

Using Models to Optimize Performance

Improve ROI by targeting resources more intelligently

Predictive Modeling



Selecting the best audience.

- Maximize response rates.
- Target profitable accounts for retention.
- Minimize exposure to risk.

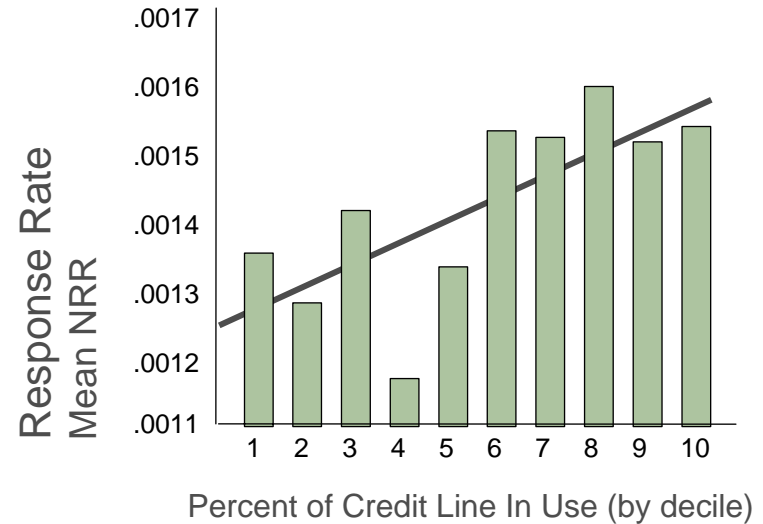
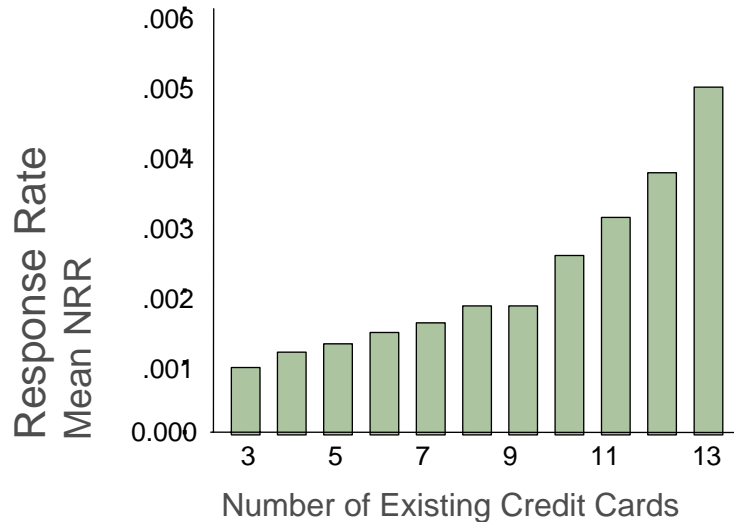
An acquisition example.

- Using direct mail to market credit cards:
 - Start with a universe of 100 million names from credit bureaus.
 - each names has 125 pieces of information attached.
 - for a total of 12,500,000,000 variables.
 - You may also have
 - contact history (previous times mailed, offers made, etc)
 - data from business partners (e.g., airline miles, recent purchases, etc)
- You want to select the best 5% of the names to mail.
 - finds data patterns associated with those who respond
 - build a model that predicts the likelihood of responding
 - use the model to select names based on these patterns

Creating a response model.

