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SIMPLICITY IS GENIUS.

Bridging the Gap Between Data Scientists and Senior Leadership

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Predictive Analytics World
Las Vegas
June 5, 2018

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ABOUT ME

Born and raised near Detroit
Home: Ferndale, Michigan

University of Michigan, BA 2008
Michigan State University, MPP 2011
London School of Economics, MSc 2013

Quicken Loans, Data Scientist (2013–2015)
Quicken Loans, Data Science Team Leader (2015–Present)

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REAL TALK

Data Science takes decision-making control away from senior leaders.

"The advances of brilliant machines will astound us, but they will transform the lives of senior executives only if managerial advances enable them to... / ...there's a need for senior leaders to "let go" in ways that run counter to a century of organizational development." **-McKinsey, 2014**

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REAL TALK
Business leaders need to understand that business itself has changed.

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REAL TALK
Data Scientists don't think enough about business value.

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REAL TALK
Data Scientists need to learn how to sell & be more assertive.

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REAL TALK
Data Scientists too often ignore this problem.

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MY GOAL

Provide practical advice for bridging this gap, unleashing the full potential of Data Science in your enterprise.

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OUTLINE

Simplicity in:

- Purpose & Function
- Methods
- Concepts
- Vision
- Delivery

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PURPOSE

Data Analytics

Output: Insights
Goal: Inform the actor
Focus: The "What"

Example Questions:

- What's the elasticity of demand for mortgages?
- What makes a client likely to close a loan with us?
- What words should we include/exclude from call scripts to potential clients?

Data Science

Output: Decisions
Goal: Be the actor
Focus: The "How"

Example Questions:

- How do we incorporate demand elasticity into our pricing engine?
- How do we engage with each client to ensure they close with us?
- How do we personalize call scripts to each client, maximizing their chances of closing?

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PURPOSE

Data Analytics

Output: Insights

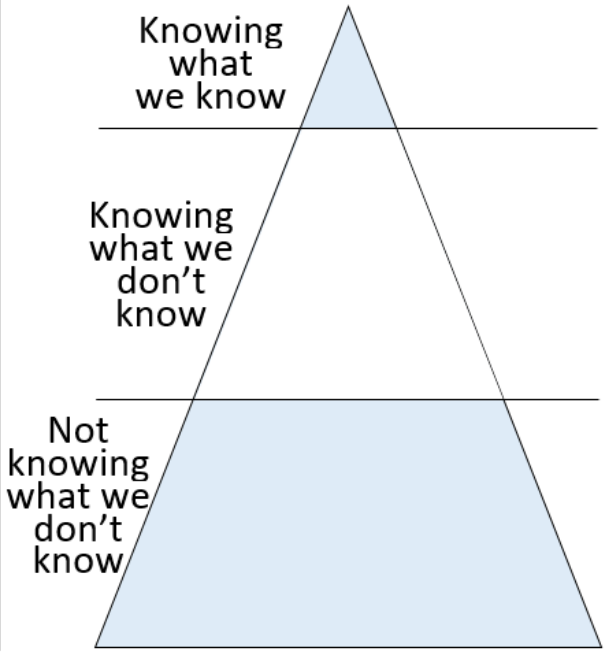
Goal: Inform the actor

Data Science

Output: Decisions

Goal: Be the actor

	Data Analytics	Data Science
Descriptive	**100%**	**25%**
Predictive (Correlation)	**75%**	**25%**
Predictive (Causation)	**50%**	**75%**
Prescriptive	**0%**	**100%**
Machine Learning	**0%**	**100%**



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PURPOSE

Data Analytics

Output: Insights
Goal: Inform the actor
Focus: The "What"

Positioning:

- In the trenches with senior leadership, advising strategy & tactics with an objective voice.

