MIT Open Learning

MIT Open Learning (OL) reports to Professor Sanjay Sarma, the vice president for open learning and the Fred Fort Flowers (1941) and Daniel Fort Flowers (1941) Professor of Mechanical Engineering. It includes the following units:

- The Office of Digital Learning (ODL), which encompasses Residential Education, MITx, OpenCourseWare (OCW), MicroMasters, the Digital Learning Lab (DLL), and the Digital Credentials Consortium (DCC), as well as MIT xPRO, Horizon, Bootcamps, Bootcampus, and MIT Video Productions (MVP)

- The MIT Integrated Learning Initiative (MITili), a cross-disciplinary, Institute-wide effort that fosters quantitative and rigorous research on teaching, learning, and education systems

- The Abdul Latif Jameel World Education Lab (J-WEL), which funds applied research on learning and convenes a global community of collaborators for sustainable, high-impact transformation in education

- The Center for Advanced Virtuality, which pioneers innovative experiences using technologies of virtuality including XR, video games, social media, and new forms unanticipated by these platforms

- Open Learning Research and Projects, which conducts applied research on learning

- MIT Open Learning supporting units, which provide functional support throughout Open Learning

The mission of MIT Open Learning is to transform teaching and learning at MIT and around the globe through innovative use of digital technologies. It fulfills this mission by:

- Supporting MIT faculty and students in enhancing residential education

- Promoting and enabling quantitative, rigorous, interdisciplinary research on teaching and learning

- Providing platforms for digital education

- Sharing research and best practices by convening and partnering with schools, universities, companies, nongovernmental organizations, and governments

- Extending MIT's knowledge and perspectives to the world

MIT Open Learning's goals are as follows:

- Enhance support for faculty, making it easier for them to experiment and succeed in online learning

- Promote financial sustainability

- Continue innovation and agile operations while attracting, retaining, developing, and motivating staff and building community

- Support strategic initiatives, new research on teaching and learning, and innovation

- Enhance our ability to measure impact as a means of ensuring continual learning

Highlights of the Year

In academic year 2021, Open Learning continued to innovate with strategic projects, to support MIT during the pandemic, and to advance ongoing operations. Specific highlights are listed below.

Strategic Projects and Programs

- Preparation for possible sale of edX: On June 29, 2021, 2U announced that it will acquire substantially all edX assets, including the edX brand, website, and marketplace. In preparation for a possible sale, MITx and edX worked together to put in writing what had been until then an informal relationship, documenting the numerous ways the two organizations work together. Additionally, planning for MITx and Open Learning operations after a transaction, including for the possibility of a new MIT massive open online course (MOOC) platform (now referred to as MITx Online), started in the early winter and accelerated during the spring.

- NextGen OCW: The beta version of the next-generation OCW platform was released in the spring. This new platform includes a modernized mobile-responsive website, an enhanced user experience, and upgraded internal tools and workflows that will help to ensure that OCW remains a vibrant and current reflection of MIT's perspectives and pedagogy.

- Horizon transformation: In recognition of the substantial headwinds business-to-business (B2B) sales were seeing in the pandemic, Horizon brought in Kathleen Kennedy as its new leader and shifted its strategy toward more tailored and deeper relationships with key clients.

- Diversity, equity, and inclusion: In the face of horrific news events, Open Learning renewed its focus on diversity, equity, and inclusion by hosting numerous OL-wide events, broadening publicity of open positions (including outreach to job boards focused on underrepresented minorities), and engaging an external consultant to help with assessment, facilitation, and training.

- Task Force 2021 and Beyond: MIT President L. Rafael Reif commissioned a task force to build on what was learned during the pandemic to develop the blueprints for an MIT that is better, safer, more effective, more efficient, more sustainable, more inclusive, more equitable, more affordable, and more financially resilient. Sanjay Sarma served as co-chair of the task force along with Rick Danheiser, chair of the MIT faculty. Also involved in the task force from Open Learning were Krishna Rajagopal, Lisa Schwallie, and Marine Brown.

Responses to the Covid-19 Pandemic

- Digital Learning in Residential Education was instrumental in transitioning 1,925 MIT courses (90% of the total for fall and spring) from Stellar, a legacy learning management system, to Canvas. Working with Information Systems and Technology (IS&T), the Residential Education team provided key integrations for teaching and supported instructors and departments with student learning technologists, live training, and online resources and documentation. The team's efforts were recognized with an Infinite Mile Award from IS&T in December 2020.

- Digital Learning Lab fellows and scientists were instrumental in bringing residential courses online and providing training sessions on best practices in remote learning, helping hundreds of faculty and instructors teach remotely for the first time.

- Engineering and Technical Operations upgraded the Residential MITx systems to continue support for remote students and faculty during the pandemic. The team also developed new MIT-only features for the ODL Video Service to continue support of pandemic-related video distribution.

Ongoing Operations

- Residential Education hosted MITx sites for 115 courses and 10,010 active MIT student enrollments. Residential Education continues to update the Residential Digital Innovations section on the website, now highlighting 110 cases of innovative teaching practices at MIT, 33 of which relate to remote teaching. Also, Residential Education continued outreach to the MIT community through xTalks and Teaching with Digital Technology Awards.

- MITx saw a continued increase in demand, enrolling 1,329,879 learners from more than 200 countries across 180 MOOCs. Overall, 29,920 unique learners explored content from more than half of the sections of the courses in which they enrolled.

- The Open Learning Library (OLL) published 21 new courses, now offering 55 courses in total; following a successful pilot, all OLL courses were set to anonymous access.

- OpenCourseWare published 48 courses (23 new courses and 22 updates) and 17 supplemental resources. The OCW website had 22.2 million visits and remained the most subscribed .edu channel on YouTube with over 3.1 million subscribers. The OCW podcast released a second season of faculty interviews. Finally, OCW began a yearlong celebration of its 20th anniversary in April.

- MicroMasters launched a fifth program, Finance, with the MIT Sloan School of Management. A total of 1,311 MicroMasters credentials were issued, and unique enrollments exceeded 1 million.

- The Digital Learning Lab worked with faculty to develop and run 96 MOOC modules, 22 of which were new.

- The Digital Credentials Consortium worked on developing an open-source mobile online "wallet" to hold digital credentials and developed and deployed pilots at several member institutions.

- MIT xPRO launched four new courses and reran 68 existing courses, generating over $9.1 million in gross revenue. In addition, xPRO partnered with third-party organizations Emeritus and Global Alumni to develop new courses and translate existing courses.

- Horizon, a business-to-business subscription content library focused on emerging technologies, signed and launched six new customers and doubled the number of learners using the platform.

- Bootcamps delivered eight online programs to nearly 500 individual and corporate learners in approximately 60 countries. Additionally, Bootcamps co-created and delivered new types of programs with an expanded virtual toolkit and provided programs to smaller private groups, increasing corporate revenue. Bootcamps also ran an impact entrepreneurship lab pilot in fall 2020 and five regular open admission programs.

- Bootcampus continued developing collaborations with other universities and community colleges and explored joint academic programs. The Bootcampus team also established the new agile continuous education initiative, defining the initiative's mission, strategy, and future activities.

- MIT Video Productions provided support for MIT's Institute-wide online events, including producing the Institute's commencement ceremony, the MIT Forefront event, MIT-wide town halls, and the MIT Excellence Awards ceremony. MVP also supported the capture of numerous online courses and remote teaching modules for the MIT community.

- The MIT Integrated Learning Initiative continued to advance the five-year Reach Every Reader program, launched the Mental Wellbeing Initiative, funded research on learning effectiveness, and expanded outreach.

- The Center for Advanced Virtuality is actively working on five projects that combine virtual technologies with questions about learning and social impact. The deepfake film *In Event of Moon Disaster* launched and garnered international media attention; a related online course/module on deepfakes and misinformation was also created.

- The Refugee Action Hub (ReACT) ran its third cohort as an all-virtual program, allowing for larger and more global participation than ever before with 50 learners from 22 countries.

- The Abdul Latif Jameel World Education Lab (J-WEL) held J-WEL Connects online events for all members in the spring and fall in addition to hosting seven online workshops and 20 webinars. Also, J-WEL awarded a total of $883,521 in grants and continued to support Full STEAM Ahead and the pK–12 Action Group.

Research and Projects

- Responsible AI for Social Empowerment and Education (RAISE) launched in May 2021 as a collaboration among the Media Lab, Open Learning, and the MIT Stephen A. Schwarzman College of Computing.

- The Playful Journey Lab completed its research commitments and wound down at the end of May 2021.

- The Projects group completed its work with the CoLAB Program in Data Science from Uruguay and co-published a white paper with the Al-Ghurair Foundation for Education.

Open Learning Supporting Units

- Engineering and Technical Operations launched a preview version of the new NextGen OCW platform in April for beta testing, launched an MIT podcast aggregator page as part of MIT Open, and continued to support Residential MITx and xPRO systems.

- Business Operations continued to support Open Learning with strategic planning, marketing, communications, finance, human resources, administration, and space.

- Resource Development Secured over $4 million in gift revenue and helped MIT faculty across the Institute secure multimillion-dollar grants, J-WEL memberships, and multiple fee-for-service agreements.

Finances and Funding

Open Learning's fiscal year 2021 income was $47.6 million, level with FY2020. External revenues increased from $31.4 million in FY2020 to $33.7 million in FY2021, largely due to increases in MITx verified ID fees and sponsored research, which were offset by decreases in gifts and J-WEL membership revenues. Provost funding fell from $16.2 million in FY2020 to $13.9 million in FY2021, largely because the line of credit was not used.

Total expenses decreased from $50.1 million in FY2020 to $45.7 million in FY2021, due largely to a pause in all travel and events during the pandemic, an associated hiring freeze, and reduced gift funding resulting in decreased project expenses.

As a result, MIT Open Learning ended FY2021 with a $1.8 million surplus. The following table summarizes financial results for the year.

