

Partnering with Retail CPG Customers

TA Forecaster Solution





01

Tiger Analytics Overview

Who Are We?

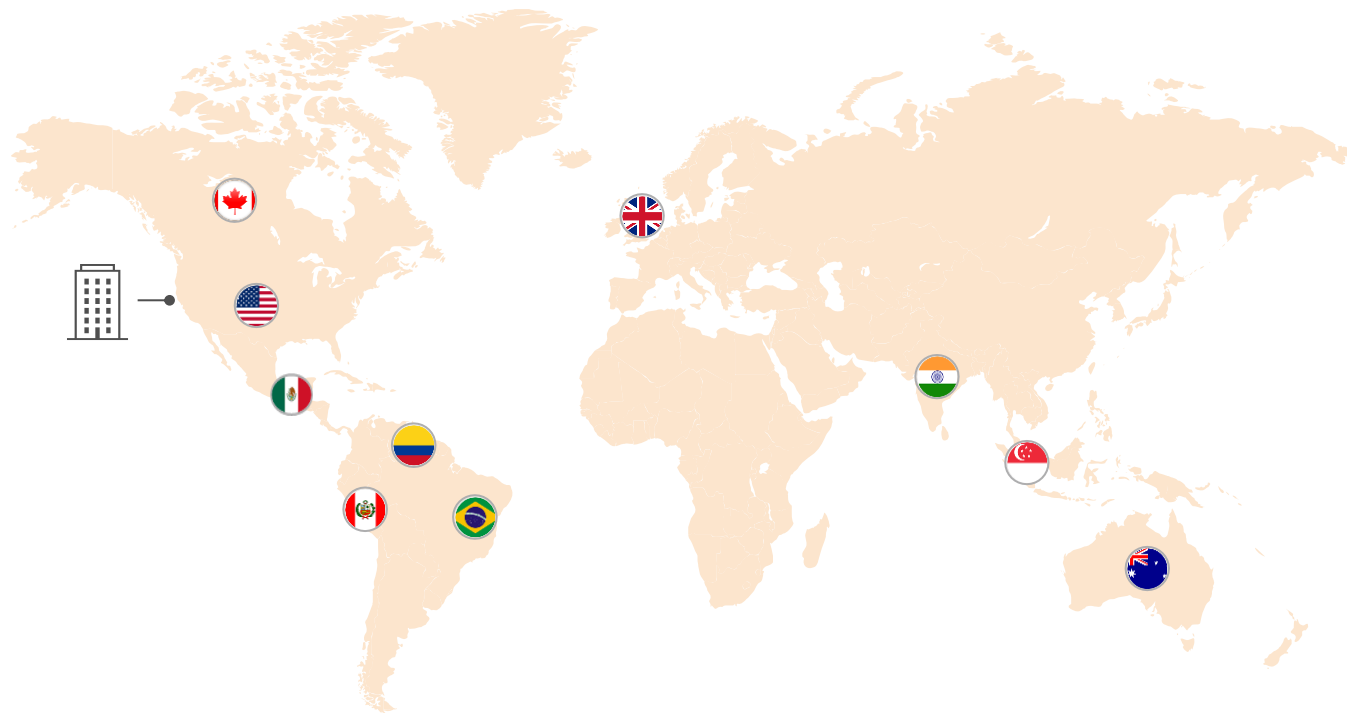
We're passionate about solving some of the toughest **business problems** out there using AI and analytics.

Our Focus

Providing certainty for a better tomorrow.



Fastest Growing Services Provider of Data, Technology and Analytics Solutions



Global Delivery

HQ: Santa Clara, CA, USA

Locations: USA, UK, Singapore, Australia, Canada, Mexico, LATAM and India



A minority-owned-enterprise certified by USPAACC

5,000+

Data & AI professionals



75+

Fortune 1,000 Clients
across Industries



80%

Revenue is repeat business from
existing clients



~10%

Attrition rate & highly engaged team



Key Recognitions



Wave Leader in
Customer Analytics
Service Providers **2023**



Leader and Rising Star
in Data Science and
Engineering **2023, 2022**



Leader and Star
Performer - Analytics
and AI Services PEAK
Matrix® **2024, 2022**



