

SEPT 26

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TECH
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Case Study

US-Based Global Manufacturer Improves Multilingual Communication with AI Platform



Overview

A US-based global manufacturing enterprise operates large-scale shop floors with a workforce speaking more than 40 languages. Communication barriers increased safety risks, slowed onboarding, and created heavy dependence on manual interpreters.

To address these challenges, at Tech Mahindra, we developed voice translation model, an AI-powered, mobile-first multilingual communication platform. It combines real-time text and speech translation, OCR-based document translation, and RAG-driven contextual guidance. **The production-grade solution supports 40+ languages, accelerating training, improving safety, and strengthening workforce engagement.**





Client Background and Challenges

The client is a US-based manufacturing enterprise with shop-floor operations and a 40+ language workforce. Communication across HR, supervisors, and associates was slow and error-prone, impacting safety, training, productivity, and engagement.

Language diversity gaps:

40+ language workforce created communication gaps across teams

Safety and compliance risks:

Misinterpreted instructions led to safety incidents and compliance issues.

Ineffective translation tools:

Existing tools were limited by connectivity, latency, and narrow language support

Interpreter dependency and delays:

Reliance on bilingual associates and interpreters caused 15-45 minutes of wait time

Extended training and rework:

Long training cycles and rework reduced workforce productivity

Low engagement and high attrition:

Communication barriers led to disengagement, attrition, and onboarding inefficiencies



Our Approach and Solution

Tech Mahindra's voice translation model is a mobile-first multilingual communication platform, for both Android and iOS. The delivery spanned solution design, wireframing, UX, and AI integration, taking the platform from MVP to a production-grade deployment across more than 30 user stories in a 7-8-sprint agile model. The solution prioritizes scenarios where miscommunication carries direct cost or risk and supports low-literacy users through simple, voice-first interactions.

Core capabilities include:

- Real-time translation of speech-to-text (STT) and text-to-speech (TTS) across 40+ languages
- OCR (Optical Character Recognition)-based extraction and translation of printed and handwritten documents
- RAG (Retrieval-Augmented Generation)-driven contextual engine for safety, HR, and training-aligned responses
- Automatic translation of 1:1 and group communication within in-app messaging
- Secure, role-based access via Okta SSO for HR, supervisors, and associates
- Cloud-native, scalable architecture built on Google Cloud, delivering low latency and high availability

Business and Community Impact

The voice translation model scaled successfully from a prototype to a production-grade enterprise solution that delivered measurable operational and human outcomes for the frontline workforce:

- 40+ languages supported across all sites, enabling real-time multilingual communication
- Faster onboarding and daily coordination between supervisors and associates
- Reduced communication wait time as dependency on manual interpreters decreased
- Improved worker productivity, with consistent safety and training communication
- Higher employee engagement, inclusion, and sense of belonging
- High user adoption, with positive frontline feedback post-launch

30+ user stories were delivered into production, with adoption and engagement gains validated directly through user feedback. This is a flagship case for AI-led workplace transformation in manufacturing.

About Tech Mahindra

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