MGTECON 513: Platform Competition in Digital Markets

Course Overview

This class will analyze the economics of digital platform markets. The class format will consist of lectures, guest speakers, and student presentations. Concepts will be presented in the context of leading examples of internet and technology platforms such as online advertising, computing technology platforms (e.g. mobile), marketplaces, social networks, cloud computing, and financial technology platforms. The course will begin with economic definitions of platform markets, and it will review the most important insights from recent research in economic theory and strategy. It will then consider the role of scale economies and network effects in determining the dynamics of platform competition and long-run industry structure. Next, the class will consider key strategic decisions for firms, including entry strategies, vertical integration and exclusive deals.

Background on the Instructor

Professor Athey's research focuses on the economics of the internet, online advertising, internet search, the news media, and market design. For the last seven years she has served as a high level advisor to Microsoft, working as chief economist for several years. Her consulting work focused on all aspects of internet search and online advertising, but also covered other platform businesses including cloud computing. She is also actively involved in policy debates around the impact of the internet on the news media, antitrust issues around internet search, and privacy issues on the internet. Both her research and consulting make use of "big data," including data about internet search and web browsing as well as large scale experimentation, and bring together economic theory and statistical tools from machine learning and econometrics. She is also active in the new area of virtual currency, serving on the Board of Directors of the financial technology startup Ripple Labs, on the board of the virtual currency industry group Coin Center, and working on research on Bitcoin. She serves as an advisor for venture capital firms X/Seed and NYCA.

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<u>**COURSE REQUIREMENTS**</u>

I.   **Homework Assignments (20%)**

II.   **Class Participation (30%)**

III.   **Final Project Assignment (50%)**

I. HOMEWORK ASSIGNMENTS (20%)

Please prepare a **short** write-up to **one** or more of the "Preparation Questions" **before** each class session (where distinct questions are indicated by numbers, and sub-parts are indicated by letters). You are encouraged to complete a write-up for all class sessions, but you **must** complete **at least four** assignments on time (by midnight the night before class) to receive full credit. Failure to submit at least three assignments on time will be sufficient grounds for receiving a failing grade. All assignments must be completed individually. Please limit your responses to 1-2 paragraphs or about half a page.

Homework assignments will be graded on a check / check minus / check plus basis. If there is more than one numbered preparation question, you do NOT need to address all preparation questions for a given class to receive a check plus—grades will be based on quality, not quantity. If you complete more than four assignments, your grade will be based on the best four grades.

A few students will be asked to discuss their responses during class.

Assignments must be submitted to the online course site by midnight on the evening prior to class in order to receive credit.

II. CLASS PARTICIPATION (30%)

Students are expected to participate in class actively and constructively. Absence, tardiness, and lack of preparation will have a negative impact on your grade.

Class Discussion. The first few classes will focus primarily on conceptual frameworks and key course concepts. The rest of the class will apply these concepts to various cases.

Cases will generally NOT be used in a "standard" case discussion format where the class focuses primarily on the problem presented in the case. Cases are used to provide specific facts about industry examples. Preparation should focus on the background and the relationship of the facts to course concepts rather than being ready to argue a position about the case problem.

A few academic articles will also be used. Most of the articles have a bit of mathematics or statistics in them. Students should not be concerned about technical material, but rather focus on the ideas and background information presented.

In evaluating class participation, we will consider the following:

- Is the participant a good listener?
- Are the points that are made relevant to the discussion? Are they linked to comments of others?
- Do the comments show evidence of having completed assigned readings and homework assignments?
- Do they move the discussion forward by introducing new aspects or issues to consider, or do they restate points that have already been made?
- Do they demonstrate willingness to take risks and test new ideas, or are they "safe"?

Please keep in mind the following:

- Well posed questions are not only a legitimate way to interact but should be an important part of our discussions.
- In most of the issues we discuss, there is some controversy in the industry and even within firms about the best course of action for the relevant parties, or what the role of government regulation should be, or whether the big firms are behaving in a way that is good for the internet ecosystem and innovation. Enlightened debate about the best plan to implement can add significantly to the understanding of the issues.
- Because of the varied backgrounds in the class, many of you will have important contributions to make based on your personal experience. We will try to learn about your backgrounds over the course of the term, but you are encouraged to bring these experiences to bear in the discussion.

