MIT Engineering Leadership Programs — Industry Advisory Board Meeting Minutes
November 21st, 2024
Zoom meeting from 12:00pm-1:30pm

Industry Advisory Board Members Attendees:
Dan Riccio, Alex Van Adzin, Kate Bergeron, Terence Calloway, Jim Cuseo, Mindy Gallo, Ken Languedoc, Sorin Marcovici, Padraig Moloney, Simon Pitts, Art Reidel, Tang Tan, Ed Trautman, Bill Warner, and Peter Zeeb

Absent:
Bernie Gordon, and Jaymin Amin

MIT Leadership, GEL and GradEL staff attendance:
Hamsa Balakrishnan, Ericka Elghazi, John Feiler, Mike Finkle, Claudia Forero-Sloan, Heather Kispert Hagerty, Doug Hart, Tony Hu, Shokofeh Khadivi, Jim Magarian, Leo McGonagle, Eileen Milligan, Monica Pheifer, Reza Rahaman, Alex Rokosz, Eliana Runyon, Joel Schindall, Maria Yang, and Di Ye

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I.   Executive Summary
        Leo provided an update on the GEL Program. Key points:
Enrollment this semester is 131 GEL1 students and 37 GEL2 students, with a growing number earning certificates. Any attrition is due mainly to students overcommitting themselves. We have 1,391 alumni, many actively supporting ELLs and sharing their GEL stories at our annual career fair. Our summer Professional Ed courses – Mastering Innovation and Design Thinking and Engineering Leadership for Emerging Leaders – were well-attended. Jim Magarian and staff earned Best Paper in five divisions at the ASEE conference. The paper highlighted our Ethics ELL in action.** Apple and Northrop Grumman sponsored Impactships this year. We're ensuring companies who participate understand the high level of commitment involved. Impactship students are ideal future GEL2 leaders. Staff updates: Claudia Forero-Sloan hired to assist with GEL/GradEL finances. Mike Finkle hired as GEL/GradEL Marketing and Communications Officer.

ACTION ITEMS:
Leo to send copy of Jim's paper to Art Reidel.
"Navigating the Mystery: An Approach for Integrating Experiential Learning in Ethics into an Engineering Leadership Program"
https://peer.asee.org/47797

Tony Hu provided an update on the GradEL Program. Key points: GradEL is on track with its mission of attracting the highest potential grad students and helping them transform into engineering leaders. We are up to 7 of our own courses, plus 19 electives. This year, 42 grad students earned program completion certificates, a 27% increase from last year. Dan Riccio spoke to an overflow crowd of 400 for the TLC Distinguished Speaker Series. Lisa Su, CEO of AMD and namesake of MIT's nano building, will speak at an upcoming event. We're hearing great feedback from the first group of Engineering Residency Program students and have identified candidates for the second group. We're striving to improve matching the skills/interests of candidates with host companies. Fundraising update from Heather Kispert Hagerty: Paul Green and Joel Schindall have leadership roles in the spring 24-Hour Challenge, which is great for GradEL awareness/support. (Paul Green attended Dan's talk and pledged a generous gift to GradEL.)

ACTION ITEMS:
None

Prior to the meeting, the Board evolution proposal was provided to the IAB. There was agreement from the board members on the overall aim of the proposal (to increase the value of IAB membership both for members and for the programs) and the proposed tactics/initiatives. Reza introduced the proposed subcommittees and led a discussion to gather Board input regarding the framing of two subcommittees. The first Subcommittee would gather insights from companies to strengthen our Impactships and Residency programs. Discussion focused on having a good elevator pitch to get companies excited about the programs, contacting companies that employ our graduates, identifying who to approach (HR, Engineering, etc.), working with co-op organizations at MIT, and asking students what types of companies they are interested in. The second Subcommittee would gather insights from front-line company personnel about what is needed for the latest generation of students to thrive. Board members agreed this was an important topic due to difficulties integrating young employees into the workplace, the retirement bubble draining many companies of talent, and low employment expectations of this new generation causing recruiting challenges. Both subcommittees were enthusiastically supported, and Board members were encouraged to volunteer for their preferred subcommittee.

II.   Welcome

Reza welcomed board members and provided an overview of the agenda. He explained that the first part of the meeting will include an update on both the undergraduate and graduate programs while the latter part of the meeting will be a board discussion focused on the Industry Advisory Board evolution proposal. Reza reminded members that the proposal was shared with members prior to the meeting and that our intent for the discussion is to collect input from the board that can later be incorporated.

III.   GEL Update

The GEL Program had strong student and alumni engagement and wonderful engineering industry leader support over the last academic year. This fall we had several GEL 1 & 2 alums participating in our Engineering Leadership Labs and they shared with students how the program has impacted their early engineering careers.

Our number of alumni grew to 1,391 by Spring 2024. The number of program completion certificates awarded to students this past May also increased from last year. While we did suffer from some attrition it is important to us that the students who complete the program are of high quality. The completion certificate that we award students at the end of the year signifies to industry that this person is a quality applicant, they should hire this person, trust this person, this person is worthy to be on your team.

