



CASE STUDY

Simulation-based optimization to minimize stock obsolescence for a multi-echelon supply chain network

The client is an American multinational manufacturer and marketer of branded consumer foods sold through retail stores.

Executive Summary

The manufacturer experienced unpredictability in inventory management and the inability to find a balance between inventory & service level.



Client Challenges

- Hyper unpredictability in inventory management and the inability to find the right balance between inventory and service level
- Need to find the correct internal shelf-life factor, that was done based on thumb rule thus far and no science/ analytics behind the rule
- Inability to arrive at decisions on what, how much, where, and when to stock products, across the global supply chain impacting the profitability
- Holding more inventory to ensure customer availability was leading to increased inventory costs and obsolescence while holding too less inventory was leading to low service levels and lost sales



Our Solution

- Developed a digital twin of supply chain using a leading simulation modelling software that facilitated the decision-making process to keep the optimal inventory
- A simulation-based optimization model was developed to find the optimal production policy to maximize fill rate and minimize waste
- Product segmentation to define the inventory strategy based on different product parameters
- Developed inventory policy to identify the best service levels achievable within the budget constraint



Results

30% reduction in inventory waste with better network planning

13% improvement in the service level resulting in higher demand fulfillment with minimum obsolescence

Optimized pre-build decisions by using shelf-life factor

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