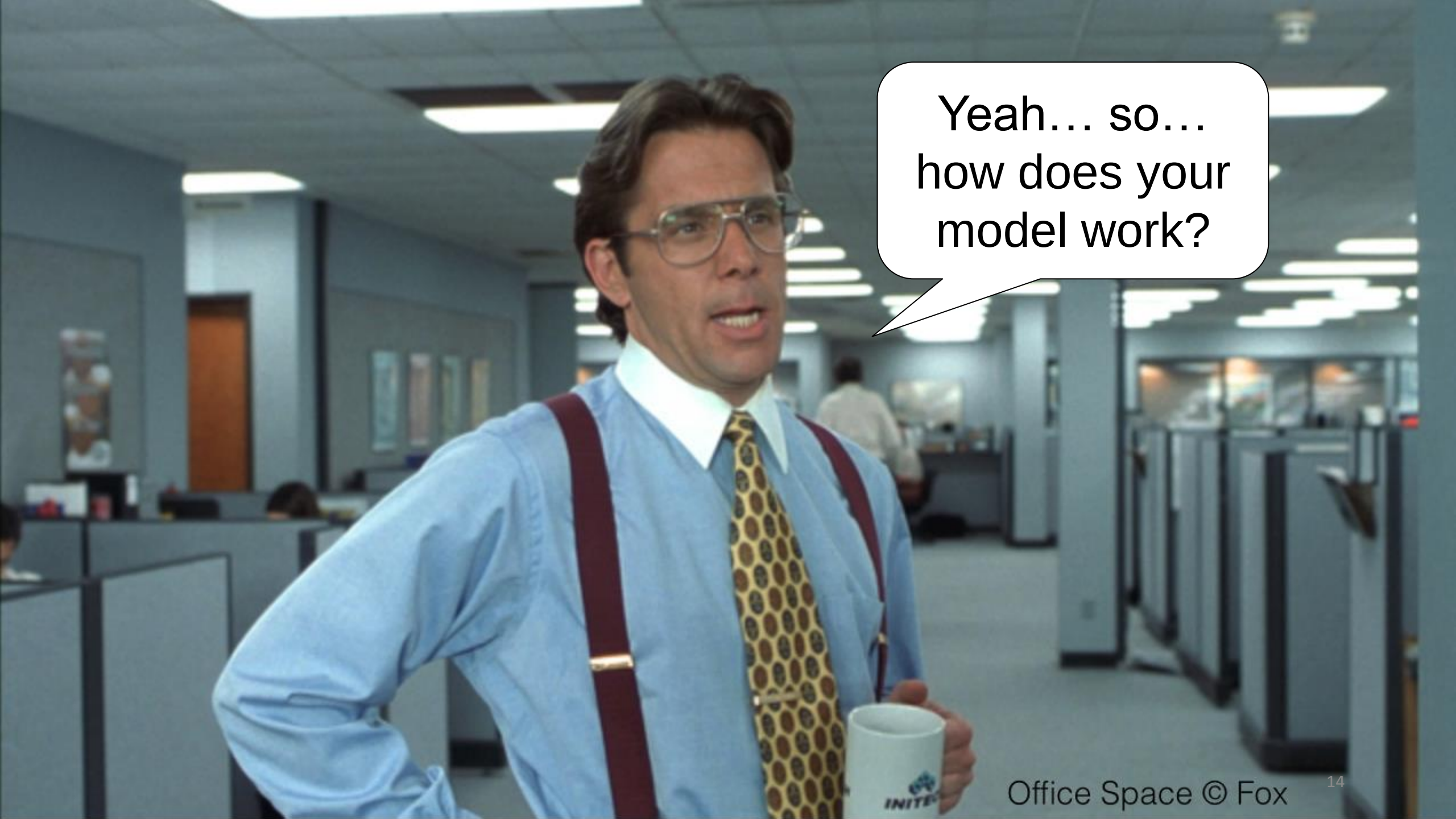
Data Science

Output: Decisions
Goal: Be the actor
Focus: The "How"

Positioning:

- Aligned on longer-term strategy with senior leadership.
- Freedom to innovate.

And then, the dreaded question…


Yeah… so… how does your model work?
Office Space © Fox

Credit: MachineLearningMastery.com

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METHODS

Instead, focus on evaluation criteria:

- What does accuracy mean? Is your stakeholder aware of it?
- What's the value of this working?
  - Also, what's the risk of getting it wrong?

Yeah… so… why'd you do it this way?
Office Space © Fox

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METHODS

Why did you solve the problem in this way?

