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WEBINAR

SUMMER 2015

DATA & ANALYTICS

Managing Data in the Age of the Internet of Things

About the Panelists

Lynn Wu is an assistant professor in operations and information management at the Wharton School.

Sri Narasimhan is co-director of the Business Analytics Center (BAC) and professor of IT management at the Scheller College of Business, Georgia Tech.
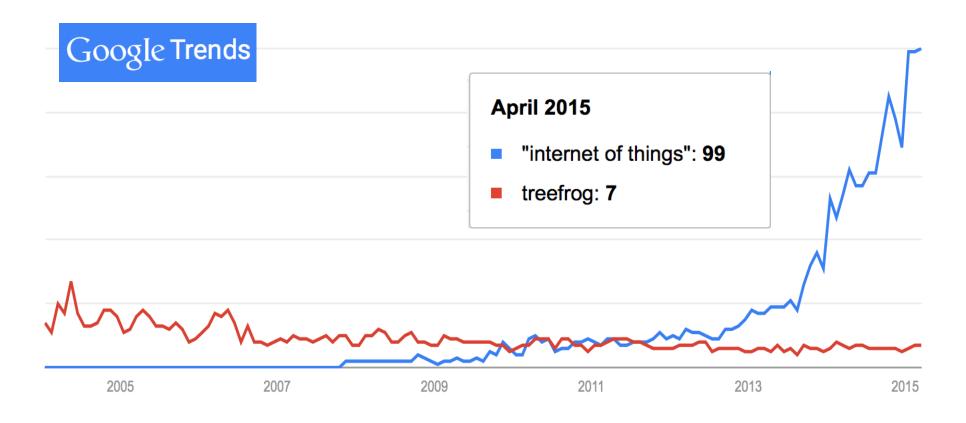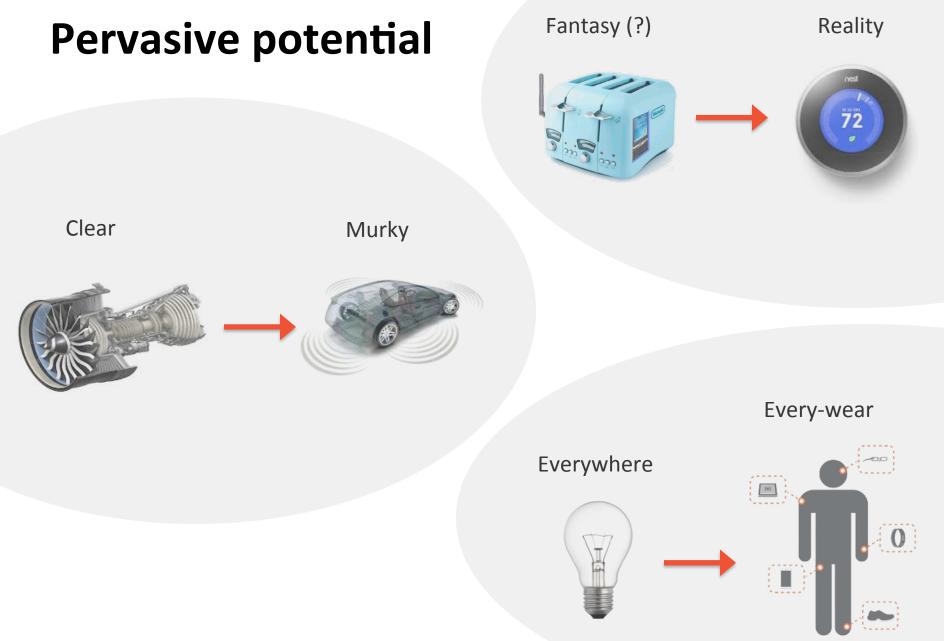
Sam Ransbotham is an associate professor in information systems at Boston College and guest editor at *MIT SMR*.
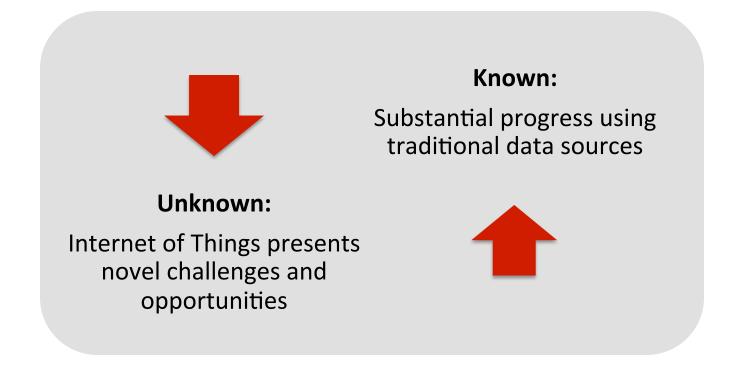
An explosion of interest

Google Trends

April 2015

- ■ "internet of things": **99**
- ■ treefrog: **7**

2005　　　2007　　　2009　　　2011　　　2013　　　2015

Pervasive potential

Clear → Murky

Fantasy (?) → Reality

Everywhere → Every-wear

Today

Known:

Substantial progress using traditional data sources

Unknown:

Internet of Things presents novel challenges and opportunities

1. *Organizational readiness*
   for internal challenges and external disruption

2. *Building advantage*
   through organizational skills, processes, and structure

Georgia Tech | Center for the Development and Application of Internet of Things Technologies

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Research at Georgia Tech is a catalyst for dynamic Internet of Things innovation.

