

CASE STUDY

DEMAND FORECASTING: MEETING HEALTH NEEDS WITH MINIMAL WASTE

AYMES, a nutritional innovation and supplements company, plays a vital role in enhancing healthcare for Britons. To optimize their order planning process and ensure impeccable customer service, AYMES entrusted Noesis with the task of developing a comprehensive demand forecasting system.

This end-to-end solution enables AYMES to meet the unique needs of each client while minimizing waste and losses, fostering efficiency and effectiveness throughout their operations.



Sector

Health and Pharma

Delivery Unit

Data Analytics & AI

Solution

Python/Google Cloud Platform/Domo/Qlik



85
products



+16k
new predictions
every week



4
algorithms



+80%
overall accuracy

THE CHALLENGE

With over 80 products at stake, manual prediction was no longer sufficient for AYMES. When dealing with medical nutrition products, it is essential to ensure that the ordered goods match the number of sales.

If they do not, two situations can arise: either too few products are ordered, resulting in unmet client needs, or too many products are ordered. Since medical nutrition products are perishable, an excess quantity would lead to a significant amount of waste, causing a definite loss for the company.

Given access to years of historical demand data on the products, Noesis was challenged to create a forecasting system that predicts each product's demand for each of the next 52 weeks (12 months). These predictions should then be served in a Domo/Qlik dashboard, for easy accessibility and understanding by AYMES' collaborators.

GOALS

Based on data trustability, consistency and integrity the new forecasting system has as main objectives:

- Be a trusted information source for end-users;
- Help guide demand planning for the next 12 months;
- User-friendly analytical dashboards with all the predictions and performance metrics;
- Ensure the data and information security.



SOLUTION

Create a pipeline in Google Cloud Platform that reads historical data from AYMES' database. The pipeline includes steps to preprocess the data, identify and replace outliers (representing out-of-stock situations) based on business knowledge.

Furthermore, the pipeline incorporates four distinct algorithms designed to forecast the weekly demand for each product over the next 52 weeks. The predictions are stored again in the client's database, and then consumed by Domo/Qlik, a dashboarding system.

In the demand planning dashboard, the end-users can choose any past (or the present) inference date and see the predictions from that week on-wards in a 52-week horizon. Once the real demand enters the database, the comparison between the forecast and the actual numbers can be checked, both in absolute and in percentage. This applies to each of the 4 models, highlighting the best-performing one in the past weeks.

THE RESULT

A forecasting system based on 4 algorithms in constant competition, and optimization, looking to output the most accurate predictions, running on a weekly basis.

All results are stored in a database, and then served in a Domo/Qlik dashboard, where all the historical and present predictions are available for consultation, helping AYMES plan their future orders and keep track of product performance.

Past forecasts are also accompanied by their error in relation to real sales, so the end-user can compare algorithm performance, and be wary of which products tend to have less accurate results.



Noesis is an international tech consulting company with +25 years of experience offering solutions to support companies' businesses and digital transformation. Noesis has an extensive IT services portfolio working in several areas such as IT Ops & Infrastructure, Cloud & Security, Enterprise Solutions, Low-Code Solutions, Data Analytics & AI, DevOps & Automation, Quality Management, Enterprise Application Integration, and Professional Services. The company has +1000 highly specialized talents, operating in six countries: Portugal, Spain, the Netherlands, Brazil, Ireland, and the USA. Noesis is part of Altia Group, listed on the Spanish BME Growth stock market, with more than 3500 professionals operating in 7 countries and over 20 locations.

▼ AYMES®

AYMES opened in 2013 within the UK's market of oral nutritional supplements (ONS). Based on medical nutrition, customer feedback and patients' needs, AYMES builds products for the dietary management of disease related malnutrition in adults and children, making sure they are both cost-effective and great tasting.