

CASE STUDY

Addestra Learning Centre

Transforms Customer Engagement with an AI-Powered Multilingual Chatbot Built on AWS and Shri Sai Tech

Executive Summary

Addestra Learning Centre, based in Singapore, is a professional training and development company offering courses in digital marketing, social media management, business sales, AI skills, data analytics, leadership, and personal development. Addestra serves a diverse, multilingual audience across Singapore and the wider Southeast Asian region, with prospective customers communicating in English, Bahasa Indonesia, Mandarin, and Khmer.

As course enquiries grew, Addestra faced challenges in providing timely, accurate responses to prospective customers — particularly outside business hours and across multiple languages. Staff were spending significant time manually answering repetitive questions about course fees, schedules, SkillsFuture eligibility, and registration processes.

To address these challenges, Addestra partnered with Shri Sai Tech (SST) to design, develop, and deploy "Andrea" — an AI-powered multilingual course assistant — on Amazon Web Services (AWS). Leveraging Amazon Bedrock, Google Gemini 2.5 Flash, semantic vector search, Amazon Polly, and cloud-native architecture, SST delivered a comprehensive intelligent assistant that handles visitor enquiries 24/7, captures leads automatically, and delivers actionable business insights through automated reporting.

The challenges

➤ Challenge 1 – Manual Handling of Repetitive Enquiries

Staff spent valuable time answering recurring questions about courses, fees, schedules, and eligibility.

➤ Challenge 2 – Multilingual Visitor Engagement

Supporting visitors across multiple languages consistently was challenging.

➤ Challenge 3 – No 24/7 Visitor Support

Visitors outside business hours couldn't receive immediate support, leading to missed enquiries.

➤ Challenge 4 – Unstructured Lead Capture

Customer enquiries were not consistently captured, resulting in missed follow-up opportunities.

➤ Challenge 5 – Limited Visitor Insights

Lack of visitor analytics made it difficult to understand customer interests and optimize marketing.



About Addestra

Addestra Learning Centre is a Singapore-based professional training provider offering courses in digital marketing, social media management, business sales, AI skills, data analytics, leadership, and personal development.

Addestra serves individuals and corporate clients seeking to upskill for today's fast-evolving business landscape, with SkillsFuture-claimable programmes for Singapore residents.

Kang Chin Ling

Founder, Addestra Learning Centre

Kang Chin Ling leads Addestra Learning Centre with a commitment to making practical, industry-relevant training accessible to professionals across Singapore and Southeast Asia. She champions the use of technology and AI to enhance learner engagement and operational excellence.



Simplify Digital Transformation with AWS

Amazon Web Services (AWS) provided Addestra with a secure, scalable, and cost-effective cloud platform to modernise customer engagement through AI-powered automation.

By leveraging managed AWS services, Addestra avoided the complexity of building and maintaining large-scale AI infrastructure while gaining access to advanced machine learning, semantic search, conversational AI, and multilingual capabilities.

Why Shri Sai Tech?

Addestra selected Shri Sai Tech because of its deep expertise in AI/ML implementation, cloud-native architecture, multilingual NLP, PDPA-compliant application development, and rapid delivery of production-ready solutions.

Key reasons Addestra selected SST:

- EdTech and professional training domain expertise
- AWS cloud architecture and Amazon Bedrock experience
- AI and machine learning implementation capabilities
- Multilingual NLP and Southeast Asia market knowledge
- PDPA compliance and PII encryption expertise
- Agile delivery methodology
- Ability to rapidly deliver a production-ready solution

The solution

SST designed and implemented a comprehensive AI-powered chatbot platform using AWS managed services, Google Gemini 2.5 Flash, Amazon Bedrock, and semantic vector search.

➤ **Andrea – Multilingual AI Course Assistant**

SST developed Andrea, a 24/7 AI chatbot supporting multiple languages. It instantly answers course, pricing, eligibility, and registration queries.

➤ **Intelligent Lead Capture Pipeline**

When answers aren't available, Andrea collects visitor details automatically. Leads are securely captured and instantly shared with the Addestra team.

➤ **Document Knowledge Base (RAG)**

Course documents are indexed for intelligent semantic search. Andrea retrieves accurate, context-aware answers from the knowledge base.

