

MIS 5402 Spring 2017 – Managing Technology & Systems

Session 2-2 – IT-Driven Competitive Strategies

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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 1-2?

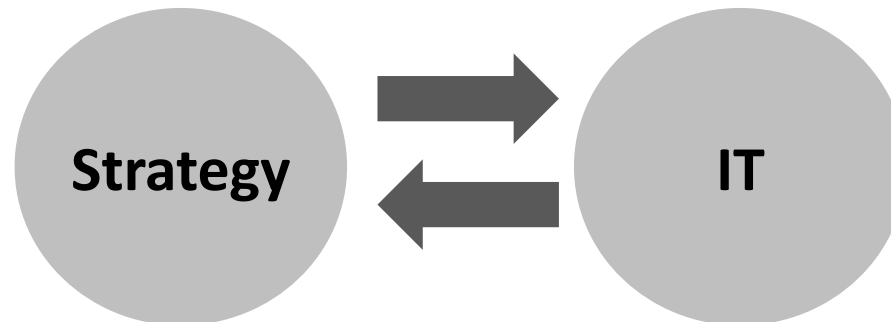
**Otis**

A United Technologies Company

<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.



IT-Driven Competitive Strategies (2/2)

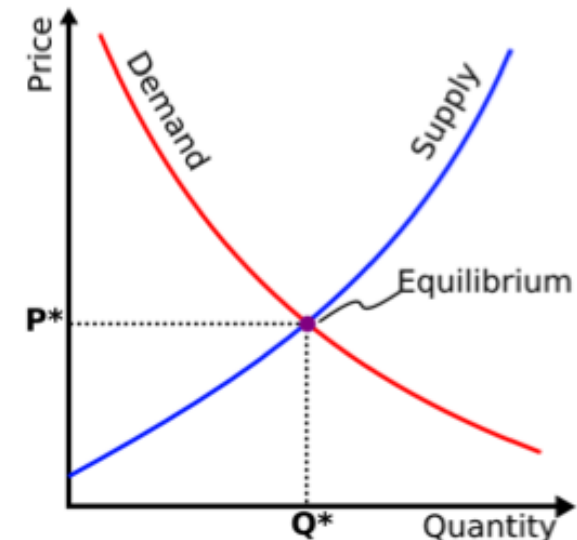
- Two ways for disruptive competitive strategies enabled by IT
 - by eliminating industry bottlenecks or choke points that limit supplies or demands
 - by building a two-sided platform that interconnects customers and suppliers



