

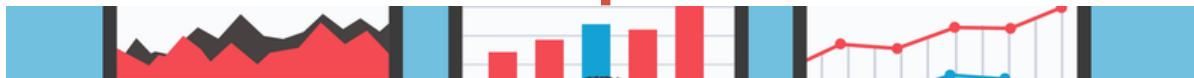
# Data-Driven Disruption: Lessons from Silicon Valley

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# Data-driven Optimization



## HOW DO DATA LAKES WORK?

The concept can be compared to a water body, a lake, where water flows in, filling up a reservoir and flows out.

### STRUCTURED DATA

1. Information in rows and columns
2. Easily ordered and processed with data mining tools



① The incoming flow represents multiple raw data archives ranging from emails, spreadsheets, social media content, etc.

②

### WHO IS USING DATA LAKES



#### BUSINESS & DATA ANALYSTS

Analyze reports on specific data in the organization to provide business insight



#### DATA ARCHITECTS

Responsible for designing, creating, deploying and managing an organization's data architecture



#### DATA SCIENTISTS & APP DEVELOPERS

Perform statistical analysis on big data to identify trends, solve business problems and optimize performance

# Optimization Opportunities

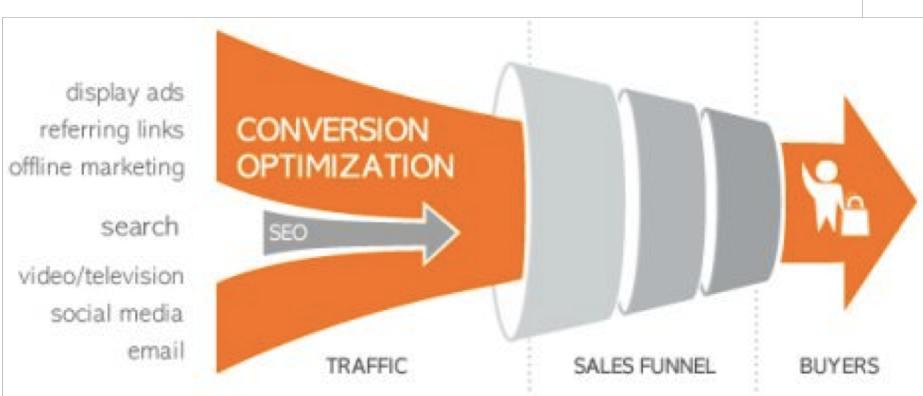


Supply Chain

Fulfillment



Marketing

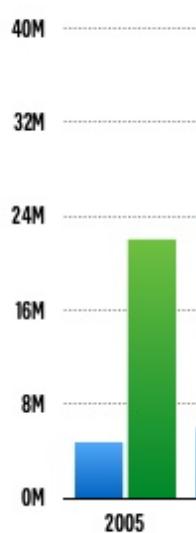


# Data-driven Disruption



## STREAMING VS. CABLE

NETFLIX DOMESTIC SUBSCRIBERS: 31.7M / COMCAST CUSTOMERS: 21.7M



Source: Financial Times / Netflix

# Disruption Enabler: Marketing Myopia



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# Disruption Enabler

HiPPO = Highest Paid Person's Opinion

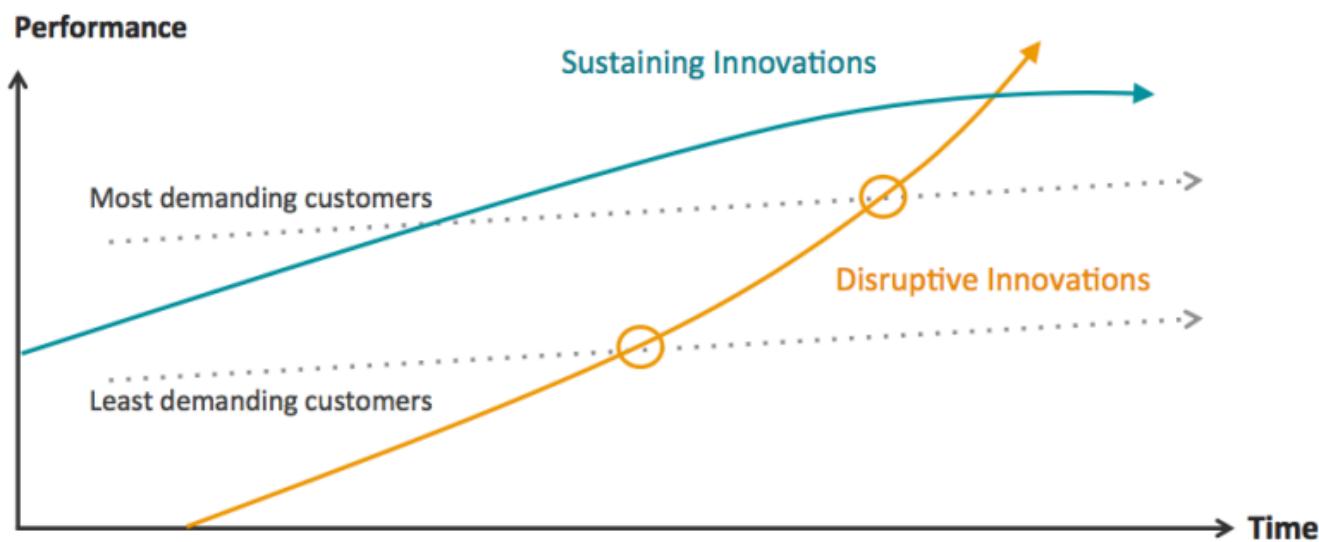
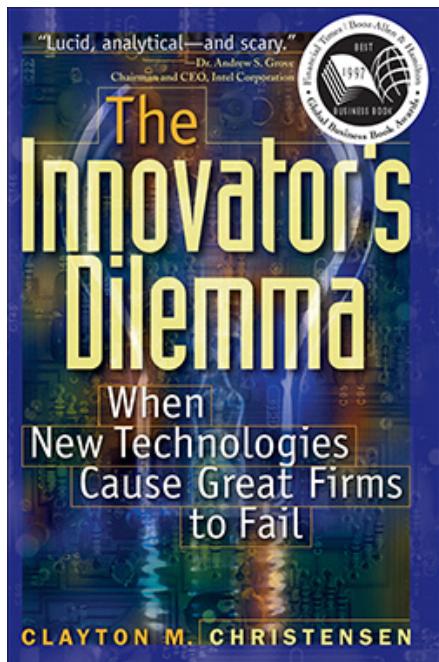


# Why does disruption happen?

- Data scientist as advisor not decision maker
  - Domain expertise and experience often win out over data
- Data-driven approach enables a completely different business model
  - E.g., A la carte streaming vs fixed number of channels
  - Cannibalization concerns
- Or requires a different human-machine collaboration model
  - E.g., Lilt for translation

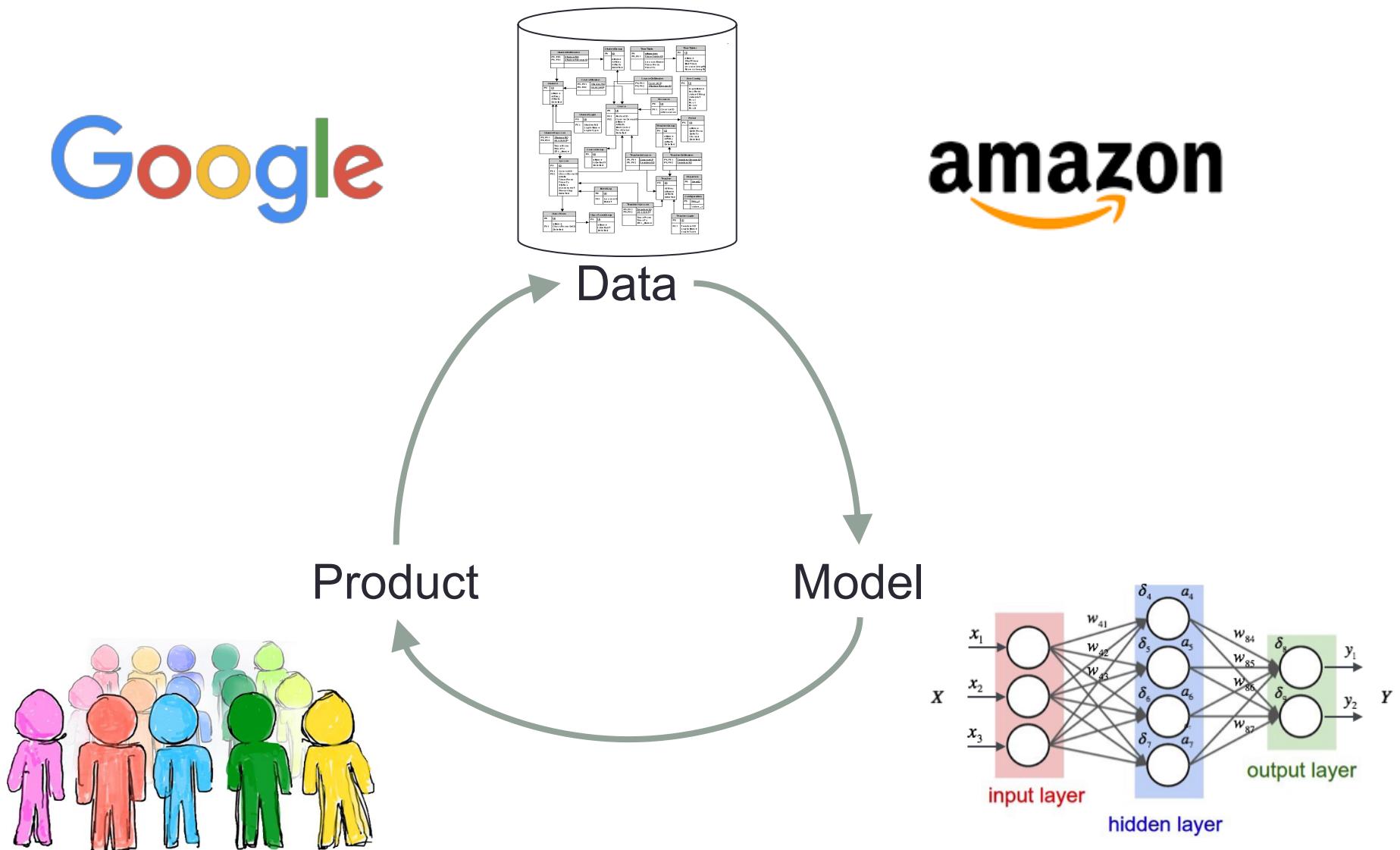
# Why does disruption happen?

