

Building Explainable Demand Forecasting for Post-COVID Agility

INTRODUCTION

A grower-owned beverage company that sells juice drinks, sauces, and snacks in more than 100 countries faced major supply and demand disruptions following COVID-19. Service issues, product substitutions, and shifts in consumer behavior—such as increased home consumption, income-driven brand switching, and changing pack-size preferences—created unpredictable demand patterns. Traditional forecasting methods, reliant on historical trends, couldn't account for evolving variables like new pricing strategies, distribution changes, and reactivated promotional activities.

The business needed a solution that would not only improve forecasting accuracy but also provide clear explainability to inform strategic decisions. They were particularly focused on restarting trade promotion planning effectively while aligning their demand signals with post-pandemic consumer behavior.

SOLUTION

The company partnered with Demand Chain AI to develop a customized Driver-Based Forecasting (DBF) model for its juice drinks category, covering hundreds of SKUs. The model incorporated syndicated data sources, internal order and shipment data, and an Oxford COVID index to account for pandemic-related factors.

Over six months, Demand Chain AI collaborated with internal teams to define key variables and develop the model, followed by three to four months to operationalize it. A significant portion of the project involved complex data wrangling—aligning syndicated UPC data with internal SKU-level data and addressing gaps like club and dollar store coverage.

Beyond generating forecasts, the DBF model provided scenario planning capabilities. By delivering underlying coefficients, Demand Chain AI enabled the company's teams to simulate business scenarios, such as adjusting price points or promotional intensity, and predict how these changes would affect demand.



AT A GLANCE:

CHALLENGES

- Volatile post-COVID demand
- Fragmented, messy data
- Opaque forecasting models

BENEFITS

- Clear demand drivers
- Flexible scenario planning
- Forecasts with explainability



RESULTS

The DBF proof of concept delivered a **~30% improvement over the company's baseline statistical demand model at a three-period lag**. It also successfully translated the consumption-based forecast into a shipment plan, revealing trade inventory oscillations that had previously gone undetected.

Future plans include the integration of these insights into its Sales & Operations Planning (S&OP) and Integrated Business Planning (IBP) processes, enabling a conversation focused on the assumptions. When actual results deviated from forecasts, teams could isolate the reasons from any misses to the actual driver of the miss —such as missed trade execution or unexpected distribution changes—and adjust future plans accordingly.

BEYOND FORECASTING – STRATEGIC IMPACT



Assessed full S&OP/IBP process



Shaped connected planning vision



Add product status & type tracking



Influenced ERP system requirements

KEY LEARNINGS

While the POC was a success, it underscored the importance of aligning model complexity with organizational readiness. Driver-based forecasting requires strong change management, collaboration across sales, marketing, and planning, and practical methods for forecasting driver values over time. Too many models or highly granular drivers can overwhelm teams and reduce adoption unless forecasting inputs are simplified.

The engagement also highlighted a critical distinction for stakeholders—separating model error from input error—helping them better understand and trust the forecasting process.



WHY DEMAND CHAIN AI?

The company chose Demand Chain AI based on both past experience and industry expertise. A senior leader familiar with Demand Chain AI's work at another major CPG brand recommended the firm for its deep understanding of CPG business dynamics and syndicated data complexities. Demand Chain AI's ability to quickly engage—bringing both technical skills and business context—was a key factor in their selection.



**Improved Forecast
Accuracy and Agility**



**Integrated
Forecasting into
S&OP/IBP**



**Continuous
Planning
Improvement**

 **DEMAND CHAIN AI**

PULS8™
SOLUTIONS

Demand Chain AI brings deep expertise in Consumer Packaged Goods, particularly Food & Beverage, with over 1,500 years of combined experience. We deliver practical solutions in supply chain planning and forecasting.

Puls8 Intelligent Planning Solutions provide end-to-end, data-driven technology, enabling seamless operations, precision forecasting, and smarter decision-making.

By combining industry expertise with innovative solutions, we help businesses drive efficiency, improve agility, and achieve sustainable growth in a dynamic marketplace.

Learn more at www.demandchainai.com