The Center for the Development and Application of Internet of Things Technologies (CDAIT) fosters the development of interdisciplinary Internet of Things (IoT) research and education that bridges sponsors with Georgia Tech researchers and faculty as well as industry members who share similar interests. CDAIT is a global, nonprofit, partner-funded center of excellence in IoT that stimulates creativity, productivity gains and revenue generation while addressing critical surrounding societal issues such as privacy, trust, ethics, regulation and policy.

Organizational Readiness: Internal

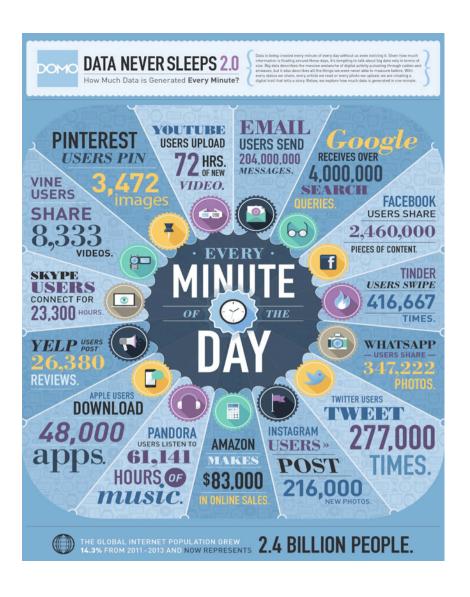**Georgia Tech | Scheller College of Business**

Business Analytics Center

*What can organizations do to face **internal** IOT disruption to*

  i. infrastructure

  ii. governance

  iii. talent

Organizational Readiness: External

Business Analytics Center

*What can organizations do to face **external** IOT disruption to*

- i . existing relationships (standards)
- ii. boundaries (data ownership)
- iii. policy (security, privacy)
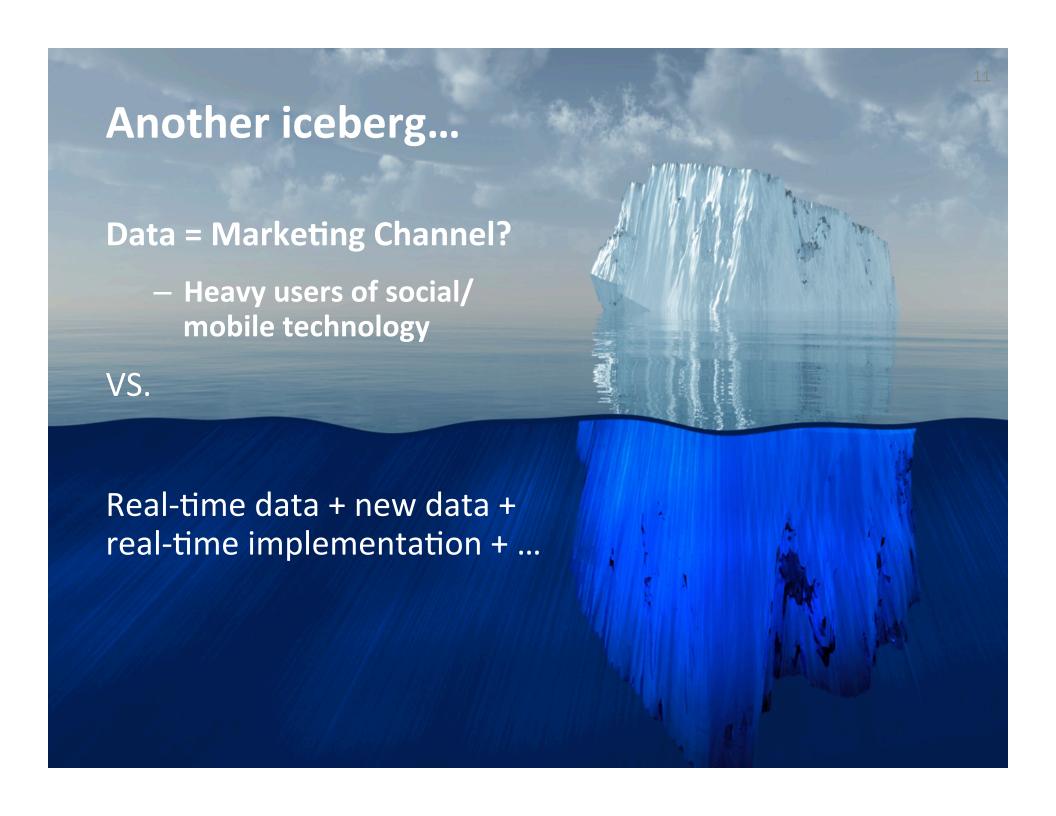- iv. business models

Social Media, Big Data & Productivity

- Produce a massive amount of data about consumers, markets, products and beyond.

