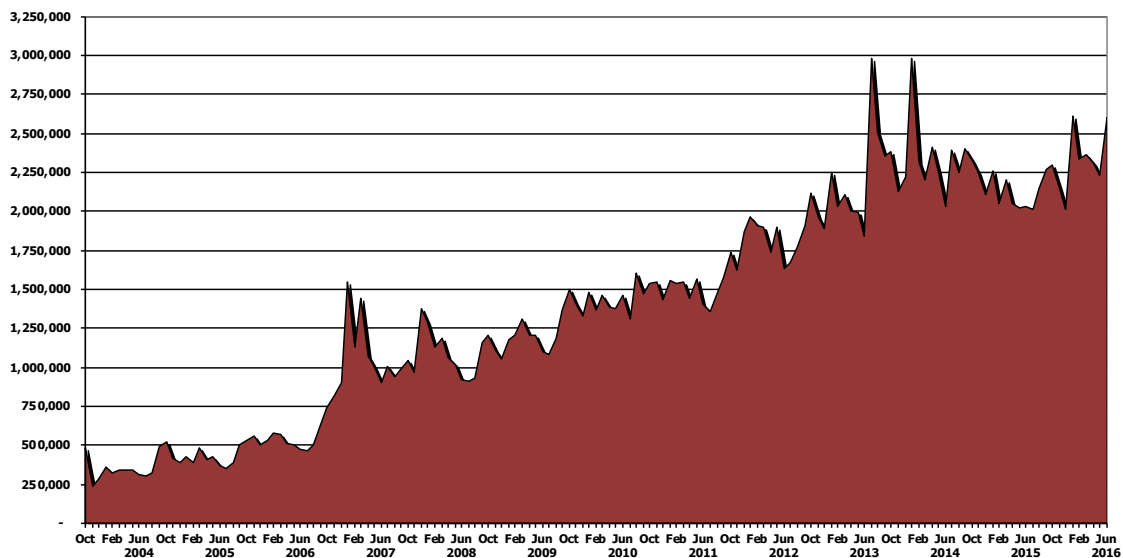**Figure 3. Monthly traffic to the OCW website through June 30, 2016.**

Table 7. OCW Publication Metrics as of June 30, 2016

Metric		Total
Courses published on OCW		2,351
OCW courses archived on DSpace		986
Full video lecture series*		110
Courses	89	
Supplemental resources	21	
Exemplary video lectures (partial series)		58
Total sites with audio or video resources		185
Total openly published textbooks		63

Goals and Objectives

OCW has a formal, hierarchical goal structure that we use for developing the annual operating plan and for monitoring progress against that plan. OCW's goals are as follows.

- **Publish high-quality, up-to-date MIT course materials:** expand the OCW publication with new MIT course materials in step with the MIT curriculum, maintain the currency of published content, continually improve the depth and quality of materials, continually improve user features and the site structure to optimize the user experience, maintain and enhance an effective technology infrastructure, and continually refine effective and efficient work processes

- **Increase use of OCW for teaching and learning:** increase awareness of OCW, increase traffic to OCW content via multiple distribution channels, tailor OCW content to the needs of key external audiences, foster the development of communities of learning around OCW content, and support the use of OCW content by educators and educational systems globally

- **Maximize the benefits of OCW for the MIT community:** support MIT initiatives, create lifelong connections between MIT and our students and alumni, catalyze improvements in teaching and learning at MIT, and showcase MIT's curriculum, strengthen its reputation, and promote international engagement

- **Support worldwide open educational resources (OER) and the OCW movement:** support the Open Education Consortium (formerly the OCW Consortium) and engage with other OER programs to increase the collective benefits of open resources

- **Sustain the MIT OCW program:** continually develop the OCW team as a responsive, professional organization; maintain communications to keep stakeholders informed; evaluate and report on OCW programs; manage OCW finances responsibly; ensure the long-term financial viability of OCW; and ensure a vibrant future for OCW through effective planning

Accomplishments

Course Publication

Course publication is the heart of the OCW mission. OCW courses typically include planning materials, such as a syllabus, calendar, pedagogical statement, and faculty introduction of the course; subject matter content in the form of lecture notes, reading lists, full-text readings, and video/audio lectures; and learning activities, which may include problem sets and solutions, essay assignments, quizzes, exams, labs, and projects depending on the nature of the course.

Faculty take great pride in their teaching, and this is reflected in the depth and quality of the materials they provide for publication on OCW. This year, we:

- Published 122 courses (70 new courses, 52 updates) with the following distribution across MIT schools: Architecture and Planning, 11; Engineering, 22; Humanities, Arts, and Social Sciences, 52; Science, 29; and Sloan School of Management, 6 (two other courses were also published, one each for the Edgerton Center and the Experimental Study Group).

- Published 10 supplemental resources (eight new resources and two updates): RES.2-005, RES.8-004, RES.8-005, RES.11-001, RES.18-009, RES.21W-01, RES. LL-005, RES.STR-001, RES.STR-002, and RES.TLL-01. (In addition to publishing MIT course materials, OCW undertakes many special projects to produce supplemental resources that enrich its educational content. As of June 30, 2016, there were 55 substantial supplemental resources on OCW.)

- Processed/cleared about 2,500 intellectual property objects.

- Published 19 courses and supplemental resources with video assets and one with audio assets, along with eight Educator video materials: 8 courses with full video lectures (6.046, 6.811, 6.858, 6.890, 8.821, 8.591J, 20.219, CMS.611J)

  - 3 supplemental resources with full video lectures (RES.8-005, RES.18-009, RES.LL-005)

  - 8 courses with exemplary video lectures (2.086, 6.034, 6.231, 11.401, 15.S21, 21L.011, 21M.235, RES.8-004)

  - 1 course with exemplary audio lectures (CMS.701)

  - 8 courses with Educator video interviews or course introductions

Note: All new media assets are published with subtitles.

Highlights for High School

In addition to the regular course publication, OCW also offers Highlights for High School (HFHS), which was launched in 2007. This program takes advantage of our trove of exceptional teaching resources to better serve high school constituencies. Since its inception, the HFHS portal has received more than 4.8 million visits and currently averages more than 42,000 visits per month.

During AY2016, we added a number of new and updated courses to the HFHS introductory course list. Examples include 20.219 Becoming the Next Bill Nye: Writing and Hosting the Educational Show and CMS.611J Creating Video Games, along with the RES.2-005 Girls Who Build: Make Your Own Wearables Workshop supplemental resource.

OCW Educator

OCW Educator was conceived by the OCW Faculty Advisory Committee in 2012, and the first of the initiative's resources were published in 2013. OCW Educator enhances the value of OCW for educators at MIT and around the world. Its two main goals are to articulate and share the educational ideas, practices, and pedagogical expertise of MIT faculty and to enhance users' ability to take best advantage of course materials on OCW by helping them understand the context and manner in which the materials are used here on campus. Amidst the proliferation of MOOCs and other online courses, this project also supports a developing role for OCW: using the Internet to inspire and enhance innovative classroom teaching, both at MIT and around the world.

The primary component of OCW Educator is This Course at MIT, a section in OCW courses that provides information about how the course was taught at MIT, including course outcomes, prerequisites, other curriculum information, the kinds of students taking the class, assessments, and student time investment. Typically, this section also includes insights from instructors on how they structured and taught the course.

