![LTIMindtree logo]
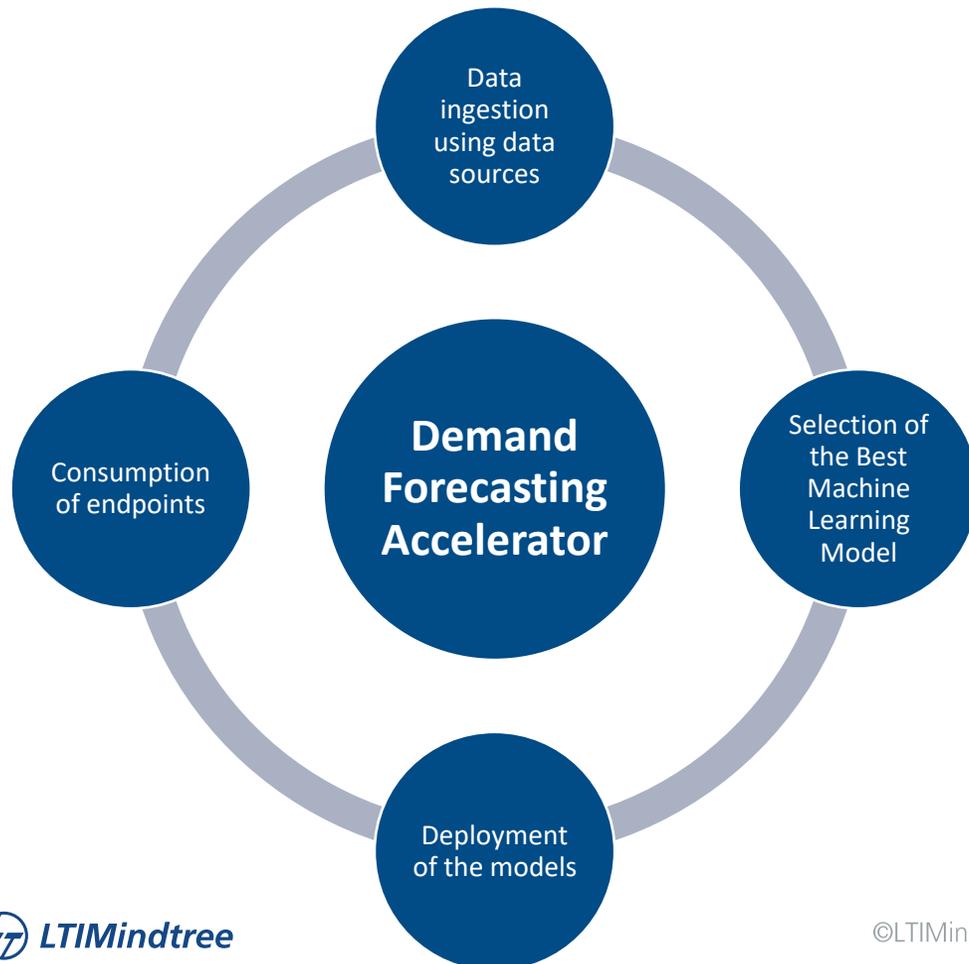
Let's get to the future, faster.

Together.

