Case Study

SIGMOID

A leading multinational alcoholic beverage company



Demand forecasting solution with 10+ market disruption indicators, delivers prediction accuracy of 92%

Overview

A leading multinational beverage company faced challenges in forecasting demand for the global distilled spirits category due to significant market disruptions. Sigmoid provided a customized demand forecasting solution utilizing advanced ML algorithms, incorporating market indicators and macroeconomic parameters. The solution led to 80% faster time to insights, reduced man-hours in demand calculations, improved forecast accuracy, and enabled swift responses to changing market dynamics.

Included in this case study:

- ☑ **Challenge:**
  To predict future demand for the entire distilled spirits product category
- ☑ **Approach:**
  Developed a demand forecasting solution with dashboards for industry-level insights
- ☑ **Impact Delivered**

Business challenge

The client is a leading multinational beverage company with a diverse product portfolio serving 65+ markets globally. The business strategy team was looking for ways to drive category growth and efficient inventory management by accurately forecasting industry wide demand for the distilled spirits category. The pandemic-recovery period followed by inflation led to high unpredictability in the market. The traditional forecasting methodologies were not capturing weather information or macro-economic parameters. The demand was manually calculated without any validation mechanism, and fluctuations in the historic data were not accounted for. The rudimentary methods resulted in inaccurate estimates across markets. To withstand external market forces and maintain steady sales for the product category, the client needed a centralized demand forecasting solution that would provide them a consolidated view of the global market.

Tech Stack

python

PySpark

databricks

Azure

Power BI

The key challenges addressed were:

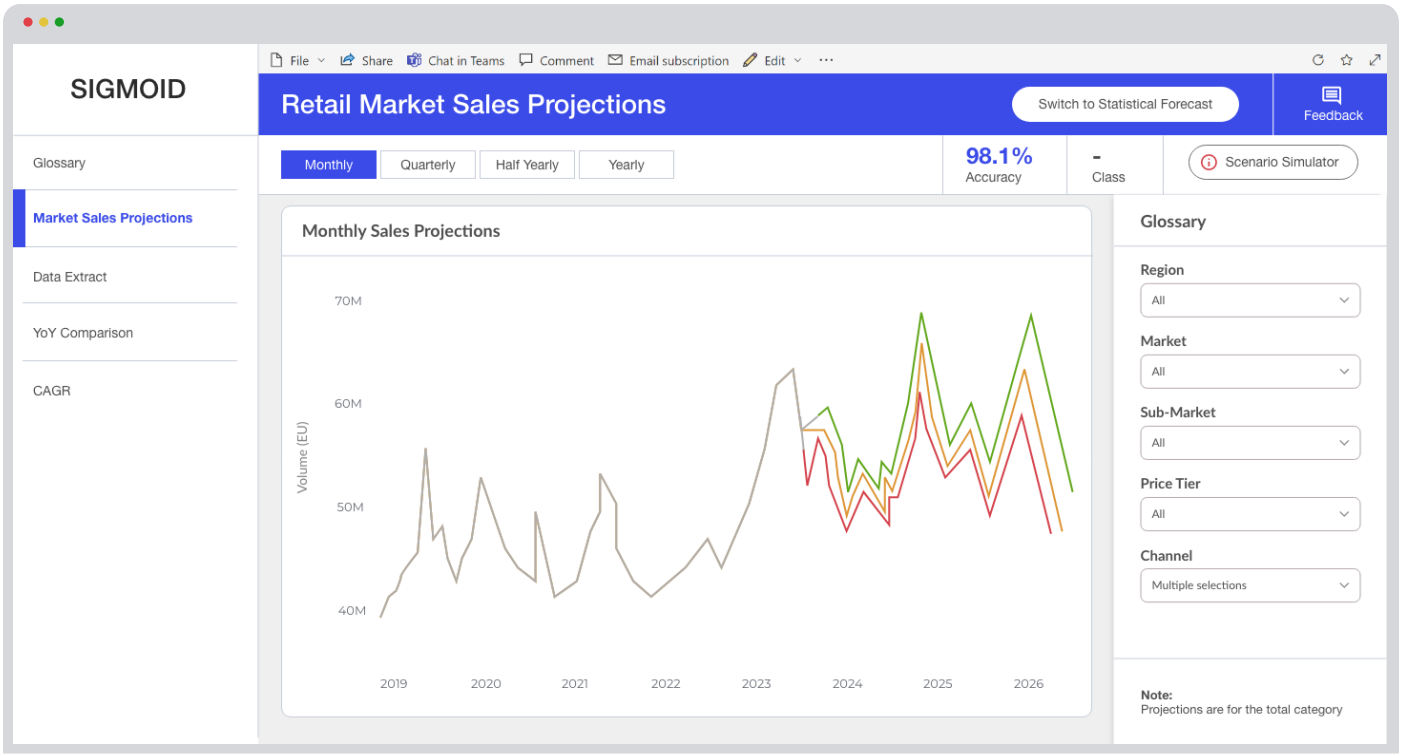
- Creating a high-accuracy demand forecasting model to drive sales growth in multiple markets
- Predicting total addressable market demand for distilled spirits to develop valuable insights into future market conditions
- Identifying the key factors and relationships driving total-market demand of a product across different time periods

