

Strategy of Innovation

Preliminary Syllabus. Subject to change.

Instructor: Professor Annamaria Conti
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Time & Location: Tuesday, 8:30 – 12:00
Office Hours: By Appointment

Course Scope and Mission

Innovation increasingly plays a critical role in generating both economic growth and sources of competitive advantage. This course focuses on how firms (both startups and incumbents) can create and capture value from product, process, and service innovations. To do so, this course will introduce students to new tools and frameworks for examining both new and old problems related to innovation and technological change. This course consists of a mix between lectures and case studies, with an emphasis on class discussion and debate. While most of the case studies in class will focus on technology-oriented contexts, many of the insights developed during this course will be highly applicable to firms in non high-tech industries as well. By the end of the course, you will be able to:

- Conceptualize and identify opportunities for creating value through innovation
- Develop an understanding of how to capture the value of innovation through a variety of techniques
- Coherently integrate these principles with competitive and corporate strategies

A mastery of the tools and frameworks developed in this course will be useful to executives, consultants, entrepreneurs, government officials, investors, and any manager responsible for the introduction and implementation of new products or services.

NB: This course is open to PhD students.

Required Materials

1. **Book:** Strategic Management of Technological Innovation, Melissa A. Schilling, McGraw Hill
2. **Other Readings:** Will be posted on Moodle (no required text).
3. **Course Packet:** includes business cases (<https://hbsp.harvard.edu/import/906572>)

Grading Policy

A. Class participation (of which 5% to participation in discussion to group presentation)	20%
B. Midterm	50%
C. Group Presentation+Report	30%

PhD students are required to write a 10-page research proposal. In their proposal, the students will: 1) provide a clear and concise summary of their research idea; 2) describe how it relates to the course; 3) provide an assessment of how it contributes to the literature and of its empirical feasibility

A. CLASS PARTICIPATION (30%)

I expect every student to be prepared to answer questions on every lecture. The readings and the cases typically highlight a particular idea or model. I would like you to both *identify* key issues and problems and to *evaluate* the idea or model(s) presented. From the comparison of different approaches and models, we intend to highlight the comprehensiveness of the presented ideas, their underlying assumptions and their predictive ability. This will highlight the usefulness and limitations of an informed, analytical approach.

In a typical class, I will ask one or more participants to start the class by answering a specific question. Anyone who has thoroughly prepared should be able to handle such a lead-off assignment. After a few minutes of initial analysis, we will open the discussion to the rest of the class. As a group, we will then build a complete analysis of the situation.

Most managers spend very little time reading, and even less time writing reports. Most of their interactions with others are verbal. For this reason, the development of verbal skills is given high priority in this class. The classroom should be considered a laboratory in which you can test your ability to convince your peers of the correctness of your approach to complex problems and of your ability to achieve the desired results through the use of that approach. Things that have an impact on effective class participation include:

- Is the participant a good listener?
- Is the participant willing to interact with other class members?
- Are the points made relevant to the discussion? Are they linked to the comments of others?
- Do the comments add to our understanding of the situation?
- Does the participant distinguish among different kinds of data (i.e., facts, opinions, beliefs, concepts)?
- Is there a willingness to test new ideas, or are all comments "safe" (e.g., repetition of facts without analysis and conclusions)?

Five percent of the participation grade will be specifically allocated to the participation in the discussion to the group presentations.

B. MIDTERM (50%)

The midterm exam will be in-class, closed-book, and consist multiple-choice questions. The midterm will require integration of all course concepts and frameworks covered to date. (The organization of make up exams will be discussed in class)

C. GROUP PRESENTATION+REPORT (20%)

Students should identify a relevant issue given the topics we covered in class and develop a plan to address this issue using the knowledge they acquired in class. Students are then required to: 1) produce a 3-page summary critically discussing the issue they have identified and 2) present the results of their investigation. Further details regarding the presentation will be provided in class.

Presentations will last for 25 minutes, followed by a 10-minute discussion. Be sure to fully cite all references. Also, make sure you send me your report one week in advance so that I can share it with the rest of the class.

Academic Honesty

Academic dishonesty is a serious offense.

Examples of academic dishonesty include:

- *Possessing, using or exchanging improperly acquired written or verbal information in the preparation of any essay, laboratory report, examination, or other assignment included in an academic course;*
- *Submission of material that is wholly or substantially identical to that created or published by another person or person, without adequate credit notations indicating authorship (plagiarism);*
- *False claims of performance or work that has been submitted by the claimant;*
- *Alteration or insertion of any academic grade or rating so as to obtain unearned academic credit;*
- *Deliberate falsification of a written or verbal statement of fact to a member of the Faculty so as to obtain unearned academic credit;*
- *Forgery, alteration or misuse of any Institute document relating to the academic status of the Student.*

Schedule of Sessions and Readings

Please note that I reserve the right to change readings and schedule at any time during the course.

Class 1

February 22

Readings:

Course Introduction

Schilling, M.A. *Strategic Management of Technological Innovation*, McGraw-Hill, 2017. Chapters 1 and 2

Class 2

March 1

Readings:

Evolution of Technological Innovation and The Nature and Evolution of Technology Markets

Gladwell, Malcolm. "Smaller: The Disposable Diaper and the Meaning of Progress." *The New Yorker*, November 16, 2001.

Foster, Richard. "The S Curve: A New Forecasting Tool." Chapter 4 in *Innovation: The Attacker's Advantage*. New York, NY: Summit Books, 1986.

Catalini, Christian and Tucker, Catherine. When early adopters don't adopt. *Science*, 2017, vol. 357, no 6347, p. 135-136.

