

## Identified lost sales opportunities due to Out of Stock (OOS) Scenarios for a leading department store chain

**What We Did:** A self-service dashboard enabling business users and strategic planners to identify lost sales opportunities due to Out of Stock (OOS) scenarios and help in setting minimum inventory levels for various products on the website

**The Impact We Made:** Enabled the client to optimize their inventory management on an ongoing basis and realize \$90 million by averting lost sales due to OOS scenarios

### Summary - Averting lost sales opportunities

Mu Sigma helped the clients to realize through the in-stock metric in the assortment-customer engagement report that a lot of products remained in OOS for a long time leading to loss on sales opportunities. Using our art of problem solving ([AoPS](#)) system, we came up with a self-service dashboard enabling our clients to identify lost sales opportunities due to OOS. It resulted in better inventory management, immense improvement in the client's online customer experience and reduced customer churn. We also went a step ahead by identifying the inter-connectedness between different business problems to provide a holistic picture and visibility into how other sub-groups are affected by OOS. Clients saw value in our AoPS system and referred us to other business groups to solve multiple other problems.

### About The Client - A leading department store chain

The client is one of the leading department stores chain in the US and operates over 1,000 department stores, located across US. In addition to their physical stores, their e-retail is treated as a completely separate channel with its own exclusive merchandise.

### The Challenge - Assortment maintenance across channels

The client's e-commerce business trades various Fashion and Basic products. Their inventory management is responsible for maintaining a proper merchandise assortment while ordering, shipping, handling, and related costs are kept in check. While fashion products are for a particular season, basic products run throughout the year.

To start with, we engaged with one of the subgroups of the online business where an assortment—customer engagement report was being created for the clients to track the inventory performance on a weekly/ monthly basis. Over a period of time, we observed that the metric on in-stock days revealed that a lot of products remained in OOS for a long time leading to loss on sales opportunities on those particular days. The challenge was to determine which products have to be investigated for an

immediate action from an inventory angle. Another challenge the client was facing is that they did not have the visibility into how OOS was impacting other business groups such as marketing and finance.

### The Approach - Reallocation of inventory costs

Mu Sigma applied its [AoPS](#) system to use first principle thinking to approach the problem and also started drawing the inter-connectedness between different business problems to get a holistic picture. Let us see the approach we followed:

- [muPDNA™](#) was used to first define the problem accurately, come up with relevant factors and analyze related hypothesis. This enabled us to find out that the aggregation of lost sales opportunities is particularly dependent upon factors like weekend and weekday demand with an overall impact of seasonality on the demand
- It prompted us to use a heuristic methodology to calculate the average weekend and weekday sales for all the SKUs. This exercise was carried out on a monthly basis, to wipe out the seasonality factors and resulted in:
  1. Holistic picture of where the inventory level needs to be raised/reduced or where it's optimal and this ensured that the supply is optimally in line with demand
  2. Days wherever the SKU had been OOS, the opportunity was recognized using the average weekday and weekend sales
- The next step was to perform a quartile analysis on various products for all the categories depending upon their current demand. The non-performing products' inventory costs were recognized and a recommendation was provided to reallocate those inventory costs to the better performing products and wipe out the lost sales scenarios
- A self-service dashboard was developed to provide the end-users with an ability to analyze various metrics like demand, views, lost sales, sell through % etc. across the product hierarchy and drill down along these dimensions
- Last step was to use our [mulDA™](#) framework to unravel the inter-connectedness between different projects and ultimately use the same data to create a problem universe with all the inter-connections for the clients on our [muUniverse™](#) platform. This gave them the visibility into which other subgroups will get impacted and an opportunity to collaborate better with different teams

### The Outcome - Improved inventory management

- The framework to identify lost sales due to OOS scenarios showed immense improvement in the client's online customer experience and customer churn was reduced considerably
  - Mu Sigma helped the client identify the top 15 categories (among 45 in total) that account for 70% of the total lost sales, thus enabling them to prioritize the inventory allocations
  - Client saw value in our [AoPS](#) system and as a result we were referred to other business groups to solve related problems like promotion effectiveness, store productivity analysis etc.
  - Enabled the business users and strategic planners to analyze various metrics across different dimensions and make more informed decisions about inventory management
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