Class Attendance.   You are expected to attend every class. That said, other demands or illness may require you to miss a class. In that light, please be aware of the following:

- You are allowed one excused absence. Missing more than one class or having any unexcused absences is sufficient grounds for failing the course.
- To excuse your absence from class, please do the following:
    - Find out from a classmate what was covered in class.
    - Write a one-page summary of the main points in class and upload it to the online course site **prior to the beginning of next class**.
    - Note that if you arrive more than 10 minutes late to a class or leave more than 10 minutes early, you must follow the above instructions for the absence to be considered excused.
- Students with extraordinary circumstances who may need to miss more than one class should contact Professor Athey at athey@stanford.edu in advance.

In addition, please observe the following attendance policies:

- As a courtesy to your classmates, please arrive on time. Failure to arrive more than 10 minutes after the start of class will be considered an absence.
- Please use your name cards.

III. FINAL PROJECT ASSIGNMENT (50%)

Your final project assignment consists of **two parts.** Both must be submitted on the Canvas website by December 12, 2014, at midnight.

The **first part** is a paper that must be completed as a group project. You need to form **groups of 3 to 4 students** by Wednesday, November 12. We will try to facilitate group formation but it'd be best if you try to make all arrangements yourself, as early as possible.

Each group must write a 5 to 7-page paper (12 pt., 1.5 spacing, 1 inch margins, page count not including any figures or references) addressing one of the following topics. You may also propose your own topic – with email approval – but all topics must make use of class concepts.

1. Starting a platform business: pick a platform business idea and analyze its prospects for success using course concepts
2. Advising an existing platform business: pick an existing platform and analyze its history and current strategy challenges using course concepts
3. Managing a business that is a participant in a platform ecosystem: pick a business that is influenced by a platform, and analyze its strategy from the perspective of course concepts. Examples: content creators in media markets, device manufacturers in computing markets, internet web properties influenced by internet search and online advertising platforms, advertiser/marketer interacting with one of internet search advertising, display advertising, Amazon marketplaces, or eBay.

In each case your paper should explicitly address *all* of the following concepts:

- What are the sides of the market?
- What is the business model? Pricing strategy?
- What are sources of direct (same-side) and indirect (cross-side) network effects? How strong are they?
- Are there economies of scale?
- What is the role of data?
- What are the most effective strategies for competing platforms?
- What is the importance of exclusive deals?
- Is there room for vertical integration for the platform or its competitors? How does vertical integration impact participants in the platform ecosystem?
- How easy is it for new entrants to challenge incumbents?
- Is there room for multiple players in a steady state, or is this a winner-take-all market?

The **second part** of your assignment is to write a one-page executive summary of your paper. You must do this **individually**, please do not discuss your write-ups with anyone else. Your objective here is two-fold: 1) summarize the salient points of the paper in your own words, and 2) give voice to your own points of view in case you disagree with the group consensus on a particular point. The summary should NOT cover ALL concepts from the paper, but rather should pull together a story for the problem that hits the most important of the concepts. Think of it as the elevator speech you would give to a sophisticated listener on platform strategy for your problem.

Finally, we ask that you also distribute 6 or 9 points (depending on the number of your team mates, 3 points per person) across all your team mates based on your personal perception of their individual contribution to the group paper. For example, you could distribute the points evenly if you think everyone contributed relatively equally, or you can give all the points to one person if you think he or she did all the work. The point distribution is fairly discrete so that you do not worry about the fine details of contribution, but rather recognize significant differences and "no-shows." You may not give any points to yourself. Please include your point distribution at the end of your executive summary.

Half of your final project grade will be determined by your group paper. The other half will be based on your executive summary and the number of points you got from your team mates.

COURSE OUTLINE

Thursday, October 30: Multi-Sided Markets: Introduction and Core Concepts

Preparation Questions:

1. Who are Google's customers? YouTube's?
    a. What distinct user groups can you identify?
    b. How do these businesses make money? Who pays whom and when?
2. What are network effects?
    a. Are network effects always positive?
    b. On what sides of their markets do Google and Facebook enjoy positive or negative network effects, if any?
3. What are economies of scale?
    a. Think of one classic and one "new world" (e.g., digital economy) example of firms that enjoy significant economies of scale.
    b. Is internet search characterized by economies of scale? Why?

