



adometry™

# The Science of Adometry: Optimization

Presented by:

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# Agenda

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- What is optimization?
- Current optimization approaches
- Why they are not enough
- The Adometry optimization solution
- Some examples
- Best practices

# What Is Optimization?

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Given a number of marketing campaigns, optimization identifies the maximum additional lift in a well-defined goal that can be achieved by **incrementally** modifying those marketing campaigns **at the right operational level**.

- Relies on modeling based on historical data
- Assumes changing existing marketing tactics
- Can include online and offline marketing

# Existing Optimization Solutions

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- Optimization on top of reporting analytics
  - Use historical data to gain insights
  - Use attribution reports to provide insights
  - Make individual local changes without global picture
- Traditional Marketing Mix Optimization (MMO)
  - Qualitative, strategic
  - Usually a professional consulting engagement

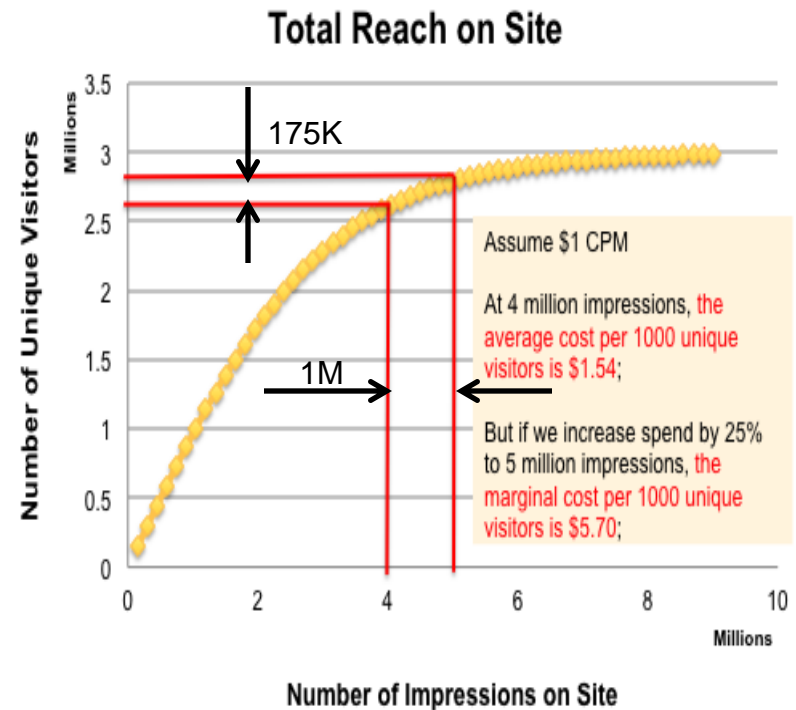
# Current Approaches Are Flawed Or Not Enough

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- Attribution metrics are “averages”
  - Optimization requires incremental metrics
- The problem is non-linear
  - Interactions among marketing segments are complex
- The media-buying dimensions are enormous
  - Multiple channels
  - Dozens of campaigns
  - Hundreds of sites
  - Thousands of creatives

# How is Optimization Different From Attribution?

- Attribution metrics are average metrics best used to
  - Make strategic decisions on whether to add, keep or remove a whole channel/campaign/site/demo category, etc.
  - Plan budget for new campaigns
- Optimization models the non-linear dynamics and is best used to
  - Make incremental changes to existing placements
  - Manage budget re-allocation across existing campaigns
- Attribution and optimization are complementary



# How Is Our Optimization Different From Traditional MMO?

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- Traditional MMO focuses more on
  - Optimizing only channel level aggregate spend
    - ✓ Including TV and other offline channels
    - ✓ Leveraging macroeconomics data
    - ✓ More strategic suggestions
  - Optimizing overall incremental sales in actual \$\$'s
- Adometry Optimization
  - Operates at a more granular level
    - ✓ E.g., site-placement for display, keywords category for search, ...
    - ✓ Use a non-linear regression model to capture interactions at such more granular levels
    - ✓ Patent-pending technology for efficiently and effectively handling high-dimensional data
    - ✓ Recommends incremental changes for more scenarios
  - Can optimize multiple different tactical goals
    - ✓ ROI, Revenue, different conversions, unique visitors, etc.
    - ✓ Can be for display alone, or display + search