Summary of FY2021 Open Learning Income and Expenses

Income or expense	Total (in millions)
Sponsored revenues	$4.0
External fees	$11.7
Non-degree tuition revenues	$11.4
Internal fees	$1.0
Gifts and investment income	$4.3
Transfers	$1.3
Total revenues	**$33.7**
Total provost funding	**$13.9**
Total income	**$47.6**
Salaries and benefits	$21.3
Department support	$5.9
Revenue distribution	$5.7
Other expenses	$10.6
Total direct expenses	**$43.5**
Total indirect expenses	**$2.3**
Total expenses	**$45.8**
Net surplus (deficit)	**$1.8**

Staffing

Over the past year, Open Learning had six conversions (temporary employees converted to MIT term employees), one retirement, and 14 departures.
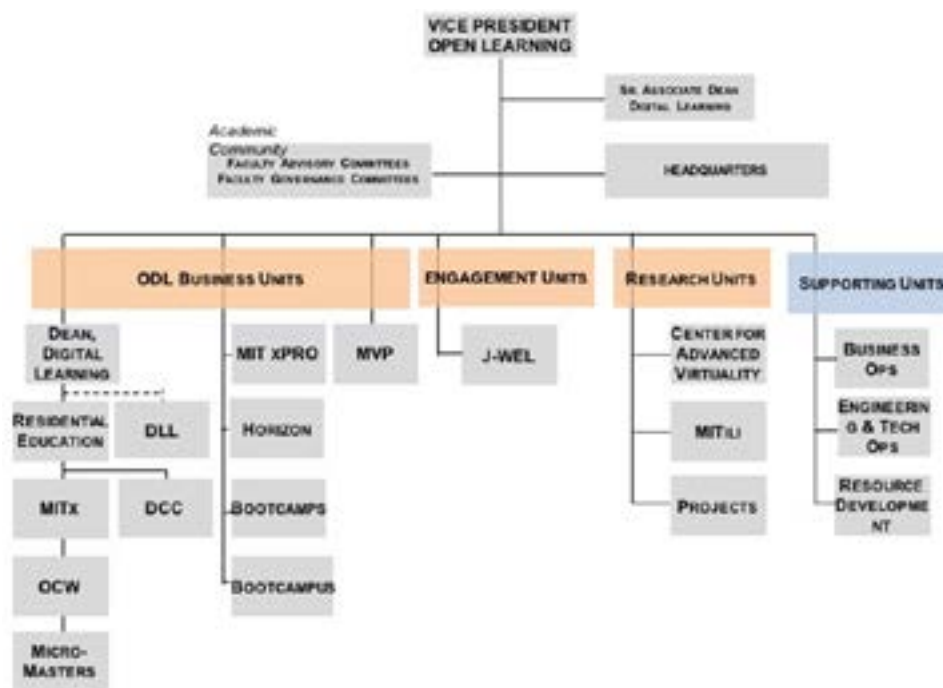

Figure 1. Open Learning organizational structure as of June 30, 2021.

The Open Learning management team is structured as follows:

- Sanjay Sarma, vice president for open learning
- Krishna Rajagopal, dean for digital learning
- Isaac Chuang, senior associate dean
- Shigeru Miyagawa, senior associate dean
- Erdin Beshimov, lecturer and senior director of Bootcampus
- Vijay M.S. Kumar, associate dean for digital learning and executive director of J-WEL
- Eric Klopfer, director of the MIT Scheller Teacher Education Program
- Ferdi Alimadhi, director of engineering
- TC Haldi, senior director, MIT xPRO
- Lisa Schwallie, executive director, Business Operations
- Tom Smith, senior director, Development and Strategic Initiatives

Office of Digital Learning

Residential Education

The mission of the Digital Learning in Residential Education team is to empower MIT faculty to use digital technologies to augment and transform how they teach, with the goal of making MIT education more effective and efficient for degree-seeking students. We do this by collaborating with faculty to instigate, explore, test, and institutionalize pedagogical models that enhance on-campus and remote education through the use of digital technology.

Our key strategies are to:

- Support digital learning experiments at MIT with technical expertise, consultation, facilities, funding collaboration, and training
- Encourage wider institutional adoption of pedagogical approaches enabled by digital learning tools by capturing and sharing our faculty innovations
- Collaborate with faculty, departments, the Office of the Vice Chancellor (OVC), and others to encourage and enable faculty to use digital teaching and learning tools, to help departments grow their course production capacity, and to support mechanisms that leverage existing Institute resources and synergies with other initiatives across MIT

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

- Science of learning, learning analytics, and blended course design consulting
- Support of experimental/innovative learning spaces including lecture capture and lightboards

- Support of the MIT-wide Canvas learning management system (LMS) and the Panopto video platform and technical and pedagogical support for integrations with other tools (e.g., Zoom, Gradescope, Piazza)

- Management of Residential MITx, where faculty, instructors, and members of the Digital Learning Lab can develop interactive auto-graded online problems and host selected material from MITx MOOCs for use by MIT students

- Outreach and events (e.g., xTalks, Teaching with Digital Technology Awards, newsletter) to promote innovative teaching and learning

Summary and Highlights

The Residential Education group supported faculty use of Canvas and the Residential MITx course platforms. The team worked closely with staff from IS&T to roll out Canvas to replace Stellar by provisioning the platform, providing key integrations for teaching, and intensively supporting instructors and departments with student learning technologists, live training, and online resources and documentation. These efforts succeeded in moving the vast majority of MIT classes to Canvas. In AY2020, over 99% of classes outside Sloan were on Stellar. In spring 2021, 93% (1,009) were on Canvas and 7% (79) were on Stellar. Many of our peer institutions preceded us in transitioning to Canvas, typically doing so over a three-year period; we do not know of any institution of higher education that has made the transition this rapidly.

Residential MITx hosted sites for 115 courses, serving 10,010 active MIT student enrollments. More than 100 faculty members taught these courses, and 99% of current MIT undergraduates have taken a class that used the platform. MIT educators have developed many kinds of sophisticated auto-graded online assessments—and more than 35,000 unique problems—for their on-campus students' homework, quizzes, and tests.

Residential Education continues to update the Residential Digital Innovations section on the website, which now highlights 110 cases of innovative teaching practices at MIT, 33 of which relate to remote teaching.

Accomplishments

During AY2021, key accomplishments in support of residential education included the following:

- Worked closely with colleagues in IS&T, departments, the registrar's office, and elsewhere to provide the Canvas platform to all of MIT. This included providing and supporting key integrations for remote teaching: Zoom, Panopto, Gradescope, Piazza, Dropbox, Google Drive, PollEverywhere, Matlab Grader, and Slack. It also included intensively supporting instructors and departments by hiring, training, and supervising 45 student learning technologists to help instructors set up their Canvas sites. MIT staff also provided live and recorded training sessions, extensive online resources and documentation, and email support to supplement the around-the-clock support provided by Canvas. These efforts succeeded in moving the vast majority of MIT classes that had previously used Stellar to Canvas. In AY2020, over 99% of classes outside Sloan

were on Stellar. In spring 2021, 93% (1,009) were on Canvas and 7% (79) were on Stellar. Additionally, the LMS advisory committee, chaired by Professor Gareth McKinley (Mechanical Engineering), met nine times between July 2020 and May 2021 and provided essential policy guidance and faculty input, including key policies for the platform launch and establishment of the Canvas External Apps Seed Funds process as a structured and equitable way to field, evaluate, and recommend implementation of key new integrations into MIT's Canvas ecosystem. The first four successful applications to the seed funds are being implemented for fall 2021.

- Continued the work of supporting the Canvas implementation by overseeing the learning technologist community (approximately 25 members through most of academic year), consulting with course teams on design and implementation of Canvas, participating in talks and presentations associated with bringing examples of best practice to MIT (xTalks, J-WEL, and other sessions), facilitating feedback sessions with key DLL stakeholders on Canvas features and usage, coding the reporting of the faculty and student Canvas survey, and overseeing the updating and creation of documentation such as the Canvas Quickstart Guide.

- Hosted 10 xTalks with approximately 500 attendees, of whom 38% were faculty/instructors.

- Assisted faculty and instructors with self-recording from home and with developing materials for asynchronous use in their remote teaching.

- Supported the Panopto video repository and editing platform, resulting in 10,094 hours recorded and 320,168 hours viewed for 643 classes. Also, we continued support of ODL Video Services and Zoom.

- Supported automated lecture capture in eight classrooms, of which four were upgraded to direct-to-Panopto capture and live-streaming capability.

- Managed Open Learning's Teaching with Digital Technology Awards, which are co-sponsored by OVC. We received 230 student nominations for 104 instructors and recognized and celebrated the inspiring accomplishments of 23 winners.

- Contributed learning sciences, instructional design, and learning analytics expertise to foster teaching innovation for six MITx grants.

- Submitted conference proposals and manuscripts based on work conducted at MIT with a focus on supporting Open Research practices, understanding students' perceptions of the data economy, and understanding how the learning technologist community was created and supported to help implement Canvas across MIT.

- Developed three learning sciences and learning analytics projects with members of DLL and others.

- Offered presentations and workshops highlighting OL and Residential work/ accomplishments for MIT colleagues, external audiences, and visiting delegations.

- Installed three temporary lightboards (one of which will become permanent) in response to increased remote learning needs. Support of two additional lightboard studios continues. One faculty member used the lightboards synchronously in his Zoom class. This past year, Zoom capture was enabled in two automated classrooms (Rooms 6-120 and 2-190). Two more rooms are in queue to be completed before fall.

In addition, the assistant director for learning sciences and teaching coauthored three chapters in the forthcoming book *Learning Engineering Toolkit* that incorporated examples and highlighted the work being done across MIT and presented and hosted workshops at five different conferences.

MITx

MITx on edX is the Institute's interactive learning initiative that offers online versions of MIT courses on the edX platform, a collaboration in online education founded by MIT and Harvard University. MIT instructors teach MITx courses to learners around the world.

Many people refer to MITx courses as MOOCs. The learning experience features multimedia and video content, sophisticated auto-graded online problems similar to those encountered by MIT students, embedded quizzes with immediate feedback, online laboratories, and peer-to-peer communications. Courses can be instructor paced, with deadlines and new content made available weekly, or can be set up for self-paced learners to work through at their own pace. Learners who wish to demonstrate their mastery of subjects can verify their identity and then earn certificates of completion after paying a fee and, in many cases, successfully finalizing summative assessments. The opportunity to learn from MITx courses is available for free to all learners.

A digital learning ecosystem has developed whereby a faculty member can build a suite of digital learning content and assessments on the Residential 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 for global learners. Often faculty will take what they learned from teaching globally back to the classroom, and vice versa.

