



STANFORD SOCIAL INNOVATION REVIEW PRESENTS

DATA ON PURPOSE

CREATING SOCIAL CHANGE WITH DATA

JUNE 2, 1:50 P.M. – 2:50 P.M.

DATA MINING FOR SOCIAL IMPACT



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Stanford **SOCIAL**
INNOVATION Review

WHAT IS DATA?

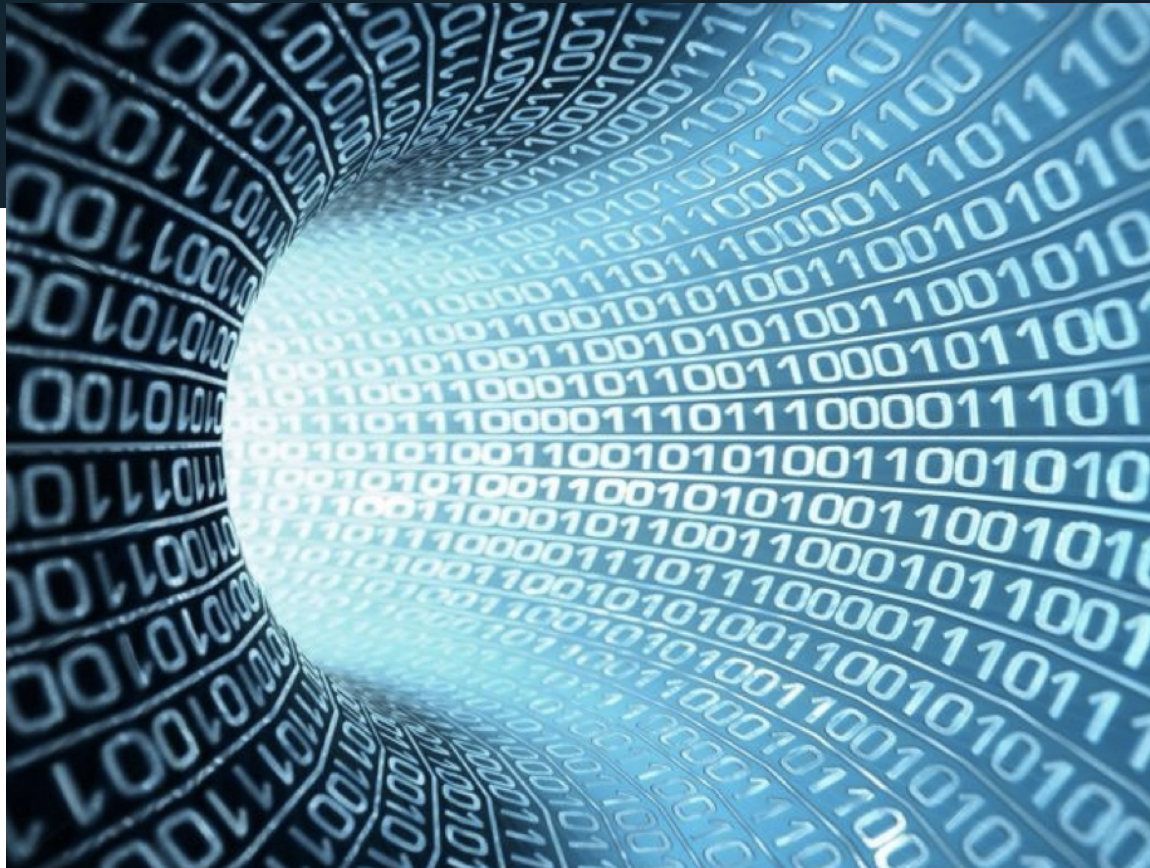


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A tunnel of 1s and 0s



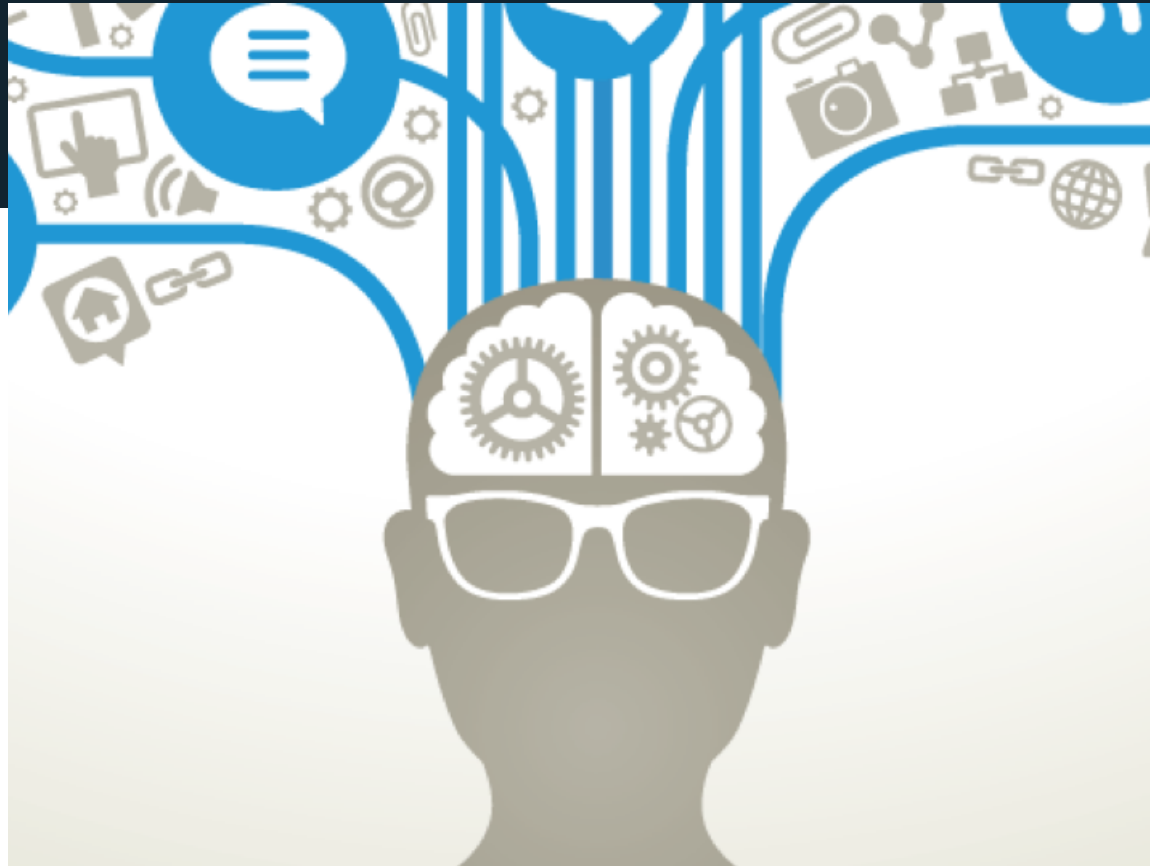


A world of 1s and 0s