# What/How Are You Optimizing Today?

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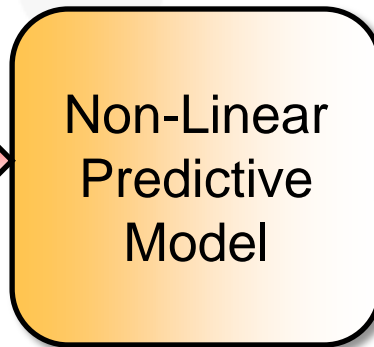
- Poll Question

# The Adometry Optimization Solution

## Training Data

Historical Data Set

- Impressions/Site-placement/...
- Observed KPI values



KPI's

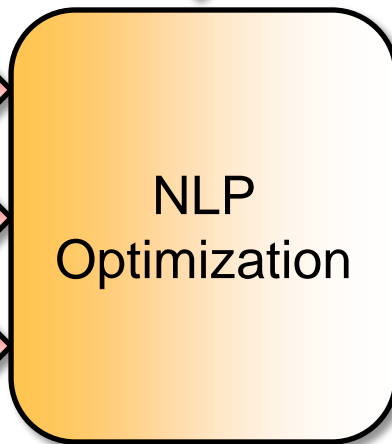
$$\begin{cases} N_{conv} : \# \text{ conversions} \\ N_{uv} : \# \text{ unique visitors} \\ \dots \end{cases}$$