America's fastest
growing companies
2023, 2022, 2021



A minority-owned-
enterprise certified by
USPAACC



India's Great Place to
Work **2023, 2022**



America's fastest
growing companies
2023, 2022, 2021



Best Workplaces for
Women in India
2023



AIM's Top GenAI
Service Providers
2023



Brandon Hall Award -
Learning and
Development **2023**



Deloitte Technology
Fast 50 India
2023



AWS Partnership & Relevant Engagements



- Global Advanced Tier Services Partner
- Global ProServe MSA
- Machine Learning Competency
- CPG Competency
- SDP EMR specialization
- SDP Redshift specialization
- SDP Glue specialization
- SDP Quicksight Specialization
- SDP Lambda Specialization



- 170+ AWS Certifications
- AWS Certified Associate, Professional & Specialty Level
- 35+ Strategic engagements globally



Innovations

- Content Ingestion Solution
- AWS Data Fabric
- Data Quality & Profiling Framework
- DataHub – Metadata platform
- Automating IaaS using Terraform
- MLCore
- Tiger Data Observability Solution



Global Manufacturer

Assisted in creating an end-to-end Data Platform in order to implement a solution for predicting maintenance of assets.



Healthcare Provider

Built robust Data and Analytics (D&A) platform that can act as an Enterprise Data Hub to host structured, semi structured and unstructured data and support various analytics and reporting.



Retailer

Developed a scientific approach to measure and analyze the impact of various marketing activities on Sales, to support Marketing spend decisions for the financial year.

Our Capabilities

Related Offering Examples

Data/ML Engineering

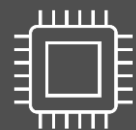


- Data Pipelines
- Agile Data Ops
- Platform Engineering
- Future State Architecture
- Cloud Data Lake
- Modern Data Platforms
- Cloud Data Migration
- Lean Data Governance



Tiger's Data Fabric helps cut-down the time it takes for setting up new Data Pipelines in Cloud from days & weeks to few minutes

AI and Data Science



- Machine Learning
- Predictive Analytics
- Statistical Modeling
- Optimization Methods
- Streaming Analytics
- Generative AI
- Computer Vision
- Natural Language Processing
- Reinforcement Learning
- Deep Learning

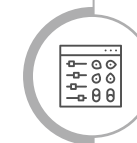


Our **CV Framework** leveraging state of the art algorithms helped a Fortune 50 company with in-store shelf intelligence, stock-outs, foot-fall, SKU rotation

