

The Wharton School, University of Pennsylvania

MGMT 267: ENTREPRENEURSHIP & TECHNOLOGY INNOVATION (0.5cu)

Spring 2021 Q3

INSTRUCTOR

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Office Hours arranged by individual appointment

TIME & LOCATION

Tuesdays & Thursdays
3 – 4:30pm

Online class sessions accessed via Canvas

COURSE OVERVIEW AND PROCEDURES

Building a new firm around technology innovation can mean different choices and challenges for entrepreneurs. The goals and outcomes of technology entrepreneurship vary as much as the innovations that inspire them. This course will take you through the questions that entrepreneurs should address as they go from a technology innovation idea to founding and funding a tech startup. The course will appeal to individuals who have a desire to become technology entrepreneurs at some stage of their career, as well as others interested in the startup ecosystem such as investors, advisors, other professional service providers, etc. This class serves as both a stand-alone and a preparatory course and will complement other classes such as a more in-depth venture implementation class.

You are expected to come to class well prepared to discuss the reading materials. Required readings are found in the Study.net readings packet and through links on the class Canvas page. I will actively use the class Canvas to post material and manage the class.

COURSE GRADING

Individual Work

- 30% Class Participation & Discussion Boards
- 25% Technology Assessment (5 pages)
- 10% Mission-Brand-Product Essay (2 pages)
- 5% Spin-A-Wheel Pitch

Team Project

- 5% Statement of Technology & Value Proposition (2 pages)
- 25% Advisory Board Presentation, Recorded PPT (10 minutes)

All work should reflect a high level of effort and quality, and assignments that meet these expectations will be graded as “acceptable.” Assignments that exceed expectations by demonstrating an insightful analysis of key issues, an exceptional understanding and application of course concepts, and thoughtful answers and recommendations will be graded up. Assignments that are superficial, fail to accurately apply course concepts, and demonstrate a lack of care and effort will be graded down.

CLASSROOM EXPECTATIONS

- Class starts and ends on time.
- Please use your full name when logging in to the online course tool. Attendance will be taken based on that identification. If your name in the registrar is different from what you are called, please let me know, so I can call on you and track your attendance and participation accurately.

CLASS PARTICIPATION & DISCUSSION BOARDS

Students are expected to attend class regularly and to be well prepared to participate by having read and prepared the readings. Full attendance credit will be awarded to students who come to class on time and regularly. Full participation credit will be awarded for consistently offering insightful and well-informed comments and contributing to each session. If you must miss class for a personal or family emergency, please notify the instructor to make proper arrangements for missed sessions.

Each class session will have a Discussion created on Canvas. Students who did not have an opportunity to speak during the class session, for whatever reason, or have additional comments they want to contribute can add to a continuing conversation there. Discussion threads will be open for at least two days after the class session, but will then be closed to new comments.

TECHNOLOGY ASSESSMENT, INDIVIDUAL PROJECT

A technology invention is a necessary but not sufficient step toward technology entrepreneurship and value creation. For this individual paper, you will select a technology at the core of an existing firm (entrepreneurial firm or established incumbent firm) and assess the role of that technology in value creation for the focal firm, its customers, and the technology users. Your write-up should explain the basic science and engineering at the core of the technology (in as plain language as you can) and describe how it creates value both technologically and financially. Be sure to consider who the focal firm’s customer is (who pays them) and who any other users or stakeholders are (who else gains value from this technology). The deliverable for this project is a 5 page analysis of the technology and how the focal firm creates and captures value from it.

The essay should be five pages, double spaced, 12-point font. Please note that while grading is not specifically focused on readability or grammar, how your text is structured affects the grader’s ability to clearly understand your points. You may include up to 2 pages of exhibits, if needed. Reference citations can be in any format and will not be included in the page count.

MISSION-BRAND-PRODUCT ESSAY, INDIVIDUAL PROJECT

An entrepreneurial firm has many facets, all of which need to be communicated when pitching that firm to investors, customers, partners, and other stakeholders. Clarity about which is what, for yourself and to others, is important. In this short essay, you will select an existing, early stage technology firm and explain what that firm is at the firm level (the mission and brand) and at the product level (the current products, technology platform, or services). The first products a young firm sells are just that, the first products; they are not the firm. Your essay should explain what the firm is as a whole, its identity and goals above and beyond its first products in the market. You should also address what that says about its potential strategic path and the kinds of products or services that may be, or definitely will not be, in its future.