Pages with instructor insights often have multiple pages in which the instructor expands on the thinking that went into the course. Sometimes the insights section includes video interviews with the instructor interspersed with video highlights showing what happened in the class.

Significant OCW Educator accomplishments during AY2016 are described below.

Publication

- Published 43 This Course at MIT pages, of which 42 have instructor insights, eight have video instructor insights, two have teaching assistant insights, and two have student insights.

- Established the requirement that all new This Course at MIT pages include instructor insights.

- Published the first set of dual-language instructor insights videos (21G.101 and 21G.107), in which two instructors describe in both English and Chinese their pedagogical approaches to teaching Chinese at MIT.

- Developed an interactive timeline to illustrate how project-based courses are taught at MIT and published two courses with interactive timelines (20.219 and CMS.611J).

- Incorporated student insights into This Course at MIT pages for the first time (for courses 6.811 and CMS.611). These insights provide a unique view of how pedagogy affects students' learning experiences.

- Incorporated teaching assistant insights into This Course at MIT pages for the first time (for CMS.633 and 6.034). These insights show how teaching assistants at MIT approach instruction.

- Collaborated with the OCW publishing team to streamline the production of This Course at MIT pages and developed a workflow to ensure that pages were authored to meet specifications.

Educator Portal

- Completely redesigned the Educator portal to offer teachers a more effective way to search for and find instructional approaches and teaching materials. The redesign includes a finder tool that allows users to search all This Course at MIT pages with instructor insights by instructional approach (e.g., active learning, assessment, teaching the design process, using digital tools in the classroom) and to search the entire collection of OCW courses with downloadable teaching resources by subject-specific materials (e.g., exams with solutions, lecture notes, problem sets).

- Added a featured video segment to the Educator portal that allows teachers to quickly access useful instructor insights.

- Increased the visibility of the Educator portal by featuring a link to it prominently on the OCW home page.

Educator Outreach

- Increased visits to the Educator portal from 29,000 in AY2015 to 43,000 in AY2016.

- Expanded our geographical outreach to include more users from Brazil (page views from Brazil increased from 220 in AY2015 to 6,370 in AY2016).

- Facilitated two Educator roundtables, which are meetings with faculty and other teaching staff intended to promote exchange of ideas and experiences on matters of pedagogy among educators at MIT and beyond. We are discontinuing the roundtable program due to the level of staff time required weighed against the small audience it reaches (sessions are limited to six to eight participants).

- Ran a social media campaign to raise awareness of the new Educator portal (March 2016).

- Participated in Open Education Week 2016 and featured the new Educator portal (March 2016).

- Created two course promotional videos with Educator spotlights (CMS.611 and 20.219).

- Shared OCW Educator with teachers taking part in the MIT Science and Engineering Program for Teachers (June 2016).

Project Assessment

- Developed a Google Analytics Educator dashboard to track visits to the Educator portal

- Developed and distributed a survey (in consultation with MIT Institutional Research) to Educator roundtable participants and to people who signed up to take part in the roundtables

Site Curation

Site curation refers to deliberative efforts to continually improve the usefulness of OCW and to highlight the breadth, depth, and vitality of the OCW collection. Site curation includes identifying and promoting featured content, enhancing website usability (especially for course browsing and searching), and improving the OCW collection's currency and relevance in relation to the MIT curriculum.

Over the last year, we undertook the following site curation activities:

- Defined use cases, features, and priorities for new faceted site searches (development has been on hold due to insufficient engineering resources).

- Added links on OCW courses to Crosslinks and collaborated with Professor Karen Willcox's group on OCW representation in their curriculum map. Crosslinks is a study site maintained by MIT students that connects topics across courses. Every topic page has links to materials that students have found helpful.

- Created a new pop-up help banner and revamped page content for the OCW "Get Started" site, reducing basic feedback emails by 40%.

- Administered a site user survey for the first time since 2013 and analyzed the results.

- Improved the presentation of course home page context links to other versions of a given subject on OCW and to related content hosted elsewhere.

- Continued cross promoting MITx on OCW, which provides a substantial fraction of MITx course registrations. We manage links from OCW courses to current MITx versions and, in some cases, featured MITx courses on the site home page.

- Completed the migration of special programs to the Edgerton Center and the Experimental Study Group and devised a streamlined method for updating subject numbers when departments renumber their subjects.

Accessibility

Accessibility features broaden the reach of OCW to learners with disabilities. OCW now has access to the MITx accessibility manager, hired this year, for advice and review. During AY2016, we:

- Published all new media assets with subtitles

- Added ARIA labels and landmarks to all page templates and adjusted our focus on course finders and pop-ups to better facilitate the use of accessibility devices

- Cleaned up codes and adjusted header and footer material site-wide to allow for better navigation with accessibility devices

- Added interactive searchable transcripts to all tabbed players, in which all transcripts on the site will be synced to their videos, taking the user to the exact place in the video where the searched term appears

- Uploaded subtitle files for all videos to iTunesU and the Internet Archive

- Worked with a consultant to create fully accessible interactive assessments from MITx content

- Removed tabs from course home pages

- Completed other minor adjustments to the website to better support accessibility devices

At present, 87 courses with full lectures have subtitles, up from 53 last year.

Singapore University of Technology and Design

The Singapore University of Technology and Design (SUTD) project, which has operated under a contract with SUTD, is coming to a close. In AY2016 we delivered one SUTD course, and we are currently awaiting materials for one more, which will be the project's final course.

Technology

The OCW website and publishing infrastructure rely on a highly technical back end and support team. This technology and team not only support learners and educators across the globe but also support internal OCW efforts in the areas of outreach, site curation, feedback, publication, and the Educator project. This year, OCW has made significant efforts to increase the usability, reliability, and functionality of both our website and infrastructure for all parties. These efforts included the following:

- Supported the OCW 15th anniversary program

- Created an automated process for converting MITx courses to OCW course content, including interactive assessments

- Designed and launched the Educator portal

- Designed and created interactive timelines

- Executed 33 production releases to the OCW content management system, in which more than 60 artifacts were released/resolved

- Incorporated MIT Crosslinks into course home pages

- Streamlined the process for managing YouTube comments

- Improved user access to help content and search features

- Designed and launched the new OCW Scholar portal

- Supported course renumbering efforts to accommodate departmental renumbering of courses

- Successfully restored all TechTV videos on the HFHS site (following a loss of the TechTV video archives maintained elsewhere at MIT)

Communications

- Maintained the OCW newsletter and blog and the OCW Twitter, Facebook, and Pinterest accounts

- Processed more than 5,000 user feedback emails

- Began monitoring YouTube comments by auto-feed into our database in the same manner as emails

Administrative Accomplishments

This year MIT celebrated the 15th anniversary of the announcement of MIT OpenCourseWare. To commemorate the milestone, we developed yearlong activities including a faculty appreciation event, a "thank-a-thon" for MIT faculty contributors, and a special thank you video produced by OCW's 15th-anniversary sponsor, Sapient. Other activities, some of which will continue through the remainder of calendar year 2016, included webcasts, an About OCW video, and an OCW alumni celebration. Sapient's sponsorship of these activities included funding of $50,000 in addition to $125,000 for in-kind video services.

