INCREASING UTILISATION THROUGH DEMAND PREDICTION

SITUATION

Advancing Analytics' customer, a leading UK supplier of plant, tools and specialist equipment hire wanted to leverage Artificial Intelligence (AI) to boost commercial growth. The core business is driven by customers renting items of equipment ranging from hand-held tools to a several tonne piece of equipment.

In order to boost commercial growth, the equipment hire company needed to understand, predict and automate their depot stock levels. This is to ensure that the right assets are available at the right time to avoid depletion, but equally important is not overstocking assets which is cost-prohibitive. Current manual forecasting of demand and utilisation was limited to a couple of days posing a significant challenge.

APPROACH

Demand forecasting has always been one of the most predominant applications of Machine Learning and is extremely valuable. To enable the ability to forecast and optimise stock levels, a machine learning model capable of forecasting demand was deployed.

According to Gartner's survey, 45% of companies are already using machine learning applications and 43% of them are planning to use AI-powered demand forecasting within two years.

According to Mckinsey Digital, AI-powered forecasting can reduce errors by 30 to 50% in business. This increase in accuracy leads to a staggering 65% reduction in lost sales due to inventory out-of-stock situations and warehousing costs decrease up to 40%.

Using Advancing Analytics' **Hydr8 framework** deployed on Microsoft's Azure Cloud Platform, we were able to rapidly on-board data from a number of different sources in order to establish the data we required to forecast demand efficiently. Azure Databricks is used to develop forecasting algorithms based on seasonality, locality, weather and popularity to ensure high levels of accuracy.

Models are managed in production using a MLFlow and scaled with Apache Spark.

ADVANCING ANALYTICS

OUTCOME

Advancing Analytics worked in collaboration with the business to establish a cloud-native unified analytics platform that helps with efficient equipment demand forecasting using machine learning.

- Advancing Analytics are a collaborative-code consultancy. There was a significant transformation and upskilling achieved by the team, setting them up to achieve an ROI earlier, and become more proactive.

- Advancing Analytics developed a scalable ML model that automatically predicts stock levels for assets at specific locations.

- The equipment hire company was able to:
  - Collaboratively build a platform which supports multiple development languages and approaches (batch, interactive and streaming)

  - Take advantage of pre-built Advancing Analytics accelerators to rapidly deploy a production environment and a repeatable way Understand which marketing initiatives to take in order to improve income

  - Manage inventory and prevent stock losses & Increased prediction performance of stock levels by 50%.

  - Stay ahead of the curve utilising ML based model for demand forecasting

- Advancing Analytics helped the partner get the team, processes, structure and operating model in place to design and deploy advanced analytics models and AI in production

ABOUT ADVANCING ANALYTICS

We are a consultancy based in the UK who help global clients meet their *Advanced Analytics* objectives. We focus on Microsoft technologies and specialise in solving problems using Microsoft Azure and Databricks. By championing modern technologies, we are helping move the industry forward, either applying deep data engineering techniques or innovative data science solutions, we combine the best of both worlds for our customers.

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