## Starting Point

Recent Reference Data

Cost/eCPM Values

Constraints



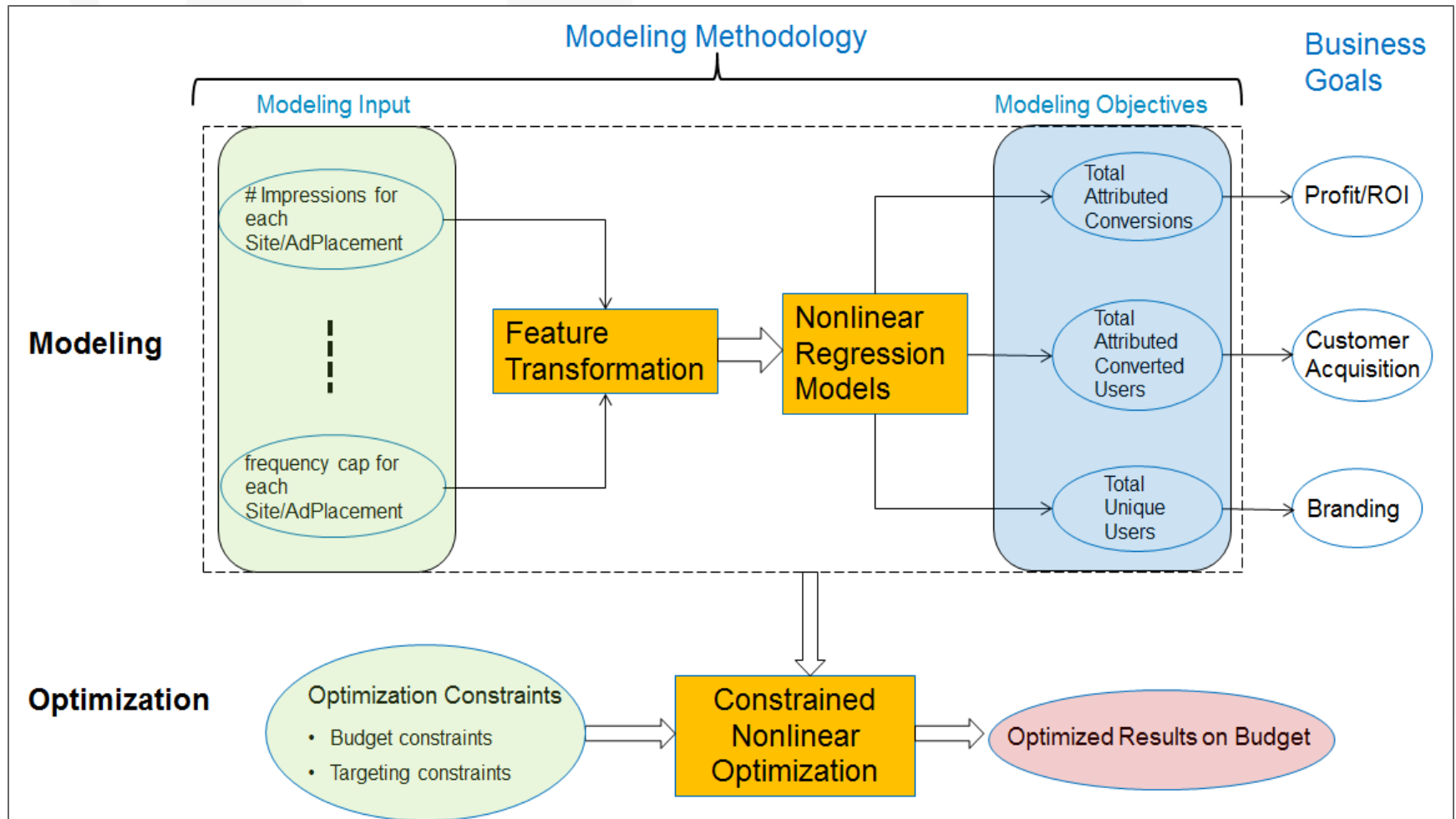
## Outputs

Optimal Objective Value (KPI Lift)

Optimal Feature Values (Imp,\$/site)

Sensitivity

# The Adometry Optimization Architecture



# What Goals Do We Optimize?

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- Optimize your most important marketing goals
  - ✓ Reach
  - ✓ Conversions
  - ✓ Unique Converted Visitors
  - ✓ Revenue
  - ✓ Profit
  - ✓ Brand Awareness
- Offer the flexibility of optimizing any one of these or multiple together

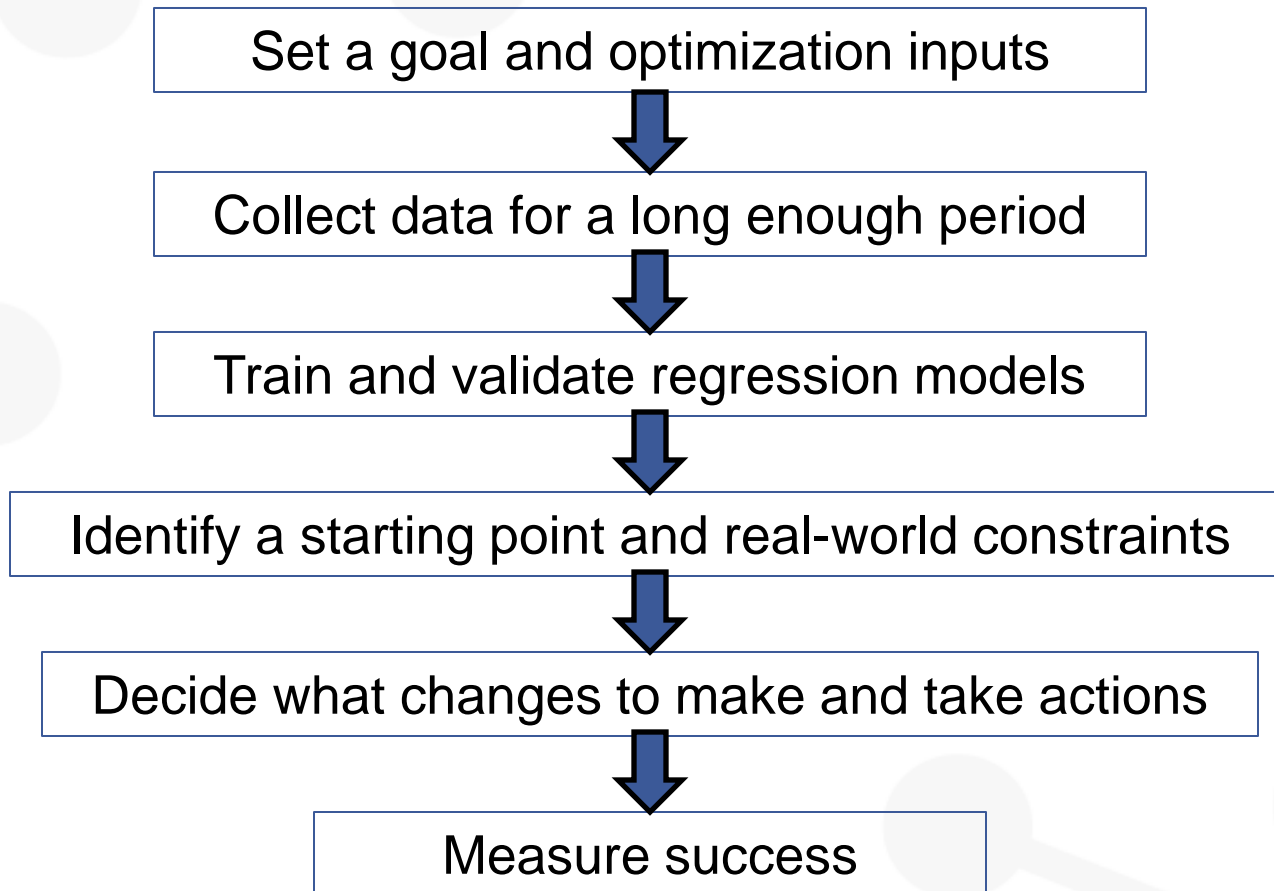
# What Inputs Do We Optimize?

