Synoptek

Dynamic Pricing Model Using Machine Learning Enables an Office Supplies Company to Drive Automation and Maximize Profits

Customer Overview

Customer:

A privately labeled office supplies company

Profile:

The customer sells office supplies via digital channels & online 3rd party marketplaces to customers in a variety of industries across the US.

Industry:

Retail office equipment

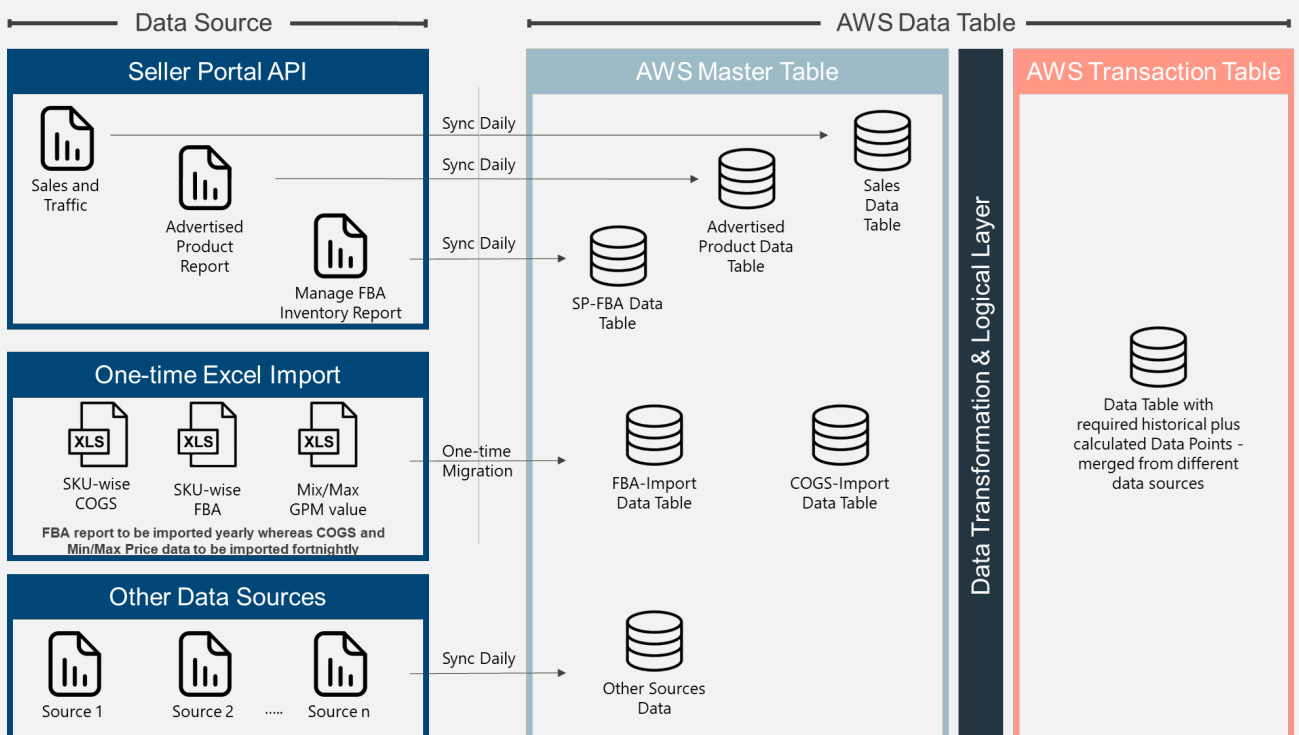**Services:**

Machine Learning

Business Need

The office supplies company relied on a traditional Excel formula-based logic to generate daily prices for SKUs based on the previous day's selling price and profit incurred. But as business needs grew, it wanted to leverage statistical analytics as well as Machine Learning algorithms to decode the historical price vs profit trend.

