Case Study:

AI-driven engagement solution (Virtual Hackathon)

Client: **Barry Callebaut**, the world's leading manufacturer of chocolate and cocoa products

1. Challenge

Rapid response to customer requests:

Reduce lead time from identifying a sales opportunity to closing the sale, significantly improving customer satisfaction. Currently, processing user sales requests takes an average of 1-2 weeks.

Improved customer engagement:

Implement an interactive interface that allows customers to specify their requests, upload documents/emails or any other materials, and refine product recommendations and cross-sell opportunities.

Azure infrastructure dependency:

The provided solution architecture should be designed within the corporate Azure infrastructure to minimize security threats, ensure data safety, prevent leakage, and enable fast response and processing.

Cross-selling and upsell opportunities:

Identify additional products to offer to customers, based on user market segment and current promotion campaigns and increasing sales opportunities.

Data security and compliance:

Ensure adherence to GDPR and CCPA regulations for secure data handling, and protecting customer information.

Optimal product recommendations:

Suggest the most suitable products from the available database based on customer requests.

2. Solution

To address these challenges, ZONE3000 developed a Demo AI-driven customer engagement solution with several tailored components:

API Development for Seamless Integration:

Created APIs ready to connect the system with the Company's internal databases and integration Salesforce CRM enabling real-time access and customer engagement process.

Product Recommendation Engine:

Utilizes an advanced, highly accurate approach to provide relevant product recommendations by understanding the customer's market segment, applications, purchased products, and current marketing campaigns. It also identifies cross-sell opportunities for personalized recommendations, enhancing customer satisfaction and sales.

Multi-Agent Architecture:

The proposed documented and implemented architecture is utilized to interpret customer briefs, retrieve relevant information, and deliver personalized product recommendations within required Azure infrastructure and address stakeholders' requirements.

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Implementation of Data Security Measures

Proposed comprehensive data handling practices, including data anonymization and compliance checks to protect sensitive customer information and ensure adherence to relevant regulations.

3. Technology Used

API Integration:

RESTful APIs ready for seamless connection with CRM.

Azure Reflexion framework:

For scalability, including Azure App Services, Azure OpenAI, Azure AI Search, Azure Database for PostgreSQL (with pgvector), Azure Service Bus, Azure File Storage, Azure Cost Management, Azure Container Registry, Azure Key Vault. Azure MuleSoft: For API integration with Salesforce, facilitating seamless data transfer.

LangGraph:

Framework for orchestrating multi-agent communication and enhancing modular collaboration.

Copilot TAG:

Approaches were developed and researched for the Copilot design to enhance product recommendations and assist the user, but they were not included in the final solution due to biased results.

Microsoft Presidio

and other algorithms for PII detection tokenization and anonymization were researched and planned to cover best practices for GDPR compliance.

ElasticSearch & Postgres:

Employed APIs to facilitate integration with Confluence and Jira, ensuring real-time access and management of project documentation and tasks.

Graph-RAG (Neo4j):

Researched a graph-RAG database for product retrieval approach for the Recommendation Engine, using graph-based techniques for enhanced recommendations.

As a result, the client was satisfied with the proof of concept presented during the hackathon, recognizing its potential to address their key challenges. This positive outcome has positioned their AI business transformation program to advance effectively.