



Casestudy

Tech Mahindra's Al Solution Automates 50% of Customer Queries, Saving \$12.5K Monthly for Global Surfaces Leader

# Overview

With rising call volumes and operational strain, a global leader in engineered surfaces struggled to scale customer support efficiently. With limited backend support, wait time increased, and service efficiency declined.

Tech Mahindra implemented an AI-driven chatbot solution powered by AWS's generative AI capabilities to address these roadblocks. The solution automated high-volume queries, reduced call load, and enhanced self-service. The result? A more efficient, scalable, and cost-effective customer support system that unlocked revenue opportunities.

# **Client Background and Challenge**

A global pioneer in engineered surfaces since the 1950s, the client is renowned for innovation, quality, and sustainability. They offer a comprehensive range of solutions for both residential and commercial applications. However, maintaining efficient support became challenging with a rapidly growing customer base. Despite a team of 75 support agents nationwide, the client struggled to manage its growing customer base efficiently. Key challenges included:

## Agent Capacity Constraints

- Over 50% of a customer support agent's time was spent on basic phone queries
- The focus was primarily on three high-volume query types
- Limited backend support was available to assist agents

### Operational Inefficiencies

- Increasing customer wait times
- High volume of repetitive queries
- Resource-intensive phone support model

### Business Impact

- Reduced support agent productivity
- Customer satisfaction risks
- Scalability limitations



# **Our Approach and Solution**

Tech Mahindra developed an AI-powered chatbot leveraging AWS's generative AI to address these challenges. This intelligent, scalable solution enables B2B customers to:

- Independently access product inventory information
- Obtain real-time pricing details
- Place orders seamlessly without agent intervention

The chatbot solution significantly reduces inbound phone query volume and enhances operational efficiency by automating routine inquiries. As a result, customer support agents can now focus on complex customer needs and improve overall customer satisfaction.

The chatbot integrates with multiple AWS services for the client to ensure high scalability, reliability, and performance. Its architecture utilizes computing service AWS Lambda for robust backend processing, while Amazon Lex, a conversational AI tool, enables precise natural language understanding (NLU). A LangChain-based Retrieval-Augmented Generation (RAG) mechanism retrieves relevant data from the knowledge base. The Anthropic Claude 3.5 Sonnet model enhances this retrieved data to generate contextually accurate, coherent, and human-like responses to customer queries.

By utilizing the above services, the chatbot streamlines customer interactions, reduces agent workload, and maintains high response quality.

- **Conversational Interface and Processing:** Amazon Lex provides natural language understanding (NLU) capabilities to handle requests, detect intent, and manage dialogue for smooth communication between users and the system.
- **Backend Processing and Logic:** The serverless compute service AWS Lambda manages data ingestion, processes user queries from Amazon Lex (a conversational AI tool), and orchestrates system communication to ensure efficient scalability.
- Data Storage and Management: Amazon Simple Storage Service (S3) stores structured product data while Amazon OpenSearch functions as the vector database, ensuring quick retrieval. Amazon Simple Queue Service (SQS) processes data in order, maintaining First-In-First-Out (FIFO) consistency.
- Workflow Orchestration and Deployment: AWS Step Functions, a visual workflow service, coordinates data ingestion while AWS CloudFormation, an infrastructure service, ensures smooth chatbot deployment.
- Al and Response Generation: The Anthropic Claude 3.5 Sonnet foundation model, integrated through AWS Lambda, produces contextually relevant responses by enriching retrieved knowledge with generative capabilities.





# **Solution Workflow and User Interaction**

The chatbot follows a streamlined workflow that processes user queries through AWS services, from input to final response delivery.