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

- Offered 180 online courses (43 new courses and 137 reruns), the most in MITx's nine-year history. We enrolled 1,329,879 learners from more than 200 countries across these courses, among whom 29,920 explored content from more than half of the sections of the courses in which they enrolled.

- Provided additional support for several Custom Courses on edX (CCX).

- Generated $8.2 million in revenue through ID-verified certificates and licensing arrangements ($7.9 million from ID-verified certificate fees, $185,000 from MicroMasters comprehensive final exams, and $13,800 from CCX licenses); $357,000 of the $7.9 million from ID-verified certificate fees (part of the revenue from the Data, Economics, and Development Policy [DEDP] MicroMasters and CCX) was transferred to edX.

The cumulative worldwide impact of MITx on edX since its inception in 2012 is as follows:

- Total enrollment (clicked enroll): 11.4 million (5.3 million unique learners)

- Total participation (viewed courseware): 7.4 million

- Total exploration by unique learners (viewed more than half of the sections of a course): 792,000

- Certificates earned: 279,000

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. The goals of MITx are as follows:

- Reach: expand access to MIT-quality 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 Open Learning units

MITx major operational priorities over the past year were:

- Continue to support faculty in creating online courses

- Support residential efforts as needed during remote learning

- Develop synergies, improved efficiencies, and communications with other Open Learning units, the MIT community, and external resources

Accomplishments

During the 2021 academic year, MITx held three successful calls for proposals for the MITx Grant Program, resulting in 25 funded projects selected by the MITx Faculty Advisory Committee from among 47 proposals submitted by colleagues from 16 academic departments and programs.

New Courses and Exams Launched on edX: FY2021

Course	Title	Instructor
0.504x	Sorting Truth From Fiction: Civic Online Reasoning	Justin Reich
2.25.1x	Advanced Fluid Mechanics: Fundamentals	Gareth H. McKinley
2.25.2x	Advanced Fluid Mechanics 2: The Navier-Stokes Equations for Viscous Flows	Gareth H. McKinley
2.25.3x	Advanced Fluid Mechanics: Potential Flows & Boundary Layers	Gareth H. McKinley
3.012Tx	Thermodynamics of Materials	Rafael Jaramillo
3.022.1x	Microstructural Evolution of Materials Part 1: Statistical Mechanics	Juejun Hu
3.EOMD.CFx	Capstone Exam	Silvija Gradecak
5.01x	General Chemistry I: Atoms, Molecules, and Bonding	Troy Van Voorhis
6.247x	Principles of Modeling, Simulations, and Control	Marija Ilic
6.419x	Data Analysis: Statistical Modeling and Computation in Applications	Stefanie Jegelka
6.871Jx	Machine Learning for Healthcare	David Sontag
7.06.1x	Cell Biology: Transport	Iain Cheeseman
7.06.2x	Cell Biology: Signaling	Iain Cheeseman
7.06.3x	Cell Biology: The Cytoskeleton and Cell Cycle	Iain Cheeseman
10.213r	Chemical and Biological Engineering Thermodynamics	J. Christopher Love
10.50.2x	Analysis of Transport Phenomena II: Applications	Martin Z. Bazant
10.801r	Project Management and Problem Solving in Academia and Industry	T. Alan Hatton
10.MBCx	Math Boot Camp for Engineers	Bradley D. Olsen
10.S95x	Physics of COVID-19 Transmission	Martin Z. Bazant
11.S952x	COVID-19 in Slums & Informal Settlements: Guidelines & Responses	Ceasar L. McDowell
12.12.1x	The History of Ancient Environments, Climate, and Life	Kristin Bergmann
14.100PEx	Microeconomics proctored exam	Jonathan Gruber
14.310PEx	Data Analysis for Social Scientists proctored exam	Esther Duflo
14.73PEx	Challenges of Global Poverty proctored exam	Abhijit Banerjee
14.740PEx	Foundations of Development Policy proctored exam	Esther Duflo
14.750PEx	Political Economy & Economic Development proctored exam	Benjamin A. Olken
15.415.1x	Foundations of Modern Finance I	Leonid Kogan
15.415.2x	Foundations of Modern Finance II	Leonid Kogan
15.481x	Adaptive Markets: Financial Market Dynamics and Human Behavior	Andrew W. Lo
15.516x	Financial Accounting	John E. Core
15.S05x	Financial Regulation: From the Global Financial Crisis to Fintech and the COVID Pandemic	Deborah J. Lucas
15.S19x	Cultivating Entrepreneurship & Antifragility to Thrive in a Fast-Paced World	Bill Aulet
16.001r	Unified Engineering Materials & Structures	Raul Radovitzky
20.373x	Making a Cell Therapy: Principles and Practice of Manufacturing	Krystyn J. Van Vliet
21A.819.2x	Qualitative Research Methods: Data Coding and Analysis	Susan S. Silbey
21G.CLC.1x	Chinese Language in Culture: Level 1	Jing Wang
21G.CLC.2x	Chinese Language in Culture: Level 2	Jing Wang
21H.899x	Disease, Climate Shocks, and Wellbeing: A Long History of Social Response to Crisis	Anne E. C. McCants
22.811x	Sustainable Energy	Michael W. Golay
HST.953x	Collaborative Data Science for Healthcare	Roger Greenwood Mark
JPAL102PEx	Designing and Running Randomized Evaluations proctored exam	Joseph J. Doyle
STS.081x	Policy for Science, Technology and Innovation	William Bonvillian
VTx	Visualizing the Birth of Modern Tokyo	Shigeru Miyagawa

Administrative Accomplishments

MITx worked with faculty to support global learners. Accomplishments are detailed below.

Organization

- The MITx team accomplished more than it ever has in a single year while at the same time navigating the challenges and stresses of the Covid-19 pandemic.

- We hired a new senior video producer/editor and a new senior educational technologist.

- We launched the Finance MicroMasters.

- Mary Ziegler contributed to the National Association of the Deaf consent decree and the Digital Accessibility Working Group.

Services and Support

- The team created an IP research application database at the request of leadership. Development of reports and analysis related to the database demonstrated the risk of publishing fair-use content from MITx on a separate open access platform.

- We developed safety protocols that allowed the limited reopening of the OL Video Studio and training videos and documentation on remote DIY filming for faculty.

- We supported residential proctored exam support shifts, including several off-hour shifts.

- The team managed the Python 3 migration on the Residential Education MITx platform.

Community Building

- We held two faculty Special Interest Group events to bring the digital community together to share best practices and innovations.

- We awarded a 2021 MITx Prize to Jonathan Gruber, Ford Professor of Economics, in recognition of his 14.01x AP Microeconomics course, which uses MIT materials geared toward high school learners to help them prepare for the College Board exam. An MITx Prize also went to 15.480x The Science and Business of Biotechnology, created by Professors Andrew Lo of the MIT Sloan School of Management and Harvey Lodish of the Department of Biology, graduate students Zied Ben Chaouch of the Department of Electrical Engineering and Computer Science (EECS) and Kate Koch of the Department of Biology, and Shomesh Chaudhuri '14, PhD '18, an EECS graduate. All were named on the award.

Thought Leadership

- We hosted speaking and moderating panels at the virtual Media and Learning Conference in November 2020 and May 2021.

- Lana M. Scott participated in MIT's 47th annual Martin Luther King Jr. celebration as the first staff speaker in its history.

MITx Faculty Advisory Committee

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

- Offers 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, including consideration of benefits to MIT residential education, department strategies, and sharing of a broad and diverse cross section of the best of MIT with learners around the world

- Promotes innovative approaches to an MIT education, including evaluating new approaches proposed for MITx courses and experiments in digital learning and helping MITx bring innovative digital learning to the education of MIT students

The committee's chair is Caspar Hare, professor of philosophy. Members are as follows:

- Bill Aulet, professor of the practice, Sloan School of Management

- Martin Bazant, E. G. Roos (1944) Professor and executive officer of chemical engineering and professor of mathematics

- Ana Bell, lecturer and digital learning scientist, Department of Electrical Engineering and Computer Science (ex officio)

- 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

- Michael Cuthbert, associate professor, Music and Theater Arts

- Rick Danheiser, A C Cope Professor of Chemistry

- Sara Ellison, senior lecturer, Department of Economics

- Denny Freeman, professor, Department of Electrical Engineering and Computer Science

- Shigeru Miyagawa, professor of linguistics, Kochi-Manjiro Professor of Japanese Language and Culture, and senior associate dean for open learning (ex officio)

- Krishna Rajagopal, professor, Department of Physics, and dean for digital learning (ex officio)

- Brent Ryan, associate professor of urban design and planning head, City Design and Development Group

- Sanjay E. Sarma, professor, Department of Mechanical Engineering, and vice president for open learning (ex officio)

- Susan Silbey, Leon and Anne Goldberg Professor of Sociology and Anthropology and professor of behavioral and policy sciences, Sloan School of Management

- Pawan Sinha, professor of vision and computational neuroscience

- Gigliola Staffilani, Abby Rockefeller Mauze Professor, Department of Mathematics

- Iain Stewart, professor, Department of Physics

- Lily Tsai, Ford Professor of Political Science and chair of the faculty

- Ian Waitz, professor, Department of Aeronautics and Astronautics, and vice chancellor (ex officio)

MIT Open Learning Library

The MIT Open Learning Library is home to selected educational content from MIT OpenCourseWare and MITx courses. All material is free to use and accessible to anyone in the world, with or without registration. Registration enables learners to keep track of their progress through the assessments in a course. Some resources, particularly those from MIT OpenCourseWare, are free to download, remix, and reuse for non-commercial purposes.

- There are over 93,000 registered learners across the 55 live courses on OLL.

- Since OLL's launch in July 2019, there have been more than 2.2 million page views by 320,000 total learners (registered and non-registered) from 195 different countries.

- The site has been visited over 680,000 times since its launch.

Differences between OLL and edX

	Anonymous access	Discussions	ORA	Certificates	Always available	MIT managed	OCW courses
edX	No	Yes	Yes	Yes	No	No	No
OLL	Yes	No	No	No	Yes	Yes	Yes

Unique to OLL is the ability to allow anonymous access to courses. As a result of this component, learners (and search engines) are able to access the course content without any registration barriers. If learners wish to track their progress or save their answers, they will be asked to register for an OLL account and enroll in the course.

