

# RECOMMENDING THE RIGHT PRESCRIBING BEHAVIOUR

## Increasing ROI through dynamic platform optimisation with Machine Learning Recommendation Engines

Advancing Analytics were commissioned to help a healthcare partner take their first steps in to Artificial Intelligence, by optimising their Medicines Management software to increase customer ROI through an improved reduction in Rx spend and increased prescribing safety.

### SITUATION

A major provider of drug and medical device databases provides an application which enables Medicines Management teams in the UK to make **better prescribing decisions**.

By influencing the prescribing behaviour of clinicians at the point of care, they can **reduce the Rx spend, increase the safety of patients and potentially save millions for the NHS**.

To ensure that all their customers all receive the same level of return-on-investment, they approached Advancing Analytics to help design an **Artificial Intelligence system** which would optimise a customer's prescribing profile to ensure their Medicine Management profile is optimally configured.

### APPROACH

Advancing Analytics deployed their team of Machine Learning Architects and Data Engineers to devise the best way to apply Artificial Intelligence to meet the goals of the business. After a short discovery phase using our Machine Learning Canvas, we provided three potential approaches to increase ROI and embarked on optimising prescribing behaviours through recommendations.

**A single Machine Learning approach rarely provides enough accuracy**, to account for shortfalls in individual techniques, an ensemble of approaches offers a state-of-the-art solution. To make effective recommendations we used a combination of meta-heuristics, collaborative filtering, classification, regression models and graph-based processing to create an approach aligned with the complex nature of prescribing.

Our approach was deployed on **Microsoft's Azure Cloud Platform**. As part of the optimisation project, we also took the opportunity to modernise their data platform using **Advancing Analytics' Data Lakehouse acceleration tool - Hydr8**. This ensures we were able to take advantage of a Data Lake architecture to support their increased data storage demands (1-2 tb per day) and process this using **Azure Databricks** and Apache Spark.

The solution was developed using Azure Databricks due to the high volume of data, use of Machine Learning and the complex data processing requirements (graph) and continuously deployed using Azure DevOps.

## OUTCOME

Advancing Analytics worked in collaboration with the business to build a system which was not only suitable for the business challenge but would also provide the **healthcare partner with a competitive advantage**.

- Advancing Analytics are a collaborative-code consultancy. There was a significant **transformation and upskilling** achieved by the team, setting their team up for future successes.
- Advancing Analytics developed a **state-of-the-art Data Lakehouse** - enabling Machine Learning in the cloud and the opportunity to modernise all analytics using a single source of truth.
- The Healthcare Partner were able to:
  - **Gain a significantly deeper understanding of their business** and the way in which their software is configured - Through this they were able to take best practice behaviours from one customer and apply them to another.
  - Pivot to become a **proactive business** - Working with customers to ensure they are able to make a higher ROI earlier in their journey
  - **Onboard customers quicker** with an optimised medicine management profile based on their own open prescribing behaviours
- 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.

*"We'd never have got as far in so short a time without your help"*

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