- The problem often dictates the solution.
- You chose this model because:

A. The data looked a particular way.

B. Selecting this model achieves X more value than a competing model.

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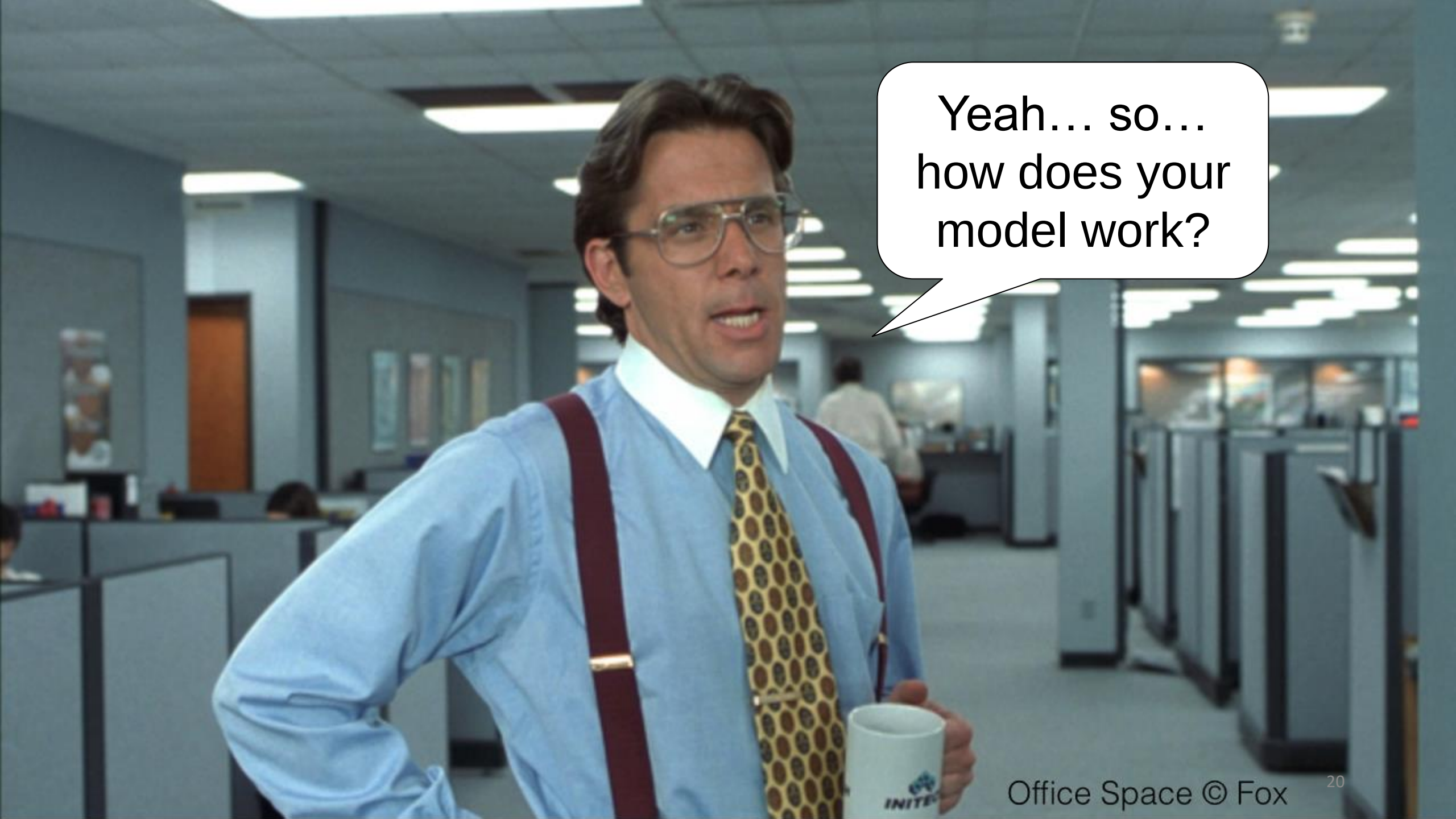
METHODS

For example: Our client segmentation model allow us to understand how to automatically customize e-marketing campaigns to a specific client.


Yeah… so… how does your model work?
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METHODS

You DO NOT say:

"It's a Regularized Multinomial Logistic Regression model that optimizes the log likelihood function using a log concavity bound."

AHH!

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METHODS

You DO say:

"It's a type of classification model that measures the likelihood a client belongs to a particular group. By the way, here's what defines a group, and here's the dollar impact of using this model for marketing."

