



Report of Task Force 2021 and Beyond



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Introduction

“Never let a good crisis go to waste”

—Winston Churchill

The upheaval wrought by the Covid-19 global pandemic affected almost every aspect of society. At MIT, President Rafael Reif recognized the profound impact that the global pandemic could have on the Institute and made the decision to convene a major task force charged with developing “blueprints for building a better MIT”. In the full charge, announced in May 2020, President Reif wrote

The Covid-19 virus required us, individually and together, to suddenly redefine the way we live and work, the way we learn and teach, the way we conduct research. It required a radical withdrawal from the campus and imposed a serious financial threat, for the Institute and for many in our community. There may be no full return to our familiar “normal.”

While MIT continues to manage through this emergency, Task Force 2021 will seek to use the lessons of this extraordinary time to explore how MIT might invent a thriving new future. What have we learned about what we treasure most in the MIT experience? What aspects caused the most frustration? What worked better than we hoped? And what might be open to constructive change?

Task Force 2021 will distill and apply the knowledge we have gained together to help us imagine an MIT that is better, safer, more flexible, more effective, more efficient, more sustainable, more inclusive, more equitable, more affordable, and more financially resilient in the long term, while sustaining the Institute’s distinctive values and culture and its dynamic approach to education, research, and innovation.

In short—by drawing on expertise and experience from across the community—Task Force 2021 is charged with developing the blueprints for building a better MIT.

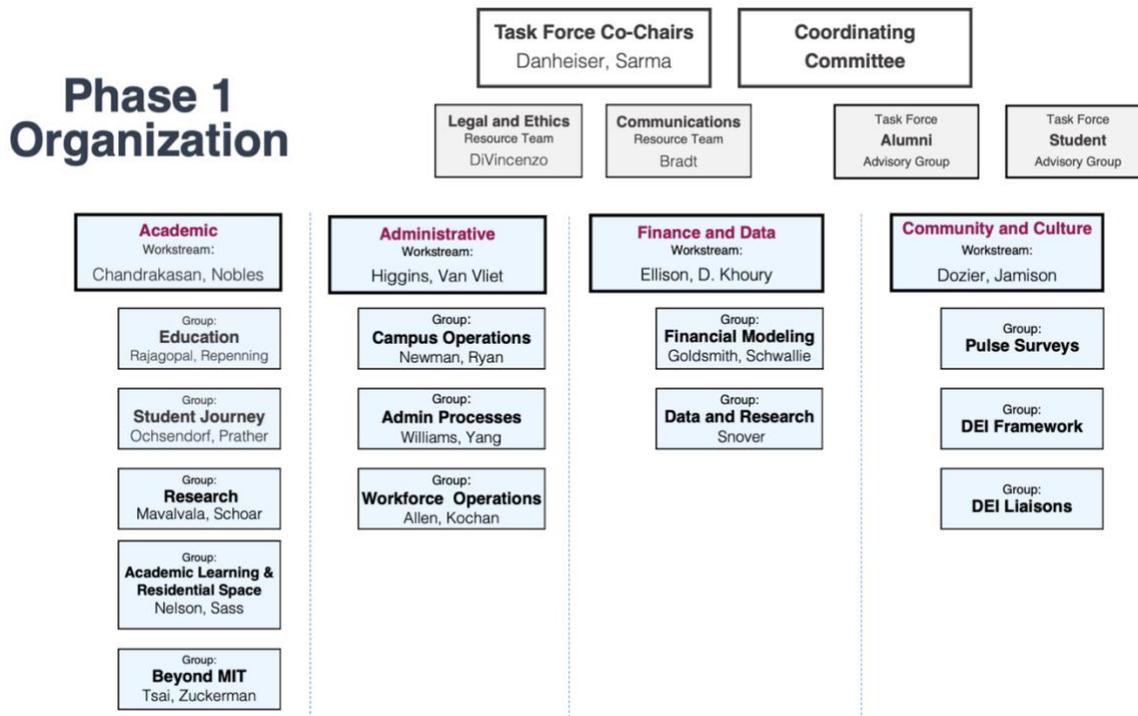
Task Force 2021 and Beyond was thus charged to use the lessons of this unusual time to explore how we might invent a robust new future for the Institute and the MIT Community. The mission of the Task Force included asking two overlapping questions. First, what changes would be needed to equip the Institute to thrive in the new normal of the post-Covid world? And second, where might we now have the opportunity to make beneficial changes that would address longstanding issues in how we educate students and operate at MIT?

Task Force Structure and Process

To lead this collaborative, cross-Institute effort, President Reif appointed A.C. Cope Professor of Chemistry and Chair of the MIT Faculty Rick Danheiser and the Fred Fort Flowers and Daniel Fort Flowers Professor of Mechanical Engineering and Vice President for Open Learning Sanjay Sarma. Providing invaluable support for the work of the Task Force were Glen Comiso, Senior Director for Institute Affairs, and Lisa Schwallie, the Executive

Director for Business and Operations in Open Learning, who joined Professors Danheiser and Sarma in comprising the Executive Committee of the Task Force.

The work of Task Force 2021 and Beyond proceeded in two phases. As depicted in the accompanying chart, for Phase 1 the Executive Committee devised an organization comprising four workstreams, each then divided into two to five working groups. To fill the ranks of the Task Force, the Executive Committee then recruited 108 MIT administration and staff members, 53 members of the faculty, and 17 students. Listed in each box in the chart below are the names of the co-chairs of the workstreams and the co-leads of the working groups. The full membership for Phase 1 of the Task Force can be found in the Appendix of this report.



The charge to the Academic Workstream called for the development of recommendations for MIT’s academic programs in the “new normal” of the world post-Covid, with attention devoted primarily to the educational and research activities of faculty and students. An Administrative Workstream was asked to focus its work on administrative functions of the Institute, including information technology infrastructure, non-academic space, and administrative systems, processes, and policies, including finance, procurement, facilities, security, planning, and human resources. Supporting the work of the groups in these two main workstreams was the Finance and Data Workstream as well as a Communications Resource Team and a Legal and Ethics Resource Team, the latter chaired by Vice President and General Counsel Mark DiVincenzo. Finally, a Community and Culture Workstream was also appointed to ensure that values of culture, diversity, equity, and inclusion were incorporated in the deliberations of all of the working groups of the Task Force.

A Coordinating Committee consisting of the workstream co-chairs and resource team leads was convened by Professors Danheiser and Sarma to assist and advise the Task Force leadership, and an Alumni Advisory Group

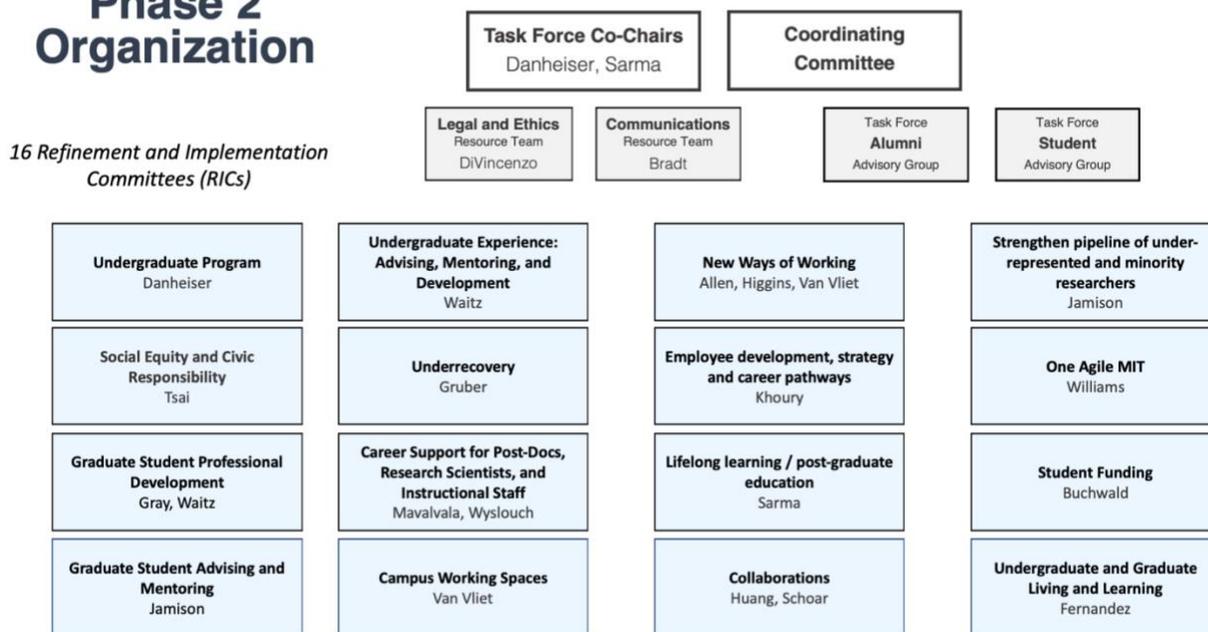
and Student Advisory Group were appointed to provide advice and the perspective of those groups to the Task Force.

A series of “kickoff meetings” launched the Task Force in mid-June 2020. Input from the MIT community was collected via an online Idea Bank and a virtual Community Forum held in July. Multiple meetings with the Alumni Advisory Group and the Student Advisory Group provided further input during the summer and fall, and eight plenary sessions featuring guest speakers were held during the fall for the benefit of Task Force members.

The idea generation phase of the Task Force proceeded through the summer and into the fall and led to the generation of over 50 ideas by the Phase 1 Working Groups that were posted on the Task Force website for community comment in mid-December. Professors Danheiser and Sarma spent two months reviewing these 50+ ideas with the assistance of numerous groups and stakeholders including Academic Council, the Faculty Policy Committee, and the leadership of the workstreams and working groups of Phase 1 of the Task Force. This review set the stage for the second phase of the Task Force, which was launched in March 2021.

The primary aim of Phase 2 of the work of the Task Force was to prioritize and refine the ideas generated in Phase 1 and to provide specific plans for the implementation of the Task Force recommendations after the publication of the final report. As the vehicle to advance this work, Professors Danheiser and Sarma created the 16 Refinement and Implementation Committees (RICs) depicted in the chart below. The specific charge to these 16 committees in Phase 2 was to further refine the “raw” ideas from Phase 1, in some cases reconciling and merging related ideas that were proposed by more than one separate working group. Importantly, the RICs were also charged with proposing implementation action plans for the resulting “refined” ideas. In some instances, implementation would involve assignment to a unit of the MIT Administration, while for other ideas assignment might be to a Standing Committee of Faculty Governance such as the Committee on the Undergraduate Program (CUP) or the Committee on the Graduate Program (CGP). In the case of some complex ideas with far-reaching impact, a RIC could call for the appointment of an ad hoc committee reporting to Faculty Governance and/or the MIT Administration. In such cases it was expected that the RIC would propose the charge and possibly even the membership of the ad hoc committee and would also suggest a timetable and checkpoints for completion of the work.

Phase 2 Organization



In all, 143 faculty, staff, and students were recruited as members of the 16 RICs of Phase 2. Many, but not all members had also been members of Phase 1 Working Groups. Details regarding the membership and charges of the Refinement and Implementation Committees can be found in the Appendix of this report. The Appendix also includes a list of individuals that the Task Force leadership has identified as having responsibility for overseeing the proposals of the Task Force.

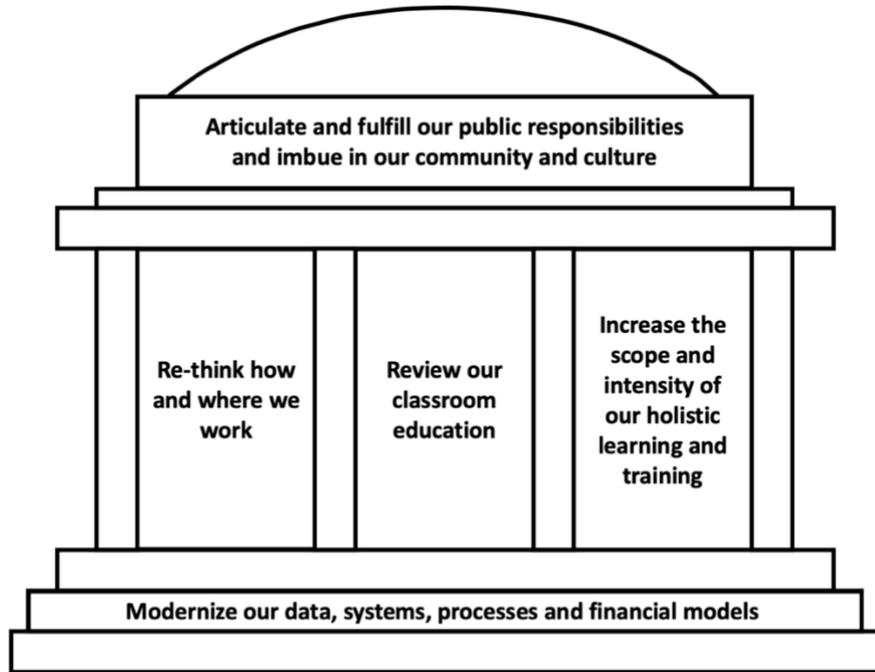
Task Force Recommendations

The Refinement and Implementation Committees began meeting in March 2021 and submitted their reports to the Task Force Executive Committee during the course of the summer. Each RIC was asked to provide a two-to-five-page report which could be accompanied, if necessary, by supplemental material elaborating on the recommendations in more detail. The main report which follows this introduction comprises the individual reports of the 16 RICs, each including a short abstract. The Supplemental Material provided by 9 of the 16 committees can be found in the Appendix.

Highlights and Themes

The Task Force ideas and subsequent RIC recommendations are wide-ranging. They encompass initiatives and opportunities for a vast array of constituents: MIT faculty, students, postdocs, research scientists, instructors, administrative staff, as well as learners world-wide. The recommendations operate on a variety of timelines: some are already well on their way to implementation; others may take years to realize. The different proposals of the Task Force require varying resources: some are relatively inexpensive while others will require a more substantial financial investment; some draw heavily on one of our most precious resources—faculty time—and others can be executed largely administratively.

The ideas and recommendations span a range of areas and touch on all aspects of the Institute. Broadly speaking, they are all captured in the five themes presented in the figure below.



- **Articulate and fulfill our public responsibilities and imbue our values and ideals more fully in our community and culture and in the education of our students**
 - **Support the 5-year Strategic Action Plan for Diversity, Equity, and Inclusion.**
 - **Strengthen our network of underrepresented and minority researchers**, by reviewing broadly our admissions and hiring decisions, building community and mentorship, and enhancing supporting infrastructure (*see report of RIC 13*).
 - **Imbue social equity and civic responsibility in our curriculum and experiential learning**, creating an ad hoc committee to stimulate and evaluate experiments, developing a fundraising plan to meet rising student demand for learning and internships in these areas, and by developing a Community and Nonprofit Liaison Program (*see report of RIC 2*).
- **Rethink how and where we work**, leveraging what we have learned about remote working and revamping our employee development and spaces.
 - **Develop and refine detailed guidance, tools, and policies to support new ways of working at the Institute**, helping teams plan and implement flexible work arrangements (*see report of RIC 9*).
 - **Strengthen career development programs for staff**, creating a more comprehensive and integrated approach for enhancing skills and upward mobility and enhancing learning resources and opportunities (*see report of RIC 10*).
 - **Consider our changing needs for space**, including campus meeting spaces, flex spaces, shared research space, and future expansion of lab space (*see report of RIC 8*).

- **Review our academic programs** in light of changes in the background and interests of our students the evolution of new educational technology, and the increasing importance of lifelong learning.
 - **Convene a new Task Force on the Undergraduate Academic Program** to consider improvements in the General Institute Requirements (GIRs) with a focus both on curriculum and pedagogy (*see report of RIC 1*).
 - **Consider changes to undergraduate and graduate living and learning** by leveraging technology, promoting interactive classrooms, and extending off-campus educational experiences for MIT undergrads, by investing in community-building events and spaces, and creating education sabbaticals to support new initiatives (*see report of RIC 16*).
 - **Convene an ad hoc committee to explore new credentials** to address challenges such as access and affordability for learners of all ages. Examine potential MIT offerings in online and on-site continuing education (*see report of RIC 11*).
- **Broaden the scope and intensity of our holistic learning and support**, developing in each member of the MIT community the ability and passion to work wisely, creatively, and effectively.
 - **Implement a new and stronger undergraduate advising structure** where students are supported by professional advisors (*see report of RIC 5*).
 - **Develop a set of graduate professional and personal development requirements** that all graduates must fulfill beyond the technical training and discipline degree requirements (*see report of RIC 3*).
 - **Develop a strategic plan for graduate advising and mentoring** (*see report of RIC 4*).
 - **Expand opportunities for postdocs, research scientists, and instructional staff**, including more structured review and feedback and more granular career progression for research scientists and a review of career advancement for instructional staff (*see report of RIC 7*).
 - **Promote collaborations** internally, and with industrial sponsors, and enhance training for researchers engaging in international activities (*see report of RIC 12*).
- **Modernize our data, systems, processes, and financial models, and address research “deferred maintenance,”** in order to serve future economic realities, our evolving needs, and new opportunities in the 21st century.
 - **Address issues with regard to graduate student funding**, to make MIT competitive with our peers in terms of research costs and to ensure that graduate students receive adequate support (*see report of RIC 15*).
 - **Develop a robust and transparent approach for future funding of underrecovery**, via an Underrecovery Solutions Commission, a no-hassle pilot, and a 5-year plan to regularize underrecovery funding (*see report of RIC 6*).
 - **Create a “One Agile Team”** to shepherd strategic improvements to existing business practices and systems as well as to provide support to new strategic initiatives (*see report of RIC 14*).