In the area of online fundraising, OCW received 3,704 donations in FY2016, an increase of 10% over the previous year. These donations, which included online and matching gifts, totaled $311,600 (a decrease of 0.8%) and came from 2,323 individual donors (down 3.6%). The median gift remains at $25.

In fall 2105, we introduced a new campaign for donors to support OCW for the long term. The campaign encouraged people to become OCW Sustainers and to commit to having their donations repeat on a monthly basis. The campaign resulted in $50,208 in new gifts and pledges, with 198 donors committing to the monthly contribution program.

We held another participation challenge for the spring campaign. In honor of OCW's 15th anniversary, the goal was to have 2,001 OCW learners make a donation, at any level. MathWorks Inc. agreed to match donations up to $100,000. Although the campaign garnered only 1,278 supporters, we raised $71,379 for a total of $142,758, the most successful and best-performing online campaign to date.

OCW successfully secured a Google Ad Words grant totaling $30,000 per month, an increase from the $10,000 monthly grant OCW previously enjoyed.

OCW Faculty Advisory Committee

The Faculty Advisory Committee is an internal oversight group that advises on OCW policy, sustainability, and relations with the MIT faculty and with academic departments. Committee members in AY2016 were as follows:

- Hal Abelson, Class of 1922 Professor, Electrical Engineering and Computer Science

- Noam Buckman, Graduate, Mechanical Engineering

- Cecilia d'Oliveira, Associate Dean of Digital Learning, Office of Digital Learning

- Eric Klopfer, Professor, Urban Studies and Planning

- Vijay Kumar, Senior Strategic Advisor and Director, Office of Educational Innovation and Technology

- Stuart Madnick, J.N. Maguire Professor of Information Technology, Sloan School of Management

- Haynes Miller, Professor, Mathematics

- Shigeru Miyagawa, Professor, Foreign Languages and Literatures

- Hazel Sive, Professor, Biology

- Karen Willcox, Professor, Aeronautics and Astronautics (Chair)

- Dick Yue, Philip J. Solondz Professor of Engineering, School of Engineering

Strategic Education Initiatives

Strategic Education Initiatives supports partnerships between MIT and other universities, foundations and trusts, nongovernmental organizations, and national governments in their efforts to advance and transform educational opportunity through digital learning. Some SEI projects span entire nations and hundreds of schools, helping to advance the field of digital learning and prepare students for the STEM workforce. SEI supports the Institute's overall strategy for pre-K–12 education.

SEI offers a variety of solutions and products including those that incorporate MITx courses and modules, blended learning experiences for configuring and developing new programs and institutions, and capacity-building opportunities through professional development for higher education and Pre K-12. SEI also partners with faculty to create new digital tools for use in MITx courses on edX and in residential teaching.

Through these initiatives, MIT is furthering its mission of advancing learning worldwide. Moreover, SEI's work in other settings can lead to new pedagogy and curriculum design at MIT.

Summary and Highlights

In AY2016, SEI made significant headway in addressing its mission through contributions that will help to shape the future of education at MIT and elsewhere by means of an increased emphasis on digital learning. Notable SEI accomplishments have included:

- Announcing the Open Learning Scholars agreement on May 17, 2016, in Dubai. OLS is a collaboration between MIT and the Abdulla Al Ghurair Foundation aimed at expanding access to and use of digital learning environments in STEM for among learners worldwide.

- Officially launching the Connected Learning Initiative on January 27, 2016, in Mumbai. As noted above, the goal of this bold and innovative collaboration

between the Tata Groups and MIT is to improve the professional and academic prospects of high school students in underserved communities in India.

- Launching the pK-12 Action Group, whose aim is to bring MIT's unique "mind and hand" learning approach beyond the campus to pre-K–12 learners and teachers worldwide.

- Initiating the AIM Photonics Academy national consortium, which consists of MIT, Quinsigamond Community College, the University of Arizona, the Rochester Institute of Technology, and the University of California, Santa Barbara. The American Institute for Manufacturing Integrated Photonics (AIM Photonics) will create an end-to-end integrated photonics industry and ecosystem in the United States comprising technology, business, and education.

- Developing prototype student and instructor apps for the Fly-by-Wire project, a collaboration among MIT, Quinsigamond Community College, and Arapahoe Community College in Colorado. Adaptive assessments will be provided to students in college algebra, computer-aided design, and accounting; students will be given supplemental questions depending on their responses to previous questions. All questions will be linked to a learning outcome map.

Goals and Objectives

During AY2016, SEI's broad goals were to:

- Develop new strategic education initiatives on behalf of the Institute

- Help launch the Institute-wide pre-K–12 initiative

- Manage multiple ongoing initiatives, including OLS, CLIx, the Woodrow Wilson Academy, Platform, pK-12, MIT+K12 Videos, the AIM Photonics Academy, MIT-Haiti, INK-12, Fly-by-Wire, iLab, Technology for Mathematical Argumentation, Video Concept Browser, and Backstage

Accomplishments

Open Learning Scholars

OLS seeks to make some of the best STEM education in the world available to Arab youth through innovative online and blended learning offerings. Specifically, OLS will leverage digital (online) learning in the Arab world, especially for displaced populations; develop new MicroMasters courses; support educational transformation and capacity building through blended learning; and develop forthcoming K–12 activities focused on youth entrepreneurship.

In FY2016, key accomplishments included the announcement of the aforementioned agreement in Dubai and the development of an implementation plan to guide the program's work.

Connected Learning Initiative

In support of its mission to improve the professional and academic prospects of high school students in underserved communities in India, CLIx aims to work with approximately 1,000 schools, 165,000 students, and 4,400 teachers in four states in India during 2015–2017. The expected outcomes are to raise social capital, expand educational opportunities for India's youth, and arrive at a model that can have global relevance.

At MIT, SEI is collaborating with Professor Eric Klopfer and his team in the Education Arcade to design and develop modules in English, science, and mathematics for grades 8, 9, and 11. The MIT team is leading the design of a number of modules and is mentoring the development of several additional modules through capacity-building efforts based on an annual design camp and on the 11.132x Design and Development of Educational Technology course.

Key accomplishments in FY2016 included the official CLIx launch, completion of the initiative's website, and the development of curriculum components (e.g., content selection, tool development), project management activities (e.g., Google Apps migration, project preparedness, logistics), implementation activities (e.g., technology, research), technology activities (e.g., module development, documentation), and research activities (e.g., design, data-sharing policy).

Woodrow Wilson Academy Platform

The Woodrow Wilson Academy will open its doors in June 2017 to its first matriculating class of 25 students. At that time, the WW Academy must have a system in place that can support key elements of its innovative competency-based pedagogical approach, including its learning outcome models, cross-cutting challenges, activities, placement tests, assignment management, resource libraries, and portfolios. Key FY2016 accomplishments are described below.

We developed a proposal to build the WW Academy's next-generation platform using the educational system models behind the Backstage service suite that supports a number of other applications and systems. This proposal, with input from the Teaching Systems Lab (TSL), was offered as an alternative to other solutions that the WW Academy was pursuing at the time. Two elements of the proposal were particularly interesting with respect to the WW Academy platform directions:

- Learning goals have been engineered at the core of the Backstage system design. There are few examples of systems available today that model learning goals as a fundamental structure of an online learning experience.
- The approach allows for the development of complex systems by loosely and intelligently joining together small pieces of functionality, either purpose built directly to WW Academy program requirements or borrowed from other applications or platforms that we may want to leverage for a particular feature.

