MIS 5302 Spring 2017 – Managing Technology & Systems

Session 5 – IT-Driven Competitive Strategies

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TEMPLE UNIVERSITY

In this session, we will discuss

● How to formulate IT-driven competitive strategies

● How IT-driven disruptive innovation eliminates bottlenecks or choke-points in a traditional industry

● How a two-sided platform with network effects works

What did you learn from Otis?

● What did you learn from Otis case (with IT and Competitive Strategies)?

● This session's topic is "IT-Driven Competitive Strategies." How different do you think it is from Session 2?

http://www.jobaps.com/SCCAT/sup/bulpreview.asp?R1=64&R2=47&R3=10

IT-Driven Competitive Strategies (1/2)

● We have discussed that competitive strategies affect how companies use IT.

● Today, we'll discuss the other way around.

  ▪ How IT affects competitive strategies.

  ▪ How firms can leverage IT in formulating new strategies for disruptive innovation and sustainable competitive advantages.

Strategy ⇄ **IT**
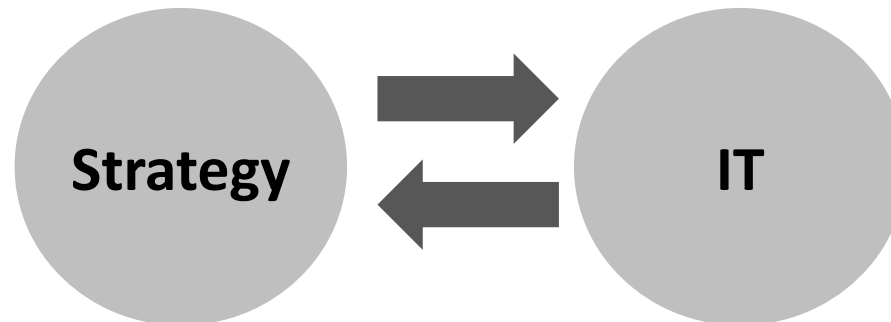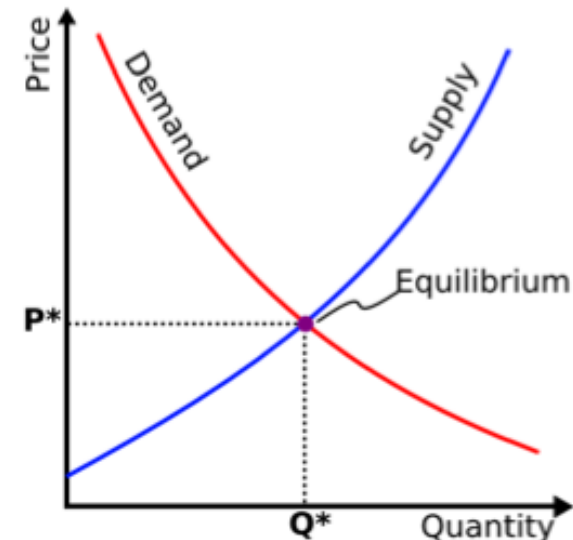
IT-Driven Competitive Strategies (2/2)

● Two ways for disruptive competitive strategies enabled by IT

- ▪ by eliminating industry bottlenecks or choke points that limit supplies or demands

- ▪ by building a two-sided platform that interconnects customers and suppliers

https://www.research-live.com/article/features/big-bang-disruption--and-five-keys-to-survival/id/4011192

Industry Bottlenecks or "Choke Points"

● Prevalent market inefficiencies that structurally limit supplies or demands in an industry

● With limited supplies, customers have to pay higher prices.

● With limited demands, firms cannot make enough profits.

http://www.cascadeeducationalconsultants.com/blog.php?id=7822935245829712246

Amazon.com vs. Offline Stores

http://blog.mainstreethost.com/tis-the-season-businesses-seek-different-avenues-for-holidays/best-buy-showrooming#.UYwA17VWySo

More retail stores have closed in 2017 than at the same point in 2008

By **Gene Marks** April 10 ✉

The bad news for the retail industry is coming fast and furious these days. Big names are shuttering stores or going out of business.

Add it all up and more than 2,880 retail stores have been closed this year to date, a pace that is running ahead of the same point during 2008's recession, according to a recent Bloomberg report. What's worse is that the future isn't looking any brighter.

