



**Twitter hashtag:
#pawcon**

DDBW:

- Predictive Analytics World
- Text Analytics World
- eMetrics
- Conversion



Keynote:

Persuasion by the Numbers:

Optimize Marketing Influence by Predicting It

**Predictive Analytics World
October 19, 2011**

**Eric Siegel, Ph.D.
Program Chair
Predictive Analytics World**

Agenda

- **Predict behavior**
- **Predict influence with *uplift modeling***
 - Direct marketing
 - Retention
 - Other applications
- **Analytical methods**

Predictive Analytics:

Data driven technology that produces a predictive score for each customer.



```
graph LR; A[(Customer data)] --> B[Predictive modeling]; B --> C([Predictive model]);
```

Customer
data

Predictive modeling

Predictive
model



Today



Tomorrow



Today



Tomorrow

3%



Today



Tomorrow

3%



Predict:



“You didn't have to be so nice; I would have liked you anyway.”

– The Lovin' Spoonful, 1965



marketing influence on

Predict  customer behavior.

Uplift modeling:

Analytically modeling to predict the influence on a customer's buying behavior that results from marketing contact.

“How much more likely does contact make the desired outcome?”

Are You Uplifting?

only

Will the customer buy \wedge if contacted?

only

Will the patient become healthy \wedge if treated?



Trials of A

Test



Trials of B

Control

Response Uplift Modeling

Buy if **do**
receive an offer

No	Do-Not-Disturbs	Lost Causes
Yes	Sure Things	Persuadables
	Yes	No



Buy if **don't**
receive an offer



COST CUTTER:
Don't contact those
who'd respond anyway.

Predict:

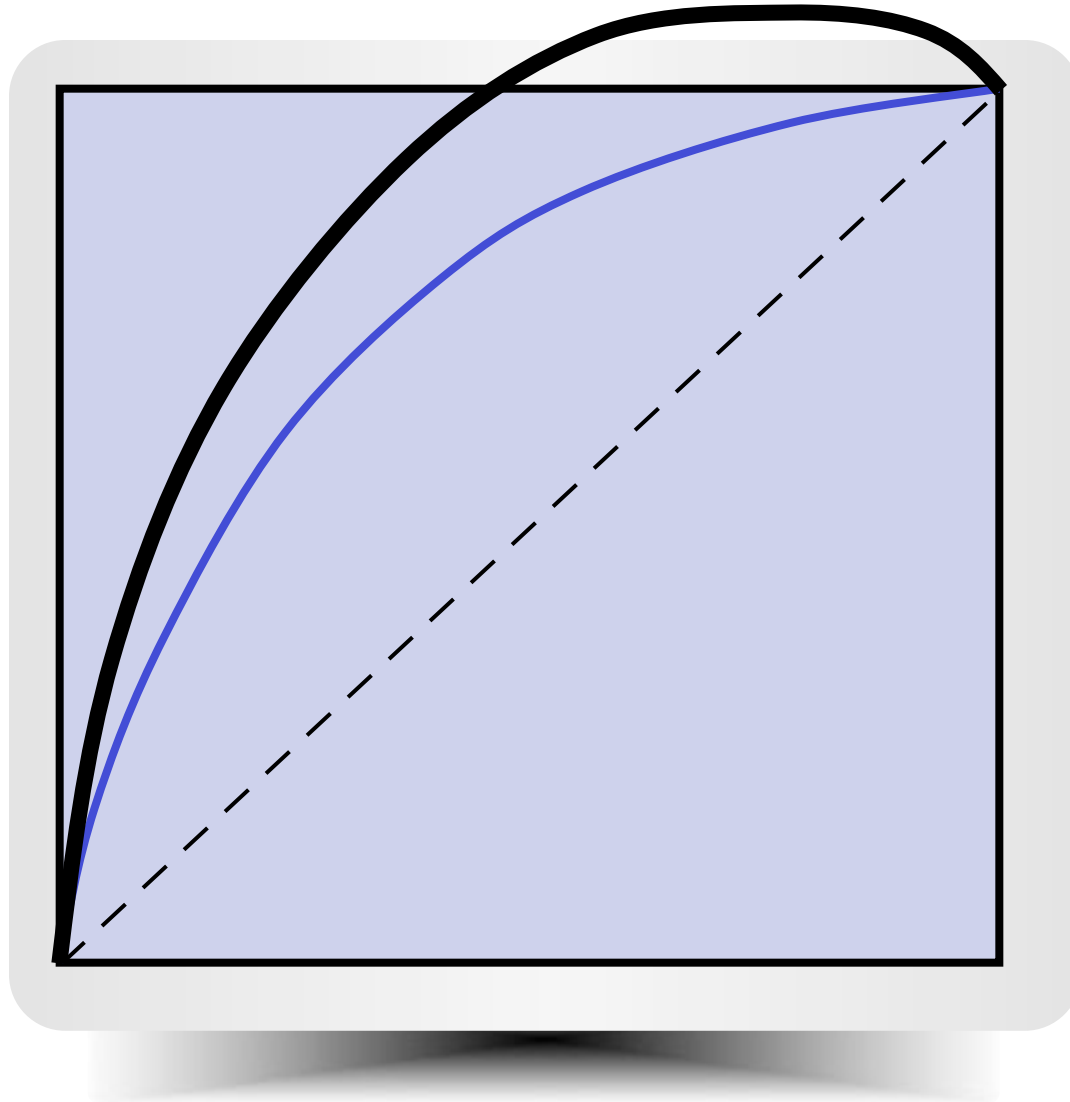
Respondents
“Sure things ”
“Do-not-disturbs ”