Required Readings:

1. Eisenmann, Thomas, R. Module Note. 2007. "Platform-Mediated Networks: Definitions and Core Concepts" *Harvard Business School Case*, 9-807-049
2. Eisenmann,Thomas, Parker, Geoffrey and Van Alstyne, Marshall W. 2006. "Strategies for Two-sided markets" *Harvard Business Review*, R0610F
3. Choudary, Sangeet Paul. 2014. "Why A Stupid App Like Yo May Have Billion-Dollar Platform Potential" *TechCrunch.com*: http://techcrunch.com/2014/07/26/why-a-stupid-app-like-yo-may-have-billion-dollar-platform-potential/

Optional Readings:

1. Rysman, Marc. 2009. "The Economics of Two-Sided Markets", Journal *of Economic Perspectives, 23 (3)*, 125-143
2. "The Browser Wars, 1994-98" *Harvard Business School Case*, 798094
3. Yoffie, David. 2013. "LinkedIn Corporation, 2012", *Harvard Business School Case*, 9-713-420
4. Hagiu, Andrei. "Multi-Sided Platforms: Foundations and Strategy." Harvard Business School Background Note 714-436, October 2013.

Tuesday, November 4: Platform Competition

Preparation Questions:

1. Suppose you want to start a new photo-sharing platform called MyPics.

a. What are some of the challenges you will face in entering and growing your platform? How can you overcome them?

b. Would you integrate with Facebook? Why / why not?

c. How could you differentiate from other photo-sharing services?

Required Readings:

1. Eisenmann, Thomas R., Hagiu, Andrei. 2008. "Staging Two-Sided Platforms", *Harvard Business School Case*, 9-808-004
2. Eisenmann, Thomas R. 2007. "Winner-Take-All in Network Markets", *Harvard Business School Case*, 9-806-131

Optional Readings:

1. Eisenmann, T., Parker, G. and Van Alstyne, M. (2011), Platform envelopment. *Strategic Management Journal*, 32: 1270–1285. doi: 10.1002/smj.935
2. Evans, David S. and Schmalensee, Richard. 2013. "The Antitrust Analysis of Multi-Sided Platform Businesses," *Roger Blair and Daniel Sokol, eds., Oxford Handbook on International Antitrust Economics, Oxford University Press, Forthcoming; University of Chicago Institute for Law & Economics Olin Research Paper No. 623*, Pages 1-17, 28-35
3. Eisenmann, Thomas R. 2007. "A Note on Racing to Acquire Customers," *Harvard Business School Case*, 9-803-103
4. Shapiro, Carl, Varian, Hal R. 1999. "The Art of Standards Wars," *California Management Review*, Vol 41, No. 2
5. Edelman, Ben, "Mastering the Intermediaries," *Harvard Business Review,* June 2014.

Thursday, November 6: Payment Networks and Virtual Currencies

Preparation Questions:
1. How do credit card companies such as Visa and MasterCard make money?
    a. What are they selling?
    b. What allows them to command high margins?
2. What allowed PayPal to get traction? Why did it succeed where others failed? What prevented it from achieving the full vision of the founders? Why is it hard to compete on cost?
3. What's the role for government in the payments industry?
4. How is Bitcoin different from other payment platforms?
5. What are some compelling applications / use cases for Bitcoin?

Required Readings:

1. Edelman, Benjamin, Hagiu, Andrei. 2011. "Consumer Payment Systems – United States" *Harvard Business School Case*, 9-909-006
2. Hagiu, Andrey, Beach, Nathan. 2014. "Bitcoin: The Future of Digital Payments?" *Harvard Business School Case*, 9-714-519
3. Athey, S. 2013. "Q&A on Math-Based Currencies", *Stanford University Class Note*

Optional Readings:

1. Eisenmann, Thomas and Barley, Lauren 2007. "PayPal Merchant Services" *Harvard Business School Case*, 9-806-188
2. Edelman, Ben and Julian Wright, 2014, "Price Coherence and Excessive Intermediation," Working Paper, Harvard University. http://www.benedelman.org/publications/pricecoherence-2014-10-21.pdf

Tuesday, November 11: Marketplaces

Guest Lecturer**:** Todd Lutwak, Andreessen Horowitz. Previously Vice President of Selling, eBay.

Preparation Questions:

1. Who are eBay's "customers"? Stakeholders? Do some matter more than others?
2. What is the role of eBay in connecting sellers and buyers? What should it be?
3. Who dictates transaction terms on eBay?
    a. What are examples of transaction terms that are dictated by eBay?
    b. What are examples of transaction terms that are NOT dictated by eBay?
4. Are you optimistic about the future of eBay (PayPal aside)? Why or why not?