ML Engineering and Consumption

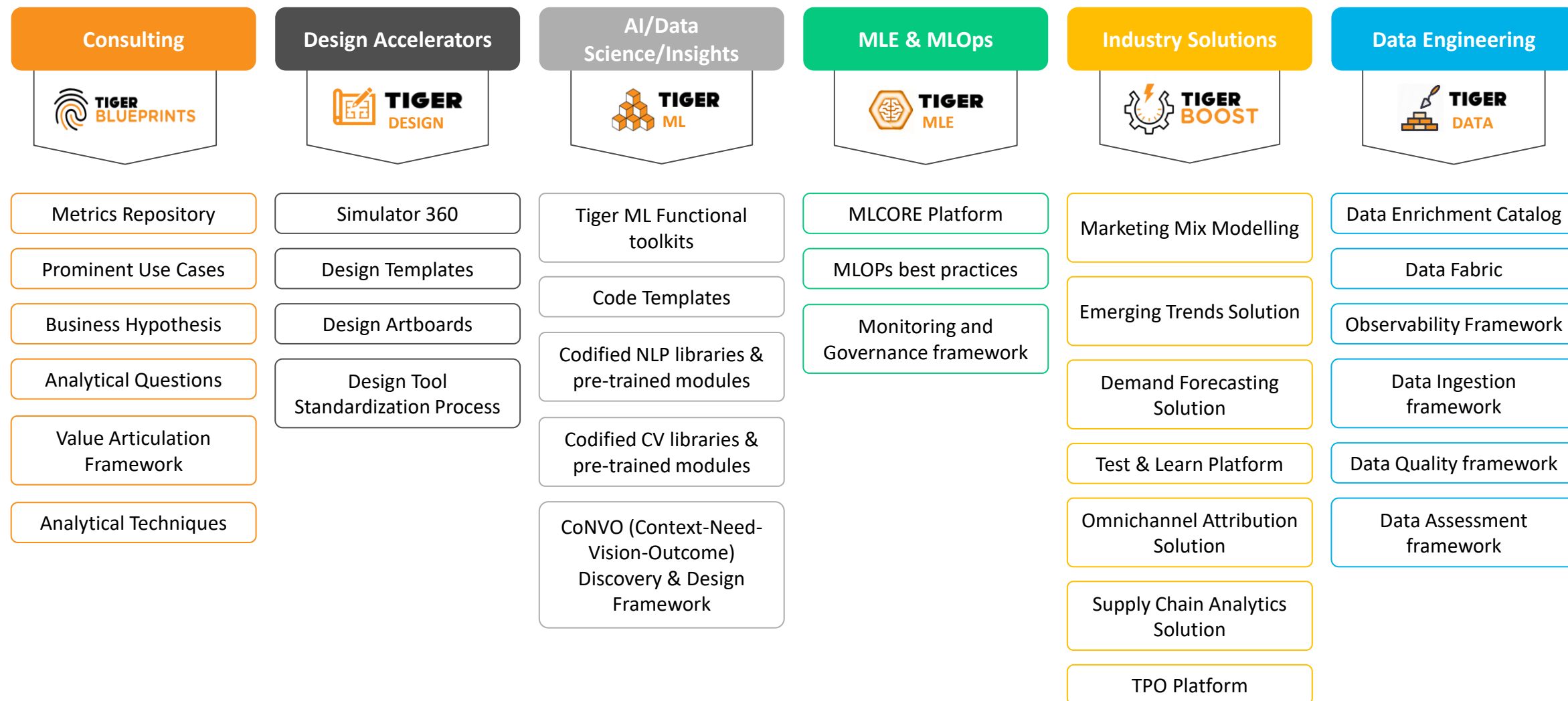


- ML Operationalization
- Scaling AI/ML solutions
- AI/ML Application Engineering
- APIfication
- Business Insights
- Analytics Story Telling
- Visual Analytics
- Value Realization



ML Core, a low code ML Platform with ready to use data models, features, ML models, dashboards streamlined production operations for a PE firm