<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>

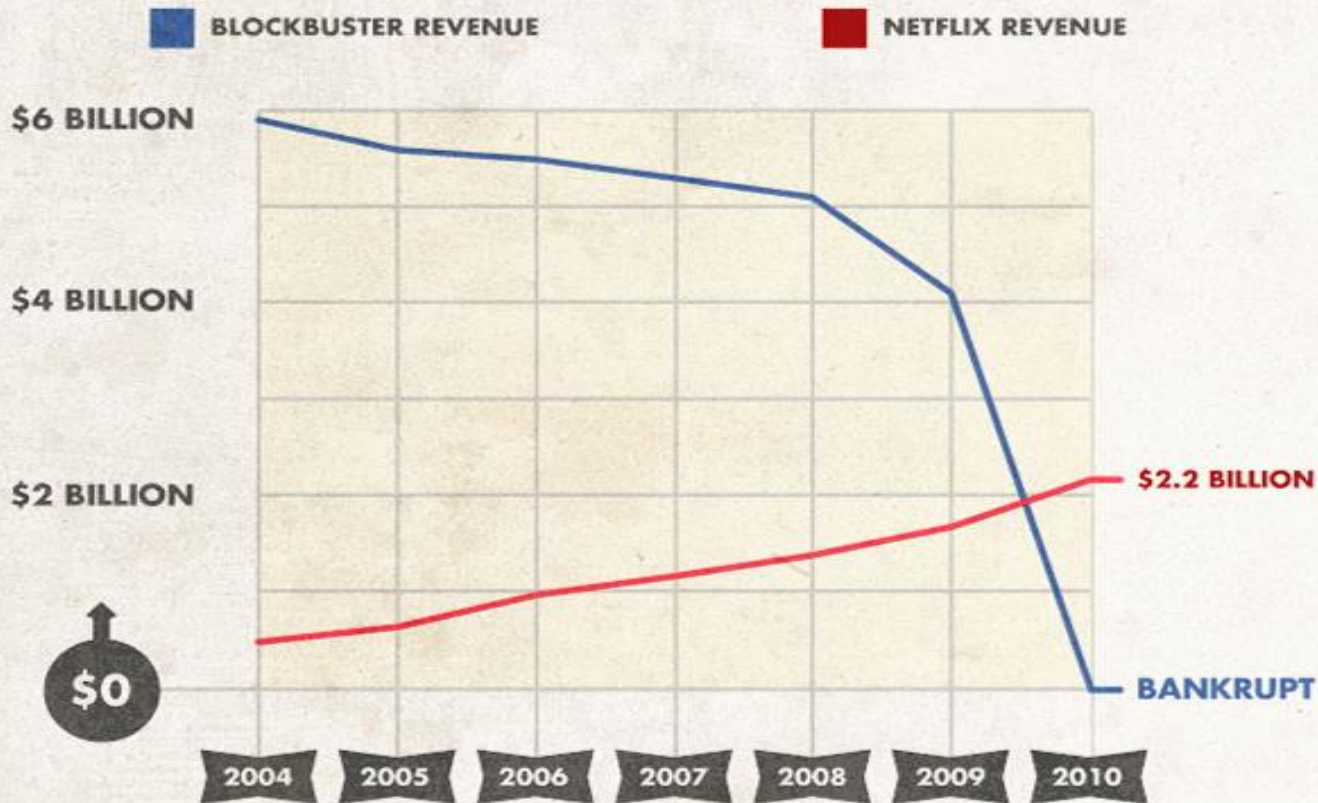
BestBuy, a.k.a Amazon Showroom



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

BACK IN 2000, **BLOCKBUSTER** DECLINED SEVERAL OFFERS TO PURCHASE **NETFLIX** FOR A MERE **\$50 MILLION**.
IN 2010, BLOCKBUSTER DECLARED BANKRUPTCY.

NETFLIX VS. BLOCKBUSTER (2004-2010)



<http://www.businessinsider.com/how-netflix-bankrupted-and-destroyed-blockbuster-infographic-2011-3>

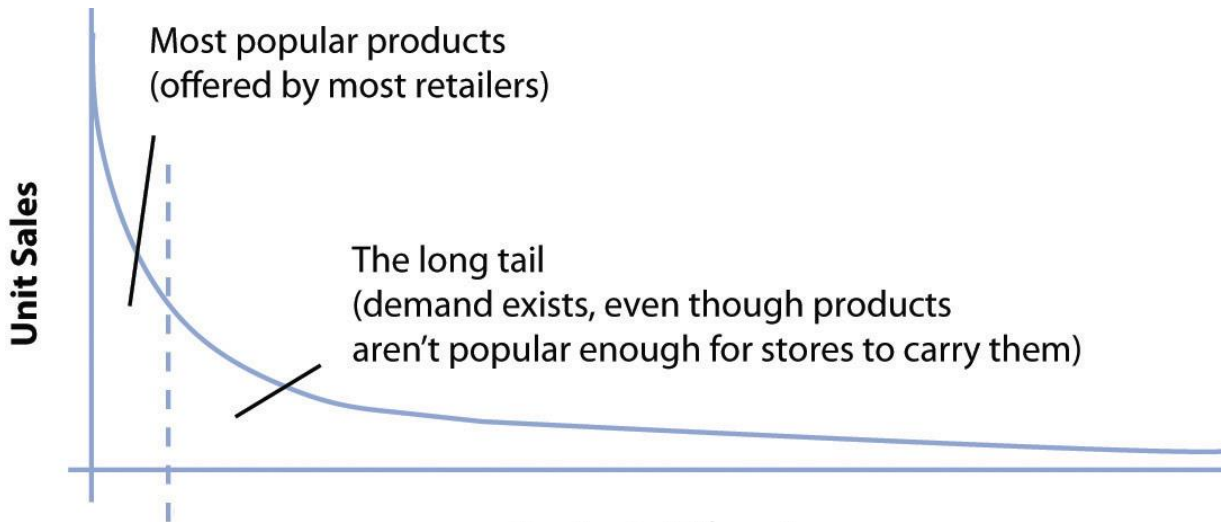
Amazon.com and Netflix (1/2)

- What bottleneck do Amazon.com and Netflix eliminate?
- How do they use IT to do so?