HHGregg to close all stores after failing to find a buyer

James Briggs , james.briggs@indystar.com   Published 4:39 p.m. ET April 7, 2017 | Updated 1:12 p.m. ET April 10, 2017
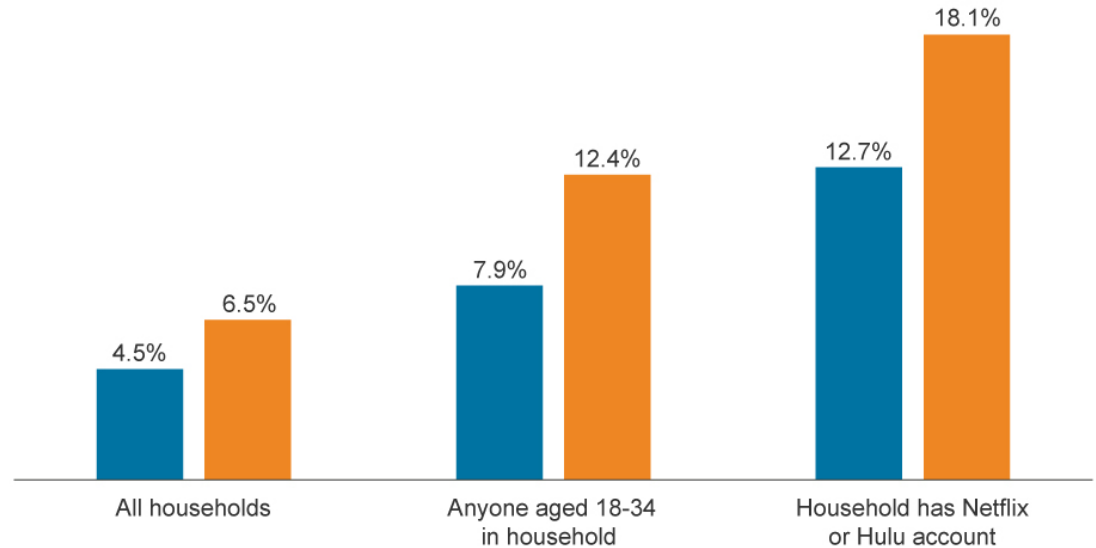
Payless ShoeSource closing 13 Illinois stores after bankruptcy filing
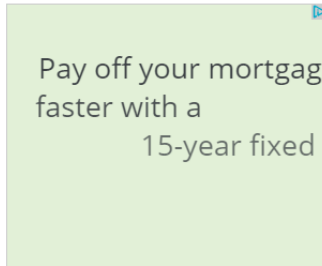
Online Video Gives Cord-Cutting a Boost
Percent of U.S. households ending their cable subscriptions
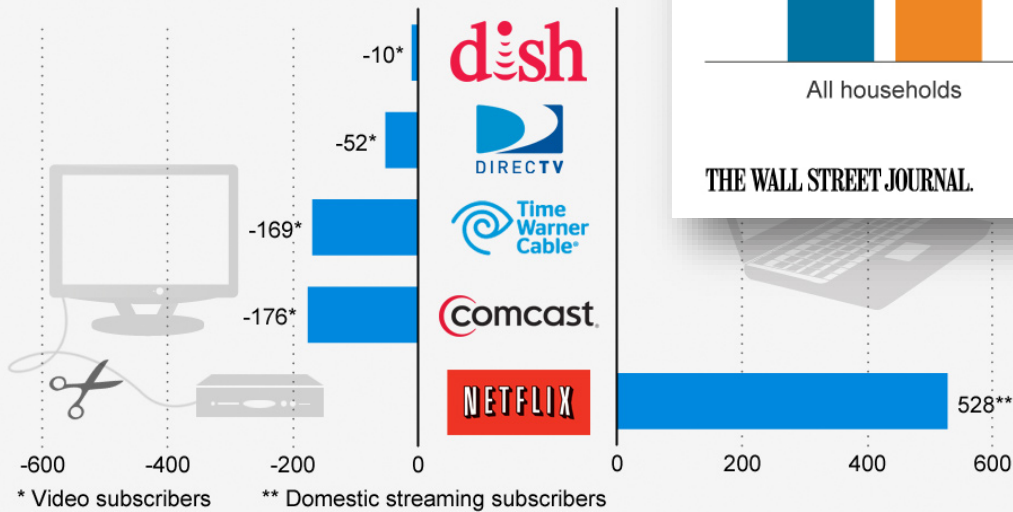
2010 | 2013

	All households	Anyone aged 18-34 in household	Household has Netflix or Hulu account
2010	4.5%	7.9%	12.7%
2013	6.5%	12.4%	18.1%

THE WALL STREET JOURNAL.

Source: Experian

statista

The Cord Cutting Has Begun
Net subscriber additions in the second quarter of 2012

Provider	Value
dish	-10*
DIRECTV	-52*
Time Warner Cable	-169*
Comcast	-176*
NETFLIX	528**

* Video subscribers ** Domestic streaming subscribers

statista The Statistics Portal — creative commons
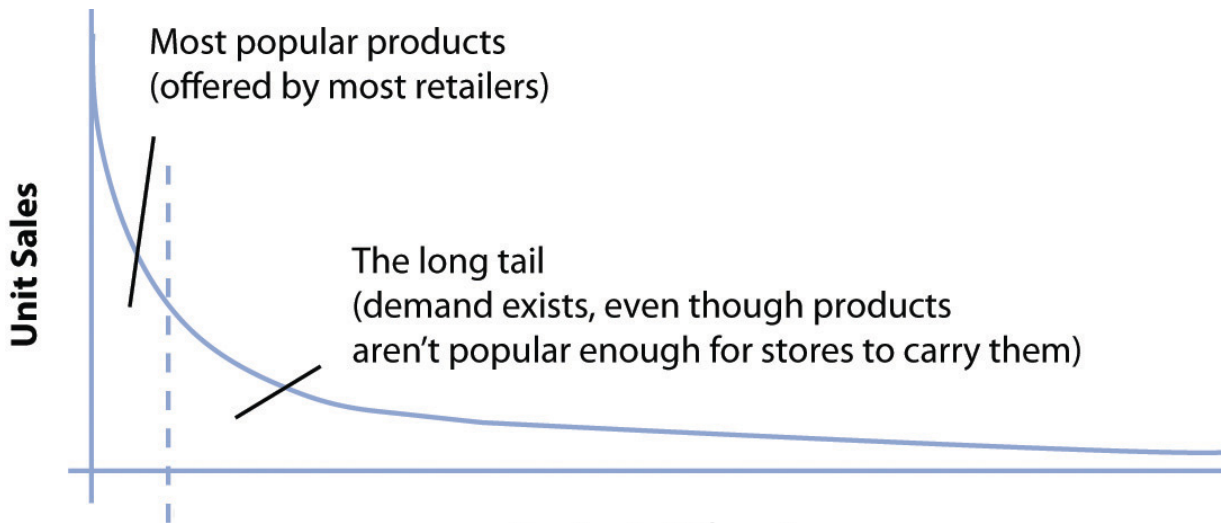
Source: Company filings

Amazon.com and Netflix (1/2)

- What bottleneck do Amazon.com and Netflix eliminate?