OCW courses on OLL are constructed from materials that a faculty member built on the Residential MITx platform for use by students taking an on-campus MIT course. The MIT OCW team subsequently transitioned the materials to OLL for learners around the world.

FY2021 OLL platform changes were as follows:

- Developed the capacity to allow anonymous (unregistered) access to courses while retaining platform/assessment functionality

- Launched an anonymous access pilot

- Upgraded the platform to edX Juniper/Python 3

- Set all courses to allow anonymous access after a successful pilot

FY2021 New MITx or OCW Courses and Content

Course	Title	Instructor(s)
0.501x	Envisioning the Graduate of the Future	Justin Reich
0.502x	Competency-Based Education: The Why, What, and How	Justin Reich
8.370.1x	Quantum Information Science I Part 1	Isaac Chuang, Aram W. Harrow, Peter W. Shor
8.370.2x	Quantum Information Science I Part 2	Isaac Chuang, Aram W. Harrow, Peter W. Shor
8.370.3x	Quantum Information Science I Part 3	Isaac Chuang, Aram W. Harrow, Peter W. Shor
8.371.1x	Quantum Information Science II Part 1	Isaac Chuang, Aram W. Harrow, Peter W. Shor
8.371.2x	Quantum Information Science II Part 2	Isaac Chuang, Aram W. Harrow, Peter W. Shor
8.371.3x	Quantum Information Science II Part 3	Isaac Chuang, Aram W. Harrow, Peter W. Shor
24.02x	Introduction to Ethics: Moral Problems and the Good Life	Caspar Hare, Tamar Schapiro, Kieran Setiya
24.118x	Paradox and Infinity	Agustin Rayo
11.405x	Just Money: Banking as if Society Mattered	J. Phillip Thompson
6.005.1x	Software Construction in Java	Robert C. Miller
6.005.2x	Advanced Software Construction in Java	Robert C. Miller
CITE101x	Technology Evaluation for Global Development	Daniel Frey, Bishwapriya Sanyal
15.053x	Optimization Methods for Business Analytics	James B. Orlin
0.504x	Sorting Truth From Fiction: Civic Online Reasoning	Justin Reich
6.SFMx	Street Fighting Math	Isaac Chuang
HST.953x	Collaborative Data Science for Healthcare	Roger Greenwood Mark
VTx	Visualizing the Birth of Modern Tokyo	John W. Dower, Shigeru Miyagawa, Hiromu Nagahara
11.550x	Leveraging Urban Mobility Disruptions to Create Better Cities	P. Christopher Zegras
0.SolveX	Business and Impact Planning for Social Enterprises	Admir Masic

With a total of 55 OLL courses, the current departmental breakdown is as follows:

- Urban Studies and Planning (Course 11): 6

- Management (Course 15): 3

- Aeronautics and Astronautics (Course 16): 2

- Mathematics (Course 18): 6

- Mechanical Engineering (Course 2): 1

- Nuclear Science and Engineering (Course 22): 1

- Linguistics and Philosophy (Course 24): 3

- Materials Science and Engineering (Course 3): 6

- Biology (Course 7): 1

- Physics (Course 8): 13

- Comparative Media Studies/Writing: 4

- Electrical Engineering and Computer Science (Course 6): 4

- Global Languages (Course 21G): 3

- Health Sciences and Technology (HST): 2

OpenCourseWare

MIT OpenCourseWare provides free open-licensed educational materials from across the MIT curriculum, sharing the full spectrum of teaching in all five MIT schools and 33 academic units. OCW now has material from over 2,600 courses and supplemental resources, creating a resource of unparalleled depth and breadth. Educators use it for teaching and curriculum development, while students and self-learners draw upon the materials for self-study or supplementary use.

Summary and Highlights

OCW celebrated its 20th anniversary with a public livestream video on April 7 that was watched live by over 1,300 people. The event featured a panel discussion with several MIT faculty members and a student about what OCW has meant for online learning and for MIT and a preview of NextGen OCW. The livestream kicked off a series of outreach and fundraising events running through FY2022.

In recognition of OCW's 20th anniversary and the opportunities for NextGen OCW, OCW was awarded a $1.5 million gift from the Jon and Linda Gruber Foundation and a $100,000 grant from the Arcadia Foundation.

Due to the ongoing Covid-19 pandemic, the OCW team worked in fully remote mode throughout the year and has been publishing many courses whose pedagogy reflects the shift to remote teaching.

Publication Highlights

Over the past year, OCW published 48 courses (23 new courses, 22 updates) and 17 supplemental resources. This included 20 "pointer pages" that link to other open online materials from MIT such as courses on the Open Learning Library and public course websites maintained by faculty members.

Eleven FY2021 publications had full video lectures and 16 had new Instructor Insights sections, including one new video interview. We processed and cleared more than 1,300 intellectual property objects during the year.

OCW publication metrics as of June 30, 2021, are as follows.

- Courses on OCW website: 2,519

- Supplemental resources on OCW website: 87

- Full video lecture series: 178

- Total sites with audio or video lectures: 259

- Open textbooks: 74

- Courses with Instructor Insights: 240

- Courses with video interviews: 37

- Courses archived in DSpace: 1,137

OCW FY2021 New Publications, by School

School	Courses	Supplemental resources
Architecture and Planning	7	1
Engineering	15	1
Science	10	2
Humanities, Arts, and Social Sciences	13	8
Sloan	1	1
Other	1	5

Use and Impact Highlights

- During the past year, the OCW website had 22.2 million visits from over 11 million unique users (roughly level with FY2020 and up from FY2019). Of these, 72% came from outside the United States.

- A total of 438 mirror drives have been shipped to institutions that lack reliable internet service, including new drives for a prison education program in Utah and the SomaliREN network.

- Video continues to grow in popularity, especially on YouTube. With over 3.1 million subscribers, OCW has the most subscribed .edu channel on YouTube. The more than 7,300 OCW videos have been viewed 283 million times since November 2007, with overall viewing exceeding 1.8 billion minutes (see Figure 2).

- Gary Gensler's 15.S12 Blockchain and Money course went viral when he was confirmed as the new Securities and Exchange Commission chairman; the course's Lecture 1 YouTube video was viewed over 3 million times from March through June 2021.
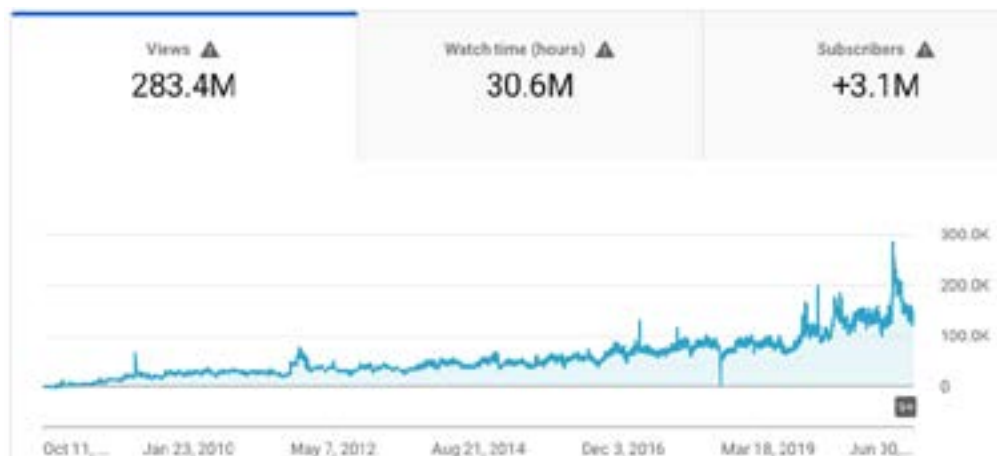

Figure 2. Growth of daily views on OCW YouTube channel.

NextGen OCW

The design and development of NextGen OCW continued with engineering and senior learning systems designer Daniel Seaton. A preview version of the new website, with mobile responsiveness and enhanced search, was publicly released in April and is slated for official release in late 2021. The new platform will streamline the course authoring process, allowing OCW to publish content more rapidly and enabling faculty to more easily refresh their courses. In addition to a new platform, numerous program enhancements will revitalize connections with the MIT faculty and student communities and help OCW achieve greater educational equity by expanding collaborations with organizations across the open educational resource ecosystem.

Goals and Objectives

OCW's formal goals for FY2021 included the following:

- Publish courses and supplemental resources from across the MIT curriculum and include substantial video content in at least 15% of each publication

- Produce OCW Educator Instructor Insights for at least 25% of new courses and continue the *Chalk Radio* podcast

- Continue to refine workflows and teamwork to ensure engaging, high-quality content consistent with resource efficiency and team satisfaction

- Ensure that content and the website comply with accessibility requirements

- Continue the planning, design, and development of NextGen OCW and collaborate with OL Engineering to maintain OCW's existing technical infrastructure until the platform is launched

- Maintain responsive outreach programs in user feedback, awareness building, and support of under-resourced populations

- Support annual giving, corporate underwriting, and capital campaign programs, emphasizing OCW's 20th anniversary and the upcoming launch of NextGen OCW

Other Accomplishments

OCW Educator

OCW Educator shares MIT teaching approaches and helps instructors discover open educational resources available through OCW.

Key results over the past year include the following:

- We published 23 Instructor Insights sections (including eight updates).

- We released the eight-episode second season of the *Chalk Radio* podcast. The podcast has had approximately 165,000 platform downloads and 225,000 YouTube views.

- The OCW Educator webpage received more than 150,000 visits, with nearly 450,000 page views of Instructor Insights content.

Open Learning Library

OCW uses OLL to publish courses that have interactive source content from Residential MITx. OCW also integrates OLL courses from MITx on edX into the OCW content discovery experience by creating "pointer pages" to these courses that are listed in the OCW site's browse and search tools.

Technology

The OCW website and publishing infrastructure (e.g., content management system) is maintained by the Open Learning engineering team. This infrastructure remained stable and consistent through the year as attention turned to developing the NextGen platform.

Content Maintenance

The OCW team engages in a range of ongoing content maintenance tasks:

- Maintaining course lists on the featured topics of energy, entrepreneurship, environment, introductory programming, life sciences, and transportation

- In previously published courses, identifying and repairing broken hyperlinks

- Periodically updating featured courses on the OCW home page, YouTube channel, department pages, and course collection pages

- Linking selected OCW course home pages to related MITx and OLL content

Communications and Outreach

OCW and MIT Video Productions created a five-minute video (*OCW@20*) featuring interviews with supporters from around the world, MIT faculty, and the OCW team. The OL Communications team positioned OCW feature stories with *MIT News*, *Forbes*, and *University World News* (Africa Edition).