In reviewing the reports of the Refinement and Implementation Committees that follow, several points are worth noting.

- Many of the recommendations are aimed at adapting the Institute to thrive in the landscape of the “new normal” developing in the wake of the Covid-19 global pandemic. However, other recommendations address longstanding issues, in some cases issues that have been recognized for

many years. Each Working Group and RIC of the Task Force was simply charged with making recommendations for “building a better MIT”, so it is natural that they focused on issues beyond those that emerged only due to Covid.

- Events in the summer of 2020 led to a heightened consciousness with regard to the importance of social equity and civic responsibility. This impacted the work of the Task Force as many of the Phase 1 working groups focused attention on how MIT might better incorporate diversity, inclusion, and equity in all aspects of our programs and operations.
- The deliberations of the working groups and RICs were carried out in a period of financial constraints due to the unexpected expenses to the Institute resulting from the Covid emergency. This is reflected in the recommendations of several RICs which are conservative with regard to implementation costs and/or the proposed timeline.

In closing, the co-chairs of Task Force 2021 and Beyond, Professors Danheiser and Sarma, would like to acknowledge the vision and leadership of President Reif in standing up this important task force. We are also very pleased to acknowledge the immense efforts of the over 200 dedicated faculty, staff, and students who contributed to the development of the proposals presented in this report.

Reports of the Refinement and Implementation Committees

Undergraduate Program Refinement and Implementation Committee (RIC) 1

Committee Members

Rick Danheiser (Chair), Arthur Bahr, Duane Boning, Anne McCants, Krishna Rajagopal, Lily Tsai, and Ian Waitz

Abstract

RIC 1 recommends that MIT convene a new Task Force on the Undergraduate Academic Program. The charge of the Task Force will include reviewing the current program and considering improvements in all aspects of the General Institute Requirements (GIRs), with a focus on both the curriculum and pedagogy. The new Task Force will begin work in academic year 2022–23 but will be preceded by several “Foundational Working Groups” that will begin work this fall. These foundational groups will include the Ad Hoc Committee on Social Equity and Civic Responsibility (proposed by Task Force 2021 RIC 2) and the Ad Hoc Committee on Leveraging Best Practices from Remote Teaching for On-Campus Education (proposed by RIC 16). In addition, an Ad Hoc Working Group on the SME Requirements will be convened to continue the work of the 2019 group of the same name, critically analyzing the current SME required subjects, and canvassing the community for input concerning the current requirements and directions for change. The existing CUP Subcommittee on the HASS Requirement and the Subcommittee on the Communication Requirement will be assigned to provide foundational groundwork for the new Task Force with regard to the HASS and Communication components of the GIRs.

Background

Prior to the Covid-19 pandemic, the Chair of the Faculty and the Senior Leadership of the Institute had agreed that it would be desirable to stand up a Task Force on the Undergraduate Academic Program to begin work in spring 2020. The charge and membership for this Task Force was to be developed jointly by Faculty Chair Rick Danheiser and Vice Chancellor for Undergraduate and Graduate Education Ian Waitz. The charge of the Task Force would include review of the undergraduate curriculum including, in particular, the General Institute Requirements. Both the SME (science-math-engineering) and HASS (humanities-arts-social sciences) components of the GIRs would be reviewed. Proposals by the Task Force for changes in the undergraduate requirements would be submitted to the appropriate committees of Faculty Governance for their consideration. Unfortunately, the eruption of the Covid 19 pandemic in early 2020 intervened and plans for this task force were indefinitely postponed.

Findings and Recommendations: A Task Force on the Undergraduate Academic Program

RIC 1 has considered the reports of prior reviews of the MIT undergraduate academic program and consulted with faculty colleagues who participated in previous studies of the undergraduate curriculum including the 1964

Zacharias Committee, the 2006 Task Force on the Undergraduate Educational Commons, and the 2008 CUP Subcommittee on the Educational Commons. In accord with previous discussions, the RIC 1 agrees that the principal aims of the General Institute Requirements comprise the following:

1. **Foundational Building Blocks:** The GIRs provide a common body of knowledge that faculty can then assume in teaching advanced subjects.
2. **Literacy in Essential Fields:** The GIRs provide substantive knowledge in areas with which every MIT graduate should have familiarity.
3. **Methods for Creative Analytical Thinking:** The GIRs teach modes of thinking and provide portable (transferable) tools, skills, and general strategies for formulating, analyzing, and solving problems.

While the Committee reaffirms these as the principal aims of the MIT General Institute Requirements, we also recognize that what constitutes the ideal specific subjects and experiences in the undergraduate program that are used to achieve these aims has evolved over time. We also note that the background, interests, and expectations of our undergraduate students have changed in recent years, as have the fields they will enter, and that there have been important developments with regard to pedagogy and the technology available for delivering educational experiences. Consequently, the Committee endorses the previous plan to convene a new Task Force to review the MIT residential undergraduate academic program. The Committee believes that the focus of the new Task Force should be on *both* the curriculum and pedagogy, and the charge of the new Task Force should include consideration of improvements in all aspects of the General Institute Requirements. However, areas such as advising and the education of learners outside of MIT should not be considered to be in the purview of the Task Force.

The Committee believes that a relatively small Task Force (e.g., 10–12 members) is ideal, perhaps augmented with ancillary working groups. Note that the Lewis and Zacharias Committees had only [5 + 10] and 9 members, respectively. Members of the Task Force should be afforded some relief from other duties, perhaps via the “education sabbaticals” proposed by RIC 16. The Task Force membership and charge will be developed by the Chair of the Faculty and the Vice Chancellor, in consultation with the Chair of the Committee on the Undergraduate Program (CUP). The membership of the Task Force will include, *ex officio*, the Chair of CUP. The new Task Force itself will begin work in academic year 2022–23. The Task Force will be asked to issue its draft recommendations after approximately one year, i.e., by spring 2024. This relatively short timeline should be possible by building on the work of prior task forces as well as the foundational working groups described below.

Recommendation: Foundational Working Groups

RIC 1 recommends that groundwork for the Task Force be conducted by the several ad hoc “foundational working groups” described below that will begin their work this fall. This approach has the added advantage of allowing time for the assembly of a task force with the necessary experience, quality, and expertise. Note that appointing such a task force immediately would be very difficult due to the “task force fatigue” that many key faculty are experiencing as well as by the continuing burden associated with teaching and conducting research under the conditions of the Covid 19 pandemic. The Task Force will deliver its report to the President, Chancellor, and Provost (representing the Administration), the Chair of the Faculty (representing Faculty

Governance), and the Chair of CUP. If needed for implementation of its recommendations, the Task Force report will include proposals for motions to amend Rules and Regulations of the Faculty.

Extensive deliberations with regard to defining the aims of the MIT undergraduate academic program should not be necessary, as the new Task Force can build on the work of the 2006 Report of the Task Force on the Undergraduate Educational Commons (Robert Silbey, Chair) and the 2014 Report of the Task Force on the Future of MIT Education (Israel Ruiz, Sanjay Sarma, Karen Wilcox, Co-Chairs). In addition, a foundation for the work of the Task Force will be provided through the information gathering, deliberations, and subsequent reports of the several “foundational working groups” which will complete their work prior to the beginning of meetings of the Task Force in academic year 2022–23. These working groups will not necessarily be charged with bringing specific motions for consideration by the Faculty, but rather will provide information and suggestions that will facilitate and accelerate the work of the Task Force when it is convened in academic year 2022–23.

One such foundational group, which issued its report in 2017, is the **Working Group on Computational Thinking** (Eric Grimson, Chair). The report of the **Ad Hoc Committee on Social Equity and Civic Responsibility** (proposed by Task Force 2021 RIC 2) will also provide a foundation for the work of the new Task Force. In addition, some of the recommendations of the **Ad Hoc Committee on Leveraging Best Practices from Remote Teaching for On–Campus Education** (proposed by RIC 16) will also be valuable for the new Task Force in its deliberations.

Critical analysis and foundational groundwork on the current SME component of the GIRs, and an initial discussion of possible improvements, will be undertaken by the **Ad Hoc Working Group on the SME Requirements** described below. Critical analysis and foundational groundwork on the current HASS component of the GIRs will be assigned to two existing subcommittees of CUP: the **Subcommittee on the HASS Requirement (SHR)** and the **Subcommittee on the Communication Requirement (SOCR)**.

Recommendation: Foundational Working Group on the SME Component of the GIRs

To lay a foundation for the work for the Task Force, we recommend that a critical evaluation of the current SME component of the General Institute Requirements and some initial canvassing of faculty and critical analysis of proposals for change be conducted by an ad hoc “working group” which will begin work this fall and will report its findings to the new Task Force prior to the beginning of its work in academic year 2022–23. This **Ad Hoc Working Group on the SME Requirements** will continue the work of the 2019 Working Group of the same name, possibly with some overlap in membership with the 2019 committee. See the Appendix for the draft charge for the Working Group; the charge of the 2019 Working Group is also included with this report in the Appendix.

The membership of the Working Group will be determined by the Chair of the Faculty. The charge of the 2019 Working Group (see Appendix) focused on a review and critical analysis of the current science core component of the SME requirements and the work of this group included meetings with representatives of each department responsible for a science core subject. The new iteration of this Working Group will review the findings of the 2019 group and will also discuss the findings of the 2006 Silbey Task Force and the subsequent Educational Commons Subcommittee concerning the SME component of the GIRs.

The new Working Group will augment this review of the work of the 2019 group with additional meetings with the science core departments (Biology; Chemistry; Materials Science and Engineering [DMSE]; Math; and Physics). We note that the Working Group can serve a role as a sounding board for ideas from these departments for changes in the science core subjects that they are considering. The charge of the new **Working Group on the SME Requirements**, however, will include canvassing faculty and others across all schools of the Institute for input concerning the current requirements and potential directions for change. The Working Group will include the REST and Laboratory Requirement in their review and critical analysis of the SME component of the General Institute Requirements.

We recommend that the size of the Working Group be on par with the earlier iteration, i.e., no more than 10 members, including representatives of Biology, Chemistry, DMSE, Math, and Physics, as well as additional faculty from across the Institute. We suggest that the future Task Force may wish to create a subcommittee of CUP with a focus on the SME requirements and with a charge analogous to that of the existing CUP Subcommittee on the HASS Requirements. Note that the membership of such a future CUP Subcommittee would be expanded and different from this ad hoc working group. Such a subcommittee was proposed by the ECS in the failed motion on the SME requirements in 2009. Note that the creation of such a subcommittee would require amending Rules and Regulations and approval of a motion by the full Faculty.

The Committee views the need for foundational groundwork on the HASS component to be less urgent relative to the SME component of the GIRs since significant changes in the HASS component were made in 2009. Consequently, we believe that a new working group on the HASS requirements is not necessary; the **Subcommittee on the HASS Requirement (SHR)** and the **Subcommittee on the Communication Requirement (SOCR)** can be assigned the role of providing some foundational analysis of the HASS GIRs for the new Task Force. Note that the charge of SHR already includes *“Ensure regular review of new and existing subjects to ascertain that the educational goals of the HASS Requirement are met while maintaining MIT’s high educational standards”* and *“Support, encourage, and monitor the development of new innovative subjects and changes to the HASS Requirement”*. The charge of SOCR includes similar wording.

Social Equity and Civic Responsibility Refinement and Implementation Committee (RIC) 2

Committee Members

Lily Tsai (Chair), Adam Albright, Yu Jing Chen, Christine Ortiz, Kris Prather, Krishna Rajagopal, Larry Susskind, Emma Teng, Kate Trimble, and Beatriz Cantada (Staff)

Abstract

RIC 2 makes three recommendations in the area of social equity and civic responsibility. First, the committee proposes the creation of an ad hoc committee to stimulate and evaluate curricular and pedagogical experiments aimed at ensuring that all MIT students develop the analytical and moral reasoning skills for assessing the equity implications of individual and collective decisions, for understanding systemic and institutional hierarchies, and for learning how to work with communities and representatives as equal partners in work to promote social equity and civic responsibility. Second, RIC 2 suggests that a fundraising plan be developed to meet the rising student demand for opportunities to learn experientially about social equity and civic responsibility through nonprofit and public sector internships. Finally, the committee proposes the development of a Community and Nonprofit Liaison Program (CLP).

Background

The charge of this committee was to propose options for how MIT can provide our students, faculty, and staff with opportunities for education and research that fulfill the Institute's ethical obligations to promote social equity and civic responsibility.

A major thrust of the recommendations from Phase I of the Task Force was that these commitments to social equity and civic responsibility should be integrated deeply across MIT, a call that is echoed both in the Institute's strategic community/diversity budget priorities and in MIT's Five-Year Strategic Action Plan for Diversity, Equity, and Inclusion.

Specifically, our committee considered the following streams emerging from Phase I.

1. Curricular and pedagogical innovation
2. Experiential learning and co-curricular efforts
3. Community and nonprofit liaison program and social impact fund

Findings

Building on the reports from the Education, Student Journey, and Beyond MIT working groups in Phase 1, our committee identified a number of findings that apply broadly across departments and schools.

First, faculty, students, and staff at MIT have long held an ethical commitment to promoting social equity and civic responsibility. Since its founding, members of the MIT community have spearheaded research and education that contribute to ensuring equitable access to quality education, clean water and energy, urban innovation, good governance, and healthier communities.

We note that MIT's commitment has become more critical for a better world than ever before, as we face a tumultuous period of global polarization, public disenchantment with civic institutions—including universities and the scientific enterprise—as well as fragility in our democratic institutions and values.¹

Second, within MIT, our students have become increasingly active in demanding more resources and action for equity and civic responsibility. At the same time, there are indications that MIT's education provides students with insufficient opportunities to develop the attitudes and analytical tools necessary for assessing and addressing the causes of inequities, either retrospectively or prospectively. This limits their ability to work towards solutions as active citizens and innovative problem-solvers. Survey data indicate that, after four years at MIT, students became substantially less likely to agree that being a leader in their community, participating in community affairs, and working for social or political change are important. We need to rethink MIT education so that we produce active citizens, effective leaders, and innovative problem solvers who work to build a better world in their personal and professional lives after graduation.

Third, MIT's approach to learning by doing applies here too. There is often no better way to inspire and instruct our students (and faculty) in the implications of their work for social equity and a healthy democracy than to do that work—ethically, respectfully, and equitably—alongside civic and community partners.

Finally, we note that MIT's community as a whole would benefit from a coordinated range of opportunities for learning the tools to contribute to equity, justice, and our shared civic life.

Students need such opportunities to be integrated into their academic pathways and career ambitions. If we want to ensure that students develop these tools, such opportunities will require more prestige, more visible faculty/departmental buy-in, and stipends that are competitive with industry internships.

Currently, there are numerous but scattered faculty-led initiatives promoting social equity and civic responsibility that generate cutting-edge research as well as experiential learning and professional development opportunities for our students. While the number of interested faculty, staff, and students is high, invitations from nonprofit, public sector, and community partners far outstrip MIT's current ability to match these requests to those at MIT with the appropriate skills and interests.

Bolstering our ability to respond to these needs from a broad range of communities in ways that do not place us above others as the “experts” will be essential to teaching our students to be engaged scholars and scientists, and to rebuilding public trust and legitimacy in universities and the scientific enterprise. By moving away from a “push” approach whereby research and innovation happen at MIT and then we tell others what the solutions

¹ As noted in the Phase 1 report from the Beyond MIT group, universities need to make a better case to the public for the value of higher education—four in 10 Americans surveyed by the Pew Research Center in 2019 felt that “colleges have a negative effect on the United States.”

are—to a “pull” approach whereby communities actively recruit us to work with them on the problems that they identify, we can also ensure that the resulting solutions are better designed and have greater impact.

MIT would thus benefit from a coordinated approach to fielding and managing partnership requests from communities, nonprofits, and public sector organizations. There are existing mechanisms in several schools already (S-Lab in Sloan, CoLab in SA+P, MIT GOV/LAB in SHASS), as well as campus-wide offices (like MISTI, PKG, and D-Lab). But we believe that there are major efficiencies to be gained by coordinating functions, building a shared infrastructure, and developing a resourcing strategy (including consideration of underrecovery challenges) so that fewer of these opportunities for meaningful partnership and impact are lost.