Even with the increased number of students who completed the program, we still suffer from attrition. We have researched the "why" behind it and, based on data analysis, overall it really comes down to one thing – students realize they have overcommitted themselves academically.

We held our two annual summer Professional Education courses, which continue to be well-attended. Blade Kotelly and Reza Rahaman led "Mastering Innovation and Design Thinking" while "Engineering Leadership for Emerging Leaders" was led by David Nino and Reza Rahaman with sessions also taught by Leo McGonagle, Jim Magaria, John Feiler, Joel Schindall, Monica Pheifer, and Di Ye.

We attended the American Society of Engineering Education (ASEE) conference at which a paper Jim Magarian wrote with contributions from the GEL staff was awarded Best Paper in five separate divisions. The paper "Navigating the Mystery: An Approach for Integrating Experiential Learning in Ethics into an Engineering Leadership Program" discusses the nuances of addressing ethics in combination with the existing course material in the classroom. Currently, GEL has a working model of a class lab combo on the topic of ethics that we are proud of and that we think is highly innovative in the space of engineering leadership education. It is almost a backdoor ethics lab where students attend Jim's class either on Monday or Tuesday where they get some instruction on a topic unrelated to ethics, and then on Friday they attend the Engineering Leadership Lab not knowing what the topic of the lab is. This allows them to enter the class with no pre-conceived ideas or action plan, and this benefits them because they are usually halfway through the class before they even realize they are knee deep in an ethical challenge through which they must navigate.

Our current enrollment this semester is strong in both the GEL1 and GEL2 programs despite the expected attrition with 131 students in GEL1 and 37 students in GEL2.

For our Impactships, we are fortunate to have 2 board members' companies that were gracious enough to sponsor Impactships this year, Apple and Northrop Grumman. The process is well under way for placement of students regarding interviews and offers from the companies. Northrop Grumman is going to offer at least one Impactship to one of the students that applied. Some of the challenges we face are that companies change leadership and that makes it hard to ensure that the company understands the mission of the program. We want the companies involved to understand that they're going to provide specific leadership opportunities, high level coaching and mentoring to the students. Eileen Milligan leads Impactships on the undergrad side, and we've redoubled our efforts to engage with industry to ensure that this happens. We can't force students who apply for Impactships to do GEL2, but we market the opportunity for those seriously interested in applying to GEL2. We want the students who do Impactships to have the most high-impact internship experiences with hopes of them becoming future leaders within our program.

For a couple of years Eileen and John Feiler have run an annual virtual career fair that features many of our alums actively working in industry. Students can connect with companies during information sessions before the career fair even happens. We are closely monitoring the students that are engaged with those and what students we retain or pass on, because we don't want students to land an internship through a GEL connection and then leave the program. We have significant involvement from our alumni, as they

know the value of the program and what it has done for them. As you can see from the photos on Slide 5, we've really redoubled our efforts not just to connect with a small subset of alums, but to get to form deep and broader connections with our alumni base. The top left 2 pictures are from our alumni student social. We had a lot of students attend as well as around 60-70 alumni, some from way back in 2011 and 2012. We have really done a wonderful job of establishing the program as an additional community among alumni with subgroups for the fraternity or sorority communities, and athletic group communities.

The alumni see GEL as a viable, active community and as a program that will drop everything to support them. The 3rd photo is from our GEL1 mentoring networking social that was held in the Stata Center.

Most of our alumni who participate are graduate students from Systems Design Management (SDM) or Leaders for Global Operations Program (LGO). It is almost like a speed dating event where students are challenged to meet as many prospective mentors as they can, and then they tell us which mentors they want to be connected with. The far right picture is from our Junior Engineering Leaders roundtable event which features some of our seasoned alumni. We ask our alumni to share best practices such as "If I knew then what I know now, here's my advice to you." Over the years our alumni have matured, and for the past couple of years we did it virtually. However, the students are sick of zoom, and so this year, though we couldn't bring in as broad of an alum audience from the West Coast, we had over a dozen alumni come in and spend the entire day with us.

Dan Riccio was gracious with his time and talent to come and speak at a Technical Leadership and Communication Program (TLC) hosted speaker event. The whole TLC staff supported those efforts behind the scenes. With that support, we successfully promoted the event that resulted in GEL and GradEL students filling the auditorium, the hallway outside, and the overflow room.

The new website is progressing nicely and will be launched no later than in conjunction with our recruiting cycle which begins around the middle of the IAP period. GradEL's website looks great and has already launched, as it was a priority to do so with the program being more newly established than GEL. To help with the creation and implementation of the sites, we hired our new joint GEL and GradEL Marketing and Communications Officer, Mike Finkle. He comes to us with a lot of experience from programs in high school, math and science as well as a background in Industry.

Similarly, Eliana Runyon, our Director of Finance and Administration, having responsibility for GEL, which has grown as well as GradEL, UPOP and Communication Lab was beyond capacity, so Claudia Forero-Sloan has been hired to assist and support both GEL and GradEL. We also have a new junior level position posted that will support us behind the scenes with Engineering Leadership, Lab preparation, preparation for Jim Magarian Engineering Leadership class, our 16.810 Rapid Prototyping class, and for our Camp Cody project management class.