OCW staff gave talks at several public conferences and events (Creative Commons Global Summit 2020, OE Global 2020, Open Ed 2020, Open Education Week 2021) and for MIT alumni at the June 2021 Tech Reunion.

OCW sustains an external communications program with contributions from many staff. In FY2021, we:

- Sent 40 mails to an average of 78,000 subscribers with a 27% open rate (an increase of 3% from FY2020) and a 1.5% click-through rate

- Created 20 posts for the OCW blog

- Processed over 5,700 user feedback inquiries

- Engaged social media users through OCW channels on Facebook (482,000 followers), Twitter (208,000 followers), and Instagram (9,000 followers)

OCW Faculty Advisory Committee

OCW's Faculty Advisory Committee meets twice per year, advising on policy, sustainability, and relations with the MIT faculty and with academic departments. In FY2021, the committee welcomed four new faculty members: M. Amah Edoh (Anthropology), Nancy Kanwisher (Brain and Cognitive Sciences), Rosalind Picard (Media Arts and Sciences), Anjali Sastry (Sloan). There were two faculty departures: Valerie Karplus (Sloan) and Hazel Sive (Biology). Three student members (Mussie Demisse, Anjali Nambrath, Zach Erdman) took over from prior student members Noam Buckman and Antonella Masini. This year, the committee advised on plans for NextGen OCW and the 20th anniversary celebration event and on ways to increase MIT student contributions to OCW.

MITx MicroMasters

Summary of Accomplishments

- Continued to run our existing four programs (Supply Chain Management [SCM]; Data, Economics, and Development Policy; Principles of Manufacturing; and Statistics and Data Science) and successfully launched the new Finance program. Enrollments in these programs exceeded 1 million unique learners. More than 70,000 individual course certificates were awarded, along with 1,311 MicroMasters credentials. Thirty-seven SCM and 22 DEDP MicroMasters credential holders graduated from their corresponding MIT master's programs.

- Built 56 new credit pathways with 16 schools from 14 countries.

Goals, Objective, and Priorities

- Explore new MicroMasters opportunities and proposals with academic departments

- Grow interdepartmental synergy on sharing best practices in running MicroMasters

- Optimize the B2B function

- Strengthen relationships with existing partners

- Coordinate with marketing and communications to create general guidelines for MicroMasters practice in communications, branding, social media management, and community building

- Grow MicroMasters Finance, DEDP, and Principles of Manufacturing pathway pipelines by trying new outreach approaches

- Continue collaborations on assessments for the DEDP master's and Finance MicroMasters

- Create engagement opportunities to nurture MicroMasters learner communities

- Collect data from each pathway school on pathway application status

Digital Learning Lab

The MITx Digital Learning Lab is a joint program between MIT Open Learning and MIT's academic departments. The lab is composed of scientists and fellows who play a critical role in advancing digital learning initiatives across MIT by working closely with faculty. DLL members are experienced subject matter experts in their various fields who are also well versed in the latest teaching and learning theories and technologies.

DLL scientists generally hold lecturer appointments and serve as leaders within their departments in developing a digital learning strategy alongside faculty. They manage a team, often including one or more DLL fellows (who are typically postdoctoral scholars), that seeks to develop and deliver innovative digital content as MOOCs for a global audience and in residential courses. DLL members also facilitate general advances in online learning through tool development, educational research, and other projects. The lab currently has two PhD candidates under Professor Isaac Chuang; they hold the title of digital learning research fellow.

Members of the Digital Learning Lab work together as a community to support and share innovations across MIT as well as externally. The community meets biweekly to share updates, best practices, and trends and to hear from guest speakers from MIT and beyond. They also support each other in creating tools and techniques for course development. The Digital Learning Lab is at the center of a larger community that includes others at MIT whose work intersects with digital learning and who participate in the biweekly meetings.

FY2021 Membership Roster

Digital Learning Lab Scientists

- Ana Bell, Electrical Engineering and Computer Science

- Jennifer French, Mathematics

- Jessica Sandland, Materials Science and Engineering

- Simona Socrate, Mechanical Engineering

- Michelle Tomasik, Physics

- Mary Ellen Wiltrout, Biology

- Darcy Gordon, Biology

- Karene Chu, Institute for Data, Systems, and Society

- John Liu, Mechanical Engineering

Digital Learning Lab Fellows

- Alex Shvonski, Physics

- Aidan MacDonough, Physics (junior fellow)

- Monika Avello, Biology (left for new instructor role in Biology in January 2021)

- Caitin Blank, Biology (started in January 2021, replacing Monika Avello)

- Meghan Perdue, School of Humanities, Arts, and Social Sciences

- Duncan Levear, Mathematics

- John Harrold, Materials Science and Engineering

- Joey Gu, Chemical Engineering

- David Balcarras, Linguistics and Philosophy

- David Grimes, Chemistry

- Karen Tapia-Ahumada, MIT Energy Initiative

- Inma Borello, Center for Transportation and Logistics

- Aditi Joshi, Mechanical Engineering

- Egor Matveyev, Sloan School of Management

Digital Learning Lab Research Fellows

- Curtis Northcutt, Electrical Engineering and Computer Science (graduated May 2021)

- Martin Segado, Mechanical Engineering

Goals and Objectives

The mission of the Digital Learning Lab is to partner with MIT academic departments to learn, collaborate, and innovate with digital learning on campus and beyond. Overall goals are as follows:

- Support academic departments in developing and deploying digital learning strategies that include both residential and global initiatives

- Lead the development of innovative course content and tools that faculty can use on campus and in MOOCs

- Enhance MIT's mission to advance education through technology by conducting and publishing educational research

- Create a robust digital learning community by conducting biweekly meetings, hosting and participating in talks and presentations around campus, and sharing best practices and innovations

DLL's major objectives and priorities during FY2021 were:

- Support distance and hybrid learning for MIT students

- Continue to create and deliver innovative digital course content both on campus and for global learners

- Add new Digital Learning Lab positions in key departments around MIT

- Build DLL's reputation as an organization and grow a robust community of practice

- Support professional development and career advancement for fellows and scientists

Accomplishments

- Worked with faculty to develop and run 96 MOOC modules, 22 of which were new

- Supported nine DLL members in attending national and international conferences or special training programs (this year all held virtually), with five of them presenting their work while attending

- Continued to hold an ex officio membership on the MITx Faculty Advisory Committee (held this year by Jessica Sandland), which allows DLL to have more voice in the direction and strategy of MITx

- Facilitated a workshop to help assess the needs of the group and redesign community meetings

- Provided crucial support for emergency online advance standing exams for new and returning MIT students

Across the Digital Learning Lab community, members continued to improve and develop materials as part of individual Canvas courses for residential experiences, including app integrations (Zoom, Gradescope, Panopto, and MITx) that were used as models within and across departments. Key DLL scientists and fellows also contributed feedback on Canvas usability to the Residential team that helped inform the next round of MIT-wide training resources. In addition, the group acted as an important conduit between Open Learning and departments, helping to amplify messages around Canvas resource availability and quality approaches to online and hybrid instruction. Finally, the group is poised to play a pivotal role in the coming months as testing of new and expanded connections between Canvas and Open EdX becomes available.

Digital Credentials Consortium

Building on earlier work at the MIT Media Lab, MIT Open Learning has launched an ambitious effort to develop open standards for digital academic credentials: the Digital Credentials Consortium. The DCC is a group of 12 leading research universities from the United States, Mexico, Europe, and Canada that set out to create a trusted standard for digital academic credentials and cultivate an ecosystem that puts learners in control of their own accomplishments. Digital credentials developed by the DCC can represent full university degrees, professional development certificates, or micro-credentials of many types, whether for MOOCs, MicroMasters, or mastery of granular competencies.

MIT Open Learning has been incubating the DCC. Krishna Rajagopal was elected chairperson of the DCC governing body, and Media Lab research scientist Philipp Schmidt, whose previous work at the Media Lab informed the core DCC standards, was appointed as DCC director. DCC senior technology architect Kim Duffy created and chaired the Verifiable Credentials for Education Task Force within the World Wide Web Consortium (W3C), where discussions about evolving technology standards take place. In addition, MIT staff members support a technical working group that develops working prototypes for use by DCC members.

The DCC is currently focusing on three sets of activities: development of open standards, deployment of digital credential pilots, and creation of an open-source mobile credential wallet. The pilots at various DCC member institutions will demonstrate the use, usefulness, and challenges of digital credentials in various contexts. In 2020, MIT received support from the US Department of Education to develop an open-source mobile wallet app that can be used by learners to securely store, display, and share their academic credentials. In addition, MIT has received grant funding to deploy the wallet and digital credential technology with a more diverse group of institutions, including a community college, a public research university with a large number of first-generation students, and a degree-completion college for adult learners.

MIT xPRO

MIT xPRO 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. MIT xPRO was formed 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 sixth year of operations, MIT xPRO:

- Generated $9.1 million in total gross revenue

- Launched four new online courses

- Offered 68 reruns of 21 existing online courses

- Partnered with third-party organizations Emeritus and Global Alumni to develop new courses and translate existing courses

- Worked collaboratively with others across Open Learning, J-WEL, and Horizon to develop and sell programs

Goals, Objectives, and Priorities

- Generate $9.5 million in gross revenues from business-to-consumer (B2C) and business-to-business (B2B) sales

- Reduce the MIT xPRO deficit

- Grow the product portfolio, developing and launching eight new online courses

- Explore channel and distribution partnerships

- Translate courses into other languages

- Collaborate across the Institute to develop integrated, interdisciplinary offerings

- Support the Online Professional Education Governance Committee

- Pursue customer-driven product development and renewal processes

Accomplishments

- Generated $9.1 million in total gross revenue, had 12,400 enrollments, and had a 94% certificate completion rate.

- Launched four new online courses: System Thinking, Leading Teams, Critical Thinking and Decision Making (developed in partnership with Boeing), and Technical Innovation. These courses generated 282 enrollees and approximately $186,000 in gross revenue.

