Hearing #3 on Competition and Consumer Protection in the 21st Century

George Mason University
Antonin Scalia Law School
October 15, 2018
Welcome

Henry Butler
George Mason University
Antonin Scalia Law School
Introductory Remarks

Commissioner Rohit Chopra
Federal Trade Commission
The Economics and Network Effects of Multi-Sided Platforms

Derek Moore
Federal Trade Commission
Office of Policy Planning
The Economics of Multi-Sided Platforms

David Evans
Global Economics Group
BlaBlaCar connects drivers and passengers for long road trips, such as Paris to Barcelona.

Density of drivers and passengers between cities for liquidity.

Matching of riders and passengers including making pleasant trip.

BlaBlaCar connects drivers and passengers for long road trips, such as Paris to Barcelona.

Price to passengers capped to cover driver’s gas and deprecation.

Increases driver and passenger welfare.
Lots of These Kinds of “Matchmakers” That Connect Different Types of Users

And Matchmakers Are Embedded In The Fabric Of Life

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Key Platform</th>
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<tbody>
<tr>
<td>1</td>
<td>Apple</td>
<td>iOS</td>
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<td>2</td>
<td>Amazon</td>
<td>Marketplace</td>
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<td>Alphabet</td>
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<td>JPMorgan</td>
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<td>Johnson &amp; Johnson</td>
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7/10 largest publicly traded companies in the world operate substantial multisided platforms, as of 9/18.
Key foundational theory papers

- Rochet and Tirole (JEEA, 2003; Rand Journal 2006);
- Armstrong (Rand Journal, 2006);

Hundreds of articles, dozens of books. For surveys:

- Rysman, Journal of Economic Perspectives, 2009;
Two-Sided Platforms, Transactions Costs, and Externalities
Platforms Emerge to Reduce Frictions Between Possible Partners

◆ Drivers have spare capacity, passengers would like a ride.

◆ Marketers willing to pay more to deliver an ad than viewers willing to pay to receive it.

◆ Single men and single women would like romantic partners.

◆ Buyers and sellers need common method of payment.

“When Fred was trying to get home to his family in the French countryside for Christmas 2003, he struggled as he had no car and all the trains were full. After begging his sister to pick him up, it was on the road when Fred noticed the sheer number of people driving alone. It hit him that all those empty seats in existing cars could be the beginning of a new travel network.”

Existence of a “transaction-cost problem” is a necessary condition for two-sided platform. (Rochet-Tirole (2003)).
Platforms Reduce Transactions Costs and Internalize Externalities

◆ By bringing parties together on a common platform:
  ➢ thereby solving collective action problem.

◆ By providing methods for search, matching, exchange, etc.:
  ➢ thereby reducing transactions costs between trading partners and increasing trading efficiency.
Externalities Create Welfare Interdependencies Among Platform Participants

◆ Positive indirect network externalities:
  ▪ more of the “right” counterparties increases likelihood of good exchange;
  ▪ scale + density = liquidity.

◆ Negative externalities:
  ▪ congestion can create friction on same or different side;
  ▪ higher ad loads reduce viewer value;
  ▪ people don’t like strange people in their cars.

◆ Behavioral externalities that typically affect communities and interactions:
  ▪ fraud and deception involving trade;
  ▪ gross stuff like porn;
  ▪ bad stuff like verbal or physical violence.

Managing externalities among participants central to what platforms do. Very different from other firms.
Platform Addresses Externalities Through
... Pricing and Terms of Trade

◆ Pricing structures to increase density of good trading partners and other externalities
  ▪ Der Spiegel reader price determines density of readers for advertisers, advertiser price determines ad load, which may affect readership, which affects ad prices.

◆ Non-pecuniary payments such as content, rewards
  ▪ Der Spiegel ~140 pages of content attracts “male, educated with high income” readers, which is what it markets to advertisers.

Platforms can charge membership fees (e.g. annual fee for cardholders) and transaction fees (e.g. merchant fees for card transactions).
Platform Address Externalities Through … Platform Design

- Design features that facilitate matching like how content is bundled.
- Technology features like matching algorithms, search technologies.
- Business design like liquidity maker institution for exchanges.

