Technological Innovation Strategy

Syllabus
Fall 2019

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Case Coursepack: https://hbsp.harvard.edu/import/675220
Selected readings available through NYU virtual library

The purpose of this course is to expose you to the dynamics of industries driven by technological innovation, and to train you to think strategically about technological innovation and new product development and deployment. In this course, we will tackle such questions as:

- How and why are dominant standards chosen in “winner-take-all” industries?
- How do firms decide which new product and services to develop?
- How do firms decide whether go “go it alone” or collaborate, and how do firms develop an effective collaboration strategy?
- How do firms make the difficult choice between protecting their technologies with patents or copyrights, versus rapidly disseminating them to build installed base and complementary goods?
- How can firms deploy their new innovation in a way that will maximize its chances for success?

The course will use a combination of lecture, discussion and exercises. Like the industries we will study, the course will be fast-paced, and every effort will be made to make the class both challenging and exciting. Because of the fast-paced nature of the course, it is vitally important that you come to class prepared and ready to discuss the topics. If you stay up on the material you will learn more during the discussions and be successful at the assignments.

GRADE BREAKDOWN
Preparation and Participation:
- Self-Quizzes: 10
- Class Discussion and in-class exercises: 30
- Homeworks: 30
- Final Exam: 30
Total: 100

**Self-Quizzes:** Before each class you should take the self quiz on the assigned reading material (including cases) on NYU Classes to check your understanding of the material. You can take the quiz as many times as you want before the class starts; your highest grade recorded at the time class starts is the one that you will keep for the quiz.

**Class discussion & in-class exercises:** We will use a variety of in-class exercises to give you opportunities to apply and deepen your knowledge of the course content. Some of these will be turned in for participation points. I may also adjust your total for this grade based on the quality of your voluntary participation in class. There is no way to make-up in-class participation or exercises.

**Homework:** There are two homework assignments due during the semester which should be completed in small groups of 3-5 people. You may select your own groups.

**Final Exam:** The final exam will be a timed open-book exam in which you will apply the concepts from the course.

### SCHEDULE

<table>
<thead>
<tr>
<th>Class</th>
<th>Topics and Readings</th>
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| 1     | **Introduction & Sources of Innovation**  
Text, Chapter 2  
Prepare: SpaceX 2018 case (NYU Classes)  
1. What was Musk’s goal in creating SpaceX?  
2. What capabilities and personality traits have enabled Elon Musk to be innovative?  
3. How would you characterize the space industry? What does SpaceX do differently from the incumbents in the space industry and why?  
4. Do you think the space industry incumbents will change their methods of producing space vehicles in response to SpaceX’s entry? Why or why not?  
Bonus point (not in case): How is Jeff Bezos’ company Blue Origin similar to or different from SpaceX? What are each company’s advantages and disadvantages? |
| 2     | **Standards Battles, Dominant Designs and Platforms**  
Text, Chapter 4  
Short video on platform ecosystems: [https://www.youtube.com/watch?v=j0kdOlqgF6E](https://www.youtube.com/watch?v=j0kdOlqgF6E)  
Alibaba Group 2018 (NYU Classes)  
Prepare: Live case on Android versus iOS: |
Search on the internet to answer the following questions about the smartphone industry that we will use for an **in-class exercise**:
1. What is the **global market share** of the Android operating system?
2. What is the **global market share** of the iOS operating system?
3. How many apps are available for each of the operating systems above?
4. How do Google and Apple differ in terms of their business model (i.e., how they make money) in smartphones?

Then, from your own opinion, answer the following questions:
1. What are each operating system’s advantages in standalone utility (quality, beauty, functionality, etc.)?
2. What are each operating system’s advantages in its app ecosystem?
3. Are there differences in how the two platforms decide which apps can and cannot be in the ecosystem? If so, what are the pros/cons of those differences?
4. Which apps does the platform company choose to make itself? Why do you think the platform made this choice?
5. How do the platforms make money from their platform and ecosystem? (i.e., what is the business model and who pays?)