- Reran 21 existing online courses: Architecture and Complex Systems; Models in Engineering; Model-Based Systems Engineering: Documentation and Analysis; Quantitative Methods in Systems Engineering; Additive Manufacturing for Innovative Design and Production; Data Science and Big Data Analytics: Making Data-Driven Decisions; Introduction to Quantum Computing; Quantum Computing Algorithms for Cybersecurity, Chemistry, and Optimization; Practical Realities of Quantum Computation and Quantum Communication; Requirements for Large-Scale Universal Quantum Computation; Entrepreneurial Negotiations; Principles of Biomanufacturing: Using Biotechnology to Manufacture Medicines; Understanding Organizational Strategy and Capabilities; Negotiating and Applying Influence and Power; Navigating and Leveraging Culture and Networks; Discovering and Implementing Your Leadership Strengths; Machine Learning, Modeling, and Simulation Principles; Applying Machine Learning to Engineering and Science; Negotiating to Create Value: The Mutual Gains Approach; Healthcare Negotiations: Better Outcomes for Sales Professionals; and Drug and Medical Device Development: A Strategic Approach. These courses generated 10,156 enrollees and approximately $8.08 million in gross revenue.

- Partnered with Global Alumni to translate the majority of MIT xPRO courses into Spanish and one into Portuguese.

- Partnered with Emeritus to develop and launch five new programs (and began working with Emeritus to translate them into Spanish): Professional Certificate in Coding (three-course program), Professional Certificate in Cybersecurity (three-course program), Robotics Essentials (single course), Designing and Building AI Products and Services (single course), and Technology and Innovation Acceleration Program (long-form program).

- In collaboration with Emeritus, began development of three new programs: Professional Certificate in Data Engineering (three-course program), Professional Certificate in Technical Project Management (three-course program), and Augmented Reality/Virtual Reality (AR/VR; single course).

- Worked with J-WEL to develop a custom module for Raytheon on model-based digital threads.

- Pursued customer-driven product development processes based on learner assessment instruments and customer feedback loops.

Administrative Initiatives

- Worked with Horizon to package offerings into larger B2B sales

- Continued to support the Online Professional Education Governance Committee in overseeing and monitoring all online professional education activities across the Institute

Horizon

MIT Horizon is a B2B subscription content library that helps large organizations train their workforces on emerging technologies such as 5G, artificial intelligence (AI), AR/VR, the Internet of Things, and robotics. Horizon offers customers up-to-date, accurate educational content together with an enterprise-friendly platform, usage analytics, ongoing user engagement support, and various professional services to ensure their success.

Content is developed for both technical and non-technical learners and focuses on micro-assets (e.g., articles, videos, podcasts) that customers can stack into custom educational paths or courses. Although much of MIT Horizon's content is developed in-house, we also license and include content from a number of MIT publishers (e.g., The MIT Press, the *Sloan Management Review*, and MIT xPRO).

This is the first product of its kind from a university and fills an important unmet need in the corporate learning market.

In FY2021, MIT Horizon:

- Signed and launched over a half dozen new customers including the United States Air Force, Pearson, NFI Industries, Avery Dennison, ZS Associates, and Schlumberger

- Increased our average sales price 11-fold through updated pricing strategies and improved persona matching among prospects

- Tripled our annual renewal revenue from 11/18 accounts

- Doubled the number of learners on the platform

- Built and launched the Department of the Air Force/MIT AI Education Research portal

- Launched a number of efforts to obtain a deeper understanding of the learner experience

- Expanded collaborations with subject matter experts and faculty across the Institute, including MIT Sloan, the Media Lab, and Lincoln Laboratory

- Continued to support internal partnerships to provide Horizon accounts to over 2,000 students and participants in MIT programs including MIT Solve, the MIT Innovation Initiative, MIT Professional Education, and J-WEL

Bootcamps

MIT Bootcamps programs educate innovators worldwide on new technology, innovation, and entrepreneurship techniques developed and taught at MIT. A combination of synchronous and asynchronous delivery is used to create a rigorous and immersive learning environment that connects students globally. In FY2021, Bootcamps transitioned from in person to completely online, delivering eight programs to nearly 500 individual and corporate learners in approximately 60 countries.

Summary and Highlights

As was the case for many others, the Covid-19 pandemic forced MIT Bootcamps to innovate quickly and continuously. The team was able to determine how to deliver transformational team-based action-learning programs virtually to students dispersed across the world and experiencing different and ever-changing realities simultaneously. MIT Bootcampers in 2021 faced the Covid-19 pandemic and other personal tragedies; civil unrest in Ethiopia, Nigeria, and Myanmar; and natural disasters while participating in Bootcamps. Fifty-five learners from the MIT ReACT program were also integrated as full participants in the MIT Innovation Leadership Bootcamp.

In the open-admissions programs, virtual delivery allowed us to increase access to Bootcamps through lower price points, avoid visa issues, and provide flexibility to those with other full-time commitments, whether personal or professional.

The Covid-19 pandemic also forced a mindset shift throughout the corporate world, and this new openness to virtual programs allowed us to co-create and deliver new online programs with expanded virtual toolkits that have post-Covid-19 pandemic potential for B2B and B2C learners. We have also been able to provide Bootcamps programs to smaller private groups than the economics of in-person programs allow for, increasing our corporate revenue.

Goals and Objectives

- Respond to the Covid-19 pandemic as an opportunity by building online Bootcamps into a robust, diversified, and financially viable program with post-Covid-19 pandemic potential

- Build and scale programs with a lean team

- Maintain corporate relationships and revenue by building and delivering high-quality online action-learning educational programs that are educationally comparable to in-person programs

- Deliver simultaneous programs from a single online Bootcamp "run" to maximize revenue per run

- Pilot new online action-learning educational programs

- Pilot a new curriculum on impact entrepreneurship

Accomplishments

- MIT Sport Entrepreneurship Bootcamp, Sinsheim, Germany (1,174 applicants and 68 participants)

- MIT Venture Scaling Bootcamp, Cambridge, MA (986 applicants and 50 participants)

- Future of Learning Symposium, São Paulo, Brazil (200 participants)

- New curriculum development

- Impact Entrepreneurship Lab pilot (65 previous Bootcamps graduates)

- Fall MIT Innovation Leadership Bootcamp (2,575 applicants and 131 participants, including 55 ReACT students)

- MIT/Harvard Medical School Healthcare Innovation Bootcamp (1,408 applicants and 62 participants)

- Global Health Track (22 participants)

- Spring MIT Innovation Leadership Bootcamp (3,619 applicants and 86 participants)

Bootcampus

Bootcampus focused on three streams of activities:

- The team worked on two research projects seeking to understand emerging educational institutions and programs to assess ways MIT can support them and their trainees through new educational offerings and models. The first project explored the landscape of entrepreneurship training organizations (ETOs), including incubators and accelerators. The team interviewed 19 executives from top-ranked ETOs around the globe, covering 49 different programs from four continents. The second project focused on corporate training and education programs, including corporate universities. We interviewed executives from 26 companies (including Microsoft, Google, JetBlue, IBM, Deloitte, and Infosys) that lead, manage, or oversee learning and educational programs offered to their employees.

- The team established the new agile continuous education initiative, defining the initiative's mission, strategy, and future activities and creating a first working website to support the model's development and dissemination. In parallel, we began a case studies paper on MIT programs following the model and started conversations with different MIT faculty and staff to share the model and how it connects with other MIT initiatives and programs.

- Bootcampus continued developing collaborations with other universities and community colleges, specifically in the West and Midwest; explored joint academic programs; and applied for a Department of Defense National Defense Education Program grant focused on teacher and student upskilling in innovation, entrepreneurship, and leadership. The proposed model will be improved for and tailored to future funding opportunities.

MIT Video Productions

MIT Video Productions provides video support for academic programs, departments, and Institute initiatives. MVP offers a variety of video-related services on a cost recovery basis, including video production, virtual event support, and post-production, in support of the MIT community.

Summary and Highlights

Although FY2021 saw challenges to the cost recovery model during the Covid-19 pandemic, MVP continued to provide video services to MIT's departments, labs, and centers (DLCs) ranging from facilitating the 7.00 COVID-19, SARS-CoV-2 and the Pandemic course to supporting MIT town hall events. MVP's mission of delivering video services pivoted to support online and virtualized services for academic needs as well as critical communications for MIT.

- The team provided more than 9,000 billable work hours in support of 373 projects to 110 unique MIT community clients.

- We supported the delivery of 7.12 million minutes of streaming content with 170,577 unique views.

- We supported key MIT initiatives including the Climate Grand Challenge and the MIT professional education course in AI.

MVP focused on the MIT community's need for online video services, including course and event captures, and the Institute's communications needs. MVP storytelling and marketing content continued to provide opportunities to engage with a wide variety of clients.

Goals, Objectives, and Priorities

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

- Provide creative media services in support of MIT and Open Learning mission objectives including virtual services for capture and delivery of online content

- Maintain an agile and efficient team of videographers, producers, and editors to produce MIT client content in a timely and cost-effective manner

- Strengthen and build new relationships and collaborations with DLCs throughout MIT toward a common goal of having our collective work reach desired audiences

Accomplishments

- MVP's FY2021 client promoter score was 96%.

- MVP continued its delivery of online services for many high-profile virtual events. We continued to work with departments in crafting custom video programs in support of their communication objectives. Climate Grand Challenge webinars, the February MIT Forefront event, and the MIT Excellence Awards and Collier Metal ceremony.

- The team supported the capture of online and remote teaching for Courses 3, 5, 7, 14, 15, and 18.

- We supported the delivery of 7.12 million minutes of streaming content with 170,577 unique views.

- We delivered video production services for MIT's second online commencement exercise with over 289 days of content viewed.

- We supported communications of MIT town halls to the remote MIT community.

MIT Integrated Learning Initiative

The MIT Integrated Learning Initiative funds, connects, and shares research on learning effectiveness. This research ranges from scanning the brains of individual learners to improve assessment and instruction (Department of Brain and Cognitive Sciences) to applying large-scale data analytics aimed at guiding education policy decisions (Department of Economics). Studies address questions at the learner, instruction, and policy levels across one or more of three broad demographics: birth through preK–12, higher education, and workforce learning.

Summary and Highlights

- Reach Every Reader: MITili continues to drive the external communications and event planning activities for the Reach Every Reader initiative, helping to reach thousands of followers on social media and tens of thousands of readers via our website. Most recently, MITili helped drive the annual "all hands convening" event, which included all members of Reach Every Reader as well as its funder, the Chan Zuckerberg Initiative.