“Uplift modeling empowers your organization to capture more than 100% of responses by contacting less than 100% of the target population.”

Kathleen Kane
Principle Decision Scientist
Fidelity Investments

Uplift Gains



US Bank

Business case: Direct mail for a home-equity line of credit

Approach: Target campaign with an uplift model

Resulting improvements over prior approach:

- Campaign ROI increased over 5 times
 - Costs down 40%
 - Lift up 2 times
-

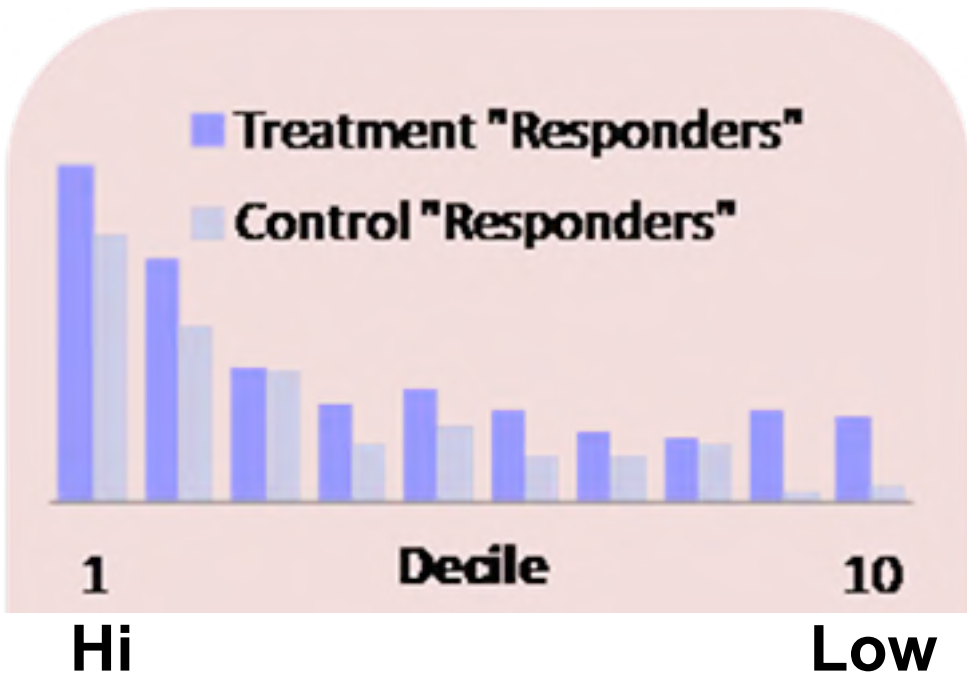
Leading financial institution

Business case: Direct mail for a financial product

Approach: Target campaign with an uplift model

Resulting improvements over prior approach:

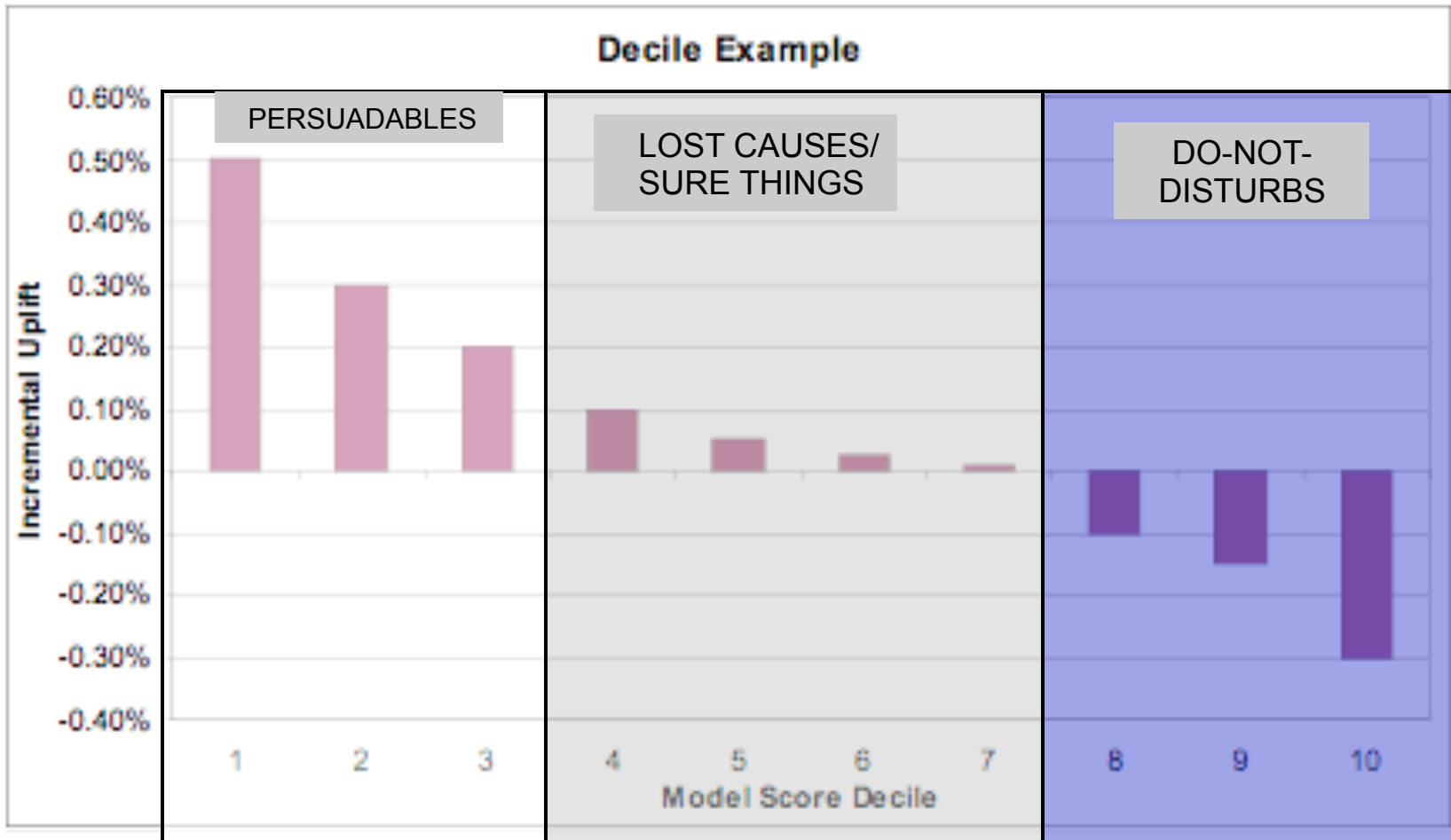
- Increased revenue per contact by a factor of 20



Mining for the Most Truly Responsive Customers
Kathleen Kane, Fidelity

Session: Today, 4:15pm

Uplift Model Deciles





Response modeling:

→ Model those contacted



Churn modeling:

→ Model those not contacted

Test BOTH treatments and
incorporate ALL results
with *uplift modeling*

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Today



Tomorrow

Major N. American Telecom

10%-15% improvement to churn model via online behavior, including reviewing contract period

Major N. American Telecom

700% more likely to cancel if someone in your network does

Optus (Australian telecom)

Doubled churn model performance with *social data*



Contract expires → Cancel → Friends cancel



Churn Uplift Modeling

Leave if **do**
receive a retention offer

Yes	Sleeping Dogs	Lost Causes
No	Sure Things	Persuadables
	No	Yes

Leave if **don't**
receive a retention offer



"Leave well enough alone."
"If it ain't broke, don't fix it."
"Do not disturb!"



COST CUTTER:
Don't trigger those
who'd otherwise stay.