    - bottlenecks in offline retail industries that limit supplies or demands
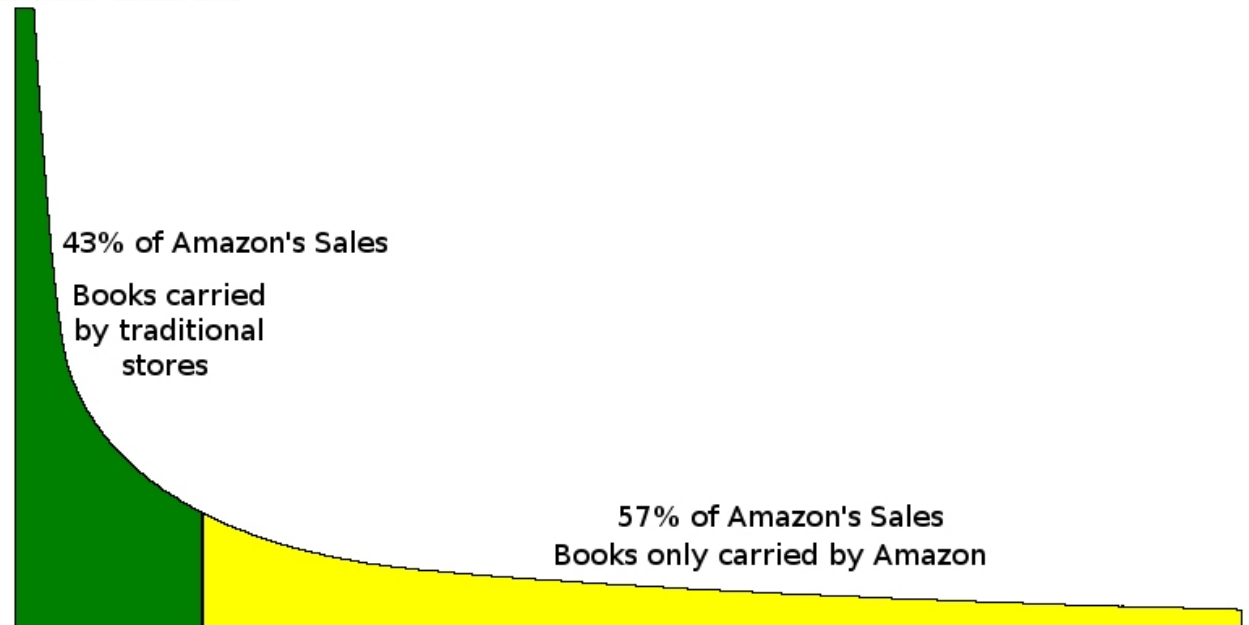
- How do they use IT to do so?

Long Tail Economics (1/2)

Most popular products
(offered by most retailers)

Unit Sales

The long tail
(demand exists, even though products
aren't popular enough for stores to carry them)

Products Offered

43% of Amazon's Sales

Books carried
by traditional
stores

57% of Amazon's Sales
Books only carried by Amazon

http://neilpatel.com/2015/12/22/7-brilliant-examples-of-brands-driving-long-tail-organic-traffic/
https://mi021.wordpress.com/2013/04/03/netflix-long-tail-approach-for-small-businesses-too/

Long Tail Economics (2/2)

Operating Costs in Offline Stores

Revenues

Operating Costs in Online

# of products in online is virtually unlimited.

# of products in offline stores

# of Available Products

Fifty
Shades
of Grey

E L James

#1 *New York Times* Bestseller

WIKIPEDIA
The Free Encyclopedia

Article | Talk | Read | View source

Fifty Shades of Grey
From Wikipedia, the free encyclopedia

Background

The *Fifty Shades* trilogy was developed from a *Twilight* fan fiction originally titled *Master of the Universe* and published episodically on fan-fiction websites under the pen name "Snowqueen's Icedragon". The piece featured characters named after Stephenie Meyer's characters in *Twilight*, Edward Cullen and Bella Swan. After comments concerning the sexual nature of the material, James removed the story from the fan-fiction websites and published it on her own website, FiftyShades.com. Later she rewrote *Master of the*

FIFTY SHADES OF GREY BECOMES THE BESTSELLING BOOK OF ALL TIME

Wednesday August 1,2012

Charlotte Meredith for express.co.uk

FIFTY Shades of Grey has knocked Harry Potter and the Deathly Hallows off the top spot, outselling it by more than two to one, to become the bestselling book of all time.

http://www.npr.org/books/titles/148607252/fifty-shades-of-grey
http://en.wikipedia.org/wiki/Fifty_Shades_of_Grey
http://www.express.co.uk/printer/view/336759/

Bloomberg Businessweek

AMAZON *CHANGES* BOOKONOMICS

Traditional publishers' pitch: As guardians of the culture, our editors will tease beauty out of the most troubled manuscripts and build vast audiences.
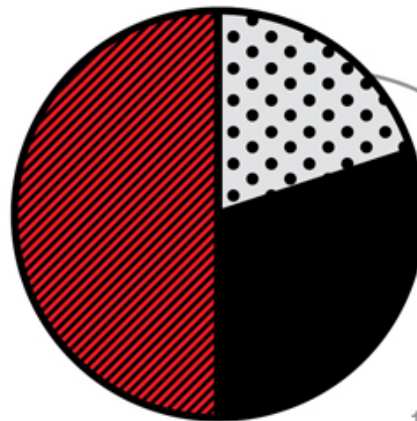Amazon Publishing's pitch: That, plus way more money. —Danielle Kucera
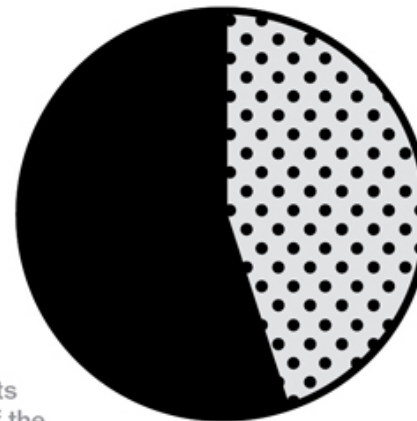
Usual Way

Publisher,
Retailer, Author
In the book business, the publishers usually get about half of the book's retail price. The author (and the author's agent) get about 20 percent

Agent gets 15%-20% of the author's cut

Amazon Way

Amazon, Author
The company hasn't divulged specifics, but according to an estimate by Forrester Research, Amazon Publishing pays authors 45 percent to 50 percent of the selling price

http://images.businessweek.com/cms/2012-01-25/feature_amazon05__02__popup.jpg

Amazon.com and Netflix (2/2)

● Both companies addressed bottlenecks in the traditional retail industries created by limitation in physical spaces.

● disrupted the industries by making "long tails" possible.