- Mental Wellness Initiative (MWI): MITili is continuing the launch of MWI. We have completed several virtual presentations, including most recently a presentation at the Connected Learning Summit. We have also completed a National Institutes of Health proposal that is currently in review.

- Learning effectiveness research grant program: MITili is helping fund research in the Department of Brain and Cognitive Sciences through funding to the GabLab and in the Department of Economics through the School Effectiveness and Inequality Initiative.

- Expanded outreach: We expanded outreach through conference presentations and co-sponsorships, membership in industry affiliations, and website/social media communication, including spearheading the MassBridge Bridging the Education/Workforce Gap: Community College and Beyond summit.

- Awards: MITili director John Gabrieli was recently presented the Samuel Torrey Orton Award by the International Dyslexia Association for his contributions to dyslexia research.

Goals and Objectives

- Drive and support corporate, foundation, and government fundraising

- Lead and participate in the projects below

- Publish frequently to MITili website, social media, and email lists and attend and present at relevant conferences

Accomplishments

- Reach Every Reader: MITili was instrumental in helping Reach Every Reader develop an external communication plan, securing vendors, and driving the rollout of the website and social media platforms. Reach Every Reader is currently reaching thousands of interested stakeholders in the field of literacy and assessment.

- Mental Wellness Initiative: MITili has been driving discussions on and off campus on how to make mindfulness and mental wellness a priority in preK–12 classrooms. Along with the Connected Learning Summit, our research scientists presented their work at an Open Learning talk in January where hundreds of educators were able to gather to hear from our experts as well as ask questions to help improve mental health in all classrooms.

- Consortium for Advancing Adult Learning & Development: MITili continued to participate in this McKinsey-convened "new interdisciplinary network of leading thinkers and doers drawn together by the possibility of re-imagining how businesses and society approach adult learning and growth."

- Digital Learning Consortium: MITili continued to participate in this IBM-convened group, addressing elements of its mission to "agree on open standards to make things simple and interoperable among designers, vendors, content and delivery systems to influence the rest of the learning industry to align with them."

- Expanded outreach: MITili published to its website, social media, and email newsletter list, adding 87 new articles and 41 blog posts, expanding social media reach and website visits, and sending monthly newsletters.

Center for Advanced Virtuality

The MIT Center for Advanced Virtuality (MIT Virtuality) pioneers innovative experiences using technologies of virtuality—computing systems that construct imaginative experiences blended with the physical world. Our approach to engineering and creative practices pushes the expressive potential of technologies of virtuality and simulates social and cognitive phenomena while intrinsically considering their educational, social, and cultural impacts. We support both creative projects and research endeavors through four components: studio, laboratory, salon, and hub.

The Center for Advanced Virtuality is directed by Professor D. Fox Harrell (Computer Science and Artificial Intelligence Laboratory [CSAIL] and Comparative Media Studies) and includes affiliated faculty, researchers, graduate students, staff, and other affiliates.

Accomplishments

Projects

- Roleplaying for social perspective taking: We are designing and studying computer-supported roleplaying for supporting positive perspective transformation via reflection for digital media users. This involves creating tools, techniques, and methods to understand and model social identities and cultural values of users' virtual identities (representations in online gaming, augmented reality, and virtual reality).

- Virtuality and social impact: With a focus on anti-bullying and anti-aggression, the Virtuality for Immersive Socially Impactful Behavioral Learning Enhancement Project (Project VISIBLE) is creating, evaluating, and deploying a research testbed and experience using XR for users to learn positive and productive sociability. Our aim is to produce both a novel simulation model and a prototype as a proof of concept. In addition, our system called Passage Home VR is modeling how people are socialized to perceive race; it has been deployed for national online studies. It both assesses how people are socialized to think about race (e.g., there are social science–based categories such as colorblind, prepared for bias, and appreciating diverse cultural histories) and acts as an intervention to make people aware of bias.

- Combating misinformation and deepfake technologies: We created an online course/module on misinformation and deepfake technologies that was supported by a grant from J-WEL Higher Education. In addition, the film *In Event of Moon Disaster* seeks to educate the public about deepfakes and misinformation. Nearly 1 million people have watched the film in full or in part, and 83,000 have actively engaged with the website that includes the film and the contextual materials.

- Virtuality and health: We supported the development of, and collaborated on, a novel virtual reality interface that allows educators to create immersive three-dimensional audio reconstructions of patient experiences. Medical students will experience the world as patients with specific diagnoses, increasing understanding of distinctions between psychiatric diagnosis and empathy for patients.

Selected Grants and Support

- Computationally-Supported Roleplaying for Social Perspective Taking (three years, $930,000)

- A grant from NCSOFT for Project VISIBLE (two years, $140,000)

- A J-WEL higher education grant for Teaching Media Literacy in the Age of Deepfakes

Advisory

We have convened powerful groups of advisors, including an advisory board made up of industry and academic experts, an advisory council consisting of philanthropic supporters and advocates, and a steering committee consisting of MIT internal experts.

Student Support

We served as faculty supervisor to the VR/AR Club and advised the club on the recently released graduation app.

Refugee Action Hub

Since 2017, the MIT Refugee Action Hub has offered innovative blended learning programs for refugees and other forcibly displaced communities around the world. MIT ReACT accelerates pioneers through agile continuous education, leveraging MIT's online learning ecosystem to provide an education to employment pathway program for talented youth to become agents of positive catalytic change in their careers and communities. ReACT works closely with MITx, MIT Bootcamps, the MIT International Science and Technology Initiatives (MISTI), and MIT faculty and students to combine online courses with in-person workshops focused on computer and data science, entrepreneurship and innovation, and skill development. ReACT also works with businesses and international organizations to introduce students to paid internships and mentors.

Over the past year, ReACT:

- Launched the third cohort for the MIT ReACT Certificate Program in Computer and Data Science, enrolling 50 refugee, displaced, and underserved learners from 22 countries

- Built a network of global collaborators and funders focusing on a geographic hub strategy in Jordan, Uganda, Colombia, the United States, and Uruguay

- Secured over $350,000 in grants and gifts to launch the fourth ReACT Certificate Program in Computer and Data Science cohort with 110 learners

- Sponsored five ReACT alumni in addition to the 50 learners in the current ReACT cohort to participate in the MIT Innovation Leadership Bootcamp

- Participated in the Working Group on University Sponsorship of Refugee Students for the Presidents' Alliance on Higher Education & Immigration

- Participated in the Connected Learning in Crisis Consortium

- Took part in a number of public speaking events, including Oyster Ascent, One Journey's Refugee Ally Collective, and a J-WEL webinar

- Organized and facilitated a design workshop with the Whitaker Peace Development Initiative on digital learning pedagogy for refugee community learning centers

- Secured funds to plan an MIT migration summit

- Strengthened institutional collaborations with J-WEL, MISTI, the Legatum Center for Development and Entrepreneurship, and D-Lab

- Launched an advisory council with MIT alumna Hala Fadel serving as chair

Responsible AI for Social Empowerment and Education

As a pioneer in artificial intelligence research and a leader in advancing knowledge for all learners, MIT is poised to empower young people with the understanding they need to thrive in the era of AI. Responsible AI for Social Empowerment and Education is an MIT-wide collaboration among MIT Open Learning, the Media Lab, and the MIT Stephen A. Schwarzman College of Computing. RAISE seeks to advance inclusiveness in learning, education, and computational action as a means of rethinking and innovating how to holistically and equitably prepare diverse K–12 students, an inclusive workforce, and lifelong learners to be successful, responsible, and engaged in an increasingly AI-powered society. Accomplishments over the past year include the following:

- Created and published several open AI curriculum modules for middle schools.

- Expanded our team of developers and researchers to support a number of sponsored projects, including the design of AI curricula for the first inclusive school in the United Arab Emirates.

- Launched and hosted FutureMakers in spring 2021, training 64 teachers and mentors and engaging over 300 students across 21 states and territories (in addition to seven countries beyond the United States).

- Developed a video series on careers in AI supported by a grant from Amazon Future Engineers. The videos are available on YouTube.

- Initiated planning for the spring 2022 Day of AI with i2 Learning.

- Launched the MIT CS+AI Literacy Learning Community, a group of educators, researchers, and designers working together to create an open community around the AI literacy work being done at MIT.

- Published a report on the impact of the CoolThink@JC project with App Inventor and the Hong Kong Jockey Club.

In addition, RAISE director Cynthia Breazeal delivered a keynote address at Massachusetts STEM Week, hosted at MIT with Governor Charlie Baker, Lieutenant Governor Karyn Polito, Massachusetts STEM Advisory Council member Jeffrey Leiden, and others. Breazeal also delivered a keynote on her research on the occasion of winning the 2021 Influential Paper Award for her work "Emotion and Sociable Humanoid Robots," published in the *International Journal of Human-Computer Studies*.

Abdul Latif Jameel World Education Lab

Established in 2017, the Abdul Latif Jameel World Education Lab promotes excellence and transformation in education worldwide by leveraging MIT's educational innovation, practice, and research. J-WEL engages with educators, policymakers, societal leaders, employers, and employees through online and in-person collaborations, workshops, information-sharing events, and strategic projects to develop individual and institutional capabilities and capacity among our member organizations. Member organizations work with MIT faculty and staff to address global opportunities for scalable change in education through collaboratives for preK–12 education, higher education, and workforce learning.

Organizational and Programmatic Capabilities

In FY2021, we helped our members address the ongoing impacts of the pandemic on their educational systems while continuing to adapt our operation to remote work and the transition to online interactions with members. We offered a full slate of engagement opportunities for members that helped us to retain the bulk of our membership despite significant budget constraints for organizations worldwide.

Events and Member Recruitment

As the pandemic progressed, J-WEL lost some members that could not afford to continue to participate but was also able to recruit a number of new members. Overall, membership decreased from 30 at the end of FY2020 to 26 at the end of FY2021. New J-WEL members include the American School of Marrakesh (Morocco) in preK–12, Universidad Nacional Autónoma de México (Mexico) in higher education, and Hero Vired (India) in workforce learning.

