CASE STUDY

Price Forecasting

- **Objective**
  Forecasting petrochemical prices in a volatile market scenario
- **Client**
  Global petrochemical industry intelligence provider
- **Benefits**
  Exceptionally accurate models that guide clients in planning and hedging against volatility

Other Case Studies

- Profitability Analysis for Mortgage Lenders: *Identify focus areas for client to ensure maximum profitability*
- Predictive Analytics: *Product positioning through Analytics.*
- Churn Prediction: *Preemptive identification of customer churn thereby guiding customer retention activities*

Project Objective
To develop advanced forecasting models for petrochemical prices to enable well-informed planning decisions and hedging against price volatility in a largely unregulated market.

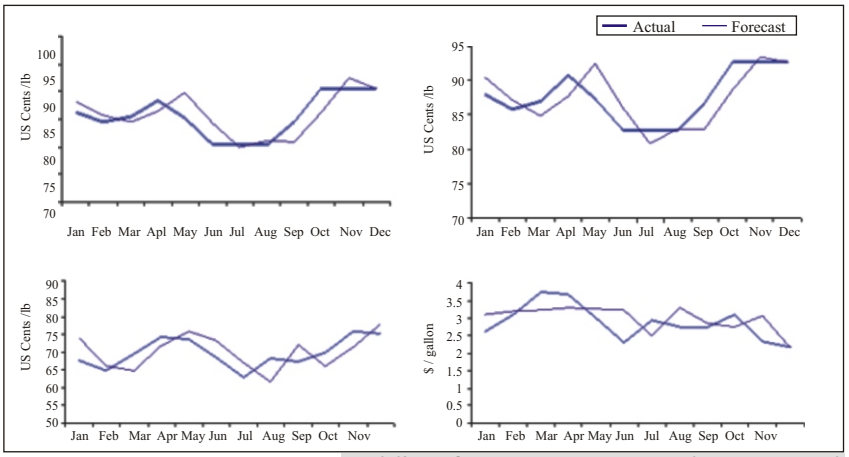
Client
Industry business intelligence publication arm of one of the world's leading media publishing houses.

Approach
A long series of industry investigation and analysis and interviews with experts and other price forecasters informed the experimentation process. Experiments were undertaken with a large number of statistical modeling techniques to form the basis of the forecasting models. In order to maximize both short-term (1 month) forecasting accuracy and to develop a reliable view of long-term (10-12 months trends), a rigorous testing methodology was developed. In addition to the advanced models drawn from financial market practices, an experimental Market Sentiment Index was developed to attempt an increase in accuracy of predicting changes in direction of price evolution.

Model type	Most suited Data	Forecast Horizon	Model Shelf-life
Exponential Smoothing	No trend, Varying level	Short	Short
Holt's Method	Varying trend & levels, No seasonality	Short	Short
Holt-Winter's Method	Varying trend & levels, Considers seasonality	Short to Medium	Medium
ARIMA	Varying trend, levels, & seasonality	Short to Medium	Long
GARCH	Data with Heteroskedasticity (unequal varience)	Short to Medium	Long
Artificial Neural Networks	Large non-linear Datasets	Short to Medium	Medium

Criteria for selection of forecasting models

Solution
A combination of sophisticated univariate and multivariate forecasting models that form the basis for publishing future prices and for editorial commentary in the published reports.



Model's performance over a 12 month testing period

Benefits
Exceptionally accurate forecasts (greater than 95%) were generated for all products along with a price driver based understanding of price movements.

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Crafting intelligent solutions

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