

Food and Beverage

## Enhancing Sales Forecasting with P. AI A Natural Language Chatbot & Data Science



# Problem Statement

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A leading company faced challenges with its sales forecasting team spending **100+ man months per year with a team of 60+ members** on data retrieval and manual analysis.

The team was often bogged down by inconsistent data across various products, leading to suboptimal forecasting accuracy.

The company needed a solution to streamline the forecasting process, allowing the team to focus on strategic decision-making rather than data fetching and processing.



# Solution Overview

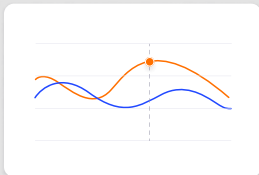
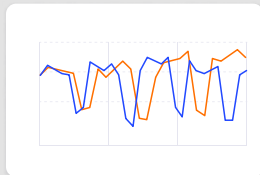
Our P. AI chat bot was a perfect fit for this challenge, we deployed PAI on their

- 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.

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.

- Holt-Winters: Applied for seasonal data patterns.
- Neural Networks: Used for complex, non-linear relationships.
- ETS (Error, Trend, Seasonality): Modeled trend and seasonal components.
- ARIMA (AutoRegressive Integrated Moving Average): Handled non-stationary time series data.



# Solution Overview

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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.

## Seamless Data Interaction

By integrating with Copilot, the chatbot provided seamless interaction with data, allowing users 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.

# Business Impact

Improved Business Outcomes:



Time Spent on  
Data Retrieval



50% Reduction



Forecasting  
Accuracy Across  
Product Lines



25% Improvement



Achievement of  
Annual Sales  
Targets



In 10 Months



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