Today



Tomorrow

90%



Today

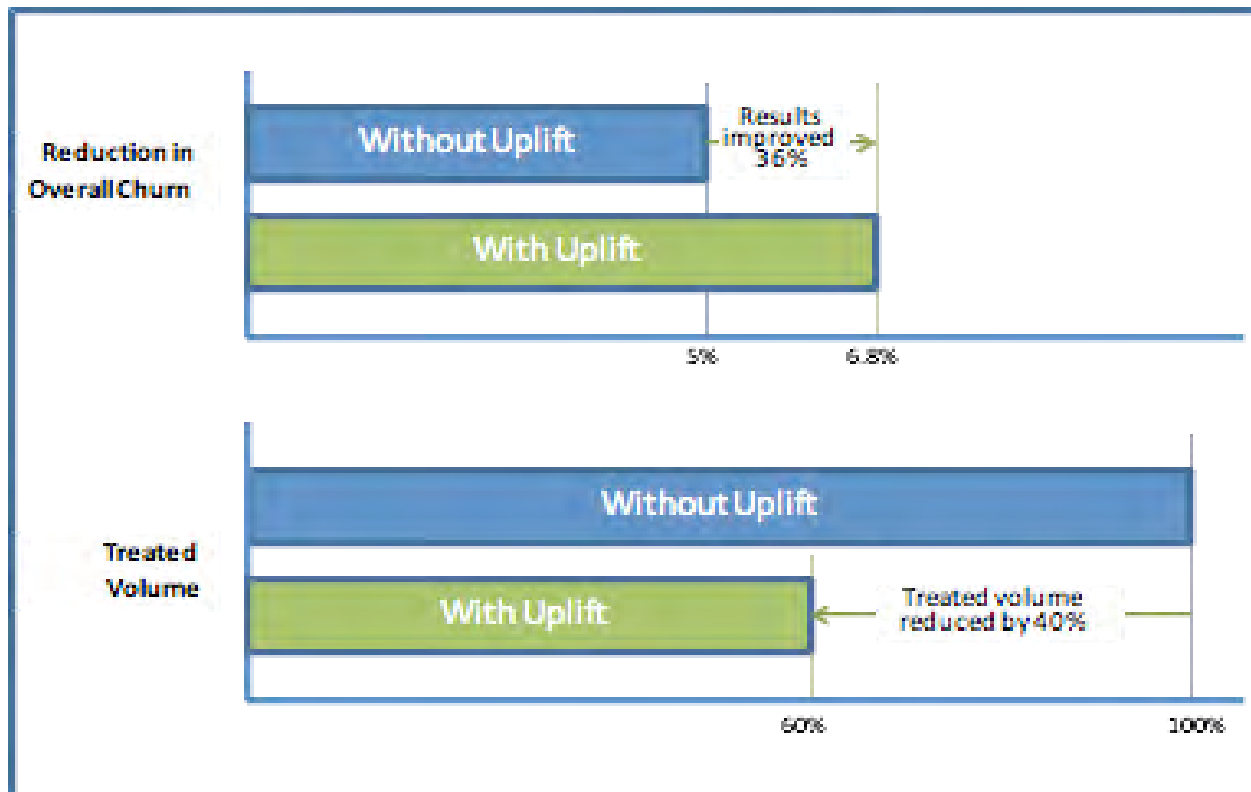


Tomorrow

90%

Telenor: world's 7th largest mobile operator - 159 million subscribers

- Campaign ROI increased 11-fold
- **Reduce churn a further 36% relative to baseline**
- Targeted volume reduced by 40%



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Applications of Uplift

Response uplift	<i>Contact?</i>
Churn uplift	<i>Retention offer?</i>
Content targeting	<i>With which ad, creative, etc.?</i>
Channel selection	<i>Which channel?</i>
Dynamic pricing	<i>Which price?</i>

Broader definition

Uplift modeling:

*Analytically modeling to predict the influence on a customer's buying behavior that results from **choosing one marketing treatment over another.***

“How much more likely is this treatment to generate the desired outcome than the alternative treatment?”



Trials of A

Test of *treatment A*



Trials of B

Test of *treatment B*

“Weigh your options.”



- If banner is seen:
- Related searches
+61%
 - Paid clicks
+249%



The Art Institutes is an established system of schools located in major cities throughout North America. The Art Institutes offer master's, bachelor's and associate's degrees, diplomas and certificate programs that specialize in the creative and applied arts, including design, media arts, fashion and culinary arts.

Our curriculum at The Art Institutes is carefully scrutinized and developed by industry leaders and prominent employers who tell us what skills are needed in the workplace. This means that your education is relevant, practical, and hands on.

Please enter your phone number

* ()

I am interested in starting

* ▼

High school graduation date

* ▼ ▼

Note: To ensure a personalized response, we will forward your contact info, academic qualifications, and preferences (as noted in your [Client] profile) to The Art Institutes.

**Yes, please have someone
from The Art Institutes
Admissions Office contact me!**

No, thanks

A-B test deployment:

- A. Legacy system based on acceptance rates across users
- B. Model-based ad selection

Results:

25% increased “take” rate; 3.6 – 5% revenue increase

Almost \$1 million per year in additional revenue, given the existing \$1.5 million monthly revenue.

More Applications of Uplift

Collections

Offer a deeper write-off?

Credit risk

Offer a higher credit limit or APR?