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- Optimize what you can control (i.e., is actionable) with enough granularity
  - ✓ Spend on a site-placement
  - ✓ Spend on a keywords category
  - ✓ Spend on a social network
  - ✓ Frequency cap
  - ✓ Spend on a segment
  - ✓ CPA goal for a segment

# What Does An Optimization Process Look Like?

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# Optimization Implementation

## Input

Training data collected from historical campaign data

- Impression volume for each site-placement
- Total reach, total conversions, etc.

### Starting point

- E.g. impression volume for each site-placement for past month if we want to optimize for the next month

UnitCost value for each site-placement

### Constraints

- Allowed delta change for impression volume for each site-placement
- Allowed total budget

**Predictive Modeling**

**NLP Optimization**

## Output

Optimal Objective Value

- Projected Lift

Optimal Feature Values

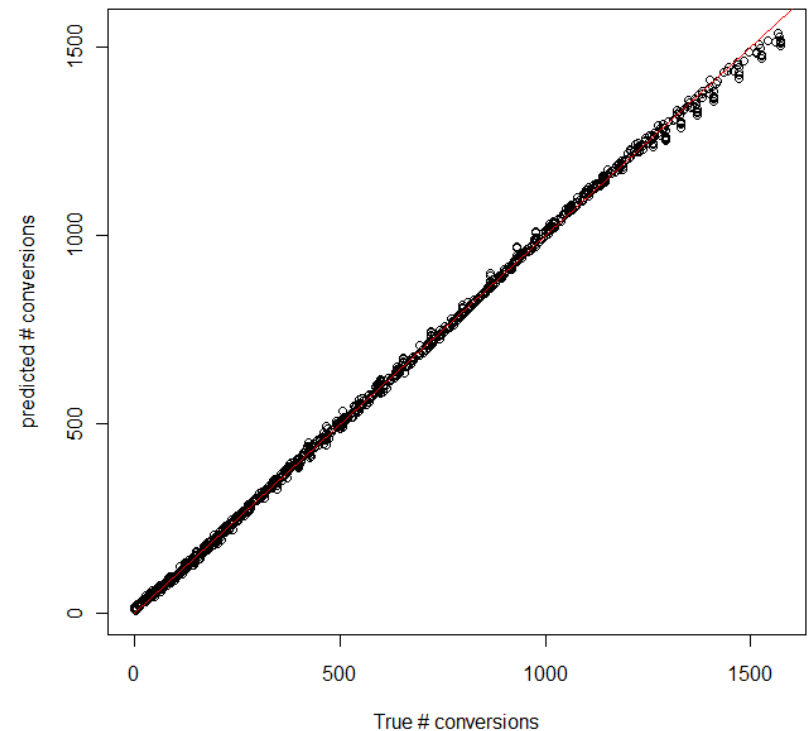
- Optimized impression volume
- Optimized budget for each site-placement

Sensitivity

- How sensitive is the optimized objective to each feature

# Predictive Modeling Performance

- Building robust non-linear regression models with large input dimensionality is a key challenge
- We are able to achieve nearly perfect cross-validated prediction performance