Board member discussion:

- **Art Reidel:** "Could you please send us a copy of Jim's paper?"
    - **Leo:** "Most definitely. It was a very well received paper and an excellent presentation overall by Jim."

IV.   GradEL Update

Tony Hu was introduced and invited to talk about some of the ways in which GradEL was on track with its mission of attracting the highest potential grad students and helping them transform into engineering leaders. The highlight of the semester was the TLC Distinguished Speaker series, led by Dan Riccio. We had 400 people attend the event both in the designated room, outside in the hallway and the overflow room. It was just a spectacular event. Dan also spent some time prior to that with 9 of our top grad students who were thankful for that unique experience. Tony acknowledged and thanked Paul Green, longtime UPOP mentor who attended the event and pledged a generous gift to GradEL.
The certificate ceremony this past May had 42 grad students earning their program completion certificates. That was a 27% increase from last year's 33 certificates awarded. Hopefully, with some of our new marketing efforts, that will continue to grow.

A course update was given to show the great growth the program has had. A year and a half ago there were 3 courses offered. Now we're up to 7 of our own courses in addition to 19 electives. These courses and electives were paired and distilled into 6 categories for easier understanding and navigating by the students. The breakdown of the categories is available in the slide presentation. Tony also provided a rundown of the current courses:

1) *Our Foundational course "Leading Creative Teams" was started by David Nino six years ago and led to the creation of the certificate program.*
2) *After that, our two negotiation courses came up, led by Mooly Dinnar and Rachel Best.*
3) *Additional courses being offered are:*
   a. *6.S630 Leadership – People, Products, Projects is a development and project management course led by Monica and Tony. This class looks at team-based product development through a leadership lens, which encourages students to think about how to collaborate, communicate and inspire a team. This class received a permanent course number (required approval from MIT) and will run in the upcoming Spring semester.*
   b. *6.S640 Unpacking Impact: Transforming Research into Real-World Solutions, which is geared to researchers and helping them understand the value and impact of their work on the world. To help them focus on how to communicate their work to those who are not familiar with the vocabulary/jargon of a lab. Plans to further evolve the course include other leadership topics and to take one's research technology and roadmap it forward. Collaboration with School of Science faculty member and colleague, Anna Frebel who heads Astrophysics, will be very beneficial as she leads a leadership class that is well received.*
   c. *6.S650 Innovating for Improvement, is a brand-new course piloted by Monica Pheifer this Fall semester. It addresses what it takes for engineers/designers to improve products such as the iPhone year after year and how to use the statistical methods in the case of this course to do so.*
   d. *Monica is also hard at work on something we called the Engineering Leadership Practicum. This is a very similar course to the GEL Engineering Leadership Lab where students practice their leadership weekly in the lab. The concept is to put them in a team, rotate the leadership among students, put them in interesting scenarios where they have to work past conflicts, overcome roadblocks, and test out the things that they learn in our courses.*
   e. *Rachel Best, who teaches 6.9270 Negotiation & Influence Skills for Technical Leaders, is also working on piloting a communications course, focused on persuasive communications*

f. *Another one of our teammates, Di, is very passionate about coaching, and she's been piloting a series of workshops on coaching, with the hope of broadening that out in the future.*

g. *David Niño has taught a class on leadership in the age of AI in the past. That was years ago. But now, of course, more than ever, AI is at the forefront of everybody's mind. We're looking to reboot Leadership in the Age of AI in the next academic year.*

An update was given on the Residency Program. Tony thanked Dan, Kate and Mindy for helping to launch this initiative with Apple and Northrop Grumman. The first group of residency students were shown on Slide 21. We're hearing great feedback from the students. We track them monthly through in-depth coaching sessions that Di and Monica have with them. We also work with the hiring managers to gain feedback on their thoughts about the process. Tony then invited Di and Monica to further talk about the coaching sessions.

<u>Di Ye:</u>

1) *Thanked board for input on what skills to teach the students during the residency program and how best to implement them.*

2) *Based on the board's feedback on the residency program, we have identified 10 engineering leadership competencies for residents to focus on.*

3) *Monica and Di provide one on one coaching to the students as they go through that lived experience in the context of the company and how best to practice these competencies in that context. The students also get together to compare notes and learn from each other.*

4) *We have been hearing companies share feedback about the students saying they are eager to learn, seem polished, and can articulate what technical and leadership skills they want to learn. The students have been practicing how to ask for that kind of support.*

5) *Students are asking good questions to understand the context. They seem to be collaborating well with others and the Northrop manager, Sai, commented that we did well in identifying these students. We are taking the lessons learned and implementing them during the second round of cohorts.*

<u>Monica Pheifer:</u>

1) *We have identified 7 residency candidates for the second group and have shared them with both Northrop and Apple. The intern interviews at Northrop Grumman are being held during the rest of November and beginning of December.*

2) *We have started coordinating with the group at Apple connections for their candidates.*