As a global leader, MIT has a unique opportunity—and responsibility—to lead in innovation through inclusion and the promotion of equity. To construct imaginative and effective solutions to the world’s most difficult problems, we need to ensure that there are a rich range of voices in the conversation—and to do that, we need to teach our students and enable our faculty to understand when and why voices are missing, and how to engage them. Creating, strengthening, and investing in research and education that fulfills this mission will make the questions that we ask more precise and relevant, and make our answers we help to develop more equitable, creative, and sustainable.

Recommendations

Recommendation 1. Develop and pilot curricular and pedagogical innovations that support MIT’s strategic priorities for community and equity investments

Specifically, we recommend that the Vice Chancellor and Chair of the Faculty stand up an ad hoc committee with a charge similar to the following:

In order to pilot and develop curricular and pedagogical experiments that could form the basis for proposals to the Faculty for undergraduate education, the committee should:

- Stimulate and evaluate curricular and pedagogical experiments with the objective of ensuring that all MIT students develop the analytical and moral reasoning skills for assessing the equity implications of individual and collective decisions; understanding the nature, history, and consequences of systemic and institutional hierarchies; and learning how to work with communities and representatives as equal partners in co-constructing all aspects of the work—from problem setting to solution development—to promote social equity and civic responsibility
 - a. Work with all five schools and the college to identify and assess existing subjects and pedagogies that contribute to these learning objectives
 - b. Solicit and review applications from faculty for competitively awarded Education Sabbaticals to develop innovative discipline-specific curricula and pedagogy that contribute to these learning objectives
 - c. Support and assess these pilots over a two-year period
 - d. Work with the Committee on the Undergraduate Program and the Committee on Curricula to consider whether or not to recommend a flexible system for ensuring that students take subjects that focus on or include a component that contributes to these learning objectives

- e. Work with the Office of Experiential Learning to diversify and scale the development of 3-unit subjects that serve as “curricular wrappers” around experiential learning opportunities (internships, UROPs) that enable students to explore topics related to equity in professional and research contexts
- f. Coordinate with the Institute Community Equity Officer to ensure alignment with MIT’s Five Year Strategic Action Plan for Diversity, Equity, and Inclusion
- Meet with the Vice Chancellor and Chair of the Faculty once a semester to report on current status
- After two years, the committee will deliver a final report to the Vice Chancellor and Chair of the Faculty on the effectiveness of the curricular and pedagogical experiments it has stimulated and on recommendations for moving forward

Recommendation 2. Alleviate the under-supply of experiential equity and civic responsibility internships

MIT student demand for nonprofit and public sector internships outstrips supply by a factor of four. In AY2021, there were four applications for every PKG social impact internship opportunity.

Even as we strain to meet the existing demand, the number of MIT students participating in public interest work remains quite small compared to research and industry internships. In 2019, only 8% of summer experiences for MIT students were at a nonprofit or public sector organization.

The vast majority of MIT students cannot justify or afford to choose a nonprofit or public sector internship over a better-paid industry internship. Lower-income students in particular may be more likely to view nonprofit or public service internships as risky or may simply be unable to afford a public interest internship as many are unpaid or underpaid. Such opportunities for experiential learning in social equity and civic responsibility, however, should not be luxuries that only wealthier students can afford.

We therefore recommend that the Provost and Office of Resource Development work with the Office of Experiential Learning to develop a budget and fundraising plan to meet and keep pace with rising student demand for opportunities to learn experientially about social equity and civic responsibility through nonprofit and public sector internships, whether local, halfway across the country, or halfway around the world.

Recommendation 3. Develop and pilot a Community and Nonprofit Liaison Program (CLP) to complement MIT’s Industrial Liaison Program (ILP)

We recommend that the Associate Provost and Associate Vice President for Research leading the Office of Strategic Alliances and Technology Transfer (OSATT) and the Chair of the Faculty stand up a working group with a charge similar to the following:

- Review existing models at MIT and at peer institutions for fielding and managing requests from communities, nonprofits, and the public sector for partnerships; developing and sustaining longer-term relationships with such partners; matching interested faculty, students, and staff with the appropriate skills and interests; and funding such collaborations in research and experiential education. Potential funding models to consider include the creation of a social impact fund supported by alumni, philanthropic foundations, and other donors; an underrecovery fund designated for such collaborations; and a membership program for the corporate social responsibility officers of our industrial partners.

- Design, implement, and oversee a three-year pilot Community and Nonprofit Liaison Program to be housed within the Office of Strategic Alliances and Technology Transfer (OSATT)
- Meet with the Associate Provost and Associate Vice President for Research, and Chair of the Faculty once a semester to report on current status
- Deliver a final report to the Associate Provost and Associate Vice President for Research, and Chair of the Faculty on the effectiveness of the pilot Community and Nonprofit Liaison Program and on recommendations for moving forward

We suggest that the membership of this working group consist of faculty, research staff, and senior administrators in programs and labs that already partner with community and nonprofit organizations. Such programs and labs include D-Lab, S-Lab, CoLab, MIT GOV/LAB, MIT Solve, MISTI, and PKG.

Financial Resources

We recommend significant financial support for full implementation of **Recommendations 1 and 2**. Minor resources are suggested for **Recommendation 3**.

To support innovation in education about ethics and equity (**Recommendation 1**), we recommend allocating funds to support 4–6 semesters of Education Sabbaticals, roughly one faculty member from each school and college. These could be awarded by our proposed ad hoc committee through a competitive application process. Such Education Sabbaticals would be used by faculty to assess and build on existing subjects with related curricula and pedagogy, investigate innovative approaches at peer institutions, explore ways of integrating new curricula and pedagogy into department majors and subjects, and collaborate with others in the Institute that already have relevant expertise.

In addition, it could make sense for MIT to fund graduate students in base-budget PhD programs who may be interested in developing and teaching “curricular wrapper” courses. This funding would thus do “double duty” by improving undergraduate education, while at the same time providing professional development and teaching experience for graduate students and contributing to the Institute’s strategic priority of moving towards 12-month support for base-budget programs. We estimate that graduate student instructors would be needed to teach 60 summer sections of 10 undergraduates each, which would entail \$120K per year in summer support for graduate students in base-budget programs.

To meet current demonstrated student demand for public interest opportunities (**Recommendation 2**), we recommend funding to address the current shortfall by AY2024. This would require budgetary support and/or a resource development plan to grow the funding for these opportunities by an additional \$1.5M each year for the next 3 years (internships @ \$5K each x 300 additional internships annually). In other words, taking this year as baseline, increasing OEL’s budget by \$1.5M over baseline for Year 1, \$3M over baseline for Year 2, and \$4.5M over baseline for Year 3.

Recommendation 3 requires relatively minor financial resources. We suggest 0.25 to 0.75 full-time-equivalent for an OSATT Catalyst, or staff equivalent, who can coordinate OSATT and the working group’s implementation of a pilot of Community and Nonprofit Liaison Program over a three-year period.

Graduate Student Professional Development Refinement and Implementation Committee (RIC) 3

Committee Members

Ian Waitz and Martha Gray (Co-Chairs); Duane Boning, Anna Frebel, Nathan Miller, T.L. Taylor, Larry Vale, and Lauren Pouchak (Staff)

Abstract

RIC 3 recommends the creation of an Ad Hoc Committee on Graduate Student Professional and Personal Development that will be charged with developing a set of graduate professional and personal development requirements, that all graduate students must fulfill, constituting opportunities beyond the technical training and the degree requirements of their disciplines.

RIC 3 recommends the creation of an Ad Hoc Committee, reporting to the Committee on Graduate Programs, that will be charged with developing a set of Graduate Professional and Personal Development requirements that all graduate students must fulfill, constituting opportunities beyond the technical training and the degree requirements of their disciplines.

The charge for the Ad Hoc Committee on Graduate Student Professional and Personal Development rests on an overarching *goal* that all graduate students shall have space and agency to explore their interests with a sense of purpose and understanding of impact, integrate ethical thinking with their technical training, and participate in greater exploration of their chosen career path. Notably, each student shall explore their own impact on the world, either through their research or through means such as policy work, community action, among others. This exploration should bring together the student's talents, personal passions, and experience. Regardless of the specific form, requiring students to explore what an impactful career and life means for them sends a message to the world that MIT believes students should understand the impact of their work on society and believes in the importance of educating the whole student.

Guiding Principles

Every student, regardless of their degree program should leave MIT with a set of essential non-technical, interpersonal and intrapersonal skills beyond their disciplinary expertise, a deep understanding of the impact their decision making has on local communities and larger societal issues, and understanding of different pathways and agency to chart their path to impactful careers.

Graduate Professional and Personal Development Requirements

The Committee should work to identify specific learning objectives and a set of requirements, or framework of components that all MIT graduate students are required to participate in before graduation that could be fulfilled by department/school/college level and/or trans-Institutional programs and experiences. In addition, an

integral piece of this framework should be to allow every student to have an engagement beyond MIT and outside of their unit or school/college. This is not meant to imply that every student needs to participate in an internship, but that students should have exposure beyond their immediate discipline.

Regardless of the specific form, requiring students to explore what an impactful career and life means for them sends a message to the world that MIT believes students should understand the impact of their work on society and believes in the importance of educating the whole student.

We have identified the following high-level objectives that should be the guideposts for a set of common professional and personal development requirements for all graduate students:

- **Student agency:** Ability to explore impactful career pathways, and make choices about opportunities to engage in beyond MIT and outside of unit or school/college;
- **Internal exploration:** Introspection and understanding oneself, and the different pathways to impactful careers to thrive in today's increasingly diverse society; opportunities for exploration, reflection;
- **External exploration:** A deep and broad understanding of the impact decision making has on immediate situations, local communities and larger societal issues; and
- **Skill building:** Developing a set of essential non-technical personal and interpersonal skills building and expanding upon the foundational technical skills and disciplinary expertise central to an MIT graduate education.

During the development of these requirements, it will be necessary to gain feedback from graduate students, departments, schools, and other stakeholders. The Committee should also consider how to integrate existing courses/classes/programs into this new framework. Quarterly progress updates should be given to the Committee on Graduate Programs (CGP).

Implementation Plan

An implementation for the components should include the following:

- A Graduate Professional and Personal Development Requirement framework that all graduate students are required to complete
- Consideration of an oversight committee similar to the undergraduate communications requirement or other mechanism for both sustainability and for continued evolution of identified requirements.
- Prioritized list of resources required to implement the framework components including distributed and central administrative needs (i.e., programming support and documentation of student participation, resources for departments to embed appropriate expanded and new experiences).
- Detailed timeline for Institutional approval through proper governance structures and mechanisms for oversight, accountability, and sustainability.
- Timeline for launch for departments and academic units that includes a phased approach with a detailed implementation plan including the impact on current and future students.

Timeline

The Ad Hoc Committee's report should be submitted to the relevant Standing Committees of the MIT Faculty including the Committee on Graduate Programs (CGP), as well as the Vice Chancellor as appropriate. The strategic plan should be developed by March 2022 so that key components could be considered for the 2023 academic year.

Guiding Boundaries

We recommend the Committee use Wiggins and McTighe's [Backward Design model](#) to develop an intentional framework for a graduate common core. Starting with the overarching goal above, the committee should work backwards to identify specific ways to complete the common core requirement using the following steps:

- Identify desired results
 - What should students hear, read, explore or otherwise encounter?
 - What knowledge, and skills should students master?
 - What are the big ideas and important understandings students should retain?
- Determine acceptable evidence
 - How will we know students are making progress towards the goal?
 - What will we accept as evidence of student understanding?
- Plan components
 - What enabling knowledge (facts, concepts, principles) and skills (processes, procedures, strategies) will students need in order to achieve desired results?
 - What activities will equip students with the needed knowledge and skills?
 - What will need to be taught and coached, and how should it best be taught, in light of performance goals?
 - What materials and resources are best suited to accomplish these goals?

Membership

The Committee membership shall include a range of MIT community members including faculty and professional staff with expertise in this area, and graduate students who will act as connectors to the graduate student community to ensure the work considers and incorporates the views of the student population.

- Faculty: 2 SHASS + 2 SoE + 2 SoS + 1 SA&P + 1 Sloan
- Admin & Staff: 6; including staff support
- Graduate students: 5

Graduate Student Advising and Mentoring Refinement and Implementation Committee (RIC) 4

Committee Members

Tim Jamison and Paula Hammond (Co-Chairs); Rick Danheiser, Martha Gray, and Ian Waitz

Abstract

An Ad Hoc Committee on Graduate Advising and Mentoring has been appointed with a charge to develop a strategic plan for graduate advising and mentoring at MIT. Its report will be submitted to the Chancellor, Provost, Chair of the Faculty, Vice Chancellor, Committee on Graduate Programs, the Faculty Policy Committee, and the Co-Chairs of Task Force 2021 by December 31, 2021.

Committee Charge

Refinement and Implementation Committee (RIC 4) was charged “to appoint an Ad Hoc Committee on a Strategic Plan for Graduate Advising and Mentoring, developing the charge for this committee, and appointing the membership” (see Appendix).

Committee Process

Several members of this RIC began framing the approach to develop a strategic plan for graduate advising and mentoring in late 2019 and early 2020. While the pandemic temporarily interrupted these discussions, the emergence of Task Force 2021 led to valuable community input and innovative ideas that helped shape the eventual committee charge (see Appendix). The members of this RIC met once to discuss the charge and to appoint co-chairs, Paula Hammond and Tim Jamison.

Activities and Plans of the Ad Hoc Committee on Graduate Advising and Mentoring

The co-chairs solicited recommendations for committee members from faculty, staff, and graduate students at MIT, including the members of this RIC, the Office of Graduate Education, and the Graduate Student Council. The membership of the Ad Hoc Committee is included in the committee charge (see Appendix), and the first meeting of the Ad Hoc Committee occurred on June 2, 2021 (agenda included in Appendix).

Current activities of the Ad Hoc Committee include development of a community engagement and communications plan, which will be critical for success. As examples, the co-chairs will welcome opportunities to visit with the Faculty Policy Committee, the Committee on the Graduate Program, and the leadership of the Graduate Student Council. Highly desirable, too, would be presentations and discussions at larger fora, such as an Institute Faculty Meeting in the fall semester of 2021. The above do not represent a complete list of engagements under consideration, and we welcome suggestions for other groups, committees, offices, and councils to visit.

Further updates will be provided periodically to the members of this RIC, to the Chancellor, Provost, Chair of the Faculty, Vice Chancellor, and the Co-Chairs of Task Force 2021.

Undergraduate Experience: Advising, Mentoring, and Development Refinement and Implementation Committee (RIC) 5

Committee Members

Ian Waitz (Chair), Michael Bergren, Rick Binzel, Baptiste Bouvier, DiOnetta Jones Crayton, Anne McCants, Kris Prather, David Randall, Janet Rankin, Mike Short, and Lauren Pouchak (Staff)

Abstract

The RIC 5 report recommends implementing a stronger undergraduate advising structure where students are supported by a group of newly hired professional advisors who work with them from admission to graduation, augmenting the work done by faculty advisors in departments. These new “Institute Advisors” will help all students identify and achieve their personal and academic goals while at MIT. The new centralized advising resource will be led by a new Director of Academic Advising.

Thriving is not just about academic performance. While the classroom and lab remain the central arenas of student learning, we must also foster other skills and development in our students if they are to flourish both at and after MIT. An introduction to a broad education, opportunities to expand intellectual horizons, and personal and professional success should be the end goals for students along with the successful completion of the requirements for a diploma. The diverse backgrounds and identities of undergraduate students lead to many different journeys through the Institute. Students arrive with varying previous experiences and levels of knowledge about how to fully access MIT's considerable resources. What is sometimes called "the hidden curriculum" of success needs to be uncovered and made available to every student regardless of their starting point. All should leave MIT with the tools to live healthy and purposeful lives.

Findings

The quality of MIT's undergraduate advising is far from what it should be. Surveys conducted by Institutional Research consistently demonstrate challenges around advising for MIT students. The Gallup-Purdue Index, a recent survey of more than 30,000 U.S. college graduates, found that graduates with at least one professor who made them excited about learning and cared about them as a person, while also having a mentor that encouraged them to pursue their goals and dreams, have more than double the odds of being engaged at work and thriving in well-being after graduating college. At MIT, 53% of first generation and/or low income (FGLI) students, 47% of underrepresented minority (URM) students, and 43% of students not in these categories could not identify a single faculty member at MIT who they felt had taken a personal interest in their success. Over 30 years of undergraduate advising reports, pilots and memos internal to MIT provide a picture of the changing nature of undergraduate advising needs and the faculty role within it, but show little change to provide the structured support needed to achieve past recommendations. Previous internal reports and memos also nod to the ‘advising network’ available to students at MIT, but for those who do not know how to navigate it, accessing the network and the hidden curriculum can be a challenge. We do not need further study of undergraduate advising at MIT, we need a plan for implementing change.