Supplemented with a wide array of Reusable Tools, Methodologies and Frameworks



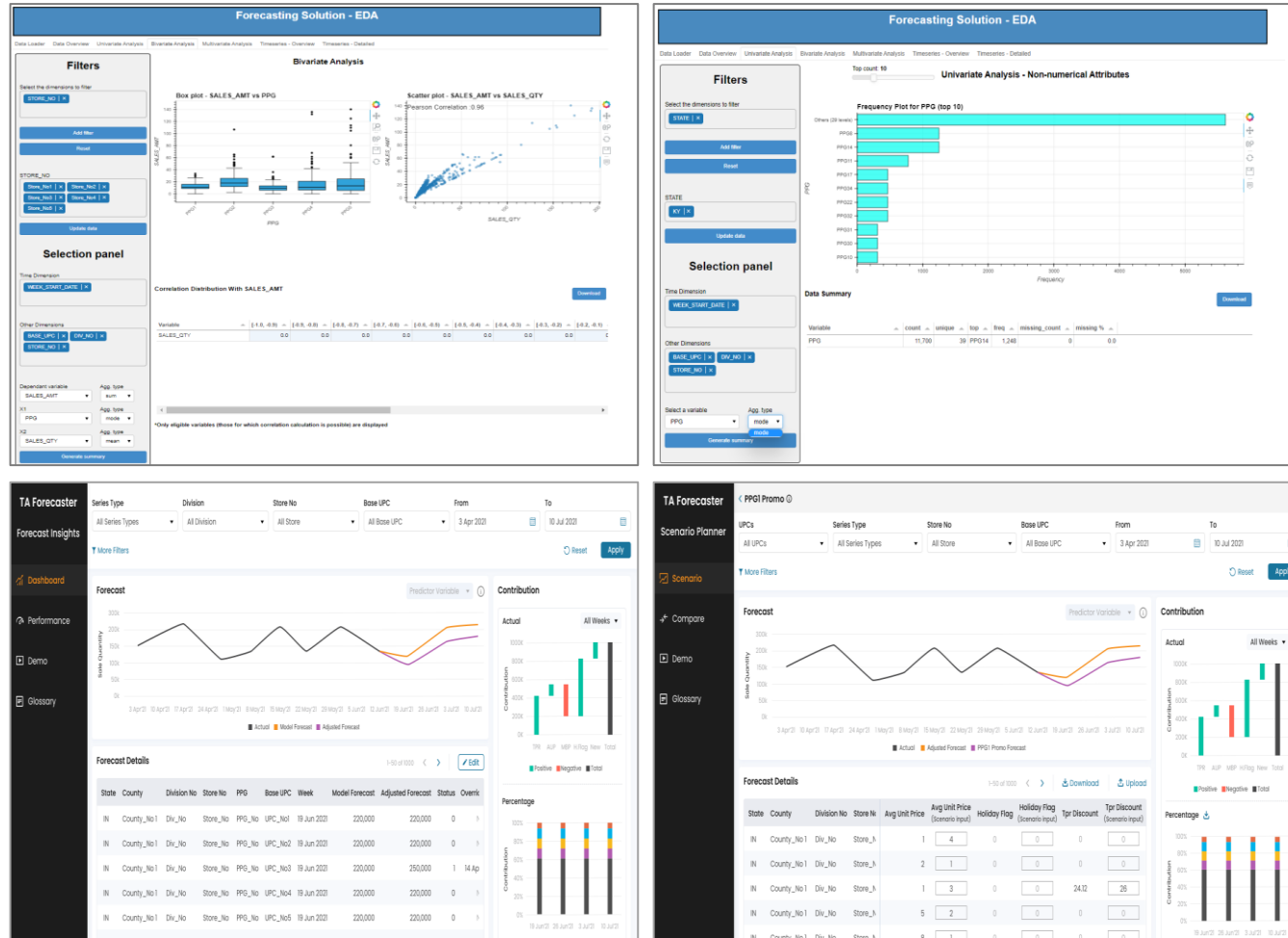


02

Demand Forecasting Solution for
Retail and CPG Industries

Demand Forecasting : Value Proposition and Overview

Tiger's Solution to get a reliable forecast in current times with increase in market volatility, operational complexities and dynamic environment



