Fancy a BMW?
Optimizing Customer Discounts for the UK Market

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Project Overview

Task: optimal allocation of sales support investment across multiple vehicle series and discount levers

Vehicle Series:
- X5
- 2 series Active Tourer
- 5 series Saloon
- etc.

SALES SUPPORT LEVERS
- Trade-In Leverage
  - Extensive Value Support (Black-FCP/Contract only)
  - Classic Support
  - Repair Leverage
  - Mobile Support ( Morrprity/Contract only)
  - Percentage Rate Leverages
  - APP Support
  - Metropolitan Bonus Plate (Business-Centered only)

$ multiple levers

Analytical Approach

User-Centered Optimization–Visualization Pipeline

OPTIMIZATION

User Interface

VISUALIZATION

Result & Further Consideration

1: Real-Time Optimization + Significant Cost Savings

An Example Use Case with Electric Vehicles:

<table>
<thead>
<tr>
<th>Random Search</th>
<th>Minimization Costs Subject to Meeting Business Targets</th>
<th>Total Financial Impact</th>
<th>Average NA</th>
<th>Total Volume Impact</th>
<th>Average UPLR</th>
<th>Total Cost (Budget Impact)</th>
<th>Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume-Constraint</td>
<td>$41,000,825.98</td>
<td>29.2%</td>
<td>136.02</td>
<td>6.1%</td>
<td>$41,000,825.98</td>
<td>3.7 h</td>
<td></td>
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<tr>
<td>Optimization (Example Numbers)</td>
<td></td>
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</tbody>
</table>

2: Mitigating Price Cannibalization Effect

(without cannibalization constraints) Average UPLR Relative Price Difference: 1.74% 0.93% 5.98%
(with cannibalization constraints) Average UPLR Relative Price Difference: 1.74% 0.93% 5.98%

3: Trading Off Cost vs Robustness

Z = (1 - |h|) / |x| ≤ |x| ≤ 5