Physical and virtual platforms designed to facilitate interactions among members of the two groups to help them make good exchanges.
Platform Addresses Externalities Through
... Rules, Governance

◆ Behavioral rules for interactions—do’s and don’ts of platform behavior.

◆ Detection mechanisms for violations—people and software for finding violations.

◆ Penalties for violating rules—including permanent and temporary exclusion.

Apple App Developer Guidelines: “If you attempt to cheat the system (for example, by trying to trick the review process, steal user data, copy another developer’s work, or manipulate ratings) your apps will be removed from the store and you will be expelled from the Developer Program.”

Governance systems common feature of multisided platform businesses.
Putting It All Together With … BlaBlaCar

- Passengers want access to more drivers, and drivers want access to more passengers.

- But only if they are paid for having strangers in their cars.

- Pricing structure caps fees as driver cost which tends to eliminate professional drivers but also reduces incentives to drive.

- Platform reduces negative externalities and facilitates matching by among other things asking participants how chatty they like to be (“bla, bla bla, or bla bla bla”).

- Relative value proposition ultimately sufficient to get density of drivers and passengers on enough city pairs.

Now in 22 countries, 60 million driver passenger users, 18 million travelers per quarter.
Basic Economics of Two-Sided Platforms
Platform Connects Two Groups with Indirect Network Effects to Reduce Transactions Costs and Facilitate Exchange

◆ Platform is intermediary:
  □ that connects two types of users (“sides”);
  □ to help them make good exchanges (or have good interactions);
  □ by reducing transactions costs between them.

◆ Platform has “indirect network externalities”:
  □ demand by at least one type of user depends on demand for other type because possible gains depend on presence of other type;
  □ users on one side benefit from having access to more users on the other side.

◆ Platform internalizes these externalities and thereby increases surplus through more and better interactions.
Profit-Maximization Accounts for Interdependent Demand between Types

◆ Standard models make demand for each type depend on demand for other types:

\[
\Pi = \left( P_1 - C_1 \right) D_1 \left( P_1, Q_2 \right) + \left( P_2 - C_2 \right) D_2 \left( P_2, Q_1 \right)
\]
Armstrong Model (2006)

□ this interdependent demand is key feature of two-sided platforms with significant implications for economics and business; lots of other nuances.

◆ Profit-maximization requires determining “pricing structure” in addition to “pricing level”:
  □ “pricing structure” refers to relative prices charged to different sides;
  □ ”pricing level” refers to total prices realized from users;
  □ general models have access prices and transaction prices for each side.

◆ This interdependent demand is key feature of two-sided platforms with significant implications for economics, business, antitrust:
  □ feedback loops between two-sides involving prices, demand;
  □ lots of nuances to theory; lots of differences across businesses.
Robust Economic Theory Leads to Novel Pricing Result Confirmed by Empirical Evidence

◆ Profit-maximizing price could be less than marginal cost on one side as a matter of theory:
  
  □ including zero price ("free") and negative price ("rewards") on one side;
  □ loses on "subsidy" side made up with profits on "money" side;
  □ result fundamentally different than traditional economic models where p>MC.

◆ Below-cost pricing common empirically:
  
  □ common for platforms to charge less than marginal cost (e.g. print magazines);
  □ free to one side frequent business model (e.g., online media);
  □ reward to one side sometimes (e.g., credit cards).

Platforms sometimes have more than two sides; results extend to these cases as well. At least one side needs to make money.
Economic Theory Shows Importance of “Critical Mass”

- Platform provides value to members of group only if it can provide access to enough members of the other group:
  - platforms need to have enough participants on both sides, and the right proportion of participants to provide value;
  - participant on side will incur cost of joining and participating only if they expect to make enough good exchanges to make it worth their while;
  - need for critical mass well-known issue in older literature on indirect network effects but key to platform businesses.