● eliminating choke points created by middlemen

- publishers (between authors and readers)

- cable operators (between content providers and viewers)

http://www.sweetprocess.com/tired-of-being-the-bottleneck-heres-how-to-determine-the-first-repetitive-task-that-needs-a-documented-procedure/
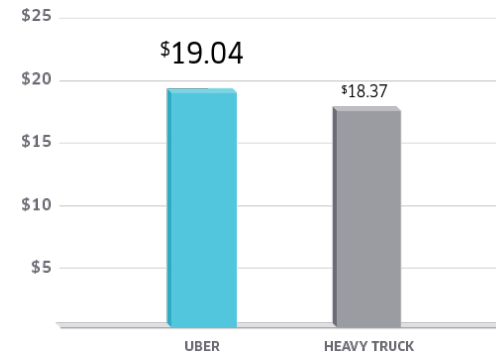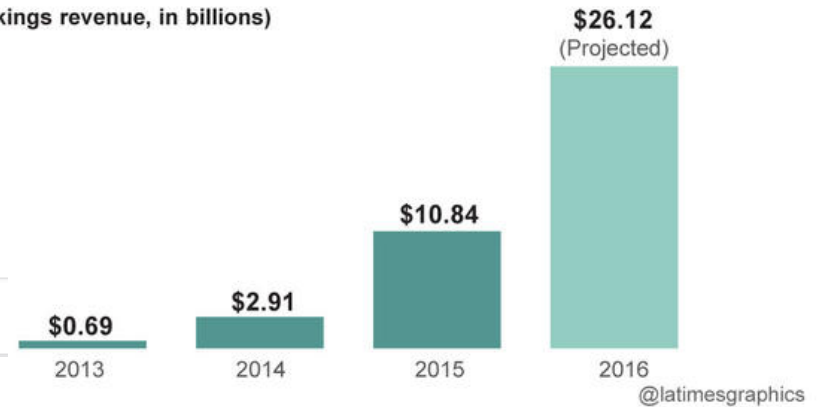
http://rentingyourplace.com/airbnb-101/

Uber's Growth

Speedy growth

Uber's global bookings are projected to increase 141% from 2015 to 2016, according to documents obtained by Reuters.

(Global bookings revenue, in billions)

$0.69 — 2013
$2.91 — 2014
$10.84 — 2015
$26.12 (Projected) — 2016

@latimesgraphics

150,000 DRIVERS
100,000 DRIVERS
50,000 DRIVERS
0

JUL 2012   JAN 2012   JUL 2013   JAN 2013   JUL 2014   JAN 2015

$19.04 — UBER
$18.37 — HEAVY TRUCK

http://www.latimes.com/business/la-fi-0822-uber-revenue-20150822-story.html
https://newsroom.uber.com/truck-driver-jobs-vs-driving-with-uber/

Airbnb and Uber

- Why is Airbnb so popular?

  - What bottlenecks does Airbnb try to address?

- How about Uber? Why is it so disruptive?

  - What choke points does Uber aim to eliminate?

http://www.asacredjourney.net/2015/07/seattle-airbnb-apartment/
http://boingboing.net/2016/01/04/20-minute-uber-ride-cost-111.html

Taxi Medallion in NYC

TLC-REGULATED INDUSTRIES

YELLOW TAXIS

Street Hails · Airport Taxi Stand

Anywhere
For more on medallions, see p 12

There are **13,437** medallions, the right to run a yellow taxi

A typical taxi travels **70,000** miles per year, enough to travel around the world **2.8** times

Average Corporate Medallion Prices

In 2011, Uber arrives in New York City

$1m
$750k
$500k
$250k
$0

2000   2015
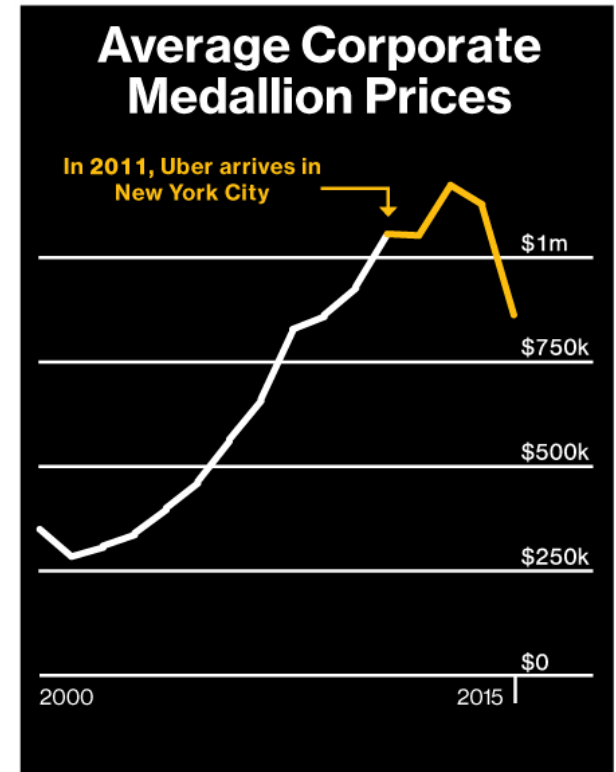
2015 DOLLARS. DATA: NYC TAXI & LIMOUSINE COMMISSION

http://www.nyc.gov/html/tlc/downloads/pdf/2014_taxicab_fact_book.pdf
https://www.bloomberg.com/features/2015-taxi-medallion-king/

FreshDirect and Khan Academy

● How do FreshDirect and Khan Academy try to disrupt the existing industries by address which *bottlenecks*?

IT-Driven Disruptive Strategy

● FreshDirect, Uber, Airbnb, and Khan Academy address the following choke points or inefficiencies in the existing industries.

- limited space at grocery stores and limited selection for customers

- heavily regulated amount of taxicab fleets and pricing

- untapped lodging spaces in urban downtowns

- limited classroom space and one-size-fits-all education

Betterment and Wealthfront (1/2)

http://time.com/money/page/robo-advisers/

Betterment and Wealthfront (2/2)

● In the traditional money-management industry, human investment managers are expensive.

- Customers have to invest a hefty sum (a high investment minimum), to pay hefty management fees (1% of assets every year), or both.

● The two companies eliminate bottlenecks that limit demands for investments.

- No investment minimum

- Management fees as low as 0.15%

● reached untapped demands for investments from mostly young investors

Bottleneck in Your Industry?

● Is there industry-wide inefficiency in your industry that structurally limits supplies or demands?

● Can technology eliminate this inefficiency?

