Attribution Case Study Showcase

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Case Study Large Financial Services Advertiser

**Objective:** Determine how to optimally engage target audience across creative strategy and media tactics.
Target
High income households in-market for retirement investment products

7MM
Unique individuals reached by campaign

6MM
Individuals identifiable in first party datasets

3 Mos
Campaign duration
Sources of data and media mapped down to user level

- Personal Attributes:
  - Age: 29
  - Children: Yes
  - Home Owner: Yes
  - HH Income: $130k
  - Past Purchaser: Yes

- Data Sources:
  - 1st Party Data
  - 3rd Party Data
  - Word of Mouth

- Media Sources:
  - Display Ad
  - Paid Search
  - Mobile App
  - Audio
  - Social Media
  - TV Impression
  - Print
  - OOH

- Purchase
Creating a customer data lake that spans a variety of data types

<table>
<thead>
<tr>
<th>1st Party User Data</th>
<th>CRM Database, Site Analytic Logs &amp; Call Center Transactions</th>
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</thead>
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<tr>
<td>Controllable Factors</td>
<td>Branch Count &amp; Locations, Offers, Call Center Capacity</td>
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<td>Non-Controllable Factors</td>
<td>Kantar Competitive Spend, Moody’s Economic Indicators</td>
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<td>Word of Mouth</td>
<td>Crimson Hexagon &amp; Google GQV</td>
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<td>Social Platforms</td>
<td>Proprietary integrations for user level and aggregate data</td>
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<td>Digital Media</td>
<td>Tracked through the Neustar IDMP</td>
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<td>TV</td>
<td>GRP &amp; TRP delivery by week, DMA and target demo</td>
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<td>Analog media</td>
<td>Impressions &amp; Circulation delivery by week and market</td>
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<td>Identity Graph</td>
<td>Authoritative Offline to Online and Cross Device ID resolution</td>
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<tr>
<td>Neustar Audience Data</td>
<td>16,000+ demographic, behavioral, attitudinal user attributes</td>
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<td>360 Media Campaign – TV, Audio, Print, OOH, Digital</td>
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<td>--------------------------------------------------</td>
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<td>GRPs/TRPs</td>
<td>Impressions</td>
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<td>Nation</td>
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<td>Local</td>
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<td>Syndicated</td>
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<td>Search</td>
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<td>Video</td>
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<td>Mobile Web</td>
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<td>Social</td>
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Modeling Approach: Holistic Customer Response Models

Neustar Identity, Audience Data & Segmentation
Multi-Dimensional View of Customers

Neustar Attribution Model Structure:
Grounded In Customer Response Theory

\[
\ln \left( \frac{p}{1-p} \right) = \sum_{j} \alpha_j C_j + \sum_{j} \beta_j M_j (X_1, \ldots, X_n) + \sum_{k} \gamma_k A_k
\]

Captures differences in individual customers due to their distinct attributes
- Based off demographic information and past interaction behavior
- Includes: Past website activity, past purchase history,
  Can Include: Other first party data, third party data

Captures influence of non-addressable drivers measured at the market level
- Derived from separate market-level models
- Includes: Economic, Competitive, and non-addressable Marketing factors and more.

Captures attribution of revenue to addressable media drivers, while considering:
- Clicks and Impressions
- Recency – the effect of time since last marketing exposure
- Frequency – the effect of multiple exposure of the same type on given consumer
- Sequencing: the effect of where an exposure occurs relative to other exposures and site activity

NEUSTAR DIFFERENCE
Neustar Identity: Holistic, Accurate, Actionable and Integrated

Neustar’s Data Repository Allows It to Connect Offline and Digital Data

- 120M+ Households and
- 220M+ US adults
- 500M+ Phone numbers
- 480M+ Email addresses
- 1.2B Cookies linked to over 75MM US HHs
- 500M+ Active mobile devices
- 45M+ Addressable TV households
- ~26% of global digital media spend
Understanding the customer over time

**Historic Time Period**

- Propensity Terms

**Modeling Time Period**

- Things that are true at the start of the modeling period
- Things that might change during the modeling period
The estimation takes advantage of both time and household variation.
Data driven approach for marketing feature specification

Vendor-based targeting classification, ex: contextual targeting

Vendor E has a strategy of serving mostly upper funnel

Pathway position self-selection, ex: paid search

Brand-PS is very clearly separated as lower funnel marketing
Results validation across three dimensions

The statistical robustness of the models were evaluated via hold out sample testing and evaluation of confidence intervals for each predictor variable.

The incrementality results were corroborated with A/B testing.

The results were compared against industry and media tactic benchmarks from Neustar’s Benchmark database of measurements.
Internal and external consistency is ensured by thoroughly vetting results

Statistical Robustness

Models are validated through a K-Folds Cross Validation

Experimental Test & Design

Modeled lift measurement is compared to external experimental test and design results such as holdout testing and matched market results

Neustar’s Benchmark Database

Modeled lift measurement is compared to Neustar’s Benchmark Database of industry norms
Recommendations implemented for tactical media planning and execution

Increase investment in tablet display and video by region and publishers

Personalize creative for HHs with vs. w/o kids

Reduce investment in non-content relevant publishers

Implemented during campaign

Implemented post-campaign
Key Findings

✓ Financial Services and investment products have a very focused group of content relevant publishers
✓ Marketing on relevant content produced significantly stronger results vs. non-relevant content providers
✓ Within the relevant publisher's, results fueled optimizations across media tactics, messaging, targeting
✓ Some highlights include:
  - Tablet display & video proved a high performer and was initially underinvested
  - Emotionally focused messaging worked best among HHs with kids
  - Product differentiation messaging was more effective for HHs w/o kids
  - Digital tactics performed best for east and west coast households. HHs in the middle of the country were more responsive to a balanced media mix
Connecting marketing to business growth

14%
Immediate Efficiency Improvement
Biggest Challenges, Learnings and Implications

### Challenges

- Poor performance on non-endemic publishers
- Seasonality and event driven nature of retirement investment cycles
- Undefined CPA thresholds for financial returns, especially for targeted younger audiences

### Learnings /

- Continued creative and audience optimization on non-endemic publishers
- Detailed planning to leverage learnings from seasonal campaigns
- Conducted a long term LTV analysis by product and audience “when acquired” type