Prepared for: Demand Forecasting - LTIMindtree

March - 2023
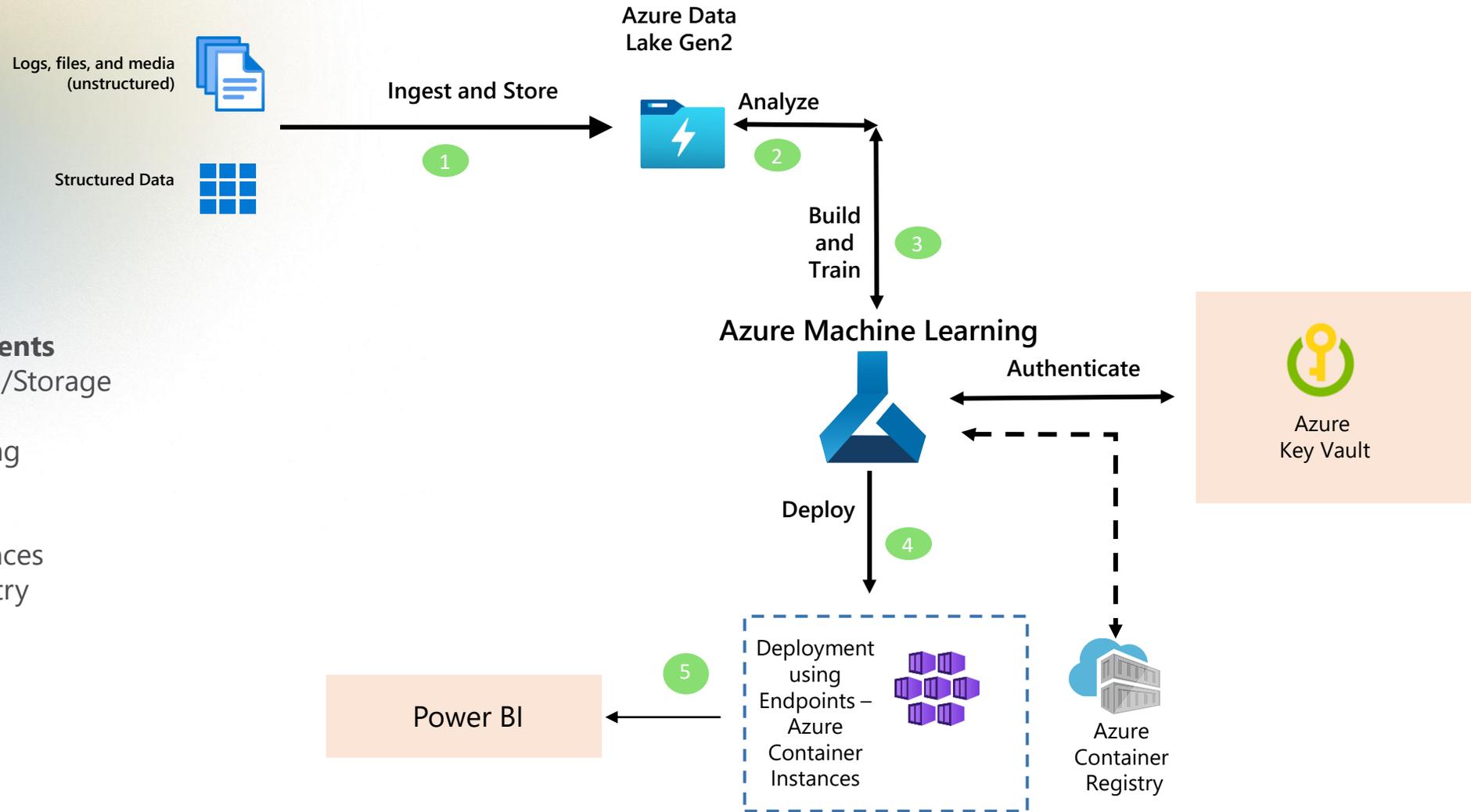
Demand Forecasting Accelerator – Solution to Forecast Demand at Distributor Level

Data ingestion using data sources

Consumption of endpoints

Demand Forecasting Accelerator

Selection of the Best Machine Learning Model

Deployment of the models

- An AI/ML based solution that predicts demand for the coming months across all SKUs at a distributor level

- Best Machine Learning Model selected according to the data pattern for every Distributor SKU that takes into account seasonality, trend, randomness present in data

- Automated Pipeline on Azure Machine Learning which performs Data Analysis, Data Preparation, Model Training and Deployment

