

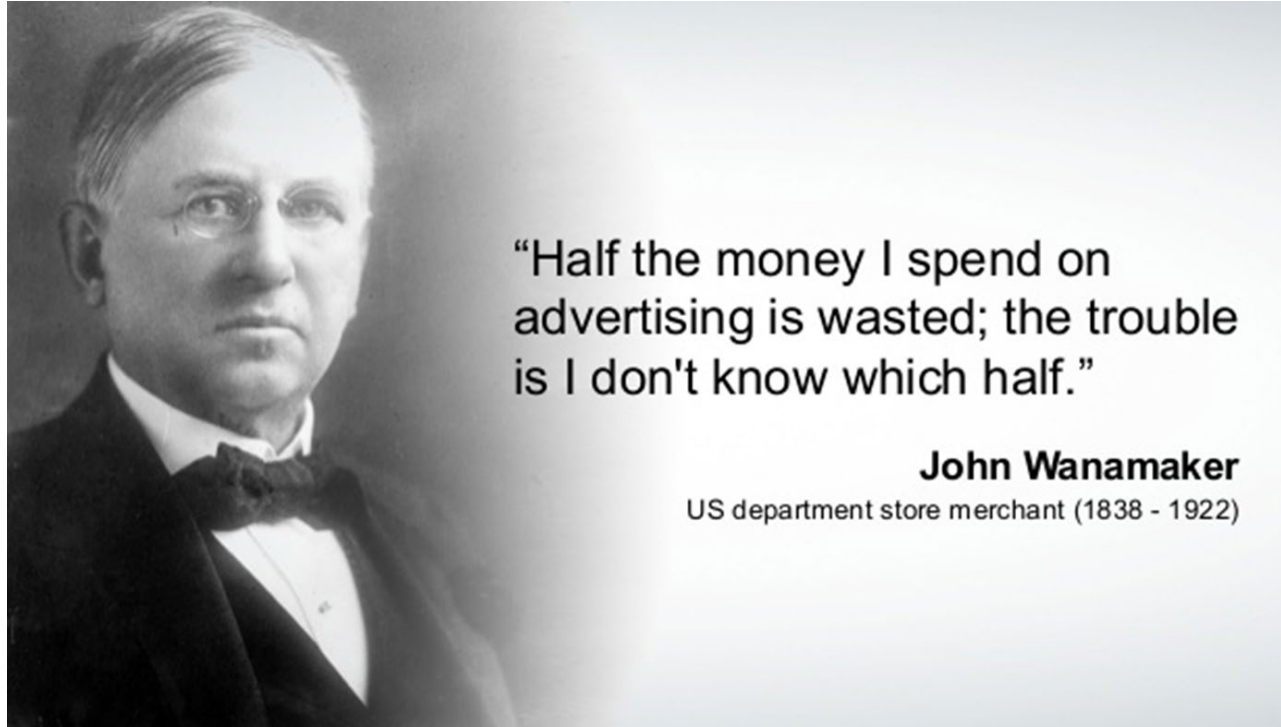
sam's club 

The Science Behind Persuasion:
How Machine Learning is Transforming
Marketing

Contact:

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A big part of the job of a Data Scientist who works in Marketing is to help answer an age-old question



Sam's Club Road to Incrementality: The Implementation of an Experimentation Culture

Digital infrastructure expansion

- RCT with ghost ads

RCT and ML driven unified measurement solution for optimization of all marketing channels

Where to start?

- Executive leadership sponsorship
- Data Science and Marketing alignment

Not all channels are the same

- Direct mail holdouts
- Other channel experiments
- Partner network

What can be done beyond experiments? OMEGA launch:

- Uplift models
- Next-best-action
- Item optimization



Hmm, this
could take a
while...












... or maybe the road is more like this sometimes. It's fun!

Adopting Incrementality: At the end of the day, it's always a culture/people challenge

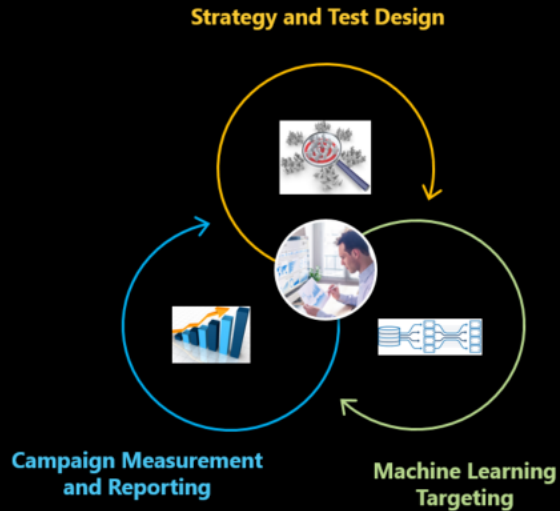
- **Have executive sponsorship. Associate will come to you for partnership and you don't need to push your experimentation agenda.**
- **Gary Loveman, while he was CEO of Caesars Entertainment, said during a MIT Sloan interview *"there are three ways to get fired from the hotel and casino company: theft, sexual harassment, and running an experiment without a control group."***
- **Center of Excellence: Hub and Spoke org structure with Analytics dotted line to the business teams.**
- **Shared goals between Data Science and Marketing departments.**
- **Become friends with the Finance department, not just your Marketing partners.**