National best practices provide a framework of support that can benefit all students. [NACADA](#) describes how effective advising happens when institutions (1) maintain a consensual, documented, university-wide definition of effective advising; (2) establish a clear advising mission based on student learning outcomes; and (3) establish an organizational structure that has a central, senior leader with university-wide responsibility for advising strategy, operations, and assessment. In addition to national best practices, our long-standing First-Year Learning Communities (FLCs) provide MIT-specific knowledge and expertise in the areas of student advising, community building and belonging. The Distinguished Fellowship Office also guides students to a deeper understanding of their intellectual and professional preferences while introducing them to new research or career options through reflection and introspection, but it benefits only a fraction of our students. Both of these programs' input and guidance are essential elements in the proposed Advising Implementation Plan.

It is clear MIT needs a sustained undergraduate advising structure that supports high-level objectives including the following:

- Equipping students with knowledge about the value of advising and skills to form lasting and mutually beneficial mentoring and advising relationships.
- Guiding students to explore majors, careers, and other intellectual pursuits, balancing early access to departments of interest with encouragement to explore broadly.
- Empowering students to persevere in the face of any academic or social difficulties by identifying and using strategies and resources, seeking feedback, and accepting help and support from others.
- Engaging students in critical reflection on connections between course content, interests, sense of purpose, and personal and professional goals.
- Collaborating with other offices to help build a sense of community for groups that may desire and need it, including veteran, FGLI and URM students who may not come to MIT with necessary cultural capital or built-in networks to navigate the Institute.
- Providing appropriate educational resources, best practices and training for members of the MIT community such as staff, faculty, and other instructors who advise in departments, and are designated primary advisors to undergraduates in their upper-level years.

Recommendation

After reviewing the ideas on advising and mentoring of undergraduate students developed by the Task Force Phase 1 Working Groups on Student Journey (“Finding Your People” and “Finding Your Path”) and Research (on the Undergraduate Research Opportunities Program [UROP]), as well as ideas proposed by the [First Generation/Low Income Working Group Report](#), the [DEI Strategic Action Plan](#), and national best practices, **the committee strongly recommends implementing a stronger undergraduate advising structure where students are supported by a group of newly hired professional advisors who work with them from admission to graduation, augmenting the work done by faculty advisors in departments. These new “Institute Advisors” will help all students identify and achieve their personal and academic goals while at MIT. The committee’s proposed implementation plan provides a framework for MIT to improve the experience of all undergraduates by incorporating established best practices into the undergraduate advising system.**

A long-term commitment and multi-year implementation plan are necessary to create an advising system that works for all undergraduates. The proposed four-year implementation plan is intended to provide a framework which is not overly prescriptive, such that it can evolve as it develops based on continuous assessment. The committee discussed the pros and cons of a speedy launch of this new initiative. We believe getting it right through a deliberate and iterative process is more important than doing it fast. A new director of a centralized advising system that augments and supports department advising will need to understand the complex MIT landscape that includes a varied set of services. A new director will also need to onboard a nucleus of advisors. It is hoped that these advisors will bring their own creative ideas to the planning process and will, in turn, be able to acclimate and train future cohorts of advisors.

A strong, strategically minded leader is needed to ‘conduct the advising orchestra’ of academic advising resources and coordinate the efforts of a new advising center that includes the Office of the First Year (OFY), with those of campus partners that include but are not limited to the Office of Minority Education (OME), Student Support Services (S3), Office of Experiential Learning (OEL) including UROP, Academic Administrators, Undergraduate Officers, the Teaching + Learning Lab (TLL), Residential Education, the First-Year Learning Communities (FLCs), Career Advising and Professional Development (CAPD, including the Distinguished Fellowships Office), and faculty champions. The Advising Center, along with its campus partners will initially need to work to socialize the ideas of this new model across campus, and create community buy-in for the Center. Continued updates to the Committee on the Undergraduate Program (CUP), the Committee on Curricula (COC), and the Committee on Academic Performance (CAP) as the process unfolds are imperative.

The four-year implementation plan, as proposed, does not specifically address the needs of all students immediately. We therefore encourage the new director to identify mechanisms to support upper-level students, particularly those who need it most, by opening up some services to a broader cohort of students if possible and consistent with staffing. These services and supports could include, but are not limited to mentoring meetings, upper-level seminars, and peer programs to supplement advising in departments.

Timetable and Milestones

The recommended implementation plan focuses on five main components: staffing, academic offerings, peer support, assessment, and programming. The phased four-year approach below begins with a planning year and each subsequent year adds staff, peer support, programs and advising assessments that can be adapted and shifted as needed.

AY2022				AY2023				AY2024				AY2025			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Staffing - Planning, hire new Director				Staffing - 5 new Institute Advisors (IAs)				Staffing - 5 new IAs (10)				Staffing - 5 new IAs (15)			
First Year Seminar Planning		Offerings in place													
Advising Assessment Planning				Advising Assessment Piloting				Institutionalize Advising Assessments							
Plan Programming Initiatives ONGOING - Connection & Belonging (first-generation and/or low-income students) - Transition - Academic															
				Develop Peer Advising Program		Implement		Develop Central Tutoring support		Implement					

Financial Resources

Hiring a new group of Institute Advisors and a Director for a new Advising Center requires a large, ongoing investment. These new staff members will have the important task of working *with* faculty advisors to guide, empower, engage and support students from matriculation to graduation. By investing in this group of advising professionals to augment our current system, we can create better all-around efficacies and outcomes for faculty, students and staff. In addition to yearly staffing costs, the following budget estimates costs to resource student programming. We expect additional one-time start-up costs to be modest (~\$70K).

Yearly cost estimate:

- \$171,600 Advising Center Director (\$125,000–\$150,000, avg = \$171,600 with 24.8% EB)
- \$915,408 Institute Advisors: 9 at Assistant Dean level (\$78,000–\$85,000, avg = \$101,712 with 24.8% EB)
- \$505,440 Institute Advisors: 6 at Staff Associate level (\$60,000–\$75,000, avg = \$84,240 with 24.8% EB)
- \$97,344 Administrative Support: 1 Communications Officer level (\$75,000–\$80,000, avg = \$97,344 with 24.8% EB)
- \$105,350 Increase in base budget, including professional development for staff
- \$75,000 Increase in student programming budget

\$1,870,142 Total, phased in over four years

Underrecovery Refinement and Implementation Committee (RIC) 6

Committee Members

Jon Gruber (Chair), Angie Belcher, John Donnelley, Ron Hasseltine, Danielle Khoury, Laura Kiessling, Lisa Schwallie, Charles Stewart, and James Nutter (Staff)

Abstract

RIC 6 proposes the creation of an Underrecovery Solutions Commission (URSC) to answer the key questions around underrecovery and to propose a robust and transparent approach for the future funding of underrecovery at MIT. The membership of the URSC will include a chair from the central administration, experts on the underrecovery process, and representation from each MIT school.

Research is the lifeblood of MIT, and research carried out at MIT has made the world a better place for more than a century. But the funding of research has changed dramatically over the past several decades, with a dramatic shift from government grants to other sources. This shift poses a fundamental challenge: government and industry grants have traditionally provided funding to cover the accurate indirect costs of research, many foundations and other not-for-profit sources do not. The result is increasing underrecovery of these indirect costs, a portion of which MIT asks DLCs and Principal Investigators to fund from their discretionary resources. Many DLCs and PIs lack sufficient discretionary funds to under-write these indirect costs.

This changing mix of funding and the challenges it brings have created a rising burden of financing at MIT. This burden has been met in various ways over the years. The current system relies on a negotiated mix of departmental, school and central MIT funding. That mix varies by department and by school. Moreover, many faculty members feel that MIT constructs high “hassle costs” for them in obtaining funding for these indirect costs on foundation and non-for-profit organization grants. They therefore do not pursue valuable research opportunities.

In practice, almost all of the requests made by departments and schools for assistance with funding of underrecovery costs are ultimately approved and are paid for through a combination of central funds (VPR and Provost funds) and departmental or school discretionary funds. But the path to this funding is winding, burdensome, and leaves no one satisfied. This stands in stark contrast to perceptions of our peers and competitors, who are thought to be much more supportive of funding the shortfalls in indirect costs, not requiring funding of it, but, rather absorbing it within available central resources.

Background on Research Funding at MIT

Our report includes a detailed overview of research funding at MIT. We begin by highlighting key details of the existing system, including the nature of direct and indirect costs of research and the challenging environment posed by a rising share of funding from sources with low indirect cost rates. We provide a simplified overview of

the highly obscured underrecovery process, including the differential sharing of cost burdens across departments, schools, and the VPR; the complicated process involved; and key differences from other schools. And we highlight a variety of problems with the existing system, including: time and stress costs to faculty; time and burden for administrators, a lack of transparency; inequities across departments; and limitations on available discretionary funding.

Next Step: The Underrecovery Solutions Commission

We propose the creation of an Underrecovery Solutions Commission (URSC) to answer the key questions around underrecovery and to propose a robust and transparent approach for the future funding of underrecovery at MIT. The membership of the URSC would include a chair from central administration, experts on the underrecovery process, and representation from each school. The URSC would be given three charges.

The first would be to ask—and answer—the hard questions around underrecovery, including:

- What limitations, if any, should there be on submissions of foundation and nonprofit grants?
- What disincentives/incentives are appropriate to encourage higher indirect cost grants?
- What more can MIT do to increase indirect cost rates from funders?
- What more, if anything, should MIT do to increase fundraising for underrecovery?
- How, if at all, should MIT try to shift the line between direct costs and indirect costs?
- Where should the preponderance of underrecovery lie? Should underrecovery be fully centralized, rest entirely in the departments, or remain diffuse as it is now?
- How should underrecovery be tracked and funded? On a project-by-project basis as it is now? In aggregate, as many of our peers do? Or somewhere in between?
- Should the allocation of underrecovery resources vary based the demands the research places on Institute resources?
- How should the allocation of underrecovery funding reflect ability to pay?

The second charge is to learn from other institutions. Given the complicated and overwhelming nature of this problem, and its inherent correlation with how peer institute budgets work, open-ended surveys and interviews alone will not bring us closer to understanding the pros and cons of these alternative approaches. The URSC should pose a set of specific questions, focused first on the sources of sponsored research funding and the direct and indirect costs paid by each, and then on the underrecovery process, including how the process operates and any differentiation by either funding source or by recipient.

Finally, the URSC should make a series of recommendations. To kick-start this process, we make a series of recommendations that we think should be incorporated into the URSC mandate:

- A no-hassle pilot managed centrally through VPR: MIT should designate key priorities areas for which there will be automatic approval of funding regardless of indirect costs rates through a centralized process. This would be funded on a pilot basis for three years using a relatively small portion of total underrecovery funds
- Underrecovery funding should be regularized into the Institute budget under a five-year transition process that would require a \$4.9 million incremental rise to the budget yearly.

- There should be a transparent explanation of underrecovery that is used to educate faculty and students and to remove unnecessary barriers to seeking non-government funding.
- There should be a mini-campaign targeted to loosening the demands on unrestricted funds at the Institute.
- There should be a thorough review of opportunities to maximize direct costs.

We propose a timeline for implementing our recommendations, beginning with the establishment of the URSC by the end of 2021, incorporation of additional underrecovery funding into the budget beginning FY2023, an education campaign for school year 2022–23, and a full set of recommendations by June 30, 2023.

Career Support for Postdocs, Research Scientists, and Instructional Staff Refinement and Implementation Committee (RIC) 7

Committee Members

Nergis Mavalvala and Bolek Wyslouch (Co-Chairs); Fikile Brushett, Maha Haji, Paulo Lozano, Joe Paradiso, Ann Skoczinski, and Idulia Lovato (Staff)

Abstract

RIC 7 recommends that the Vice President for Research (VPR) lead efforts to expand opportunities for postdocs to do consulting and externships, to obtain principal investigator (PI) status, and to develop leadership/professional certificate programs. For research scientists, the VPR and Provost should work with schools to develop more structured review, feedback processes and promotion processes, to create more granular career progressions with clear responsibilities and privileges, and to foster a broader sense of community among research scientists from across the Institute. Finally, the committee recommends the appointment of an ad hoc committee to review various aspects of career advancement opportunities for instructional staff.

The Process

The charge for RIC 7 was to evaluate career advancement opportunities for three distinct groups at MIT: postdocs, instructional staff, and research scientists. The research scientists component of this RIC was strongly influenced by the work of a committee with nearly identical charge for improving research scientists' career advancement in the School of Science. For postdocs and instructional staff, the RIC solicited input in separate meetings with each group. The postdocs were invited in coordination with the MIT Postdoctoral Association; the instructional staff were invited by soliciting names from each school, college, and the Office of the Vice Chancellor (OVC). The RIC also received some input via email. While there was significant overlap, we report on these three groups in separate sections.

Postdocs

Findings

1. Lack of clarity on how postdocs can request PI Status, and in some cases the hurdles that need to be overcome with such a request, was seen as a significant impediment. Relatedly, postdocs see the need to get more experience with writing proposals.
2. Postdocs highlighted the need for opportunities (and permission) to do externships and consulting. These were seen as especially important for broader training for non-academic careers.
3. The need to improve the economic conditions for postdocs, e.g., through consulting, higher pay, etc. There was strong support for expanding access to professional training, such as the LEAPS certificate.

The Kaufman Teaching Certificate was also lauded, though long wait times to access the program were cited as problematic.

Recommendations

1. VPR should work with the schools and college to evaluate and mitigate the lack of opportunities indicated in findings 1, 2, and 3 above.
2. The schools and college should develop additional leadership/professional certificate programs, such as LEAPS.

Research Scientists

Findings

1. There was a strong desire to create a broader sense of community among research scientists from different units.
2. There was strong support for creating more granular career progressions with clear responsibilities and privileges.
3. There was a strong desire for more structured review, feedback processes and promotion processes, which could also help to avoid some stagnation issues that these positions can be prone to.
4. The lack of underrecovery support for research scientists is problematic. In addition to loss of significant funds that could come to MIT, it further compounds research scientists' ability to find support for their soft money positions.

Recommendations

1. VPR, in partnership with Human Resources and the schools/college, should evaluate and adapt the proposals from the School of Science on Career Ladders to all schools at MIT (findings 1, 2, 3).
2. The Provost should evaluate finding 4.

Instructional Staff

Findings

1. There was a pervasive feeling among instructional staff of not being valued at MIT, which is further exacerbated by the lack of clear systems of recognition and reward.
2. Unequal pay between the areas/departments was noted.
3. There was strong support to explore a more granular career ladder, similar to that being proposed for research scientists. This could also lead to improving the situation in finding 1.
4. There was strong support for more structured review, feedback, and promotion processes.
5. Some areas were identified to work well, which could serve as a model and should be studied.
6. As with Research Scientists finding 1, there is a strong desire for establishing a broader instructional staff community.

Recommendation

1. Set up an ad hoc committee to look at career advancement opportunities for instructional staff, paying particular attention to the items above. Since the circumstances for instructional staff vary greatly across MIT, and our RIC only surveyed a tiny fraction of that population, gathering more data from a much broader swath of instructional staff is very important. To that end, we recommend that the committee be assisted by staff in the Chancellor's Office to help in the data gathering process, as its outcome will be important for the work. The committee should also tackle the systemic issue that there is no one entity at MIT that is responsible for the career advancement and professional well-being of instructional staff. They are appointed in home departments with large variations in pay, mentoring, and career opportunities. Any future committee should also study if this is really the best way to organize a core constituency of MIT's mission of education. We expect that the initial data gathering will take 4–6 months, and following up the committee will need another three months to study the data and prepare its recommendations.

Campus Working Spaces Refinement and Implementation Committee (RIC) 8

Committee Members

Krystyn Van Vliet (Chair), Allison Parisi, Brent Ryan, Caroline Jones, Greg Raposa, Jon Alvarez, Julie Newman, Marty Culpepper, and Frances Neville (Staff)

Abstract

The Campus Working Spaces RIC proposes the convening of four working groups that will report to the Provost, Executive Vice President, and the Planning Subcommittee of the Committee for Renovation and Space Planning (P-CRSP). Working group 1 will investigate ways to increase access to meeting spaces on campus, while working group 2 will explore the role of flex spaces in supporting the on-campus workspace needs of MIT employees with hybrid work schedules. A third working group will focus on shared research space for PI-led research, and a fourth working group will examine the future expansion of MIT lab space from the perspective of minimizing energy use intensity.

