

# Tenth Annual UT Dallas Frank M. Bass FORMS Conference

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(Frontiers of Research in Marketing Science)

Was held on February 18 – 20, 2016



## Frank M. Bass

Frank M. Bass was an American academic in the field of marketing research and marketing science. He was the creator of the Bass diffusion model that describes the adoption of new products and technologies by first-time buyers.

“**The UT Dallas Frank M. Bass FORMS Conference** is a marketing conference that intends to foster high quality research in quantitative approaches to marketing and provide a forum for a stimulating exchange of ideas. The conference will be held at the Naveen Jindal School of Management at The University of Texas at Dallas (UT Dallas).”

Sponsored by [The Morris Hite Center](#) at The Jindal School of Management

## Keynote Speaker

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The keynote speaker for the Tenth Annual UT Dallas FORMS Conference is Professor [K. Sudhir](#), Yale School of Management where he serves as James L. Frank Professor of Marketing, Private Enterprise and Management & Director of China India Insights (CIIP) Program.

**PROFESSOR K. SUDHIR IS JAMES L. FRANK PROFESSOR OF MARKETING, PRIVATE ENTERPRISE AND MANAGEMENT** and director of the Yale China India Insights (CIIP) Program. His research focuses on gaining market insights by analyzing consumer and firm actions through econometric modeling. As director of the China India Insights Program, he also specializes in research on consumers in emerging markets. He has consulted for Fortune 500 U.S. firms and Indian firms across many industries such as technology, financial services, entertainment, and retailing, specializing in analyzing their internal data to obtain actionable market insights. He leads the data-driven academic-industry research partnerships at the Yale Center for Customer Insights (YCCI).

Professor Sudhir's research has been honored with numerous best paper awards across all major quantitative marketing journals. Two of his papers were nominated among the top ten papers published in the last ten years in *Marketing Science* and *Management Science* for their Long-Term Impact over three consecutive years from 2009-2011. He has received the Little and Bass Best Paper Awards at *Marketing Science* and the Lehmann Award at the *Journal of Marketing Research*; and honorable mentions for the Wittink Award in *Quantitative Marketing and Economics* and Best Paper Award in *International Journal of Research in Marketing*. He has also been a finalist for the Paul Green Award at the *Journal of Marketing Research*.

He currently serves as Editor-in-Chief of *Marketing Science*. Previously, he served as Senior Editor at *Marketing Science* and Associate Editor at *Journal of Marketing Research*, *Management Science*, and *Quantitative Marketing and Economics*.

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# The Exploration-Exploitation Tradeoff and Efficiency in Knowledge Production

K. Sudhir

Yale School of Management  
Editor-in-Chief, Marketing Science

Presented at UTD Bass FORMS Conference

2/19/2016



- ▶ As a profession, our goal is to produce **deep**, **relevant** and **valid** marketing knowledge in the most **efficient** manner
  - ▶ Deep and Relevant Knowledge Production:  
The exploration-exploitation tradeoff
    - ▶ A little detour on big data exploration
  - ▶ Efficient Knowledge Production:  
The efficiency-validity tradeoff
- ▶ How can we use the review process to achieve these goals?



# State of Marketing Science: Remarkable Successes

- ▶ Models: Game Theory, Utility-based Empirical
- ▶ Bayesian, Times Series, Structural Models
- ▶ New and richer data: scanner, online, mobile, path data, network data, firm choice data
- ▶ Modeling Ideas: Heterogeneity, Endogeneity, Selection, Forward looking
- ▶ Emphasis on Identification and Transparency
  - ▶ Quasi-experiments and field experiments



# Some Potential Topics for Exploration

- ▶ **Big Data**
- ▶ Behavioral Field Experiments
- ▶ Substantive Topics (Examples)
  - ▶ Health
  - ▶ Sustainability
  - ▶ Entrepreneurship
  - ▶ Emerging Markets
  - ▶ B2B Markets
  - ▶ Non-profit marketing