- Logging of various metrics inbuilt in Azure ML for each phase of pipeline for better experiment tracking
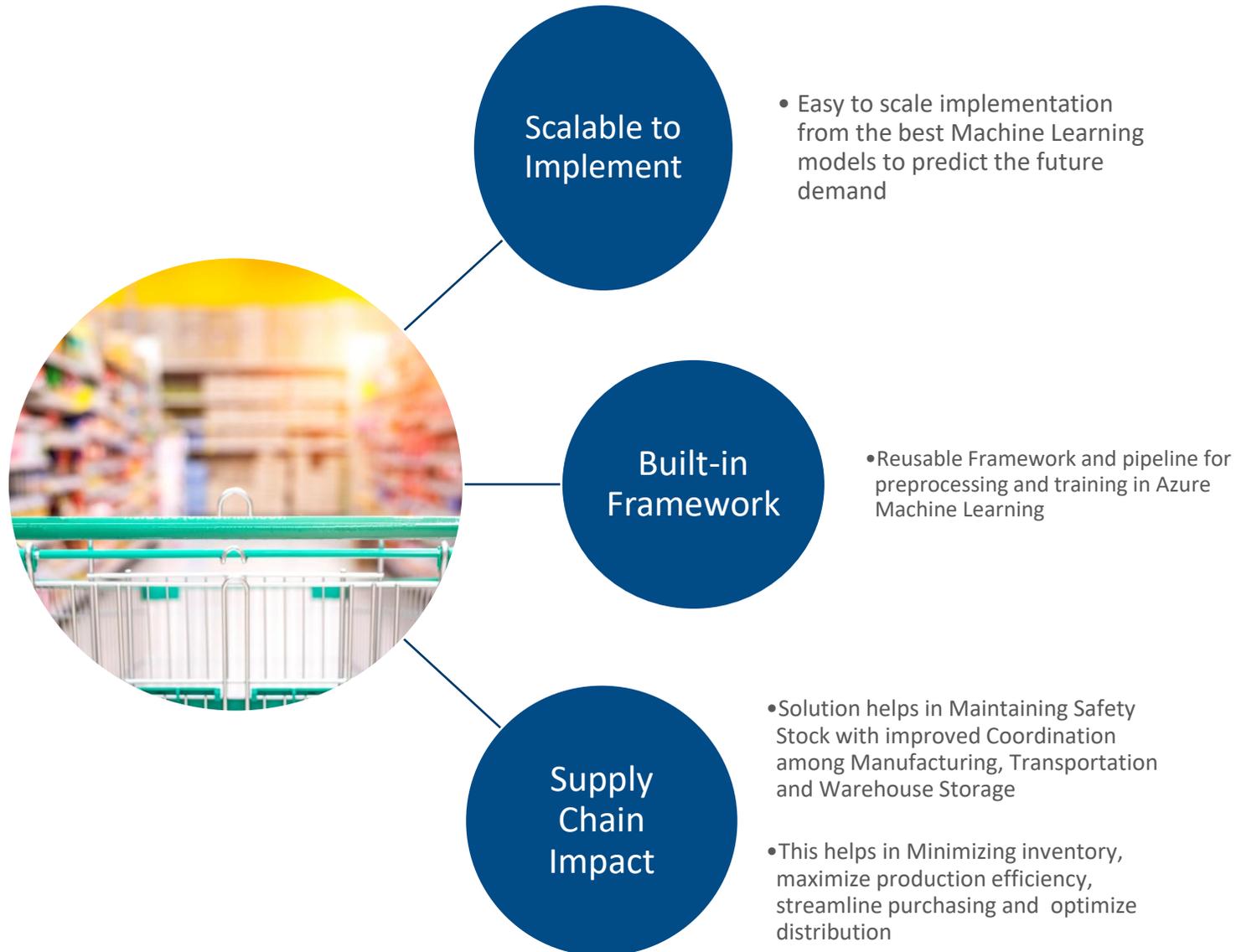
LTIMindtree

Technical Architecture

Azure Data Lake Gen2

Logs, files, and media (unstructured)

