

Transforming FMCG Offer Management with AI-Driven Automation

ABOUT CLIENT

- A £100 million+ turnover family business, supplying branded and non-branded FMCG products to retail and wholesale markets for over 15 years.
- With a focus on competitive pricing, low order minimums, and exceptional customer service, they continue to expand their presence across the UK and internationally, offering a curated selection of products informed by market insights and current trends.

PROBLEM STATEMENT

When sat for the first round of discussion, the client highlighted these issues in their workflow:

Manual Email Offer Processing:

The client managed over 6,000 SKUs in the alcohol category but struggled with the labor-intensive task of manually extracting, sorting, and analyzing email offers. This process took significant time, often leading to delays in identifying profitable opportunities and errors in handling data.

Inefficient Decision-Making Framework:

A lack of automated systems for categorizing and evaluating offers impeded timely decisions, resulting in missed opportunities, suboptimal inventory management, and delays in acting on market trends.

SOLUTION

The project involved designing and deploying an automated system for processing email offers. To achieve this, our team of engineers took these key initiatives:

Automated Email Parsing and Data Structuring:

- Implemented AI models to parse emails, extract product details, and export them into a structured database.

Daily Data Updates and Validation:

- Set up automated scripts to refresh data daily, ensuring current and accurate records for over 6,000 SKUs.

AI-Driven Data Cleaning and Categorization:

- Utilized GPT and BERT models to standardize product information, detect variations, and enhance data accuracy.

Multi-Currency Support:

- Integrated real-time currency conversion to streamline international transactions.

User-Friendly Interface:

- Developed an intuitive dashboard for seamless access to product details, enabling quick decision-making.

Error Detection and Troubleshooting:

- Built a troubleshooting module to identify and address system issues, ensuring continuous uptime.

TECHNICAL IMPLEMENTATION

Data Collection and Pre-Processing:

- Automated ingestion of email offer data using parsing techniques or API connections.
- Structured raw data by removing duplicates, filling missing values, and standardizing fields like prices, dates, and product names for uniformity.

AI-Powered Annotation and Cleaning:

- Utilized GPT models for text annotation and entity recognition to extract accurate product details, such as category, pricing, and availability.
- Trained a BERT-based model on annotated data for enhanced identification of entities like product names, categories, and suppliers.

Advanced Entity Processing:

- Applied business rules for handling currency conversion, removing duplicates, and resolving product name inconsistencies to ensure reliable data outputs.

Data Storage and Automation:

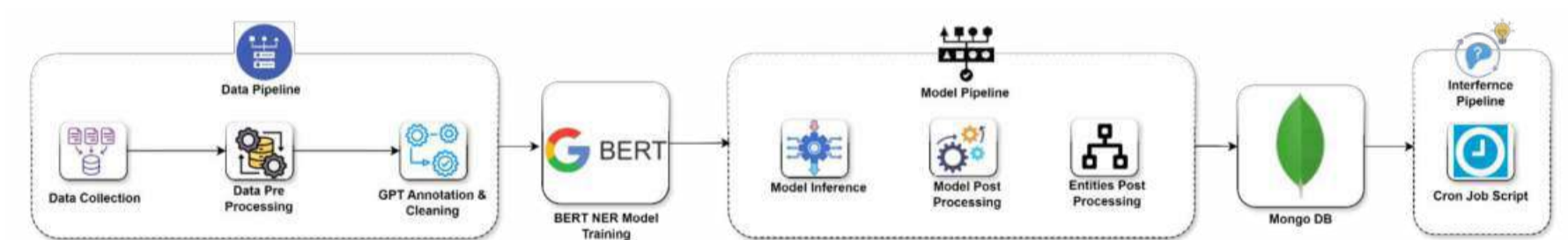
- Stored cleaned and structured data in MongoDB for scalable and flexible access.
- Automated daily data updates using cron job scripts to refresh the database with new offers and maintain up-to-date records.

Pipeline Development:

- Built robust data pipelines to automate data flow from collection to storage with minimal manual intervention.
- Developed model pipelines for AI training and testing, and inference pipelines for real-time offer processing.

Error Detection and Troubleshooting:

- Implemented a troubleshooting mechanism to identify, diagnose, and resolve system errors promptly, ensuring smooth operations and data accuracy.



BUSINESS IMPACT

Significant Efficiency Gains:

The automated system cut manual data processing by 80%, saving over 120 hours weekly and allowing the team to focus on strategic priorities like supplier negotiations.

Accelerated Offer Evaluation:

Offer processing time dropped from 2 hours to 15 minutes, an 85% improvement, enabling faster decision-making and quicker deal closures.

High Data Accuracy:

AI-powered validation delivered over 95% accuracy, drastically reducing errors in data extraction and ensuring reliable information for critical decisions.

Better Inventory and Supplier Management:

Real-time insights improved inventory optimization by 20%, while supplier diversification increased by 15%, reducing sourcing risks and unlocking better deals.

Seamless Financial Transactions:

Multi-currency integration cut discrepancies by 90%, simplifying international payments and ensuring accurate cross-border transactions.

Reliable Operations:

Automated updates and troubleshooting ensured 99.5% system uptime, guaranteeing uninterrupted operations and continuous data access.

The automated email parsing and data extraction solution transformed the client's offer management. By using AI models and strong data pipelines, it sped up decision-making, improved data accuracy, and streamlined operations across their SKU inventory. Real-time insights and multi-currency support enhanced financial and inventory management, enabling the client to act on profitable opportunities quickly.

Industry

Retail & E-commerce

Services Used

- Application Development
- Artificial Intelligence (AI)
- Large Language Model (LLM)
- Natural Language Processing (NLP)

Region

Europe

Function/Department

- Accounting and Finance
- Operations Management
- Procurement and Purchasing
- Sales and Business Development

Engagement Model

Joint Product Development Framework