# BIG DATA





# Big Data is a tremendous opportunity for our field

- ▶ It will help us enrich what we do now providing more granular data on more variables and facilitate experimentation
- ▶ Many new research challenges, involved in real time, automated decision making in the presence of unstructured, real time, streaming data
- ▶ Big data breaks functional data silos; it can increase marketing's influence within organizations if we can contribute to going beyond 4Ps to drive decisions within organizations that impact market outcomes



# The Rise of Big Data

- ▶ Every aspect of human (or non-human) activity and interaction can leave a digital trail in today's world
- ▶ Leading to BIG DATA



- ▶ Big data's impact will be more profound and longer than other data revolutions
- ▶ Start of path to evidence based management



# Characteristics of Big Data: The 3Vs

## Volume

- IOT  
Cheap sensors  
Digital transactions--  
Large X, N, T
- Location-Time
- Network
- Text, Audio, Video

## Velocity

- Static
- Regular events
- Real time
- Streaming

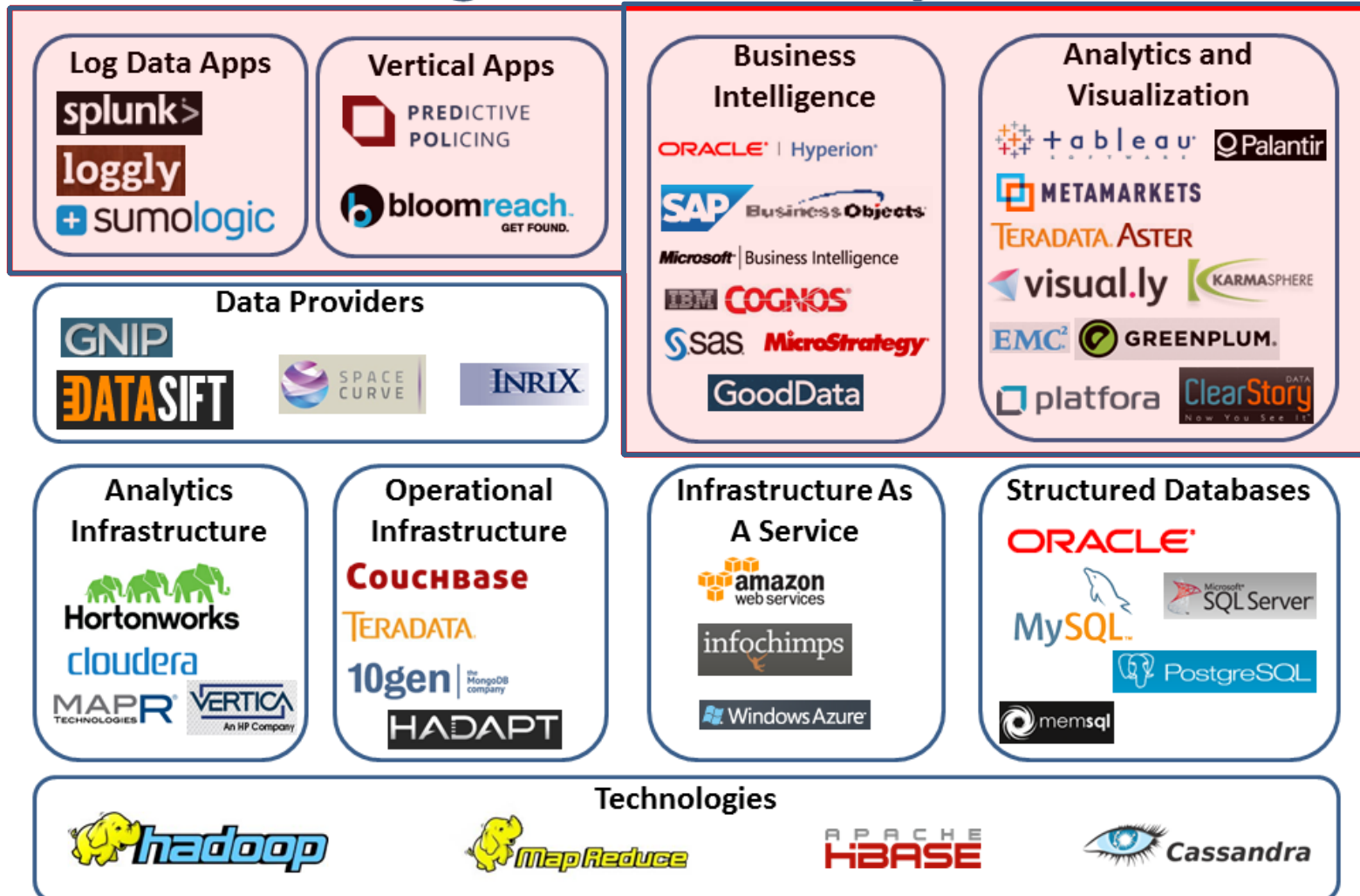