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Talk about the functions of your models in terms of the value it provides your business.

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METHODS

You don't need fancy jargon to sell a business stakeholder on your solution.

- **Instead, you need to clearly state:**
  - The expected value.
  - The effort and deadline.
  - The assumptions you're making.
  - The hypothesis you're stating.

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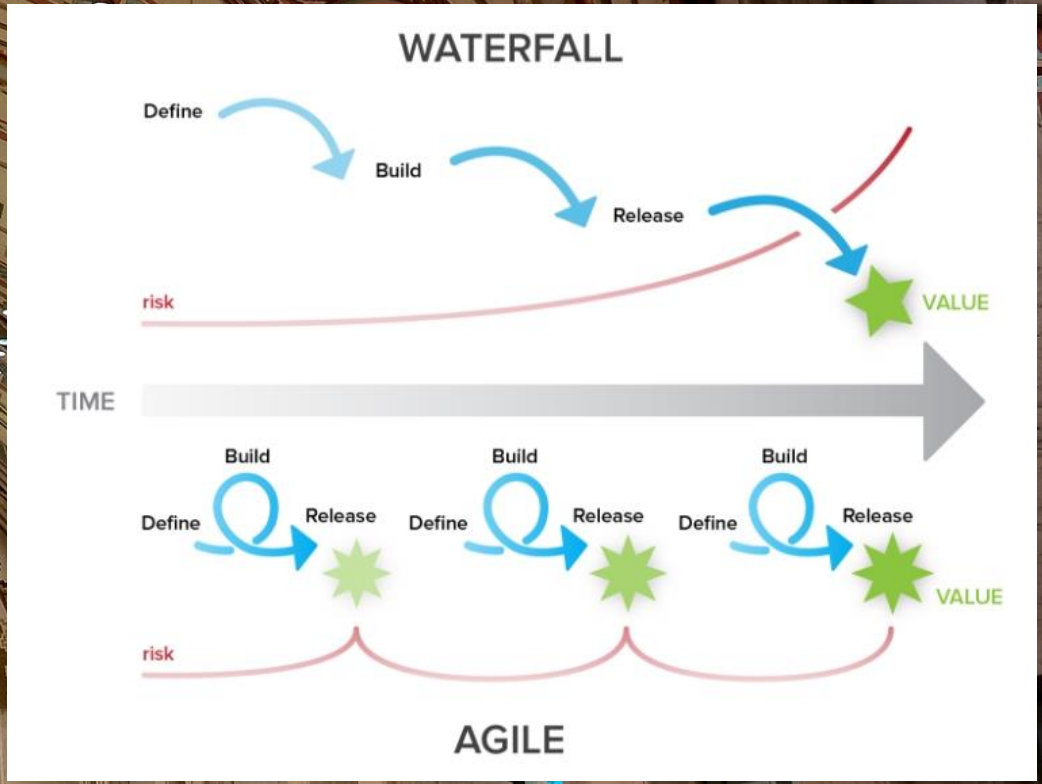
DELIVERY

- Hypothesis-Driven
- Data Science should be “Agile”
- Value Delivery is Continuous



