

Casestudy

Boosting Fact-Based Decisions
and Manager's Productivity for
a Leading Japanese Automaker
with GenAI and AWS Solutions



Client Overview

Customer is a leading Japanese multinational automotive manufacturer with operations spanning over 100 countries worldwide. Building on its legacy of innovation, the company has positioned itself at the forefront of sustainable operations. Their ambitious environmental commitment includes achieving complete carbon neutrality across operations and product lifecycles by 2050, demonstrating their dedication to pioneering eco-friendly solutions.

Client Background and Challenge

The automotive manufacturing leader encountered escalating challenges in their aftersales parts operations, primarily due to process fragmentation and traditional decision-making approaches. With a highly demanding parts supply chain operations, the organization recognized the critical need for a data-driven transformation. The key challenges included:

- **Highly Demanding Business Operations:**

- Large volume and variety of aftersales parts order
- Need for accurate and fact-based decisions to achieve precise order fill rates and reduced parts inventory turns
- Business manager's expectation for enhanced user experience and productivity at work



- **Inefficient Decision-Making Processes:**

- Over-reliance on manual, intuition-based decisions
- Extended response times to market changes
- Limited ability to predict and adapt to demand fluctuations



- **Data Integration and Analytics Gaps:**

- Need for real-time operational insights
- Lack of unified data analytics platform
- Limited capability to leverage existing data for predictive planning



- **Technology Modernization Requirements:**

- Growing necessity to adopt Generative AI solutions
- Need for automated workflow systems
- Requirement for intelligent decision support tools



The customer partnered with Tech Mahindra to address these multifaceted challenges, leveraging their automotive expertise and digital transformation capabilities to develop a comprehensive GenAI-powered solution.

Our Approach and Solution

Tech Mahindra developed a state-of-the-art Generative AI/NLP-powered aftersales chatbot leveraging AWS's comprehensive GenAI capabilities. Built on the AWS platform, this sophisticated solution seamlessly integrates with the client's existing systems. Our comprehensive approach combined industry expertise with advanced AWS technologies to deliver a transformative solution that enhances operational efficiency.

Strategic Implementation Framework:

• Data Analysis & Business Alignment

- Comprehensive analysis of historical aftersales data
- Integration mapping with existing spare parts inventory systems
- Identification of key business metrics and KPIs



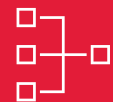
• User Story Mapping

- Analysis of historical call volume patterns
- Categorization of frequent customer queries
- Priority mapping of critical use cases



• Solution Architecture Design

- Development of scalable GenAI/NLP architecture
- Integration with AWS platform capabilities
- Alignment with the client's technical infrastructure



• Data Security Implementation

- End-to-end encryption protocols
- Robust data masking mechanisms
- Compliance with industry security standards



• Feature Development & Validation

- Iterative development of core functionalities
- Comprehensive testing and validation
- Stakeholder demonstrations and feedback integration



The chatbot was engineered to handle a variety of aftersales use cases like:

- **Intelligent Query Resolution:**

- Real-time response to complex operational queries
- Context-aware information retrieval
- Multi-language support for global operations

- **Predictive Analytics:**

- Inventory optimization forecasting
- Demand pattern analysis
- Risk assessment and mitigation insights

- **Operational Enhancement:**

- Process efficiency recommendations
- Resource optimization suggestions
- Performance improvement insights



Solution Overview

Our solution architecture leverages cutting-edge AI capabilities and cloud infrastructure to deliver a robust, scalable system. At its core, the solution combines Anthropic Claude's advanced language processing capabilities with AWS Bedrock's serverless infrastructure, creating a powerful and flexible foundation.

Key Components

AI and Processing Layer

- Anthropic Claude serves as the primary LLM, chosen specifically for its superior contextual understanding and response accuracy
- AWS Bedrock provides the serverless backbone, hosting the AI infrastructure and enabling seamless scaling
- AWS Foundation Models support advanced AI operations and processing

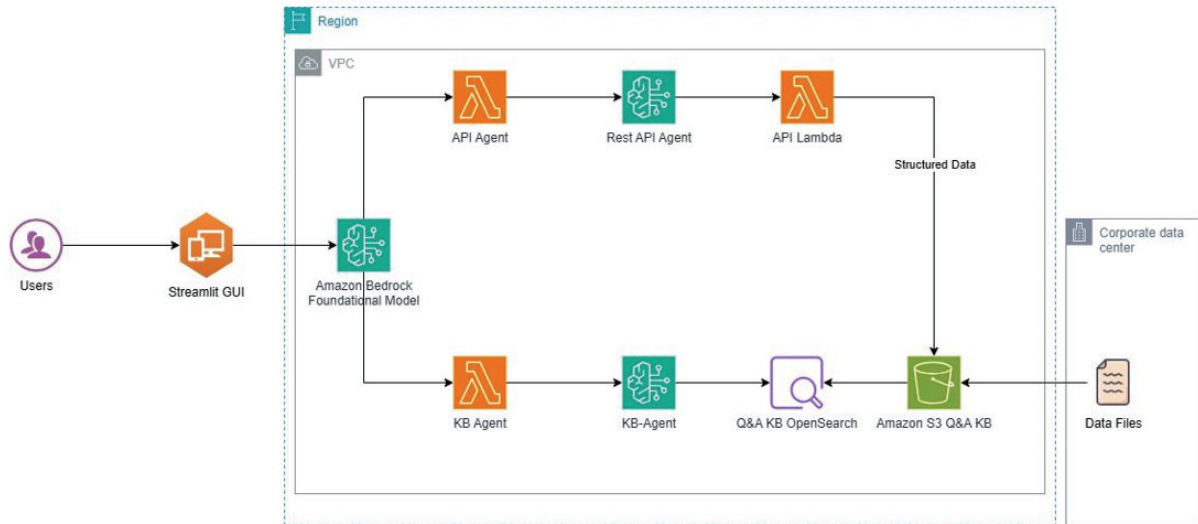
Data Management and Storage

- Structured data stored in AWS S3 as CSV files for optimal accessibility
- Vector embeddings are handled through Amazon Bedrock Vector DB
- AWS OpenSearch powers efficient data indexing and retrieval capabilities
- Unstructured data directly integrated into the knowledge base

Integration and Development

- AWS Lambda handles serverless computing and function execution
- Bedrock Agent manages AI model deployment and operations
- AWS Action Groups orchestrate automated responses
- OpenAPI schema standardizes API documentation
- Streamlit enables interactive web application development

The architecture demonstrates Tech Mahindra's strategic approach to system design. It carefully selects and integrates each component to create a cohesive ecosystem that meets current requirements while maintaining flexibility for future growth. The comprehensive AWS service integration ensures high performance, reliability, and seamless scalability.



Business Outcomes

Implementing the GenAI-powered solution delivered substantial improvements across multiple dimensions of the client's aftersales parts operations, generating immediate operational benefits and long-term strategic value.

- **Enhanced Productivity & Efficiency:**

- 10% improvement in aftersales manager productivity through faster task execution
- 5-7% reduction in parts inventory turnover
- 10-15% enhancement in order fill rates

- **Streamlined Operations:**

- Shift from intuition-based to data-driven decision-making
- Optimized inventory management with reduced holding costs
- Improved parts availability and demand forecasting

- **Strategic Advantages:**

- Initially focused on aftersales service, the solution demonstrates strong potential for expansion across multiple business functions, including automotive finance, sales and marketing, manufacturing, and supply chain.
- Standardized implementation framework for rapid deployment

This successful implementation is a foundational milestone for the organization's digital transformation journey, establishing a proven framework for AI-driven innovation across the enterprise.

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