

15.912: STRATEGIC MANAGEMENT OF INNOVATION AND ENTREPRENEURSHIP

Two Sections:

15.912A Fall H1 MWF1-2:30 E62-233

15.912B Fall H1 MWF2:30-4 E62-233

Professor Jason Davis

E62-480

Office hours: Tuesday 1:30-3:00 (signup sheet on door / email Adel for appt.)

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<http://www.mit.edu/~jasond/SMIE.htm>

This course provides a series of strategic frameworks for managing high-technology businesses focusing on the strategic management of innovation and entrepreneurship, especially as it builds upon patterns of technological and market change, prior research on product development and new ventures, and the structure and development of organizational capabilities.

The course utilizes lectures, case analyses, simulations, and independent readings. The readings are drawn from research in technological innovation, entrepreneurial management, and organizational theory. The case studies provide an extensive opportunity to integrate and apply these abstract tools in a practical context. Because of the explosion of entrepreneurial innovation in the iPhone and Android smartphone ecosystem, and the fact that I am currently researching it, the class will feature examples from application-focused ventures in this space.

Grades will be determined by class participation, one two-page paper, and a final paper based on a group project. The group project – which may be written in groups of 3 people – consists of an in-depth exploration of innovation and entrepreneurship in an industry or venture of your choice. Many students choose to focus their two page papers and final paper on the same topic and, thus, “build up” to the final paper due at the end of the semester. There is no final exam.

This is an advanced capstone course in the strategic management of innovation and entrepreneurship. I build upon material presented in 15.900, Strategic Management, and make some linkages to 15.910: Innovation Strategy and 15.911: Entrepreneurial Strategy. Knowledge or work experience of basic concepts in innovation and entrepreneurship in high technology settings is also useful for background to this course.

COURSE REQUIREMENTS AND EXPECTATIONS

Grading

Class attendance and participation	40%
Two two-page paper	20%
Project and final paper	40%

Class Attendance and Participation:

Most of your participation grade will be based on attending class on time and adding value during the case discussions.

Of course, we understand that sometimes absences are necessary (e.g., sickness, interviews, etc.). Therefore, to give you a chance to make up the missed day's participation, we ask that you do the following: please write a 1 page memo either answering the questions (if it is a case day) or applying the frameworks in the lecture notes online to a company or industry of your choice. While making up absences with memos is optional, please do remember that participation is a big component of your grade. These memos should be handed to your TA before class the week after your absence. Also, we please ask that you let us know (email Professor Davis and your TA) before a class absence if possible.

Two-Page Paper:

You will do one two-page paper focused on a strategic analysis of industry conditions for innovation and entrepreneurship. Papers should be one to three pages long, excluding tables or figures, double or 1.5 spaced, 11 or 12 point font and 1 inch margins. This paper is designed to be short to enable you to focus on high-quality analysis and succinct summarization of your arguments. Details are below.

Due date	Topic
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September 19	Analyze the strategic foundations of your industry. What does the current industry structure imply for entry and possible competitive advantage? What are the key resources, who holds them, and can substitutes be created? Are these industry conditions conducive to innovation and entrepreneurship? Is this a good or bad market to enter? Why?
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Project: Final Paper and Class Presentations

In this class you will conduct a project that culminates in a final paper. The final paper should illustrate the application of one or more of the frameworks developed in the class to an industry or company of your choice. There are multiple possible approaches to this final paper. For example, you may either (1) select an industry, and then provide an analysis of industry structure, technological opportunities, and the entrepreneurial ecosystem or (2) propose a new opportunity, and critically evaluate its potential based on industry structure and the innovativeness of the idea, noting how the venture should best be organized to execute the opportunity. Other formats are possible – if you have another creative idea, please run it by me.

