



Improve your retail forecast by segmenting data accurately

White paper

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## Background

When forecasting unconstrained consumer demand for products in retail, historical sales data analysis is an important part of generating a demand forecast. In order to predict future demand, past sales performance of products is considered as an indication of future performance. For seasonal items that sell mostly during specific months of the year, this is an exercise that is based on detecting the seasonality of an item's demand curve from past sales data.

## Why segmentation is important

When historical sales data is analyzed to produce a forecast for future demand, various statistical methods are used to make observations about historical data which then can be used to generate a forecasted future demand of the analyzed items.

There are a number of methods that are available and are proven to provide valuable insight into the demand of items in retail based on their historical sales data. Such analysis can only be performed reliably if the historical sales data is accurate and statistically reflects detectable patterns that allow the observation of trends. When those observed patterns are applied to future time-frames, a future demand is forecasted for the item.

To make the process of forecasting more efficient, data is often analyzed at an aggregated level, meaning the historical sales data of several items are analyzed together. For this analysis to be relevant for all items that are being analyzed together, it is imperative that the items grouped together exhibit similar patterns in their sales history, in other words behave similarly. This need exists because when observations made at the group level are applied to individual item's demand forecast in the group, the resulting forecast will only be relevant for the individual item if the item behaves similarly to the group.

## When segmentation is needed

Segmentation is needed before the process of producing a demand forecast is executed. This is to ensure that aggregated data analysis is performed on groups of items with similar behavior, ensuring the aggregated demand observations are relevant to all items in the group.

## How segmentation is made

Segmentation is made by analyzing the individual historical demand trends of items and grouping them together with similarly behaving items using a difference tolerance limit. This limit is calibrated during the segmentation process to a value suitable to control variance within groups to a level that does not negatively impact resulting demand forecast of individual items.

## Conclusion

Segmentation is an important part of producing an accurate demand forecast and should be executed accurately before demand forecast is generated.