Electoral politics

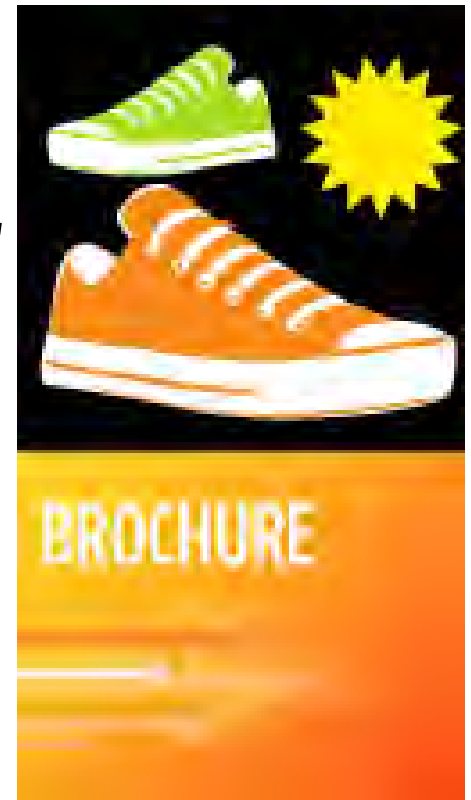
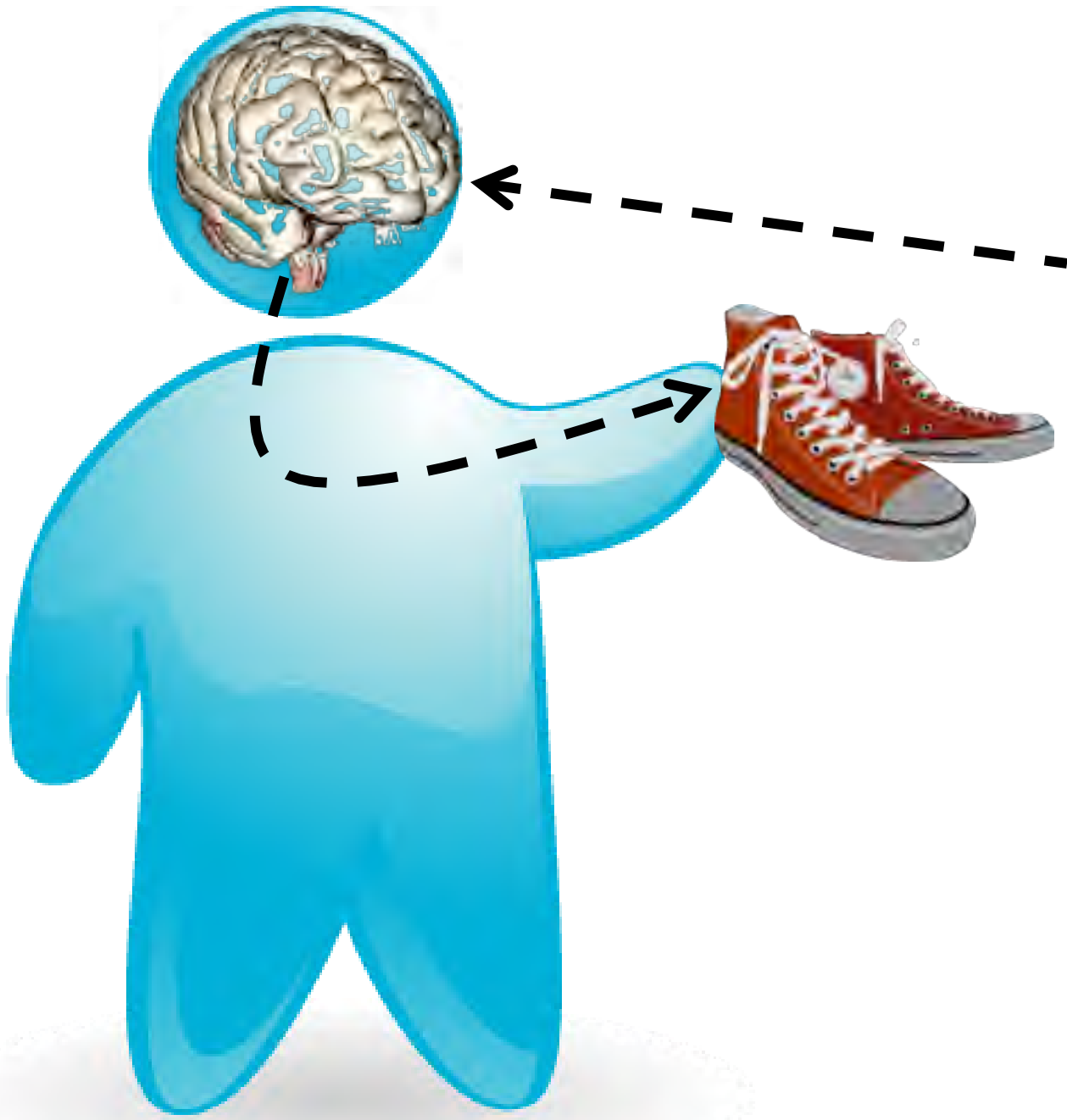
Campaign in a particular state?