Sigmoid's solution

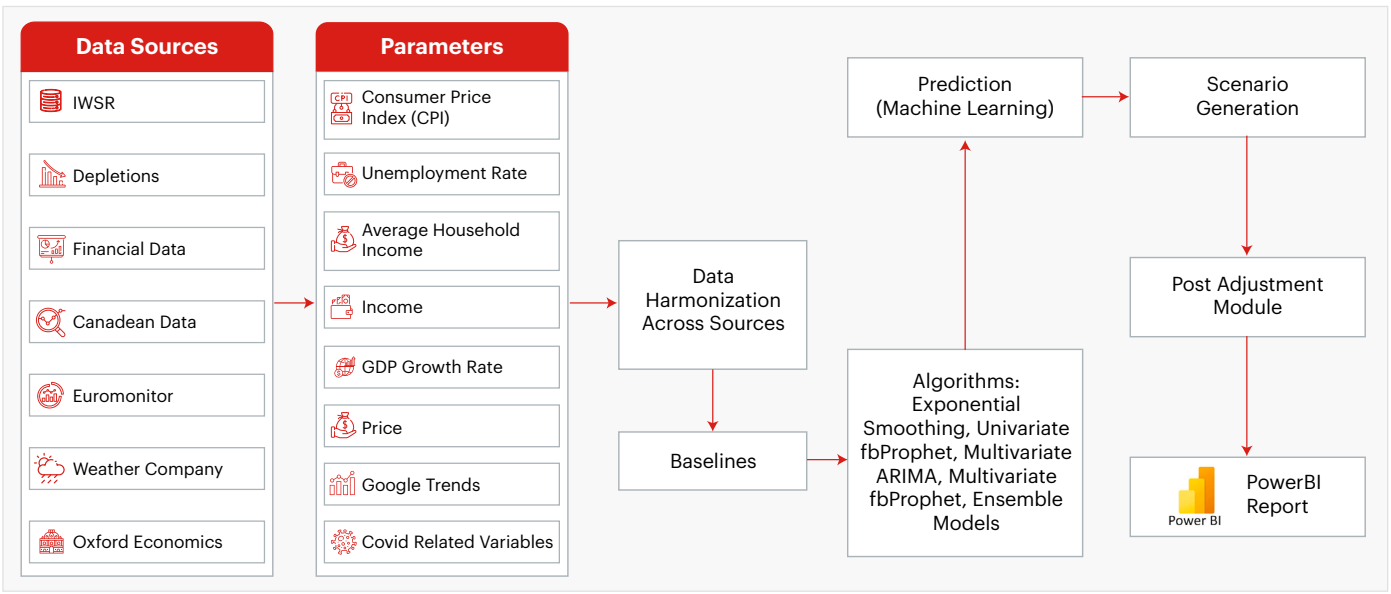
Sigmoid created a customized demand forecasting solution using advanced ML algorithms to estimate future demand for the distilled spirit segment globally. The estimates were predicted across monthly, quarterly, half-yearly and yearly intervals for 3 external market scenarios– optimistic, moderate, and pessimistic. The forecast model accounted for 10+ market disruption indicators (e.g., COVID-19, inflation), and macro-economic parameters such as GDP, CPI, unemployment rate, interest rate, price index, average household income, channel closures, government measures etc. for calculating demand for different markets.

All the pipelines including data processing, modeling data preparation, forecasting model design, model selection, prediction, adjustment and validation were operationalized over Databricks. Large volumes of data from multiple sources such as IWSR, Nielsen retail, Canadean research reports, Euromonitor, Google trends, Oxford economics data were harmonized and processed in Azure data marts. The processed data was used to generate aggregated modeling data with all the external parameters coming from different sources, which was fed into the forecasting model. The forecasting model was built to generate values for over 10k combinations of country, category, sector, and price tiers. The resultant prediction figures are adjusted and validated using many business rules to make it more than 90% accurate. The aggregated forecasts were accessed in real time through PowerBI dashboards and reports.

Solution dashboard



High-level solution architecture



Business impact

80%
faster model processing

92%
increase in accuracy for aggregate forecasts

Error-free
monthly data refresh cycle

Sigmoid's demand forecasting solution enhanced planning and inventory control across global markets. With a greater understanding of the impact of various external market forces on the product sales and revenue, the business strategy team could act swiftly on the unique opportunities, risks and changing dynamics in each of the markets. The automated data pipelines reduced manual efforts, leading to higher efficiency and focus on value-add activities. The client was able to capitalize on industry trends for expanding overall market share.

About Sigmoid

Sigmoid combines data engineering and AI consulting to help enterprises gain a competitive advantage through effective data-driven decision-making. Our innovative and case-specific solutions for data management and data science have helped multiple clients leverage advanced analytics for assortment recommendations to maximize market share. Let us empower your organization to make data-driven decisions through the use of data engineering, data warehouses, and MLOps.

Visit www.sigmoid.com to know more.

Let's Get Started!

Reach out to us at marketing@sigmoid.com to deploy advanced analytics and data management solutions to optimize product assortments.