**In-class Exercise: Platform competition**
Please bring your answers to the questions above and be prepared to use them in an in-class exercise.

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**Choosing New Product Development Projects**
Text, Chapter 7

**In-class Exercise: Technology Trajectories**

**HW 1: In small groups, due at beginning of class (3-5 pages):** Pick a product or service competing in an industry characterized by network externalities (e.g., Spotify, Lyft, eBay, Netflix, Twitter, Tinder, Expedia, Chrome, etc.), and:
1. Analyze where in the technology lifecycle it is, and whether it disrupted other technologies and/or is at risk of disruption by another technology.
2. Then compare it to its main competitor(s) in terms of the standalone value and network eternality value it offers (make sure your conclusions about who offers the most value in each dimension and why are clear).
3. Identify key similarities or differences in platform strategy (e.g., how are boundaries of the ecosystem drawn and controlled? Does the platform create switching costs with customers and complementors that bind them to the platform? What is the business model and what are the pros/cons of that? Does the platform do anything to manage overall value creation, such as managing which complementors get attention? Etc.) and draw conclusions about them.
4. Finally, offer specific and actionable recommendations for the technology’s owner/sponsor to increase its likelihood of success. **Be prepared to briefly discuss your conclusions at the beginning of class if we have time.**

Note: Use tables, bullets, and graphs to make your analysis concise and clear; put any necessary descriptive info in an appendix.
| 4 | **Collaboration Strategies**  
Text, Chapter 8  
Prepare: Handpresso Cases (A), (B) & (C) (Coursepack)  
1. What are the most innovative elements of the Handpresso concept?  
2. Why do you think neither Illy nor Sara Lee jumped at the opportunity to complete the development of the Handpresso?  
3. What kinds of partners and collaboration types did Nielsen ultimately form? What were the advantages and disadvantages of these collaboration relationships? |
|---|---|
| 5 | **Protecting Innovation**  
Text, Chapter 9  
([https://www.forbes.com/sites/allbusiness/2017/06/06/10-intellectual-property-strategies-for-technology-startups/#16c72728ab1b](https://www.forbes.com/sites/allbusiness/2017/06/06/10-intellectual-property-strategies-for-technology-startups/#16c72728ab1b))  
Prepare: Viagra in China case (Coursepack)  
1. What are some of the differences between the US and Chinese intellectual property protection regimes at the time of the case?  
2. What were some of the challenges Pfizer faced in obtaining patent protection in China?  
3. What were some of the challenges Pfizer faced in obtaining trademark protection in China?  
4. Why have Pfizer’s Viagra sales in China been less than stellar despite a huge market?  
5. Analyze Pfizer’s IP strategy – would you recommend that Pfizer had done anything differently?  

**HW 2: In small groups, due at beginning of class (3-5 pages):** Find an example of a current/recent innovation collaboration between two or more organizations and using the material in the chapter and your research on the collaboration, answer the following:  
1. Who are the partners and what is the innovation they are trying to develop?  
2. What does each party bring to the collaboration?  
3. How is the collaboration structured? (e.g., licensing agreement, JV, etc.)  
4. What do you see as the major advantages and disadvantages of this collaboration? (Please consider both the decision to collaborate and the structure of the collaboration)  
5. What intellectual property strategy is this innovation eligible for? What would you recommend?  

**Be prepared to discuss your conclusions briefly at the beginning of class if we have time.**
Crafting a Deployment Strategy
Text, Chapter 13
In class exercise: Teams will create a deployment strategy for a new innovative product or service. You can pick your own, or you can select from a list of examples I will bring.

Final Exam (Timed online, open book)

This schedule is a guideline only; the instructor reserves the right to change the schedule as necessary.