● How can you take advantage of technologies

  ▪ to uncover unmet/under-served demands or

  ▪ to unleash untapped supplies in your industry?

http://electric-cloud.com/solutions/unlock-agile-bottleneck/
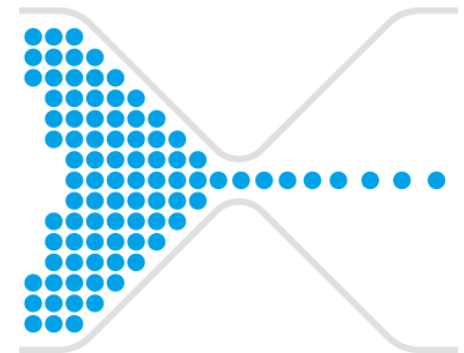
Topic #9 – Develop Your Disruptive Strategy

- Pick one industry that you have been in or you are familiar with.

- What choke points are limiting supplies, demands, or both?

- If you want to be a disrupter like Airbnb and Uber,

- how would you use technology to eliminate such bottlenecks?

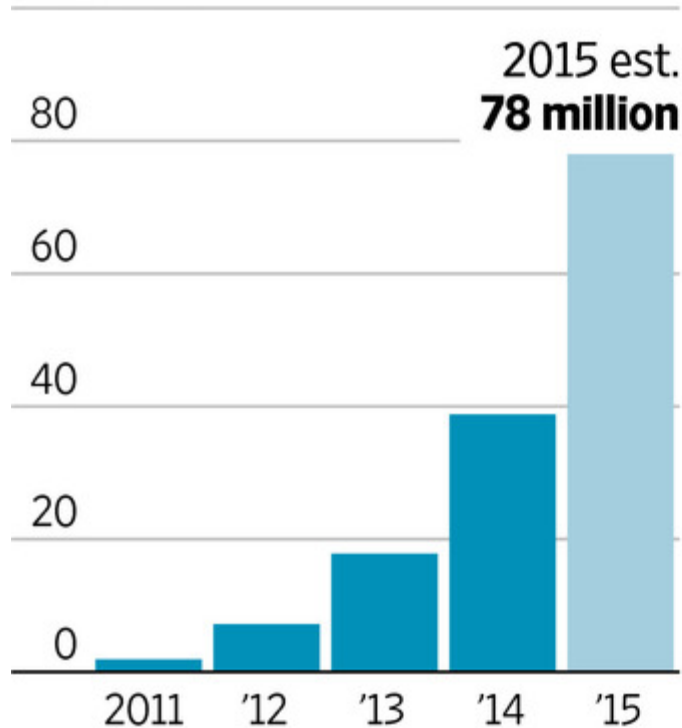- Present your idea next week. (You could find a business partner!)

http://knowledge.wharton.upenn.edu/article/disruptive-innovation-run-course-yet/

http://rentingyourplace.com/airbnb-101/

Room to Grow

Airbnb is showing solid growth to investors as it seeks to raise funds.

Nights Booked

100 million

2015 est.
78 million

Source: the company

Revenue

$1.0 billion

2015 est.
$900 million
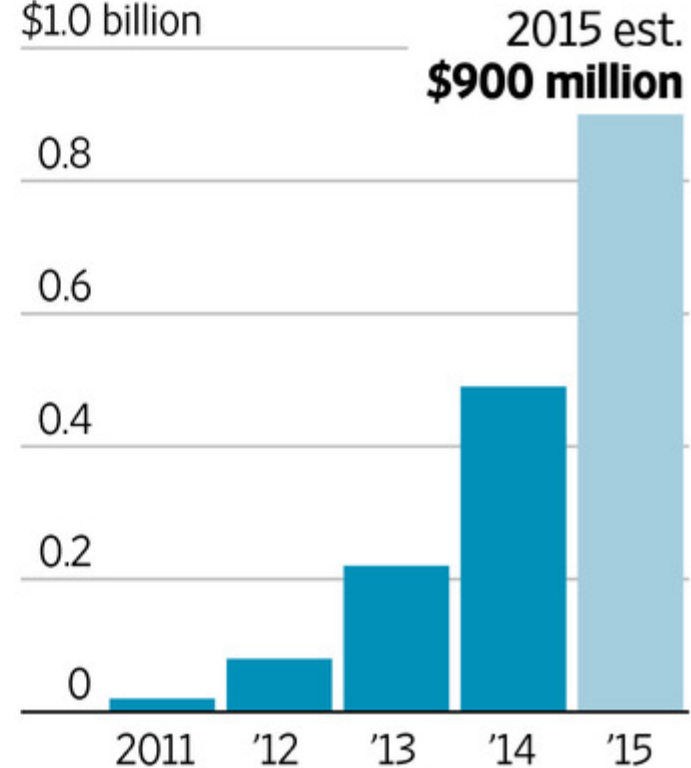
THE WALL STREET JOURNAL.

88 YEARS TO BUILD — 4 YEARS TO AMASS

697,000 ROOMS — 650,000 ROOMS

80 COUNTRIES — 192 COUNTRIES

Brian Chesky @bchesky

Marriott wants to add 30,000 rooms this year. We will add that in the next 2 weeks.

Reply ♺ Retweet ★ Favorite ••• More HootSuite

RETWEETS 286   FAVORITES 228

11:11 PM - 10 Jan 2014

http://blog.thinque.com.au/futurist-keynote-for-the-hospitality-industry-part-1/2
http://saragbrodersen.dk/how-the-leisure-industry-will-survive-sharing-economy/

"Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate. Something interesting is happening."

Tom Goodwin Senior VP of Strategy & Innovation Havas Media

https://www.pinterest.com/pin/123286108528135231/

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Firm	Year	Empl.	Mkt Cap	
BMW	1916	116,000	$53B	
Uber	2009	5,000	$60B	
Marriott	1927	200,000	$17B	
Airbnb	2008	3,000	$21B	
Walt Disney	1923	185,000	$165B	
Facebook	2004	12,691	$315B	
Kodak	1888	145,000	$30B	(heyday)
Instagram	2010	13	$1B	(acquisition)

created by Marshall van Alstyne

Platforms with Two-Sided Network Effects

One-Sided Network Effects

● The value from a product/service increases when more customers use the same product/service.