Required Readings:

1. Hagiu, Andrei, and Julian Wright. "Do You Really Want to Be an eBay?" *Harvard Business Review* 91, no. 3 (March 2013): 102–108

Optional Readings

1. Hagiu, Andrei, and Hermes Alvarez. "Investing in Online Marketplaces." *Harvard Business School Case* 714-520, June 2014. (Revised August 2014.)
2. Lewis, Greogry, and Albert Wang. 2013. "Who Benefits from Improved Search in Platform Markets?" Social Science Research Network
3. Boudreau, Kevin J., and Andrei Hagiu. "Platform Rules: Multi-Sided Platforms As Regulators." In Platforms, Markets and Innovation. Paperback ed. Edited by Annabelle Gawer. Cheltenham, U.K. and Northampton, MA: Edward Elgar Publishing, 2009, Paperback.

Thursday, November 13: Online Advertising and Internet Business Models

Preparation Questions:

1. Consider either Google's search or display advertising business and answer the following:
    a. Does it enjoy economies of scale? What are they?
    b. Does it enjoy network effects? What are they?
    c. Despite considerable investment, competitors lag behind Google in market share. What are some structural reasons for this?
2. About the value of data:
    a. How much do you think your personal browsing and search history data is worth?
    b. What about your location through time?
    c. Your social network (friends, colleagues)?
    d. What are some reasonable market proxies for the value of this information?
    e. Who is benefiting from the collection and use of personal information online?
3. Should dominant online businesses be regulated? Why? How?

Required Reading:

1. Athey, S. 2014. "Information, Privacy, and the Internet: An Economic Perspective", *CPB Netherlands Bureau for Economic Policy Analysis*: http://www.cpb.nl/sites/default/files/CPB-Lecture-2014-Information-Privacy-and-the-Internet-an-economic-perspective.pdf
2. Please read at least two articles from the optional reading selection.

Optional Reading:

1. Deighton, John and Kornfeld, Leora. 2013. "Amazon, Apple, Facebook and Google" *Harvard Business School Case*, 9-513-060
2. Bercovici, Jeff. 2014. "Inside Pinterest: The Coming Ad Colossus That Could Dwarf Twitter And Facebook".
   Forbes.com: http://www.forbes.com/sites/jeffbercovici/2014/10/15/inside-pinterest-the-coming-ad-colossus-that-could-dwarf-twitter-and-facebook/
3. Han, Arar and Barnett, William. 2012. "Facebook 2012," *Stanford Graduate School of Business Case*, E-468
4. Evans, David S. 2009. "The Online Advertising Industry: Economics, Evolution, and Privacy*", Journal of Economic Perspectives*.
5. Levin, Jonathan and Paul Milgrom. 2010. "Online Advertising: Heterogeneity and Conflation in Market Design", *American Economic Review: Papers & Proceedings*, 100 (2), 603-607
6. The History of Internet Search and Google:
    a. Part 1: http://www.youtube.com/watch?v=iBCSibI4ffg

    b. Part 2: http://www.youtube.com/watch?v=dx8fS_scMS0
    c. Part 3: http://www.youtube.com/watch?v=Nl3iRZ7PAKU
7. Hagiu, Andrei and Yoffie, David B. 2009. "What's Your Google Strategy?" Harvard Business Review, R0904F
8. Burrows, Peter. "Is Qi Lu Microsoft's Search Engine Savior?" Businessweek, May 28, 2009.
9. Fisher, Lauren, "eMarketer's Guide to the Digital Advertising Ecosystem," eMarketer, October 2012.

Tuesday, November 18: The Sharing Economy

Guest Lecturer: Venky Ganesan, Menlo Ventures. Current investments include oDesk, Rover.com, and Redfin.

Preparation Questions:

1. The Internet has been around for a while. Why did the "sharing economy" take so long to enter the mainstream?
2. Consider Airbnb's business and answer the following:
    a. Who are its customers? What key services does it provide to them?
    b. Compare Airbnb's most recent valuation to the current market cap of HomeAway, Inc. How do you explain the difference? What are some things that Airbnb did right to warrant its valuation? Note that HomeAway has been around much longer than Airbnb.
3. Should Uber and other ridesharing companies be regulated the same ways as taxi cab companies? E.g., should Uber drivers need to obtain taxi medallions in places like New York City? Why or why not?