Personalized medicine

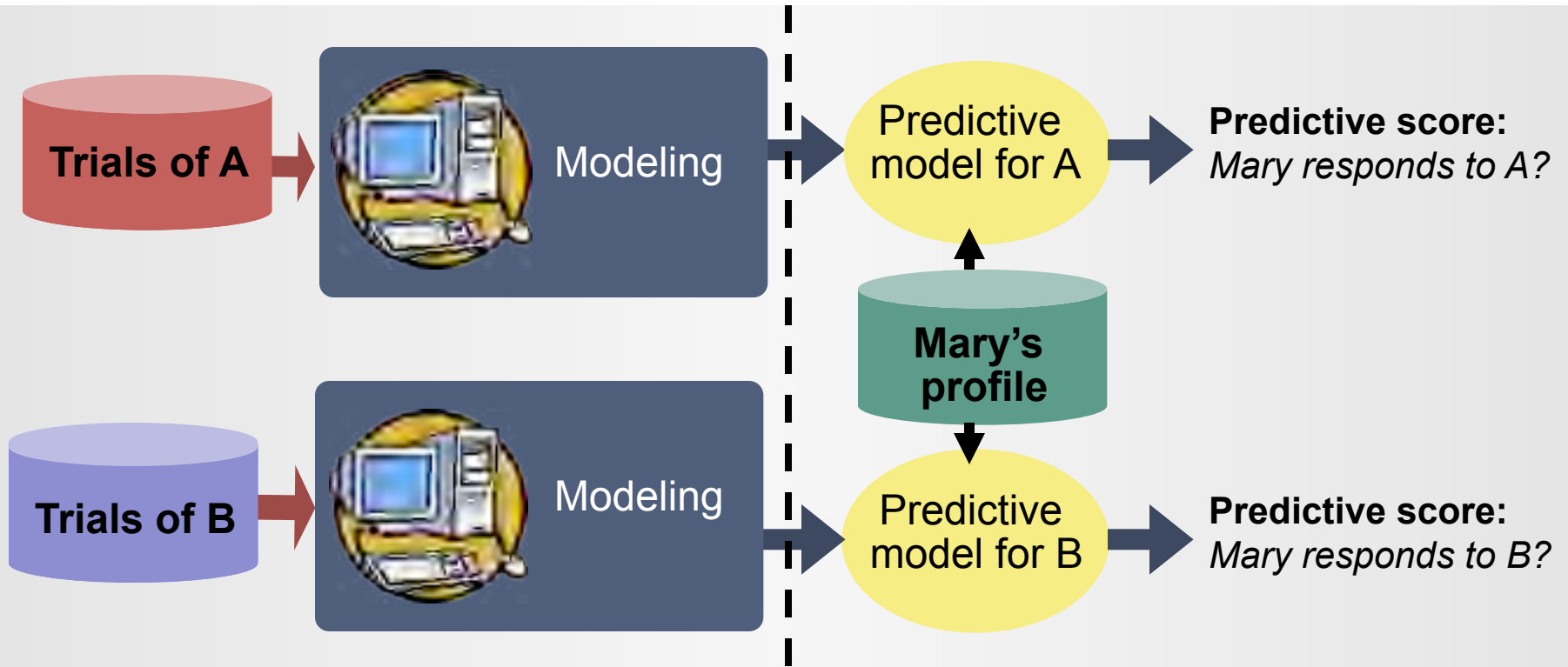
Apply which medical treatment?