■ Example?
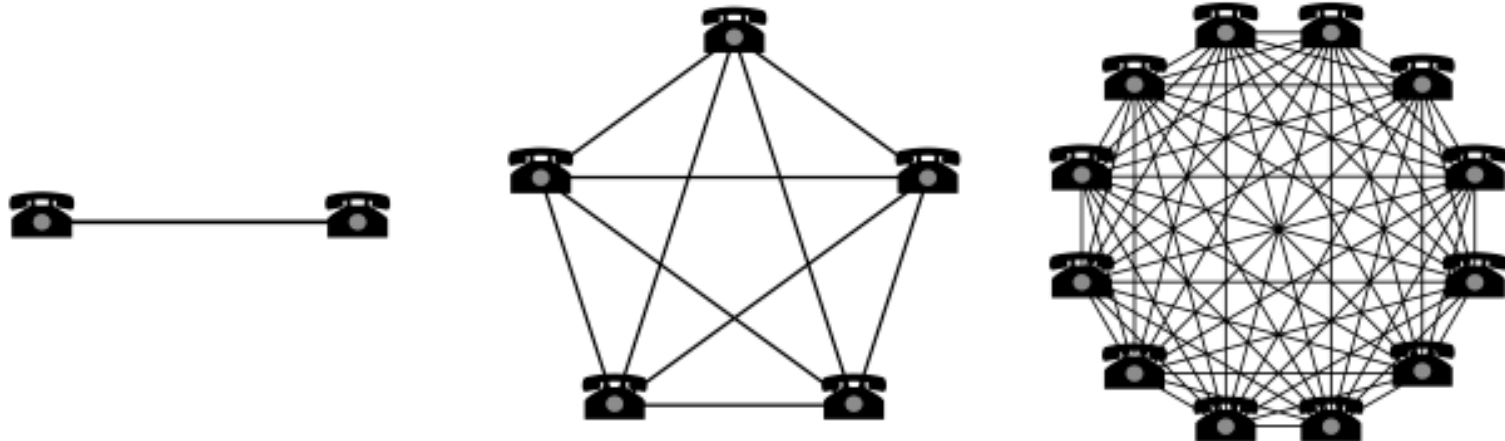
Two-Sided Network Effects

● The value from a product/service increases when there are more customers/suppliers in the other side.

- Airbnb is more valuable to guests when there are many rental properties listed.

- Airbnb is more valuable to hosts when there are many potential guests.
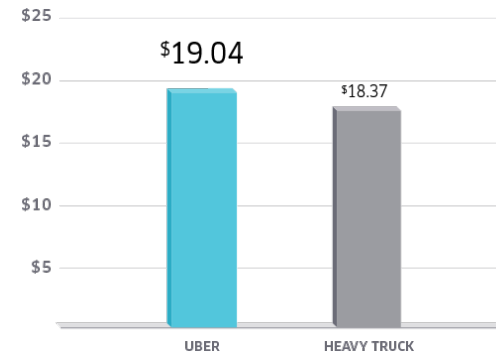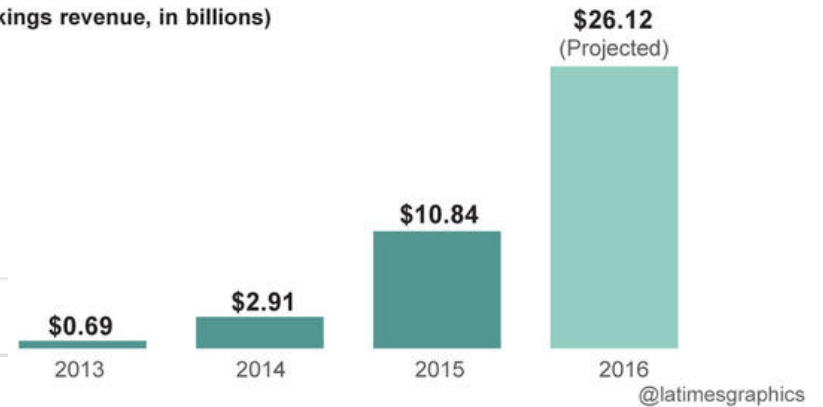
- Other examples?

Uber's Growth

Speedy growth

Uber's global bookings are projected to increase 141% from 2015 to 2016, according to documents obtained by Reuters.
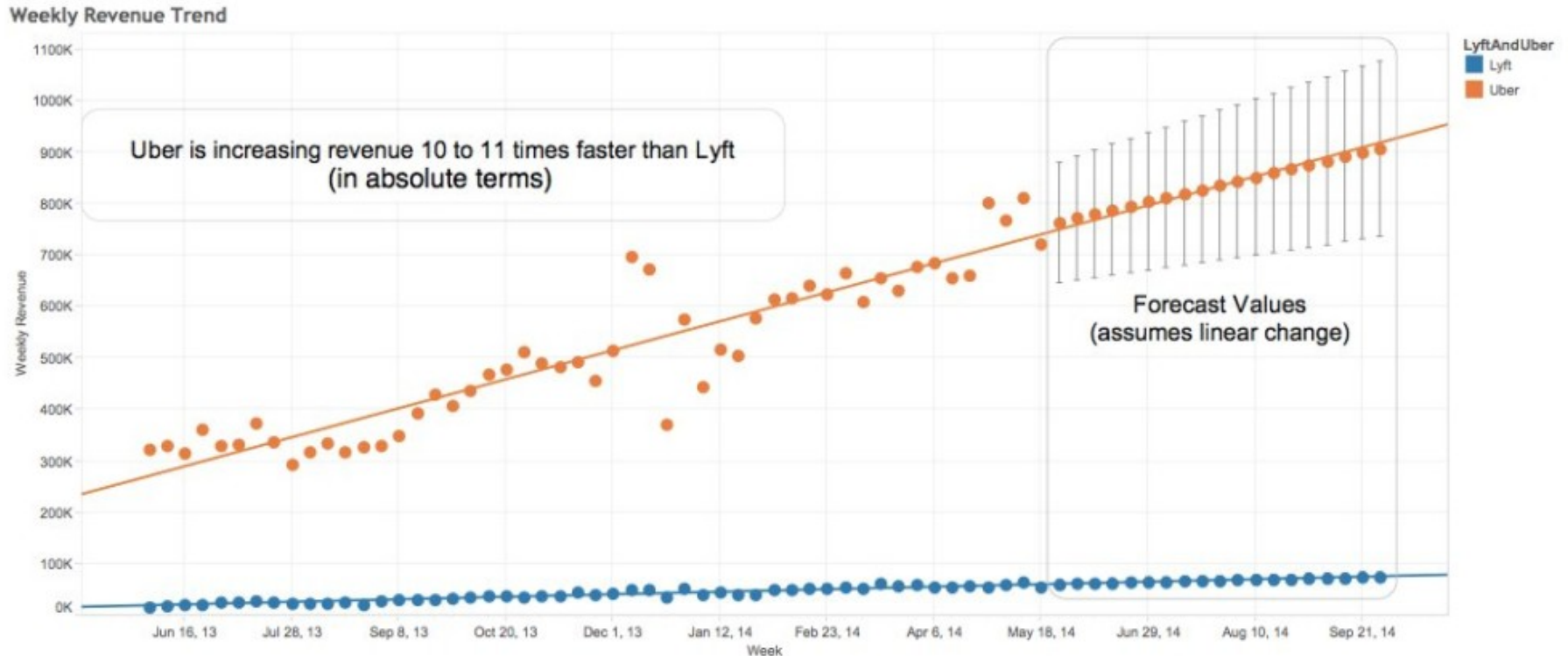
(Global bookings revenue, in billions)

