



Supply Chain

Optimize order volume and frequency to cut costs

The Big Picture

Packaging material adds great value to end consumers' perception of a brand. Packaging material cost has a significant share in the total cost of the product, and its reduction helps to achieve better profit margins. One of the ways to reduce purchase cost is to optimize frequency and volume of purchases.

The conflicting business objectives for a leading company and its supplier posed a major challenge to optimization. As cost was a key business KPI, the supplier favored longer production runs as opposed to frequent shorter runs. On the contrary, the company supported shorter runs for better control over volatile demand as well as reduction in inventory and scrap cost.

Transformative Solution

To solve the company's challenges, the conflicting objectives were analyzed and an approach was developed to optimize order frequency and order volume.

First, demand consolidation for packing material was performed from multiple sources using sophisticated data harmonization techniques. A genetic algorithm was used to optimize the ABC classification by material spend. Using advanced mathematical techniques, such as mixed integer linear programming, exhaustive enumeration, and theory of constraints, the approach developed optimized order frequency and order volume for each purchase cycle. Then, a Monte Carlo simulation was run to arrive at potential savings by running and estimating the scrap risk.

The Change

As a result of the solution, the company achieved several benefits including:

- Optimized purchase volume and purchase frequency of the packaging materials led to savings of \$1M per material, per purchase cycle.
- Reduced total inventory holding cost as a result of the streamlined ordering pattern.
- Reduced scrap risk as there was less unproductive inventory.
- Released working capital as a result of less inventory holding costs.

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