- Classic Innovator's Dilemma with a turbo-boost: **data network effects**
  - Accelerates the pace of disruption



Adapted from *The Innovator's Dilemma*, by Clayton Christianson

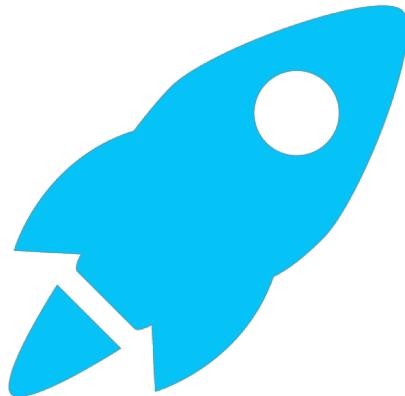
# Data Network Effects



# Disruption Case Study: Venture Capital

- Venture Capital has been an established industry for several decades
  - Process has not changed much since early days
  - VC firms expect entrepreneurs to approach them with pitches
- Some VC firms have tried using data
  - Data scientists in advisory role
  - Not partners who make investment decisions
- High concentration in Silicon Valley
  - And a few other places...

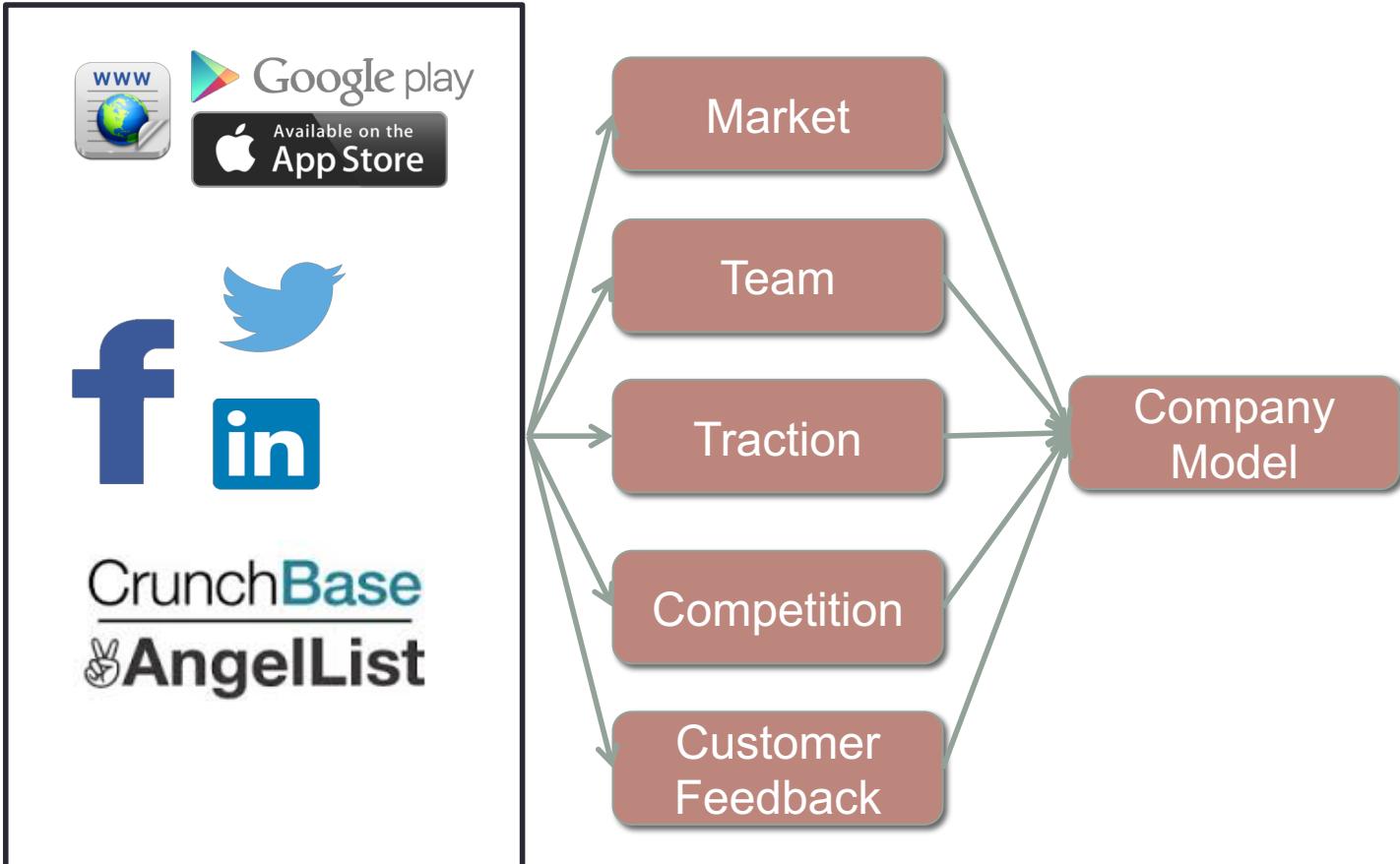
Sets the stage for...



