



LAI Conference Panel:

# Enterprise Performance Measurement **Sabermetrics 101: Objective Analysis of the Baseball Enterprise**

(or the objective search for baseball knowledge)

[Andy.Andres@GMail.com](mailto:Andy.Andres@GMail.com)

[LAndres@BU.edu](mailto:LAndres@BU.edu)

**“I believe in the Church of Baseball. I've tried all the major religions and most of the minor ones. And the only church that truly feeds the soul, day-in day-out, is the Church of Baseball.” Annie Savoy**

# Why I am here?

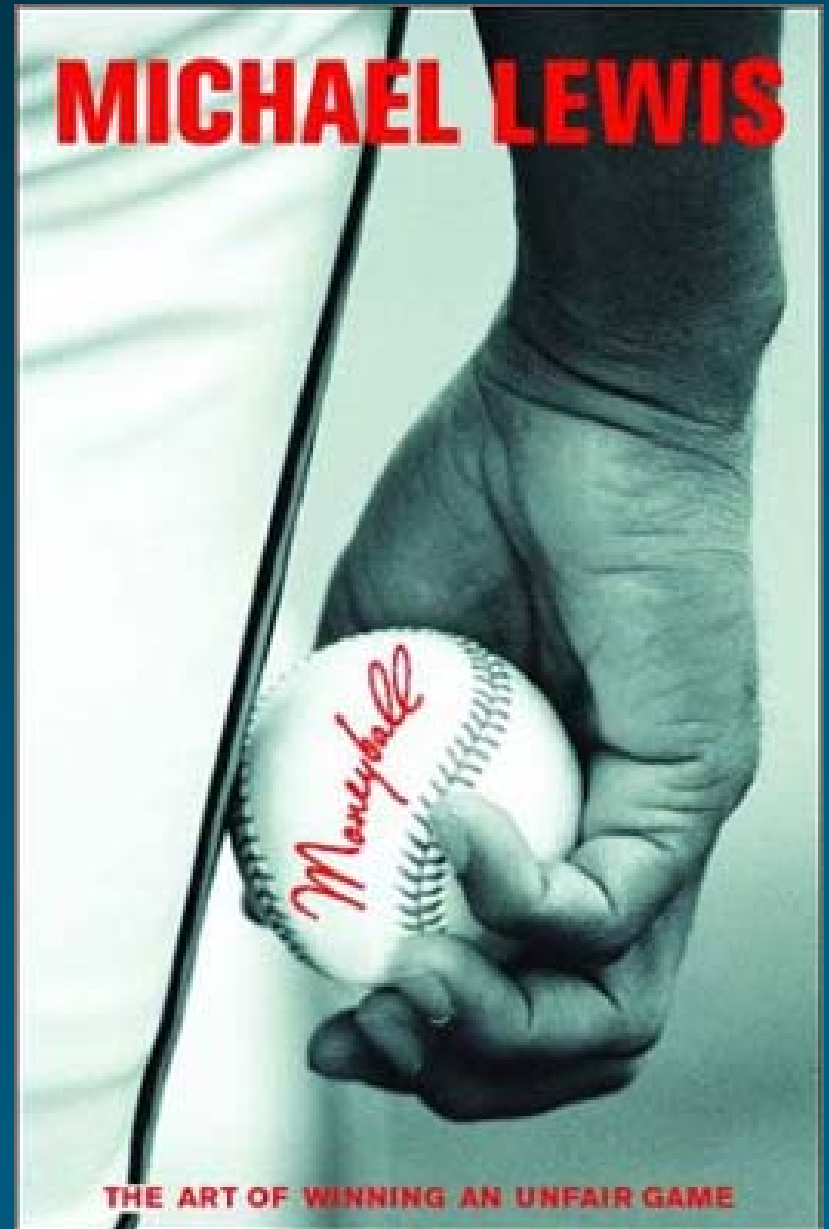
- An example of Large Enterprise Transformation
  - Baseball since Moneyball
  - Really since “Sabermetrics” started
- An example of Enterprise Dysfunction
  - Pete Palmer and Bill James’ work since 1977
  - Metrics showing “Baseball Conventional Wisdom” was wrong
- Metrics to Demonstrate Improvement in Performance
  - Bill James’ Runs Created
  - Pete Palmer’s Linear Weights
- How the Game of Baseball Changed
  - Metrics changed baseball decision making (i.e., behavior)
  - Metrics changed Baseball Employee Culture