# Actionable Optimization Recommendations

Overview Display Paid Search

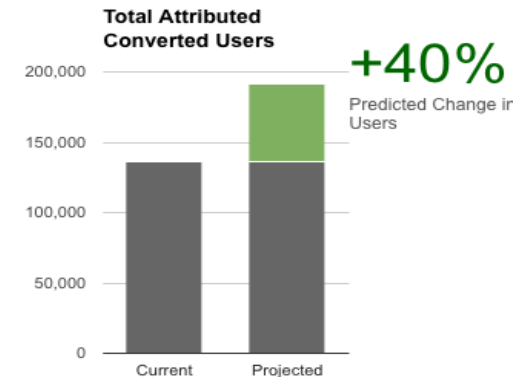
Optimized By

Quote Finish Converted Visitors ▼

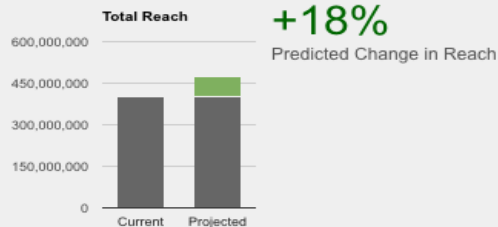
Current Time Period: Jan. 27, 2011 to  
Optimal Time Period: Feb. 25, 2011 to

Channels

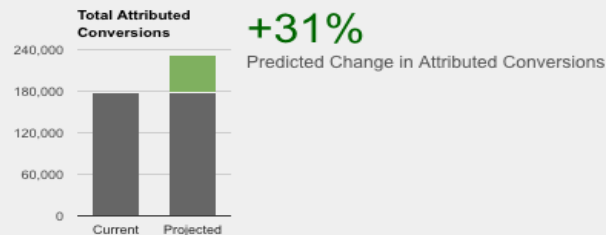
Channels	Cost	%Change	Amount Change	Optimal
Display	Current Cost			
	\$4,381,296	- 3.10 %	- \$135,905	\$4,245,391
Paid Search	Current Cost			
	\$1,786,772	+ 7.60 %	+ \$135,762	\$1,922,535



**Impact on Reach**



**Impact on Attributed Conversions**



# Within-Display Optimization Results

Attribute by **adometry**

Welcome AA

Dashboard Cross Channel Reach & Frequency Attribution **Optimization** Download Reports

Overview **Display** Paid Search

Optimized By

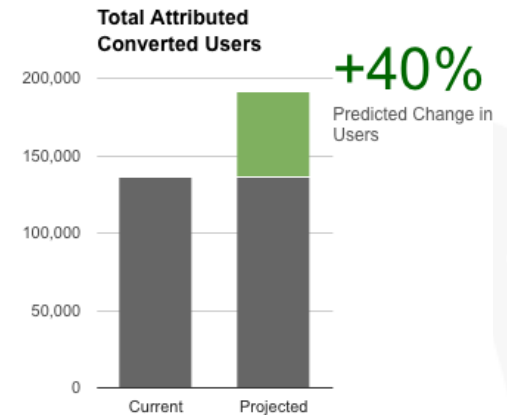
Quote Finish Converted Visitors ▼

Current  
Optima

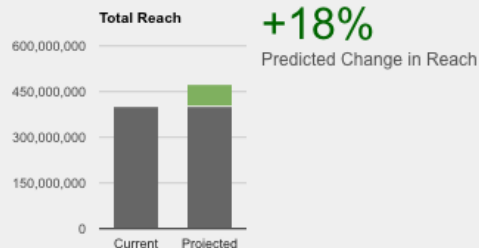
Summary

CPM  
CPC  
CPA

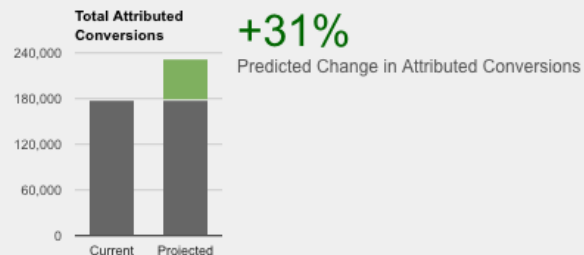
Top 5 Site / GroupPageID	Current	% Change	Amount Change	Optimal
Platform A BL AOL Homepages 2/23 Non-Exp 3...	\$322,958.55	-10%	-\$32,299.96	\$290,658.59
Platform A BL AOL WALLETOP	\$197,734.58	-10%	-\$19,783.24	\$177,951.34
Aod - Invite AOD Display	\$153,675.80	+10%	+\$15,368.20	\$169,044.00
YAHOOX2562 Yahoo! News Odd News Origina...	\$117,125.75	+10%	+\$11,724.26	\$128,850.00
YAHOOX2562 DR_LOG_YAHOO_GM_AutosInsuran...	\$103,605.47	-10%	-\$10,680.47	\$92,925.00