In FY2021, J-WEL hosted a number of events and programs to engage with members. We held online J-WEL Connections events in October 2020 and April 2021 that together involved 376 participants from around the world. Keynotes for the April event included Dan Barouch, MD, one of the key developers of the Johnson & Johnson Covid vaccine. In addition, we hosted seven online workshops and enrolled 391 people from J-WEL member institutions in three other workshops offered by affiliated organizations. J-WEL also held 20 webinars in FY2021 that were recorded and archived on the website.

MIT Community Involvement

J-WEL involves the MIT community in two primary ways: as presenters at J-WEL events and through our education innovation grant program. More than 100 members of the MIT community participated in the J-WEL Connections events held in FY2021.

Education Innovation Grant Program

In FY2021, our three collaboratives awarded a total of $883,521 in grants ($382,000 through the pK–12 Collaborative, $335,735 through the Higher Education Collaborative, and $165,786 through the Workforce Learning Collaborative). The pK–12 Collaborative funded eight projects, including Philipp Schmidt's Delivering Creative STEM Learning Programs in Rural and Tribal Public Libraries. The Higher Education Collaborative

funded eight projects, including A Program of Collaborative Undergraduate Research: MIT and Palestine, led by Professor Haynes Miller. The Workforce Learning Collaborative funded three projects, including Virtualization of Hands-on Training for Global Distribution, headed by Professor Krystyn Van Vliet.

Projects

Full STEAM Ahead

In spring 2020, J-WEL provided operational and financial support to launch Full STEAM Ahead, a hub of teaching and learning resources for K–12, workforce learning, and higher education, as a rapid response to the pandemic.

Following up on the success of a 10-week summer 2020 program for Massachusetts high school students based on Full STEAM Ahead materials and pedagogies, J-WEL offered two fall 2020 programs, one for approximately 50 Massachusetts high school students and one for 600 Spanish high school students. In December 2020, Full STEAM Ahead was presented a Gold Award in the K–12 category at the Wharton-QS Reimagine Education Awards and Conference.

Transforming Refugee Education towards Excellence

In September 2018 we announced a major new initiative with J-WEL member Save the Children, Transforming Refugee Education towards Excellence (TREE), which aims to tackle education systems across the Middle East that are strained due to the conflict in Syria. TREE seeks to improve Jordanian teachers' well-being through the use of practical approaches that incorporate compassion and empathy into education-based systems thinking, drawing on the work of Peter Senge and Mette Miriam Boell. While some of the work of the TREE project was disrupted by the Covid-19 pandemic, Senge and Boell have continued teacher professional development activities.

pK–12 Action Group

The pK–12 Action Group brings MIT's unique "mind and hand" learning approach beyond the campus to preK–12 learners and teachers around the world, building upon existing efforts and developing new ones. The group fills a growing need at MIT to convene, build community and capacity, and raise the visibility of the preK–12 programs and offerings across MIT while initiating new research, design, and outreach programs that will transform how students learn—and our understanding of how students learn.

Accomplishments

- Grew the reach of Full STEAM Ahead, led by Claudia Urrea, J-WEL and pK–12 Action Group senior associate director. To date, learners from 150 countries have benefited from Full STEAM Ahead's "hands-on remote learning" resources.

- Offered Full STEAM Ahead in the fall program with the support of the Ortega Foundation, reaching a cross-cultural cohort of 700 high school students from Spain and greater Boston.

- Launched the second annual Full STEAM Ahead Into Summer program for a diverse group of 69 young students from over 38 cities and towns across Massachusetts.

- Continued an ongoing lunch speaker series for the MIT K–12 community. Guests have included representatives from Ashesi University in Ghana, the New Bedford Symphony Orchestra, and MIT Architecture and Planning, as well as an MIT alumna who now writes and creates novels for young adults.

- Circulated monthly newsletters to a growing audience of MIT alumni, parents, educators, and students.

Research and Projects

The Projects team supports initiatives 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. Through these initiatives, MIT is furthering its mission to advance learning worldwide.

Summary and Highlights

In FY2021, the Projects group focused on two international projects that shared MIT's expertise and approach to teaching and learning with university undergraduate and graduate students and faculty. Projects promoted MIT's unique approaches to learning with several international audiences, as outlined below.

- Projects completed its work with the CoLAB Program in Data Science in Uruguay in December 2020. Through the two years of the project, Projects supported the program's first cohort of 58 learners as they completed the MITx MicroMasters Program in Statistics and Data Science and facilitated sessions, workshops, and exam preparation. Thus far, 68% of the members of the first cohort have successfully earned the MicroMasters program credential, with another 25% expected to take the exam in FY2022.

- Projects and the Al-Ghurair Foundation for Education co-published a white paper, *Charting a Path Forward: A Multi-Stakeholder Collaboration to Promote Blended Learning in the Arab World*, in October 2020. The white paper describes Open Learning Scholars, a three-year project that enabled faculty from American University in Cairo and American University of Beirut to use course materials from sub-licensed MITx courses (6.00x, 7.00x, 7.28x, and 18.03x) to support the educational needs of 1,196 learners.

Goals and Objectives

- Identify (and execute) new digital learning and education transformation projects, including the forthcoming project to implement a STEAM lab school in Belize, in support of J-WEL, MIT Open Learning, and the Institute

- Integrate science of learning findings into project activities

Supporting Units

Engineering and Technical Operations

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

During AY2021, the Engineering and Technical Operations team:

- Launched a preliminary version of the new OCW platform to gather feedback on the new design from stakeholders and users. Also, we started work on a new, modern content management system that will increase OCW staff productivity and allow more involvement from faculty members.

- Upgraded Residential MITx systems to continue support for remote students and faculty during the Covid-19 pandemic.

- Developed new MIT-only features for the ODL Video Service to continue support of pandemic-related video distribution.

- Grew the number of MIT Open registered users to nearly 140,000. The podcast page now collects 34 MIT-related podcasts.

- Delivered nearly 5,000 certificates to approximately 12,500 learners on MIT xPRO across 39 courses and nine programs. We also worked with the Media Lab's Digital Credentials Consortium team to start implementing a prototype of digital credentials for xPRO.

- Supported eight new online Bootcamps application cycles, including fast tracking of alumni applications.

- Transitioned the DEDP MicroMasters program from in-person proctored exams to virtual proctored exams delivered on edX.

- Contributed code to Open edX to improve functionality and fix bugs and participated in the Build, Test Release community team to support and improve the process of releasing new versions of Open edX, most recently the Lilac version.

- Maintained and upgraded bi.odl.mit.edu, including improved support for MicroMasters and MIT xPRO.

Business Operations

Business Operations includes finance and accounting, human resources, marketing, communications, customer service, space, media strategy, and general administration. It provides support for the other sections of MIT Open Learning with respect to defining and implementing strategic, operational, and organizational improvements and facilitating ongoing operations. It also collaborates across the Institute to ensure that MIT Open Learning's work is aligned with MIT's policies, practices, and broader mission.

Key accomplishments include the following:

- Continued strong delivery of services, including budgeting and finance, human resources, marketing, communications, customer service, space, and administration

- Supported negotiations with edX and planning for operations after the edX acquisition

- Aided in various diversity, equity, and inclusion initiatives

- Helped in planning in the areas of space, access, and other needs due to the pandemic and worked to agree upon and publicize video guidelines Institute-wide

- Launched the Open Learning Talks virtual event series, hosting MIT faculty and researchers for conversations about learning-focused research and projects

- Established an Open Learning publication on Medium to share news, insights, and best practices from across OL and the MIT faculty

- Continued to improve Salesforce to support new customer relationship types and created custom workflows to support the MicroMasters and Online Bootcamps businesses

- Supported the execution of over 60 legal agreements (e.g., membership agreements, sales contracts, termination of agreements) and more than 120 additional legal requests that led to new and revised boilerplate agreements and other process improvements

- Supported new and emerging initiatives such as MIT RAISE and Full STEAM Ahead

Resource Development

Resource Development provides leadership in and complete operations of gift and revenue generation as well as donor relations. We work closely with the vice president for open learning, colleagues across Open Learning, and key faculty to develop and execute plans to secure support from individuals, foundations, corporations, and other organizations. The unit serves as a central coordinator and information source on all development activities. It also supports strategic initiatives, incubating new initiatives under the supervision of the vice president for open learning.

Summary and Highlights

- Secured over $4 million in gift revenue and helped faculty across the Institute secure multimillion-dollar grants, J-WEL memberships, and multiple fee-for-service agreements.

- Led Campaign for a Better World efforts for Open Learning

Accomplishments

- Continued to drive the annual giving programs for OCW and MITx. Resource Development led in the kicking off of the yearlong OCW 20th anniversary campaign and celebrations, bringing in $1.8 million with more than 2,700 donations. OCW's virtual anniversary celebration on April 7, 2021, was attended by over 1,300 people live, and the recording has more than 10,000 views on YouTube. MITx raised over $150,000 from 736 donations. Both programs participated in the Institute's fifth annual 24-Hour Challenge, garnering a total of 553 individual gifts from 505 donors.

- Drafted and submitted numerous proposals for prospective and current donors and foundations.

- Hosted a range of virtual donor- and alumni-facing events, including two livestream events celebrating MIT OCW's 20th anniversary, a salon on MITili, a roundtable on the new Mental Wellness Initiative, two NextGen OCW playtests with alumni and donors, and Open 2020 Working Group meetings.

- Led a collaboration with the MIT Office of Community and Government Relations to host Massachusetts STEM Week with the offices of Governor Charlie Baker and Lieutenant Governor Karen Polito.

- Collaborated with the Alumni Association on a session on preK–12 education for the MIT Alumni Leadership Conference and a session at Tech Reunion featuring Krishna Rajagopal and OCW director Curt Newton.

- Worked with Cynthia Breazeal, Eric Klopfer, and Professor Hal Abelson to launch the new RAISE initiative.

Administrative Accomplishments

- Continued to grow awareness of OL by distributing monthly newsletters to donors and staff from Resource Development, the Alumni Association, and school development offices

- Grew the collaboration with the Communications team, coordinating with the associate director of communications to draft and publish learner stories, and collaborated on Open Learning Talks, highlighting the impact of OL programs

- Continued improvement of stewardship efforts with donors, sending thousands of acknowledgment letters, and continued digital annual and midyear impact reports, custom photobooks, and donor impact reports

- Deepened collaborations with MIT Alumni Association and Resource Development teams

Sanjay Emani Sarma
Vice President for Open Learning