Fenway Park, Boston

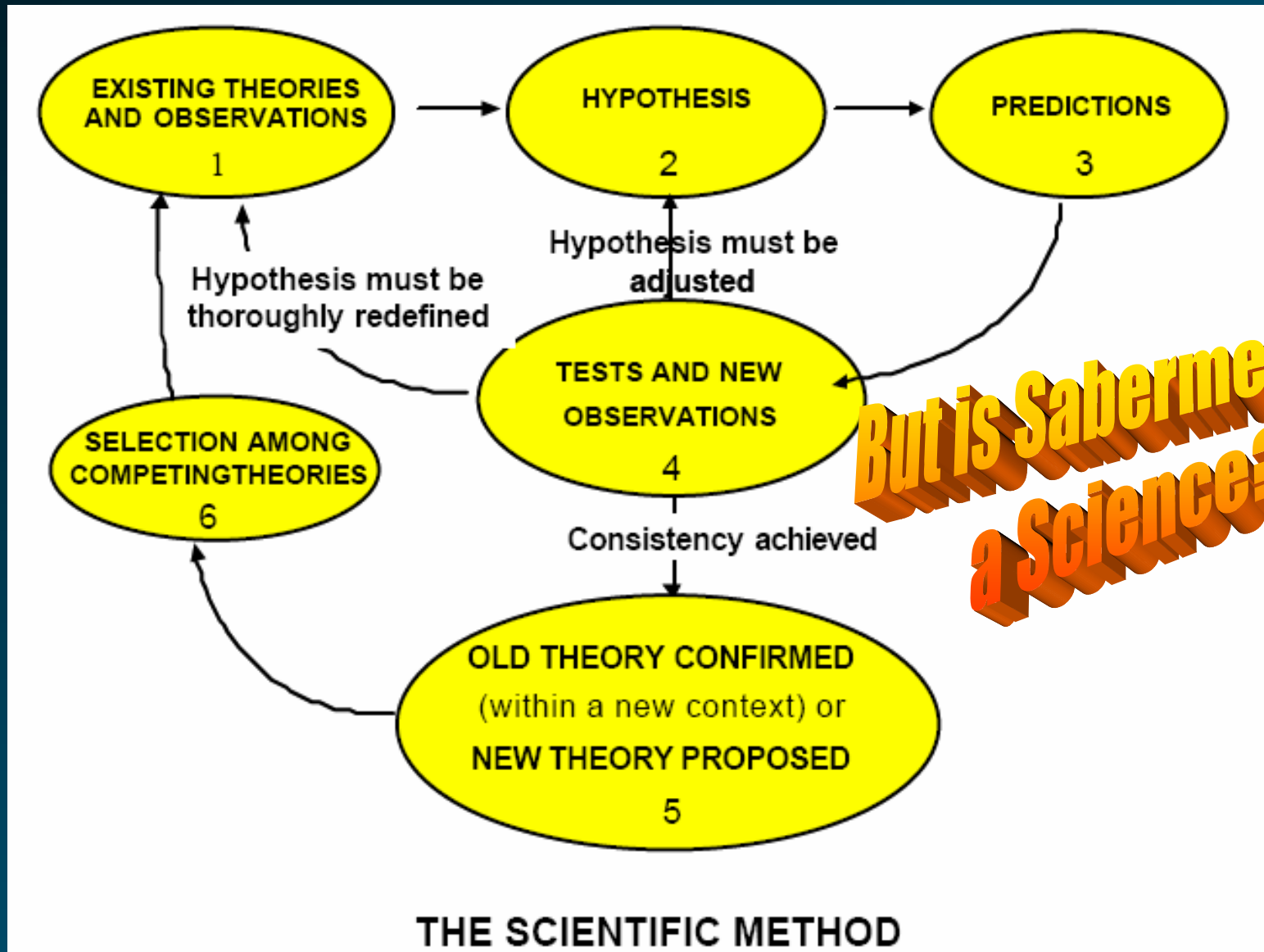
USA 34

# Moneyball by Michael Lewis

- Published in 2003, bestseller
- Main themes of Moneyball:
  - Billy Beane as “hero”
    - “When he was a young man Billy Beane could beat anyone at anything”
  - Sabermetrics is a more effective way of evaluating baseball talent
  - Baseball conventional wisdom is wrong