- Leads to “chicken-and-egg” problem for new platforms:
  - how can platform get members of one group to participate if they don’t have the other?
  - empirically this turns out to be an important aspect of platform startups.
Economic Theory Shows Relevance of Use of Multihoming

◆ Whether participants on one side use just one or several platforms to access participants on the other side affects pricing and competition:
  - “single-homing” on one platform by one side means that the only way the other side can reach participant is to also use that platform; (e.g. people use only one mobile operating system usually).
  - “multihoming” on platforms by one side means that the other side could use several platforms to reach that user (e.g. people use several ad-supported media).
  - Implies that competition can be intense for single-homing customers.

◆ Some implications:
  - competition can be intense for single-homing customers;
  - platform can be bottleneck for access single-homing customers;
  - lots of nuances to theory and empirics though, and really depends on facts of business.
Key Features of Platforms That Can Be Used for Definitional Purposes

Key features require a transaction cost problem for which a two-sided platform is a feasible solution:

- two distinct types of customers for whom valuable interaction is possible;
- frictions that make efficient interactions difficult to arrange;
- platform facilitates connections between those customers;
- participation of members of at least one group depends on the participation of the other group so it makes sense to aggregate on a platform.

For economists it usually comes down to whether a businesses connects two different types of customers for which there is sufficiently strong interdependent demand that it matters.
Some Pointers on the Scope of Two-Sided Platforms

- Ad-supported media are two-sided platforms; modern theory analyzes as two-sided (Anderson & Gabszewicz (2006)) and lots of great empirical papers in this area.

- Members of two groups could different for purpose of transaction but could be same economic agents. Often the case for send-receive platforms, sharing, and marketplaces.

- Rochet-Tirole (2006) suggested that for a platform to be two-sided platform output needed to depend on price structure; price structure affects output when there are indirect network effects assuming arbitrage between parties can’t prevent platform from using price structure--so price/output effect is implication of being a two-sided platform rather than a defining characteristic.
Not Just Complements, Not Just Everything

◆ Two-sides aren’t mere complements for which we can rely on existing theory:
  - complements usually sold to same customer (gas and tires) while platform is serving different customers (drivers, passengers) at least for purpose of that interaction;
  - complements often sold by different firms (gas stations, tire stores) while platform usually has provide services to both types of customers to provide a service to either.

◆ Doesn’t say every business or even every intermediary is a multisided platform:
  - many “traditional” businesses don’t connect two sides, lack material indirect network effects between customers;
  - two-sided theory has predictions on business behavior that apply to two-sided firms but not to traditional firms.
Multisided platforms are increasingly “commonplace” as a result of

- technological change particularly in computer processing, Internet, software platforms, mobile, cloud;

- which has resulted in the creation of many multisided platforms and enabled some to quickly scale globally;

- many new platforms are replacing fragmented platforms based on old technology.
Network Effects in Multi-Sided Platforms: Platform Competition

Catherine Tucker
Massachusetts Institute of Technology
Sloan School of Management
Agenda

1. What are Network Effects?
2. Breaking into Platform Markets
Network Effects

• Describes the value that users obtain from other users on the platform
Different Network Effects

• Same-Side (Direct) Network Effects
Same-Side Network Effects
Different Network Effects

• Cross-Side (Indirect) Network Effects
Cross-Side Network Effects: Technology

Freedom, Choices, Beautiful.
Different Network Effects

Cross-Side Network Effects: Marketplace
Everyone wants to be a platform: Make definitions tricky
First Challenge: ‘Tipping’

• Usefulness depends on participation
Second Challenge: ‘Coring’

• Usefulness depends on platform ensuring participants behave well
Agenda

1. What are Network Effects?
2. Entry into Platform Markets
Customer Decision

- \( \text{NetworkBenefits} + \text{StandAloneBenefits} - \text{Price} \geq 0 \)
Agenda

2. Breaking into Platform Markets
   2.1 3 Drivers of Strength of Network Effects
   2.2 Alternative Strategies For Entry
Driver 1: Scope of Network Effects

• Do consumers want to interact with everyone? Personalization?
• Can people anticipate who they will want to interact with?
Driver 1: Scope of Network Effects

• Do consumers want to interact with everyone? Personalization?

• Can people anticipate who they will want to interact with?