3) *We are looking at ways that we can help improve matching skills and interests of these candidates with the host companies on both ends to offer the best opportunities. We are also looking to help develop those skills and leadership capabilities for great engineering results and leadership exposure as well.*

4) *Further discussion on how to improve partnership with our host companies and future evolution will happen later in the meeting.*

Tony thanked Di and Monica and moved to next item which was the GradEL Marketing efforts. There was a big marketing push for Dan Riccio's talk as part of our TLC Lecture Series. We collected 800 emails and had 400 people attend the event. To keep this momentum going with other marketing objectives and with the new GradEL branding we have attended resource fairs and participated in different student

engagement opportunities. The Electrical Engineering Computer Science Department recently invited GradEL to run exercises for their first-year graduate seminars. We attended AeroAstro and Civil Engineering's orientations. There have also been discussions in the works with Civil Engineering and Mechanical Engineering for potential collaboration.

You can visit our new website at gradel.mit.edu to see our progress this past semester.

Our next TLC Lecture Series talk will feature Lisa Su, CEO of AMD and the namesake of MIT's nano building. We are working with her team to secure a date for Spring '25.

Tony then invited Heather Kispert Hagerty, School of Engineering's Assistant Dean of Development, to discuss GradEL's fundraising efforts.

1) *GradEL received two planned gifts this year including $500K from Paul Green (longtime UPOP volunteer and mentor)*
2) *Paul Green and Joel Schindall will be taking on leadership roles in MIT's annual 24-Hour Challenge in Spring '25. This will be a great opportunity for GradEL to build awareness of the program and to start building a base for annual support.*
3) *Numerous conversations have been held with individuals and corporate prospects including current talks with Analog Devices about possible opportunities.*
   a. *Joel: "I am helping with this so if anyone has any prospects, please let me know and Heather and I will follow up."*

Board member discussion:

- **Art Reidel:** "The growth of program is impressive. Perhaps we should be proactive and set up a system such as GEL to track and evaluate the progress of our graduates as they go out in the world. Implementation of some metrics and methodology"
  - **Jim Magarian:** "Art, as you know from being involved in one of the past subcommittees, we did some extensive polling of alums looking at career outcomes and their sentiments regarding how the program supported their careers. But we then couldn't trace that back to any metrics collected during the student years. We have since rolled out an update where every participant (GEL & GradEL) generates an anonymous ID code they enter when participating in a self-assessment or feedback survey. This allows us to stitch together their student year assessment evaluations with their alumni career outcome assessments. We've also done this for the Residency participants that allows us to look at their connections to courses they take and downstream career outcomes."
- **Dan Riccio:** "We need more than just a data gathering exercise. I saw a report of feedback from folks who run industry and to pick the right cadence of a board meeting to share the information. Second and probably more importantly, if there are things as part of the data and part of that feedback that should necessitate some changes or tweaks to the program, it would be good to know what they are and what plans would be to implement them."
  - **Jim Magarian:** "Great points and I totally agree. With our new Communications Officer, Mike, on board we want to go beyond the more quantitative and anonymous assessment and pursue a more journalistic approach as well. Reaching out to alums, getting their stories, and having that operate at a certain cadence. But to your point on continuous improvement, we will be annually identifying capability and learning areas where we can be doing better. What came from the first wave was understanding and making sense of organizations and organizational challenges like organizational politics. We are working on

boosting the curriculum in that regard. We also received feedback from students feeling like they are not prepared for understanding career paths and understanding growth opportunities. We are working to pull in more career advising and professional dimensions.

- o **Reza Rahaman:** "Dan, as you will see when we get to the two subcommittee areas, one of the subcommittees is actually designed to solicit information from within organizations that we can stitch together with information from our alumni and see how the two perspectives match, how they make sense and what it means going forward."

- **Simon Pitts:** "You mentioned that you have 10 competencies that you are using in the residencies, is there feedback yet that shows these are the correct 10, or is there a continuous improvement plan for those to be adjusted as we get more experience?"
  - o **Monica Pheifer:** "Some of the feedback we have received already shows that the 10 we selected are in very good alignment with some of the values and ways of working expected at the companies that we are partnering with. This is great in terms of what we need to be successful today, but I agree we need to be looking as well at what competencies they are going to need in the future. There is an intention to continue to look at and evolve that list of competencies as we continue to get some of that feedback and both subcommittees that we are talking about in the next section should help us start to identify any evolutions that might be needed there."

- **Art Reidel:** "In several of the larger companies that I have had experience with over the years, you have very structured methodology for evaluating among other things the leadership potential of engineers at various levels for advancement into leadership roles, responsibility and so forth. It would be valuable, I think, to learn from the HR departments of these companies for example Northrop Grumman and Apple, what methodologies they use and whether we can sync up with some of their approaches to evaluating."

- **Kate Bergeron:** "Do we have a survey for students going through the 10 competencies to fill out and provide us feedback on how we are doing with coaching them? And, then using the feedback to figure out how to tweak the relationships with the next year's mentors so that the experience gets better. It would be logical to try this out on our current small cohort before bringing too many other folks on board."