Schilling, M.A. *Strategic Management of Technological Innovation*, McGraw-Hill, 2017. Chapter 3

Class 3

March 8

Readings:

Competition and Technological Evolution I and II

Christensen, Clayton, Michael Raynor and Rory McDonald. "What is Disruptive Innovation?" *Harvard Business Review*, December 2015 p. 44-53

Gans, Joshua. "The Other Disruption," *Harvard Business Review*, March 2016, pp. 78-84

Gans, Joshua. "Keep Calm and Manager Disruption," *MIT Sloan Management Review*, 2016, Vol 53(3).

Case:

Netflix in 2011 (HBS 615-007)

Case Preparation Questions:

1. Is Netflix's move to online streaming a disruptive innovation in the movie rental industry? Why?
2. Analyze the first business model of Netflix (DVD per mail/pay per rental) using the Theory of Disruption. Why was it unsuccessful? How did Netflix react?

Class 4

March 15

Readings:

Innovation as Process

Fleming, Lee. "Breakthroughs and the Long Tail of Innovation." MIT Sloan Management Review 49, no.1 (2007), pgs. 69-74.

Case:

What's the Big Idea? (HBS: 9-602-105)

Case Preparation Questions:

1. How proprietary or defensible is BIG's system? Could one of the major toy companies replicate it? Why or why not?
2. Why does BIG seem better able to identify and bring to market innovative toy concepts, whereas the major toy companies feel they are in a period of a "lack of innovation" (p.3)?
3. Can BIG replicate its system in other industries?

Class 5

March 22

Readings:

Innovation and Experimentation

Thomke, Stefan and Jim Manzi. "The Discipline of Business Experimentation." *Harvard Business Review* December 1 2014 Vol. 92 Issue 12, p70-79

Case:

Team New Zealand (A) (HBS: 9-697-040)

Case Preparation Questions:

1. How would you evaluate Team New Zealand's use of simulation in the design process? What are its advantages and disadvantages? How did their approach to simulation differ from that used by other syndicates?
2. Which yacht construction strategy should Team New Zealand follow? Why? How much improvement would you expect from each?

Class 6

March 29

Readings:

Lead User Analysis

Urban, Glen L., and Eric von Hippel. "Lead User Analyses for the Development of New Industrial Products." *Management Science* 34 (5), 1998, pgs. 569-582.

Hippel, Eric Von., Ogawa, Susumu S., et De Jong, Jeroen. "The Age of the Consumer-Innovator." MIT Sloan Management Review: MIT's journal of management research and ideas, 2011, vol. 53, no 1, p. 27-35.

Case:

Innovation at 3M Corp. (HBS: 9-699-012)

Case Preparation Questions:

1. How has 3M's innovation process evolved since the company was founded? Why, if at all, does 3M, known as a "hothouse" of innovation, need to regain its historic closeness to the customer?
2. How does the Lead User research process differ from and complement other traditional market research methods?
3. What should the Medical-Surgical Lead User team recommend to Dunlop: the three new product concepts or a new business strategy? What are the risks to the new Lead User process at 3M? What are the risks to the Medical-Surgical business unit?

Video

<https://www.youtube.com/watch?v=tNKrX1QxN6U>
<https://www.youtube.com/watch?v=31iUEuwi740>

Class 7

April 5

Readings:

Organizing for Innovation

Schilling Book: Chapters 10 (*excluding managing innovation across borders*)

Case

Case Preparation Questions

Glaxo-Smith Kline: Reorganizing Drug Discovery (HBS: 9-605-074, A).

1. What is your assessment of Yamada's proposal for the Centers of Excellence in Drug Discovery (CEDD)? What are its strengths and weaknesses relative to other potential organizational structures for R&D?
2. Do you agree with Yamada's goal of providing researchers at GSK with incentives similar to those facing researchers by small biotechnology companies? If yes, to what extent will the CEDDs allow GSK to achieve this goal? If no, how, if at all, would you change the incentives provided in the CEDD model?
3. What are the key challenges that you think Yamada will face in implementing the CEDDs?

Class 8

April 12

Readings:

Incentives and the Organization of External Innovators

Schilling Chapter 8

Huston, Larry, and Nabil Sakkab. "Connect and Develop: Inside Proctor & Gamble's New Model for Innovation." *Harvard Business Review* 84 no. 3 (2006), pgs 58-67.

Video:

Quantum Computers Explained – Limits of Human Technology, Kurzgesagt:
<https://www.youtube.com/watch?v=JhHMJCUmQ28>

Case Preparation Questions:

D-Wave Systems (HBS: 9-604-073)

1. Evaluate D-Wave's progress as a venture.
2. What are the strengths and weaknesses of D-Wave's Research Collaboration Network? Why do scientists collaborate with D-Wave? What do they get in return?
3. Should D-Wave centralize its R&D activities? If not, when should they do this, if ever?

Class 9

April 26

Readings:

Value from Intellectual Property: Patents & Beyond

Schilling Chapter 9

Case:

Intellectual Ventures (HBS: 9-710-423)

Case Preparation Questions:

1. Why is the market for IP so illiquid and inefficient today?
2. Does Intellectual Ventures have the right strategy to solve the IP market inefficiencies? Why or why not? How does it compare with the alternative IP intermediation models, in particular patent trolls and online IP platforms?

Class 10

May 3

Readings:

Geography and Innovation

Richard Florida. "The Transformation of Everyday Life."

Glaeser, Edward. "Engines of innovation". Scientific American, 2011, vol. 305, no 3, p. 50-55. (incl. Bettencourt, West "article")

Catalini, Christian. "Microgeography and the direction of inventive activity". Management Science, 2017, vol. 64, no 9, pp. 4348-4364.

Group Presentations

May 10, 17, 24

Midterm Exam

May 31