My Dissertation
Driver 1: Scope of Network Effects

• Do consumers want to interact with everyone? Personalization?

• Can people anticipate who they will want to interact with?
Driver 1: Scope of Network Effects

- Do consumers want to interact with everyone? Personalization?
- Can people anticipate who they will want to interact with?

One-to-one matching vs all-to-all matching?
Driver (1): Scope of Network Effects

- Do consumers want to interact with everyone? Personalization?
- Can people anticipate who they will want to interact with?
Driver 1: Scope of Network Effects

• Do consumers want to interact with everyone? Personalization?

• Can people anticipate who they will want to interact with?

Social Coordination
Driver (2): Switching costs preventing multihoming

• How easy it is for users to use multiple platforms at the same time?
• Shift towards cloud and digital tools reduces switching costs and increases multihoming
Driver (2): Switching costs preventing multihoming

• How easy is multihoming?

Shift towards cloud and digital tools reduces switching costs and increases multihoming

How easy is multihoming?
Driver (3): Negative Network Effects

• Too many users can lead to congestion
• Some users can make the platform look uncool
Driver (3): Negative Network Effects

• Too many users can lead to congestion
• Some users can make the platform look uncool

We made bitcoin uncool at MIT
Agenda

2. Breaking into Platform Markets

2.1 3 Drivers of Strength of Network Effects

2.2 Alternative Strategies For Entry
Alternative Strategies

• Can the product offer independent benefits?
• Some firms enter with zero prices and then can’t raise prices because customers are anchored.
Alternative Strategies

• Can the product offer independent benefits?

• Some firms enter with zero prices and then can't raise prices because customers are anchored.

Standalone benefits: Can be simple
Alternative Strategies

• Can the product offer independent benefits?
• Some firms enter with zero prices and then can’t raise prices because customers are anchored.
Alternative Strategies

• Can the product offer independent benefits?

• Some firms enter with zero prices and then can't raise prices because customers are anchored. Zero prices persist Difficult ↑ prices later.
Punchline

• Platforms: Network effects but also ‘coring’
• Network Effects ≠ number of users
  • The combination of size and network effects may not always be an anti-trust problem
• Digitization facilitates multi-homing and intensifies competition
  • The right question is still one of switching costs
Break
10:10-10:20 am
The Current Economic Understanding of Multi-Sided Platforms

Session moderated by:

John M. Yun
George Mason University
Antonin Scalia Law School
The Current Economic Understanding of Multi-Sided Platforms

Marc Rysman
Boston University
Department of Economics
The Current Economic Understanding of Multi-Sided Platforms

Katja Seim
University of Pennsylvania
Wharton School
The Current Economic Understanding of Multi-Sided Platforms

Joseph Farrell
University of California, Berkeley
Department of Economics
Features or Definitions?

• Network effects
• The ghost of departed quantities
• Discretion in pricing pattern—market power??
So What?

• Network effects, like other economies of scale, set the stage for possible competition problems but not the end of that story

• Can one focus on total price versus pattern?
  • Neutralization results?
  • Balancing effects on two sides?
The Current Economic Understanding of Multi-Sided Platforms

Michael Salinger
Boston University
Questrom School of Business
The Current Economic Understanding of Multi-Sided Platforms

Howard Shelanski
Georgetown University Law Center
The Current Economic Understanding of Multi-Sided Platforms

Panel Discussion

David Evans, Joseph Farrell, Marc Rysman, Michael Salinger, Katja Seim, Howard Shelanski, Catherine Tucker

Moderator: John Yun
Lunch Break
12:20-1:30 pm
Multi-Sided Platforms in Action

Session moderated by:

Jan Rybnicek
George Mason University
Antonin Scalia Law School
Freshfields Bruckhaus Deringer LLP
Multi-Sided Platforms in Action: Aggregators, Platforms, and Regulation

Ben Thompson
Stratechery, LLC
Who am I, and why am I here?
Who am I, and why am I here?