- **Ed Trautman:** "I want to comment on Tony's discussion. It seems we are broadening beyond just engineering teams into multidisciplinary teams with the researchers which I applaud because engineers are not only on engineering teams, certainly in the life sciences. I am an advocate that the engineering approach and principles apply to a lot more than just engineering."
  - o **Tony Hu:** "Thank you and a lot of the researchers are engineers as well. We have people from engineering disciplines, sciences, and from architecture (Sloan). It is a broad mix which I think the benefit is that a course was going to be focused on one discipline, energy, but turns out we had applicants from everywhere, so we broadened it out. The applicants realized right away they could not communicate with each other and had to adapt quickly which I see as a benefit."
  - o **Art Reidel:** "Well, through Martha Gray we certainly have a strong connection to the medical end of things. Innovation and medical."
  - o **Di Ye:** "I want to say thank you for the feedback. We do have instruments with Jim to measure and track how the residency is growing in terms of the 10 competencies and collecting feedback from the managers but still recognize room for improvement."
  - o **Jim Magarian:** "The system allows manager feedback to be synced with student feedback. I will also mention that the 10 competencies we focused on are currently not the only 10 that matter. What they represent are 10 out of the super set of our curriculum that seem to be best equipped to be practiced in the residency context. If they take other components of

GradEL they will explore other capabilities and develop those, but the current set are the ones that were sort of the best fit for capitalizing on the residency opportunity. If they participate in more dimensions of GradEL those students will also self-assess and get feedback on other capabilities beyond the 10."

V.   Board Evolution Proposal

Reza led the discussion of the Board evolution proposal. At the last meeting Reza broached the topic of board evolution and had solicited perspective from the board itself. A significant number of members gave perspective on what they appreciated and what could benefit from change. Reza combined the board feedback with that of the TLC staff not only based on their own experience but also doing some work in the literature to determine what the best practice looks like for boards like ours. Feedback included:

1) *We had a positive experience when we had a subcommittee that started off the longitudinal assessment that Jim staffed from the TLC side and Art, Mindy, and Ken staffed from the board side. Incredible input was received that really helped provide the foundation for the work that we've done since we started talking about the Residency. The original 6-month period seemed unmanageable but the whole board agreed we needed to find a way to make it happen and we succeeded.*
2) *Several of you commented that you do not want to feel like you're following the progress of the program but instead want to feel like you are part of enabling the process. Which led to the second point that twice a year for one and a half hours with no real work in between the meetings is ineffective. How can we help with this? This led to a conversation which was highly supported by board member Jim Cuseo to bring back the subcommittees. If they worked for us in the past, then perhaps they will provide some benefit now. We want to provide more information to the board on a regular cadence, so you have the foundational understanding of what the major initiatives are and engage with them outside of the board setting.*
3) *We want to make sure that as the subcommittees are established, they are in the areas that the board members either had experience with or could get experience from. The effort is framed so that what comes out at the end of it will be useful to us.*
4) *Themes that came out of the feedback were:*
   a. *Getting clarity on connecting the mission of the IAB to the mission of the engineering leadership programs in a way that maximizes the value of the board. Pulling back and saying the mission of the engineering leadership programs in terms of the charter we have is to provide engineering leaders primarily for industry. But to Ed's point, the skills we provide can be applied broadly beyond leadership roles. Even though that is the goal, we are not restricted to that. Given that context, the Industry Advisory Board is made up of people who have deep industry experience. Its purpose is to connect us to industry through members' experiences. What has been effective, what has not been, what are the best practices, what lessons have been learned and what might a broad range of industry needs from effective engineering leaders look like and how might these needs be evolving over time? It can be seen in one of the subcommittees that we are really trying to address the evolving overtime needs of engineering work and, to an extent, how today's entry level engineers are delivering on those needs. We also would like to delve deeper, if the board members should be willing, into their organizations for insights because many of our board members are 2-4 levels away from entry level engineers now. But we really need to tap into the perspective of the front-line people who are dealing with these.*

b. *Ensuring that the IAB is structurally set up to deliver on its mission. Best practices and feedback from the board was consistent with the size of the board being somewhat between 12 or 18. In terms of the way our governing board and donor agreements are written, each of the benefactors, Dan Riccio and Bernie Gordon, have two members that they can nominate to participate along with them on the board with the other members. We should intentionally have a mix of big company versus small company, startups versus established, domestic versus multinational, in a range of sectors. What we believe and was echoed in the feedback received from the board is that relevant industry experience, passion, and energy are more important than just credentials. In terms of the way we operate/where we are going to move is to three year staggered renewable terms. There will be no term limits but rather a conversation between the board member and the program at the end of each three years. This will be framed for the member to ensure they are still getting value out of being on the board and for program in terms of are there ways that we have been getting value and how to maximize that from members being on the board in terms of our norms.*

5) *If we go to the subcommittee model, we believe that two one and a half hour meetings a year with the right briefing of the board is workable in terms of the demands on your time and getting input that is valuable to us. This is addressed in more detail later in the minutes.*

6) *The work done by the board in between meetings will be voluntary. If there is something that gets your attention and/or have a passion about then please feel welcome to engage.*

