SAP APO DP
Tuning and Training

A higher return over your investment through improved forecast accuracy.

Unilever Cordillera

- Industry: Consumer Goods

- SAP APO DP Tuning and Optimization in Americas.

Challenges

- SAP APO has a variety of statistical models, how will the Demand Planner cope with such complexity? Is there a way to simplify the decision space?.

- At what aggregation level should they forecast? Is it better to forecast at a higher level and dive down with prorated factors? Or is it better to generate a bottoms-up forecast? Which is the sweet spot?

- How often should they calculate their forecasts? How often should they redefine the chosen model for each data serie?

- Some countries have very specific behaviors that APO models cannot cover. Is there a way to enhance APO models to cover these gaps?

- There are many data cleaning techniques, some are covered by APO. Are they the best? Can we implement a better one?

Solutions

- Continente Siete provided analysis and diagnosis to enable the APO optimization, and provided enhancements through the development of complementing ad-hoc solutions:

- Parameter Definition: by analyzing typical patterns in the historical data of Unilever-specific products in each region, Continente Siete came up with a finite number of statistical profiles, thus reducing complexity by 75%. Continente Siete proved that this simplification had very low impact on accuracy (less than 1% loss).

- Aggregation Level Analysis: Continente Siete ran several experiments, testing different aggregation levels in different dimensions (Customer dimension, Product dimension, Time unit, etc.) and collecting results. The output of this analysis was a comparative chart displaying the accuracy benefits and the calculation efforts for each scenario.

- Frequency Analysis: similar to the Aggregation Level Analysis, Continente Siete ran several experiments and provided the results for each scenario in terms of accuracy and complexity. Final decision came from the Cordillera Team, aided by Continente Siete.

- Intra-monthly Seasonality: South American regions have an extra cyclic pattern in shipments within a given month. Time series models are not capable of correctly capturing this "intra-monthly seasonality". Continente Siete developed different solutions to address this issue as a post-forecast correction, taking into account SAP APO possibilities.

- miniMAP: in addition to the complexity reduction in the number of profiles available, Continente Siete developed a tool to automatically select the best profile for each data series.

- C7 Smoothing: although APO already has a number of data cleaning solutions, Continente Siete developed an additional fully-automated algorithm that performed better. C7 Smoothing was embedded into APO and currently expanded beyond Americas.

Benefits

- Reduced model portfolio (with minimal accuracy loss), 75% complexity reduction.

- Defined aggregation level for each region.

- Defined forecasting and model-selection frequencies.

- **25% error reduction** in regions with high intra-monthly seasonality.

- **+20% forecast accuracy** with minimap implementation (based on benchmark done by Unilever, compared to SAP APO's integrated Auomated Model Selection).

- **Un-biased and automated data cleaning** with positive accuracy impact (according to experiments done in "mature" regions, C7 Smoothing provided a baseline forecast an 8% accuracy boost, compared to a final forecast using alternative cleaning methods).

About Continente Siete

Continente Siete is an algorithm workshop, where mathematical models are constantly being developed to adress complex problems.

What is an algorithm?

It is a step-by-step procedure for calculations.

We are Able to use them in different áreas for different problems.

What do we offer?

We have a set of "plug-and-play" products to attend specific needs.

But we feed our innovation process by building tailor-made solutions for our clients. Our core is our methodology, which allows us to work across industries with easy.

We move between two worlds (academic and business) and with this bridge we bring knowledge and innovation to results.

How do we do it?

People + context + tolos. Continente Siete is a transparent company with amazing people and the right technology. We keep our engine running (fun and engagement) through challenging requests.

We have worked in many industries, including demand forecasting, online marketing, transportation, behavioral targeting and telecommunications.