



# Undertaking research on digitization

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# Why have an “online marketing” session?



- ▶ The internet is an important (fairly) new marketing technology
- ▶ There is a lot of hyperbole around internet marketing:
  - “The communications revolution is changing our lives” — *Death of Distance*
  - “The age of transparency will revolutionize business” — *The Naked Corporation*
  - “The new economics of culture and commerce” — *The Long Tail*
  - “Mass collaboration changes everything” — *Wikinomics*
  - “Big data is the next frontier for innovation, competition, and productivity” — *McKinsey Global Institute*
  - “The internet...is a source of tremendous good and potentially dreadful evil” — *The New Digital Age*
- ▶ But is internet marketing really different?
  - Sometimes yes, sometimes no...



# The first thing to ask...What's different?

- ▶ In my research, I try to think through what the new technology enables.
- ▶ Often this can be seen as a reduction in some kind of economic friction, or, in other words, a reduction in some kind of cost.
- ▶ Implicitly or explicitly, much of the literature on digital marketing technologies explores the consequences of such costs:
  - Search costs
  - Distribution costs
  - Communication costs
  - Targeting costs
  - Measurement costs
  - Menu costs
  - Switching costs
  - Etc.!

# The second thing to ask...



- ▶ “What’s not different?”
  - If you only focus on what’s different, you won’t be able to identify the things that won’t change. Utopia isn’t as good as it seems.
    1. Attention is limited.
    2. Memories are limited.
    3. Social networks are local.
    4. Tastes are spatially correlated.
    5. Offline options vary.
    6. People care about how they are perceived.
    7. Etc.



# Search Costs

- ▶ The first wave of internet literature emphasized that internet technology reduces search costs and facilitates price comparisons:
  - Bakos (1997)
  - Lynch and Ariely (2000)
  - Brynjolfsson and Smith (2000)
  - Baye, Morgan, and Scholten (2004)
  - Brown and Goolsbee (2002)
  - Ellison and Ellison (2009)
  - Brynjolfsson, Hu, and Simester (2011)
  - De los Santos, Hortacsu, and Wildenbeest (2012)
- ▶ The simple observation that search costs were lower enabled researchers to leverage the rich literature on search costs to gain key insights
- ▶ What will happen to prices? What will happen to product features? Promotional strategies? Etc.



# Distribution costs (1)

- ▶ Distribution costs fall online, particularly over long distances. It is now much easier for a retailer to reach geographically isolated consumers
  - Cairncross (1997)
  - Balasubramian (1998)
- ▶ But thinking through the model yields some surprising results: that the benefit of online shopping depends crucially on offline options, the spatial distribution of tastes, and the ability to overcome information asymmetry:
  - Goolsbee (2000)
  - Sinai and Waldfogel (2004)
  - Blum and Goldfarb (2006)
  - Jin and Kato (2007)
  - Douglas, Hortacsu, and Asis Martinez-Jerez (2009)
  - Forman, Ghose, and Goldfarb (2009)
  - Choi and Bell (2011)



## Distribution costs (2)

- ▶ Distribution costs fall online, particularly with respect to inventory. It is now much easier for a retailer to stock and distribute a wide range of products yielding a “long tail”
  - Anderson (2006)
- ▶ But again thinking through the model yields some surprising results: Combined with search cost changes, it can lead to a long tail but also a “fat head”
  - Fleder and Hosanagar (2009)
  - Elberse and Oberholzer Gee (2009)
  - Brynjolfsson, Hu, and Simester (2011)
  - Bar Isaac, Caruana, and Cunat (2012)



# Communication costs

- ▶ The cost of communicating over long distances has fallen dramatically.
- ▶ The cost of communicating over short distances has also fallen.
- ▶ For digital communication, short and long distance communication are equally costly, yielding a flat world (Friedman 2005)
  
- ▶ While this is likely to increase distant communication, it depends on the distribution of social ties.
  - Gaspar and Glaeser (1998)
  - Hampton and Wellman (2002)
  - Agrawal and Goldfarb (2008)





# Targeting Costs

- ▶ For advertisers, digitization makes targeting much easier. This presents opportunities and challenges.
  - Iyer, Soberman, and Villas-Boas (2005)
  - Ghose and Yang (2009)
  - Athey and Gans (2010)
  - Katona and Sarvary (2010)
  - Yao and Mela (2011)
  - Bergemann and Bonatti (2011)
  - Zhang and Katona (2012)
  
- Acquisti and Varian (2005)
- Fudenberg and Villas Boas (2006)
- Goldfarb and Tucker (2011a,b,c)
- Lewis and Rao (2012)



# Measurement Costs

- ▶ Measuring customer behavior is easier with “big data” and the digital trail
  - Ansari and Mela (2003)
    - The internet facilitates customization because rich data enable targeting at the individual level
  - Murthi and Sarkar (2003)
    - The internet enables personalized interactions
  - Lewis, Rao, and Reiley (2012)
    - An example of how this works



# Other frictions

- ▶ Menu costs: Easy price changes and easy bundling (and unbundling) can affect how products are sold.
  - Bakos and Brynjolfsson (2000)
  
- ▶ Switching costs: “the competition is just a click away” (Shapiro and Varian 1998)
  - On balance, the evidence suggests that switching costs are significant online, but not as high as offline
    - Chen and Hitt (2002)
    - Danaher, Wilson, and Davis (2003)
    - Goldfarb (2006a,b)
  
- ▶ Etc. This is not a complete list!



# Some general points





# What about mobile?

- ▶ In Ghose, Goldfarb, and Han (2013), we argue that mobile has higher search costs and higher benefits to geographically proximate content.
- ▶ How does that change things? How should we expect markets to evolve? What else changes on mobile?



# Empirical issues

- ▶ My research is predominantly empirical, yet I've spent all this time talking about theory. Why?
  1. Data are abundant
    - Theory gives you guidance on what to look for. What data should you seek out? What questions should you ask?
      - Susan Athey says "The need for theory is in some ways magnified by having large amounts of data"
  2. Editors and reviewers (and readers!) care about mechanisms
    - It is rarely enough to identify a phenomenon. Readers want to know why.
  3. Identification
    - Theory helps researchers recognize challenges to identification. Multiple models can explain the same data.
    - With an abundance of data, it is too easy to assert causal relationships where none exist
      - Look for experiments or quasi-experiments. Consider merging multiple data sets to generate plausibly exogenous variation. It is rare that a data set from one company will provide such variation without additional information.



# Summary





# Summary

- ▶ In my research, I try to think through what the new technology enables.
- ▶ This involves thinking through “what’s different?” and “what’s not different?”
- ▶ Often this can be seen as a reduction in some kind of economic friction, or, in other words, a reduction in some kind of cost.
- ▶ You are in a nice position: Technology is changing rapidly and the literature has not caught up.
- ▶ There are still plenty of opportunities and new technologies that are poorly understood.





**Thank you!**



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