7) *What can we do as staff to set you up for success?*
   a. *Help the IAB understand what kind of input and in what areas would be most valuable. First step would be to determine how the subcommittees are framed and what will be the first two. There may be others in the future, but it is important to get the principle of them right first before expanding.*
   b. *How do we give the board a better education on what critical student development needs we are trying to solve. One way to do so is to disseminate information the board send to us, collate it and then send it back out so that the board is operating on the same information base. Now that we have a Communications Officer, Mike Finkle, we are going to start a quarterly IAB newsletter that will give you information we think will be valuable to the board.*

Board member input and discussion:
- **Jim Cuseo:** "I think a lot of us want to be as effective for this organization as possible in the context of this meeting, but it is hard to do so because there are many people with great ideas. How do we keep the momentum? I like the ability to meet in smaller teams especially if they align with your skills and passion."
- **Art Reidel:** "What is important is the direction you want the board to take. The direction that will give the most value to you and your team and I find no objection to this."
- **Ken Languedoc:** "Personally I can contribute a lot more time and the subcommittee idea is terrific. I really enjoyed being part of the earlier one with Mindy and Art. I felt we accomplished things and were able to communicate that well. I'm aware this is not a traditional board in terms of rules of order and things of that nature, but I feel subcommittees are a great idea and will deliver a lot of value."
- **Kate Bergeron:** "This board has changed and grown a lot as well as the organization and onboarding of new staff. Is it the goal to eventually get this board to be more of a fundraising and sort of advisory group? In which case, it certainly can be a lot smaller because the goal and objectives of those people is to go out and beat the drum and bring in money/sell our vision. Or, are we still in the

transitory period where you need some input from us in terms of the effectiveness of the programs and how that translates into these new college grads and interns in industry."

- o **Reza Rahaman:** "We still need both which you will see in the subcommittees. One of the things that Bernie was very intentional about when he set up GEL, and I think Dan echoes with GradEL, is that in an ecosystem as MIT, it would be very easy for us to get sucked into the academic view of things. This board provides a way of making sure we are balanced in the way we serve engineers going into industry. We serve your companies, and we want to do the best by the development of those engineers we provide to your companies. I do not see a future where this board simply shrinks to be a fundraising and advising board, because if we are not understanding what is changing in industry and understand how to prepare our engineers for that, we are not going to be doing a good job."
  - o **Kate Bergeron:** "So I guess being explicit about those two desires is a good thing for us to be just clear on. Support is probably true in a more subcommittee fashion or targeted fashion, making sure that those feedback loops can close as quickly as possible. So you can elevate sort of what people are seeing in the larger board perspective."
- **Peter Zeeb:** "I think we should be accountable to engage and not just observe and listen. I think systematizing subcommittees is a good way to do that. Another thing is you talked about board members being able to reach deeper into their organizations, but I would also include professional societies and industry organizations to reach out to in our formal/information roles to see what value they may offer. Like many of you, I have many pulls on my time and need to formalize what I am committed to. I'm willing to be part of a subcommittee if it would helpful, despite the distinct assignments and homework."
- **Ed Trautman:** "I think a confusion we have had before is we talk about industry but really the target is beyond that. We talk about organizations, professional organizations but there are research nonprofits, research industries, member organizations and government. Maybe we need to have some people like that on the board as it is not just industry."
  - o **Reza Rahaman:** "This came up in our meeting with the Governing Board this morning. We can have a bulls-eye of preparing engineering leaders, but if you look at the capabilities that produce an incredible engineering leader, it is the same capability within a big company that you might want in a startup. It's not that different from the capability that it takes an assistant professor to eventually get tenure. I think many of us have been on nonprofit boards and they are more constrained financially than many big industries, so if anything, what we can teach people here is even more valuable there."
  - o **Ed Trautman:** "I think it is to a degree. We are doing ourselves a disservice by only putting the engineering and industry in the materials. Maybe it is a communication issue and if someone really wants to go in some other direction, this is all for you too."
- **Tang Tan:** "I was just wondering if looking at the group of people on this call whether the staff fully represents what the students want and need? And, if so, should we also have student representation on the board? This would be a good opportunity for them to serve in leadership roles. Maybe it is a rotating seat."
  - o **Reza Rahaman:** "In the original proposal which I think we are still thinking about, we have several alumni who are not old enough or experienced enough yet to be on board seats but could be members of the subcommittees. They could give us both input and the ability to vet people who may eventually be on the board. I think it could help in two ways."
  - o **Ed Trautman:** "The community of an alumni sounds like a great idea and maybe there is a representative from the community that gets a seat. Like a graduate student representative or something."

- o **Reza Rahaman: "**And intentionally, now that we have framed out sort of what representation we think we would want on the board we need to now see how we are mapping this. Are we overrepresented or underrepresented? What are the places we need to go to get new people to augment the board. This brings us to the topic of subcommittees."

