Food and Beverage

How PAI Chatbot Transformed A Food and Beverage Company's Sales Forecasting with Ease of Use

Problem Statement

A leading beverage manufacturer, with over **120 SKUs and distribution networks covering 7,500+ outlets** across North America, faced significant challenges with its **sales forecasting.** The team was responsible for generating forecasts for each product, but the process was bogged down by the need to retrieve and manually analyze vast amounts of data from multiple, often inconsistent sources.

The forecasting team, consisting of 10 analysts, spent nearly **60% of their time on data extraction** and cleansing, pulling information from over 15 different systems. This not only led to delays but also created room for errors and inconsistencies in the data, which in turn **affected the accuracy of the forecasts.**

Due to these challenges, the company's sales forecasts **were frequently off by 10-15%,** leading to either stockouts or excess inventory, which affected the company's bottom line.

Even though the data was accessible, the leadership team struggled to **reconcile the varying output formats** from data analysts, data scientists, and other teams, which **hampered decision-making.**

Solution Overview

Each product category was analyzed using these algorithms (Holt-Winters, Neural Networks, ETS ARIMA), with the best-performing model selected based on accuracy. Due to data inconsistencies, **different algorithms were found to be more accurate for different products,** ensuring tailored and precise forecasting.

To further enhance forecasting accuracy, we established a dedicated data science team. This team developed a customized multi-algorithm approach that effectively addressed the challenges.

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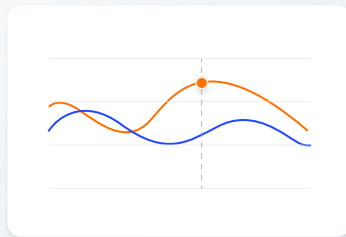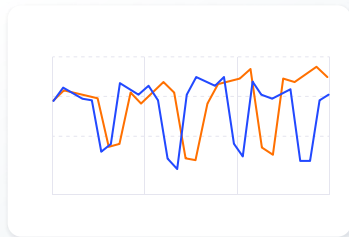
Solution Overview

Our P. AI chat bot was a perfect fit for this challenge, we deployed PAI on their
- Data warehouses
- Other source systems
- Integrated it into their Microsoft Teams

This bot not only fetched and presented data in visual formats directly within the Teams chat but also seamlessly integrated with Copilot for enhanced functionality.

▶ **Interaction with Data**
By integrating with Copilot, the chatbot provided seamless interaction with data, allowing leaders to query, visualize, and interact with sales forecasts naturally.

This reduced the time spent on data retrieval and enabled the sales forecasting team to concentrate on higher-level strategic work.

▶ **Rolling Forecast and Comparative Trends**
The bot generated rolling forecasts and comparative trend analyses, which were shared with sales agents. These visual insights motivated the sales team to focus on high-margin products, driving better sales performance.

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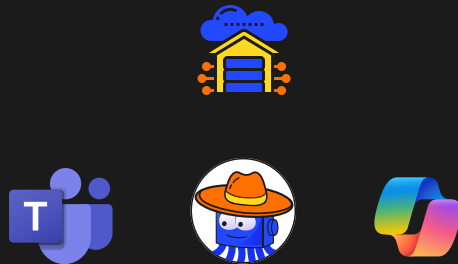
Business Impact

Improved Business Outcomes:

✅ **RAG based search was implemented** → **Improved planning and strategy** 📈

✅ **Profitability for the subsequent season** → **Increased by 6%** 📈

✅ **Forecasting Accuracy Across Product Lines** → **12% Improvement for top 5 products** 📈

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