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Whatever this is



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And apparently it's BIG



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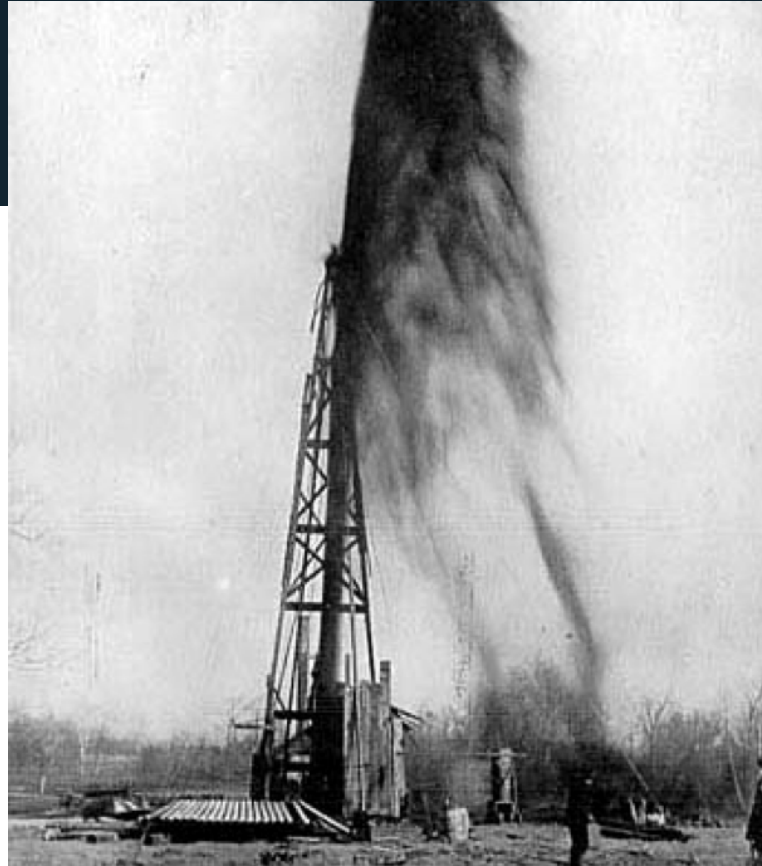


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Data is a raw resource



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DATA IS WHEN EXPERIENCES,
THOUGHTS, MOVEMENT,
PLACES, IDEAS, INTERACTIONS,
AND MORE ARE **CAPTURED** AND
STORED.