Problem

Campus space is a shared resource that enables much of the daily work of the Institute. The pandemic disruption, and anticipation of new locations and schedules of working at MIT, provide both challenges and opportunities to think about how MIT faculty, staff, and students will use and steward these buildings and outdoor spaces. This RIC was charged to consider ideas and implementation related to the impact of changing technology and work practices on space at the Institute which were developed by the Task Force. RIC 8 recognizes that “use of space” is a broad term at universities including MIT, and that our spaces in Cambridge, MA, and other key MIT-managed sites are used variously for classes, research, experiential learning and independent projects, meetings, events, and serendipitous gatherings. This space is finite, resource-intensive to renew and maintain, associated with identity of work scope and value, and one key part of working successfully at any organization including MIT. ***The problems addressed by this RIC focus on when and how to change our practices of sharing this indoor and outdoor space in ways that advance the decentralized and centralized aims of the Institute.*** Recommendations of this RIC are coupled to the discussions of RIC 9 (on flexible work practices, primarily but not only affecting MIT faculty and staff employees) and RIC 6 (on informal meeting spaces, primarily but not only used by students). This coupling reflects the expectation that changes in work practices to be enabled by changes in space practices, as well as the opportunity to adopt changes that align with shared values for sustainable operations of our campus and by our full MIT community.

Responsible for Implementation

The Offices of the Provost and Executive Vice President & Treasurer (EVPT) will be responsible for the implementation for RIC 8, via the following groups that comprise the planning focus of the Committee for Renovation and Space Planning, or P-CRSP:

- Krystyn Van Vliet, CRSP Co-Chair and Associate Provost and Associate Vice President for Research
- Joe Higgins, CRSP Co-Chair and Vice President for Campus Services and Stewardship
- Jon Alvarez, Director of Campus Planning; Office of Campus Planning staffs P-CRSP working groups

Stakeholders

- All MIT departments, labs, and centers (DLCs) and offices are beneficiaries and affected: spaces are assigned historically to DLCs that use them and/or expend resources to renew and maintain them for research, education, or administration of services.
- Research community and student community as part of the workforce, including research and technical staff, postdoctoral researchers, graduate research assistants, and undergraduate research opportunity program participants; and
- Administrative support community, including administrative and staff support teams that report through the Provost and VPR as well as through the EVPT; these individuals are often responsible for scheduling, managing, and budgeting related to use and stewardship of the space by their teams and/or by academic, research, and student life teams.

Implementation Plan and Timeline

Four P-CRSP working groups will be charged and staffed to provide analysis and recommendations over two academic years, from September 2021 through December 2022. This includes implementing associated pilots, if any. Updates on working group outcomes and associated senior leadership decisions and broader communications will be provided to senior leadership in July 2022 and 2023.

The scope of these four working groups, each addressing a distinct and prioritized challenge that requires multistakeholder input for implementation, is noted below. The report Appendix includes the charges and draft rosters of each working group, and describes the intersections among RICs 8, 9, and 16 that will benefit from continued communication and implementation alignment. The Appendix also summarizes the values of community and resource stewardship that developed during prior Task Force 2021 working group efforts and P-CRSP working groups that should inform current P-CRSP working group efforts and communications.

P-CRSP Working Group 1: Increasing meeting spaces on campus—how to share and reserve

Charge summary

As the MIT community returns to campus, it is likely to see renewed—and perhaps increased—demand for meeting spaces. Today, many meeting and event spaces at MIT are perceived as “owned,” scheduled, and maintained by a single DLC. Awareness of a given meeting space, and the ability to reserve it, is typically limited to members of that DLC. In consequence, many meeting spaces may be under- or over-utilized; those looking to reserve meeting spaces may be limited; and members of the MIT community looking to collaborate with those beyond their DLC may find it challenging to meet in “mutually inconvenient” locations. This P-CRSP working group will explore how MIT might make more efficient use of existing meeting spaces by investigating current inventory of meeting spaces; space types or campus regions where the inventory of meeting spaces appears to

fall short; meeting space reservation system attributes that would best serve the MIT community; and policies would make sharing meeting spaces sustainable over time.

Recommended timetable

Fall 2021 for data gathering; spring 2022 for policy formulating and report writing. There is possibility of synergy with RIC 16 community space research and survey efforts proposed for 2021–22 academic year, so investigating this possibility will be worthwhile.

Pilot studies

- Execute pilot using the Spaces app developed on Atlas in academic year 2020-21 to test sharing of meeting or event spaces that are assigned currently to different groups.
- Examine synergies with the RIC 16 community space research and survey efforts

P-CRSP Working Group 2: Flex space for hybrid work schedules in Cambridge

Charge summary

As more members of the MIT community return to campus this fall, a great many will be operating on hybrid work schedules, and may not require a dedicated, traditional on-campus workspace five days of the week. This P-CRSP working group will explore the role of flex spaces in supporting the on-campus workspace needs of MIT employees (faculty and staff roles), including the identifying campus populations that would be well served by flex spaces; current understanding about how in-person workspace needs / work activities have evolved; qualities that do or could make flex spaces great on-campus places to get work done; and policies to make flex spaces a sustainable and cost-effective strategy for meeting certain on-campus workspace needs.

Recommended timetable

Fall 2021 for info gathering and observation of pilots; spring 2022 for analysis and recommendations.

Pilot studies

- Identify groups in fall 2021 to observe the design, use and policies of flex spaces
- Examine synergies with the RIC 16 community space research and survey efforts
- Pilot studies, scoped and/or evaluated by the P-CRSP Working Group with RIC 9 input

P-CRSP Working Group 3: Shared research space for PI-led research

Charge summary

At MIT, space for principal investigator (PI)-led research is often assigned to the PI and specialized for the type of research that the PI plans to lead. The term “PI” can include faculty and research staff who lead sponsored research that uses laboratory facilities, but here is intended to also reflect any faculty-led scholarly research that is lab-based or office-based at MIT as an individual or with a group of supervisees. The finite volume and distributed locations of such spaces on campus creates several operational and cost inefficiencies for the PI and the Institute, and can also be in conflict with shared values of both sustainability and broad latitude for academic inquiry. This working group is charged with understanding cost/benefit/drivers for space sharing,

considering examples and determining best practices of how campus spaces for PI-led research could improve flexible responses to changes in research program needs and research group sizes, while also consistent with resource stewardship (both financial and material). This P-CRSP working group will address issues regarding the understanding needs/drivers for sharing, policy/culture, finances, and sustainability. The work may include recommendations for early experiments and/or instructive pilot programs, and will be cognizant of disparate benefits or challenges for untenured faculty and non-tenure-track PIs.

Recommended timetable

The group's work would ideally commence and end in spring 2022, though the complexities of some issues may require the extension of work into fall 2022.

P-CRSP Working Group 4: Repurposing our campus footprint with the advent of increased lab space

Charge summary

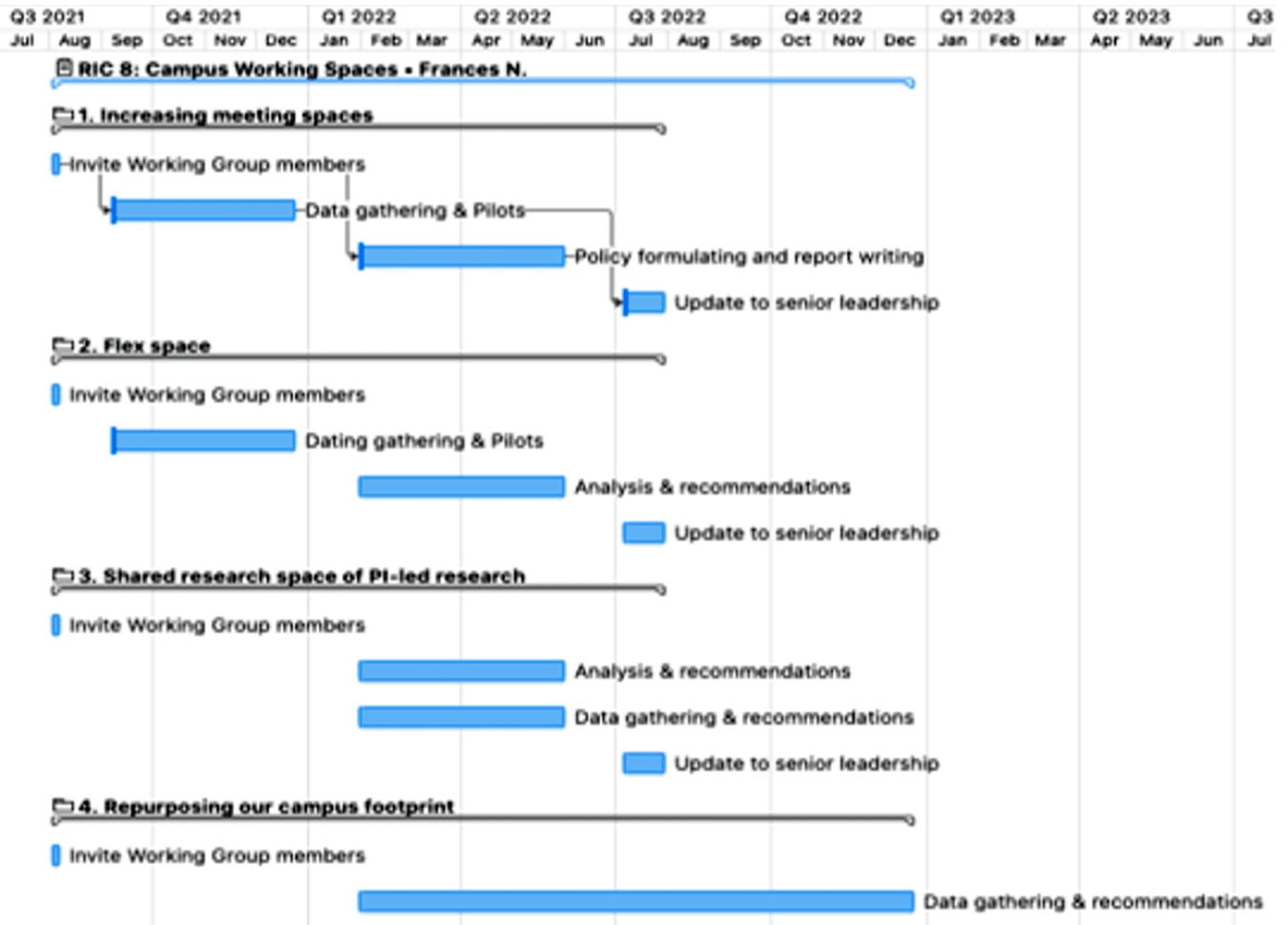
MIT is now committed to achieving net zero campus emissions by 2026 and eliminating direct emissions by 2050. MIT is now poised to address issues of growth, energy production, energy use and a transition to a new energy era looking forward. This P-CRSP working group will take on the discussion of growth and expansion of mission in a manner that rethinks space allocation. Members will re-envision how space is used, repurposed, shared, allocated in a manner that enables MIT to grow in mission while reducing our rate of growth in square footage and energy use intensity. Areas to be explore include: the balance and use of leased space in Cambridge (02139) and MIT-owned and -managed space off campus (outside Cambridge); current space and lab use; future types and growth trends of research program types at MIT.

Recommended timetable

This working group will require spring 2022/fall 2022 semester engagement due to the complexity of understanding the growth trajectory of MIT and how that aligns with mission expansion.

Implementation Timeline for RIC 8

Aug 2021–Dec 2022: Standup, implementation, and follow-up for four P-CRSP working groups



Work Succeeding Refinement and Implementation Committee (RIC) 9

Committee Members

Joe Higgins, Krystyn Van Vliet, and Ramona Allen (Co-Chairs); Amy Glasmeier, Christina Lo, Robin Elices, Shirley Entzminger, Tim Jamison, Tom Kochan, and Todd Robinson

Abstract

The Work Succeeding initiative was created to develop and refine detailed guidance, tools, and policies to support potential new ways of working at the Institute. The Work Succeeding toolkits, outlined in the report of RIC 9, will help teams plan and implement flexible work arrangements in their areas.

Work Succeeding: Overview and Context

The Work Succeeding initiative was created to develop and refine guidance, tools, and policies to support potential new ways of working at the Institute. The Work Succeeding toolkits, outlined below, will help teams plan and implement flexible work arrangements in their areas.

While many MIT units included flexible work practices prior to the Covid-19 pandemic, the 2020–21 period of disruptive remote and hybrid work for more MIT employees and appointees prompted us all to consider how **MIT could thrive with more flexible work practices, places, and schedules that support the Institute mission of research and education.**

Workplace flexibility is complex for MIT and the world. We are fortunate to work in a community that strives **to learn, apply shared values, and adapt** when the first (or fifth!) draft or prototype is imperfect. This toolkit was developed by your MIT colleagues who also lived through this challenging time. Together, we will continue to **experiment, explore, and iterate** on processes and models for the future of work.

Below are highlights from each toolkit section, which can be downloaded as sections or in full on the HR website: <https://hr.mit.edu/ws>. We suggest reading the introduction and sections 1 and 2 for an overview, guidelines, and available options for flexible work at MIT. The Work Succeeding team welcomes your questions and comments—you can reach us at worksucceeding@mit.edu.

Introduction

Understand the goals of Work Succeeding and how to use the materials and guidance provided in the toolkits.

Section 1: Work decisions and design

Provides a framework for understanding various work models and which may work best for different types of teams. What's in this section:

- **Expectations, Processes, and Guiding Principles:** Roles, expectations, processes, and principles to consider in developing future work arrangement
- **Overview of Potential Work Models:** Examples (on-site, hybrid, remote) with discussion of which models work better for different types of teams
- **Employee Personas:** Visuals of how different roles and team needs may align to different work models. May help you and your team think about your work roles and flexibility

Section 2: Work planning protocols

Organize and prepare for conversations about flexible work arrangements. What's in this section:

- **Policies and Guidelines Related to Flexible Work:** A collection of the Institute's policies and guidelines related to flexible work, including links to MIT websites that detail the processes and specific considerations for managers and employees
- **Recommended Work Planning Steps:** Steps and associated exercises, activities, and templates for you to use when planning for the future work model. These items may be downloaded from both toolkit pages in section 2, and in Quick Links on <https://hr.mit.edu/ws>.
 - Work Planning Exercises (for before you chat with your colleagues)
 - Conversation Guides (for when you chat with your colleagues)
 - Team and Team Member Work Plan Templates (for developing/reviewing the team work plan)
- **Frequently Asked Work Planning Questions:** A collection of common questions regarding the work planning process

Section 3: Technology and equipment

How to work effectively in a virtual/hybrid environment, and guidance on technology and equipment for team members. What's in this section:

- **Best Practices for Using Technology:** Guidance on how team members can effectively use technology in a flexible environment, and tips for managers to support this process
- **Overview of Technology and Equipment Available:** A summary of the items and resources available to MIT employees with hybrid or remote schedules, recognizing that processes will differ by department, lab, and center
- **Common Guidance on Technology and Equipment:** Information about technology and equipment, including ADA compliance, with links to relevant Institute resources

Section 4: Culture, well-being, and inclusion

Tools and resources to foster an inclusive team environment that prioritizes well-being and a positive team culture. What's in this section:

- **Guidance on Promoting Team Culture:** Tips on how to cultivate and support a positive, welcoming culture within a team that prioritizes empathy and supports team members' needs
- **Best Practices for Supporting Team Well-Being:** A discussion on wellness within a team, and links to MIT resources that support team members' physical and mental well-being

- **Resources for Ensuring Inclusive Practices on a Team:** Advice for managers on ensuring that inclusive practices are a priority within and across their teams (e.g., “courageous conversations,” “real talk”)

Section 5: Communication and collaboration

Resources and best practices related to communication and collaboration within and across teams while navigating a flexible work environment. What's in this section:

- **Guidance on How to Work in a Flexible Environment:** Considerations and advice for how teams should work in a flexible format
- **Tips and Tricks for Effectively Working Together:** Guidance on how team members can communicate and collaborate in order to foster an open, efficient, and creative work environment

Section 6 (Specifically for managers): Performance management

Considerations for performance management and best practices and methods to solicit feedback. What's in this section:

- **Performance Management Considerations:** A discussion of common employee concerns about performance management during remote work and considerations for how to potentially adjust performance management in a flexible work environment
- **Best Practices for Performance Management:** How to balance performance management for a hybrid team, and tips for managers on how to incorporate them within their team
- **Guidance on Sharing Performance Management Practices with Team:** Suggested steps to share performance management processes with a team, and ensure managers are prepared to incorporate feedback and adjust plans as needed moving forward

Employee Development, Strategy, and Career Pathways Refinement and Implementation Committee (RIC) 10

Committee Members

Danielle Khoury (Chair), Glen Comiso, Heather Williams, Ronnie Haas, Tom Kochan, and Long Tran (Staff)

Abstract

RIC 10 recommends the immediate creation of a Senior Leadership Advisory Committee to oversee the vision for strengthening career development programs and to make essential resources available. A new Staff Development Working Group will be convened and will report to this Advisory Committee. The charge of the working group will include (a) creating a more comprehensive and integrated approach for career development and learning, to enhance skills and provide pathways to other job opportunities, (b) organizing, expanding, and promoting existing MIT policies and resources for career development, mobility, and advancement, and (c) enhancing learning resources and opportunities to transform existing training content and programs into a new state-of-the-art, development-focused learning approach.