**rocketship.vc**

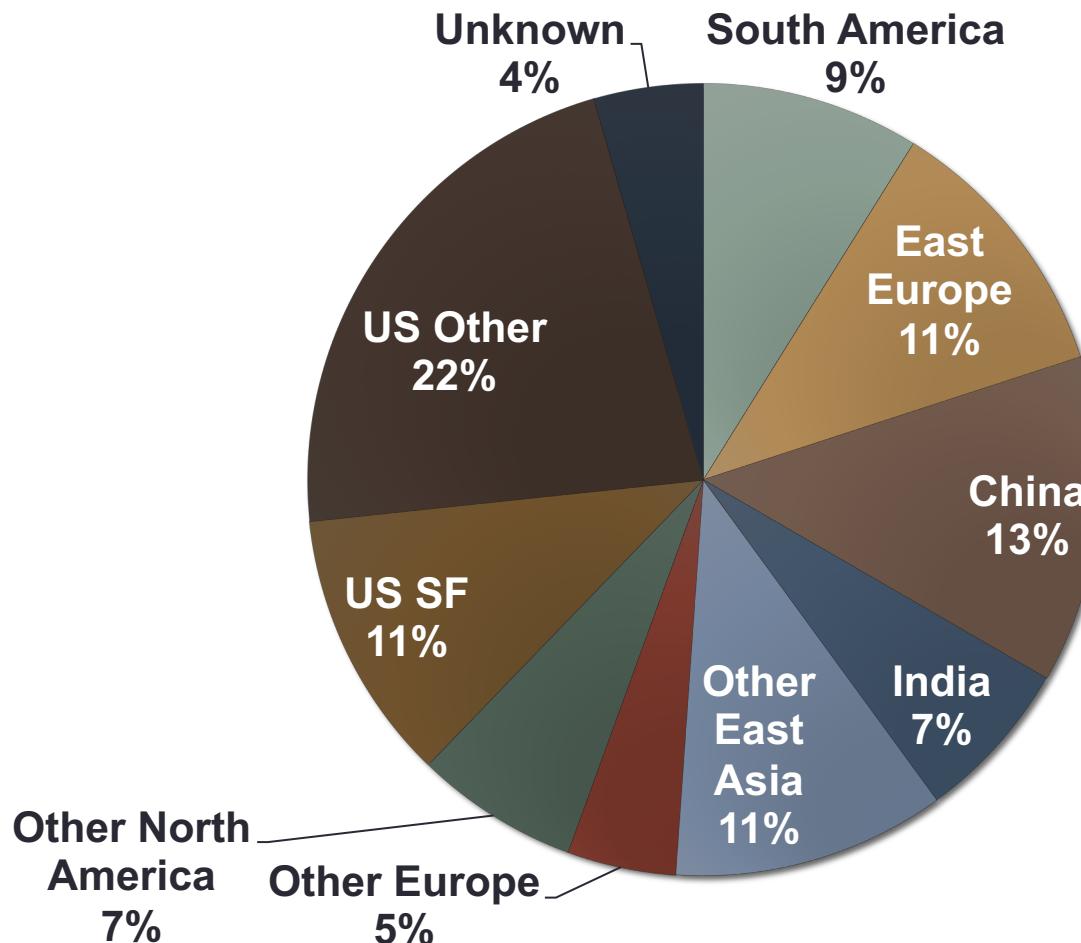
Data-Driven Venture Investing

# The Company Model



# Business Model Innovation

- Proactively identify interesting companies and reach out to them at the appropriate moment



# Optimize or Disrupt?

- ML for radiology?
- ML for handling customer support enquiries?
- ML for cashier-less supermarket checkout?
- ML for drug discovery?

# Optimize or Disrupt?

- Key question for every entrepreneur (and researcher too!)
  - Often difference between success and failure
- Hard to answer in general, but look out for disruption cues
  - Established, fragmented industry
  - Slow to adopt latest technology trend
  - Asset-heavy models
- Risk/reward tradeoff
  - Disruption is much riskier but the rewards compensate