VI.   Discussion on IAB Subcommittees

Reza began the discussion on the topic of subcommittees. The board was asked to wait on volunteering for a subcommittee while they were being reviewed and that their input regarding the framing of these subcommittees would be valuable. Post meeting, an inquiry will be sent regarding which subcommittee the board members would be passionate about being a part of. The subcommittees are as follows:

1) **Subcommittee 1: Strengthening our enhanced internship programs***: Getting insights from companies on what it takes to make our Impactships and Residency programs sustainable for them.*
    - a. *How do we get one established?*
    - b. *What kind of high-level contacts are best to initiate?*
    - c. *Setting and documenting expectations especially around differentiation from normal internships*
    - d. *What kind of organizational understanding and support is needed to operationalize?*
    - e. *How do we ensure that the right managers are assigned?*
    - f. *How do we make these programs sustainable?*
    - g. *How do we ensure that the agreements on the programs are documented appropriately (within/for the companies)?*
    - h. *How do we ensure continuity, as key players within companies rotate out of their positions, so our programs continue to be appreciated, championed, and supported?*
    - i. *How might we work with companies to support the financial needs of students who may need to pay for tuition, insurance, or other expenses while working on an extended internship?*

Board member input and discussion on Subcommittee 1:

- **Dan Riccio:** "One key point that is missing is what is the pitch? What is the product? How do we get people excited about GEL and GradEL? How do we go off and communicate that? How do people know this is the right thing for their company? What is the elevator pitch here? We need to document that and have something defined and polished so that when we have these meetings in the future, we have the best chance to get people interested in supporting GEL and GradEL."

    - o **Reza Rahaman:** "You are totally right on this. As part of the subcommittee, so you understand staffing on this, this one is going to be led by Monica from the GradEL side with support from Eileen on the undergrad side. We do have documentation though rudimentary, Dan, and it probably does not yet meet your needs."

    - o **Dan Riccio:** "So I think we just say we do not have it yet. We've got the underpinnings, but again, we need something that when we deliver it, brings tears to their eyes, and they immediately think this would be wonderful for their company's culture. They could see the

value proposition and they could see what the return on investment is so that they say 'well how can I sign up?'"

- o **Reza Rahaman:** "Absolutely. And I think to your point we've tried to do that for GradEL as a program. We haven't done it for the Residency, and that is a real opportunity."
- **Peter Zeeb:** "Clarifying question, have you already fully mined the ecosystem of companies that employ graduates?"
  - o **Reza Rahaman:** "No, so we intentionally started small with Apple and Northrop because we had high level management support within these companies. They were companies we knew our graduate students would be interested in working. And so, in the spirit of this was a pilot that we intentionally wanted to try and get right and keep small, that's how we started. We haven't even begun to mine where we might go yet."
  - o **Simon Pitts:** "I suspect experience, targets of who to talk to in each company will be different. Some companies you're going to get huge support from HR and some companies HR will be your worst enemy because you're proposing something that's different. So, it's not only do you need this awesome pitch, you also need the right people to pitch to in each company. And typically, that may well be the engineering lead that feels the pain of not having the right caliber of engineering leader rather than the HR expert who's got a program that he or she thinks is brilliant and sufficient and doesn't want to customize. I think that's part of the challenge of having a pitch — the knowing for each target company who you're going to pitch to."
  - o **Reza Rahaman:** "Absolutely Simon. In fact, we had sort of a proof point of that recently because I think we had been going through the door that we would probably always go through sort of the chief technology officer engineering type. We met with Ray Stata from Analog Devices, and he said 'we've tried to source talented engineering leaders through the MBA route, and it's failed. And, we now have a chief HR officer who really gets it, and I want to connect you to her because she will see you as part of the solution.' But to your point, I don't think that's true of all or most HR officers."
  - o **Simon Pitts:** "So it needs to be part of the plan for each target company to understand the culture and the makeup well enough to go in and be successful."
  - o **Reza Rahaman:** "Yes, and hopefully those of you who volunteer for this subcommittee will be able to help us figure out within a range of companies what templates for a set of successful approaches look like.
- **Joel Schindall:** "If I can just add another dimension. We also have many organizations at MIT that are co-op organizations, especially coming out of the Sloan school and so we are also in communication with them and can draw on some of their contacts and their observations about who in a company is useful to approach."
- **Tony Hu:** "We are also thinking about how to be intentional about what the next companies will be. Who do we want to round out this kind of special experience? And what are the students looking for? Many of them are looking for software companies now, so who might we target there."
  - o **Tang Tan:** "And I think Tony, to your point, it depends on what the students want, and to me reading through this, it sounds like a big company request here. I mean, I'm not in a startup right, so we do not have those layers. We don't have the organizations but I'm curious whether students are interested in startups."
  - o **Tony Hu:** "A lot of them are interested in their own startups or joining a startup for that experience or what they perceive as excitement."
  - o **Reza Rahaman:** "Yes and Tang, what you can help us do is, I think you're right in terms of, this was mapped because we started with Apple and Northrop which are two big

companies. What would the pitch to a startup look like, particularly in terms of GEL being very different in the startup world for what you're looking at."

- o **Tang Tan:** "Yes, sign me up for this group."

