



Case Study

Achieving a 2-Day Inventory Compression and 12% Forecast Accuracy Surge for a Leading CPGBrand

Client Overview

Fast-growing consumer goods manufacturers managing high-velocity retail channels require granular demand forecasting to avoid inventory bloat and stock-outs. This case study details the implementation of an advanced machine learning demand forecasting platform for a major personal care and household goods CPG manufacturer in India. Confronted with a ~60% forecasting accuracy baseline amid 25% annual modern trade growth, the organization deployed an automated 3x3 ABC/PQR matrix segmentation and causal ML architecture—driving a 12% lift in forecast accuracy, trimming 2 days of finished goods inventory, and raising on-shelf availability with zero working capital increase.

The Challenge?



Forecasting Deficits

Rapid 25% modern trade expansion hindered by an inaccurate ~60% demand forecasting baseline.



Elevated Carrying Costs

Over-buffering of stock leading to inflated inventory holding costs and frequent finished goods write-offs.



SKU Diversity & Distribution Variance

High complexity across multi-brand personal care and household product lines distributed through heterogeneous retail channels.



Disconnected Replenishment Workflows

Lack of an integrated decision framework to translate demand trends into tactical POS replenishment targets.

Solution Delivered



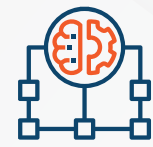
Unified Data Processing Layer

Real-time ingestion and normalization engine consolidating internal transactional data with external market trends.



Algorithmic 3x3 Matrix Segmentation

Categorization of SKUs across ABC (volume/value) and PQR (predictability/-variance) dimensions for targeted model assignment.



Causal Machine Learning Models

Advanced statistical modeling incorporating domain-specific feature engineering to capture true demand drivers.



Automated Inventory Dashboards

Intuitive visualization interfaces providing supply chain planners with weekly and monthly POS demand projections.



Integration of data

Real-time processing for both internal and external data



Segmentation of SKU's

Creation of 3X3 matrix w.r.t ABC and PQR classification



Advanced forecast models

Development of causal forecast models for each of these segments



Dashboard creation

for planning team to utilise these results in final inventory planning of these SKU's

The Impact

12% Forecast Accuracy Surge

Reached an enterprise-wide 12% lift in forecast accuracy through advanced causal statistical models.

2-Day Finished Goods Compression

Achieved a 2-day reduction in finished goods inventory, streamlining supply chain velocity.

Zero Working Capital Impact

Increased on-shelf product availability in retail markets with 0% change in working capital

Minimized Holding Losses

Substantially curbed excess buffer stock and finished goods write-offs across national retail channels.

Outcome

Optimizing finished goods inventory without compromising retail product availability requires algorithmic forecasting precision. By replacing static forecasting with a dynamic 3x3 ABC/PQR machine learning architecture, this prominent CPG leader eliminated operational guesswork. The solution delivers the forecasting accuracy, inventory compression, and decision support needed to sustain high commercial growth while protecting operational margins at enterprise scale.



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