We hired a product manager in the first half of the year and held a series of design activities involving staff from theWW Academy, TSL, and SEI to help articulate the WW Academy platform needs.

pK-12 Action Group

As noted above, the pK-12 Action Group is an effort to bring MIT's unique "mind and hand" learning approach to pK–12 learners and teachers around the world. The group will engage MIT faculty, staff, students, and researchers in pursuing two interrelated goals, as follows.

- Changing the world through learning: bringing the MIT hands-on, minds-on approach to pK–12 learners and teachers through the development of new technologies, services, and curricula ranging from low-cost laboratory instruments and innovative computing environments to new strategies for connecting learners around the world
- Changing the world of learning: advancing understanding of what we know about teaching and learning through a diverse set of research methodologies

The pK-12 Action Group will harness activities already in progress at MIT while providing new opportunities, synergy, and coordination for the more than 100 preK–12 activities and projects across campus. It is developing a new alliance of public and private preK–12 schools and affiliated organizations that will enable MIT to both widen and deepen impacts in participating schools.

In FY2016, key accomplishments included hiring of staff, implementation of new actions, and joint work with the K–12 community at MIT.

MIT+K12 Videos

MIT+K12 Videos is an educational outreach media program seeking to spark curiosity and a love of learning among kids and kids at heart. The project is engaged with producing original and freely available web series, live outreach events, and on-campus digital media courses to promote STEAM (science, technology, engineering, arts, and mathematics) literacy and open the door to MIT and the STEAM world. Its goal is to spark STEAM curiosity among pre-college students, particularly those who may not be STEM inclined. The media work is informed by and contributes to best practices for multimedia and informal learning and helps equip the MIT community to share its love of STEAM with the world. Key accomplishments in FY2016 included:

- Released 24 videos, including two seasons of Science Out Loud!
- Continued #askMIT and piloted MIT Physics demos
- Filmed two new series currently in post-production (a docu-series on science in the field and informal interviews with women of MIT)
- Completed pre-production of two series (a Nuclear Reactor Laboratory collaboration and an Early Childhood Cognition Lab preschool series)
- Uploaded a video for educators to PBS Learning Media
- Released a "viral" video case study (attracting 4 million views)
- Held SciVids101 field trip event
- Launched a website redesign

- Released 20.219 Becoming the Next Bill Nye on OCW Educator
- Produced the 2S.179 Becoming the Next Bill Nye 2016 IAP course
- Submitted a National Science Foundation (NSF) Cyberlearning grant

AIM Photonics Academy

As noted, AIM Photonics will create an end-to-end integrated photonics industry and ecosystem in the United States. This $600+ million public-private partnership will involve industry, academia, and federal and state governments.

The AIM Photonics Academy will provide the unified knowledge, technology, and workforce interface for AIM Photonics. It grew out of MIT leadership as part of the White House Advanced Manufacturing Partnership. In 2013, SEI was asked to support digital learning in advanced manufacturing, which led to community college collaborations, the AIM academy, Fly-by-Wire, and other initiatives. The education team will develop online modules and courses in integrated photonics (in collaboration with ODL).

In FY2016, key accomplishments at MIT included the establishment of the academy's national consortium, continuation of roadmap activities to drive technical research and educational priorities, and initiation of workforce development and preparation activities. Other work is on hold pending signed agreements. SEI accomplishments included website and "digital presence" support and project leadership.

MIT-Haiti Initiative

The mission of the MIT-Haiti Initiative is to promote technology-enhanced active learning and the use of the Kreyòl language in STEM disciplines. The initiative's goal is to develop tools and resources for active learning and teaching of STEM subjects in Kreyòl in order to build a solid basis for faculty and curriculum development. Through teacher training workshops, MIT-Haiti introduces modern pedagogical techniques and tools for educational reform. So far, 286 Haitian faculty and teachers have attended the workshops. In FY2016, key accomplishments of the initiative were:

- Conducted two teacher training workshops in Haiti on pedagogical practice and active learning (August 2015 and June 2016)
- Hosted a two-week fellowship program for six visiting Haitian faculty (September 2015)
- Piloted a one-week focused consultation with Haitian partners at Campus Henry Christophe de Limonade on local curriculum and pedagogical practices
- Redesigned and redeployed the initiative's website

INK-12

The INK-12 (Teaching and Learning Using Interactive Ink Inscriptions in K-12) project joined SEI from the MIT Center for Educational Computing Initiatives in March 2015. The NSF-funded project, a collaboration with math educators at TERC, has been

developing and testing pen-based digital tools focusing on multiplication and division in elementary math. With our tablet-computer-based software, called Classroom Learning Partner (CLP), students use a combination of digital tools that we have developed and freehand drawing with "digital ink" to create and manipulate mathematical representations in an electronic "notebook." Using CLP running on tablet computers in Boston-area classrooms over the past six years, the project has been investigating three educational technology questions: (1) How can technology that allows young students to both draw and use representational tools support their learning of mathematics? (2) How can technology that enables teachers to view and share student work with their class support students' learning? and (3) What role can machine "understanding" of student work play in facilitating the teaching and learning of multiplication and division?

In FY2016, key INK-12 accomplishments were:

- Gauged the impact of pen-based digital tools on student learning of multiplication and division by working on the development of a novel analysis approach that involves both human and machine analysis of visual representations created using a combination of freehand drawing and our digital tools.

- Completed human and machine analyses of 264 "pages" of student work in a final assessment of a multiplication and division unit in a third-grade class

- Improved CLP's machine analysis routines

- Published and presented two refereed conference papers and published one book chapter

- Supervised four 6.UAP student thesis projects and two Undergraduate Research Opportunities Program (UROP) students

Fly-by-Wire

The Fly-by-Wire project will offer adaptive assessments to students in college algebra, computer-aided drafting, and accounting, with students being given supplemental questions depending on their responses to previous questions. All questions will be linked to a learning outcome map.

Fly-by-Wire will work with community colleges in computer-aided design, college algebra, and accounting and will provide interventions through mobile apps deployed to students and classrooms, adaptive homework assignments based on learning outcome maps, and instructor dashboards to visualize and understand student mastery of outcomes.

In FY2016, key accomplishments included the initiation of prototype versions of student and instructor apps and building of outcome maps and question banks.

iLab

The MIT iLab Project is dedicated to the proposition that real laboratories accessed online can enrich science and engineering education. UnlIsaac conventional laboratories, iLabs can be shared across the world. The iLab vision is to share lab experiments as broadly as possible within higher education and beyond. Current MIT efforts include experiments in microelectronics, physics, and spectrometry. In FY2016, key accomplishments were maintaining experiments and supporting classes. Table 8 shows recent iLab usage.