Tips on writing a great strategic analysis report:

1. **Data and description are *necessary but insufficient resources* for a great analytical report.** In many scenarios, your client already has the data or knows where to find it; they are looking for you to analyze it and make sense of it, drawing conclusions. Therefore, you really want to emphasize your comparisons and conclusions, rather than your data. In fact, you can probably put all your data and description in an appendix rather than in the body of your report. If, for example, I'm Spotify's senior management, I'm very interested in a conclusion that "Spotify offers stronger standalone value than iTunes because a) the flat rate is more desirable and encourages listeners to sample more songs, b) the interface is easier to use, and c) the algorithm creating recommendations is stronger. The recommender algorithm also helps create switching costs that bind the customer to the algorithm (an important component of platform strategy). However, in general switching costs between streaming platforms are low, making it tough to bind customers or suppliers. Furthermore, users who are already deeply embedded in an Apple ecosystem (iPad, iPhone, Mac, Apple TV) might face switching costs that keep them with Apple. Negotiating a license with Apple to play Spotify on Apple TV could be very useful in this regard." The data underlying these conclusions (number of users, number of songs, prices) is handy to have, but your reader probably already has access to it, so you need to go beyond that.

2. **Use tables, bullet points, metrics, etc. to *compare* competitors on important dimensions.** Strategic analysis reports are almost never written in free-text essay form -- that is an inefficient way for your audience to consume the data and see how your conclusions were drawn. If you tell me Netflix's number of users on page 2 and then tell me Disney's number of users on page 3, am I supposed to remember that? Take notes? Nooooo, put them in a table or graph -- let me SEE the difference. Tables will also prompt you to be more thorough. Let's say you've addressed platform strategies that Netflix uses to make customers bind to the platform; now there's a column to the right where I'm going to want to know what Disney has done in that regard, and ever better if there's yet another column telling me whose strategy is better, why, and what recommendations that suggests.

3. **Recommendations that start with "Explore...", "Continue to...", "Consider..." are throw away recs.** Why would I pay an analyst to tell me to go do my own "exploration" and "consideration" (i.e., tell me to do my own analysis), and why pay someone for recs that say "keep doing what you're doing"? Be bold, and specific, and give me the pros and cons. Don't tell me "Enter foreign markets" unless you're going to tell me exactly which markets, how, and why.
If you're going to recommend something like "increase customer satisfaction" I'm going to wonder why I'm paying you, because you and I already know I want satisfied customers. Tell me HOW to increase customer satisfaction. And if you show me you've considered the payoffs, costs and risks of your recommended approach, you will have a lot more credibility.

CLASSROOM POLICIES
We will use the Stern default classroom policies:

**Laptops, Smartphones, & Other Electronic Devices:** May not be used in class.

**Attendance:** Required and part of grade. Faculty will excuse absences only in the case of documented serious illness, family emergency, religious observance, or civic obligation. If you will miss class for religious observance or civic obligation, you must inform your instructor no later than the first week of class. Recruiting activities are not acceptable reasons for absence from class. Absence from the first day of an intensive course will result in removal from the course.

**Arriving Late, Leaving Early, Coming & Going:** Students are expected to arrive to class on time and stay to the end of the class period. Arriving late or leaving class early will have impact on the course grade. Students may enter class late only if given permission by the instructor and can do so without disrupting the class. (Note that instructors are not obligated to admit late students or may choose to admit them only at specific times and instructors are not obligated to readmit students who leave class.)

**Late Submission of Assignments:** Late assignments will either not be accepted or will incur a grade penalty unless due to documented serious illness or family emergency. Instructors will make exceptions to this policy for reasons of religious observance or civic obligation, only when the assignment cannot reasonably be completed prior to the due date and the student makes arrangements for late submission with the instructor in advance.

**General Behavior:** Students will conduct themselves with respect and professionalism toward faculty, students, and others present in class and will follow the rules laid down by the instructor for classroom behavior. Students who fail to do so may be asked to leave the classroom. (Honor Code and Stern policy)

**Collaboration on Graded Assignments:** Students may not work together on graded assignment unless the instructor gives express permission. (Honor Code)