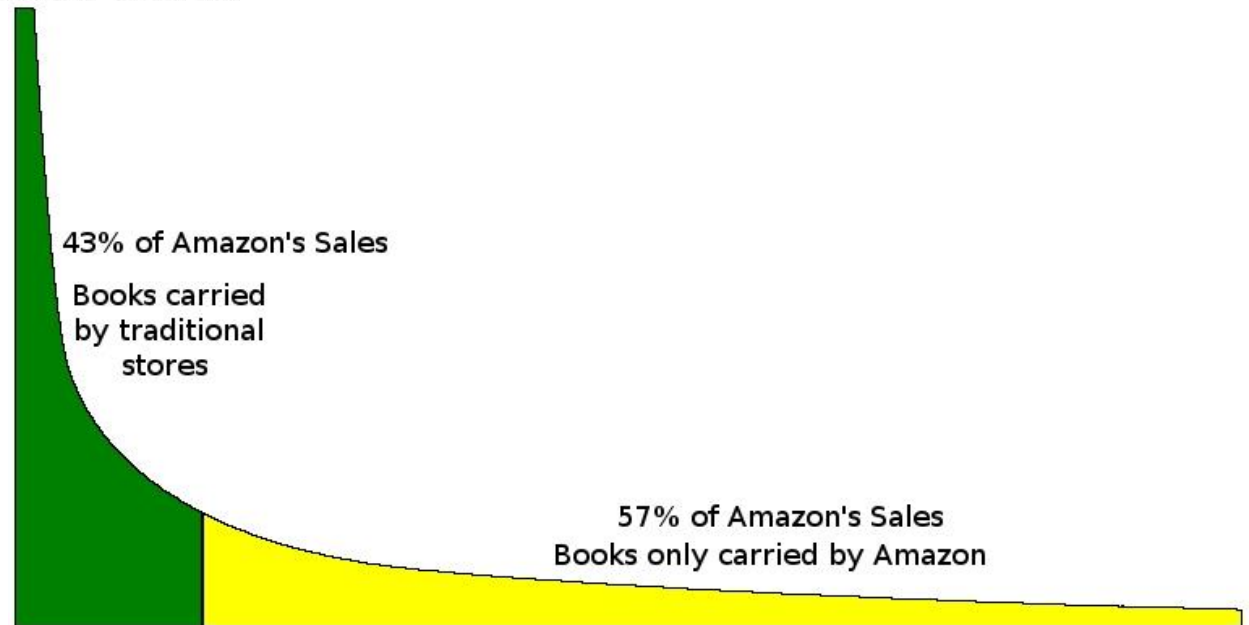
The Amazon logo, featuring the word "amazon" in a bold, black, lowercase sans-serif font. Below the text is a yellow curved arrow that starts under the letter 'a' and points to the right, ending under the letter 'n'.

<http://phx.corporate-ir.net/phoenix.zhtml?c=97664&p=irol-irhome>
<http://mashable.com/2014/07/14/netflix-verizon-still-slow/>