- Managing data is key.

- "Big Data" capabilities are distinct from traditional IT skills.

- IoT will produce even more data.

- IoT devices ~ 26B by 2020 from 2B on 2015.

"Data Is the New Middle Manager" (WSJ)

"Here's a comprehensive example: In the old days, an associate specializing in events for clients might answer to a manager in the marketing department who would be tasked with thinking about why a company should be throwing events in the first place. But now, says Mr. Montgomery, the Chubbies co-CEO, his lone event planner can use an array of dashboards she has built to determine exactly how many Facebook likes, Instagram posts and sales arose from a particular event, since all these data are geo-coded and she can watch them change in the wake of an event. It's entirely up to her to decide where, when or whether to hold future events. If anyone were to question her decision, she can simply back it up with data."

From "Data Is The New Middle Manager," WSJ (April 19, 2015), http://on.wsj.com/1F3uLd8

Another iceberg…

Data = Marketing Channel?

- Heavy users of social/ mobile technology

VS.

Real-time data + new data + real-time implementation + …

Data Skills Complementarity

- Study of how data skills affect the return to using social media for all public-traded firms in the US

- 1 S.D. data + 1 S.D FB engagement =
  ~2% Value Increase

  – Double the direct effect

- 1 S.D IT skills + 1 S.D FB engagement =
  ~no effect

  – Hard(er) to square complementarities & no IT effect with reverse causality

Data Skills Alone Are Not Enough

- Data skills concentrated in marketing →
no discernable benefits

- Data skills in non-marketing department →
substantial benefit

- Dispersion of data skills → most benefits

  – Herfindahl Index for diversity improves firm value

- Unlike IT which is often concentrated in a single department, data skills should be spread out to all aspect of firm's operations

Big Data & Processes

- Big data talent can substantially help with process-oriented practices

- Surveyed 300 firms about their existing process-oriented practices
  - How important is process
  - Ability to make incremental changes or improvements to our business processes
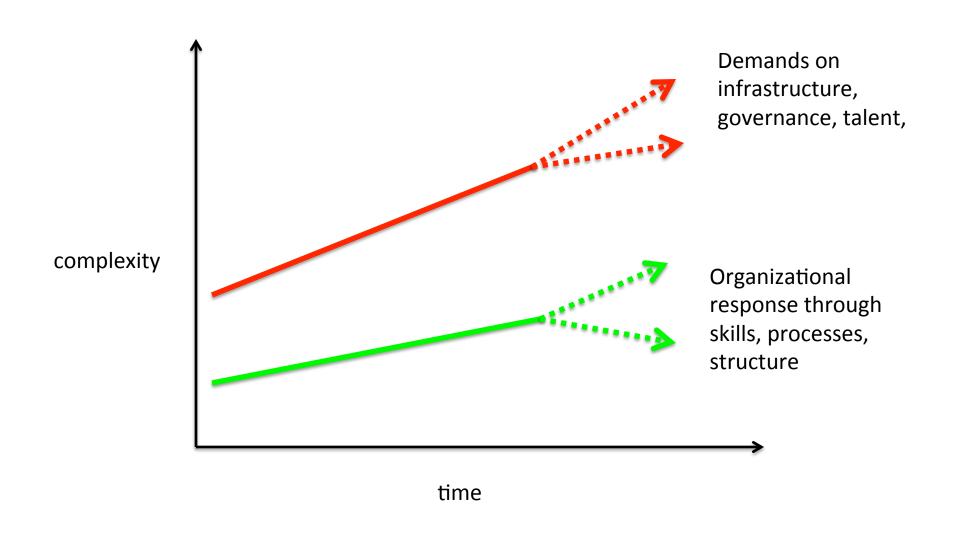 - Stresses operational excellence (efficient execution) over innovation

Big Data & Processes

- 1 S.D. data + 1 S.D process-practices = ~3% Value Increase

- Big data skills *have not* been shown to immediately help innovation

Big Data & Organizational Structure

- Centralization vs. decentralization
  - Manufacturing studies (McElheran 2015) show data-driven decision making → Centralization

- Survey of 300 firms across a wide range of industries
  - Decentralization and big data skills are complements

- Too early to tell & subject to more research

Near Future of the Internet of Things

complexity

time

Demands on infrastructure, governance, talent,

Organizational response through skills, processes, structure

Q&A

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