## Variety

- Structured
- Unstructured
  - text,
  - audio
  - video



# The Big Data Ecosystem: Infrastructure+Analytics

## Our Focus: Analytics that add Value (Fourth V)



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# How can big data affect marketing scholarship? (1)

- ▶ The science of marketing: Causal relationships
  - ▶ 3Vs- > Combinatorial explosion of X and Y
    - ▶ E.g., More work on consumption than purchases
    - ▶ Targeting on real time location, social networks
  - ▶ Ease of field experimentation
- ▶ Can be done within our current frameworks—we may not even see this as big data
  - ▶ But big data is more than “old wine in a new bottle”



# How can big data affect marketing scholarship? (2)

## ▶ New Modeling challenges

- ▶ Translation of unstructured data for insights
- ▶ Automated and time sensitive decision making—real time algorithms, fast algorithms etc...
- ▶ Our interface with OR and CS will increase



# Real Time Bidding for Ad Display



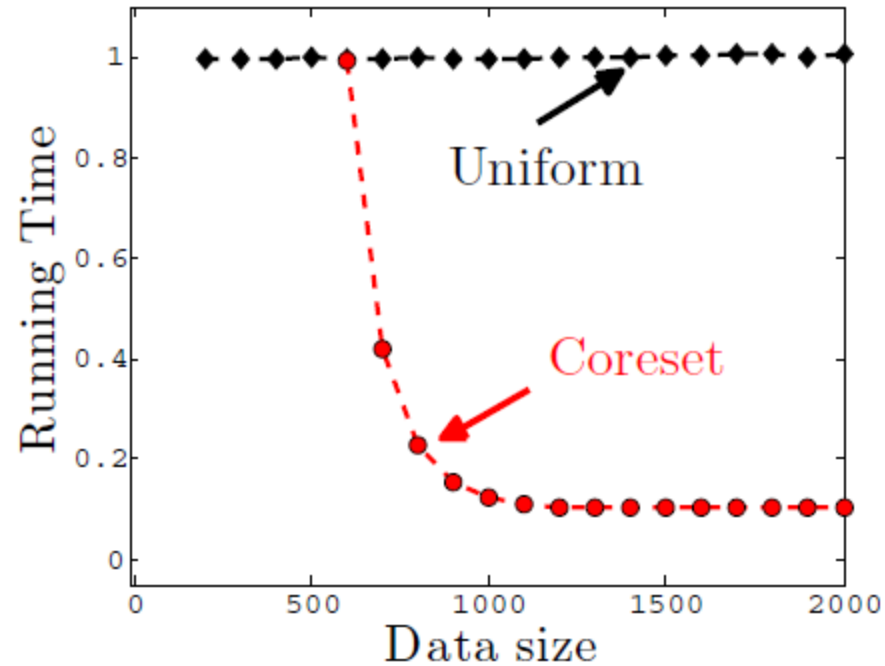
## 200 MS: The Life of a Programmatic RTB Ad Impression