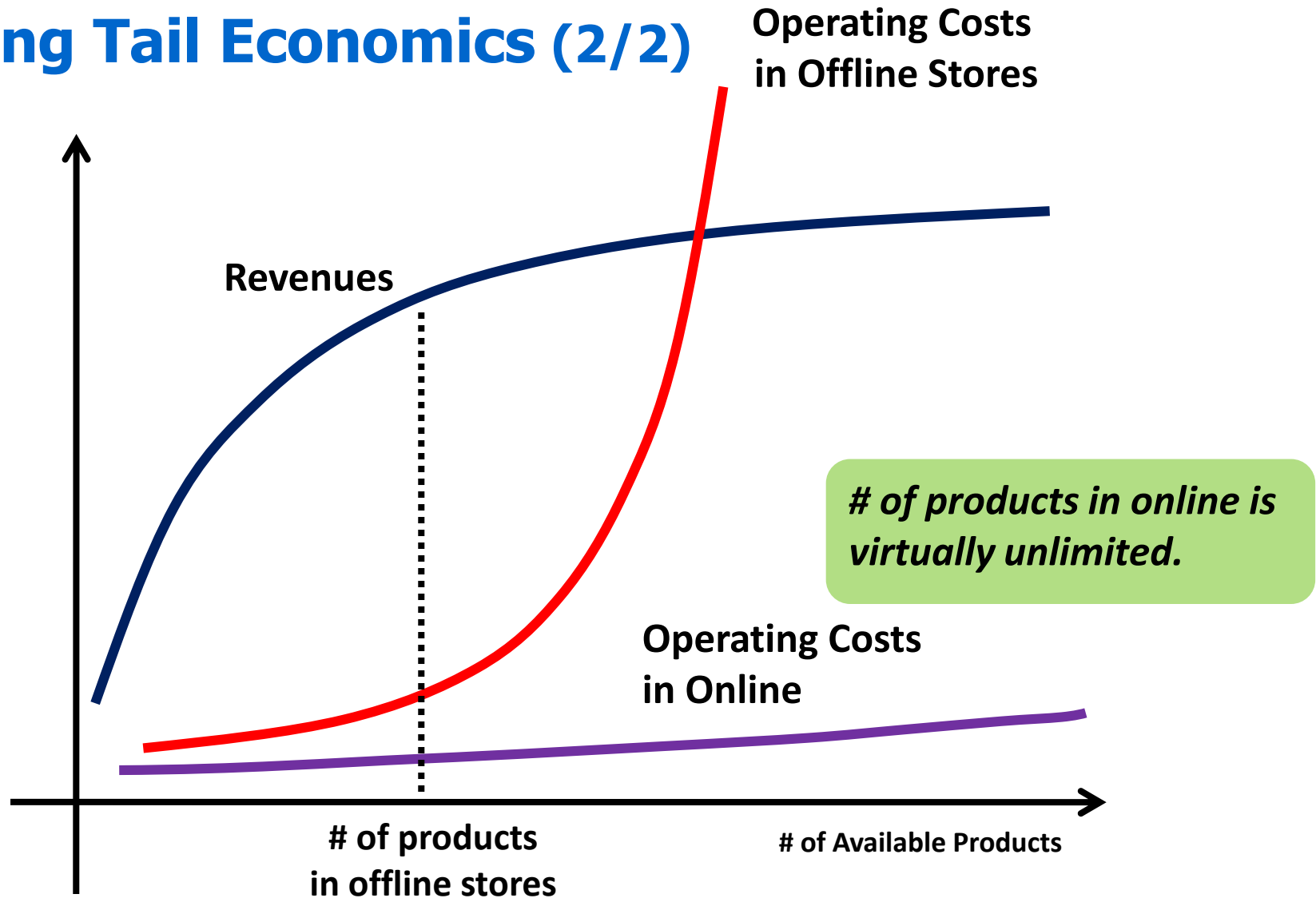
Long Tail Economics (1/2)



Products Offered



Long Tail Economics (2/2)





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*



Article [Talk](#) [Read](#) [View source](#)

Fifty Shades of Grey

From Wikipedia, the free encyclopedia

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* BOOK ECONOMICS

Traditional publishers' pitch: As guardians of the culture, our editors will tease beauty out of the most troubled manuscripts and build vast audiences.

