



MASSACHUSETTS INSTITUTE OF TECHNOLOGY

10.807/15.371 Innovation Teams
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Faculty Directors Fiona Murray (fmurray@mit.edu) & Luis Perez-Breva (lpbreva@mit.edu)
Teaching Assistant Ravi Inukonda (ravii@mit.edu)
Time: Monday & Wednesday 5:30PM – 8:00PM
Room: STATA CENTER 32-124

i-Teams (short for "Innovation Teams") brings together creative and motivated graduate students to work on Projects assessing the commercial feasibility of scientific and engineering breakthroughs. Most i-Teams Projects are based on ideas that have reached a critical proof of concept stage within MIT laboratories or, in some cases, outside MIT. This class will help you understand the challenges of transforming inventions into innovations that have real world impact (including a commercial impact) and give you skills to guide this process throughout your career.

Class Goals – “Mens et Manus”

i-Teams, like other action-based learning classes, builds on the “*Mens et Manus*” motto that guides MIT. We combine lectures with hands on practice at building a deep commercial understanding of a novel technology. By collaborating with class faculty, PIs and other researchers in the Project laboratory, and the business community, i-Teams students build lasting expertise. The class is designed to give students a key set of skills – those necessary for the commercial analysis of novel technologies. This is valuable analytical expertise for those focused on scientific or technical careers in academia or industry as well as students entering venture capital, early-stage technology ventures, and entrepreneurship within established companies. It is also useful for those planning to manage complex technical projects.

i-Teams Lectures focus on building the tools needed for the thorough and analytically-grounded analysis of promising early-stage inventions – sometimes referred to as commercial due diligence. This includes assessment of key market opportunities, the market and technical risks of these opportunities, and the commercial risks shaping likely competitive advantage. Lectures will also analyze factors shaping the most effective commercialization strategies including existing industry structure, distribution channels and IP strategy. Guidance will be provided in assessing critical commercialization milestones such as prototype requirements, initial customer relationships, timing of licensing and IP. *At the core, these tools help you determine when projects should be continued and when they should be redirected.*

i-Teams Projects offer the opportunity to put these core techniques into practice. In teams of 4-5, working closely with leading scientists developing the technology (known as PIs), students take on the role of an advisor to potential future investors (from the public or private sector) in the i-Teams Project. Over the semester, teams build a thorough analysis of the commercial potential and commercial risks of the technology, as well as outlining a proposed set of commercial milestones for future development.

Class Deliverables

i-Teams is structured around a series of lectures that describe analytical tools and frameworks that together make up the core skills needed for effective commercialization analysis and due diligence. In parallel with these lectures student teams will undertake assignments based on their i-Teams Project to put these tools into practice. The role and approach teams should take is not simply as advocates of their technology but rather dispassionate advisors to those considering investments of time or money in the technology.

- **Class Milestones:** Identifying the best commercialization path for a breakthrough technology is an iterative process. To guide you towards your final deliverables we will have a series of milestones throughout the semester. These take two forms:

“**Burning Questions**”: Brief updates by teams on their present commercialization hypotheses, their key assumptions and the critical information needed to validate assumptions. These “burning question” updates take the form of weekly e-mails and in-class updates.

“**Assignments**”: Each of the key tools explored in lectures is described in an assignment brief. Teams are expected to complete 4 of 6 possible assignments putting the most relevant tools into action. Together these assignments build up into the information needed to complete the mid-term and final deliverables.

Together, these milestones culminate in three deliverables:

- **Mid-Term Presentation:** The mid-term presentation will be 8-10 minutes in length (and should also include appendices) evaluating the technology’s status and then analyzing 1-2 of the most attractive applications. Specifically it should explore the key market drivers, key customers, the value created for them (via user scenario analysis) and the key market and technology risks.

- **Final Presentation:** The final presentation will be 8-10 minutes in length. It will revisit the most attractive market opportunity, outlining the team’s more refined understanding of the key market drivers, key customers, the value created for them (via user scenario analysis) and the key market and technology risks. It should they outline the competitive risks including the intellectual property and business model issues that will determine profitability, and likely drivers of success (failure) e.g. competition, regulation etc. Presentations should then make brief recommendations for the most appropriate commercial milestones including technical, market and IP milestones. Presentations should also indicate the most appropriate commercialization strategy i.e. start-up, partnership etc.

- **Final Report:** The final report is completed by the team and presented to the course faculty in private meetings. It is a detailed slide deck with full appendices. *It is not a business plan.* Rather, it will lay out a complete commercialization analysis for the i-Teams Project. It provides commercial due diligence of the type undertaken by careful early-stage investors outlining the commercial potential and risks. It should include a clear evaluation of the technology’s status and analyze 1-2 of the most attractive applications. Specifically exploring the key market drivers, key customers, the value created for them and the key market and technology risks. It will analyze the competitive risks including the intellectual property and business model issues that will determine profitability, and likely drivers of success (failure). This analysis will be used to drive recommendations for the most appropriate commercial milestones including technical, market and IP milestones. The report should also indicate the most appropriate commercialization strategy i.e. start-up, partnership etc. It is entirely acceptable for your team to come to a well-researched conclusion that **no** commercial use for the technology exists.

Assignments: There are six possible assessment exercises that comprise the class assignments. Student teams must complete the technical and application risk assessments. Students must then complete two out of remaining five of these -- **for a total of four.**

- *Technical Risk Assessment*
- *Application Risk Assessment*

Choose Two of Five

- Use Case Assessment Exercise
- Logic Chain Analysis Exercise
- Application Picking Exercise
- IP Assessment Exercise
- Value Chain Assessment Exercise

Grading: Grading has several components.

- *Team milestones – Assignments (25%)*
- *Team mid-term presentation (15%)*
- *Team final presentation + final report (40%)*
- *Participation, Burning Questions and performance reviews (20%)*

Attendance in class is mandatory. Unexcused absences will have a significant effect on your grade.

Text/Readings

There is no text book for the class. A series of relevant articles and materials have been posted to Stellar.

Class Schedule

The class will meet on Mondays and Wednesdays for sessions of up to 2 1/2 hours in length (although most classes will be only 1 1/2 hours). Class time will combine lectures and open discussion time. Open discussion is used to gather class feedback via the “Burning Questions” and is intended to advance projects. Some class sessions (particularly later in the semester) will be devoted only to team-based project work. This will allow class faculty and TAs to give you detailed coaching.

The Future

In some instances students on i-Teams Projects in prior semesters have gone on to work with PIs to form companies, to shape commercialization, to participate in the 100k competition and, in some instances, to recommend that projects be dramatically redirected to alternative paths.

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