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WHAT IS DATA MINING?

- ❖ Data mining incorporates the many methods and tools one can use to extract value from the raw resource of data.



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THE ROLE OF PREDICTION



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PREDICTION vs CAUSATION

The Rain Dance



The Umbrella



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PREDICTION vs CAUSATION

Causal Tools

- Regression Analysis
- Randomized Control Trials
- Grounded in the Social Sciences

Predictive Tools

- Random Forests
- Machine Learning
- Drawn from the Computer Sciences



THE LINE BETWEEN CAUSATION AND PREDICTION IS BLURRING.



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PREDICTION vs BEST PRACTICES

Best Practice

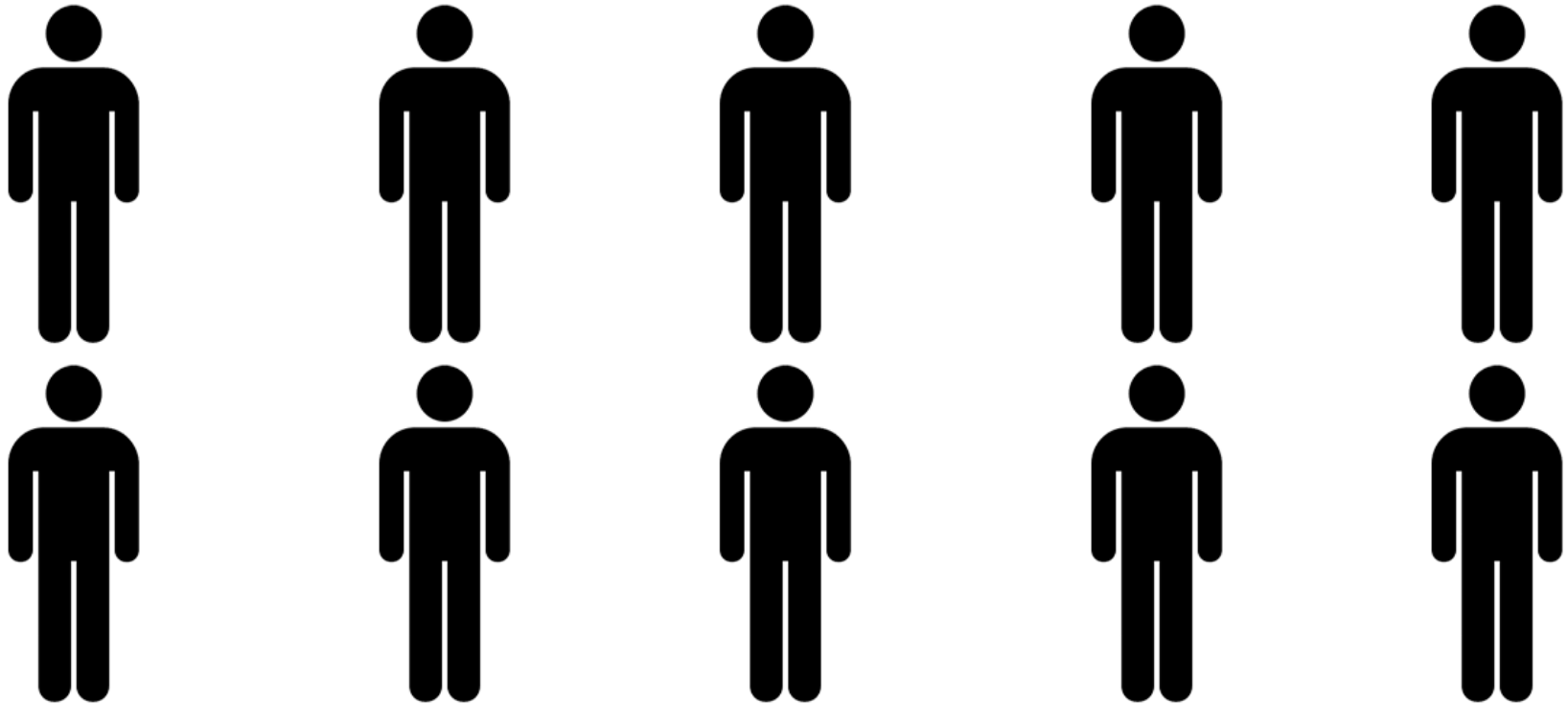
- Generally drawn from the academic literature
- Extrapolated from Randomized Control Trials
- Level of granularity is the program
- Hard to differentiate between similar programs