The essay should be two pages, double spaced, 12-point font. Please note that while grading is not specifically focused on readability or grammar, how your text is structured affects the grader's ability to clearly understand your points. Reference citations can be in any format and will not be included in the page count.

ENTREPRENEURIAL TECHNOLOGY FIRM ADVISORY BOARD PRESENTATION, TEAM PROJECT

Teams of 3-6 students will submit an advisory board presentation for an original entrepreneurial technology firm. You will select a technology on which to build an entrepreneurial firm. In the first deliverable for this project, you will detail the technology and a description of the value it creates to some identified set of customers and users. This *Statement of Technology & Value Proposition* is a short summary that will identify the team members and topic, as well as allow me to offer you feedback at the beginning of your project. During the week after this, teams will be able to schedule a 30 minute meeting with me to discuss your project idea.

The main deliverable for this project is an *Advisory Board Presentation*. In the time allotted for this project, an entrepreneurial technology firm would be unlikely to be ready to pitch themselves to investors, as such, your deliverable will not be a pitch deck but an Advisory Board presentation proposing the venture, the questions that the team should address next, and the steps to take to bring the firm closer to successful completion of its goal. Your team will submit a 10 minute audio-recorded PowerPoint presentation through Canvas (instructions on how to do this will be given in class). You will not be making this presentation in class. After your team presentations have been submitted, each student will make a short, individual presentation as part of Spin-A-Wheel Pitch on the final day.

Detailed information will be provided in class on each of these steps. All class deliverables will be submitted through Canvas before class begins on the due date listed in the syllabus.

MGMT 267: ENTREPRENEURSHIP & TECHNOLOGY INNOVATION Q3 COURSE SCHEDULE

OVERVIEW OF CALENDAR

Session	Date	Topic	Assignment Due
1	Jan 21	Introduction: What is Technology Entrepreneurship?	
2	Jan 26	Inventions & Entrepreneurs: Do you have a Feature, a Product, a Company, or a Venture Scale Startup?	
3	Jan 28	IP & How to profit from new technology?	
4	Feb 2	R&D vs Development for Commercialization	<i>Technology Assessment Due</i>
	Feb 4	<i>No Class – Team Work Session</i>	
5	Feb 9	Founding into a Platform or Ecosystem	
6	Feb 11	Advisors, Mentors, & Boards: Who to ask for help and when?	<i>[Team] Statement of Technology & Value Proposition Due</i>
7	Feb 16	Techno Economics: Do the numbers say stop or go?	
8	Feb 18	Pitching Technology Firms	
9	Feb 23	Financing New Ventures: VC & Angel Equity Investors	<i>Mission-Brand-Product Essay Due</i>
10	Feb 25	Financing New Ventures: Alternative Funding Sources	
11	Mar 2	Guest Speaker	
12	Mar 4	Pitching Technology in R&D: Under development or under the table?	
13	Mar 9	Spin-A-Wheel Pitch & Class Wrap-Up	<i>[Team] Advisory Board Presentation Due</i>

CLASS SESSIONS DETAIL

SESSION 1 - INTRODUCTION: WHAT IS TECHNOLOGY ENTREPRENEURSHIP?

READINGS

- Questions Every Entrepreneur Must Answer, HBR 1997

STUDY QUESTIONS

What distinguishes entrepreneurship from other types of business? What makes a venture “technology entrepreneurship”? What entrepreneurial technology firms do you think are doing things well or poorly?

SESSION 2 - INVENTIONS & ENTREPRENEURS: DO YOU HAVE A FEATURE, A PRODUCT, A COMPANY, OR A VENTURE SCALE STARTUP?

READINGS

- The Televisionary, Malcolm Gladwell in The New Yorker
 - <https://www.newyorker.com/magazine/2002/05/27/the-televisionary>

- The Flash of Genius, The New Yorker [posted on Canvas; you can skip sections shaded in grey]
 - Full article online at <https://www.newyorker.com/magazine/1993/01/11/the-flash-of-genius>

STUDY QUESTIONS

What makes a technology innovation the basis for an entrepreneurial firm? What more do you need? What did Philo Farnsworth and Bob Kearns miss when they went to turn their inventions into products and companies?

SESSION 3 - IP & HOW TO PROFIT FROM NEW TECHNOLOGY?