1

A Fully Customizable White-box solution built using AWS Cloud

2

Robust modelling framework and data enrichment to handle all the relevant forecast drivers

3

Variety of algorithms and hyper-parameter tuning at the granular levels to **identify champion models**

4

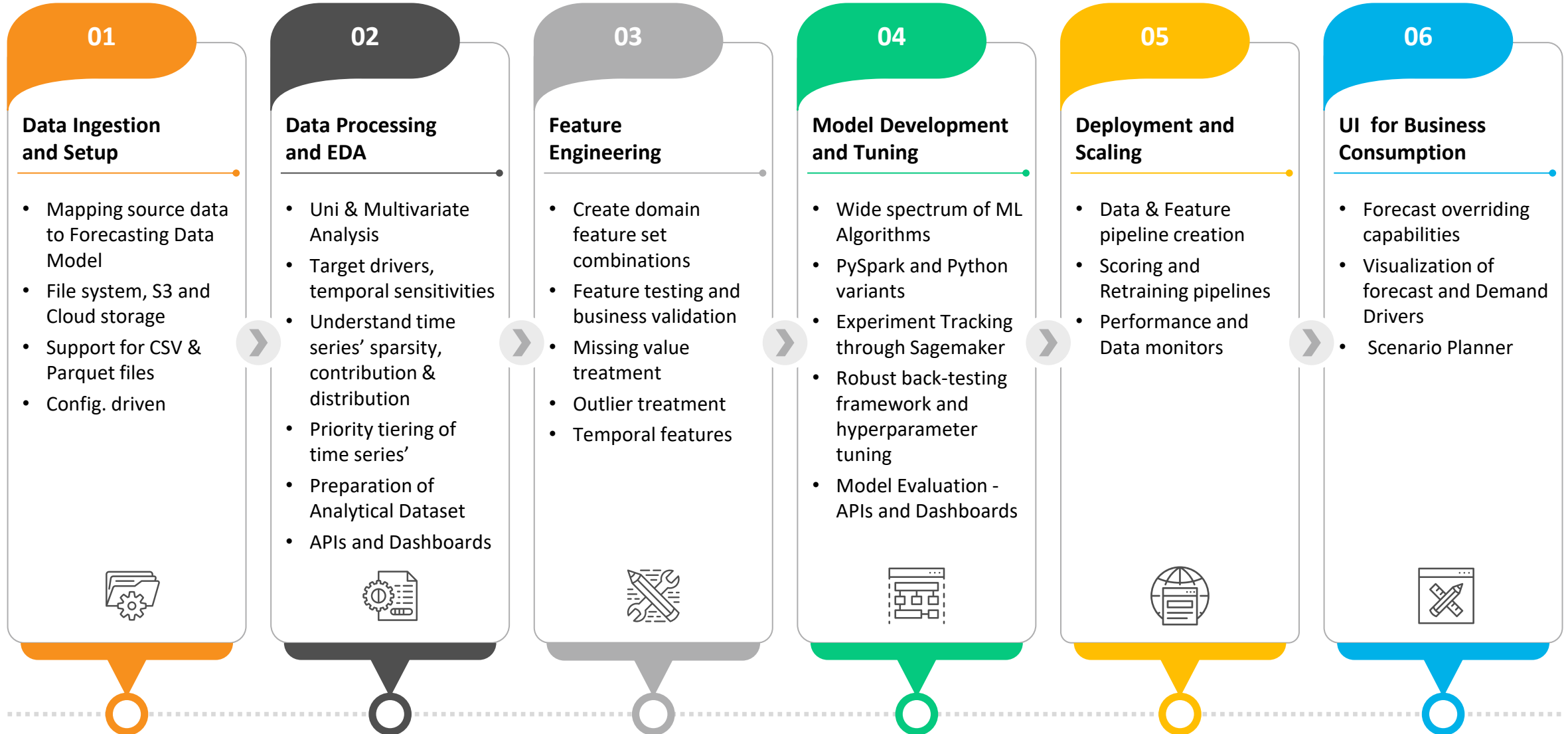
Auto-trigger retraining pipelines to **capture most recent patterns**

