[DRAFT SYLLABUS]

Technology Management MBA
Technology Innovation and Design Thinking
Spring 2021

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"Innovation distinguishes between a leader and a follower."
Steve Jobs
"Innovation is the single most important activity of an ongoing business.
All progress occurs through innovation."
Peter Drucker
"We owe every step of progress, intellectual as well as moral,
to the daring of innovators."
John Stuart Mill

Course overview

The purpose of this course is to better understand the dynamics of industries driven by innovation and to provide a series of frameworks for managing technology-intensive businesses. The emphasis throughout the course is on the development and application of conceptual models which clarify the interactions between competition, patterns of technological and market change, and the structure and development of organizational capabilities.

Course learning objectives:
In this course we will tackle such questions as:

- What are the best practices for improving new product development processes to maximize the likelihood of success?
- How do firms make the choice between protecting their technologies with patents versus rapidly disseminating them to build an installed base and complementary goods?
- How do firms choose among multiple attractive innovation projects?
- How do firms decide whether to go it alone or collaborate, and how do firms develop an effective collaboration strategy?

Faculty Bio:

Professor Boeker has taught at the University of Washington's Foster School of Business since 1998, where he is the Douglas Olesen/Battelle Chaired Professor of Management and past Chair of the Department of Management and Organization.

Before coming to Foster, he taught strategic management and entrepreneurship for ten years at Columbia University and global strategy development at London Business School for two years. He received his PhD from the University of California, Berkeley and is a former chemical engineer.

Professor Boeker has been an active designer, participant, and leader in over 50 executive programs across numerous universities, including Columbia Business School, the University of Zurich, Ecole Polytechnique (Paris), the Australian Graduate School of Management, and Hebrew University. He has lectured at universities around the world, including most every leading business school in the U.S. In addition, Professor Boeker has consulted with numerous organizations; some of the larger including Amazon, Novartis, Merck, General Electric, Microsoft, Bristol-Myers Squibb, Itochu, Starbucks, Samsung and IBM, along with dozens of smaller and medium-sized firms.

Professor Boeker's recent research has examined the dynamics of strategy formulation and execution in organizations at a corporate and business level. His other work focuses on the innovation process and organizational creativity, including idea generation, developing products into profitable businesses, and diffusing ideas throughout the organization. Other recent research has examined the integration of acquisitions and successful coordination between alliance partners. He has published numerous articles on these topics and has served on the editorial board of every top tier scholarly journal in the strategy field.

Office Hours:

We will be forming teams for our first assignment and I will be meeting individually with student teams early in the course. I am also available for office hours at your convenience. Please send me an email and we will set up a Zoom appointment.

Teaching Assistant: I will have light use of a teaching assistant for this 2-credit course. Michelle Lee (michlee@uw.edu) will help me organize and run the class. Please feel free to reach out to Michelle if she can assist you with your learning experience in the course.

Email and Internet:

UW Email and Canvas are the official means of communication for this class. Students should check their email regularly along with the Announcements section of this course.

Teaching Approach:

The class will be taught using a combination of discussion, cases, and guest lectures. This course requires to you apply concepts to case examples and to make practical suggestions for the actions an organization should take in a case situation. I like to keep the class environment interactive and participative, and you are expected to engage actively in our class discussions while being respectful of each other's ideas and insights.

Organization:
This course is organized by modules, which correspond to class meetings during the Quarter.

Module	Topic:	Asynchronous dates	Class Date:
1	Innovation in established firms. Innovation cycles.		
2	Types of innovation. Collaboration and intellectual property		
3	Designing organizations for innovation. Innovation implementation.		
4	Design thinking		
5	Alternative models for innovating. Guest speaker.		

Textbook

Schilling, M., Strategic Management of Technological Innovation, 2019, 6th edition. New York: McGraw-Hill Publishers

Course evaluation:

Because this is a 2-credit class, I assign approximately half the graded assessments of a 4 credit course:

Overview:

25% Team Case Analyses
Dynosys (Session 4)
30% Individual Case Analysis
Hunter Labs (Session 5)
30% Final exam
15% Participation and individual contribution

Specifics:

Each activity and assignment will be graded on a 4.0 point scale, with weights as indicated above.

Team Case analysis (Session 4) – Dynosys (25%)

Answer the questions below for the Dynosys case. Post a copy to Canvas before the beginning of class.

Your team analysis report should be no longer than 4 pages, single-spaced, normal margins, and 11 point or larger font.

For all case analyses use only the information in the case. Place charts, tables, figures, etc. in the Appendix. They do not count as part of the page total.

Questions:

1. How had product development happened historically at Dynosys? Why and how did that change?
2. What are the key problems they are facing at the end of the case? Which are the most critical?
3. What do you suggest they do?

Individual Case analyses (Session 5) – Hunter Labs (30%)

Answer the questions below for the Hunter Labs case. Post to Canvas before class.

Your individual case analysis report should be no longer than 4 pages, single-spaced, normal margins, and 11 point or larger font. The individual case analysis should represent your own independent work (no collaboration or discussion of the case with others).

Use only the information in the case. Place charts, tables, figures, etc. in the Appendix. They do not count as part of the page total.

Questions:

1. Why did the firm reorganize to a product-based structure? What are the problems with the functional structure that this tries to address?
2. Why does the president have trouble introducing the product structure? Why is he getting resistance?
3. Schilling illustrates four different product development team structures. How does this inform the organizational design choices that Hunter must make? Which structure do you think is most appropriate for Hunter?
4. How could the president have made the adoption of the product structure go more smoothly? What specific actions could he have taken?

Final exam (30%)

The final exam consists of a short case scenario and short-answer questions that apply the materials covered in class to relevant, real-world situations.