# Go Forth And Disrupt!

Sciences

Security

Education

Manufacturing

Entertainment

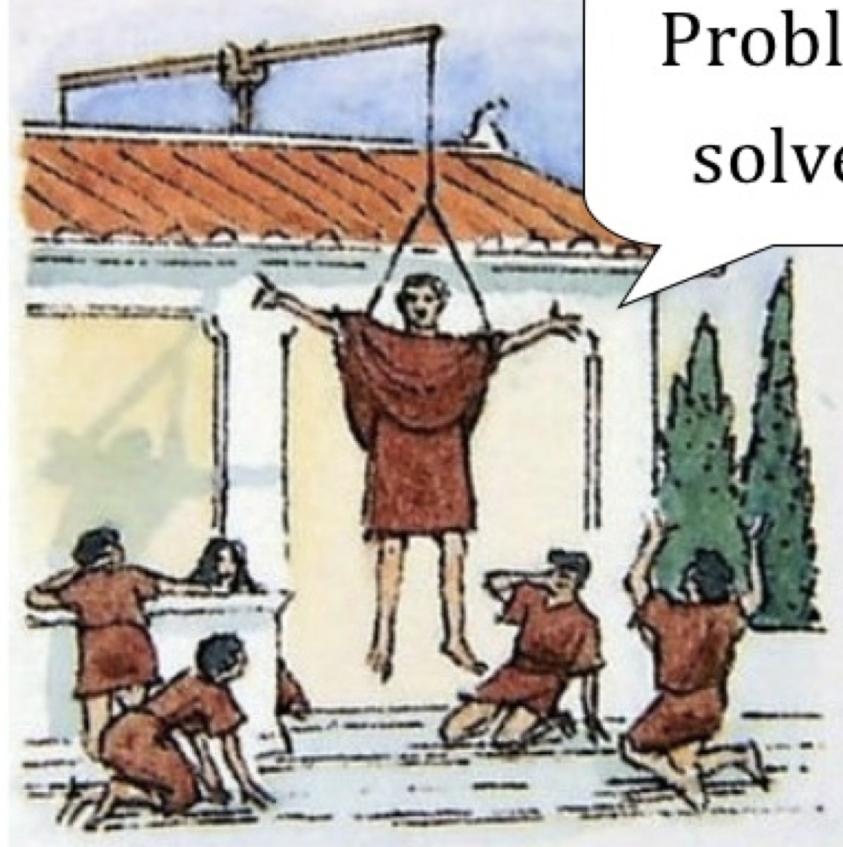
Government

Commerce

Transportation

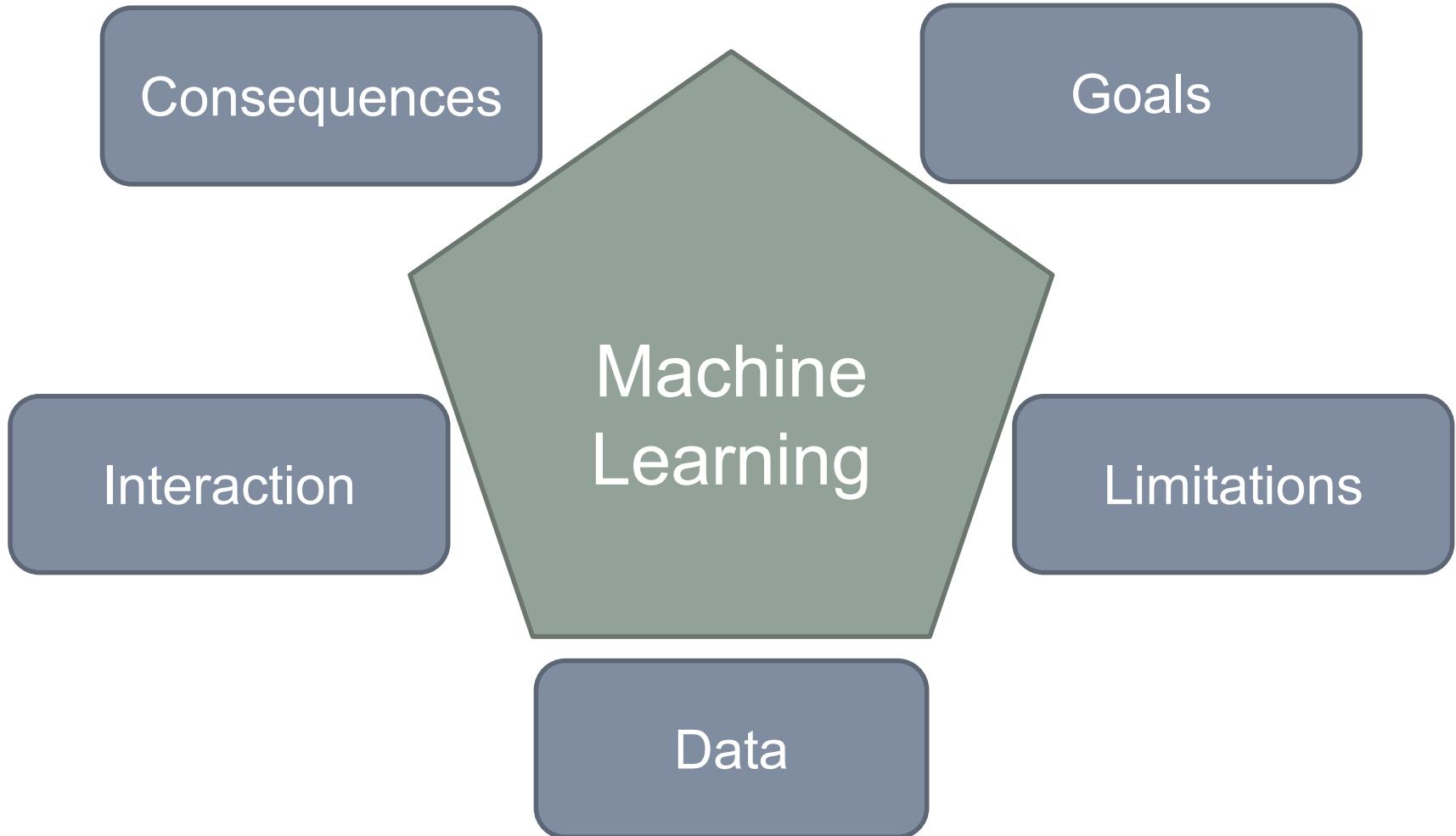


# Machine Learning as Deus ex Machina



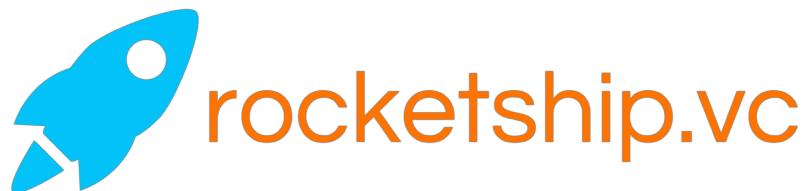
Problem  
solved!

# Designing Machine Learning



# Thanks!

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