The Institute faces a particular challenge in retaining top experienced and diverse talent. Recent exit interviews and survey data indicate that the leading reasons staff leave MIT are for better career advancement and professional development opportunities. Many departing employees feel that MIT does not demonstrate enough commitment towards their professional development, despite an array of training opportunities, and that opportunities for career advancement at MIT are too limited, as employee development and mentorship are not deeply embedded cultural norms in all DLCs. This feeling is especially common among administrative and support staff, the two categories of staff included in the scope of this report.

As a result, MIT is losing talented employees to organizations that provide more robust employee development. When an experienced employee leaves the Institute, it is a loss of vital institutional knowledge, of MIT's history and practices, and of the time and resources invested over the years to train that particular employee. Additionally, for roles that are highly specialized, are in high demand areas, or are in areas where retirements are looming, these losses have an even stronger impact.

While not noted in the charge to our RIC, we would stress that the rapid changes in technologies and work processes occurring in workplaces today and that are expected to accelerate in the future increase the importance of continuous (lifelong) learning and skill upgrading. This makes it all the more imperative for MIT to transform its policies and practices to encourage and support workforce learning and upskilling.

To tackle this problem, we investigated the numerous ideas related to strengthening employee development as identified in Phase I of the Task Force initiative and crafted recommendations for implementation. We believe these measures will greatly strengthen MIT's employee development, learning, and career advancement

opportunities for administrative and support staff, while also providing opportunities to create structure for the recommendations of RIC 7 Career Support for Postdocs, Research Scientists, and Instructional Staff.

As an overall vision, we strongly advocate that MIT undertake a strategic transformation of its current employee development and training policies, practices, and programs and integrate them into a comprehensive and focused state-of-the-art career development and learning program. The new approach should empower administrative and support staff to identify and pursue learning opportunities that enhance job-related skills and also provide the skills necessary for advancement, whether within or outside of their current units. Achieving this innovative and ambitious vision will require robust leadership commitment, of both time and resources, and broad collaboration across the Institute in order to effect the necessary change to our existing norms.

Proposed Next Steps

Recognizing our current state and with an eye toward realizing this exciting transformation, we have identified two key “next step” recommendations, which will support the advancement of all of the more detailed recommendations and goals also included in our report.

First, we acknowledge that the key factor to achieving success towards our goals and recommendations is an Institute-wide commitment to strengthening MIT’s employee development programs. To accomplish this, we recommend that MIT senior leadership confirm the Institute’s commitment in this area and make resources available for this endeavor. To begin, we recommend establishing a Senior Leadership Advisory Committee that will help to prioritize and oversee this new initiative. Key members would be Glen Shor, Ramona Allen, and Marty Schmidt or a Provost designee. This Committee should meet at least quarterly to oversee progress towards our goals and should begin meeting in fall 2021 to become familiar with the detailed recommendations included in this report.

Second, we propose creating a working group comprised of select members of the Institute who have expertise in employee development and/or are passionate about strengthening MIT’s employee development programs. This working group will work to achieve the following specific goals to strengthening employee development (please refer to the full RIC 10 report for details and specific recommendations for each of these overarching goals).

1. **Build the foundation for an Institute-wide strategic talent management approach** by strengthening the usage of performance development programs and focusing on setting expectations and accountability for managers in this space.
2. **Create an integrated learning platform** that lists courses and other online resources that are accessible to all employees and that identifies career pathways to promotional opportunities within the employee’s unit and job family and across the Institute.
3. **Promote existing resources and structures**, as MIT has many employee development resources available but these are not always widely known and readily available for leaders, managers, and staff to utilize.
4. **Elevate career development opportunities and pathways through** skills-based programs and increased guidance to help staff understand core competencies relevant to their current position and growth opportunities that are available across the Institute.

5. **Enhance learning resources and opportunities** in order to transform existing training content and programs into a new state of the art, development-focused learning approach.
6. **Expand mentoring programs** from some naturally occurring and/or facilitated mentoring relationships, to wider mentoring programs that can be implemented locally, as well as centrally, in order to support the needs of new employees, new managers, emerging leaders, and staff who are invested in career exploration.

Proposed working group members include Central HR (Ronnie Haas); VPF (Danielle Khoury; Long Tran); VPR (Jeannette Gerzon); Academic and other central units (Magdalena Rieb; a member of Open Learning; other representatives such as a volunteer from AAC-II and a member of the Support Staff Working Group). This group's work would also begin in fall 2021 in line with the convening of the Senior Leadership Advisory Committee and their first task would be to familiarize senior leadership with the detailed recommendations included in the full version of this report.

Summary of Resource Requests

Apart from the time commitment of existing staff identified in the "next steps" above, we recommend that the follow-on committee for the fall give consideration to additional resources for an "ideal state" in order to execute and maintain the ambitious goals that we have outlined in our detailed report. Resource considerations should/could include:

- Funding for an external professional service provider who, in partnership with business process owners and technical experts, will: (1) perform a complete assessment of currently available training resources, (2) categorize currently available training resources by area, function, and role, and (3) provide actionable recommendations for MIT to implement a best-in-class training and development program, including the tools, technology, and/or systems to best deliver learning content.
- Proposed full-time employee (FTE) resource considerations for central HR:
 - i. Up to one new full-time FTE, with instructional design expertise who would: (1) collaborate with local subject matter experts and HR teams to create and implement the framework and a visual model across the Institute; (2) inventory, maintain, update, and continuously improve our career pathways; (3) help update and maintain training content that goes along with the career pathways and work with subject matter experts (and the new project manager of learning and development, see below) on this content. [This could potentially be a two-year term position.]
 - ii. Up to one new full-time FTE, for a highly experienced project manager of learning and development to convene, facilitate, and oversee the development and continued growth of the Institute's new centralized learning approach. This project manager would have extensive experience in state-of-the-art learning and approaches and would work closely with the new instructional design staff member identified above.
 - iii. Up to one new full-time FTE to: (1) shore up and increase our ability to provide individual career consultations, conduct workshops, career panels, and programs for staff and managers to build interest in and expand the knowledge of career paths at the Institute; and (2) manage an on-going networking community for peer-to-peer mentoring of staff across functions and roles. Additionally, we propose potentially increasing the existing 80% FTE working in this space up to a 100% FTE.

- iv. Up to one new 50% FTE to increase the capacity of MIT's talent management team in order for them to take a lead in curating, creating, and supporting mentoring programs for staff that meet the needs of new employees, new managers, emerging leaders, and staff invested in career exploration.

Lifelong Learning / Post-Graduate Education Refinement and Implementation Committee (RIC) 11

Committee Members

Sanjay Sarma (Chair), Bruce Cameron, Chris Caplice, Eric Grimson, Nelson Repenning, Lisa Schwallie, Lily Tsai, Pawan Sinha, Larry Vale, and Susan Young (Staff)

Abstract

RIC 11 recommends the convening of an ad hoc committee to explore how new credentials might be developed to address challenges such as access and affordability for learners of all ages seeking to advance their education and careers. While RIC 11 does not recommend any immediate action with regard to the introduction of online master's degrees, the committee encourages the continued development of blended master's programs. Finally, the committee suggests that Deans' Council be assigned the role of examining potential MIT offerings in online and on-site continuing education.

Background

The charge of this committee was to consider options for a more cohesive MIT-wide approach to aspects of lifelong education. The committee focused on three streams which emerged from Phase I of the Task Force:

1. New online credentials
2. Online master's
3. Continuing education

The committee also considered a key idea that surfaced in Phase 1 of the Task Force to create an Institute-wide unit at MIT dedicated to Continuing Education.

Findings

The committee identified a number of cross-cutting *observations* that build on the ideas from the work of the Education, Beyond MIT, and Financial Modeling Phase 1 groups.

Lifelong learning is very much aligned with MIT's mission, as has been highlighted in several activities including the recent [Work of the Future Study](#). Providing opportunities for people to learn, upskill, reskill, and change careers are major ways that MIT can make an impact and contribute to the world. MIT has unique strengths in this regard. First, MIT has world-class prowess in online education ranging from new credentials to ways to digitally verify credentials. Second, MIT has unique strengths in the science and technology of learning. Third, MIT also has historic experience and expertise in engaging "mind and hand" in learning; in the modern day, this could be seen as the complementarity of online education and on-site education. And finally, MIT has experience with several on-site education models including traditional semester education, short courses, weekend sessions, hackathons, bootcamps, and the MicroMasters blended model.

We believe that MIT would benefit from a coordinated strategy across the various aspects and modalities of education focused on individuals in the workforce.² With the richness of experience across these modalities, we are also very aware of a number of challenges in this space, and recognize that in many cases, MIT has an opportunity to make a greater impact if it develops a more comprehensive and coordinated strategy. Below, we present recommendations along these lines for the three streams that emerged from Phase I of the Task Force.

Recommendations

Stream 1: New online credentials

We suggest that the president of MIT request the leadership of the Office of Digital Learning (ODL) to conduct a study with a charge similar to the one proposed below.

In 2014, the Future of MIT Education Task Force recommended that MIT explore new online credentials for the benefit of students. In 2015, ODL launched the MicroMasters, and the results are impressive.³ Since then, MIT has piloted the XMinor, a new credential that helps other educational institutions benefit without eroding their business models or viability. We ask of you these questions: What other online credentials might be built from MITx offerings, with what goals? How could new credentials contribute to addressing challenges facing the world of education, including access and affordability for learners of all ages seeking to advance their education and careers? In what ways might such new credentials help educational institutions, including those very different from our own, achieve their goals more effectively? How do these new credentials fit into the existing portfolio of credentials and certifications awarded by MIT? We suggest that you work with the MITx Faculty Advisory Committee (FAC) to form an ad hoc faculty committee, including members of the MITx FAC and others who can give this topic thought, and formulate by spring 2022 suggestions for such credentials that MIT may pursue. We ask you to keep in mind the recent announcements about the ownership of edX.

Stream 2: Online master's

There have been several discussions about online master's programs over the years. The committee noted that creating an online master's would require amendments to the Rules and Regulations of the Faculty, and will need to be considered by MIT's faculty governance process. In addition, the reaction of alumni to the prospect of offering online degrees and the impact on future fundraising should be carefully considered. The committee explored a number of possible candidates for online master's but did not identify a pressing candidate, although several departments did express interest in possible future offerings. In fact our preliminary discussions indicated that the first step towards an online master's is often the consideration of a MicroMasters program. In the absence of a candidate, the committee recommends taking no action now, and instead, revisiting the question two years from now. In the meantime, the committee also suggests that the schools and college

² The term "post-graduate education" was used in Phase 1 recommendations of the Task Force. We note that the term has different connotations in different countries, and so have clarified the focus here.

³ As of June 2021, MicroMasters has seen 1,122,879 unique learners; 65,114 unique learners verified; 75,098 course certificates; 4,159 program credentials; and 139 graduates of MIT Blended Master's. Learners hail from 195 countries, with 50% of learners having 0–5 years of working experience.

continue to experiment with “blended” options that might both allow us to access students for whom a fully on-campus experience is infeasible and use our scarce faculty and classroom resources more effectively.

Stream 3: Continuing education

The committee spent a great deal of time examining MIT’s possible offerings in online and on-site continuing education. We agreed that online continuing education is a critical area for MIT, not just because of the importance of such offerings on the emerging landscape of work and jobs of the future, but also because of the possible benefits of such programs to MIT’s core mission. However, we identified a number of challenges including: understanding and responding to learner and market needs; aligning the incentives of schools, departments, interdepartmental labs and individual faculty; developing fair compensation models; ensuring diversity, equity and inclusion in such programs; developing Institute-wide branding guidelines; establishing guidelines for who can teach, and how, in such programs; considering the role and mechanism of faculty governance; developing guidelines for credentialing and continuous education units (CEUs); developing a vendor strategy; examining ways to synergize online and on-site engagements; leveraging MIT’s prowess in pedagogy and in the science and technology of learning; and coordinating across the Institute to produce the best offerings possible.

Since this is a key and strategic topic, the committee requests that it be taken on by a combination of school and college Deans, Open Learning, and the Chair of the Faculty. One body that might serve as the follow-up for our recommendation is the Deans’ Council with, for the purposes of this discussion, the involvement of Open Learning leadership.

Institute-wide unit for continuing education

A College of Continuing Education could function as an organizing/integrating body that proactively surfaces gaps and expands opportunities in this space, particularly when it comes to interdisciplinary offerings. Shared resources could also lead to excellence and efficiency. But such a body should only be created when the more fundamental issues listed in the recommendations above have been resolved. At this time, the committee recommends deferring consideration of such a unit until the above streams are covered.

Financial Resources

No significant financial resources will be required for the implementation of the recommendations suggested above, as further consideration of new online credentials (Stream 1) and continuing education (Stream 3) should reside within already existing groups. The committee recommends no action on the other two areas mentioned above (Stream 2 and College of Continuing Education). However, all the recommendations involve commercial engagement, including sales, suggesting MIT should entertain compensation policies that are compatible with commercial best practices.

Collaborations

Refinement and Implementation Committee (RIC) 12

Committee Members

Yasheng Huang and Antoinette Schoar (Co-Chairs); Angie Belcher, Bob Desimone, Meghan Fenno, Richard Lester, Aude Oliva, Charles Stewart, and Kate Stoll (Staff)

Abstract

The Collaborations RIC makes several suggestions for promoting collaborations with industrial sponsors, including supporting initiatives in Office of Strategic Alliances and Technology Transfer (OSATT) and Research Administration Services (RAS) and improving communication about research opportunities. The committee recommends the creation of pilot policy forums to promote internal collaboration among researchers in the School of Humanities, Arts, and Social Sciences (SHASS) with researchers in the Schools of Science and Engineering. The RIC also offers proposals on creating online training modules for researchers engaging in international activities, and suggests steps aimed at clarifying outside professional activity reporting for international engagements.

The charge of this committee is “To provide recommendations to support research collaborations, including organic (bottom up) faculty collaborations, particularly across schools, as well as collaborations with corporations and international entities.” We put forward several important and actionable suggestions. But we also highlight additional considerations regarding MIT’s organizational culture that should be taken into account.

Suggestions

External collaboration with industry via sponsorship

1. Shifting funding models might provide opportunities for more multidisciplinary funding via sponsorship: Currently, MIT relies heavily on a decentralized approach to funding where a sponsor typically directly engages with MIT faculty or a group (or vice versa faculty directly contact sponsors). Recently more industry sponsors are requesting that MIT provide them with access to interdisciplinary research teams, or engage with them across multiple MIT schools and departments, labs, and centers, on an enterprise basis. Supporting a more central, strategic approach to these types of engagements may foster greater collaboration across disciplines as well as enhance administrative efficiency.
2. Investing in administrative capacity is important for successful industry collaboration. Industry-sponsored projects typically require more focus on intellectual property rights involving research outcomes, confidentiality, and use of proprietary data than more traditional funding sources, e.g., government or foundations. In 2019, MIT created the Office of Strategic Alliances and Technology Transfer (OSATT) and Research Administration Services (RAS) to develop a new way of engaging with industry sponsors that promoted open and agile coordination among faculty, sponsors and staff. To further improve our process, we recommend supporting initiatives within OSATT and RAS that provide

more administrative expertise in all stages of project engagements. Inclusion of OSATT Alliance Managers, who often assist in the implementation of large, multi-project sponsored or “master” research collaborations, in more engagements helps inform researchers of key terms of the sponsorship so they can decide whether to submit project proposals, and maintain ongoing relationships with sponsors to allow for better alignment of expectations.

3. We also identified a need for more user-friendly frameworks and means to communicate opportunities about broad-ranging research opportunities to faculty and researchers. This will allow MIT to more effectively identify the best faculty matches with an explicit objective to promote collaboration. One example is a central database for listing all opportunities, including internal MIT “calls for proposals,” with a detailed description of eligibility and key agreement terms that may affect if a researcher can participate (i.e., no commingling of other funds, exclusive IP rights).

Internal (multidisciplinary) collaborations between faculty at MIT

1. We start from the assessment that MIT has been successful in fostering multidisciplinary collaboration, especially in the life sciences. But there are opportunities to do more. We recommend a few concrete ideas, listed below, but we also recommend that the Institute should collect information about how successful interdisciplinary collaborations were started and implemented on campus, which can serve as a roadmap for future initiatives.
2. **Policy initiative:** A lot of the research that is done around campus has major implications not just for the advancement of science but also for policy decisions and society as a whole. For example, technologies like AI or CRISPR will have large implications on the future of jobs, income inequality, or even access to healthcare and longevity. Multidisciplinary research that addresses the social impact of such technologies and the feedback effects of policy on science, can be of large significance. It can also help MIT improve its impact in DC and beyond. To this purpose we encourage MIT to foster more collaboration between the social sciences and the Schools of Science and Engineering. We envision piloting a few policy forums across the institute around some of these major topics. The AI policy forum at the new College of Computing provides an important opportunity.
 - o **Implementation:** These policy pilots should be topic specific (AI, bioethics, climate change, etc.) and set up in a decentralized fashion at the level of the Schools and Departments that are involved in the research. It should be co-owned by social science faculty, e.g., in SHASS or the Sloan School to ensure the quality of the policy work. MIT should be willing to provide resources to support such efforts, e.g., in the form of staff and convening activities. The MIT DC office should be included in these policy efforts early on to provide insights in how research findings could be translated into policy impact.
3. **Colocation:** More flexibility of people working from home and faculty only having one office on campus, could open up as much as 35% of space. This might allow MIT to have some flexible space, if some faculty members want to co-locate with a different department or lab for a limited time period. This can be done on a rotation basis, a sort of an internal MIT visiting scholar program. We believe that these opportunities are more impactful for junior faculty, postdocs and PhD students, but less important for senior faculty.