Using statistical methods, the customer wanted to achieve a convergence relationship between price vs. profit and set SKUs selling price to maximize profit. In addition, it also wanted to keep this process automated and ready before the start of business hours.
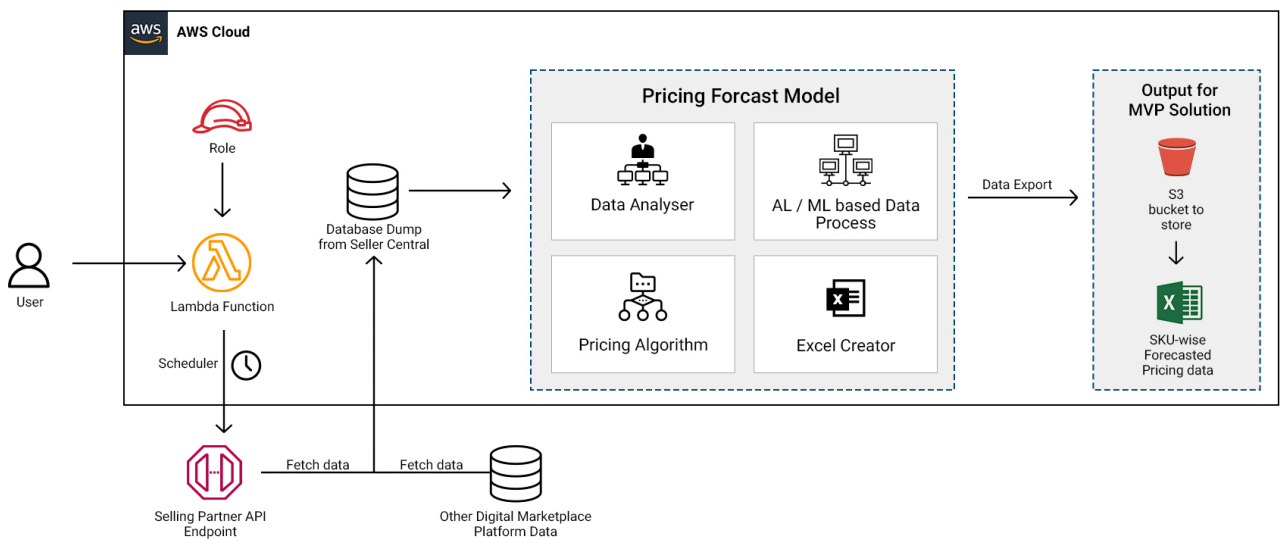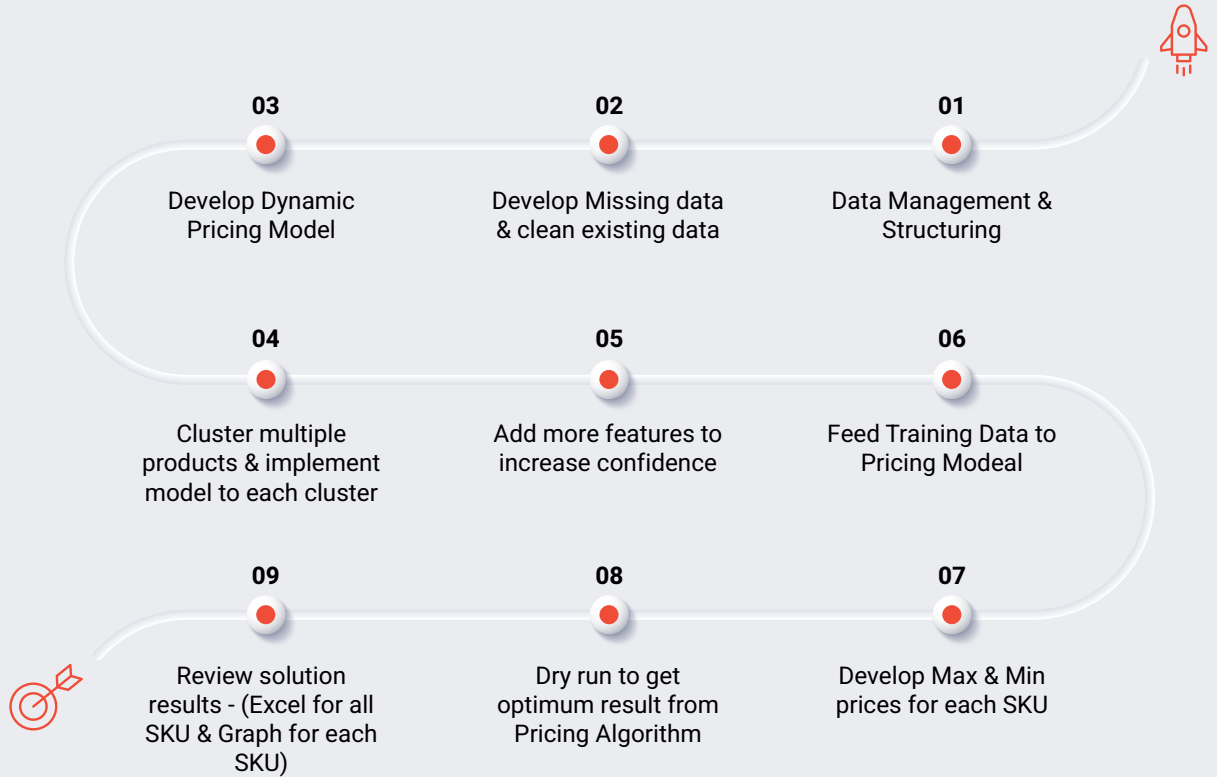
Solution and Approach