Structured Data

Ingest and Store

1

Analyze

2

Build and Train

3

Main Components
- Azure Data Lake Gen 2/Storage Account
- Azure Machine Learning
- Azure Key Vault
- Power BI
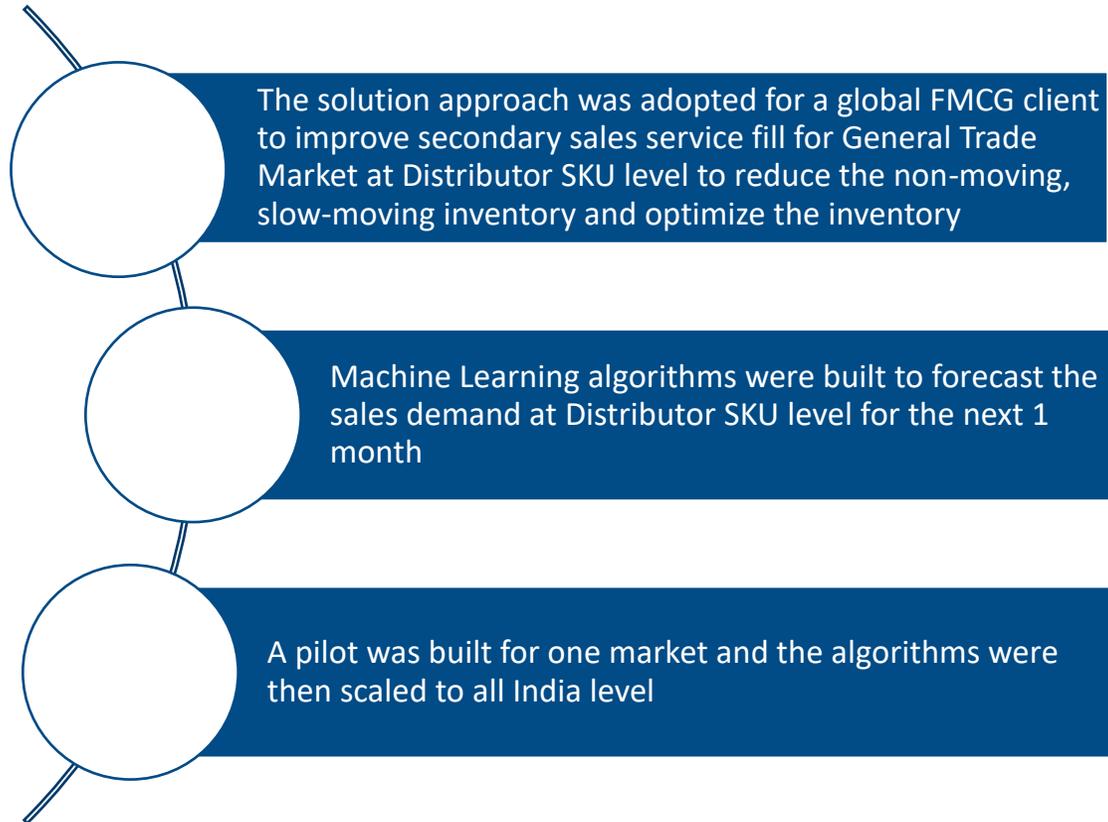- Azure Container Instances
- Azure Container Registry

Azure Machine Learning

Authenticate

Azure Key Vault

Deploy

4

5

Deployment using Endpoints – Azure Container Instances

Azure Container Registry

Power BI

Mindtree

3

Demand Forecasting Accelerator – Value Proposition

Scalable to Implement

- Easy to scale implementation from the best Machine Learning models to predict the future demand

Built-in Framework

- Reusable Framework and pipeline for preprocessing and training in Azure Machine Learning

Supply Chain Impact

- Solution helps in Maintaining Safety Stock with improved Coordination among Manufacturing, Transportation and Warehouse Storage