5

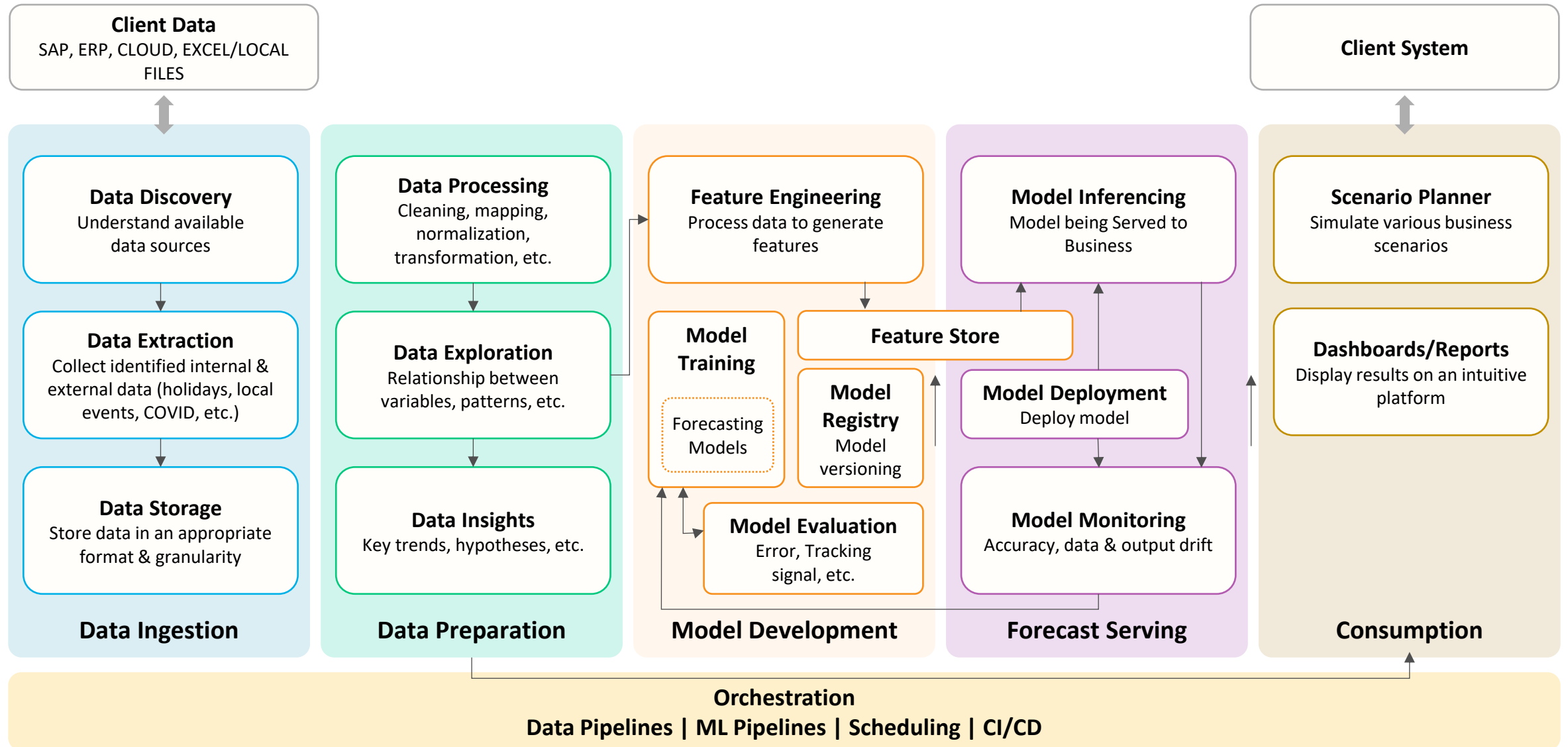
Scenario planning capability to simulate changes to driver values and assess the impact on forecasts