- **Implementation:** The committee feels that this is an option that would be attractive to some faculty and research scientists around MIT but it is not a systemically important catalyst for collaborations on campus. Therefore, we believe that the implementation should be left to the different schools.

International: Guidelines for international collaborations

1. There is significant concern that the uncertainty around the shifting international policies in DC are affecting which international collaborations MIT faculty can engage in. There are delays in the review process and lack of clarity for faculty which creates major disruptions to international collaborations going forward. This is a major concern since many faculty currently feel that the only way they can protect themselves against the risk of criminal prosecution is not to engage in international collaborations. It is very urgent to address the below issues.
2. Online training module for international activities: MIT has established a review process that vets and approves proposed project collaborations with entities in high-risk countries, such as International Coordination Committee (ICC) and Senior Risk Group (SRG). (This review process is described here.) The level of knowledge and awareness of this review process and the principles guiding it varies substantially among faculty. Issues like who has reporting requirements, what are the review steps and even the timing of when to initiate a review. We would like MIT to develop an online training module similar to the sexual harassment training that faculty who engage in international project have to complete.
3. Outside professional activity (OPA) reporting and grant reporting: At the moment there is a lack of clarity for faculty of what international collaborations and activities are allowed and what level of reporting has to be done about these activities. OPA forms do define clearly what is an “official duty” when interacting with foreign collaborators. MIT has a responsibility to give employees guidance and take responsibility when that guidance is wrong. It should not be left to faculty discretion. We need clear documentation stating who is responsible for a decision and the date when it was last updated. This is of very urgent concern and should be addressed by the MIT leadership as soon as possible.

Promotion and tenure support for faculty engaged in multidisciplinary work

The committee highlights that we do not want to promote multidisciplinary for its own sake but it should be a means to a (valuable) end. At MIT, we want faculty with deep discipline-based expertise who can come together to solve problems that need multidisciplinary skills. For junior faculty we need to make sure that they have a home in a discipline or department so that the path to tenure is defined by this area. In exceptional circumstances where new fields are being formed at the boundaries of disciplines, the affected departments need to set up a promotion committee that mentors the junior faculty from the start and is also responsible for the person’s promotion reviews.

Additional Considerations

We put forward a number of ideas to guide our organizational culture in furtherance of promoting multidisciplinary collaborations on campus.

- **Be intentional:** We recommend that the MIT leadership assign greater weight to the multidisciplinary orientation of these activities than before.

- **Be empirical:** MIT has established a number of multidisciplinary research initiatives and funding programs in the past. We should examine the degree of multidisciplinary collaborations and inclusivity that was created by the portfolios of funded projects. The findings may provide useful data for how to improve existing programs and also for the design of future programs.
- **The value of tacit knowledge:** We believe that a collaborative research culture is more exemplary in some parts of MIT than in others. We recommend that MIT should be more proactive to identify and communicate its resident best practices and share experiences and knowledge more widely in our community through knowledge-sharing forums.

Strengthen the Pipeline of Underrepresented and Minority Researchers Refinement and Implementation Committee (RIC) 13

Committee Members

Tim Jamison (Chair), Emery Brown, John Dozier, Ase Henry, Maryanne Kirkbride, Eric Klopfer, Ray Reagans, Justin Steil, and Trinidad Carney (Staff)

Abstract

To strengthen the pipeline, reframed as “network”, of underrepresented researchers, the RIC 13 committee recommends a number of measures that should be included in the final version of the MIT Diversity, Equity, and Inclusion (DEI) Strategic Action Plan (SAP) which is under development for delivery in the fourth quarter of 2021. These include a publicly announced commitment of funding for this purpose, including graduate fellowships and undergraduate fellowships for students from (particularly Sub-Saharan) Africa and that MIT take a leadership role, partnering with other institutions, in strengthening the network.

Executive Summary

The Diversity, Equity, and Inclusion (DEI) Strategic Action Plan (SAP) currently under development for delivery in the fourth quarter of 2021 will serve as the primary means to respond to our charge and to implement its recommendations. We address the differences between the SAP and the charge and make additional recommendations in order to further the aims of DEI at MIT. Leaders of academic units and offices will be accountable for implementation of their respective sections of the SAP. We charge the existing Institute-level Committee on Race and Diversity (CRD) to provide oversight of the SAP, to evaluate progress, and to update the MIT community on an annual basis. The current draft of the SAP draws upon the Related Sources noted in the charge and outlines resource requirements (infrastructure and capacity). Although the draft SAP does not include budgetary information, the final version will.

Committee Charge

Refinement and Implementation Committee (RIC) 13 was charged “to provide concrete plans to build a stronger pipeline of researchers from underrepresented groups considering both hiring and providing a more supportive, attractive environment once at MIT.”

Committee Process

We reviewed the committee charge and recognized its overall alignment with the [MIT DEI Strategic Action Plan \(SAP\)](#). Two subgroups of the committee conducted an “overlap analysis” and “gap analysis” by comparing the charge and SAP. At our committee meeting in May 2021 we (a) agreed on a definition of “pipeline” and recommended an alternate “network” framing of this important problem; (b) agreed that much of the charge is addressed by the current draft of SAP or is expected to be addressed in the final SAP; (c) therefore endorse as a

committee the SAP; (d) discussed measures to address the differences (“gaps”) between the charge and the SAP, and (e) developed additional recommendations (below). The chair wrote the first draft of a report and invited revisions from all committee members. This submitted version represents the consensus view of the committee.

Definitions

1. **Pipeline:** The common use of this metaphor references the path taken by future members of an academic organization, MIT in this case. To enhance MIT’s positive impact, we expanded the definition as not only a path to MIT, but also through it; MIT not only would be the beneficiary of future talent, but also would be a “supplier.” We also thought to set the origin of the “pipeline” at an early educational stage, for example, kindergarten. However, as this term has become less preferred over time, in part because it implies “one-origin, one-destination, one-path,” we chose an alternate framing— network— which both defines the problem more accurately and summarizes an approach to addressing it.
2. **Network:** Redefining the problem as a “network” also offers a solution that we expect to be more comprehensive, more resilient, more scalable, and more flexible for the individuals involved. DEI opportunities are pervasive; they present themselves at every academic level from kindergarten onward. The “network” framing also emphasizes the interdependence of activities, and our charge might be retitled “**Strengthen the Network of Underrepresented and Minority Researchers.**”
 - **Cataloguing** such DEI efforts across the country and across all groups is an important first step in addressing the “pipeline” problem and will identify gaps.
 - **Strengthening** of the network will be realized by bridging the gaps identified in the cataloguing and fostering interconnectivity.

Committee Recommendations

We recommend that the following be included in the MIT DEI SAP:

1. **Monetary commitments.** It is our expectation that the final version of the MIT DEI SAP will include budgetary commitments. We recommend strongly that these be made public in general terms. Our rationale is that doing so would send another strong signal that MIT is committed to change.
2. **Fellowships.** We recommend that fellowships designed to accelerate the achievement of MIT’s composition, achievement, and belonging goals be included in the SAP. The most impactful fellowships will vary locally by DLC and across career stages, and the following are illustrative:
 - a. Our community of undergraduates has enjoyed a rich and notable diversity (composition) for many years. The creation of fellowships for students from the African continent, in particular those from Sub-Saharan Africa, would not only enhance MIT’s diversity, but also have significant international impact.
 - b. As admissions and hiring decisions regarding graduate students and postdocs are done locally by DLCs or by individual PIs, diversifying these groups necessarily requires an approach compatible with decentralized processes. Providing fellowships directly to researchers from historically marginalized groups will enable them to have greater freedom in selection of research advisors, thus contributing to their achievement and fostering a greater sense of belonging.

3. **Network analysis and strengthening.** We recommend that the DEI SAP include this effort (summarized above in the definitions section) in its Infrastructure and Capacity section and that the CRD govern its implementation and oversight. We recommend that MIT take a national leadership role in both the cataloguing and strengthening efforts, particularly in the pre-college (K-12) space, and partner with other institutions seeking similar impact. We also endorse a proposal developed by Professor Ken Manning (see Appendix) as it represents an important example of events that will strengthen the network of researchers. We recommend that Professor Manning and Associate Provost Tim Jamison co-lead further development of this conference and that this conference be held on the MIT campus in 2022.
4. **Specificity and reduction to practice.** It is our understanding that the final version of the SAP will include greater specificity in the form of goals, programs, and tactics.
5. **Research Scientists and Engineers.** In its current form, the DEI SAP does not describe commitments that will support the careers of Research Scientists and Research Engineers and foster diversity, equity, and inclusion among these important members of our research community and mission. We therefore recommend that the final version of the SAP should provide a strategic plan in this context.

One Agile MIT

Refinement and Implementation Committee (RIC) 14

Committee Members

Heather Williams (Chair), Olu Brown, Brian Canavan, Glen Comiso, Elizabeth McManus, Nelson Repenning, Lisa Schwallie, Mary Ellen Sinkus, Mark DiVincenzo, Lydia Snover, Mary Roderick (Staff) and Connie Winner (Staff)

Abstract

RIC 14 proposes the creation of a “One Agile Team” that will shepherd strategic improvements to existing business practices and systems as well as providing support to new strategic initiatives. This cross-functional team will coordinate projects and manage the portfolio of potential future projects thus supporting the decision making by senior leadership on administrative improvements across all domains (educational, administrative, and research) at MIT.

Problem Statement

MIT has no overarching home or a holistic view of our administrative infrastructure. Our system for business process improvements is plagued by issues related to project prioritization, project management, implementation, transparency related to decision making, implementation issues resulting in local work-arounds, and training at roll-out that becomes outdated as modifications occur.

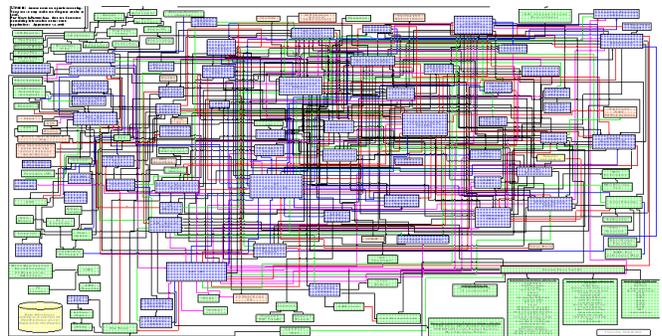
Executive Summary

As [charged](#) by the Task Force 2021 Steering Committee, RIC 14 recommends the creation of the One Agile MIT Team, to shepherd strategic improvements to existing business processes and systems as well as providing support to new strategic initiatives. As the phase one Administrative Process team [articulated](#), during a crisis, such as the world wide pandemic, MIT can act expeditiously to respond to unexpected organizational challenges. However, without the pressure of a crisis, MIT, like other organizations post-crisis, is unlikely to remain nimble and continue to make process and system improvements. The One Agile Team would mitigate the risk of future inaction by taking a more holistic view of the systems and processes at MIT through the creation of a cross-functional team that would coordinate projects and manage the portfolio of potential future projects and stakeholder input. This portfolio would be used to support senior leadership’s decision-making around administrative improvements. Projects could come from any area of the Institute and could be related to a process, a system, an initiative or a combination of these items as long as they are viewed as strategic priorities to senior leadership and stakeholders. However, not all projects will be immediately addressed to ensure that the portfolio remains small enough to ensure that prioritized projects can be completed successfully. The Team would also take responsibility for ensuring that the community understands where their pet projects are in the prioritization scheme or pipeline of active projects as well as provide them with opportunities to engage in improving our administrative infrastructure. The annual budget is estimated at \$630K with an additional \$200K during the first year to secure space, furnishings, and equipment. This budget does not

include the costs associated with individual projects, which would be identified when the projects are scoped. We recommend that the body that oversees this office have a significant budget that can be deployed similarly to the mechanism used by the Committee on Space and Renovation Planning rather than tied to an annual budgeting process. As we emerge from the pandemic and an increasingly tight labor market as a result of employees' desire to remain remote, improving our antiquated administrative system and processes will be crucial to our ability to attract and retain staff members.

Background

The landscape of higher education is growing in complexity. MIT's funding portfolio continues to evolve with more complicated agreements and rules, our students and staff demand a more supportive environment, and teaching and learning paradigms are shifting. Yet, in these times that require flexibility and nimbleness, our business process and supporting systems are often antiquated. Many of our systems are heavily customized with stand-alone web-based work arounds created at both central and local units that, while functional, increases the number of steps required to process transactions or secure the data necessary for decision making (see image of our data architecture). As a result, much of our documentation is incomplete and outdated, and determining data lineage or impact is impossible. Learning our systems is possible. However, for new hires and individuals with expanded duties, our administrative structure is fraught with complexity and time intensive shadow systems. We now find that our ability to hire and retain staff members has diminished with competitors recruiting staff. On Glassdoor, the top five cons about working at MIT, includes, "Workload can be high at times... There were [long hours...](#) and [Low pay](#), no structure in management". As the June 9th Town Hall to discuss the return to campus made clear, many staff are frustrated with business as usual. As we and our competitors emerge from the pandemic, some of our competitors will seek to replace staff members who choose not to remain in the workforce, by recruiting our top administrators.



While we celebrate our agility during our transition to a largely remote workforce, we note that several of the successful administrative improvements that occurred during the pandemic, such as the use of Canvas, benefited from the efforts of Sloan and the Student Systems Steering Committee, only requiring senior leadership to commit the necessary resources to extend the Sloan implementation to the rest of campus. Similarly, Slack was already in use by many tech savvy administrators who were eager for MIT to invest in a site license. This increased the adoption and use of the program once the decision was made to invest the resources into an enterprise-wide solution. In comparison, many projects at MIT stall out for extended periods of time due to a handful of reasons, which we attribute to the following issues:

- Projects have poorly defined requirements, a lack of stakeholder identification, and unclear timelines which result in scope creep, delays that result in project fatigue, and in some cases, outcomes that do not meet the needs of key stakeholders (examples RAFT, Concur, Brio Query replacement).

- Distributive decision-making can hinder projects that require the coordination of multiple business owners (PI dashboard, underrecovery, forecasting system) and sometimes ignores projects that are pain points to the community (forecasting system, roles database, data integrity), which is likely the result of the lack a single business owner or champion.
- Limited financial and technical resources that lead to prioritizing critical maintenance of existing systems over long-term solutions that would result in higher quality new systems.
- Complex bureaucracy that impedes the transparency needed for projects to move forward, leading to competition among vocal stakeholders to influence the project portfolio and the project outcomes.
- A project staffing model that relies almost entirely on volunteers whose ability to lead and staff the project may become compromised when their primary MIT roles require their full attention.
- A highly political and competitive process for resource allocation that lacks any central set of priorities or coordination.

These challenges have a material impact on MIT. For example, a senior faculty member, when asked how much money he had in his accounts, proudly shared an excel document that listed all of his accounts, the account balances, and a few words in a notes column next to each account. He went on to explain that his administrative assistant generates the report for him each month and that she makes sure that she shows where each student is charged. He, and many others, are satisfied with a monthly summary of their account balances. Unfortunately, assuming that only 80% of our 1,067 faculty members have active research programs, and the administrative assistant spends just two hours per month creating the spreadsheet, the annual estimated cost to MIT is ~\$686K. Given that this issue appeared as a concern in the 2008 Task Force report, we can assume that administrative assistants have been producing these reports for at least 14 years. As a result, a rough estimate of the amount that MIT has spent paying staff to generate these reports is ~\$9.6M using today's rates. Ironically, in the consumer domain, nearly all major banks can provide account balances and transaction details on multiple devices with almost no lag in the availability of the data. MIT can do better.

