TMA Technology Group

Your Technology & Innovation Partner

TMA AI Newsletter Quarter III of 2025

Welcome to TMA AI Quarterly III 2025 Newsletter which focuses on Agentic AI solutions. Please contact biz@tma.com.vn for detailed information.

Events | TMA AI Guidelines for Software Development | New AI Agent for Industries | New AI Agent Solutions

Events

In 2025, TMA AI Center showcased innovative AI solutions at multiple AI events.

The Future of Artificial Intelligence



At the conference "The Future of Artificial Intelligence" organised by Launch JDI, supported by NVIDIA and Singapore Global Network (SGN), in Ho Chi Minh City, Vietnam, Ms. Yen Ho shared TMA's case studies on applying AI in healthcare including aged care, home care and telehealth.

OSBC Open Source Conference 2025



TMA collaborated with OSBC from Korea to co-organize the OSBC Open Source Conference 2025 in Seoul, Korea. At the event, Mr. Dung Dao from TMA AI Center shared best practices to achieve responsible AI in Open Source AI models.

Techsauce Global Summit 2025



At this tech event in Bangkok, Thailand, TMA introduced AI solutions for home care, agriculture and logistics.

AI-Powered Vision at the Edge



At the event AI-Powered Vision at the Edge in Hanoi, Vietnam, TMA showcased its edge AI solutions in manufacturing including product defect detection, automation, security and safety.

Revolutionizing Smart Manufacturing – Integrating Robotics and AI to Optimize Production



At smart manufacturing seminar in Ho Chi Minh City, Vietnam, TMA shared key trends in modern manufacturing, emphasizing AI's role in boosting efficiency, automating processes and enabling data-driven decisions with case studies from TMA.

PHARMEDI VIETNAM 2025



At this event, TMA introduced its AI Assistant for Telehealth, showcasing how AI can optimize remote care, support doctors in diagnosis, and enhance patient services.

TMA AI Guidelines for Software Development

To foster applying AI in projects, TMA AI Center introduced Guidelines for Software Development. These guidelines provide practical instructions for applying AI across all stages of the software development lifecycle to improve efficiency and quality.

1. **AI Feasibility & Assessment**
   - Clarify objectives, constraints, and success metrics
   - Assess data availability and stakeholder needs
2. **Define AI Scope**
   - Select SDLC phase to augment
   - Draft acceptance criteria and KPIs
3. **Pilot**
   - Evaluate AI/LLM options that fit the tech stack and budget
   - Prefer private or self-hosted models for sensitive data
4. **Tool Selection**
   - Train project members on selected tools
   - Run a limited PoC in a non-production environment
5. **Full Implementation**
   - Gradually enable AI across the project
   - Update processes and documentation
6. **Monitor & Optimize**
   - Track model accuracy, cost
   - Iterate on prompts, data or model choice as needed

Below are main project activities that AI can support:

Requirements gathering:

Market Research	Requirement Gathering	Requirement Analysis
Documentation	Prototyping	

UI/UX design:

Users & Business Goals Analysis	Visual Ideation	Design & Prototyping	Testing & Optimization

Architecture design:

Analysis & Planning	Core System Design	Interfaces Design	Validation & Documentation

Coding & implementation:

Core Foundation Development	Feature Implementation	Unit Testing	Code Review
Bugs Fixing			

Testing & quality assurance:

Test Planning	Test Design & Preparation	Test Execution & Monitoring	Test Result Analysis

Deployment & maintenance:

Test step Generation	Function Preparation	Script Development
Integration Testing	Code Review	Acceptance Testing

New AI Agents for Industries

Security & Safety
- Agentic Vision AI Agent
- Agentic Vision for Safety & Security
- License Plate Detection Agent

Healthcare
- Patient Intake Assistant Agent
- Eye-Care Clinical Management Agent
- Clinical Project Management Agent
- Triage & Routing Agent
- Clinical Voice Scribe Agent
- AI Agent Companion for Elderly Care
- AI Agent for Kiosk Registration
- Voice Input on Nursing home app