Aggregation Theory
Tuesday, July 21, 2015

The last several articles on Stratechery have formed an unintentional series:

- Airbnb and the internet Revolution described how Airbnb and the sharing economy have commoditized trust, enabling a new business model based on aggregating resources and managing the customer relationship.
- Netflix and the Conservation of Attractive Profits placed this commodification/aggregation concept into Clay Christensen's Conservation of Attractive Profits framework, which states that profits are earned by the integrated provider in a value chain, and that profits shift when another company successfully modularizes the incumbent and integrates another part of the value chain.
- How data makes that was primarily about the effect of programmatic advertising on web pages.
2018 ANTI-TRUST AND COMPETITION CONFERENCE - DIGITAL PLATFORMS AND CONCENTRATION

APRIL 19–20, 2018
GLEACHER CENTER, 450 N CITYFRONT PLAZA DRIVE

About the Conference

The economic and societal role of the handful of large companies known as "digital platforms" has grown dramatically in the last decade. Google, Amazon, and Facebook are not only transforming communication, media, and retail but have the potential to transform many other industries. While they invest billions in research and development and propel important innovation, they also raise many policy questions with regard to their dominance in many markets, the vast consumer data they collect and own, and their influence on the markets for news, information, and ideas. On April 19 and 20, 2018, the Stigler Center at the University of Chicago Booth School of Business will dedicate its annual Antitrust and Competition conference to the topic of “Digital Platforms and Concentration.”
2018 Antitrust and Competition Conference - Digital Platforms and Concentration

April 19-20, 2018
Gleacher Center, 450 N Cityfront Plaza Drive

About the Conference

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Google = 7

Facebook = 3

All of the top 5

8 of the top 10
What is an Aggregator...

...and how is it different than a platform?
Yahoo and Google

How an Aggregator is formed
The Internet, circa 1994
1994
1996
Pre-Internet

Integrate = Valuable

Aggregated

Hardest Problem

Digitized

Solving New Hardest Problem
Pre-Internet

Aggregated

Integrated = Valuable

School
Friends

Neighborhood
Friends

Club
Friends

Hardest Problem
“Our competition is only a click away.”

—Larry Page
Digital Platforms are Aggregators

- Control demand
- Deliver a superior user experience
- Pull suppliers onto their platforms on their terms
- Benefit from scale
- Tend towards winner-take-all
Digital Platforms are Aggregators

- Control demand
- Deliver a superior user experience
- Pull suppliers onto their platforms on their terms
- Benefit from scale
- Tend towards winner-take-all
Aggregators vs Platforms
Facilitates

Intermediates
I was in charge of Facebook Platform. We trumpeted it out like it was some hot s*** big deal. And I remember when we raised money from Bill Gates, 3 or 4 months after — like our funding history was $5M, $83 M, $500M, and then $15B. When that 15B happened a few months after Facebook Platform and Gates said something along the lines of, “That’s a crock of s***. This isn’t a platform. A platform is when the economic value of everybody that uses it, exceeds the value of the company that creates it. Then it’s a platform.”

— Chamath Palihapitiya
The Bill Gates Line

Single Company → More Economic Value → Ecosystem

Facebook, Google, Apple, Amazon, Microsoft, AWS
<table>
<thead>
<tr>
<th>Strategy:</th>
<th>Platform/Aggregator</th>
<th>3rd Party</th>
<th>Regulator</th>
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<tr>
<td>Platforms</td>
<td>Open Access on Proprietary Tech</td>
<td>Partner with Platform</td>
<td>Limit Vertical Disclosure</td>
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<tr>
<td>Aggregators</td>
<td>Closed Access on Open Tech</td>
<td>Go Around Aggregator</td>
<td>Limit Horizontal Expansion</td>
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</table>
Regulating Aggregators

Start with Internet Assumptions
Regulating Aggregators

1. Constrain Horizontal Expansion
e.g. Facebook, Instagram and Advertising Markets
Regulating Aggregators

1. Constrain Horizontal Expansion

2. Focus on Transparency

*The regulatory corollary of Aggregation Theory is that the ultimate form of regulation is user-generated*
Regulating Aggregators