READINGS

- What is Intellectual Property?, WIPO
 - http://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf
- What's the Best Commercialization Strategy for Startups?, MIT SMR 2002

STUDY QUESTIONS

What are the different types of intellectual property? What does IP or a patent give a firm?

SESSION 4 - R&D VS DEVELOPMENT FOR COMMERCIALIZATION

READINGS

- Rise & Fall of Iridium, HBR Case

STUDY QUESTIONS

When did things start to go wrong for Iridium? What changes would you have made to increase the probability of success for Iridium? When would you make them?

SESSION 5 - FOUNDING INTO A PLATFORM OR ECOSYSTEM

READINGS

- Dethroning an Established Platform, SMR 2012

STUDY QUESTIONS

In what ways is an entrepreneurial firm better positioned than an established incumbent to introduce a novel innovation to an existing platform or ecosystem? Is that advantage long term? Who are the stakeholders that you need to focus attention on?

SESSION 6 - ADVISORS, MENTORS, & BOARDS: WHO TO ASK FOR HELP AND WHEN?

READINGS

- YC's Essential Startup Advice, Y-Combinator
 - <https://blog.ycombinator.com/yics-essential-startup-advice/>
- What you need to know about startup boards, TechCrunch
 - <https://techcrunch.com/2016/11/05/what-you-need-to-know-about-startup-boards/>
- The Secret to Making Board Meetings Suck Less, First Round Review
 - <http://firstround.com/review/The-Secret-to-Making-Board-Meetings-Suck-Less/>

STUDY QUESTIONS

Why do entrepreneurs need advisors and mentors? How should you approach them to maximize their value to you and to your firm?

SESSION 7 - TECHNO ECONOMICS: DO THE NUMBERS SAY STOP OR GO?

READINGS

- Segway Human Transporter: More Than a Cool Invention?, HBS Case

STUDY QUESTIONS

Which of the initial markets under consideration for the Segway should they pursue? What is the price point that market can bear? What are the next steps to take to match price and costs?

SESSION 8 - PITCHING TECHNOLOGY FIRMS

READINGS

- What We Learned From 200 Startups Who Raised 360M, DocSend
 - <https://docsend.com/view/p8jxsqr>

STUDY QUESTIONS

What is the goal of a pitch presentation? What information do you need to impart? What do you not need to say now?

SESSION 9 - FINANCING NEW VENTURES: VC & ANGEL EQUITY INVESTORS

READINGS

- 6 Myths About VC, HBR
- The Founders Dilemma, HBR

STUDY QUESTIONS

What do equity investors provide to an entrepreneurial firm? When would you target a VC, in particular? What questions do you need to answer before you approach an equity investor?

SESSION 10 - FINANCING NEW VENTURES: ALTERNATIVE FUNDING SOURCES

READINGS

- Pick one Accelerator, Incubator, or Crowdfunding platform
 - Read up on the specifics about your pick
 - Identify what types of firms should target them
 - One place you can look at for accelerators is the *Seed Accelerator Rankings Project* website <http://seedrankings.com/>

STUDY QUESTIONS

When should you consider crowdfunding or asking your friends and family for money? When should you apply to an accelerator or apply for a grant? When should you not?

SESSION 11 – GUEST SPEAKER

Guest Speaker information to be announced

SESSION 12 – PITCHING TECHNOLOGY IN R&D: UNDER DEVELOPMENT OR UNDER THE TABLE?

READINGS

- Top Ten Lies of Entrepreneurs, HBR 2001
- Prologue, *Bad Blood: Secrets and Lies in a Silicon Valley Startup*, by John Carreyrou
 - Available as an excerpt at: <https://www.penguinrandomhouse.com/books/549478/bad-blood-by-john-carreyrou/9781524731656/>
- Hot Startup Theranos Has Struggled With Its Blood-Test Technology, WSJ Oct 2015
 - <https://www.wsj.com/articles/theranos-has-struggled-with-blood-tests-1444881901>

STUDY QUESTIONS

How can an entrepreneur demonstrate confidence and capability to potential investors, partners, or customers without lying – especially when R&D is still under way and the product doesn't work yet?

SESSION 13 – SPIN-A-WHEEL PITCH & WRAP-UP READINGS

ASSIGNMENT DUE

- *Advisory Board Presentation* Team Project recorded presentation due uploaded to Canvas by start of class.
- Each student on the team should be prepared to pitch your project and firm in class.