Fintech
- Personal Finance Assistant
- MeetNote AI

Retail and E-commerce
- CRM Assistant
- Customer Service Agent
- Sale Agent

Content & Document Management
- Content Generation Agent
- Document Intelligence System Agent



Logistics
- AR Package Assistant
- Warehouse Management System (WMS) Agent
- Proposal Generation Agent
- Project Management Agent

EdTech
- AI-powered Language Learning
- AI-powered Learning Management System (LMS)
- Education Marketplace Hub
- Education Management System

Customer Service
- Human AI Assistant
- AI for Intelligent Documents Processing
- Smart Call Center Assistant
- Note Taker Agent

Information Technology
- IT Operation Agent
- Communication & Collaboration Agent
- Knowledge-based Agent
- Multi-taskers Agent
- Testing Agent
- MeetNote AI
- CRM Agent

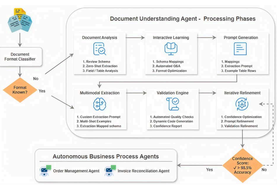
Front Desk & HR
- Job Advisor
- Receptionist Agent

New AI Agent Solutions

1. Document Agent | 2. AI Agent Companion for Elderly Care | 3. AI Agent for Kiosk Registration | 4. Voice Input on Nursing Home App

5. AI-Powered English Learning Agent | 6. Job Advisor – AI Chatbot for Candidate Support & Smart Job Matching | 7. Warehouse Management System (WMS) Agent

1. Document Agent



Description

TMA Document Intelligence accelerates document processing with multi-modal AI, self-learning agents, and business-driven configuration. It allows non-technical users to define logic in natural language, reducing manual effort and improving efficiency.

Functions

- **Semantic document understanding:** AI agents deliver high-accuracy data extraction, going beyond basic OCR
- **Smart integration:** Generates schemas, maps fields, validates & transforms data
- **Runbook logic definition:** Defines complex business logics and agent workflows by using natural language and visual tools
- **Multi-modal extraction:** Extracts structured data from any document type or input format
- **Adaptive learning (human-in-the-loop):** Evolves AI scales confidently based on human feedback
- **Workflow orchestration:** Manages and controls the entire document process

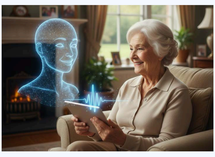
Technologies

- **Infrastructure:** MongoDB, Redis, PostgreSQL, MindsDB, Kafka & Flink
- **Application:** React, Nextjs, TailwindCSS, Python FastAPI
- **AI technology/framework:** LLMs/MLLMs, LangGraph, AI Agent/ Multi-Agent, Agentic Automation, MCP
- **DevOps:** Docker, Gitlab CI

Benefits and Applications

- **Accelerated efficiency:** Automates manual tasks to boost speed and free your team for high-value work
- **Maximum accuracy & quality:** Extracts data with up to 100% accuracy, including reliable data validation and transformation
- **Actionable data:** Turns unstructured documents into accurate, ready-to-use data that drives decisions
- **Rapid ROI:** Achieves fast returns through business-driven configuration (quick deployment) and seamless integration with existing systems
- **Visibility:** Full control of the document lifecycle on one platform

2. AI Agent Companion for Elderly Care



Description

This is a voice-first assistant that enhances senior independence with empathetic conversations, health reminders, and 24/7 safety monitoring, bringing peace of mind to families and value to healthcare providers.