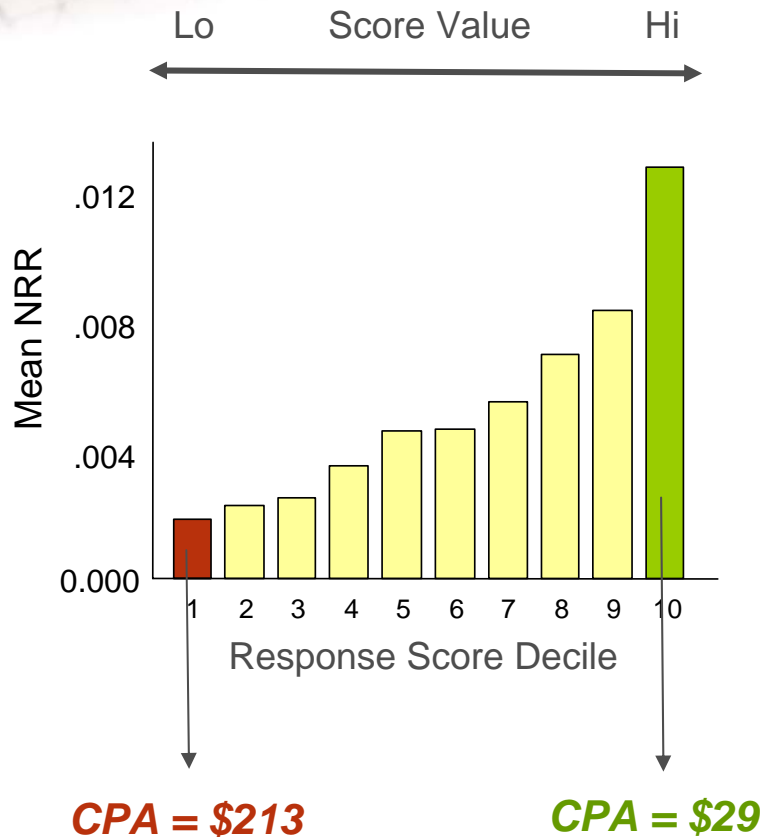
- Obtain examples of desired behavior:
 - take the last mail file of prospects and identify those who responded
- Describe individual prospects with data:
 - append credit bureau data, contact history, and partner data
- Build a mathematical formula to differentiate responders:
 - select personal attributes that are statistically correlated with response.
 - weigh these attributes.
 - combine to create an individual score
 - calibrate the score to predict the likelihood of responding.
 - compute a score for every individual

Selecting variables associated with response.



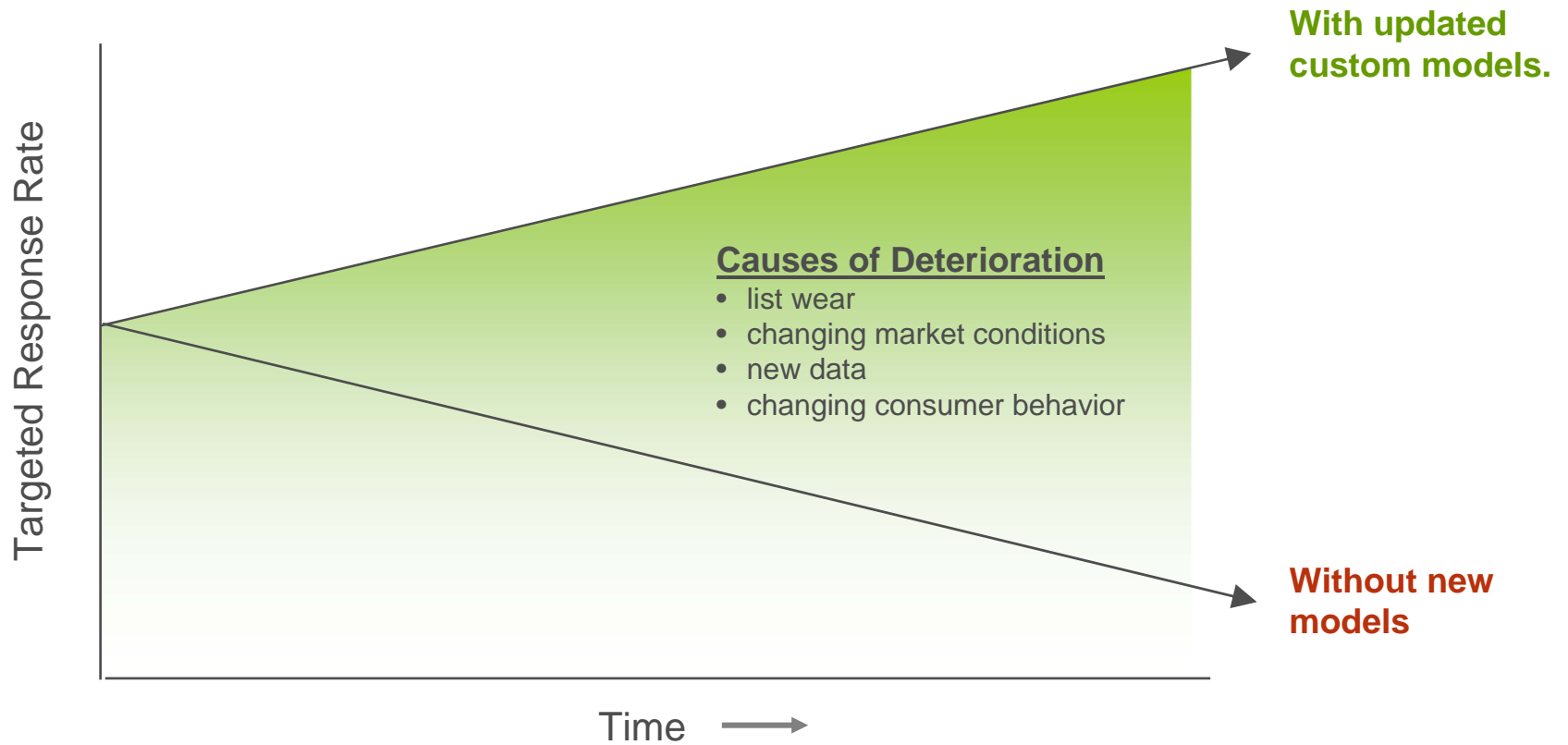
Once the variables are selected, statistical algorithms find the best weighted combination predictive of response.

