Multi-echelon inventory management at Sligro Food Group N.V.

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Who I am

• 23 years old
• Live in Eindhoven, the Netherlands
• Master study Operations Management & Logistics, Eindhoven University of Technology
  • Graduation project at Sligro Food Group
  • Supervised by dr. ir. R. Broekmeulen and prof. dr. T. de Kok
• Master study Strategic Management, Tilburg University
Key facts Sligro Food Group (2013)

• Established in 1935
• Food retail activities: 130 EMTÉ supermarkets
• Foodservice activities: 9 delivery centers (BSs) and 46 cash-and-carry wholesalers
• 5,829 full-time equivalent employees
• Net sales of almost 2.5 billion euros
• Operating profit (EBIT) of 89 million euros
Problem introduction

• Literature: importance of improving inventory management in retail and wholesale cannot be overemphasized

• Focus on supply chain efficiency – offering a certain desired service level at least costs

• Integrated inventory management: key role information sharing

“What is the cost saving potential of the application of an installation stock policy with central demand pooling?”
Problem scope

Multi-item two-echelon distribution system

Focus only on inventory holding costs

Supply chain breakdown
Current situation (benchmark)

Regular installation stock policies

CDC → BS 1 → BS 2 → BS 8
<table>
<thead>
<tr>
<th></th>
<th>Scenarios</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Benchmark scenario</td>
<td>• Application regular installation stock policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Benchmark for determination cost saving potentials</td>
</tr>
<tr>
<td>2</td>
<td>Demand pooling scenario</td>
<td>• Application installation stock policy with central demand pooling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expectation: lower demand uncertainty at CDC</td>
</tr>
<tr>
<td>3</td>
<td>Optimal scenario</td>
<td>• Near-optimal situation: application of multi-echelon inventory control policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expectation: Most inventory positioned downstream and lower internal fill rates</td>
</tr>
</tbody>
</table>
Demand pooling scenario (2)

Installation stock policies with central demand pooling
Optimal scenario (3)
Multi-echelon inventory control policy
Modelling

• Customer fill rates
• Demand pattern: mean and variation
• Review periods
• Lead times: mean and variation
• MOQs and Qs

• DoBr tool: exact evaluation scenario 1 & 2
• ChainScope: accurate approximation scenario 3
Inventory value index numbers

BS supply chain part

- Benchmark scenario
- Demand pooling scenario
- Optimal scenario

RDC supply chain part

- Benchmark scenario
- Demand pooling scenario
- Optimal scenario

CDC Demand variability: -49%

CDC Demand variability: -62%
Inventory weeks

BS supply chain part

RDC supply chain part

18% : 82%
Fill rate: ±45%

36% : 64%
Fill rate: ±65 %
Conclusion & recommendation

• Substantial potential inventory holding cost reductions – relatively and absolutely
  • Should be practically validated

• Impact on inventory planning activities and other logistical operations should be determined

• Therefore, it is recommended to Sligro to set up a pilot project with an adapted or acquired inventory management system