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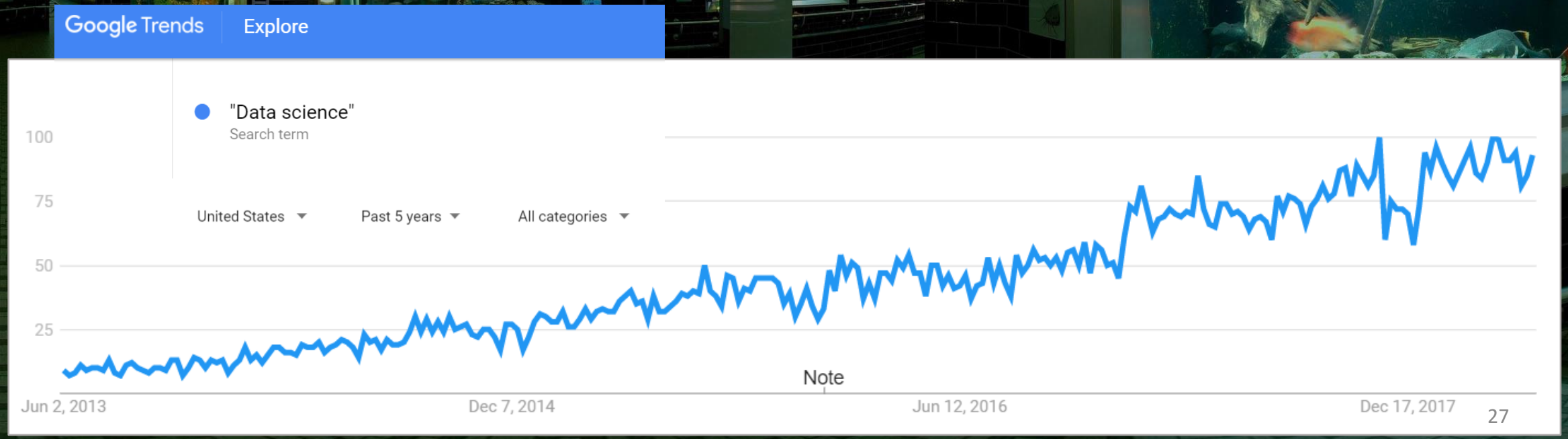
VISION

Interest in the term "Data Science" is up 10x since 2013.



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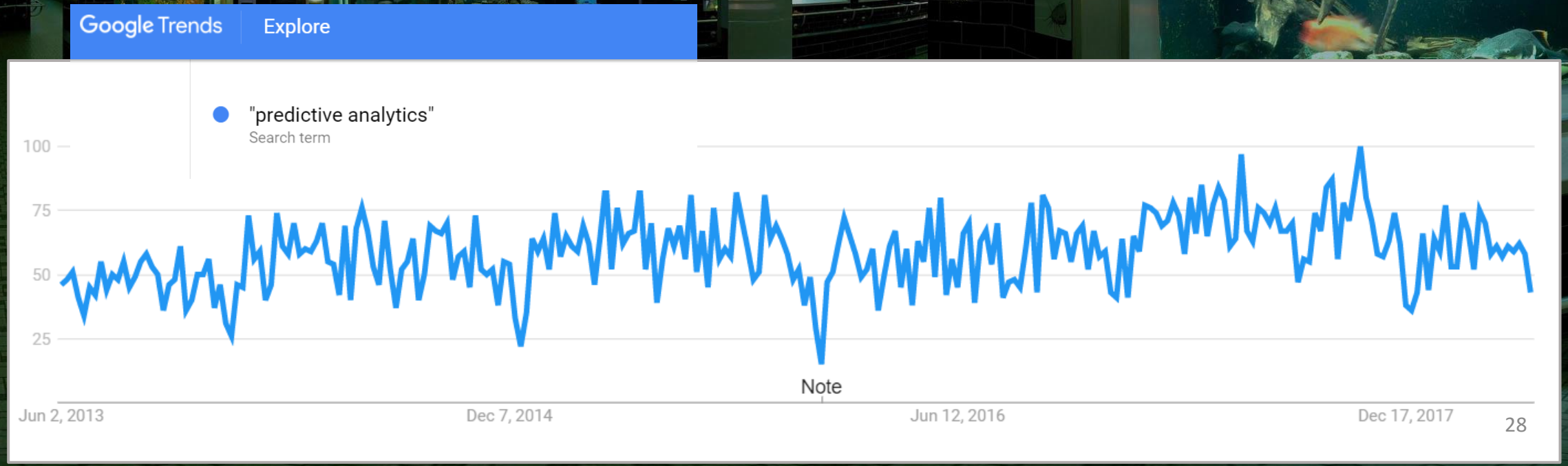
VISION

Interest in "Predictive Analytics" in contrast, has been flat.



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VISION

Why?

Data Analytics: Inform the Actor

Data Science: Be the Actor

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VISION

"As the amount of data goes up, the importance of human judgment should go down." -Andrew McAfee

Harvard Business Review 2013

- **A vision for Data Science should be a vision for your business itself.**
- **Transformative Change is the "Ante to Play"**

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VISION

"As the amount of data goes up, the importance of human judgment should go down." -Andrew McAfee

Harvard Business Review 2013

- **Humans:** Create the vision.
- **Machines:** Execute on it.

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Thank you!
Any questions?