Complexity and Accuracy Trade-Off

Methodology	Accuracy	Cost	Data Scientist Emotions
1. Correlation, Pre vs. During 'incrementality'			
2. Black Box reporting			
3. Single attribution (first touch/last touch)			
4. Multi-Touch-Attribution (MTA)			
5. Synthetic control			
6. Marketing Mix Modeling (MMM)			
7. Randomized controlled trials			

Marketing Analytics at Sam's Club: Closed loop experimentation ecosystem

Experimentation Culture



Machine Learning Models for each step in the Membership and Marketing Lifecycle



Acquisition

- Look-alike models
- Segmentation



Upgrade / Downgrade

- Downgrade prevention model
- Upgrade model



Engagement

- Decision trees
- Propensity models
- Basket / Complementary models
- Uplift models
- Next-best-action models
- Multivariate tests

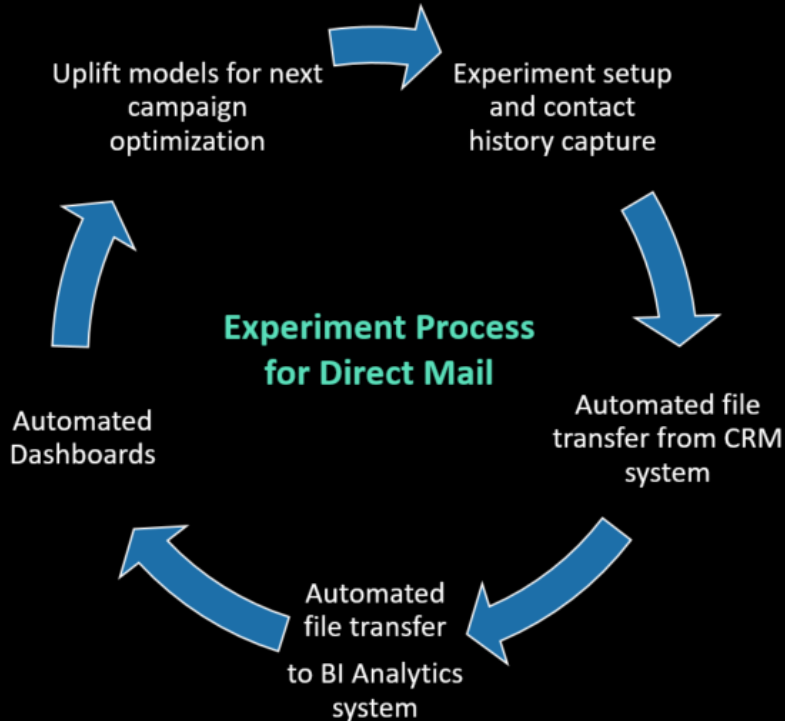


Renewal

- Winback models for lapsed members
- Renewal prediction model





How machine learning transformed the direct mail channel

OMEGA > Sam's Machine Learning Platform Automated Measurement Suite



Uplift Models: the Science behind Persuasion

Members buy if they receive an offer

DO-NOT-DISTURBS  Sleeping dogs. Receiving DM might have opposite effect.	LOST CAUSES  will not buy even if receiving DM.
SURE THINGS  those who will purchase regardless of receiving DM or not. Often referred to as passive redeemers.	PERSUADABLES  those who will not purchase without a DM offer. Target group!

Members buy if they don't receive an offer

- Uplift modeling is a machine learning technique that focuses on maximizing incremental sales.
- When compared to traditional targeting approaches, uplift models resulted in dramatically higher incremental sales.

OMEGA

MACHINE LEARNING TARGETING AND AUTOMATED MEASUREMENT SUITE



**Uplift models to maximize
sales lift**



2020 winner in the category
"Marketing Analytics Adoption"

**Next-best-action purchase
model to increase members
likelihood to renew**

**Total box down to an item level incremental sales
reporting for advertising assortment optimization**

We Are Hiring!

For more info, please reach out to:
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