A brief paragraph outlining your topic and listing your teammates is **due in class on September 23rd**. Your team will also present your topic to your classmates on September 26th. For this, you should

prepare no more than 3 powerpoint slides describing the main industry and/or opportunity you will explore, potential data sources, and emerging intuitions about what your analysis will entail. These **slides are due September 25th** at 10pm (email to your TA).

The final paper is due October 14th. No extensions can be given, so please plan ahead. It should be roughly ten to fifteen pages in length and can be completed either individually or in groups of two or three.

Also, all groups must also prepare a 15 minute (maximum) presentation of the findings of their project (in 5 slides or less). These **slides are due October 6th** before 10pm (email to your TA) and should be viewed as a “trial run” or brief summary of your paper’s findings. Selected groups will be asked to present their slides during class on October 7th so please come prepared to present if you are called upon.

Note: you do not have to do this final project (paper + presentations) with the same people (or about the same industry) with whom you wrote your Two-Page Paper, although many groups in the past have found this to be an effective strategy to gradually build up their knowledge about a firm or industry of interest over the semester. My goal is to support you in writing about a topic that interests you.

Previous titles have included:

The future of fuel cells -- What happened to GO?-- Structuring Corporate Research at Otis Elevator -- Seiko-Epson's Message Watch in the Taiwan Market -- Red Hat and Linux: The battle for a standard – Sony vs Microsoft in the video game market – The future of Nanotechnology

Summary of Course Deliverables:

September 19: Two-Page Paper (hardcopy to TA)

September 23: Paragraph Outlining Final Paper Topic (hardcopy to TA)

September 25: Topic Presentation Slides (please email to TA on Sept 25th; present them on Sept 26th)

October 11: Final Presentation Slides (please email to TA on Oct 11th; be prepared to present them on Oct 12th)

October 14: Final Paper (hardcopy to TA)

Collaboration

Group work is not only acceptable but actively encouraged. Indeed *I would strongly recommend that you form a study group* with a few friends who can meet to discuss the readings before each class. My experience suggests that this will significantly increase both your enjoyment of the course and the amount that you find yourself learning.

Reading Packets & the Web

Teaching notes will be available on the course web site, while other assigned readings are available from MIT Sloan’s Copy Tech (E52-045), with the exception of those cases which are noted in the syllabus as being distributed in class. When you pick up your course packet, please check to be sure that it is complete. The transparencies from each lecture, links to points of interest (e.g., company web sites) and critical course information such as due dates will also be posted on the web.

COURSE SCHEDULE

I. STRATEGIC FOUNDATIONS

Day 1	INDUSTRY STRUCTURE Apple Inc. in 2010	September 7
Day 2	DEVELOPING AND LEVERAGING RESOURCES Microsoft's Search	September 9
Day 3	PROJECT TIME Team Formation and Jumpstart Analysis	September 12
Day 4	STRATEGY AS SIMPLE RULES Mahindra and Mahindra (A)	September 14
Day 5	CLASS DISCUSSION	September 16

II. INNOVATION

Day 6	SCIENCE AND TECHNOLOGY A123Systems	September 19
Day 7	PRODUCT DEVELOPMENT Medtronic's Cardiac Pacemakers	September 23
Day 8	TEAM PRESENTATIONS	September 26
Day 9	OPENING UP R&D Intel: Photolithography in Crisis (A)	September 28
Day 10	CLASS DISCUSSION	September 30

III. ENTREPRENEURSHIP

Day 11	NEW VENTURE DESIGN Iridium	October 3
Day 12	BUSINESS MODELS LinkedIn (A)	October 5
Day 13	PROJECT TIME Analysis and Write-up	October 7
Day 14	TEAM PRESENTATIONS	October 12
Day 15	WRAP-UP	October 14

COURSE DETAILS

I. STRATEGIC FOUNDATIONS

Day 1 INDUSTRY STRUCTURE September 7
Apple Inc. in 2010, 710467

Questions for Discussion

Is the PC Industry a good or bad industry to be in? mp3 players? Smartphones?
What are the critical technology trajectories in the last 20 years and how do they shape each of Apple's businesses?
What is your recommended next steps for Apple in the PC and smartphone businesses?