The case and case questions will be distributed via Canvas after our final class. You are to take the exam at some point during the one-week period following class within a 2-hour block of time (2 consecutive hours).

The exam is an individual effort (no collaboration) and your exam may not exceed four single-spaced pages, 11 point fonts and normal margins. Further details will be provided as we approach the date of the exam.

Class Participation (15%)

The class should be a common learning experience. Thus, I want you to take ownership and initiative for the success of the class.

You are expected to be thoroughly familiar with the assigned readings and cases before coming to class and have prepared you own answers to the syllabus questions.

Come to every class well prepared, with strong opinions but with an open mind. Quality of comments is more important than quantity.

The case studies we cover in class describe strategic issues at a specific point in time. Case analyses and discussions should be based solely on the information provided in the case.

In addition to your participation in our regular class discussions, I would also like you to thoroughly prepare for our class discussion of the **Telecam** case in Session 1 by drafting a short write-up (around one page or less, single spaced) answering the syllabus questions for the Telecam case. Feel free to use bullet points and please post your write-up to Canvas before the start of class.

This assignment will be graded as Complete/Incomplete. Complete credit is the default – It is earned by demonstrating a good-faith effort to answer the questions on the assignment. Your answers may be wrong or misguided, but they should be logically and substantially supported using information from the case. Partial credit represents and effort that is undeveloped or unsubstantiated. These assignments should represent your own work, in your own words and submitted individually.

Attendance:

Student participation in the classroom plays a key role in the learning experience. Consequently, punctuality and regular attendance are important responsibilities. We meet 5 times and I expect you to attend all class sessions.

If a critical situation arises where you cannot attend class let me know beforehand along with the reason.

Honor code:

I expect you to adhere to the Foster Honor code. As a student in this class, you acknowledge that you are a member of a learning community in the Foster School of Business that is committed to the highest academic standards. As a member of this community, you agree to

uphold the fundamental standards of honesty, respect, and integrity, and accept the responsibility to encourage others to adhere to these standards.

Materials:

Text:

Schilling, M., Strategic Management of Technological Innovation, 2020, 6th edition. New York: McGraw-Hill Publishers.

Course packet available through Harvard Business School Publishing, accessed through the following link:

http://cb.hbsp.harvard.edu/[to be designated]

Course Calendar

Please note: Asynchronous sessions will be available to view one week before our class meeting. Please view these before class.

MTG:	TOPIC:	DATES:	ACTIVITIES:
1	• Course introduction and overview • Innovation in established firms • Technology cycles and hype cycles • Incremental and radical innovation • Stage gates		**Read**: 1. Schilling: briefly skim Chapters 1 and 2, read Chapter 3. Also read pp. 262-264, "Stage gate processes" 2. Understanding Gartner's Hype Cycles **Case:** Telecam (A) <u>Case questions (Post to Canvas and be prepared to discuss during class):</u> 1. Has it been important for British Northern Communication (BNC) to innovate in order to be successful? Does Don Rice (BNC's president) care about innovation? 2. What do you think of the Internal Venture concept? How does it work? Would you maintain it? 3. What (if anything) don't you like about it? What might go wrong in the future? 4. If you were named President of Telecam, is there anything you would change?
2	• Network effects • Ecosystems • Types of innovation • Intellectual property • Collaboration strategies		**Read**: Schilling Chapters 4 and 9 **Case:** Intrapreneurship @ Nokia Software <u>Case questions:</u> 1. Why does Nokia start this? What are they trying to achieve? 2. What are the keys to the intrapreneurship process described in the case? a. What are the stages involved? b. How is it structured? c. How are proposals evaluated? 3. Come up with 3-4 specific ideas about how the process could be improved. 4. What are reasons this might fail?

			Case: The XenoMouse Case questions: 1. What are the pros and cons of Abgenix's collaborating with a partner on ABX? 2. If Abgenix chooses collaboration, would it be better to license ABX to the pharma company or form a joint venture with the biotech company? 3. What are the key considerations here?
3	• Designing organizations for innovation • Metrics and incentives for innovation • Managing product development teams • Implementation of innovation		**Read**: Schilling Chapter 12 **Case:** Internal Innovation at Winston Consulting Case questions: 1. Why is the president having problems implementing cross-selling? 2. What would you do differently? What sort of changes would you make? 3. How would you introduce and implement these changes?
4	• Alliances, joint ventures, licensing, outsourcing • Design thinking • Segment zero • Demand side of innovation • Networks		**Read**: 1. "Why Design Thinking Works," Harvard Business Review 2. Schilling Chapter 5
			Case: Team case analysis (25%) **Dynosys** **Team case assignment: See instructions in the syllabus. Post to Canvas before the beginning of class.** Case questions: 1. How had product development happened historically at Dynosys? Why and how did that change? 2. What are the key problems they are facing at the end of the case? Which are the most critical? 3. What do you suggest they do?
			Case: Seeing in the Dark: Innovation at Flir Case questions: 1. What are the keys to the design thinking process described in the Flir case? 2. What did you like about this approach? How could the Flir process be improved?

5	• Alternative models of innovation • Review and discussion		**Read**: Schilling, Chapter 8 **Case: Individual case analysis (25%)** **Hunter Labs** **<u>Individual case assignment: See instructions in the syllabus. Post to Canvas before the beginning of class.</u>** 1. Why does the president have trouble introducing the product structure? Why is he getting resistance? 2. Which of the four different product development team structures that Schilling discusses on pp. 271-273 do you think is most appropriate for Hunter? 3. How might the appropriate team structures be different depending on the product and how mature or established the product is in the market? 4. What changes would you make to the metrics and incentives? How should these vary by product group?
	Final Exam		Available on Canvas day after class for one week. You are to take the exam at some point during this one-week period within a 2-hour block of time (2 consecutive hours).