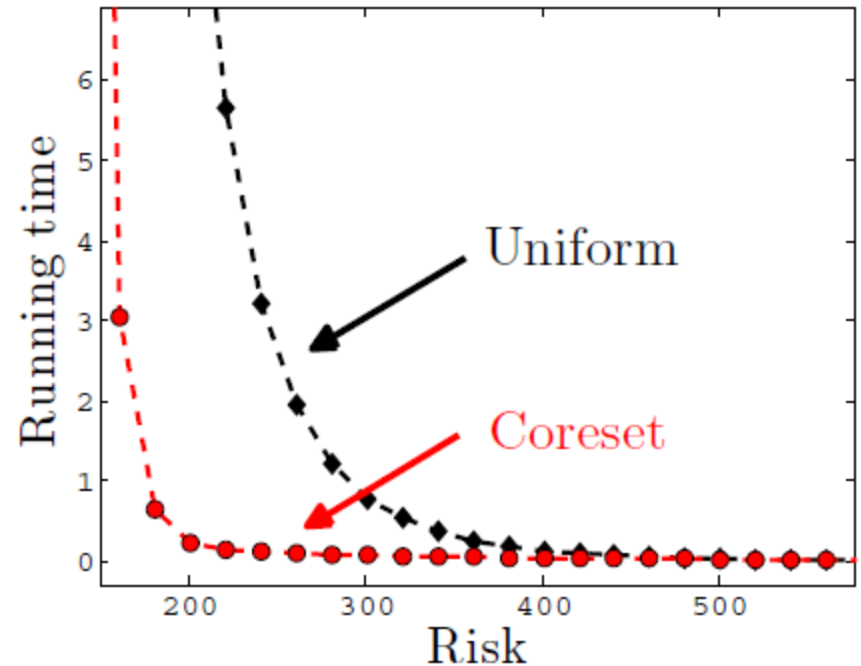
Scalable algorithms that tradeoff accuracy and complexity (e.g., automatic bidding for advertising keywords in microseconds)



# Speeding up algorithms through big data...



(c) Data-Time



(d) Risk-Time

Lucic, Mario, et al. "Tradeoffs for space, time, data and risk in unsupervised learning." *Proceedings of the Eighteenth International Conference on Artificial Intelligence and Statistics*. 2015.





# How can big data affect marketing scholarship? (2)

- ▶ New modeling challenges (examples)
  - ▶ Translation of unstructured data for insights
  - ▶ Automated and time sensitive decision making—real time algorithms, distributed fast algorithms etc...
  - ▶ Our interface with OR and CS will increase
- ▶ Has machine learning beaten us to the door?
  - ▶ Many challenges remain: Endogeneity, selection, omitted variables, reverse causality
- ▶ “Marketing Science” has still a lot to offer “domain independent” computer scientists and mathematicians
  - ▶ Our M.S. (Analytics) students may become ambassadors



# How can big data affect marketing scholarship? (3)

- ▶ Big Data breaks down data and functional silos
  - ▶ Marketing research needs to go beyond the 4Ps
  - ▶ Supply chains choices, sourcing strategies, service operations data, HR strategies,
  - ▶ Anything that affects “market outcomes” should become our research domain



# Going back to the knowledge production agenda

- ▶ As a field, our goal is to produce in-depth, relevant and valid marketing knowledge efficiently
  - ▶ Deep and Relevant Knowledge Production:  
The exploration-exploitation tradeoff
  - ▶ Efficient Knowledge Production:  
The efficiency-validity tradeoff
- ▶ How can we use the review process to achieve these goals?



# Deep and Relevant Knowledge Production

## The Exploration-Exploitation Tradeoff

### EXPLOITATION

- ▶ Refine existing competencies and paradigms
- ▶ Less risky, less failure
- ▶ Deepen distinctive competencies
- ▶ Can trap in sub-optimal, but stable equilibria

### EXPLORATION

- ▶ Experiment with new areas and topics
- ▶ More risky, more failure
- ▶ Broaden competencies
- ▶ Adaptive to changing market environments

- ▶ Balance exploration and exploitation to keep field healthy
- ▶ Fields tend to be biased towards exploitation
- ▶ We have to consciously support and reward exploration



## The Efficiency-Validity Tradeoff

- ▶ Peer reviews help sift knowledge to identify truly new ideas and assess whether they are valid
  - ▶ We want to efficiently generate new ideas
  - ▶ Enough checks on execution to ensure validity
- ▶ Tradeoff: How to increase the field's efficiency in knowledge production without sacrificing the validity of the results?