Suggested Readings

Porter, Michael, 2008, "The Five Competitive Forces that Shape Strategy." Harvard Business Review.

Day 2 DEVELOPING AND LEVERAGING RESOURCES September 9
Microsoft's Search, 709346

Questions for Discussion

Why is Microsoft pursuing the market for search-based advertising?
How large is its competitive disadvantage, and how might they improve their performance over time?
What strategic option should Microsoft's executives pursue?

Suggested Readings

Henderson, Rebecca and Clark, Kim, 1990, "Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms." Administrative Science Quarterly, 35: 9-30.

Day 3 PROJECT TIME September 12
Team Formation and Jumpstart Analysis

Day 4 STRATEGY AS SIMPLE RULES September 14
Mahindra and Mahindra (A), 609065

Questions for Discussion

Should Davasia go ahead with Goyle's modified Sactor project?

Suggested Readings

Eisenhardt, Kathleen and Sull, Don, 2001, "Strategy as Simple Rules." Harvard Business Review, January: 107-116.

Davis, Jason, Eisenhardt, Kathleen, and Bingham, Christopher, 2009, "Optimal Structure, Market Dynamism, and the Strategy of Simple Rules." Administrative Science Quarterly.

Day 5 CLASS DISCUSSION September 16

II. INNOVATION

Day 6 SCIENCE AND TECHNOLOGY September 19
A123Systems, 606114

Questions for Discussion

Where should A123Systems play in the value chain?

What role does science play in this decision?

What role do the founders preferences play in how they manage this venture?

Suggested Readings

Eisenhardt, Kathleen, Kahwajy, Jean, and Bourgeois III, L.J., 1997, "How Management Teams Can Have a Good Fight." Harvard Business Review, July-August, 77-85.

Day 7 PRODUCT DEVELOPMENT September 23
Medtronic's Cardiac Pacemakers, 698004

Questions for Discussion

Why did things go so badly wrong at Medtronic?

What role does rhythm play in Medtronic's product development process?

Of all the things that Medtronic did to "fix" it's process, what do you think was the most important? Why?

Suggested Readings

Repenning, Nelson and Sterman, John, 2001, "Nobody Ever Gets Credit for Fixing Problems that Never Happened." California Management Review, 43(4): 64-88.

Eisenhardt, Kathleen and Brown, Shona, 1998, "Time Pacing: Competing in markets that won't stand still." Harvard Business Review, March-April: 59-69.

Day 8 TEAM PRESENTATIONS September 26

Day 9 OPENING UP R&D September 28
Intel: Photolithography in Crisis (A), 600032

Questions for Discussion

What are the strengths of Intel's approach to R&D? Do you see any weaknesses?

What would you recommend that Sandy Wilson do? Of the three options outlined on page 10 of the case, which do you think makes the most sense and why?

Day 10 CLASS DISCUSSION September 30

III. ENTREPRENEURSHIP

Day 11 NEW VENTURE DESIGN October 3
Iridium, 601040

Questions for Discussion

Who was to blame for Iridium's failure?

What role did Iridium's product play in the evolution of the venture?

Suggested Reading

Moore, Geoffrey "High-Tech Marketing Illusion" Chapter 1 & "High-Tech Marketing Enlightenment" Chapter 2 in Crossing the Chasm, Rev. Ed., NY: Harper Collins, 1999, pp 9-59.

Day 12 BUSINESS MODELS October 5
LinkedIn (A), 707406

Questions for Discussion

Why do online social networks exist? What value do they provide over substitutes?

Who is the most likely to sign up on LinkedIn? Who is most likely to value access to these people?

Day 13 PROJECT TIME October 7
Analysis and Write-up

Day 14 TEAM PRESENTATIONS October 12

Day 15 WRAP-UP October 14