

- Technology and business change, disruption
- “Amazon didn’t create a new business model”

└ Outline

- I'm CS
- Technology and business (not models)
- History for context

└ Light



- Lamp lighters out of work
- Different install/repair skills
- Fewer bulb changers



└ Transport

- cars, buses, cities, infrastructure (cleaning)

end: street cleaner

Looks hot out, cold drink? Plan in advance...

└ Refrigeration



- Cut and store; scale up; luxury
- Indian - built 1842 - business collapsed in 1880 from steam process
- Frederick Tudor, Ice King of the World; American, established the ice trade; shipped ice to Caribbean, Europe, India from Boston (100 days); first ship went to Martinique
- Legal squabbles - ownership of ice sources
- Plant ice; steam process; refrigeration systems

end: NE ice trade

└ Music



- LP's -> CD's -> iTunes (electronic purchase) -> discovery services
- Similar for video: VHS -> DVD -> rental -> Netflix DVD -> Netflix streaming and discovery (e.g., youtube)

end:

└ Photography



- Ernest Shackleton's ship, the Endurance. Slowly crushed. Photographer Frank Hurley dove for plates.
- Edwin Land, 1947 camera. First instant camera. Niche market compared to roll film.
- MIT story, Columbia lab, 9th floor (U.S.) window, first inexpensive polarizing film, led to founding Polaroid Corporation.
- Evolution of technology (quicktake only Si Valley, really)
- Now two main markets left, and photographers get paid less, due also to internet stock photography

end:



└ Cleaning

- Cleaning takes time
- Or hire someone
- Or a machine does it
- Maybe a bit left to do by hand

end: guy with bucket

└ Real Estate

Real Estate



The screenshot shows the Redfin website homepage. At the top, there's a search bar with placeholder text "Find a Home" and "City, Zip, Address, School". Below the search bar are filters for "1 Bed" and "2 Miles". To the right of the search bar is a large image of a smiling woman, identified as Katie Roseman, with the text "Redfin Is Real Estate Redefined". Below this, there's a sub-headline "We're full-service, local agents who get to know you over coffee and on home tours, and we use online tools to make you smile for and fast. More than 50,000 customers buy or sell a home with us each year.".

- Anglosaxon world: agents
- France: p2p
- Increasingly: internet
- Redfin: hybrid

end: redfin

└ Personal Transport



- UK, US
- Cities now
- London response (adopt new business techniques). French response (old business techniques).
- One rebranding effort
- Outside cities, ride sharing (more efficient than decades past)
- Self-driving cars (taxis, car dealers (ownership), data, urban infrastructure (parking, safety margins); public health; Cars-as-a-Service)

end: Google car

transition: want to make a phone call, 30 years ago became possible

└ Mobile communication



- Initially, filling non-existent need
- Disruption 1 (and running out of phone numbers)
- Disruption 2 (iPhone 29 Jun 2007)
- iphone (30-50m sold per quarter); android (50-90m sold per quarter)
- Instagram (10/2010 release; 4/2012 1e8 active users and fb purchase at \$1e9)
- Phone now tcp/ip device
- Democratization, ubiquitous networks; non-wiring the third world

end: fb drone

transition: what pays for this?

└ Advertising



- Newspapers sell copies, but mostly sell advertising. News is the waste product.
- Hearst Castle, San Simeon; William Randolph Hearst
- Now waste product is search, maps, news, social, email
- Meanwhile, newspapers ripe for disruption; 24 Jan 1986 typesetters strike; Musée de l'Imprimerie

end:

└ Translation

Translation



- Most translation is now machine
- Humans internet delivery (non-local clients), TZ shift, lower wages
- Democratization: individuals, web browsers, translate.google.com
- Mechanical Turk (\$1/hr), captchas
- (The Turk, 1770 ff, Wolfgang von Kempelen)

end: The Turk

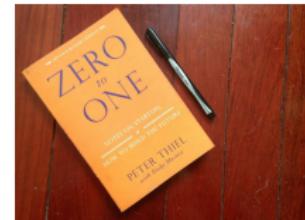
└ Books



- Self-publishing used to be unrespectable, now majority
- Long tail effect (below cost of advance, publisher's efforts)
- Niche audiences possible
- Blogs, wikipedia (encyclopedias killed by PC's)
- At high end, more profit (e.g., J. K. Rowlings ebook versions)
- Kindle Scout = crowd sourced
- Not clear yet how this will affect book publishing and book-related businesses

end:

└ Tech Startups



- AWS, Google etc. means low startup costs
- Most services available free or for rent (cheap)
- Example: Whatsapp, 600m users, 50 people, \$19b
- Peter Thiel (Paypal, Palantir) - good ideas should seem like bad ideas to most people

end: Zero to One

- └ Risk



- Risk is derivative of something (often price) with respect to something (high dimensional manifold (hopefully))
- 1e6 computer hours per day [press]
- Pricing accuracy determines profit expectations
- Story about interactive counterparty risk (start with RT and ON risk)

end:

└ Education,



Problems:

- Free (for now)
- Identifying people
- Preventing cheats
- Recognition of diplomas

Maybe one or two universities per major language.

end: ring