**Impact on Reach**



**Impact on Attributed Conversions**



# Within-Search Optimization Results

Overview Display **Paid Search**

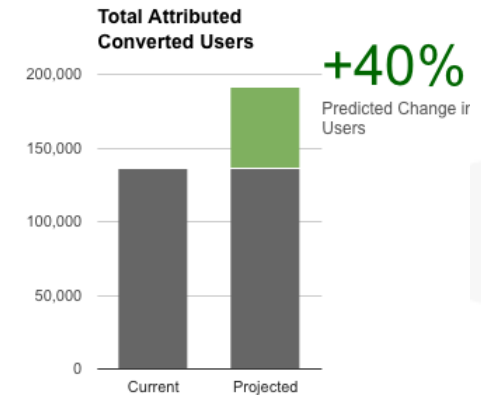
Optimized By

Quote Finish Converted Visitors ▼

Current Time Period: Jan. 27, ;  
Optimal Time Period: Feb. 25,

Summary  
CPC

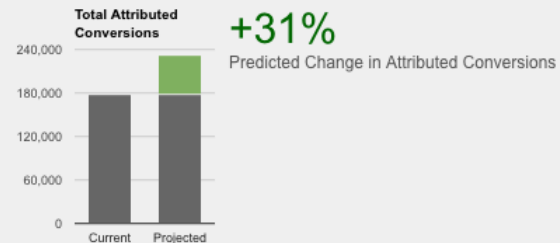
Top 5 Site / KeywordType	Current	% Change	Amount Change	Optimal
DART Search : Google Generic Keyword	\$938,620.08	+10%	+\$93,872.16	\$1,032,492.24
DART Search : Other Generic Keyword	\$277,037.16	+10%	+\$27,704.11	\$304,741.27
DART Search : MSN Generic Keyword	\$429,635.04	+4%	+\$18,387.36	\$448,022.40
DART Search : MSN Brand + Keyword	\$43,824.90	-7%	-\$2,888.86	\$40,936.04
DART Search : Google Brand + Keyword	\$93,544.10	-2%	-\$1,723.80	\$91,820.30



## Impact on Reach



## Impact on Attributed Conversions



# Optimization Best Practices

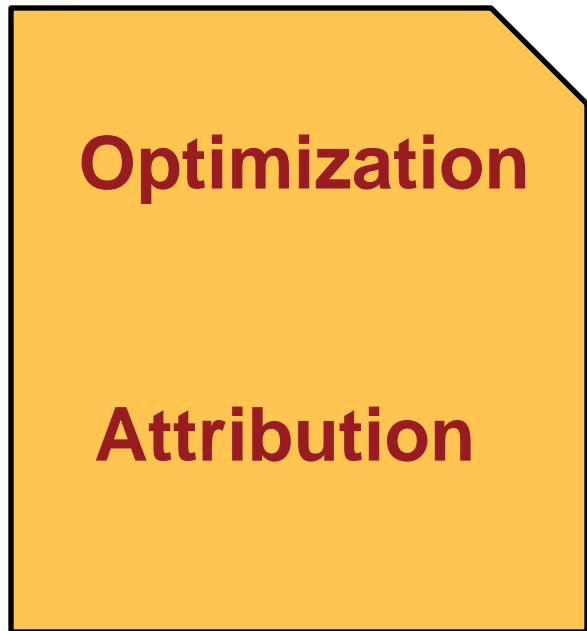
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1. Determine the right granularity level that is actionable
2. Optimize a target that is minimally impacted by unknown factors
3. Determine a recent starting point that reflects more recent campaigns
4. Determine best optimization frequency

# Why Attribution Science Matters

**Adometry Attribute**

**Increased Profits**



Better Optimization

Better Planning

Better Insights

A dark gray background featuring a network diagram with circular nodes and connecting lines. The nodes are arranged in a radial pattern, with some lines extending from the top-left and bottom-right corners towards the center.

**adometry**<sup>TM</sup>