- This helps in Minimizing inventory, maximize production efficiency, streamline purchasing and optimize distribution
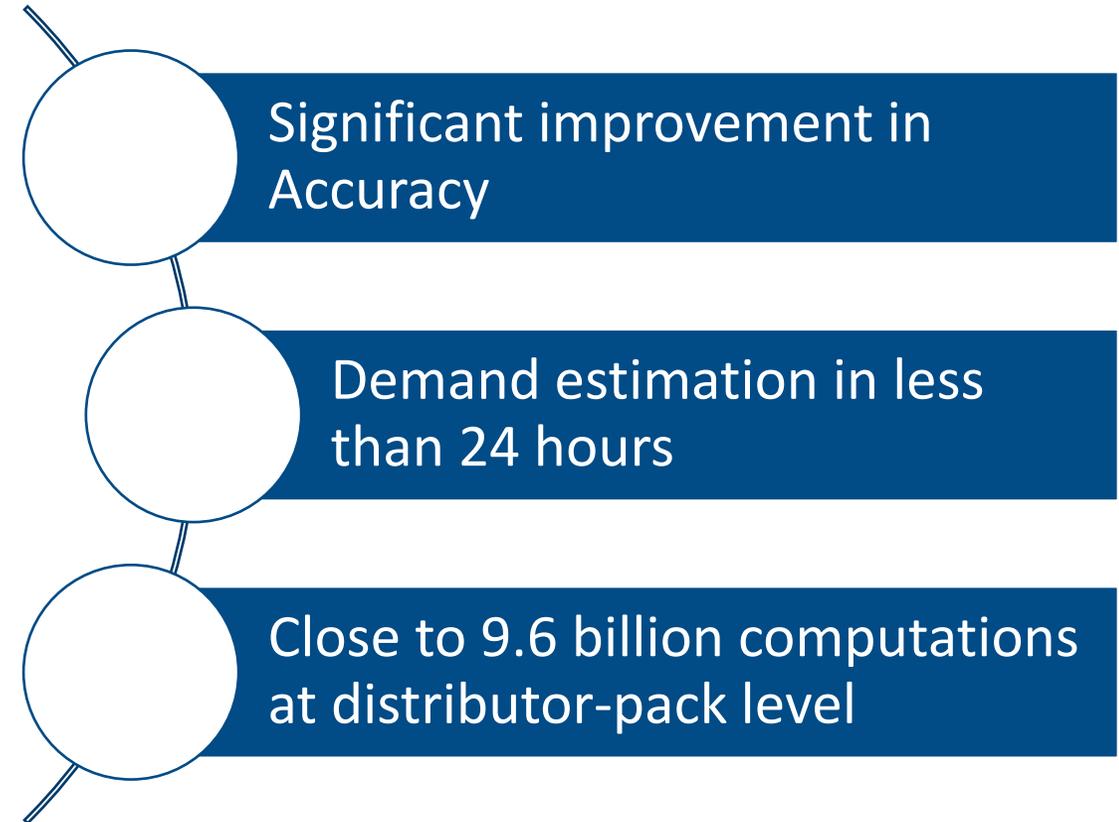
Success Story: Supply Chain – Demand Forecasting at Distributor Level

Global FMCG Company with revenue exceeding $50B and presence in 150+ countries with a Business scale of 1 Million+ Outlets, 35+ Product categories, 65+ Brands and 1100+ Products
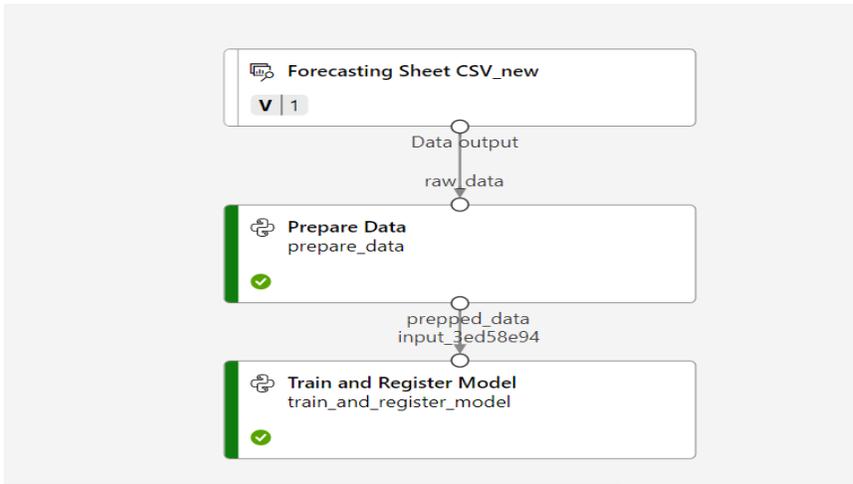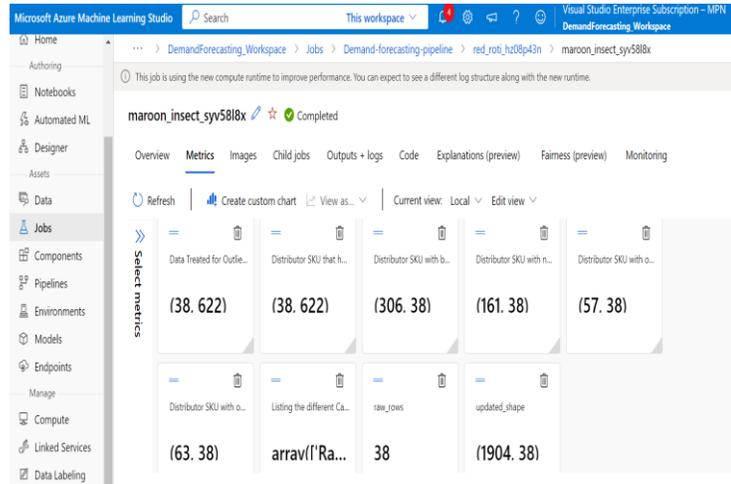
Solution Approach

