Product Promotion Effectiveness: Root Causes Of Stock-Outs

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Agenda

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• Promotions: Process

• Results
  ➢ POS data summary
  ➢ Audit data summary
  ➢ POS data exploration
  ➢ Audit data exploration

• Recommendations

• Key Takeaways
Introduction

• Stock-outs are common in retail environment

• Stock-outs lead to lost sales and hence lost revenue for both the retailer and the manufacturer

• In the past, the CPG manufacturer has lost 5% of its total revenue with one retailer due to stock-outs during promotions

• Frequent stock-outs lead to changes in purchasing patterns of consumers
  (Thomas, Gruen, and Bharadwaj, 2002)
Promotions: Process

**Planning**
- Prepare for intended promotion,
- Import promotion forecast data,
- Develop preliminary forecast, and
- Confirm promotion forecast

**Execution**
- Manage order logistics,
- Manage shipping logistics,
- Track promotions (replenishment waves, and compliance, mid level POS)

**Evaluation**
- Import post-promotion inventory, POS and shipment data,
- Measure promotion performance (scorecard, root cause analysis), and
- Develop performance improvement plan (team and customer feedback)
## Result

### POS data summary

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of SKU’s</td>
<td>36</td>
</tr>
<tr>
<td>Number of Store-SKU-Days</td>
<td>27,583,958</td>
</tr>
<tr>
<td>Total Store-SKU-Days OOS</td>
<td>889,534</td>
</tr>
<tr>
<td>Percent Store-SKU-Days OOS</td>
<td>3.22%</td>
</tr>
<tr>
<td>Total Store-SKU combination</td>
<td>103,165</td>
</tr>
<tr>
<td>OOS per Store-SKU</td>
<td>8.62</td>
</tr>
<tr>
<td>Total Units Sold</td>
<td>20,694,845</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>245,838,893</td>
</tr>
</tbody>
</table>
Promotion sales summary

<table>
<thead>
<tr>
<th></th>
<th>Promotion 1</th>
<th>Promotion 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of SKU’s</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Number of Store-SKU-Days</td>
<td>1,110,673</td>
<td>115,393</td>
</tr>
<tr>
<td>Total Store-SKU-Days OOS</td>
<td>24347</td>
<td>8822</td>
</tr>
<tr>
<td>Percent Store-SKU-Days OOS</td>
<td>2.199%</td>
<td>7.64%</td>
</tr>
<tr>
<td>Total Store-SKU Combination</td>
<td>40,968</td>
<td>12,860</td>
</tr>
<tr>
<td>OOS per Store-SKU</td>
<td>0.594</td>
<td>0.686</td>
</tr>
<tr>
<td>Total Units Sold</td>
<td>1,309,247</td>
<td>94,553</td>
</tr>
<tr>
<td>Total Revenue</td>
<td>12,994,990</td>
<td>1,128,775</td>
</tr>
<tr>
<td>Revenue/unit sold</td>
<td>9.95</td>
<td>11.93</td>
</tr>
</tbody>
</table>
Audit data summary

Auditors Responses for OSA

Product on-shelf: 89.62%
Product not on-shelf: 10.38%

Product on-hand: 8.09%
No information available: 0.37%
Zero product on-hand: 1.92%

Zero stock-out
Phantom stock-out
Observed Stock-out
POS data exploration

1. Replenishment
Comparison of replenishment frequency in different periods

Sheet 11

Avg. Replenishment Frequency

promotion

Post-Promotion

No Promotion

Pre-Promotion

Avg. OOS Frequency
2. Shelf-space allocation
No correlation observed; very low R value while running regression

3. SKU complexity
No strong correlation with OOS, very low R-value

4. Forecast accuracy
• Under-forecasting higher revenue generating SKU’s for a different retailer and a different product category, and
• Different retailers have different inventory policies. The retailer might be little conservative while planning the forecast for higher revenue SKU’s
5. Sales Volume

- Higher sales volume store-SKU stock-out lesser compared to lower sales volume store-SKU, and
- Higher replenishment frequency for higher sales volume store-SKU, \( R \) value is 0.89.
Audit data exploration

Product not on shelf

Product not on-hand: 18.50%
  - Product in-transit: 8.19%
  - Product on-order: 5.78%

Product on-hand: 77.93%
  - Product not on-order: 4.53%
    - Product not found: 23.79%
    - Product moved from other location: 25.43%
    - Product moved from backroom: 7.99%

Product information not available: 3.56%
  - Product record not available: 3.56%

Product not on-order: 1.15%
  - Product not stocked and labels printed: 19.55%
  - Product not treated valid: 90.45%
Product on-hand responses

- Product not found
  - Scanning Error
  - Theft

- Product moved from backroom

- Product moved from another location
  - Customer misplaced the product
  - No shelf-space

- Product stocked and labels printed
  - No shelf-space

- Product not traited valid
  - Store doesn’t sell the product

- Increased Demand
  - High Demand (Holidays)

- Lack of resources

- Compliance Issues
  - Lack of awareness about compliance policies
  - Lack of incentives to store employees
  - Store manager’s discretion

- Poor inventory management

- Lack of awareness about compliance policies

- Product Promotions

- Store manager’s discretion
Product not on-hand responses

- Product in-transit
  - Logistical issues
    - Carrier disagreement
    - Transport breakdown
  - Poor allocation of inventory across stores
    - Poor demand forecast

- Product on-order
  - Communication Delay

- Zero products on-order
  - Database failure
  - Production Delay
  - Sales Volume of stores
  - Forecast drops to zero

Forecast drops to zero
Product information not available

- Database Failure
- Data Inaccuracy
- Network/Connectivity Issues

Record not available
Recommendations

• Emphasizing on promotion evaluation to improve promotion execution,
• Leveraging the strategic partnership with the retailer to understand the store manager’s psychology and train the staff to handle periods of high demand and promotions,
• Prioritizing stores based on their performances,
• Allocating auditors to frequently under performing stores,
• Creating a provision in the database to report shrinkage or make supervised manual changes to avoid discrepancies leading to phantom inventory, and
• Investigating the inventory policies of different retailers to improve forecast accuracy.
Key Takeaways

• Audit response data indicates that the CPG manufacturer incurs highest lost sales due to inefficient store operations,

• 77% of the audit responses for zero OSA indicates that the product is on-hand but not on-shelf, leading to phantom OOS,

• “Product moved from other location” and “Product on-hand but not found” are the most frequently occurring responses,

• Customers misplacing the product and poor inventory management during periods of high demand are some of the major root causes of stock-outs, and

• Replenishment frequency is highest during promotions and OOS frequency is highest during pre-promotions.
Questions

Thank You