Table 8. Recent iLab Usage

Course or user	Students	Experiments
6.011 (fall 2015)	73	781
OCW (2 years)	178	386
University of Pavia (Italy)	125	3,958
Office of Engineering Outreach Programs Office of Engineering Outreach Programs MIT Online Science, Technology, and Engineering Community program	28	2,483
Guests (2 years)	527	7,050

Technology for Mathematical Argumentation

The Technology for Mathematical Argumentation (TMA) project, an NSF Cyberlearning-funded Early-concept Grant for Exploratory Research collaboration between MIT and TERC, aims to bring mathematical computation tools to early elementary grades, allowing students to learn and demonstrate algebraic reasoning. The tools are being developed and tested using our CLP software and in conjunction with our INK-12 NSF-funded project. TMA makes use of CLP's ability to support the creation and manipulation of visual representations, in particular those used in multiplication and division; the replay of students' interactions in creating representations; and the sharing and display of student work as the basis for class discussion. TMA supports the creation of these so-called representation-based proofs by enabling students to create animations that record interactions with CLP's digital tools.

In FY2016, key accomplishments included piloting of a one-week trial in a second-grade class, creation of a new "fuzzy" array representation, and drafting of a paper to be submitted for publication in Teaching Children Mathematics.

Video Concept Browser

The Video Concept Browser allows MIT students to browse and watch lecture videos grouped according to concepts (or learning outcomes). Using this self-service tool, MIT faculty or graduate students upload and tag videos by concept; students are able to watch videos to make up for a missed class, to review a concept, and to prepare for exams. The Video Concept Browser is used primarily in 2.002 but also in 8.02 and 3.032. In FY2016, key accomplishments included support of 2.02A (Fall) and 2.002 (spring).

Backstage

Backstage is SEI's growing suite of educational infrastructure services designed to support next-generation innovative educational applications being developed at MIT and elsewhere. Backstage provides foundational functionality to support the needs of educational applications. Others develop applications using these services—all of the services are "headless," available to developers through documented application programming interfaces (APIs). Backstage is based on significant (10+ years) prior investments in educational domain modeling.

One of the key accomplishments in FY2016 was leveraging the Backstage service suite to help support and deliver a number of strategic projects such as Fly-by-Wire and CLIx. Backstage's functional areas are as follows.

- Learning: manage learning objectives, activities, and proficiencies
- Logging: read and write entries to and from logs
- Relationships: relate and manage information about relationships between Backstage entities
- Repository: manage, organize, and discover digital assets
- Resources: access and manage directories of other Backstage entities and groups of entities (most often users)

In addition, the SEI staff co-authored a paper with colleagues at the Universitat Oberta de Catalunya ("Next Generation Learning Architecture") describing how the models and techniques behind Backstage can be used to support next-generation learning systems and application design and development.

Incubation

The Incubation group experiments with advanced digital learning technologies and helps transition developments into practical applications. The group integrates technology, media, and community into education; works to make MIT the online education platform for the world; and develops new MOOC business models to achieve financial sustainability.

Goals and Objectives

The Incubation group seeks to develop MOOCs in entrepreneurship and innovation, translate MOOCs into foreign languages, and run weeklong boo camps to provide instruction on how to launch ventures through a hands-on approach in the true spirit of mens et manus. Goals for AY2016 were to recoup the cost of developing the Entrepreneurship 101, Entrepreneurship 102, and User Innovation MOOCs through verified certificate donations, licensing revenues, and other revenue streams; complete the User Innovation and Entrepreneurship 103 MOOCs; and organize three MIT Global Entrepreneurship Bootcamps generating $900,000 in total revenue.

Accomplishments

During AY2016, the Incubation group:

- Released the "User Innovation: A Path of Entrepreneurship" MOOC on July 1, 2015. In FY2016, User Innovation had an overall enrollment of 70,054, with 730 verified enrollments. (Verified enrollments require an ID verification process for a modest fee; verified students who meet course requirements are awarded a confirmed certificate.)

- Licensed Entrepreneurship 101 to the Highland and Island Enterprise of Scotland. We set up an Entrepreneurship 101 CCX for the Can Do SCALE program for 453 learners in Scotland.

- Licensed Entrepreneurship 101 to Takamol of Saudi Arabia.

- Licensed a User Innovation CCX to the Jindal Global Business School in India.

- Translated Entrepreneurship 101 and Entrepreneurship 102 into Chinese. As of June 30, 2016, the Entrepreneurship 101 Chinese edition had an enrollment of 950, with five verified enrollments. The Entrepreneurship 102 Chinese edition had an enrollment of 404 with one verified enrollment.

- Translated Entrepreneurship 101 and Entrepreneurship 102 into Korean. As of June 30, 2016, the Entrepreneurship 101 Korean edition had an enrollment of 133, while the Entrepreneurship 102 edition had an enrollment of 66.

- Translated User Innovation into Turkish. As of June 30, 2016, the User Innovation Turkish edition had an enrollment of 616, with two verified enrollments.

- Organized the MIT Global Entrepreneurship Bootcamp and the inaugural MIT Global Entrepreneurship Teachers' Bootcamp. In the students' bootcamp, we had 57 people from 31 countries. In the teachers' bootcamp, we had 13 people from eight countries. By our count, 27 start-ups came out of MIT Global Entrepreneurship Bootcamp class 2, including three start-ups in which the co-founders met at the bootcamp. In the past admissions cycle, three of the class 2 bootcampers were admitted into regular MIT academic programs. Three of the start-ups from class 2 (ConquerX, PersonalMattress, and mDoc) returned to Boston in summer 2016 to participate in the MassChallenge start-up accelerator program.

- Organized the first MIT Global Entrepreneurship Bootcamp outside MIT in Seoul, South Korea, March 20–25, 2016. A total of 74 people from 29 countries, including Afghanistan, Iran, and Syria, took part in this first overseas bootcamp.

Figure 4. MITx Global Entrepreneurship Bootcamp class 2 enrollment by geography.
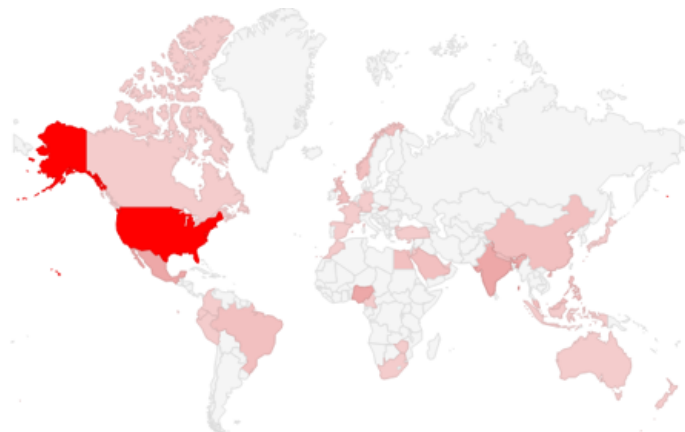
Digital Learning Solutions

The Digital Learning Solutions group develops and delivers online, fee-based programs targeted to adult learners who wish to expand their knowledge and build their skills, primarily in the context of professional education. DLS also partners with the Professional Education Program in the MIT School of Engineering to oversee that program's digital learning efforts. DLS was formed in spring 2015 in response to market demand for MIT professional education, especially in rapidly changing technology and business disciplines, where MIT is recognized as a leader.

