

Forecast Validation and Methodology Statement

1. Objective

The purpose of this document is to outline the methodology utilized for forecasting, and to detail the validation processes conducted to ensure the accuracy and reliability of the forecast results.

2. Forecast Methodology

The following steps summarize the forecasting approach employed:

1. **Data Collection:** Gathered historical data relevant to key variables affecting the forecast.
2. **Preprocessing:** Cleaned and transformed data to ensure consistency and quality.
3. **Model Selection:** Evaluated multiple statistical and machine learning models (e.g., ARIMA, Exponential Smoothing, Random Forest) and selected the model based on performance criteria.
4. **Model Calibration:** Trained and tuned the selected model(s) using cross-validation and best-fit criteria.
5. **Forecast Generation:** Produced future values based on the finalized model.

3. Validation Process

The forecast outputs were validated using several techniques to ensure their credibility:

- Out-of-sample testing with historical data splits.
- Error measurement using MAE (Mean Absolute Error), RMSE (Root Mean Squared Error), and MAPE (Mean Absolute Percentage Error).
- Benchmarking against industry or internal reference forecasts when possible.
- Sensitivity and scenario analysis to evaluate model stability.

4. Limitations and Assumptions

The forecast operates under specific limitations and assumptions, including:

- Availability and quality of historical data.
- Static relationships between predictor variables unless specifically modeled otherwise.
- Unforeseen external factors or abrupt structural changes are not accounted for.

5. Important Notes

- This document should be reviewed and updated regularly as new data and methodologies become available.
- Validation metrics must be interpreted within the context of business requirements and forecast goals.
- The methodology should be transparent and replicable for audit and compliance purposes.
- Assumptions and limitations must be clearly communicated to stakeholders.