Using the model.



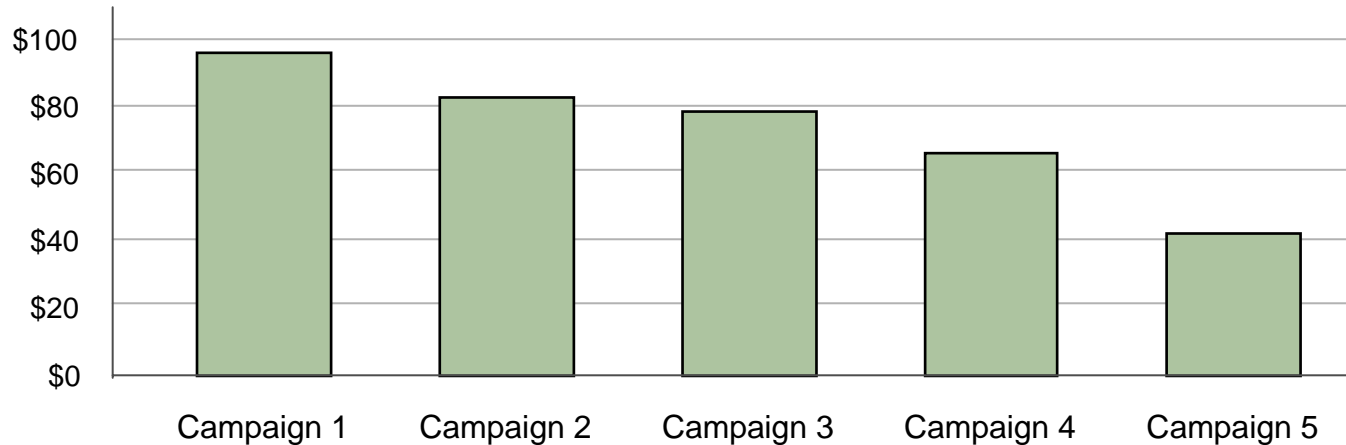
- Score every prospect and rank order.
- Break into 10 equal sized groups (deciles).
- Assuming each decile costs \$13,000 to mail:
 - The **lowest scoring decile** has only 61 responses, the cost to acquire an account is \$213.
 - The **top scoring decile** has 450 responders, so the cost to acquire an account is \$29.
- For the same investment you increase your yield by 737%
- In practice, the acceptable cost-per-account (CPA) will also consider expected account profitability.

The need for continuous learning.