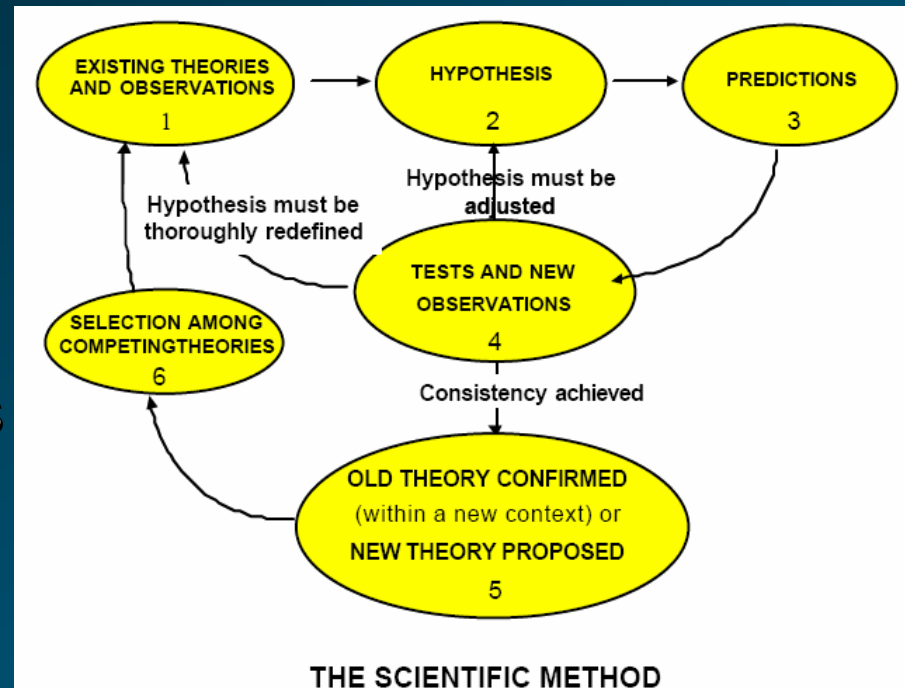


# The Scientific Method



# Sabermetrics a Science?

- Yes!
- Bill James got his ideas for research by reading sports columnists
- He worked as a security guard for Van Camps foods in Kansas
- He observes that BA determines the “Batting Champion”
  - Think RBI, SBs also
- Decides there may be a better model for “Batting Champion”
- Tests his model
- Re-tests his model