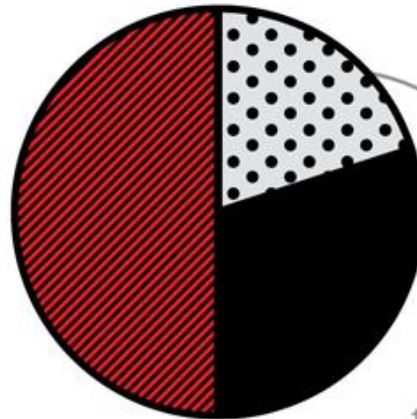
Amazon Publishing's pitch: That, plus way more money. —*Danielle Kucera*

Usual Way

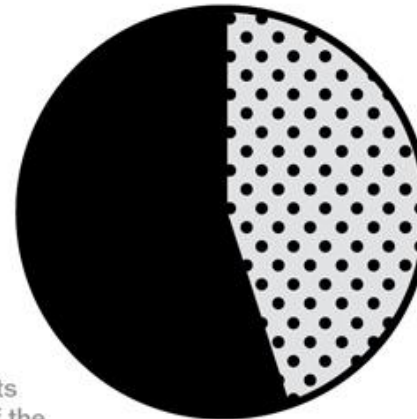
Amazon Way

**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, 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/>

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

Any Other Example? (1/2)

- How do FreshDirect, Uber, Airbnb, and Khan Academy try to disrupt the existing industries by address which *bottlenecks*?

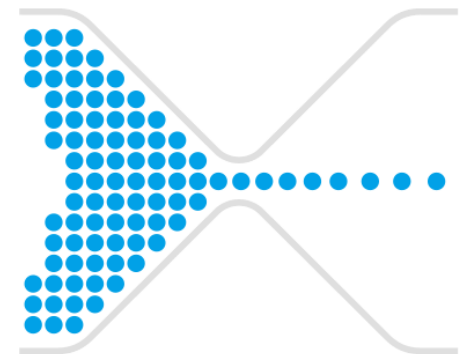


Any Other Example? (2/2)

- 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

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 unserved demands or
 - to unleash untapped supplies in your industry?



Anyone has ever used Airbnb?

- Anyone who has found an apartment to stay at Airbnb?
- Anyone who has rented your apartment to a guest at Airbnb?
- Why is Airbnb so popular?



<http://www.asacredjourney.net/2015/07/seattle-airbnb-apartment/>



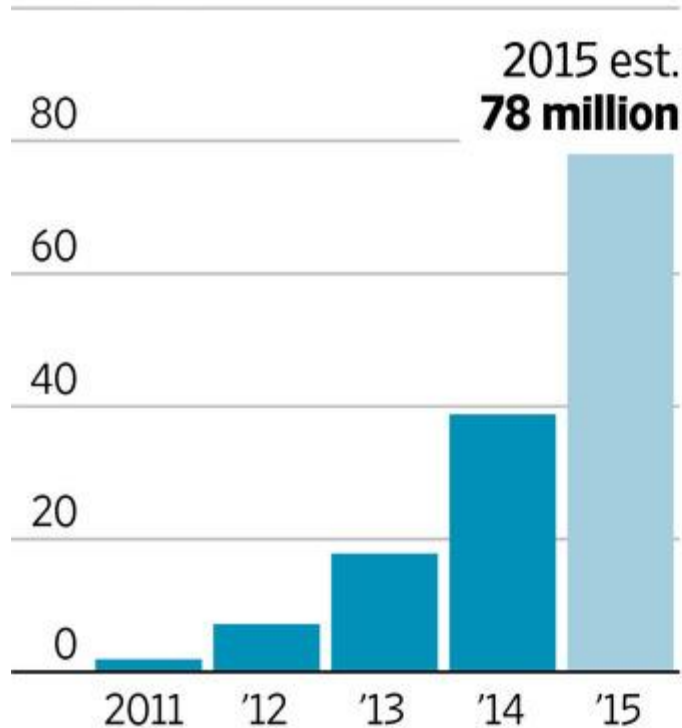
<http://rentingyourplace.com/airbnb-101/>