Solution Overview



Proposed Solution Workflow

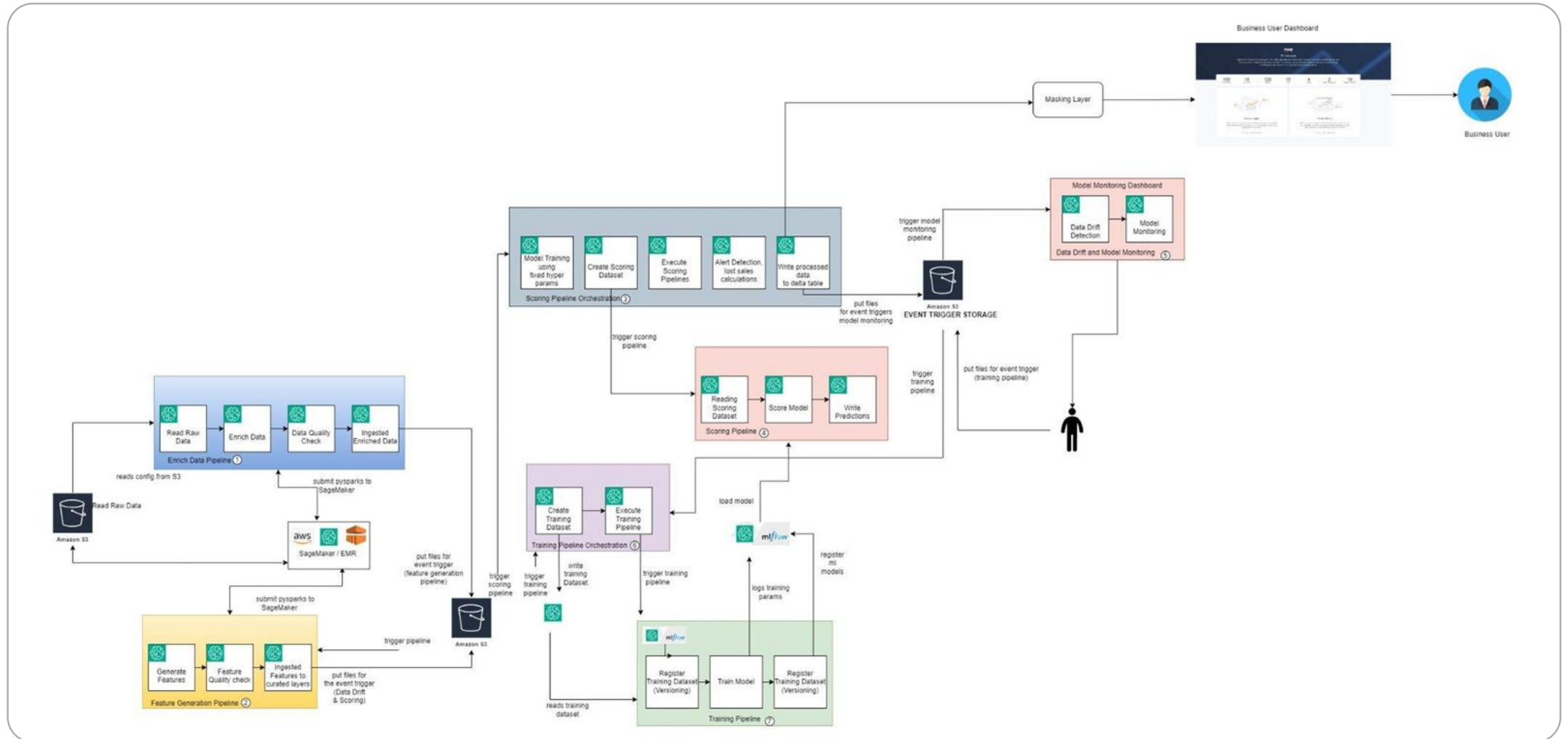




03

Solution Architecture

Overall solution Architecture



04

Relevant Case Studies



Snapshot of Tiger's Experience in Demand Forecasting

Café Sales Forecasting

Leading American
Café/Bakery Chain



\$5 M savings each year
from optimized labor and
inventory planning
Improved accuracy of sales
forecasts by **over 3000 bps**
improvement in Holidays

Quick Service Restaurant Chain

Dynamic Demand
Forecasting for Inventory
Management & Estimation
of Labor Hours



\$70M Cost saving Annually
\$10 M projected daily
inventory holding cost
reduction

Category Forecasting

Large Confectionery
Company



Provided **monthly forecasts** for the next
5 years across **5 categories**
Identified factors driving
demand

D2C Sales Forecasting

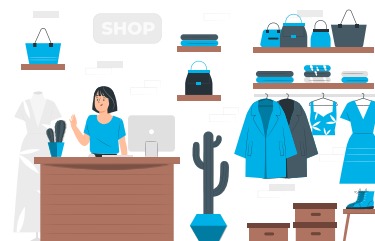
Global Pet Food
Manufacturer



Provided monthly **D2C sales forecast** for the next
10 months **90%+ accuracy**
Helped in scenario planning

Demand Forecasting

Large Apparel Retailer



15% WAPE improvement
and **4% Bias** improvement
over **21-24 week** forecast
period

Value Delivered

1 Café Sales Forecasting for a Leading American Café/Bakery Chain



Current Sales Forecasting Process



Forecasting is done at 'Café - daypart level' and client leverages historical transactional data for forecasting



Existing solution is unable to identify key drives of sales



Client's current solution also has accuracy challenges



Problem Statement

Client engaged Tiger Analytics to build a Café Sales Forecasting solution that would

- Develop forecasting models to forecast sales revenue and number of transactions for identified cafés
- Identify key drivers of sales forecasts to provide levers of control to the client
- Operationalize and scale the solution to 2200+ cafés



Challenges

- Business Complexity – Forecasts are to be generated for each café across different channels client operates - Retail, Drive Thru, Delivery & Catering
- Forecast Granularity – Forecasts to be generated at both day and daypart level
- Complex data ecosystem – Various menus, products, and data originating from multiple sources



Business Outcome

- **Scaled the forecasting model to all the company stores**, delivering \$5 M savings each year from optimized labor and inventory planning
- Models generated sales and orders forecast for **2200 Café x 5 Channel combinations** and included apportioning day level forecasts to day part level
- **Improved accuracy of sales forecasts by over 3000 bps** improvement on Holidays and **500 bps** on regular days when compared to current forecasting system.