@latimesgraphics

http://www.latimes.com/business/la-fi-0822-uber-revenue-20150822-story.html
https://newsroom.uber.com/truck-driver-jobs-vs-driving-with-uber/

Uber vs. Lyft Growth

Weekly Revenue Trend

Uber is increasing revenue 10 to 11 times faster than Lyft (in absolute terms)

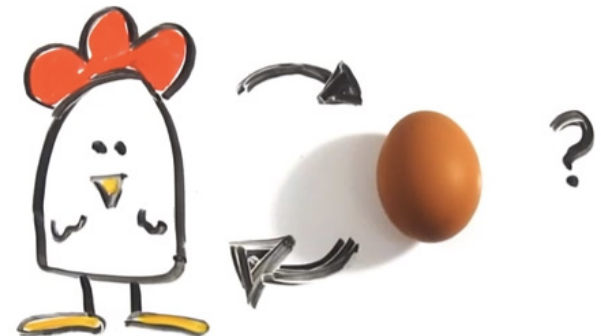Forecast Values (assumes linear change)

The plot of sum of Amount (actual & forecast) for trans_date Week. Color shows details about LyftAndUber. The data is filtered on trans_date, which ranges from 6/2/2013 to 5/30/2014. The view is filtered on LyftAndUber, which excludes LyftAndUber and NoFeesPaid.

http://www.businessofapps.com/uber-usage-statistics-and-revenue/

Growth of Two-Sided Platforms

● Two-sided network effects gives platform businesses (e.g. Airbnb, Uber, and eBay)

- an ability to scale up the size of operations very quickly

- without a need to own assets and spend a large amount of capital

● Due to network effects, it is increasingly difficult for a new entrant (e.g. Lyft) to catch up the incumbent (e.g. Uber) that has already built a large network of buyers and suppliers.

● Two-sided platforms are not new (e.g. credit cards, real estate agents), but technologies and the Internet allow them to interconnect a large number of suppliers and buyers together.

How to Create Network Effects?

● A chicken-and-egg problem

  ■ Without potential guests, hosts would not list their apartments at Airbnb.

  ■ Without apartments listed, guests would not try Airbnb.

● How would you solve this problem in your platform?

http://iterated-reality.com/2015/03/17/the-chicken-or-the-egg-causality-dilemma-solved-by-unity-consciousness/

Two-Sided Platform Game (1/2)

● Each group operates a platform (e.g. Airbnb) and competes with each other (e.g. Homeaway).

● Each group starts with 20 customers (guests) and 5 suppliers (hosts).

● In each round, you have to decide how much $ to charge customers and suppliers (between $0 and $20).

▪ The marginal costs for customers and suppliers - $0

▪ The number of new customers/suppliers depend on your prices.

● Your goal is to grow the number of customers and suppliers and to make most profits.

Two-Sided Platform Game (2/2)

   Price to Suppliers

$$q_s[t] = \left(\frac{1 + Q_c[t-1]}{1 + \overline{Q_c[t-1]}}\right)^2 * \max\left(1 - \frac{p_s - \overline{p_s}}{\overline{p_s}}, 0\right) * 10$$

Price to Customers

$$q_c[t] = \left(\frac{1 + Q_s[t-1]}{1 + \overline{Q_s[t-1]}}\right) * \max\left(1 - \frac{p_c - \overline{p_c}}{\overline{p_c}}, 0\right)^2 * 100$$

# of New Customers in t **# of Suppliers**

- You'll get more new customers q_c when
  - your customer price p_c is low compared to others ($\overline{p_c}$)
  - and you have more suppliers (Q_s).
- You'll get more new suppliers q_s when
  - your supplier price p_s is low compared to others ($\overline{p_s}$)
  - and you have more customers (Q_c).
- Your profit = $p_c \times Q_c + p_s \times Q_s$

Pricing Strategies to Build Network

● An introductory pricing - charging a low price to attract new customers and suppliers

● Once the platform is built, it can raise the prices to recoup the initial investments.

- If the network is large enough, customers/suppliers are willing to stay even with high prices.

● The platform can choose to subsidize either suppliers or customers and to make up from the other side.

- Which side to subsidize depends on their willingness to pay, price elasticity, and need for the other side

How Pays Nothing to the Platforms?

Men	**Night Club**	Women
Customers	**Credit Card**	Merchants
Home Buyers	**Real Estate**	Home Sellers
Customers	**OpenTable**	Restaurants
Buyers	**eBay**	Sellers
iPhone Users	**iTunes**	App Developers
Employers	**LinkedIn**	Employees

● In a two-sided platform, who is subsided?

● Depends on what?

"EJ" Incidents in Airbnb (A)

- What happened?

- How serious is this incident to Airbnb?

  - What would happen to Airbnb platform if it does nothing?