# The Efficiency-Validity Tradeoff

## Using the Ellison (2002) Framework

### INTRINSIC QUALITY ( $q$ )

- ▶ Originality and importance of idea
- ▶ Scarcer, hard to improve in the review process

### EXECUTION QUALITY ( $r$ )

- ▶ Generality, robustness of claims, extensions, clarity of contributions
- ▶ Potentially easier to improve in the review process

- ▶ Reviewers often view the two as compensatory
- ▶ This leads to excess execution quality in equilibrium
- ▶ Excess execution quality is not free—it hurts the field in long-term rate of knowledge production



# My Proposal: a Lexicographic approach for reviewing

- ▶ First, q-quality: Is it big and important enough?
  - ▶ Does it “change” minds?
  - ▶ Or can it be improved to be big enough?
- ▶ If q-quality is good enough, is r-quality good enough to ensure incremental claim is valid
  - ▶ “state of the art” methods are not necessary for validity
  - ▶ Complexity is not a virtue, we prefer simpler and more transparent analysis when it is valid
  - ▶ Robustness checks or generalizability checks are important, but should evaluate time and feasibility costs relative to increased confidence in validity



# Reviewing Guidelines: First Round

- ▶ Incremental Contribution (q-Quality)
  - ▶ State level of enthusiasm for the potential incremental contribution and explain rationale.
  - ▶ State critical and major improvements needed in idea quality to achieve potential contribution.
- ▶ Execution Quality (r-Quality)
  - ▶ State critical improvements in execution quality needed to make results valid. Clearly explain why important.
  - ▶ Provide list of minor execution improvements to make paper better, ideally with well-explained rationales.
  - ▶ Provide feedback on execution quality, even if you don't think incremental contribution is large enough





# Review process guidelines: Second Round

- ▶ Hold authors accountable for incremental contribution claims in second round
- ▶ Execution quality effort should not compensate for not addressing incremental contribution concerns



# Challenges with exploratory work

- ▶ Reviewers will always underestimate q-quality
  - ▶ Absence of published papers makes proving incremental contribution because conventional wisdom (null hypotheses) are unclear
  - ▶ Reviewers change their nulls after reading paper!
- ▶ Reviewers will always underestimate q-quality
  - ▶ Without established work, fewer alternative hypothesis and fewer obvious robustness checks
- ▶ Be conscious to debias judgments



# Review process guidelines: AEs+SEs

- ▶ Critically evaluate and reclassify “major/minor” changes from reviewers
- ▶ If q-quality not enough, reject/reject and resubmit
  - ▶ Consider costs and benefits of changes recommended when asking for improvements in r-quality
- ▶ For exploratory papers
  - ▶ be willing to take greater risk, recognizing negative bias in evaluation
  - ▶ Place more weight on the arguments and rationales of the most positive member of the review team, to the extent those arguments are correct.



# Conclusion

- ▶ We need to keep field
  - ▶ deep and relevant to keep it healthy
  - ▶ efficient in producing valid results
- ▶ Reviewers and editors
  - ▶ guidance on review purpose and structure and language for peer reviewing
- ▶ Authors
  - ▶ More effort on q-quality is needed; should not be an after-thought



THANK YOU



# Research Agenda around CRM and Salesforce Analytics

## Substantive, Conceptual and Methodological Breadth

### CUSTOMER MANAGEMENT

- ▶ Theory
  - ▶ Mkt Sci 2010, Mgt Sci 2010
- ▶ Structural
  - ▶ JMR 2007, WP 2015
- ▶ Descriptive/Quasi Experiment
  - ▶ RIO 2004, Mgt Sci 2016
    - ▶ Balance exploration and exploitation to keep field healthy
    - ▶ Note: Fields tend to be biased towards exploitation

### SALESFORCE INCENTIVES

- ▶ Structural
- ▶ Descriptive/Quasi Experimental

# Don'ts in reviewing

- ▶ Always explain why the additional analysis is needed to establish the result
  - ▶ AEs and Editors should evaluate these reasons when making revision requests
- ▶ Some suggestions
- ▶ “state of the art” methods are not needed if validity is established
- ▶ Robustness checks or generalizability checks should evaluate costs of time and effort and the benefit of increased confidence in results
- ▶ Complexity is not a virtue, we prefer simpler and more transparent analysis when it is valid