Demand Forecasting for a Large Quick Service Restaurant Chain



Current Demand Forecasting Process

- Is relatively simple forecasting process:
 - Forecast is determined using recent historical data (4/8 week moving average)
 - Pre-set adjustments are applied for Corporate events
- In addition, forecast engine is a black box and hence does not provide much visibility into demand drivers



Problem Statement

Client engaged Tiger Analytics to

- Develop forecasting models at menu item/sales/transactions x store x Day part (15 min) level for next 4-week periods factoring in potential drivers of demand
 - Build models for a representative sample of stores and validation of results from live deployment to be done on select stores
- Convert item forecasts into inventory orders by considering on hand inventory positions
- Convert forecasted demand into labor hours forecast leveraging existing approach



Challenges

- Understanding client's existing black box model
- Revolving menu with limited period offers that keep changing all the time
- Require a forecasting granularity of 15-minute interval for labor planning use case



Business Outcome

- Labor Optimization solution deployed across ~11,000 stores in the US led to an estimated cost savings of **\$70 Mn annually**
- **~\$10 Mn projected daily inventory holding cost reduction** across 4k restaurants leveraging the Inventory Order recommendations
- Developed a robust forecasting model for all labor drivers (sales, transactions, menu items and RE) at store x day part level with an accuracy that is **3-5 percentage points better than existing models**
- Incorporated labor demand drivers into the model, eliminating the need for store managers to manually adjust forecasts

3 Category Forecasting for a Large Confectionery Company



Existing Scenario

- Client wanted to replace an existing solution from a 3rd party service provider
- **Issues with Current Approach**
 - Lack of transparency in model development process
 - Unexplainable model results due to black box solution

US Market



5 Categories



7 Channels



Problem Statement

Client engaged Tiger Analytics to enhance revenue growth planning by

- Building a category forecasting solution by leveraging advanced analytics to identify and understand key drivers of demand (monthly forecast for 2 years and yearly forecast for the next three years)
- Creating a simulation tool to simulate forecasts for short term and long term to help improve strategy and planning



Key Challenges

- Difficult to understand impact of economic factors which were unstable (due to COVID impact) and did not correlate to demand
- Manual ingestion of data from multiple sources & across various data formats
- Need to harmonize data with varied levels of granularities across sources



Business Outcome

- Developed demand forecasting models to provide monthly and yearly forecasts for the next 5 years across 5 categories **with cross validation MAPE < 10%**
- Identified important internal and external factors driving demand for supporting business decisions
- Forecasted market share contribution for different sales channels at monthly, quarterly and yearly levels of granularity
- Developed a dashboard using PyDash to help simulate different scenarios and automated forecast refresh on a monthly basis

D2C Sales Forecasting for a Global Pet Food Manufacturer



Business context

- Client setup its own D2C platform on account of COVID-19 outbreak
- They wanted to better understand the impact on sales trends from factors like
 - Product portfolio mix changes
 - Increasing rate of acquisitions
 - Subscriber vs ad-hoc buyers buying patterns

D2C Sales Forecast

Factors

Price Change

Rate Of
Acquisitions

New Pack
Launch

Subscribers



Problem Statement

Client engaged Tiger Analytics to

- Build a forecasting solution to predict D2C sales for the rest of 2022
- Provide insights to brand, marketing and business teams to help improve their sales strategy & planning during the pandemic



Key Challenges

- Lack of historical data
- Aggregating social media spend across different sources over time due to change in data provider
- Launch of new product offerings created a lot of noise in sales data leading to inaccurate forecasts



Business Outcome

- Developed a forecasting model to provide monthly D2C sales forecast for the next 10 months in US market with accuracy of more than 90%
- Identified potential levers like social conversions and number of emails delivered, that will help the marketing & business team in scenario planning for the future thereby enabling them to develop better sales strategies
- Utilized the D2C data to help the brand managers gain valuable insights into pet preferences (e.g., flavors) that can be incorporated into B&M products

5 Demand Forecasting for a Large Apparel Retailer



Business context

- Client had a 3rd party product-based deployment for store and online forecasting
- Significant challenges with under-forecasting and high errors
- Long Term forecasting presented unrealistic forecasts
- Relatively high cost with enhancing and maintaining solution
- Black box made outlier analysis challenging (resulting in lower business confidence)



Problem Statement

Client engaged with Tiger Analytics to be the strategic partner for evolution and internalization of Demand Forecasting capabilities



Challenges

- Discovery and documentation of planning processes
- Scaling with infrastructure constraints
- Need to build confidence across stakeholders to experiment with alternate approaches
- Complex category with mix of seasonals, fashion and basic products



Business Outcome

- 15% improvement in WAPE over 21-24 week forecast period
- 4% improvement in Bias over 21-24 week forecast period (resolving under forecasting problem)
- Transition timeline accelerated by months

Thank You

Do you have any questions?

www.tigeranalytics.com