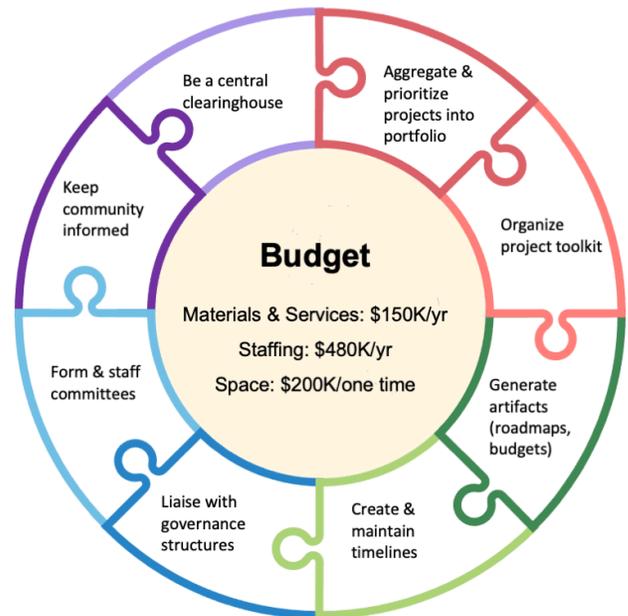
Well-resourced units with staff members who have the technical skills to build a system that is easier to maintain do so. However, if the staff member who designs the system leaves MIT, the system collapses and any others who adopted the system are left without technical support. As a result of this, each unit does their own thing, and staff who transfer between units often must adapt to the local system. Regardless of the local system, in response to each request, a request requires that an administrator extract and verify the data, summarize the information into a simplified format, and return it to the faculty member via email. The faculty member, or their assistant, must then combine the information received from the administrator with other pieces of information to make the result useful.

Concept

One Agile MIT group will tackle these types of long-standing issues by mitigating the obstacles noted above by (1) drafting and owning a scatterplot of potential projects for senior leaders to prioritize; (2) generating road maps for projects that clearly define the resources (people and financial) and the decision making process; (3) forming and staffing committees to undertake the work approved by the stakeholders that leverages the expertise of team members without asking them to perform administrative support of the projects; (4) generating and maintaining adherence to timelines that include scheduled stakeholder sessions and dates that

team members will be asked to confirm they can attend at the start of the project; (5) keeping the community informed; and (6) liaising with [Information Technology Governance Committee \(ITGC\)](#), the decision-making body for managing the Institute’s IT resources, and other leaders on a defined schedule.

The implementation plan as illustrated in the accompanying figure has four main components divided into eight distinct categories of activities (see the Appendix for a detailed summary of the implementation and the budget). At a high level, our recommendation is for two phases. During the first phase, a subset of the RIC 14 team will work with senior leadership (Provost, Chancellor, EVPT, etc.) to hire two full-time employees (FTEs) to be assigned to document our processes on a timeline, develop possible criteria for prioritization, work with senior leadership and stakeholders to vet the potential projects, develop a mechanism for revising the prioritization on a regular basis, and then create the process for moving projects through the system. During the second phase, projects will begin to move through the system. To successfully do so, the plan requires two additional FTEs to increase project management capacity and handle the extensive meeting logistics. The implementation also includes a request for dedicated space. During this phase, the One Agile Team will provide support to the project teams to allow expert stakeholders to participate in the project without being asked to undertake administrative duties. In the long-term, we hope that this office can act as a resource to projects across the Institute, convene local project managers, provide training and resources to the community on best practices, and provide opportunities for increased engagement by community members in defining the work for the future.



To be successful, the One Agile Team needs the support and commitment of senior leaders with respect to prioritization, ongoing decision-making, and resources (space, finance, and headcount). Although the One Agile Team efforts will result in the centralization of some projects, the path for many other projects is already clearly established through existing structures, such as IST, as well as within individual units. We note that, although some increased centralization is anticipated, we do not expect this Team to replace the people who develop local solutions or are early adopters of new resources. As noted above, these local efforts can grow into larger projects and eventually provide Institute-wide solutions to common challenges. We believe that One Agile MIT can both support a path for these decentralized innovations and provide opportunities for the larger community to engage as we improve MIT’s administrative structures and our community’s ability to make decisions and free up time for strategic planning.

Student Funding Refinement and Implementation Committee (RIC) 15

Committee Members

Stephen Buchwald (Chair), Stephen Bell, Glenn Ellison, Ken Goldsmith, Nergis Mavalvala, Donca Steriade, Will Tisdale, and Naziat Adnan (Staff)

Abstract

The Student Funding RIC recommends a number of steps to ensure that doctoral students earn a living wage and are well positioned to pursue career objectives, and that MIT departments are competitive with peers on grant applications and in attracting top students. The multiyear, phased-in approach includes instituting an all-but-dissertation (ABD) rate of 10% or less in year 5 for non-lab disciplines, increasing the research assistant (RA) tuition subsidy to 75% for students beyond the first year, accepting the funding provided by the National Science Foundation (NSF) and certain other fellowships as fully covering tuition, providing summer support funds to non-lab departments sufficient to provide at least half support for students after their first four years, and providing a tuition subsidy for National Institutes of Health (NIH) and other government-sponsored training grants.

Motivation

RIC 15 was charged with reviewing the ideas on student funding developed by Phase 1 working groups, and with refining and merging these and other ideas to arrive at concrete and specific proposals for implementation. The main focus was intended to be and was graduate student funding.

The committee's work started with a discussion of two topics on which it came to universal agreement:

- Graduate students are critical to fulfilling MIT's mission of advancing knowledge and educating students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century. MIT's top-ranked PhD programs are a tremendous asset.
- A number of trends have caused Institute support for MIT PhD programs and for PhD students to fall well behind what peers are providing. This is a form of deferred maintenance that is critical for MIT to address if it aims to remain a leading institution for graduate training and for research more broadly.

Some inefficiencies in MIT's current policies can be fixed at almost no cost. Several others can only be addressed by committing substantial financial resources.

We believe that addressing even the expensive issues now is critical. As with deferred maintenance to buildings, MIT will continue to incur off-the-books damage to a valuable asset for as long as changes are not made. If MIT further defers this maintenance, it will be doing a worse job of serving its mission in the short run, and it could find itself needing to spend even more in the future to restore assets.

Big-Picture Goals

There is fairly broad agreement on what MIT would like to accomplish:

- Increase stipends where they are low to bring students up to a living wage.
- Help make grant applications from MIT researchers competitive.
- Exploit available funding sources to the fullest extent possible.
- Avoid situations in which distorted prices provide faculty/departments with an incentive to take actions that are not in the best interests of MIT and its students.

One topic on which there is less than complete agreement is on the size of PhD programs.

- Some believe that increased PhD enrollment is very expensive and should be tightly limited. Others believe both that PhD students are tremendously important to many goals and that the costs of running top-notch programs are largely fixed costs, so much of the purported “savings” from reducing enrollment will prove illusory.

Our committee is of the latter view but agrees that it is important for MIT to retain levers to control the growth of the graduate student population. The salience of the goals differs across departments. Hence, the best way to address the current problems also differs. The primary difference is between “lab-based” departments in which PhD students are primarily supported through sponsored research, and those in which PhD students are primarily supported by outside fellowships, internal funds, and the general institute budget.

Non-Lab Disciplines

Addressing concerns in non-lab departments is relatively inexpensive, both because the departments are relatively small, and because some of the concerns involve distorted prices in an economy that consists almost entirely of internal transfers. A prioritized list for these departments might be:

- Institute a very low ABD tuition rate of at most 10% starting in Year 5, so that departments are not disproportionately taxed when they accommodate legitimate student desires to spend sufficient time preparing for academic careers and can encourage such students to seek outside funding which is more available for stipends than for tuition.
- Centrally fund tuition shortfalls on NSF Graduate Fellowships and other foundation fellowships commonly received by students in these departments, so that departments can more actively encourage their graduate students to seek this funding source.
- Provide resources to allow departments to provide summer Ras/Fellowships to help guarantee that student support will meet the projected 12-month cost of living.
- Consider also an even earlier step down in tuition (like that at Harvard) that reduces tuition to at most 50% for students in years 3 and 4. Such cuts would eliminate some distortions and have essentially no revenue impact (if the policy is limited to non-lab disciplines.). Alternatively, the step down could occur whenever a student has met a set of ABD requirements.

Lab-Based Disciplines

Addressing the deferred maintenance in lab-based disciplines will be more expensive but is critical to MIT’s mission. The primary policy changes that are needed are:

- Increase the RA tuition subsidy to roughly 75% for students beyond the first year.

- Centrally fund tuition shortfalls on NSF and other individual-based US government fellowships.
- Provide the needed tuition subsidy for NIH and other government-sponsored training grants.

Recommendations

Combining these lists and prioritizing to address the largest concerns in a manner that is equitable across departments our highest priority recommendations are that MIT

- Accept the payments made by NSF Graduate Fellowships (and some others) as fully covering tuition.
- Increase the RA tuition subsidy to 75% for students beyond the first year. If concerns about potential increases in the graduate student population are deemed important these subsidies could be limited as discussed in our detailed report.
- Institute an ABD tuition rate of at most 10% starting in year 5 in non-lab disciplines.
- Provide a tuition subsidy for NIH and other government-sponsored training grants.
- Provide summer support funds to non-lab departments sufficient to provide at least half support for students in the summers after their first four years.

Our detailed report elaborates on these recommendations and discusses a number of other valuable changes that could be implemented if sufficient funding is available.

Implementation

The problems noted by our RIC have been noted by many for a long time and were discussed in great detail by a 2018 committee led by Stephen Bell. We feel that no additional study committees are needed and the provost's office should simply make plans to implement these policies as quickly as possible.

- The details on exactly what accepting NSF payments means and decisions on which other fellowships to treat similarly could be worked out by October and announced as applying for the 2022–23 academic year before applications are due. This change will require a commitment of roughly \$10M/year.
- The commitment to centrally fund 75% of tuition for research assistants could be implemented almost immediately and apply to all students supported on grants with applications submitted after some particular date. Implementing such a policy quickly is desirable to remove the incentive to delay submitting applications. This will require an additional commitment of roughly \$30M/year in steady state. Costs will ramp up over a few years as the set of grants to which the subsidy applies grows.
- The details of the set of students eligible for the new ABD policy could be worked out in the fall semester and adopted for the 2022–23 academic year. The reduction in charged tuition could be as much as \$14M per year but given that almost none of this tuition is ever paid by non-MIT sources, the true cost to MIT of the policy change would be negligible.
- The tuition subsidy for NIH training grants could be adopted for the 2022–23 academic year. The added cost might be about \$2.5M per year.
- The details of the summer support subsidies provided to non-lab departments (or directly to students) could also be settled in the fall semester so that they can be described when admissions decisions for 2022–23 are first sent out around January 2022. The cost to MIT would be about \$5M/year if full summer support is provided and about \$2.5M/year with half support.

The costs of these policies bring with them an opportunity to appeal to donors to help address the challenges.

We recommend that MIT also:

- Launch a major and focused fundraising campaign to support the added expenses and to raise additional centrally administered and departmental fellowships. This campaign could be planned in 2021–2022 and launched when it fits well between other initiatives.
- Consider changes to fundraising policies that would make it easier for departments to raise endowed full fellowships.

Undergraduate and Graduate Living and Learning Refinement and Implementation Committee (RIC) 16

Committee Members

John Fernandez (Chair), Brian Canavan, Albert Gerovitch, Jeff Grossman, Jordan Harrod, Amy Kaiser, Suzy Nelson, Krishna Rajagopal, Brent Ryan, and Jennine Talbot (Staff)

Abstract

The RIC 16 report outlines proposals in eight areas and recommends the creation of a number of new committees. These include an ad hoc committee on integrating digital learning in our educational programs, a standing advisory board on strategic planning of classroom spaces, and committees focused on the design and development of common community spaces as well as green outdoor spaces. RIC 16 also provides recommendations on enhancing community-building events and improving the Independent Activities Period (IAP), on expanding off-campus experiences for undergraduates, as well as on the establishment of education sabbaticals.

Enhance Unscripted In-Person Engagement by Integrating Digital Learning into MIT Education

Create a one-year ad hoc committee co-chaired by the Dean for Digital Learning and the Director of the Teaching and Learning Lab. The group would gather input from key stakeholders involved with instruction, focus on ways in which learnings from remote teaching can be utilized within in-person experiences, recommend best practices for utilizing digital delivery methods in creating engaging in-person learning experiences, and work closely with the Classroom Advisory Board (proposed under Interactive Classrooms for Enhanced Engagement) to develop a strategic assessment regarding capabilities for auto-lecture capture and streaming capability in classrooms.

- RIC16 proposes the creation of a one-year ad hoc committee co-chaired by the Dean for Digital Learning and the Director of the Teaching and Learning Lab.
- No need for a pilot before creating the ad hoc committee above.

Education Sabbatical

To unleash the full educational prowess of MIT's faculty and instructors, we propose to create an Education Sabbatical, separate from senior faculty sabbaticals, to provide equal opportunities for both senior faculty and instructors to delve deeply into initiatives to substantially improve their education offerings.

- Oversight should be Provost and Deans. Administrative responsibility within the Provost's Office, or could sit with the Vice Chancellor. There will need to be an annual call for proposals, and then a committee of faculty charged with prioritizing the proposals received. Perhaps then Deans' Council reviews, before Provost decides.
- Start immediately; Pilot this by issuing a call for proposals in late fall 2021.

Interactive Classrooms for Enhanced Engagement

- Develop a standing advisory board composed of faculty, staff, and students to spearhead strategic planning of classroom spaces. The group would work in close collaboration with P-CRSP and R-CRSP in advocating for the realization of short and long-term strategic plans within the larger framework of space planning, including resource allocation.

Hybrid Residential/Online Campus Experience

Extended off-campus educational experiences for MIT undergraduates

While there is strong interest from undergraduates to maximize time on campus, there is significant value in considering the various ways that certain students may expand their perspectives and enrich their learning from other contexts away from campus.

- Expand the range and quality of off-campus experiences for all MIT undergraduates.
- Align with MIT priorities—such as equity and climate change.
- Provide resources to the Office of Experiential Learning, in partnership with other offices to achieve the goals of this recommendation (no pilot project needed).

Short-term educational experiences for non-MIT undergraduates

MIT would offer a short-term (e.g., three-week) residential experience for university level students from across the US and abroad.

- Further conversations beyond the scope of this report need to occur to explore the viability and interest of this recommendation.

Community “Third” Spaces

There is a need to promote the design and development of common spaces as critical elements in the MIT experience that significantly contribute to the community of the Institute.

- We recommend that MIT conduct a comprehensive survey, to be conducted by trained and professional MIT staff in consultation with a committee comprised of students, faculty, and staff, during fall 2021.
- We recommend that a committee of different parts of the MIT community be convened in fall 2021 or spring 2022 to develop a set of recommendations for the mandatory, required participatory planning and design of future community spaces at the “super departmental” level at MIT.
- We recommend a review of the administration (oversight, maintenance, and improvement) of MIT common spaces in spring 2022, following upon the inventory of community spaces to be conducted in fall 2021.
- We recommend that MIT should also create an ongoing committee on common spaces that will serve as a sounding board, Ombud’s office, and community convening space for dialogue around common spaces.

Green Outdoor Spaces

MIT has long taken an offhand approach to much open space usage, perhaps as a result of a pragmatic laboratory-oriented culture. Yet the “bones” of MIT are very strong: the campus has a long legacy of creative and successful campus design, and many existing open spaces are well-loved, symbolically powerful, and functionally active. We can and must change if open spaces at MIT are to achieve their maximum potential in meeting community desires, attaining environmental standards, and moving the dial on past landscape practices that do not reflect current thinking.

- Seed fund for new small-scale laboratory spaces at MIT; formation of a campus open space committee
- Signature Open Space Community Process for Volpe Open Space
- Landscape Master Plan for MIT Campus

Community-Building Events

The decentralized nature of academic departments and programs at MIT can make it difficult for students, staff, and faculty to form community-level connections within the institute. We believe MIT should prioritize and actively invest in cultivating the energy, creativity, diversity, cohesion and playful spirit of our community by restoring some well-loved rituals and/or creating some new ones.

- Committing to holding an MIT Open House every four years
- Establishing “Pi Day” as a special day at MIT
- Hosting an MIT Fair every year or so
- Holding an MIT-wide carnival every year or two
- Holding a multicultural festival every year or two

Restore And Revive IAP

The focus of this recommendation is to restore and revive the original spirit of MIT’s Independent Activities Period, in which anyone at MIT was encouraged to take time in January to explore something new.

- Provide IAP ideas and development funds for new offerings and initiatives

Conclusion

This report reflects a 16-month effort that included over 30 working groups and committees, over 100 meetings, a dozen forums, multiple idea banks, and hours upon hours of research, writing, and other forms of engagement—all during a global pandemic when most participants already had a number of extra responsibilities on their plate. The co-chairs of this task force are grateful for the tremendous work that went into developing these recommendations.

While all the aspirations outlined in this document may not be achievable, as an institution that distinguishes itself with a *mens et manus*, or mind and hand, approach, we look forward to the process of pushing the implementation actions forward to advance critical priorities identified through the task force process.

Finally, President Reif showed tremendous vision in charging this task force at the earliest stages of the pandemic. MIT is already benefiting from that foresight, and it is clear that these outcomes will help position the Institute for a bright future.

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