Required Readings:

1. Geron, T. 2013. "How People Make Cash In The Share Economy".
    Forbes.com: http://www.forbes.com/sites/tomiogeron/2013/01/23/how-people-make-cash-in-the-share-economy/
2. Cannon, S., and Summers, L.H. 2014. "How Uber and the Sharing Economy Can Win Over Regulators" *Harvard Business Review Blog*: http://blogs.hbr.org/2014/10/how-uber-and-the-sharing-economy-can-win-over-regulators/
3. Edelman, Benjamin, and Michael Luca. "Airbnb (A)." *Harvard Business School Case* 912-019, December 2011. (Revised March 2012.)

Optional Readings:

1. Kapoor, R. 2014. "Lessons From The Sharing Economy".
   TechCrunch: http://techcrunch.com/2014/08/30/critical-lessons-from-the-sharing-economy/
2. Hoyt, David and CAllander, Steven. 2012. "Uber: 21st Century Technology Confronts 20th Century Regulation", *Stanford Graduate School of Business Case*, P-81
3. Coles, Peter, Joshua Gans, and Wei-Yuan Yu. "Killing Craigslist: Entrepreneurship in the Online Apartment Rental Market." *Harvard Business School Case* 912-009, January 2012. (Revised April 2012.)

Thursday, November 20: Big Data Analytics in Platform Businesses

Preparation Questions:

1. What are ways in which data assets can be used as long-term sustainable competitive advantage?
2. Consider the so-called A/B tests and answer the following:
   a. What are they?
   b. Why are they useful? What are their limitations?
   c. Who should be empowered with conducting them? Who do you think does them at Facebook?

Required Reading:

1. McAfee, Andrew and Brynjolfsson, Erik. 2012. "Big Data: The Management Revolution" *Harvard Business Review*, Reprint R1210C, October 2012
2. O'Toole, Kathleen. 2013. "Susan Athey: How Big Data Changes Business Management", *Stanford Graduate School of Business News*

Optional Reading:

1. Clement, Douglas. "Interview with Susan Athey: Stanford Economist on Optimal Auctions, Better Models and the Future of Big Data." *The Federal Reserve Bank of Minneapolis*, June 10, 2013.
2. Levy, Steven. "Secret of Googlenomics: Data-Fueled Recipe Brews Profitability." *Wired Magazine*, May 23, 2009
3. Ito, Aki. "Data Scientists Led by NASA Star Most Sought for Century: Jobs." *Bloomberg*, June 10, 2013.
4. Barton, Dominic and Court, David. 2012. "Making Advanced Analytics Work For You" *Harvard Business Review*, Vol. 90, No. 10., pp. 78-83

Tuesday, December 2: Content, Exclusivity, and Platform Competition

Guest Lecturer: Sara Clemens, Chief Strategy Officer, Pandora. Previous positions: Executive in Residence, Greylock; Vice President for Corporate Development at LinkedIn; General Manager, Strategy and Development, Microsoft (Interactive Entertainment Division).

Preparation Questions:

1. Is Pandora a platform? What are the sides of the market? What is Pandora's value proposition?
2. HBO and ESPN own the rights to some of the most valuable media content in the world. Yet they have been reluctant to make it available online to the general public. Why?
3. Under what circumstances is content bundling good for the consumer? For the content owner? For the distributor?

Required Reading:

1. Lee, Robin S. 2011. "Home Videogame Platforms", The Oxford Handbook of the Digital Economy, eds. Martin Peitz and Joel Waldfogel, Chapter 3
2. Shih, Willy C., and Halle Alicia Tecco. "Pandora Radio: Fire Unprofitable Customers?" Harvard Business School Case 610-077, March 2010. (Revised November 2010.)

Optional Reading:

1. Pozen, Robert C., and Alex Curtis Rosenfeld. "Pandora: Royalties Kill the Web Radio Star? (A)." Harvard Business School Case 310-026, August 2009. (Revised January 2012.)
2. Hagiu, Andrei. 2007. "Microsoft Xbox: Changing the Game" Harvard Business School Case, 9-707-501
3. Gilbert, Richard J. and Katz, Michael L. 2001. "An Economist's Guide to U.S. vs. Microsoft", Journal of Economic Perspectives, 15 (2), 25-44

Thursday, December 4:

Guest Lecturer: Stan Humphries, Chief Economist, Zillow

Preparation Questions:

1. We covered the concept of "staging" in some of our earlier classes. Was Zillow a "staged" platform?
2. What is the role of data in Zillow's business, from entry to sustainability?
3. Does Zillow enjoy network effects? Economies of scale?

Required Readings:

1. Coles, Peter and Edelman, Benjamin. 2012. "Pricing and Partnership at Zillow, Inc"
   Harvard Business School Case, 9-913-021