2) *Subcommittee 2: Understanding workforce and workplace change*

 What does the latest generation of students now need to thrive when they start work? Getting insights from front line company personnel (e.g., recruiters, managers of entry level employees…) on:
- a. *How are the skills and abilities expected of engineering professionals changing with the changing nature of industries and of engineering work?*
- b. *How are engineering professionals today delivering on those changing needs?*
- c. *Do they appear to possess certain strengths that should be spotlighted as key enablers of success?*
- d. *Are there skills and abilities that stand out as opportunity areas for us to supplement?*
- e. *Do you have examples of failure or near-failure? In what skills and capabilities was the lack of proficiency a contributor?*
- f. *Are there differences between our MIT engineering graduates and engineering graduates more generally?*

Board member input and discussion on Subcommittee 2:

- **Mindy Gallo***:* "We have internally been bringing up our entry level staff and have found that it is a little hard to integrate the Gen Z folks into the workplace."
  - o **Terence Calloway:** "I would agree with that as well. I think the challenge is going to be, speaking from industry perspective, we have more problems than answers right now. There's a lot of macro dynamics that are taking place. There's the retirement bubble that's impacting us in a significant way. In two- three years I've seen my average tenure drop 25 plus in R&D to less than 15. So, there's been a massive drain of talent. In that regard, recruitment has gotten a lot tougher, and I think because of the low employment expectations of this new generation coming in opposed to previous generations, it would be good to get those insights. In addition, what students can do to prepare themselves for that fluctuation that they are walking into versus the way it was 10 or 20 years ago?"
  - o **Ken Languedoc:** "Another key thing: when looking at things like strengths and opportunities, and skills and abilities, it is important to have some idea of how you're going to measure that because it can be completely objective."
  - o **Reza Rahaman:** "So Ken, Eileen Milligan is going to lead this subcommittee with support from myself, Jim Magarian, and Alex who's our data analyst. Some of the things we were thinking about and open to as the subcommittee forms are, do we have a framework of questions that each of the members of the subcommittee uses to go into their companies, so we are asking the same questions? It doesn't necessarily get the calibration right at the beginning but a least it gets us into the right areas that we are asking. "
  - o **Ed Trautman:** "I would say there is almost another meta question here about how we train the students or the graduates to deal with change that's ongoing while they're in the organization."
  - o **Peter Zeeb:** "This is really a rich topic and the pace of change and the anxiety surrounding that are big factors in the workforce that are kind of universal. They're not engineering centric but there are a lot of topics here to explore."

Before Reza adjourned the meeting, he asked Dan if he would like to share any last words. Dan invited Padraig to share a message he had sent directly to him during the meeting.

- **Padraig Moloney:** "I don't know whether this board but in other boards I've done, both in university and commercial, usually there is some kind of review of the operating model and operating expenses at a high level. The finances of the operation if you will, and that can be an opportunity for innovation. How much received for GEL, how the costs have changed, and how is it in relation to the university and how much overhead they are grabbing. I am very interested in these topics and maybe it's beyond the remit of the board but it's something that is usually weighed in."
  - **Dan Riccio:** "Having the board review the P&I on a regular basis is just pro forma. It is on the agenda of most board meetings, but not as much on nonprofits and I would say even less on academic boards. I've had many conversations with Bernie Gordon in the past and I know that Joel's had conversations with Bernie as well relative to what's the return on my investment? The answer to that has never been crisp, so I do think there is an opportunity here to pose this question in a slightly different way. It's not just about using the data to see if the benefactors are getting a ROI but also using it as an opportunity to see if we're fulfilling our mission. And if not, why not? And, if there are opportunities to do what we are doing more efficiently."
  - **Reza Rahaman:** "Absolutely. And the way that I would frame it is: I think there are two things that are nested here. One is how well are we doing operationally in terms of spending the funds and operating the program, and what I will tell you is that compared to the rest of MIT, we run super lean and super-efficient. The question that Dan just brought up is, so you are running the program efficiently, but are you getting the output that you want from it? And those are two things that are both nested. What I will say on the GEL side is that I have purposely, over the last couple of years, made it less lean because after 15 years it was still running as a startup, and we had single point of failures, and I was very worried that we were still personnel dependent. I'm more than happy to have that conversation. I think it would be good information for you, and I think to pursue what Dan's talking about in terms of, are there ways of delivering out our mission more efficiently."
  - **Dan Riccio:** "Just before we go, I wouldn't assume that just because you think it's efficient, we would agree with you. That's a bit presumptuous number one. Number two, rather than this being a one-off conversation to decide with somebody I would like to figure out what's the right cadence for us as a board to review this information together to make sure we are on the same page."

Reza and Dan gave closing thanks and adjourned the meeting. Reza mentioned he would follow up with the board post meeting to further discuss the issues raised regarding the subcommittees.

Action Item:
- Reza asked board members to follow up with him individually about which subcommittee they would like to serve on

VII.   Addendum

Reza emailed the board after the meeting regarding the discussion on financial oversight of the GEL and GradEL programs. He provided some clarity on what the procedure is for such oversight.

As a part of communication from the programs to the IAB highlighted in the board evolution proposal, we will develop and communicate operational dashboards to highlight key metrics for both programs on an annual basis.