- The solution approach was adopted for a global FMCG client to improve secondary sales service fill for General Trade Market at Distributor SKU level to reduce the non-moving, slow-moving inventory and optimize the inventory

- Machine Learning algorithms were built to forecast the sales demand at Distributor SKU level for the next 1 month

- A pilot was built for one market and the algorithms were then scaled to all India level

Solution Impact

- Significant improvement in Accuracy

- Demand estimation in less than 24 hours

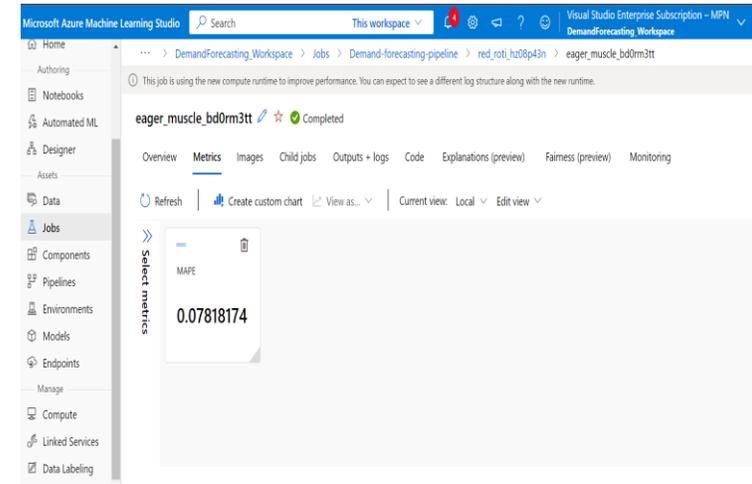- Close to 9.6 billion computations at distributor-pack level

Demand Forecasting Accelerator in Action

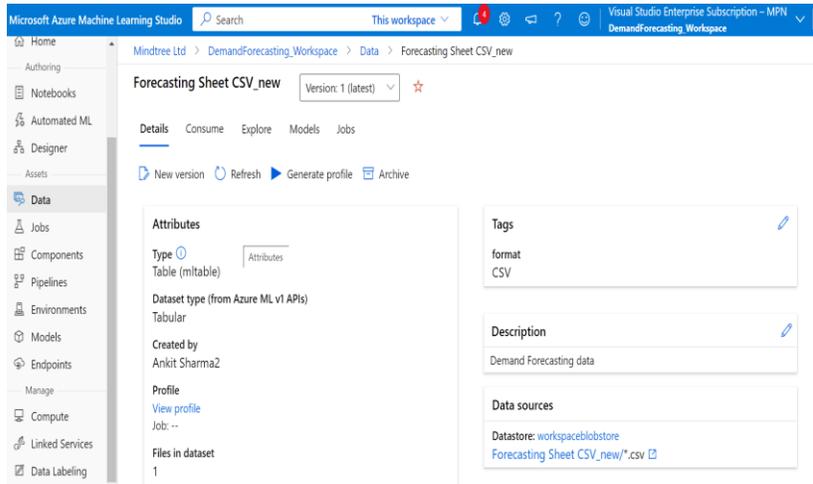
ML Pipeline for Data Preparation and Training