Room to Grow

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

Nights Booked

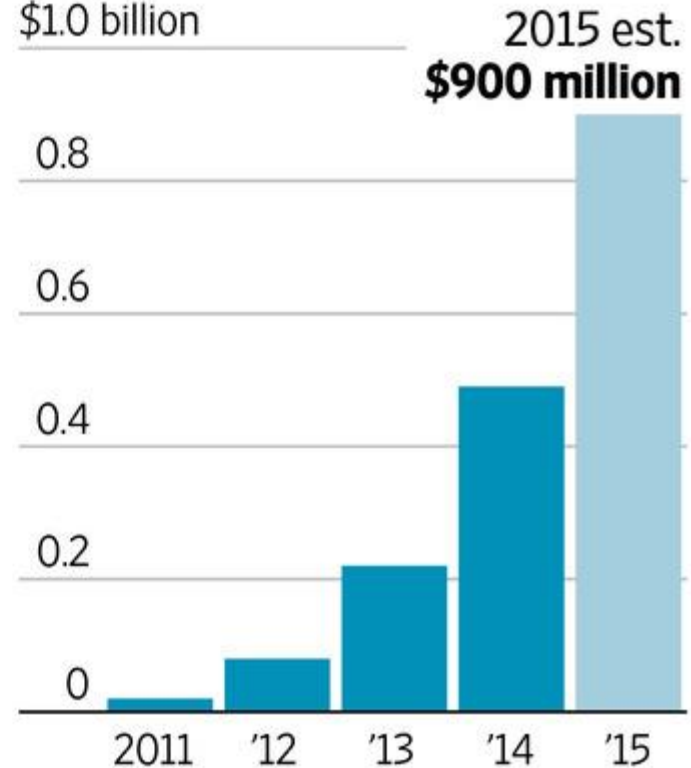
100 million



Source: the company

Revenue

\$1.0 billion



THE WALL STREET JOURNAL.



88 YEARS TO BUILD



4 YEARS TO AMASS

697,000 ROOMS



650,000 ROOM

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/>

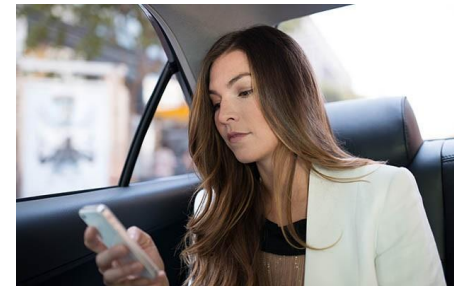
“**Uber**, the world’s largest taxi company, owns no vehicles. **Facebook**, the world’s most popular media owner, creates no content. **Alibaba**, the most valuable retailer, has no inventory. And **Airbnb**, the world’s largest accommodation provider, owns no real estate. Something interesting is happening.”

Tom Goodwin, Senior VP of Strategy & Innovation, Hewes Media

@InfoEcon

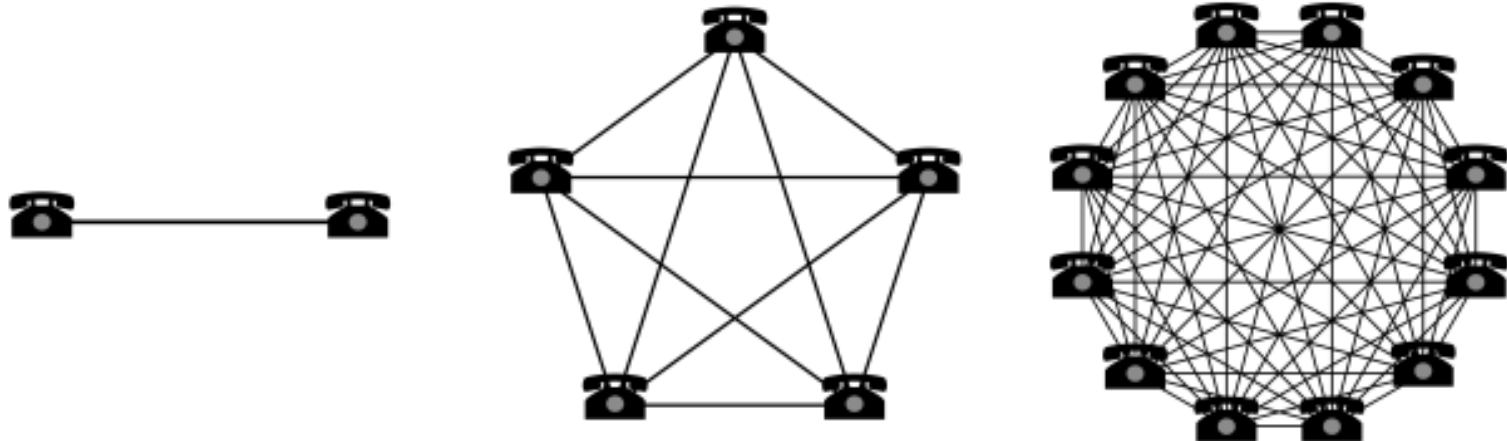
<u>Firm</u>	<u>Year</u>	<u>Empl.</u>	<u>Mkt Cap</u>	
BMW	1916	116,000	\$53B	
Uber	2009	5,000	\$60B	
Marriott	1927	200,000	\$17B	
Airbnb	2008	3,000	\$21B	
Walt Disney	1923	185,000	\$165B	
Facebook	2004	12,691	\$315B	
Kodak	1888	145,000	\$30B	(heyday)
Instagram	2010	13	\$1B	(acquisition)