Summary and Highlights

In its first full year of operations, DLS:

- Exceeded revenue targets, primarily via Computer Science and Artificial Intelligence Laboratory (CSAIL) professional education courses

- Launched a course on entrepreneurial negotiations, generating $120,000 in gross revenue

- Partnered with Boeing and the National Aeronautics and Space Administration (NASA) to develop a series of systems engineering courses

- Launched a proposal process to apply for professional education online course funding

- Convened an information-sharing group of cross-functional leaders from MIT who are leading digital initiatives within their respective departments

Goals and Objectives

Goals for FY2016 were as follows:

- Develop repeatable models that minimize faculty time

- Serve as a knowledge aggregator for all digital paid offerings across campus and partner with departments, labs, and centers to kick start new efforts

- Generate gross revenue of $1.5 million ($1 million in business-to-consumer sales, $500 thousand in business-to-business sales)

- Develop 1-2 train-the-trainer materials to support blended learning design

- Develop a portfolio management approach to DLS business, identifying, prioritizing, and managing projects to ensure that they align with and achieve strategic goals

- Focus on building out three new product lines that offer different value propositions and (ideally) test different price points

- Partner with various entitles across campus and potentially outside MIT to initiate new digital learning programs

Accomplishments

Accomplishments over the past year included:

- Exceeded revenue targets, primarily (as noted) via CSAIL professional education courses: Big Data, Cybersecurity, and Internet of Things. The CSAIL Big Data course alone had more than 10,000 registrations and generated more than $5 million in gross revenue.

- Launched the Entrepreneurial Negotiations course (April 26, 2016), the first DLS course to go to market. The course generated about 350 enrollments and approximately $120,000 in gross revenue. Professor Larry Susskind of the Department of Urban Studies and Planning was lead faculty.

- Secured an agreement on a systems engineering course series. Four courses will be developed (to launch in AY2017), and a professional certificate will be awarded for completion of all courses in the series. Boeing is a partner and partial underwriter (providing $400,000 for course development). Dr. Bruce Cameron is the faculty director.

- Developed a DLS proposal process (February 2016) to apply for professional education funding. We received two submissions, one of which will be piloted and the other deferred.

- Convened a group of cross-functional leaders from MIT who are leading digital initiatives within their respective groups. The group meets quarterly to share knowledge, provide updates on projects, and collaborate on work going forward.

Business Development

The Business Development group focuses on finding strategic relationships that support ODL's mission and operations. BD has an initial focus on generating revenue through the commercialization of digital programs for professionals, such as the new Architecture and Systems Engineering program created in collaboration with Boeing and NASA.

The BD group is actively exploring relationships with industry, academic institutions, and nongovernmental organizations (NGOs) to increase the exposure of MIT's online educational assets to professional learners worldwide. We also work closely with the Sloan School of Management and departments, labs, and centers in developing online and blended programs that both maximize learning impact and ensure sustainable operations for ODL.

Summary and Highlights

The BD function has shifted its focus to establishing long-term strategic relationships with major corporations and organizations that regard learning as a key driver for their businesses. Major accomplishments during the year included:

- Developed an internal assessment of the Business Development function in the context of ODL's expressed mission and goals

- Supported the DLS director in establishing a framework for a STEM leadership accelerator

- Developed a rough draft of a product portfolio for ODL that can be communicated effectively to the corporate and academic market

- Supported the creation of an Architecture and Systems Engineering online program by engaging 10 industry participants who are providing feedback and guidance to the program's development team

- Originated and received approval for a low-six-figure proposal to run a blended program at a major university in Mexico

Goals and Objectives

Our goal is to create sustainability pathways for ODL by engaging with industry, academic institutions, and NGOs. Our initial focus is on generating at least $3 million in new revenue through the commercialization of digital and blended programs for professionals and university students, such as the new Architecture and Systems Engineering program.

Accomplishments

BD continued to build a robust pipeline of strategic relationships, as follows:

- **Pilots:** We originated a $100,000 proposal with the University of Guadalajara for delivering a blended version of Eric von Hippel's User Innovation course.

- **Revenue pipeline:** We developed a robust pipeline of corporate and university prospects. Corporate relationships include those with companies such as Applied Materials, Boeing, Bombardier, Caterpillar, Dell, EMC, Fidelity, Ford, General Electric, General Motors, Microsoft, and Raytheon. Academic relationships include the Harvard Extension School, the University of Guadalajara, Kaplan University, and the University of Malaga, among others. NGO relationships include organizations such as the United Nations. BD is continuously adding companies, universities, and NGOs to the pipeline.

Administrative Accomplishments

BD successfully implemented and is currently configuring Salesforce.com to manage opportunities for the office. The group also supported the establishment of ODL's business development opportunity-tracking process and contributed to the definitions of consortia and educational offerings.

MIT Video Productions

MIT Video Productions provides video support for academic programs, departments, and Institute initiatives. MVP offers a variety of services on a cost recovery basis, including video production, distance education support, webcasting, post-production, and publishing video to the web.

Summary and Highlights

FY2016 was a year of significant growth and accomplishment for MVP. We expanded on the suite of services we provide to the MIT community, particularly our custom video production and event support business lines. Over the past year, we:

- Provided valued support to "MIT 2016: Celebrating a Century in Cambridge." Contributions included event capture and delivery, ongoing development of original content, and a complete upgrade of the MIT Infinite History website.

- Advocated for and led an effort to upgrade the video recording and presentation infrastructure in the newly completed Samberg Conference Center and supported several high-profile events at the center.

- Initiated a collaboration with the MIT News Office to produce video content in support of high-profile events, announcements, and press conferences.

- Continued to digitize, catalog, and digitally archive selections from the MVP analog videotape library.

- Successfully executed a re-branding process, retiring the former AMPS brand and fully embracing the MVP brand within ODL. Also, we developed and launched a new website and graphic identity.

In addition to capturing and delivering key Institute events, both live and on demand, MVP continues to help departments, labs, and centers across MIT tell their stories. MVP also assists MIT departments in creating online video courses.

Goals and Objectives

MVP provides media production and publication services to the MIT community in support of education, research, and outreach. These services include:

- Lecture capture
- Event support, including video production, video capture/delivery, and lighting
- Custom video production
- Video editing
- Video publication
- Duplication services
- Video conferencing
- Connection to media outlets

MVP has produced a diverse variety of video content for more than 30 years. With ongoing support from the Office of the Provost, we have continued the process of systematically preserving our vast analog tape library by digitizing and archiving the digital files.

The work we produced in support of MIT 2016 further solidified our reputation as talented story tellers. We intend to leverage this momentum to continue to grow that

business line in support of outreach and fundraising efforts. We also plan to provide greater support to faculty and labs as they compete for research grants and fulfill the outreach requirements of awarded grants.

A key objective for FY2017 will be to develop a "one-stop shop" solution for supporting events at the Institute. Clients have long commented on the time and energy involved in having to contract independently with multiple service providers in order to organize an event at MIT. We intend to offer a broader range of services (either subcontracted or in house) to better streamline the communication and coordinated execution required in event planning.

Accomplishments

We continued to apply our collective years of experience to significantly improving our coverage of events, to the degree that the content we produce itself becomes an integral part of the event. Examples include Commencement and the 2.007 Competition. We continued to work with departments throughout the Institute in crafting custom video programs in support of their communication objectives. Other accomplishments included the following:

- Produced a significant body of high-quality video content and web-based projects in support of the MIT 2016 celebration. This work has received high acclaim from the greater Institute community and beyond.

- Successfully advocated for and led the effort to implement a significant upgrade of the newly opened Samberg Conference Center.

- Developed and launched a new MVP website, including new branding and a pronounced focus on the quality of our video production and storytelling.