Prediction

- Created from a variety of data sources
- Models can be designed for each program
- Level of granularity is the individual
- Allows for programs that might appear quite similar to be differentiated



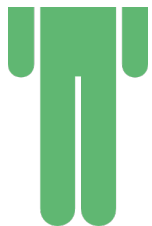
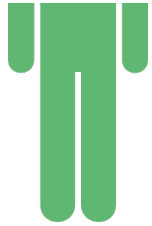
THE BEST PRACTICE PROGRAM



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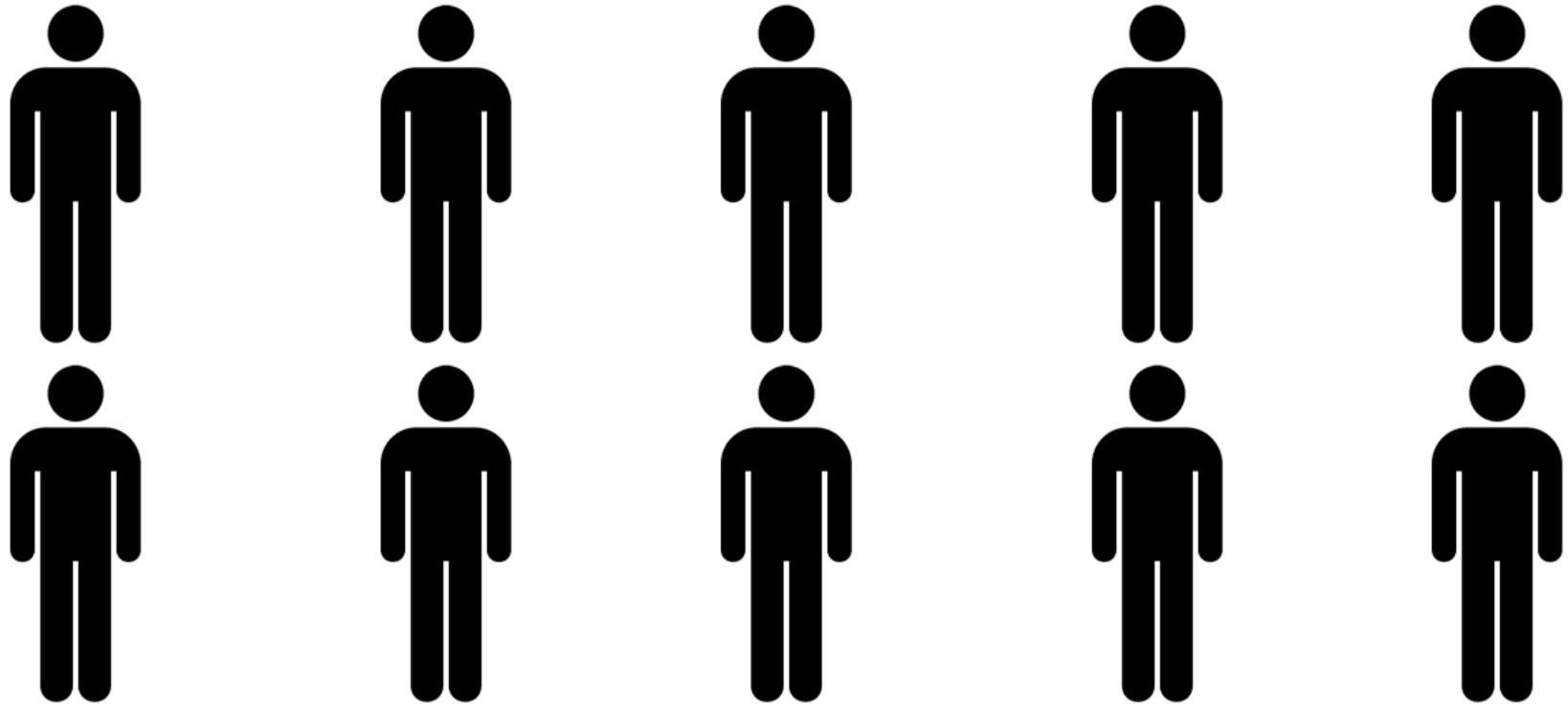
THE BEST PRACTICE PROGRAM