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?

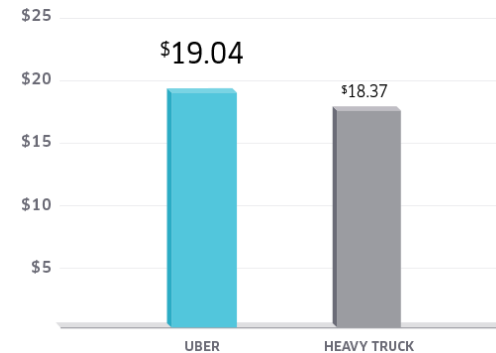
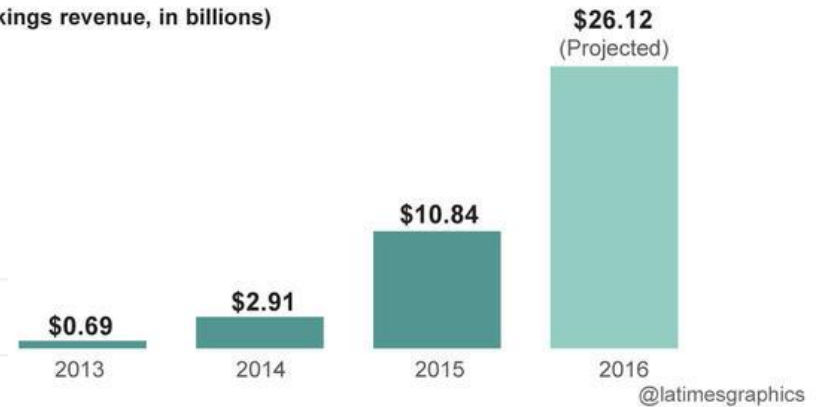


