



# Contact center automation business context and technical challenges

**Business context: generative AI technologies  
have the potential to reimagine and transform  
the contact center operations**



## **Customer interaction**

Involves inbound and outbound communication, addressing customer inquiries, providing assistance, promoting services, or conducting surveys



## **Service provision**

Includes technical support, order processing, and complaint resolution to maintain customer satisfaction and loyalty throughout all interactions



## **Multifaceted support**

Encompasses the management of customer interactions across various channels and languages, ensuring seamless and comprehensive service

# Problem statement

Given the range of activities in a typical large contact center, agents often need help managing these responsibilities effectively.



## Automation challenges:

Customer interactions are complex and make automation challenging. Additionally, integrating new technologies with existing systems can be time-consuming and complicated.



## Security, quality, and adaptability concerns:

Data security and privacy are primary concerns with automation. Moreover, maintaining service quality through automated interactions and ensuring system adaptability to changing business needs can be difficult.



## Implementation

**obstacles:** The initial investment for automation can be significant, and implementation requires staff training and change management. Technical glitches and downtime may also disrupt operations.

We use Google Generative AI capabilities to automate customer inquiries.



We use Google Generative AI, VertexAI, and PaLM 2 LLM to solve the above technical challenges.



## Enhanced interactions and support:

Enables intelligent, personalized responses in multiple languages, improving customer experience and global reach.



## Operational efficiency and cost reduction:

Boosts productivity, mitigates human error, and operates on a 24/7 basis, leading to significant cost savings.



## Integration, learning, and security:

Learns from data to improve service and maintains high data security and privacy standards.

# Contact center automation: technical overview

Our Generative AI solution is meticulously engineered to process customer inquiries, whether text-based or in dialogue form, accurately identify the underlying intent, and provide the customer with valuable assistance.

- **Data source:** Customer inquiries are extracted from a representative banking sector dataset (Banking 77) provided by HuggingFace.
- **Inquiry processing:** Inquiries are processed through the LangChain 'chain' and Google's PaLM2, where intent and sentiment are identified and summarized.
- **Response generation:** The system, understanding the intent and sentiment, generates a tailored, professional response for each customer inquiry.

## Solution architecture: demo tech stack

- Google VertexAI and PaLM2 LLM
- LangChain
- Streamlit for Web UI