Agenda

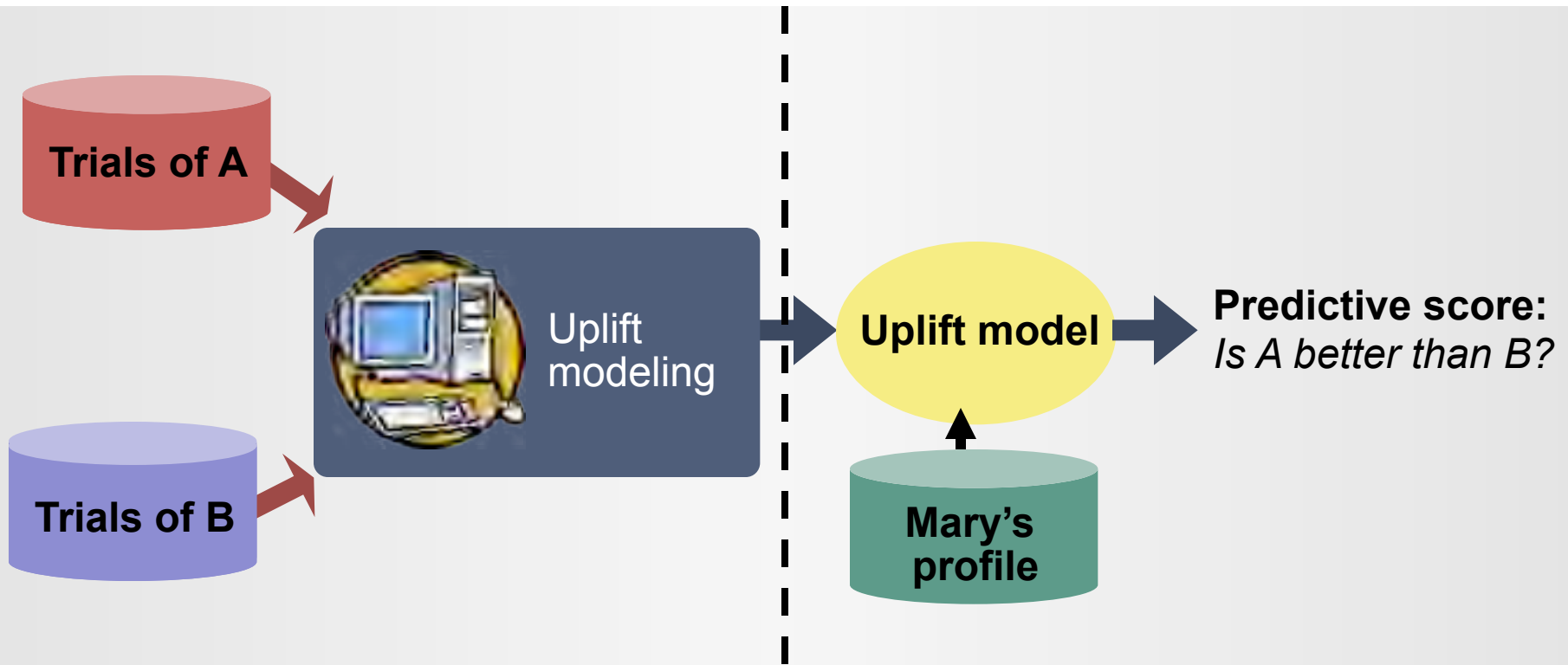
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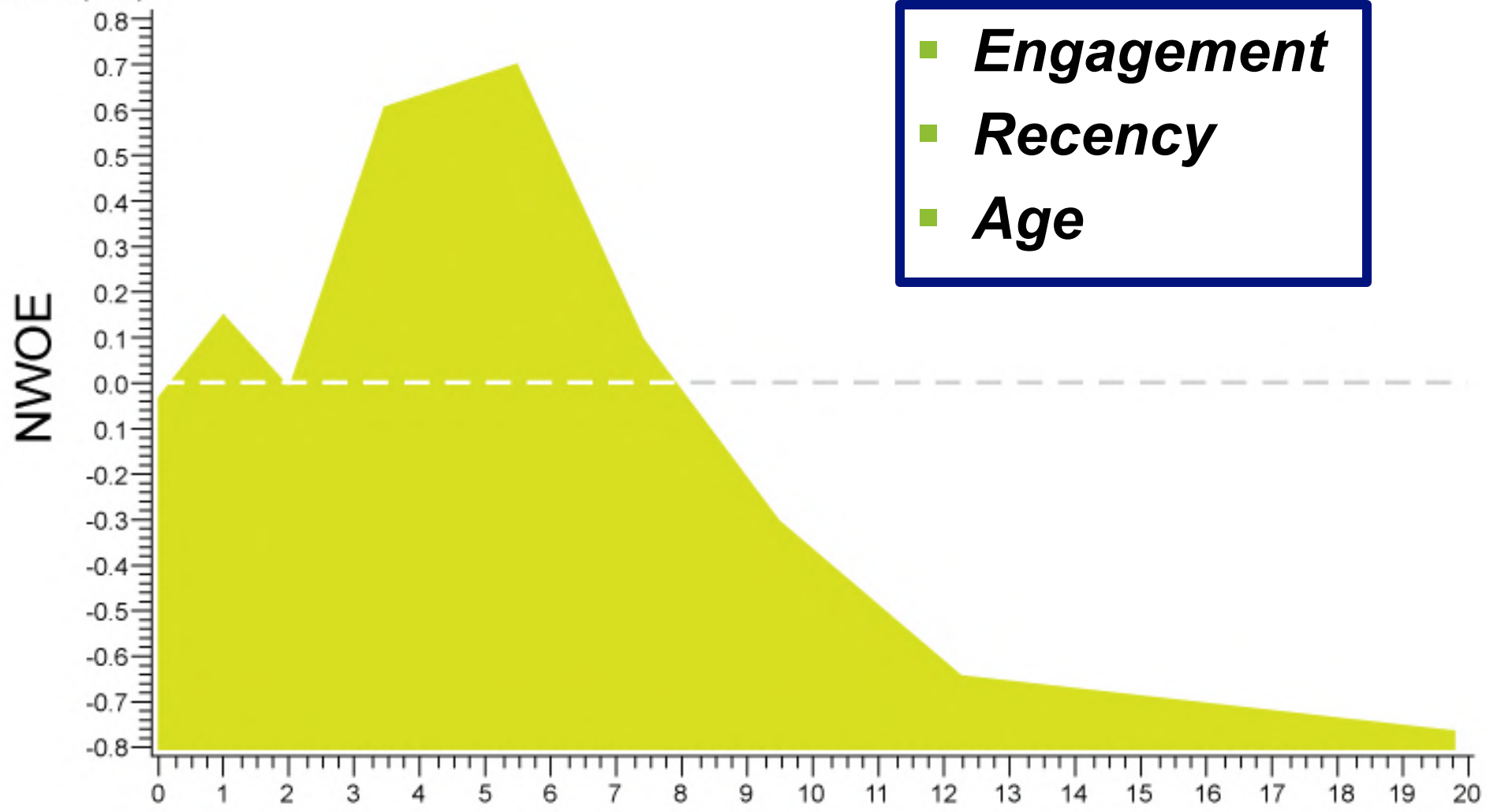
“Two-Model” Approach