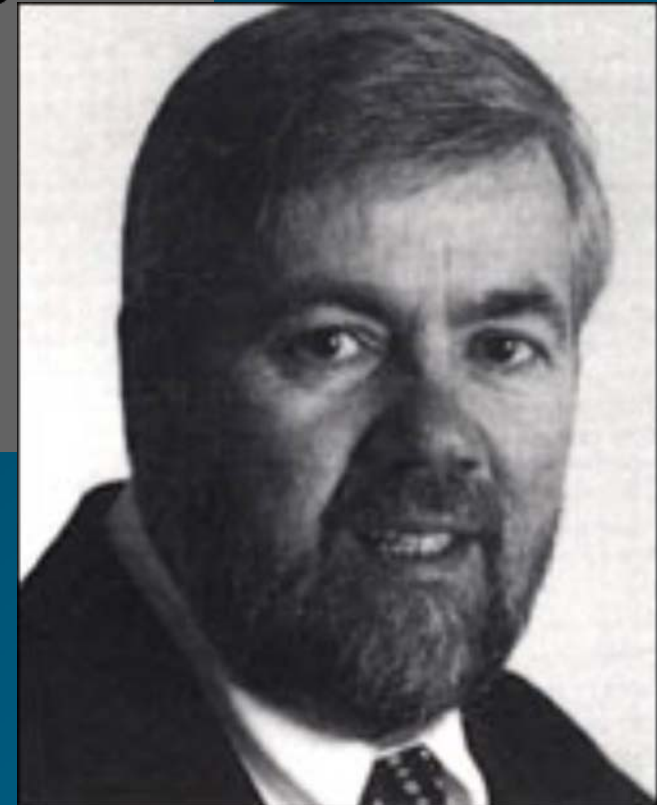
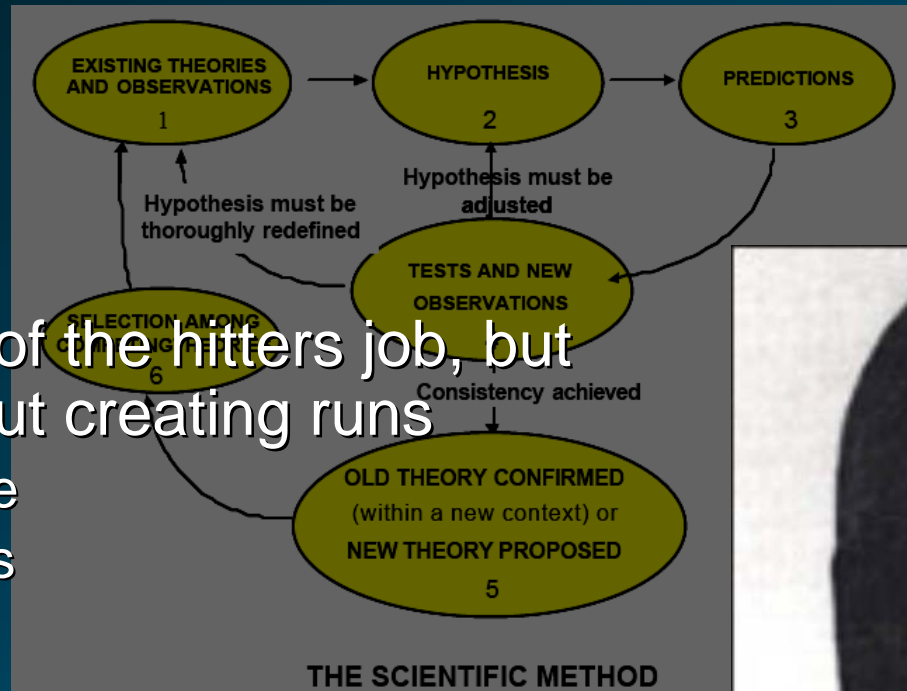
# Measures of Hitting Ability

- Branch Rickey (The Brain) in LIFE Magazine (1954)
- George Lindsay (1963) Linear Weighted Averages
- Bill James Runs Created
- Many others since

$$\left( \frac{H+BB+HP}{AB+BB+HP} + \frac{3(TB-H)}{4AB} + \frac{R}{H+BB+HP} \right) - \left( \frac{H}{AB} + \frac{BB+HB}{AB+BB+HB} + \frac{ER}{H+BB+HB} - \frac{SO}{8(AB+BB+HB)} - F \right) = G$$

# Bill James Runs Created

- Hitters Job?
  - High BA?
  - High HR?
  - High SLG?
- These are part of the hitters job, but it is always about creating runs



- $RC = ((H+BB) * TB) / (AB+BB)$
- For teams, this formula will get within 5% of actual Runs scored almost all of the time.
- For players, James claims this will answer the question 90% of the time



# Pete Palmer's Linear Weights

- A hit is as good as a walk, right?
- No! Singles are better.
- Pete Palmer's Batting Runs:
- $\text{Runs} = .47*1B + .78*2B + 1.09*3B + 1.4*HR + .33(BB + HBP) - .25(AB-H) - .5*OOB$
- OOB is out on base (SH, SF, GIDP, ROE)



# Why I am here?

- An example of Large Enterprise Transformation
  - Baseball since Moneyball
  - Really since “Sabermetrics” started
- An example of Enterprise Dysfunction
  - Pete Palmer and Bill James’ work since 1977
  - Metrics showing “Baseball Conventional Wisdom” was wrong
- Metrics to Demonstrate Improvement in Performance
  - Bill James’ Runs Created
  - Pete Palmer’s Linear Weights
- How the Game of Baseball Changed
  - Metrics changed baseball decision making (i.e., behavior)
  - Metrics changed Baseball Employee Culture

Fenway Park, Boston

USA 34



Contact Information:

Andy Andres, Ph.D.

Assistant Professor of Natural Science at Boston University Tufts University  
Lecturer in Sabermetrics

office: 617.358.0306

LAndres@BU.edu

Andy.Andres@GMail.com

<http://Sabermetrics101.com/>

<http://www.BaseballHQ.com/tour/experts.shtml>

**“I believe in the Church of Baseball. I've tried all the major religions and most of the minor ones. And the only church that truly feeds the soul, day-in day-out, is the Church of Baseball.” Annie Savoy**