

Predictly on AI: A Portfolio of Case Studies



We have been active in the domains of Predictive Analytics, Machine Learning and Artificial Intelligence since these technologies first emerged. Over the years, we have developed numerous customer solutions, primarily in the retail sector and more recently in fintech and insurance. Below is a summary of some of the most interesting use cases we have implemented.



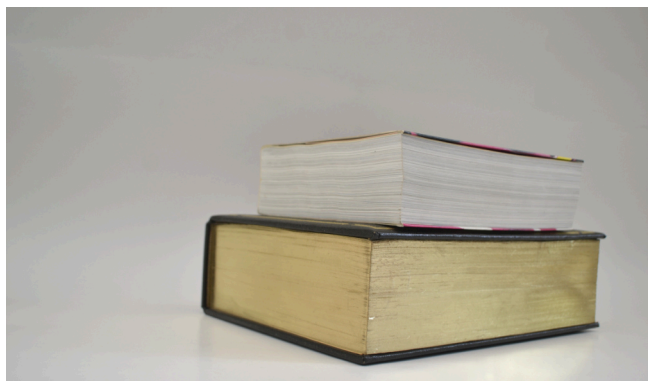
Optimizing Retail Inventory with AI-Powered Sales Forecasting

For retailers, maintaining the correct inventory levels is crucial: too few items can lead to stockouts, while too many can lead to obsolescence. Our client needed a sales forecasting solution to accurately predict demand and thereby generate purchase orders for new releases and replenishment of sold goods.

The client operates nearly 100 brick-and-mortar stores across Sweden, in addition to managing two distinct e-commerce sites from a central warehouse. As part of their IT platform modernization, they have recently started using Google BigQuery as their new data platform and are adopting a Data Mesh strategy supported by a microservice and event-driven architecture.

To meet the client's needs, the existing data product Order was reused and exploratory data analysis (EDA) and data preparation was done using Jupyter Notebook on VertexAI, allowing for quick and easy access to the data product in BigQuery. Final prediction of future demand was done using BigQuery ML and the built in S-ARIMA support.

Integrating BigQuery APIs into the microservice architecture enabled the easy deployment of trained demand forecasting models in the replenishment process and combine with other data points to create purchase orders. This approach allowed for rapid development of sales forecasting capabilities, enhancing the return on invested capital in stores and warehouses.



Generative AI to Automate Store Routines

A few of our client's stores are located near Swedish universities. Store staff would manually scan public university web pages to ascertain the courses and required literature for the upcoming semester. They ensured this literature was available in stock as students commenced their new semester, aiding students with prepackaged bundles and consistently achieving higher sales margins.

The manual process of scanning web pages for each course's literature was time-consuming and often detracting store staff from serving customers. There was no public API available to integrate an application solution with and the only source of information was the unstructured public web pages of each university.

By integrating a large language model, specifically Google Gemini Pro, we automated the scanning of each course page, identifying university courses and literature associated with each specific course. This automation significantly reduced the time required to maintain this business, further increasing profitability of the service.



Enhancing Customer Service with AI Integration

A Swedish insurance company offering pension and health insurance solutions and services to corporate customers needed a way to improve information sharing in their organization. Known for excellent customer support and offering the possibility to design tailored solutions for each customer, addressing customer queries and managing cases was very time-consuming.

A large challenge to customer support satisfaction was that information needed in the support cases was scattered in different solutions resulting in very low findability.

By combining advancements in Generative AI and Google Gemini's large language models with Retrievable Augmented Generation (RAG), we consolidated all existing information sources into a searchable and interactive chat-based system. This significantly reduced the time needed to respond to customer inquiries and issues without compromising the high-quality customer experience.



Strategic Customer Segmentation for Targeted Marketing

A Swedish retailer analyzed their customers' shopping behaviors and identified nine distinct categories that matched their shopping patterns. This segmentation became a key part of the weekly communication and offers strategy executed by the marketing department to ensure that each customer got the most suitable offering, enhancing the customers' lifetime value.

As part of the customers' IT platform modernization, the process ensuring accurate customer segmentation needed to be migrated to the new data platform; Google BigQuery. With the rich machine learning support in BigQuery ML, a new clustering model was trained based on the existing model from the legacy system. Using the open APIs of BigQuery, and updated customer segmentation is continuously exported to the client's marketing automation platform Voyado.

By leveraging Google BigQuery, we seamlessly transitioned the customer segmentation process to the new platform without disrupting customer communications.



Assessing the ROI of Targeted Direct Mail Campaigns

A large Swedish retailer with over 2 million addressable customers needed to determine the profitability of their annual Addressed Direct Mail (ADM) campaign, especially with rising costs in physical mail transport looming.

The customers were randomly assigned into different groups: one receiving the annual catalog and a control group that did not. As customer profiles were already integrated into the client's data platform on Google BigQuery, grouping information was readily incorporated into the campaign's business processes and address lists sent to the printing company. After the anticipated effect period of the annual campaign had elapsed, the ADM campaign was analyzed for impact.

Using Jupyter Notebooks on VertexAI, exploratory data analysis determined the nature of the dataset and which statistical model were suitable for measurement of effect. An Analysis of variance (ANOVA) was used to measure the ADM effect on cash flow and whether or not the differences between the control and recipient group of customers was statistically significant.