Uplift Modeling



NWOOE (train)



- *Engagement*
- *Recency*
- *Age*

NWOOE

Open revolving accounts

Multi-Var Models

Response target segment: *High response rate*

Uplift target segment: *High impact*

US Bank – Direct Mail

Segment:

Has paid back more than 17.3% of current loan

– AND –

Is using more than 9.0% of revolving credit limit

– AND –

Is designated within a certain set of lifestyle segments

Purchase rate:

1.83% if contacted

1.07% if not contacted

Will Uplift Modeling Help Me?

Will customers buy without contact?

Can retention offers backfire?

Are both treatments non-passive?

Download the free white paper:

“Uplift Modeling: Predictive Analytics Can't Optimize Marketing Decisions Without It”

by Eric Siegel, Ph.D.

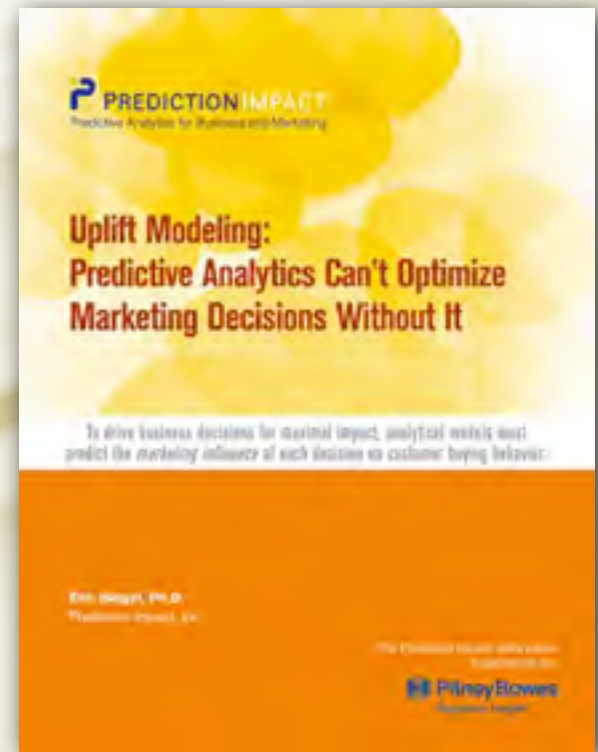
www.pawcon.com/signup-uplift-whitepaper.php

PAW Workshop - March 9-10, 2012 in San Fran:

‘Net Lift Models: Optimizing the Impact of Your Marketing’

by Kim Larsen

www.pawcon.com/uplift



Conclusions – Uplift Modeling

Predict:

influence

persuasion

impact



Predictive Analytics World Conference

Nov 30-Dec 1, 2011:

London, UK

2012: San Francisco,

Toronto, Chicago

"Predictive Analytics World was probably the best analytics conference I have attended... turned into my new must-go-to conference."

Dennis Mortensen

Director of Data Insights, Yahoo!

Bigger wins!

Strengthen the business impact delivered by predictive analytics.

www.pawcon.com

March 2011 drew over 500 attendees. PAW has included case studies from: *Acxiom, Amazon.com, Bella Pictures, Charles Schwab, ClickForensics, Google, The National Rifle Association, Pinnacol Assurance, Reed Elsevier, Sun Microsystems, TaxBrain, Telenor, Wells Fargo, Yahoo!* and many more.

98% of attendees rated
the instructor
Excellent or Very Good

PREDICTION IMPACT

Predictive Analytics for Business and Marketing

Training program:

Predictive Analytics for Business, Marketing and Web

October 27-28, 2011: San Francisco

March 22-23, 2012: New York City

businessprediction.com