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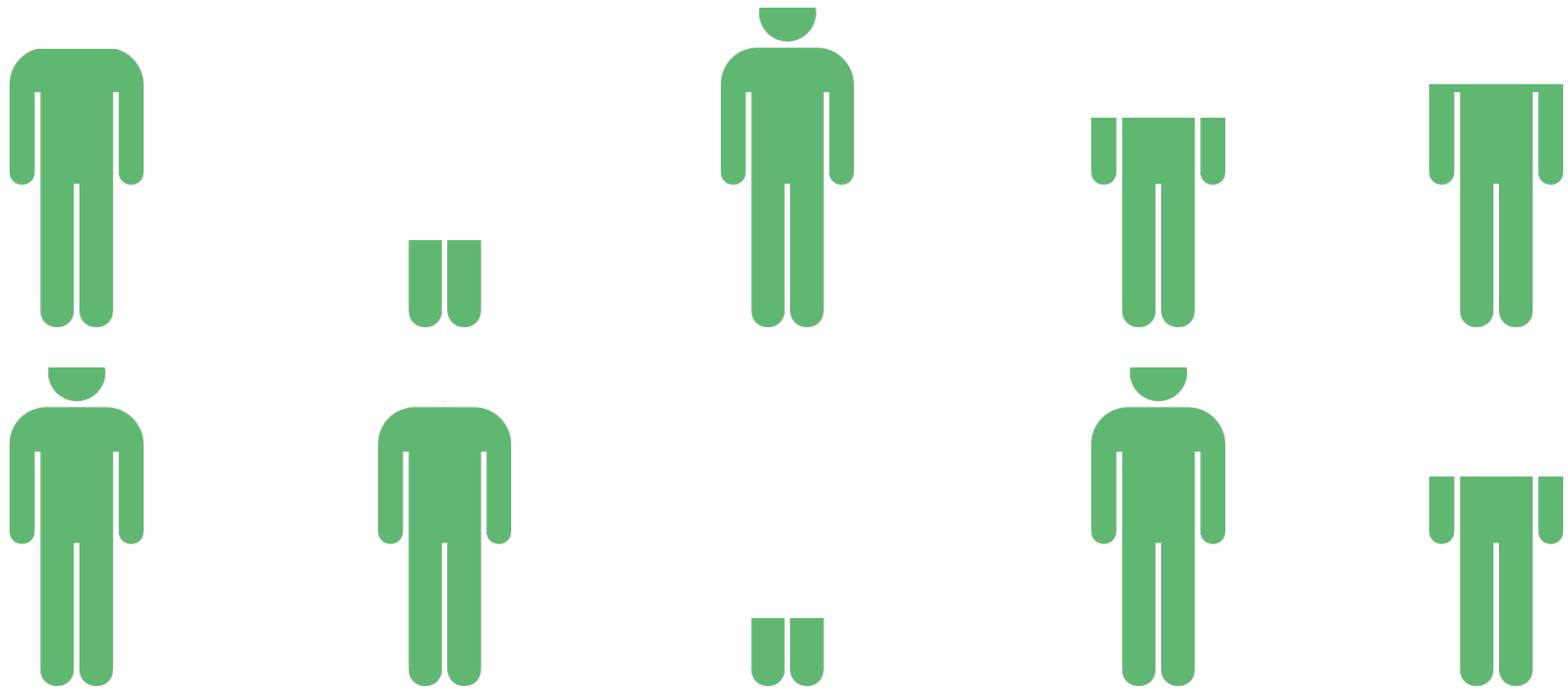
THE PREDICTIVE PROGRAM



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THE PREDICTIVE PROGRAM



QUESTIONS WHERE PREDICTION IS USEFUL

- ❖ If 500 people applied for my program and I can only enroll 250, who should I let in?
- ❖ Who should I apply more resources towards in order to achieve our goal?
- ❖ Where should I allocate resources to help the highest number of people?
- ❖ Who in my program would have succeeded anyway?
- ❖ What interventions should I give someone to maximize outcomes?



**BEST PRACTICES ARE
IMPORTANT BUT THEY ARE
NOT PREDICTIVE**



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DATA MINING HAS THE POTENTIAL TO DRAMATICALLY CHANGE HOW THE SOCIAL SECTOR WORKS.



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