- At the request of the Laser Interferometer Gravitational-Wave Observatory (LIGO), produced a high-profile video teaser that opened the February 11, 2016, NSF press conference announcing the detection of gravitational waves.

- Produced a five-minute video that premiered just after the NSF press conference explaining gravitational wave detection, viewed to date 680,000 times.

- Expanded support of high-profile MIT symposia and conferences by producing video content that enhances the audience experience.

- Launched a new collaboration with the MIT News Office wherein MVP will produce human interest stories that will be featured on the MIT.edu home page.

- Transitioned MVP's media link services from a fiber-based delivery system leased from an outside carrier to an internet-based system, eliminating recurring monthly fees.

Administrative Accomplishments

During FY2016, we developed and implemented a streamlined work order/scheduling/ invoicing application. This system allows us to eliminate redundancies in our work order/scheduling processes and significantly facilitates client invoicing and uploads to the MIT accounting system (SAP).

In addition, the new MVP website provides a much-improved illustration of the range of services we offer with a significantly enhanced online order form. More importantly, the enhanced order form will further streamline client request processing.

Finances and Funding

MVP is charged by the provost with providing its products and services on a cost-recovery basis to fully cover costs. During the past year, we significantly exceeded this expectation. In fact, FY2016 was one of the most successful years MVP has had since it was first established in the early 1980s. Measured against any number of metrics—mission-centric support of key MIT initiatives, quality and quantity of content produced, client satisfaction with our products and services, overall revenue generated, and revenue vs. expenses—FY2016 was very successful.

We continued to judiciously apply gift funds generously provided by Jane and A. Neil Pappalardo, '64, in support of lecture capture and in support of high-profile productions. The LIGO videos referenced above and the MIT 2016 documentaries were funded in part with support from their annual gift. We are enormously grateful for their continuing commitment.

Engineering and Technical Operations

The Engineering and Technical Operations group develops and maintains the technology infrastructure that supports development and delivery of digital learning content and tools. The group also consults internally with other ODL units on technical matters.

A related sub-unit within Engineering and Technical Operations is the Distance Education and Streaming Operations group (DE). The DE group operates and maintains four advanced technology–enabled classrooms that offer recordings and broadcasts of MIT classes and other events to audiences on campus and around the world, either in real time or asynchronously. DE also manages the Institute-wide MIT TechTV video platform and service, providing video upload, hosting, and delivery services for MIT departments, faculty, and students.

Summary and Highlights

During AY2016, Engineering and Technical Operations continued to support the growth of MITx residential courses at MIT and increased the production of MITx courses for edX. In addition, it worked on several projects to extend the reach of MITx courses on edX. Specifically, the group:

- Delivered a new product, Learning Objects Repository for Education, that was used by the Physics Department for authoring 8.01 and 8.02 courseware

- Improved the functionality and performance of Custom Courses on edX, which was used in more than 200 blended learning programs this year

- Started work on the MIT Teachers Portal, which provides a catalog of CCX courses and allows for self-service creation of new ones

- Began work on the MITx MicroMasters portal, a site for building community around MIT's new MicroMasters programs

- Worked with several MITx course teams to develop and integrate new tools and assessment features

- Created several small marketing websites to support new MIT and ODL initiatives

- Released three new code libraries: Cookiecutter Django for starting new web site projects; Django-server-status for simple, consistent application status monitoring; and edX-API-client for a standard Python interface to edX's growing list of web APIs

- Released a new version of STAR CellBio to support its use at SUTD and continued work on the instructor interface for authoring new experiments

- Presented work at two open edX conferences, in October 2015 and June 2016

In addition, the DE group had a number of achievements:

- Relocated the 1-390 control room from 9-447 to 9-045, a renovation project that was successfully completed with little streaming content downtime

- Worked closely with the MIT Committee on Discipline to provide secure space for the committee's hearings using the DE classrooms in Building 9 (9-057, 9-151, 9-152)

- Provided webcast support for Institute events such as the LIGO press conference, the visit by the secretary of commerce, and the centenary celebration

- Provided webcasts of middle and high school Zero Robotics competitions to the International Space Station

- Provided classroom support for judging of the annual Siemens Competition in Math, Science and Technology

- Supported MITx courses in DE classrooms and webcasts of 15.671x ULab, 11.405x, and 15.662x live course sessions

- Streamed a Commencement webcast to the largest-ever audience for an MIT event—more than 34,000 viewers (both live and on demand)

- Worked in collaboration with MIT Video Productions to provide experimental lecture capture in 34-101 for Electrical Engineering and Computer Science courses

- Restored TechTV content for use by the MIT community and academic partners after an accidental loss of video archives

Goals and Objectives

ODL Engineering creates educational technology tools and applications and provides technical support for ODL units and MIT faculty/course teams developing MITx courses. Engineering also provides distance education services for the MIT community. Goals for AY2016 were to consolidate and strengthen the Engineering team, work with MITx to

improve the MITx offering and help move it toward a financially sustainable model, and provide educational technology services (such as MITx) at scale, using automation, to the entire student and faculty body.

Distance Education

DE provides advanced video and related services to the MIT community, supporting academic programs and Institute initiatives as follows.

- **Operation of technology-enabled classrooms:** As noted, DE runs and maintains four advanced technology–enabled classrooms on campus in support of MIT distance education initiatives. These rooms have video conferencing, Webex, and videotaping capability, with remote-controlled high-definition cameras and other technology to enable streaming media capture and/or transmission of lectures and presentations.

- **Provision of live and on-demand audio/video streaming services for audiences around the world:** These services support synchronous distance education courses that allow local and international instructional collaboration, delivery of webcasts of Institute events, and asynchronous on-demand video and rich media streaming.

- **Operation of MIT TechTV, the Institute-wide platform for hosting video content from departments, groups, and individuals across MIT:** In November 2015, TechTV suffered a loss of data. Videos requiring Moira-secured access to alternative hosting content for region-blocked countries have been restored, while other content has been redistributed back to collection owners by MIT Video Productions.

Accomplishments

MITx Support

ODL Engineering continued to support a growing number of MITx online courses, both on campus and hosted at edX. To make this possible, we collaborated with edX to improve its support of Open edX and establish the product as reliable. We upgraded the systems used on campus to edX's Cypress release in August 2015. We are working on an upgrade to the Dogwood release now.

New Code Libraries

ODL Engineering developed several open source tools to help accelerate the process of building new web applications. We use cookiecutter-django-app as a starter for all new projects; django-server-status provides a consistent interface for monitoring server status across all of our web applications; and edx-api-client is a reusable library for accessing useful edX APIs.

Staff Graded Assignments

The Staff Graded Assignment XBlock continued to be popular. In order to respond to requests for new features, we have begun development of a prototype that further

extends functionality to support distributed grading by freelance staff. If the prototype proves successful this fall, we will work with edX to integrate the functionality directly into Open edX.

STAR CellBio

We are continuing efforts to make STAR CellBio a self-service product so that biology faculty can design their own experiments for the simulator. We also supported the use of STAR CellBio at SUTD again in the spring of 2016.

LORE

ODL Engineering delivered the first version of LORE, a tool that helps course authors find and curate learning objects across multiple edX courses. The Physics Department used it to gather videos and assessments from multiple online courses and choose the best options for its introductory physics courses.