To meet the customer's requirement, Synoptek first developed a central database to sync data from different digital marketplaces. Once the database was set up, we

- Conducted exploratory data analysis on 1 year of data to uncover trends between price and profit for all SKUs.

- Worked on removing noise, structuring, and cleaning data, and developing missing data points for training the analytical model.

- Used regression models such as logistic regression, decision trees, and gradient boosting machine (GBM) to train the models.

- Levered the Random Forest regressor algorithm to combine learning methods with the decision tree framework to drive the best results.

- Built an analytical model to predict SKU-wise optimal price to gain maximum profit.

- Created outcomes to best fit the client's needs for understanding the results which can be used for setting product pricing.

Data Management & Structuring

03

Develop Dynamic
Pricing Model

02

Develop Missing data
& clean existing data

01

Data Management &
Structuring

04

Cluster multiple
products & implement
model to each cluster

05

Add more features to
increase confidence

06

Feed Training Data to
Pricing Modeal

09

Review solution
results - (Excel for all
SKU & Graph for each
SKU)

08

Dry run to get
optimum result from
Pricing Algorithm

07

Develop Max & Min
prices for each SKU

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aws **AWS Cloud**

Role

User

Lambda Function

Scheduler

Database Dump
from Seller Central

Pricing Forcast Model

Data Analyser

AL / ML based Data
Process

Pricing Algorithm

Excel Creator

Data Export

**Output for
MVP Solution**

S3
bucket to
store

SKU-wise
Forecasted
Pricing data

Fetch data   Fetch data

Selling Partner API
Endpoint

Other Digital Marketplace
Platform Data

Solution Architecture

Business Benefits

With the dynamic pricing implementation, the office supplies company can:

The automated solution built by Synoptek has resulted in

- Reduce manual efforts of extracting data from different digital marketplace portals.

- Open the horizon of opportunity to work with different prices even in different periods in a single day.

- Increase overall SKU-wise profit in month-on-month results.

- Easily view results in Excel format with supporting price vs. profit graphs for each SKU.

70%
increase in productivity

80%
decrease in manual processes

30%
increase in total revenue

Testimonials

"We have enjoyed working with Synoptek the past several months and we appreciate the hard work put into this pricing algorithm solution and the hours spent. The automated solution helps us save approximately 3 hours every day and allows our analysts to set optimum prices to maximize profit for each SKU."

- Sr. Business Analyst

About Synoptek

Synoptek delivers accelerated business results through advisory-led, transformative full-life-cycle systems integration and managed services. We partner with organizations worldwide to help them navigate the ever-changing business and technology landscape, build solid foundations for their business, and achieve their business goals.

Synoptek

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