EQUATION
Powering Data. Empowering Decisions.

Sales Forecasting for Skincare product

Background

A leading skincare company with global revenue of USD ~4 billion, operating in nearly 100 countries is significantly investing in AI to drive business processes. They want to leverage advanced analytics tools for data-driven decisions. Currently the client uses heuristic models for forecasting demand of different SKUs across categories and this leads to overstocking (OS)/ out of stock (OOS) scenarios.

Desired State

Use historical data and advanced ML/ AI algorithms to predict demand at SKU level in order to manage the inventories that minimize OOS/ OS scenarios.

Challenge

There is a talent gap in the organization to perform any advanced analytics and this leads to low adoption of solution by the merchandizing and supply chain teams.
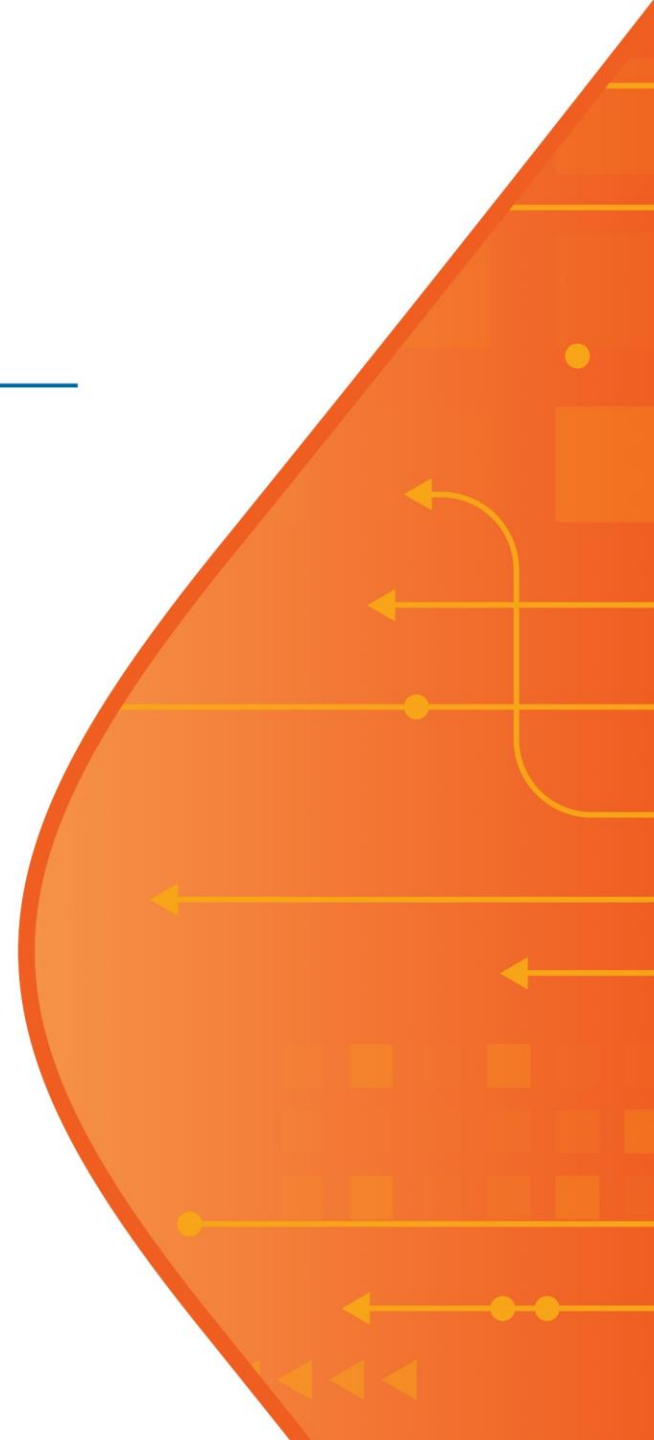
Solution Framework

01 Analysis

Data was collected from multiple sources like POS, in stock, lead time, freight cost, economic order quantity etc. Quation team analyzed trends, seasonal effects, impact of marketing activities and other business features that impact sales to build a robust demand forecasting framework.

02 Methodology

Once the data was cleaned and model ready, Quation used XGboost to create time series forecast for each SKU at regional level. The forecast was made with a horizon window of 3 months out (ahead) in order to give merchandizing and supply chain teams sufficient time to plan. The models were 97% accurate for 85% of the top selling SKUs. Few SKUs that were sold infrequently had lower accuracy (~80%).

03 Benefits

The algorithms were implemented into client order management system that was further integrated with the ERP system so that the supply chain team had real time intelligence on the inventory levels to be maintained. This also helped the production team in planning their cycles. As a secondary benefit, the forecast was used by the client for target setting of regional managers.

Impact

Outcome

The OS scenarios came down by **63%** while the OOS scenarios came down by **94%** in the next 12 months.

Long Term Benefit

Increased adoption of data-driven algorithms in the supply chain process and the team has moved from gut based decision making to data-driven decision-making across other functions like vendor procurement, raw material sourcing, etc.