CCX

We continued the development of CCX, an edX feature that makes it easier to reuse edX course materials, particularly for smaller, blended online/offline classes. This tool was used by MIT, Davidson College, and other edX partners to deliver more than 200 online courses, mostly to high school students. Preliminary research on advanced placement test scores has shown a measurable impact on student outcomes.

MIT Teachers Portal

We also started development of the MIT Teachers Portal, a web catalog of MIT offerings for teachers, including CCX courses. A major feature of this portal is the ability for teachers to license CCX courses for use with their classes.

MITx MicroMasters

We have begun work on a website to offer a single-entry point to MIT's MicroMasters programs, providing a consolidated catalog of offerings and a pathway to apply for blended master's programs at MIT. This site is closely integrated with edX, where MicroMasters courseware is delivered, and it supports communication between MicroMasters students and faculty and among MicroMasters students.

Distance Education

Residential Education Support

The DE group provided live course support for combined residential/collaborative distance courses with the System Design and Management Program, the MIT/Woods Hole Joint Program in Oceanography and Applied Ocean Science and Engineering, and the Sloan School of Management, offering more than 400 hours of distance support each semester.

Lecture Capture Experiment

In AY2016, lecture capture experimentation continued in 34-101 with great response from faculty and students on the use of course content for review. Lecture capture, hosting, and streaming were completely automated for seamless delivery through DE video servers into the Stellar course management system.

MITx Course Support

The DE group also continued to provide classroom and interactive webcast support services for several MITx courses, including 15.671x, 11.405x, and 15.662x live course sessions.

Distance Education and Classroom Recording

During the year, 49 courses used DE technology–enabled classrooms. Programs included System Design and Management, the MIT/Woods Hole Joint Program in Oceanography and Applied Ocean Science and Engineering, and several collaborative distance courses in various departments on campus.

Webcasting

DE supported webcasting of more than 70 live events during the year, from monthly interactive alumni "chatcasts" to Institute events such as the Diversity Summit, Commencement, and the LIGO press conference. More than 30 departments and centers sponsored live webcast events, including the Zero Robotics programming competition in conjunction with the International Space Station and interactive webcast support for MITx courses.

Video Conferencing

DE supports video conferencing systems on campus and provides contracted services to more than a dozen clients, serving over 70 different video conferencing systems installed on campus. These systems allow collaboration over vast geographic distances, reduce travel costs, and optimize use of faculty time.

MIT TechTV

TechTV suffered a loss of data in November 2015 during an upgrade by an external vendor. About 10,000 videos were restored for active hosting from DE backup tapes, and additional content is being restored from the original video recordings to collection owners for hosting elsewhere, such as YouTube or Vimeo.

Administrative Accomplishments

To consolidate and strengthen the engineering team this year, we hired four new senior software engineers, two software engineers, a new senior developmental operations engineer, and a product designer. The team is nearly complete. In addition, we contributed to planning ODL's office consolidation in NE49, scheduled for July 2016.

Business Operations

Business Operations includes finance and accounting, human resources, marketing and communications, space, media strategy, and general administration. It provides support for the other sections of ODL with respect to defining and implementing strategic,

operational, and organizational improvements and facilitating ongoing operations. It also collaborates across the Institute to ensure that ODL's work is in accord with MIT best practices and policies and that it aligns with MIT's broader purpose.

Goals and Objectives

During AY2016, consistent with ODL goals, the priorities of Business Operations were to build scalable support for faculty to experiment and succeed; invest in areas that promote financial sustainability and monitor costs; support a healthy, productive ODL; and continue to support strategic initiatives.

Accomplishments

Business Operations had key achievements in these four goal areas during AY2016, as follows.

Building scalable support for faculty

- Enhanced financial reporting, including by course and by department, to track real-time spending on courses

- Coordinated and developed goals, budgets, HR strategies, and plans for MicroMasters and MITili

- Supported MITili faculty in developing organizational plans and sharing information

- Supported SIGx (MITx Special Interest Group) semiannual half-day meetings allowing faculty who have developed courses with ODL to share best practices and innovations

- Developed videos for Center for Real Estate online cases and for a new professional entrepreneurial negotiations course

Investing in areas that promote financial sustainability, and monitoring costs

- Led an ODL-wide annual strategic planning process that resulted in an increased focus on marketing, Digital Learning Solutions, Business Development, and Resource Development

- Continued cross-organization processes to establish clear goals, including ODL-wide goals and supporting business unit goals, and conducted semiannual goal reviews to monitor progress

- Developed the ODL budget for FY2017; continued quarterly financial reporting on budgets, actual expenditures, and projections; and enhanced reporting by separating operating, designated, and sponsored costs and revenues

- Enhanced self-serve financial reporting, creating more—and more useful— reports that managers can download in real time

- Developed and enacted an external marketing plan, helping to increase ODL course revenues and target spending more effectively

- Supported the launch of the Capital Campaign, collaborating with Resource Development to develop a giving list

- Developed an archiving and back-up strategy for media assets and coordinated its execution

- Supported coordination across MIT for all groups that are serving executive and professional audiences with digital learning by creating a cross-MIT group, helping to build a shared strategy, and augmenting cross-Institute communications

Supporting a healthy, productive ODL

- Developed and delivered financial, administrative, marketing, media, and other training across ODL and better publicized MIT training opportunities, leading to more staff use of these resources

- Continued performance reviews, discussing performance versus individual FY2016 goals

- Developed and enacted a website maintenance plan to ensure that site content is up to date

- Executed an ODL internal communications program comprising town halls, sharing of work among business units, and brown bag lunches

- Supported ODL's participation in MIT-wide communications and human relations initiatives, including the centennial celebration, the MIT Open House, and the job fair

- Developed and documented HR policies to improve clarity of expectations and enhance equity across ODL

- Led the development of—and move into—new space in NE49 (architecture, design, furnishings, audio/visual materials, move logistics)

Continuing to support strategic initiatives

- Supported the development and launch of MicroMasters by modeling business options, coordinating among relevant parties to ensure alignment, designing the launch site, and partnering with the vice president for communications on announcements, media, communications, and social media

- Supported the development and launch of MITili by developing goals and action plans; developing initial thoughts on the consortium, staffing, and budget; and supporting the faculty in sharing research

- Led the development and execution of the 2016 LINC (Learning International Networks Consortium) conference by developing the conference theme of "Digital Inclusion—Transforming Education through Technology," developing the program, designing and leading the marketing, and running the conference

- Explored and furthered Hive, an initiative to create a vibrant, enduring, self-perpetuating digital community of MITx learners and MIT students, faculty,

and alumni who find value in their shared connections and passion for problem solving and whose activities create value for MIT

- Supported new initiatives across ODL, including the bootcamp in Korea, the Teaching Systems Lab, the Connected Learning Initiative, and the Al Ghurair program

Administrative Accomplishments

The following were among the administrative accomplishments in AY2016:

- Developed new HR policies, including professional training and development, vacation and job flexibility, rewards and recognition, and hiring processes
- Rolled out vacation and sick time tracking tools
- Established policies and processes for contractor hiring, purchase orders, and travel
- Revamped hierarchies, including sponsored research
- Implemented an on-boarding training program for finance and administrative staff

Sanjay Sarma
Vice President for Open Learning