

Stock Out Reduction

Stock out reduction in US chain of department stores



Challenge

A large, American chain of department stores wanted to tackle store-stock outs by improving inventory management. Our data science driven investigations showed that shelf-stock outs were equally problematic. Shelf-stock outs happen when the item is in the store but not on the shelf. We developed a comprehensive solution to tackle both problems.

Solution

Our stock-out reduction approach consisted of a set of models alerting store managers of potential OOS situations. The models are based on actual or predicted item sales velocity and customer footfall to predict store-stock outs. To detect shelf-stock outs, we either detect abnormal sales velocity reduction based on store attributes and footfall, or by detecting abnormal baskets. Abnormal baskets are those that are missing a common item given the basket content. Our solution allowed them to use SKU level forecasting for both long-term planning and short-term sales increase.

Impact

Stock out events were reduced by 22.5% in the first month and lift sales by 1.2% in pilot stores.