Potential application of Data mining and Comp. intelligence techniques to solve real-world ecommerce problems to yield optimal business results.
Problems to Solve

1. Google Pay-per-Click (PPC) Optimization
2. Customer Life Time Value (LTV)
3. Shopping Feed Optimization
4. Competitive Pricing
5. SEO Link Building
6. SEO Page Seeding
7. Even Driven Marketing
Problem 1: PPC Optimization

**Problem**
- Cost of customer acquisition is growth exponentially
- We have not found a consistent optimization technique that is scalable across our 500,000 Google search terms.
- Our current management techniques are very manual
- Offline data is not connected to Google data
- We have the data but not the insight

**Goal**
- Identify meaningful patterns and correlations between Google data points to drive more efficient customer acquisition.
- Apply some form of automation and learning
- 20% increase in efficiency is a “Game Changer”
Problem 1: PPC Data Sets - Google
Problem 1: PPC Use Case

- Position = (Max CPC, CTR, Quality Score)
- Impressions = (Max CPC, Budget Cap, Quality Score)
**Problem 1: PPC Use Case**

Automated bid management.
Target positions 1.5
auto-adjust Max CPC to maintain keywords with ROAS >= 300% and lower keywords with ROAS <300%.

<table>
<thead>
<tr>
<th>Keyword Text</th>
<th>Match Type</th>
<th>Quality Score*</th>
<th>Impressions</th>
<th>Clicks</th>
<th>Conversion Rate</th>
<th>Sales</th>
<th>Average CPC</th>
<th>Cost</th>
<th>Average Order Value</th>
<th>Average Position</th>
<th>CTR</th>
<th>CPO</th>
<th>Max CPC</th>
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<th>ROAS</th>
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*Quality Score (QS) changes frequently acc. to the Google algorithm and is reported at the moment the data is pulled. Google does not report on historical QS.*
Google Data vs Offline Data

• Acquisition decisions without all data
  - Offline Sales via CSR group
    • still 40% of total revenue
  - Product Margin
    • not live with Google data
  - Competitive Intelligence
    • Manual process on small key terms
Problem 2: Customer Lifetime Value

- **Problem**
  - We don’t know the profile and/or product segments of the most valuable customers to acquire

- **Goal**
  - Target PPC spend to acquire customers that have the highest LTV potential

**New Customer Acquisition**
- Initial Purchase Value (+/-)
- Current CPO
- Current ROAS
- Other Current KPI Values

**Customer Lifetime Value**
- Initial Purchase
- Initial Gross Profit
- Repeat Purchases
- Lifetime Gross Profit

**Target Products with Highest LTV Potential**
Problem 2: LTV Data Sets - MOM/PPC

<table>
<thead>
<tr>
<th>Keyword Text</th>
<th>Ad Group</th>
<th>Campaign</th>
<th>Impressions Same Session</th>
<th>Average Position Same Session</th>
<th>Clicks (Vendor) Same Session</th>
<th>CTR Same Session</th>
<th>Cost Same Session</th>
<th>Average CPC Same Session</th>
<th>Orders Same Session</th>
<th>Average Order Value Same Session</th>
<th>Sales Same Session</th>
<th>ROAS Same Session</th>
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<tbody>
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<td>Phaser 8560</td>
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<td>1</td>
<td>2.90</td>
<td>580.32</td>
<td>386.32</td>
</tr>
</tbody>
</table>
Problem 2 LTV Use Case

- Products = Samsung 300
- New Customer Revenue = $66, Gross Profit = $33
- Google cost per order (CPO)
  - 2010 = $73
  - 2011 = $50
- Should we “acquire” this customer at a loss?
- How do we scale the management of this decision over 500,000 terms and 30,000 Product SKU’s
Problem 4: Shopping Feed Optimization

- Problem: We do not know all of the factors that lead to high placement in shopping search sites
- Goal: Create program that can “learn” over time which feed optimization techniques produce the best results.
Problem 4: Shopping Feed Data Sets

- Titles & Descriptions optimized to SEO best practices
- Feeds populated with all attributes available in Miva
- Set CPC bids in paid channels, Google has no click costs
Problem 5: Competitive Pricing

Problem
- We have no scalable process to monitor the competitive market

Goal
- Develop a Web Crawler to gather competitor pricing information based on Key Word List
- Deliver results in manageable format
Problem 5: Competitive Pricing - Concept

- [m] Product Brands
- [n] Lines per Brand
- [x] Competitors

Competitive Data Accessible via Web I/F
Problem 6: SEO Link Building

- Problem: Finding the best quality sites from which to solicit inbound links is very labor intensive.
- Goal: Identify the optimal list of sites that could deliver quality links to help our Google Page Rank and overall SEO efforts.

The “right” inbound links have a significant impact on Google rankings.
Problem 7: SEO Page “Seeding”

- Problem: It takes significant time to establish high rankings for new web pages
- Goal: Create program to predict manufacturers’ future product names/numbers for a priori SEO landing pages
Problem 7: SEO Page “Seeding” - Results

- Published pages including Xerox Phaser 8570 in 2009
  - TSG was ranked on Google before Xerox launch
  - Xerox in 2010, TSG stays ranked
Event Driven Marketing

- Automated Marketing System
- Customer Segments, Tracks and Fixed Events - static
- Web Site, Email, Direct Mail and CSR Calls
- Personalized Content – based on customer history
- Customer Interaction – changes track and content
- Can We Make Fully Dynamic and Intelligent?
EDM Communication Tracks

Message Containers
- Email
- Task
- Postcard
- CSR
- Email
- Email
- Postcard
- Email
- Task
- Email

Base Track:
- Day 1
- 2
- 7
- 21
- 28
- 35
- 107
- 110
- 114

Exception Track

Dynamic Message 1
Dynamic Message 2

Business Rules/Logic

Design Library
- Top Priority Message
- 2nd Priority Message

EDM Tags – Customer Info
- Customer ID
- Customer Info
- Order History
- Products
- Communication History
- Browsing History
- Personal Preferences
- OEM vs Compats
- PURL Set UP
- Up sell/Cross sell Info