1. Constrain Horizontal Expansion
2. Focus on Transparency
3. Don’t Burden Challengers
   
   *Simple and Predictable > Complex and Prescriptive*
Thank You

stratechery.com/ftc
Multi-Sided Platforms in Action

Elizabeth J. Altman
University of Massachusetts Lowell
Manning School of Business
Multi-Sided Platforms in Action: Marketplace Platforms Over Time

Steven Tadelis
University of California, Berkeley
Haas School of Business
Online Marketplaces

• Craigslist and eBay, 1995
• What was the business model?
  • Connect buyers and sellers
  • Create gains from trade
  • Collect fee (eBay a lot more than Craigslist)
Marketplace Incentives

- Marketplaces connect many buyers with many sellers
- Economics of Reputation on Platforms:
  - What goes around comes around
  - Each seller has weak incentives and imposes an externality
  - The marketplace internalizes this externality (Nosko-Tadelis)
  - Using search and feedback systems to control quality and act for the benefit of consumers
Is entry into a platform marketplace easy?

• Common argument: strong network effects
  • Goes back to “chicken & egg” problem of two-sided networks
• But, this ignores the ease of multihoming
  • especially with APIs and digital technology
• What’s the evidence on entry?
### Craigslist Today

#### SF Bay Area

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<tr>
<th>Community</th>
<th>Housing</th>
<th>Jobs</th>
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<td>activities</td>
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<table>
<thead>
<tr>
<th>Discussion Forums</th>
<th>Gigs</th>
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### Craigslist Today

#### SF Bay Area

<table>
<thead>
<tr>
<th>Community</th>
<th>Housing</th>
<th>Jobs</th>
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<tbody>
<tr>
<td>activities</td>
<td>apartments</td>
<td>accounting/finance</td>
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<td>arts</td>
<td>housing swap</td>
<td>admin/office</td>
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<td>missed</td>
<td>housing wanted</td>
<td>arch/engineering</td>
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<td>connections</td>
<td>office/commercial</td>
<td>art/media/design</td>
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<tr>
<td>musicians</td>
<td>parking/storage</td>
<td>biotech/science</td>
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<td>real estate for sale</td>
<td>business/import</td>
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<td>rooms/shared</td>
<td>customer service</td>
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<td>general politics</td>
<td>rooms wanted</td>
<td>education</td>
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<td>apartments/rooms</td>
<td>etc/misc</td>
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<td>local news</td>
<td>ohns</td>
<td>food/bev/hosp</td>
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<tr>
<td>rideshare</td>
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<tr>
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<th>Discussions</th>
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Craigslist in 2010

http://thegongshow.tumblr.com/post/345941486/the-spawn-of-craigslist-like-most-vcs-that-focus

Jan 1, 2010
The Business Model

• There’s nothing new under the sun…
• Uber, Lyft, Airbnb, Upwork, Taskrabbit…
  • All are reincarnations of eBay’s model
• Why didn’t eBay do it all?
  • Ease of entry; multihoming; innovation; etc…
  • Outside social networks and maybe search, barriers to entry are negligible, mostly because of multihoming
Multi-Sided Platforms in Action

Roger McNamee
Elevation Partners
Multi-Sided Platforms in Action

Scott Kupor
Andreessen Horowitz
Multi-Sided Platforms in Action

Panel Discussion

Elizabeth Altman, Scott Kupor, Roger McNamee, Steven Tadelis, Ben Thompson

Moderator: Jan Rybnicek
Break

3:00-3:15 pm
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Session moderated by:

Daniel Francis
Federal Trade Commission
Bureau of Competition
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Michael Salinger
Boston University
Questrom School of Business
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Tasneem Chipty
Matrix Economics, LLP
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Joseph Farrell
University of California, Berkeley
Department of Economics
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Eric Citron
Goldstein & Russell, P.C.
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Darren Tucker
Vinson & Elkins LLP
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Joanna Tsai
Charles River Associates
Defining Relevant Markets and Establishing Market Power in Cases Involving Multi-Sided Markets

Panel Discussion

Tasneem Chipty, Eric Citron, Joseph Farrell, Michael Salinger, Joanna Tsai, Darren Tucker

Moderator: Daniel Francis
Thank You,
Join Us Tomorrow