Uber's Growth

Speedy growth

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

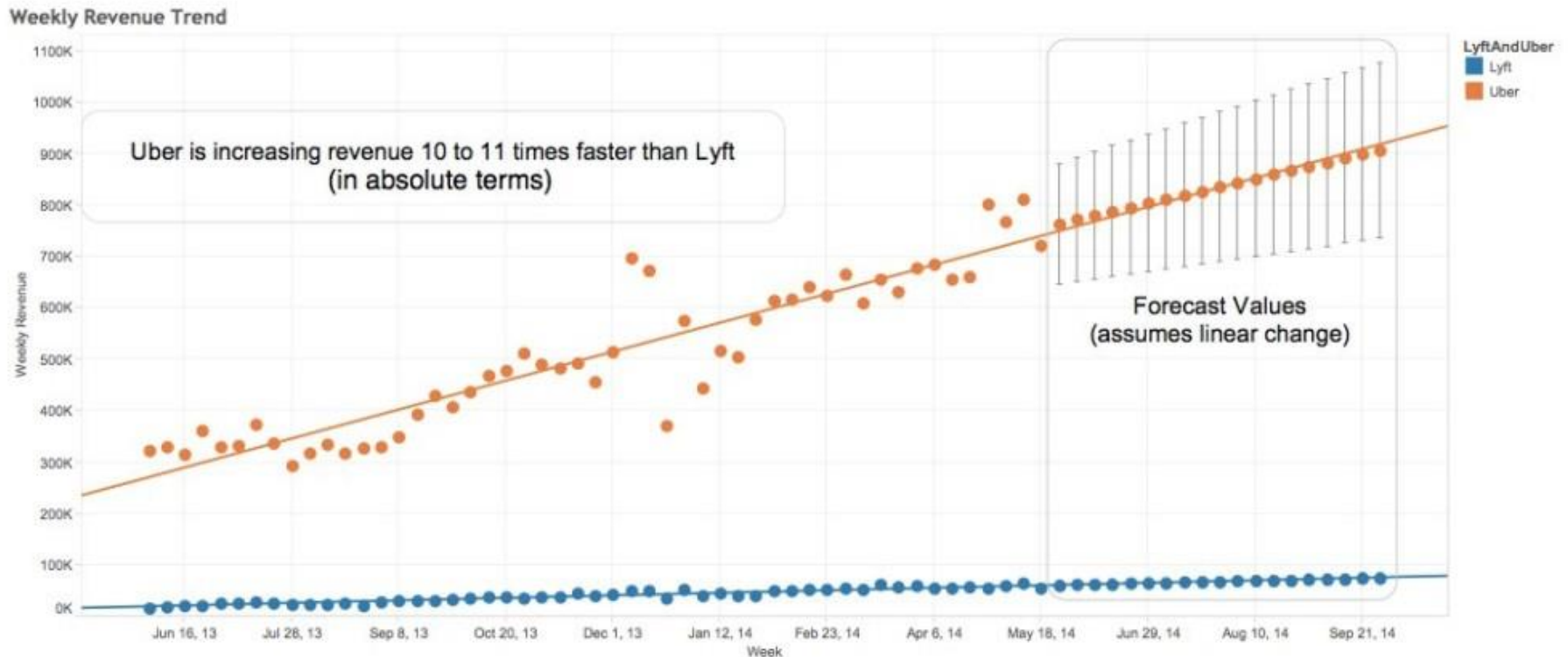
(Global bookings revenue, in billions)



<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



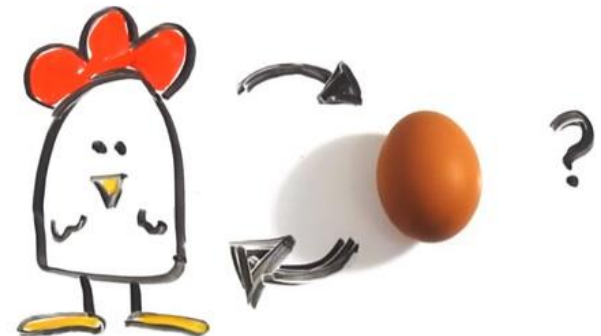
The plot of sum of Amount (actual & forecast) for trans_date Week. Color shows details about LyftAndUber. The data is filtered on trans_date, which ranges from 6/2/2013 to 5/30/2014. The view is filtered on LyftAndUber, which excludes LyftAndUber and NoFeesPaid.

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?



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 - \$3
 - 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 revenues.



Two-Sided Platform Game (2/2)

of New Suppliers in Round t

of Customers

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 revenue = $(p_c - 3) \times Q_c + (p_s - 3) \times Q_s$

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 subsidized?
- 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

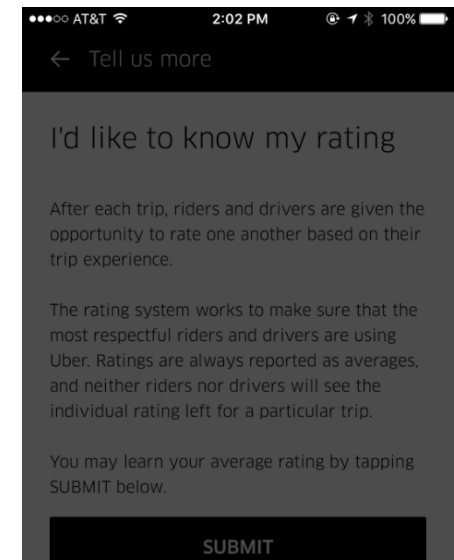
Two-Sided Network Effects turn VICIOUS!

- 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?



Thank you

Your average trip rating is 4.71 stars

OK

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?

BANNED

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.

