Technological Innovation and Design Thinking
Fall 2019

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Office hours: At mutually convenient time, typically before class is best.

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

"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?

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; you are expected to engage actively in our class discussions while being respectful of each other's ideas and insights.

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
>   Surface Logix (Session 4)
> 25% Individual Case Analysis
>   Hunter Labs (Session 5)
> 30% Final exam
> 20% Participation and individual contribution

Specifics:

> **Team Case analysis (Session 4) – Surface Logix (25%)**
> Answer the questions below for the Surface Logix case. Hand in a hard copy of your team's written report at the beginning of class and post to Canvas.
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> Your team analysis report should be no longer than 5 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.
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> Questions:
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> 1. Which option should be chosen? Why? What are the advantages of your choice?
> 2. What are the disadvantages of the other choice?
> 3. Who are the key stakeholder groups within and outside Surface Logix that will care about this choice? How do each of these groups feel about the choice of which customer to serve?
>
> **Individual Case analyses (Session 5) – Hunter Labs (25%)**
> Answer the questions below for the Hunter Labs case. Hand in a hard copy of the written report at the beginning of class and post a copy to Canvas.

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 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 (30%)

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

The case and case questions will be distributed via Canvas at noon on Wednesday, October 30th and due at 5:00 on Friday, November 11th. You are to take the exam at some point during this period 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 (20%)
Class participation is extremely important. 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. I will call on individuals throughout the session to help broaden participation, to encourage listening, sharing and synthesizing, and to draw upon individuals who can potentially contribute to the discussion and to our collective understanding. Quality is more important than quantity (although it is impossible to judge quality for those who don't

or seldom participate). If you are not prepared, please notify me before class, and we will both avoid embarrassment.

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.

Conduct in Class

You are professionals; treat your classmates and me as respected, valued colleagues.

Device-free classroom:

Research shows that being online (surfing the Web, checking email, texting, etc.) inhibits your ability to learn and your ability to participate actively in the discussion, while being distracting to me and to your fellow students. Recent research has also shown that students learn more and take better notes when these notes are written rather than typed. ("A Learning Secret: Don't Take Notes with a Laptop," **Scientific American,** 6-3-14). Informal research has shown that MBA students browse dozens of websites unrelated to the course and course content during a typical class session.

Additionally, we will have business professionals who are volunteering their valuable time to come to our class. I would like to ensure that you are fully focused on and engaged in their presentations.

As a result, laptops, tablets and other electronic devices will not be used in class except when I specifically ask you to. Do not stare at the phone in your lap. If you need to take an important call or text message, please do it during our break, or, in exceptional cases, leave class for the call/message.

I will post slides before class, as well as updated (post-class) slides after class, and will have hard copies of my slide deck available for you to take notes on before class.

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., <u>Strategic Management of Technological Innovation</u>, 2016, 5th edition. New York: McGraw-Hill Publishers.

<u>**Course packet**</u> available through Harvard Business School Publishing, accessed through the following link:

https://hbsp.harvard.edu/import/663988

Course Calendar

MTG:	TOPIC:	DATES:	ACTIVITIES:
1	• Course introduction and overview • Innovation in established firms • Technology cycles and S-curves	10/1	**Read**: Schilling, Chapters 3 and 4
			Case: Telecam (A) <u>Case questions (Prepare to discuss during class):</u> 1. Does Don Rice (BNC president) care about innovation ? Does Linton (head of Switch group) ? 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	• Internal Venturing • Stage gates • Designing organizations for innovation • Managing product development teams • Metrics and incentives for innovation • Evaluating and selecting innovations	10/8	**Read**: Schilling Chapter 12 Schilling pp. 250-252, "Stage gate processes"
			Case: Dynosys <u>Case questions:</u> 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: Intrapreneurship @ Nokia Software (Stanford GSB SM-320) <u>Case questions:</u> 1. What are the keys to the intrapreneurship process described in the case? 2. Come up with 3-4 specific ideas about how the process could be improved. Be prepared to share your answers.
3	• Idea generation • Design thinking	10/15	**Read**:

			"Design Thinking," Harvard Business Review, June 2008. R0806E
	Guest: **Teaque Lenahan, Fjord**		"Design Thinking Comes of Age" Harvard Business Review, September 2015. R1509D
4	• Profiting from and protecting innovation • Innovation strategy • Collaboration strategies. • Alliances, joint ventures, licensing, outsourcing	**10/22**	**Read**: 1. Schilling Chapters 8 and 9 2. Understanding Gartner's Hype Cycles
			Case: Team case analysis (25%) **Surface Logix (9-802-050)** **Team case assignment: See instructions in the syllabus. Turn in hard copy at the beginning of class and post to Canvas.** Case questions: 1. Which option should be chosen? Why? What are the advantages of your choice? 2. What are the disadvantages of the other choice? 3. Who are the key stakeholder groups within and outside Surface Logix that will care about this choice? How do each of these groups feel about the choice of which customer to serve?

			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 off licensing ABX to the pharma company or forming a joint venture with the biotech company?
			    What are the key considerations here?

5	• Open innovation • Ecosystems • Review and discussion	**10/29**	**Read**: Schilling, Chapter 5 and re-read (skim) Chapter 12

			Case: Individual case analysis (25%)
			Hunter Labs
			   Individual case assignment: See instructions in the syllabus. Turn in hard copy at the beginning of class and post to Canvas.
			
			    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?
			Case: Internal Innovation at Winston Consulting <u>Case questions:</u> 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?
	Final Exam	10/30 to 11/11	Available on Canvas on **October 30th** at noon. It is due at **5:00 pm on November 11th.** You are to take the exam at some point during this one-week period within a 2 hour block of time (2 consecutive hours).