- What should Airbnb do?
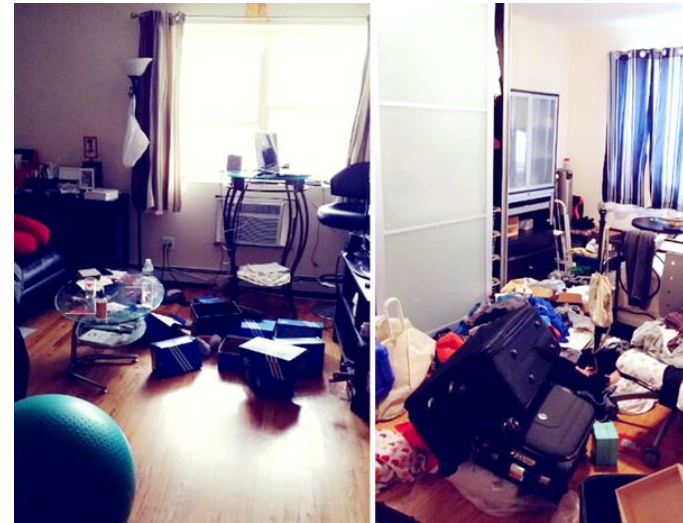
http://www.timesledger.com/stories/2014/3/burglary_tl_2014_01_17_q.html

Two-Sided Network Effects turn VICIOUS!

● The value from a product/service increases when there are more customers/suppliers in the other side.

- Once hosts like EJ leave the platform, fewer guests will remain,

- which lead to fewer hosts, which lead to fewer guests, and so on.

Online Reputation System (1/2)

● What are the examples of online reputation systems in other platforms?

- How about at eBay?

- How about at Uber?

● Why is a reputation system important?
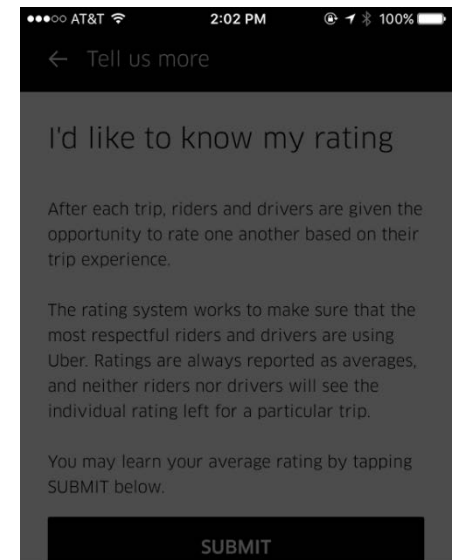
In Uber

● What are the policies in Uber to manage the pool of drivers?

● Why are they necessary?

● Uber drivers are expelled if their ratings go below 4.2 out of 5 or if they get two traffic tickets.

- Is it too harsh?

Airbnb (B)

In an August 1, 2011, blog post, Airbnb CEO Brian Chesky apologized for the EJ incident and acknowledged the seriousness of the problem. "We should have responded faster, communicated more sensitively, and taken more decisive action to make sure she felt safe and secure. But we weren't prepared for the crisis and we dropped the ball. Now we're dealing with the consequences." The blog post then announced a series of new policies to address safety concerns surrounding the use of Airbnb.

Chesky's posting continued by announcing a series of improvements:

- A $50,000 guarantee to protect hosts from damage to their personal property by an Airbnb guest.
- A 24-hour customer hotline to provide telephone and e-mail support.
- A doubling of the size of Airbnb's customer support team.

● What do these measures aim to achieve? Why are these necessary?

As of September 2011, Airbnb's "Safety" page listed the following additional protections, all added since August 1, 2011:

- Verifying the addresses of all hosts by requiring each host to enter a code written on a mailing sent to the host's registered address.
- Including a guest's name in the reservation request sent to hosts.
- Allowing hosts to require guests to specify the purpose of their trip.
- Allowing hosts to require guests to complete their profile (including all fields) to submit a request.
- Video profiles to let hosts introduce themselves to potential guests.
- "Voice connect" to let a prospective host and guest speak by phone without learning each others' phone numbers.
- Letting hosts decline reservations without hurting their placement in search results.
- Allowing hosts and guests to link their Airbnb accounts to their Facebook, LinkedIn, and Twitter profiles.

● Which measure is for hosts?

● Which measure is for guests?

● Why are these measures necessary?

One Consequence of This Policy

Study Finds Racial Discrimination by Airbnb Hosts

Renters with names that seemed African American had a harder time booking reservations on Airbnb than those who had white-sounding names.

Researchers set up 6,400 fake profiles of Airbnb guests and assigned them stereotypically white or black names, based on Massachusetts birth certificate data from the 1970s. None of the guest profiles had identifying pictures. They used the accounts to request bookings with hosts in five cities: Baltimore, Dallas, Los Angeles, St. Louis, and Washington, D.C. Airbnb hosts decide whom they want to rent to; requests from white guests got "yes" responses 50 percent of the time, vs. 42 percent for black applicants. The researchers controlled for a variety of factors, such as the host's gender and ratings, and the "race effect," as the paper described it, persisted.

http://www.bloomberg.com/news/articles/2015-12-10/study-finds-racial-discrimination-by-airbnb-hosts

Study Finds Racial Discrimination by Uber and Lyft Drivers

Researchers suggest anonymity for passengers hailing a ride as a possible solution.

by **Eric Newcomer**

October 31, 2016 — 6:00 AM EDT *Updated on* October 31, 2016 — 1:51 PM EDT

Drivers for Uber Technologies Inc. in Boston canceled rides for men with black-sounding names more than twice as often as for other men. Black people in Seattle using Uber and Lyft Inc. faced notably longer wait times to get paired with drivers than white customers. The findings come from a study published on Monday by researchers at the Massachusetts Institute of Technology, Stanford University and the University of Washington.

https://www.bloomberg.com/news/articles/2016-10-31/study-finds-racial-discrimination-by-uber-and-lyft-drivers

Let's Debate!

● Now what should Airbnb or Uber do?

● Should Airbnb actually find out hosts who racially discriminate and ban them from participating the platform?

  ▪ If yes, how can it define a racial discrimination?

Online Reputation System (2/2)

● Two-sided network effects depend not only on the size of the network but also on its *quality*.

- A few bad apples in either side can lead to "negative" network effects.

● In order to build a *sustainable* two-sided platform, there should be a mechanism that ensures *trust and safe interactions* between the two sides.

- Uber passengers should be able to trust drivers for safe rides, and vice versa.

- Airbnb hosts should be able to trust guests for safe stay, and vice versa.

IT is a catalyst to new competitive strategies.

- IT is an enabler, a facilitator, and a catalyst in developing new competitive strategies.

- Smart use of technologies (not necessarily state-of-the-art ones) can produce a competitive strategy that shakes up the existing industries.

- That's why CIO can stand for a chief *innovation* officer.