#### User Query Processing and Initial Interaction via Amazon Lex

- Users engage with the chatbot via the Amazon Lex interface
- Submits queries about product inventory, pricing, or order placement
- Captures and processes natural language input

## Backend Processing by Amazon Lex

Amazon Lex analyzes input, identifies intent, and extracts key parameters

Forwards structured requests to AWS Lambda for processing

## Intelligent Response Generation by Lambda

- AWS Lambda orchestrates response generation
- Invokes Anthropic Claude 3.5 Sonnet API for natural language generation
- Queries Amazon OpenSearch for relevant product information
- Integrates with e-commerce APIs for real-time data

#### Data Integration

- System interfaces with the company's e-commerce portal
- AWS Lambda retrieves the current inventory and pricing details
- AWS Lambda updates order details when applicable
- AWS Lambda ensures data consistency across platforms

### Response Delivery

- AWS Lambda compiles the final response
- A formatted response is sent to Amazon Lex
- Amazon Lex delivers a natural, contextual response to the user

This architecture delivers a seamless user experience while guaranteeing real-time data accuracy and efficient query processing. The system maintains consistent response quality and high reliability, meeting the demands of B2B customer support operations.

# **Business Outcomes and Impact**

The AI chatbot significantly improved the client's customer support operations. By automating responses for three high-volume queries, it seamlessly integrated with stock, order management, and CRM systems, delivering substantial business value:

## Customer Experience Enhancement

- Eliminated wait times with instant responses
- Improved customer satisfaction with 24/7 self-service
- Delivered consistent, accurate responses

## • Operational Efficiency Gains

- Automated 50% of 1,500 monthly customer inquiries
- Saved over 250 person-hours in team bandwidth
- Achieved \$12,500 in direct monthly cost savings
- Redirected agents to complex, high-value interactions

### • Revenue Generation (Projected)

- Added approximately \$50,000 in monthly sales opportunities
- Increased conversion rates through improved customer service
- Boosted customer engagement with faster response times

Note: This text was edited with the assistance of an Al tool. The original content, based on Tech Mahindra Limited's intellectual property, was created by a human author. A human editor then reviewed the Al-edited version. The content should not be considered as a substitute for professional advice, and we recommend consulting with appropriate experts or sources for specific information or guidance. We assume no responsibility for any consequences arising from the use of this content. Tech Mahindra Limited, retains the copyright of this document.

#### About Tech Mahindra

Tech Mahindra (NSE: TECHM) offers technology consulting and digital solutions to global enterprises across industries, enabling transformative scale at unparalleled speed. With 150,000+ professionals across 90+ countries helping 1100+ clients, Tech Mahindra provides a full spectrum of services including consulting, information technology, enterprise applications, business process services, engineering services, network services, customer experience & design, AI & analytics, and cloud & infrastructure services. It is the first Indian company in the world to have been awarded the Sustainable Markets Initiative's Terra Carta Seal, which recognises global companies that are actively leading the charge to create a climate and nature-positive future. Tech Mahindra is part of the Mahindra Group, founded in 1945, one of the largest and most admired multinational federation of companies. For more information on how TechM can partner with you to meet your Scale at Speed<sup>™</sup> imperatives, please visit https://www.techmahindra.com/.

# тесн mahindra



www.youtube.com/user/techmahindra09 www.facebook.com/techmahindra www.twitter.com/tech\_mahindra www.linkedin.com/company/tech-mahindra www.techmahindra.com mktg@TechMahindra.com

Copyright © Tech Mahindra Ltd 2025. All Rights Reserved.

Disclaimer: Brand names, logos, taglines, service marks, tradenames and trademarks used herein remain the property of their respective owners. Any unauthorized use or distribution of this content is strictly prohibited. The information in this document is provided on "as is" basis and Tech Mahindra Ltd. makes no representations or warranties, express or implied, as to the accuracy, completeness or reliability of the information provided in this document. This document is for general informational purposes only and is not intended to be a substitute for detailed research or professional advice and does not constitute an offer, solicitation, or recommendation to buy or sell any product, service or solution. Tech Mahindra Ltd. shall not be responsible for any loss whatsoever sustained by any person or entity by reason of access to, use of or reliance on, this material. Information in this document is subject to change without notice.