

ML-based forecasting **saves USD 2MM a year for a** **bakery-cafe**

A bakery-café chain with 2,000+ locations in the US and Canada partnered with Tiger Analytics to implement an ML-driven Demand Forecasting system for precise labor and inventory planning.



The Background

Our client is a bakery-café, fast-casual restaurant chain based in the US and Canada, with a network of more than 2,000 locations. The client wanted to develop and implement a scalable ML-driven Demand Forecasting solution. This system will be deployed across all Cafés, serving as a valuable tool for streamlining labor and inventory planning across various channels. It will offer detailed forecasts tailored to different times of the day, ultimately enhancing operational efficiency.

Key Challenges

Our client sought to enhance forecast precision at the café level by harnessing advanced analytics solutions. The objective was to make highly accurate demand predictions and apply these forecasts to downstream activities such as labor scheduling and inventory planning. These forecasts needed to extend several weeks into the future and maintain precision at the granularity of each breakfast, lunch, and dinner hour. This precision was crucial for optimizing café operations comprehensively.

Challenges included granular breakfast, lunch, and dinner forecasts, extending several weeks ahead.

Our Solution

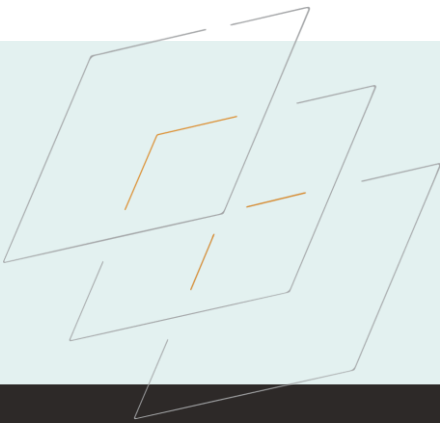
Constructed ML-based forecasting models for 90 cafes in the MVP phase of the project.

Expanded this initiative to encompass 2,200 cafés across the US and Canada.

Crafted an extensive feature set for the ML model, encompassing variables that account for demand escalation and disruption.

Engineered essential factors such as COVID impacts, weather conditions, labor dynamics, and macroeconomic indicators into the forecasting framework. Upheld the precision of the models through the application of sophisticated algorithms.

Utilizing Google Cloud and Vertex AI, improved sales forecasts by 300 basis points and order forecasts by over 400 basis points, offering transparency and efficiency.



Tech Stack

/ Google Cloud / Advanced Analytics and Machine Learning

Value Delivered

Significantly enhanced the accuracy of sales forecasts by more than 300 basis points and order forecasts by over 400 basis points compared to the existing forecasting system. Notably, this model offered complete transparency. The entire project, including MLOps, was constructed on the Google Cloud Platform using Vertex AI.

The anticipated impact of this project is substantial, with an estimated annual cost savings and revenue increase of \$2 million. This was achieved by reducing stockouts, improving labor management, and reducing food waste.

About Us

Tiger Analytics is a global leader in AI and analytics, helping Fortune 500 companies solve their toughest challenges. With over 4000 data technologists and consultants spread across offices in the US, Canada, UK, India, Singapore and Australia; we help our customers accelerate their AI and analytics journey in sectors like CPG, Retail, Insurance, BFS, Manufacturing, Life Sciences, and Healthcare. Tiger Analytics is a Great Place to Work-Certified and a 'Leader' in the Forrester Wave: Customer Analytics Services Report 2023.

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