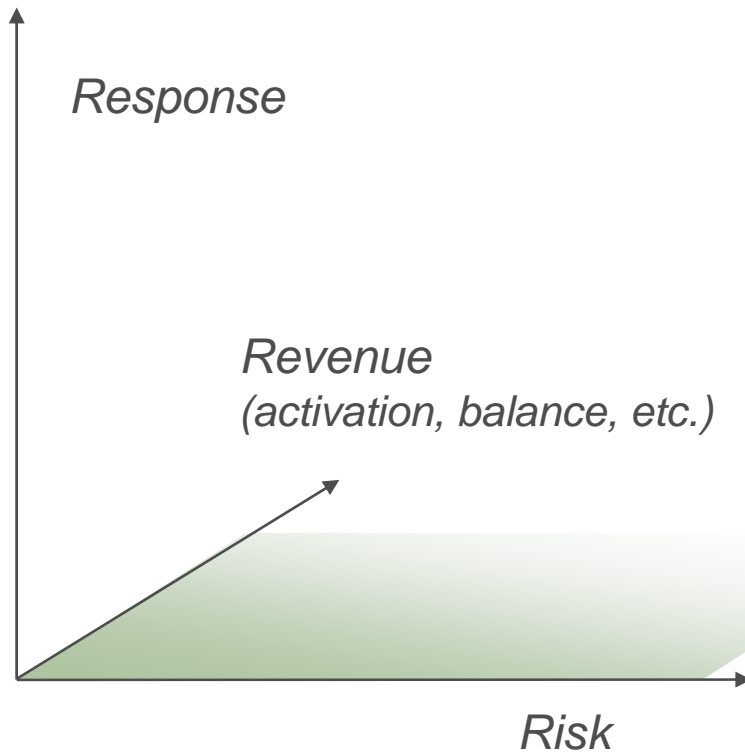


Continuous Improvement

Over time, as models are refined the cost per account can continue to decline.



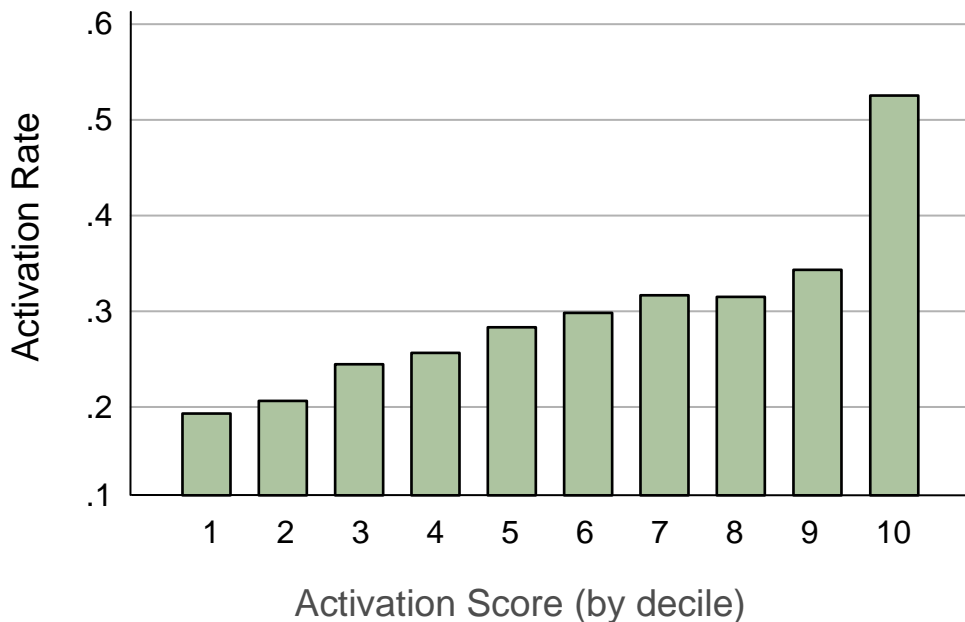
Toward customer value.



- As you optimize response, account performance may change.
- Additional models can be used to improve other profit drivers.
 - Activate Account
 - Increase Use
 - Migrate Use to More Profitable Product
 - Cross-sell Additional Products
 - Retain Activity
 - Avoid Losses

Example 2 - Improving Account Activation

- Credit card accounts acquired by telemarketing tend to under perform.
- A model can be built to find those prospect most likely to activate.



Keys to a successful modeling project.

- A clearly defined objective.
 - How will it be used?
 - What is the measurable goal?
 - What are the secondary impact of optimizing this measure?
 - What is the trade-off between short-term cash and long term profit?
- Good data.
 - Is the description of at the individual level rich and broad?
 - Do we have recent examples of desired behavior?
- A knowledgeable use of statistics.
 - Use the right algorithm for the problem.
 - Do not over-fit the data.
 - Consider implications of how the model will be implemented.