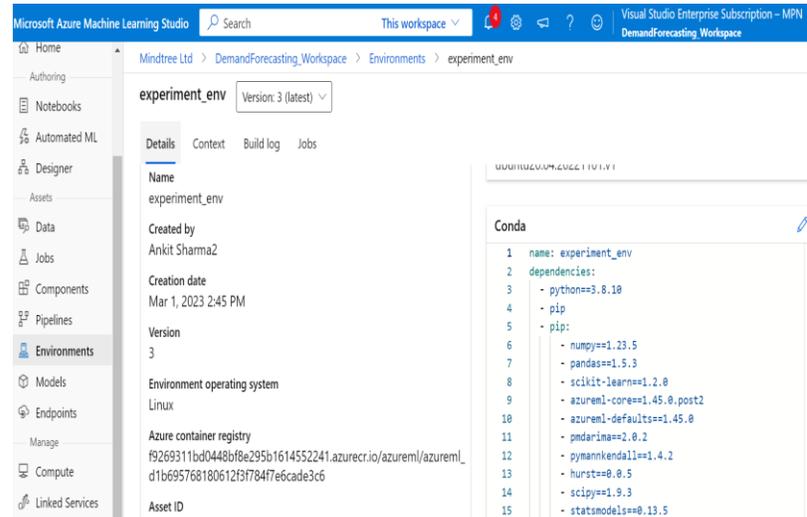Metrics logged for Data Preparation Phase

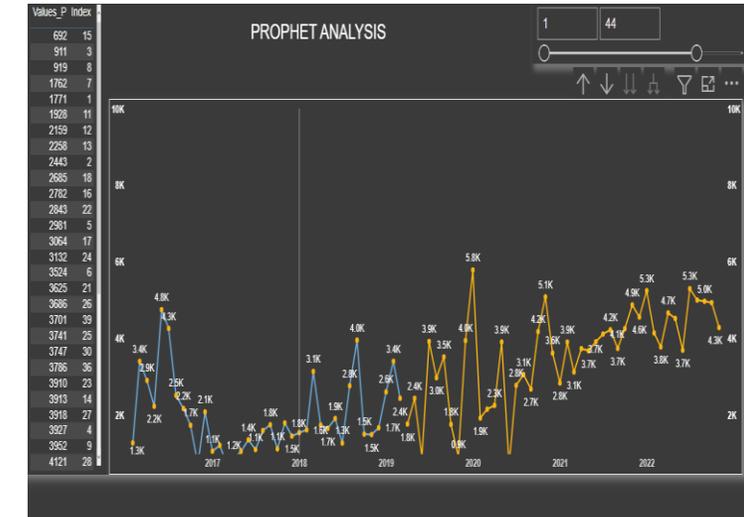Metrics logged for Model Training Phase

Demand Forecasting Accelerator in Action

Data Stored in Azure Blob Storage

Environment Created for Deployment

Visualization of Forecasted Data – Power BI

Demand Forecasting Accelerator – Front Page Content

Improvise your inventory-based supply chain structure using state of the art machine learning models predicting the future demand at a Distributor SKU Level – all bundled together in Azure Cloud Platform

Introducing LTIMindtree's Demand Forecasting Accelerator – a solution that caters to forecasting product demands at the level of Distributor SKU for CPG Customers, thus enabling better product planning, safety stock maintenance with improved coordination among different segments of supply chain.

The Accelerator identifies Best Machine Learning Model for different product category finding out specific group a product belongs to, basis the pattern present in data.

The entire preprocessing and training pipeline makes sure different metrics are logged in for different experiment runs – thus enabling better tracking

Contact us to know more about our Demand Forecasting Accelerator and how it can help you with the best and most accurate forecasts