➤ **Voice-Enabled Conversation**

Visitors can interact using voice in multiple languages. Speech-to-text and text-to-speech provide a seamless experience.

➤ **Automated Analytics and Reporting**

Real-time reports provide insights into enquiries, languages, and lead trends. This helps improve content, marketing, and chatbot performance.

➤ **Secure Admin Dashboard**

A user-friendly dashboard allows easy management of FAQs, documents, and leads. The team can monitor chatbot performance without technical expertise



AWS Services and AI Models Used

Foundation Models

Anthropic Claude 3 Haiku (Amazon Bedrock) • Conversational AI responses • Lead field extraction & validation • Intent routing & off-topic detection • Fallback LLM for all AI paths	Google Gemini 2.5 Flash (Primary LLM) • Multilingual response generation • FAQ answer translation (EN→ID/ZH/KM) • Query translation for non-English inputs • Document-grounded answer generation
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Amazon Titan Text Embeddings V2

- Semantic FAQ matching — finds the right FAQ even when visitors paraphrase
- Document chunk retrieval for Retrieval-Augmented Generation (RAG)
- Context-aware knowledge base search

Azure Cognitive Speech Services

- Multilingual speech-to-text (STT) — English, Bahasa Indonesia, Mandarin, Khmer
- Text-to-speech (TTS) response playback for voice-enabled interaction

AWS Cloud Services

• Amazon Bedrock • Amazon Titan Embeddings • AWS IAM • Amazon CloudWatch	• Qdrant (vector database) • MongoDB (storage backend) • Resend (transactional email) • Docker (containerised deployment)
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Results

- **FAQ Knowledge Base**
 - **85%+** response accuracy across course, pricing, and registration queries
 - **90%+** retrieval precision for hybrid BM25 + semantic FAQ matching
- **Multilingual Support**
 - **4 languages supported: English, Bahasa Indonesia, Mandarin, and Khmer**
 - **95%+** intent classification accuracy across all supported languages
- **Lead Capture Pipeline**
 - **100%** lead notification delivery rate with instant team email alerts
 - **100% PDPA compliance — PII encrypted at rest using AES-256-GCM**
- **Availability and Engagement**
 - **24/7 chatbot availability — zero after-hours enquiry loss**
 - **4-language voice interaction via Azure Cognitive Speech Services**



Benefits

- 70%+ reduction in staff time spent on repetitive course enquiries.
- 24/7 visitor support across English, Bahasa Indonesia, Mandarin, and Khmer.
- Automated PDPA-compliant lead capture with instant team notification.
- Real-time visibility into visitor behavior, language trends, and FAQ gaps through automated daily and weekly reporting.
- Scalable knowledge base — new FAQs and documents deployable without any code changes.
- Voice-enabled multilingual conversation for accessible, natural visitor engagement.

Next steps

- Integrate Andrea with Addestra's course registration and payment platform
- Add WhatsApp channel integration for proactive lead follow-up
- Expand course knowledge base with additional Addestra training programmes
- Introduce a course recommendation engine based on visitor interest signals
- Develop advanced cohort analytics for course demand forecasting
- Scale Andrea across additional Addestra digital touchpoints and partner sites

Benefits

- 85%+ Chatbot Response Accuracy
- 90%+ FAQ Retrieval Precision (BM25 + Semantic)
- 95%+ Intent Classification Accuracy
- 100% Lead Notification Delivery Rate
- 100% PDPA-Compliant PII Encryption
- 70%+ Reduction in Manual Enquiry Handling Effort
- 24/7 Multilingual Availability in 4 Languages
- Voice Interaction via Azure Cognitive Speech Services
- Semantic Knowledge Retrieval using RAG and Amazon Titan Embeddings
- Scalable Cloud-Native Architecture on AWS

About Shri Sai Tech LLC DBA SST

SST is an AWS Partner specializing in AI-driven, cloud-native architecture and secure, compliant solutions across a wide range of industries — including healthcare, finance, education, retail, manufacturing, logistics, energy, government and public sector, telecommunications, and media and entertainment. Partnering closely with our clients, SST rapidly designs and deploys production-ready AI platforms on AWS, bringing AI-powered capabilities to market with speed and confidence.