Functions

- **Proactive engagement:** Daily chats on health, hobbies, and memories, adapting to user needs
- **Personalized routines:** Conversational reminders for meds, hydration, and exercise with caregiver alerts
- **Voice-first interaction:** Natural, real-time voice control with user in charge
- **Safety monitoring:** Detects distress words and abnormal sounds like falls or shouts
- **Emotional insight:** Reads mood, adjust tone, and share trend reports with caregivers
- **Persistent memory:** Remembers personal details while supporting privacy controls

Technologies

- **Speech & language AI:** ASR (speech-to-text), TTS (natural voice), NLU (intent/context), LLMs (dynamic dialogue)
- **Emotion & sound analysis:** Detects mood and emergency sounds
- **Edge–cloud & integration:** Scalable, real-time performance with seamless cross-platform interoperability

Benefits and Applications

- **Emotional well-being & independence:** Reduces loneliness and provides personalized daily routine guidance
- **Family connection:** Caregiver notifications and shared updates
- **Home & assisted living:** Daily wellness monitoring with scalable support for multiple residents
- **Healthcare support:** Enhances telehealth, track adherence, and keeps families informed and supported - updated

3. AI Agent for Kiosk Registration



Description

AI Kiosk is a virtual assistant for hospitals that streamlines patient intake and appointment scheduling. It enables faster, more accurate registration, reducing staff workload, minimizing wait times, and improving the patient experience.

Functions

- Vietnamese voice recognition for accurate medical data
- AI voice assistance & guided workflow
- Custom AI training with patient emotion detection
- Simple, user-friendly interface for healthcare

Technologies

- **User interaction:** SpeechRecognizer API, Text-to-Speech
- **Language processing & operations:** NLP, AI-Driven UX/Output, medical symptom assessment frameworks (PQRSTU & OLD CARTS), and clinical directory integration
- **AI & integration:** T-VA, HIS, and VSS portal via RESTful APIs

Benefits and Applications

- 250% efficiency boost / significantly reduced patient wait times
- 99.5% reduction in nurse workload
- 58% operational cost savings
- Higher patient satisfaction / improved registration experience

4. Voice Input on Nursing Home App



Description

This solution enables hands-free, voice-based data entry. Using Automatic Speech Recognition (ASR) and Natural Language Processing (NLP), it transcribes and structures clinical observations directly into patient records with high accuracy.

Functions

- Speech-to-text for structured medical data
- Automatic classification and mapping to electronic health records (ehr)
- Real-time data validation for clinicians
- Vietnamese dialect support for improved accuracy
- Intuitive interface for easy clinical adoption

Technologies

- **Cross-platform availability:** Compatible with Android & iOS ecosystems
- **Android/iOS integration:** SpeechRecognizer
- **AI/ML components:**
  - Large language models (LLMs)
  - Document understanding: DeepDoc Analysis
- **Device compatibility:** Optimizes for ruggedized hardware

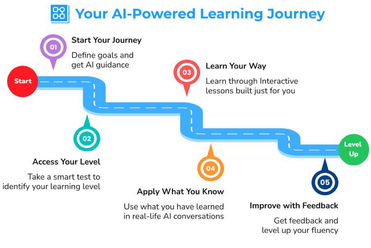
Benefits and Applications

- **Time savings:** Up to 50% reduction in clinical data entry time
- **Improved data accuracy:** Ensures data integrity and minimizes errors
- **Enhanced patient outcomes:** Supports timely diagnostics and quality care
- **Operational scalability:** Seamless HIS integration across facilities

5. AI-Powered English Learning Agent



T-Talks-AI Assistant



Learning Journey

Description

An AI-powered language learning platform that understands your level, adapts to your learning style, and helps you practice with real-world conversations and instant feedback.

Functions

- **Smart level assessment:** Knows where you stand with a smart assessment that identifies your level, gaps, and goals
- **Personalized learning path:** Learns through lessons that adapt to your style, goals, and level - guided by your performance and progress
- **AI conversation role-plays:** Practices real-world conversations with AI guidance
- **Instant speech feedback:** Improves clarity and fluency with real-time feedback on pronunciation, pacing, tone, and rhythm
- **AI language and assistant tutor:** AI personal coach supports 24/7 with tracking progress, offering tips, and guiding next steps

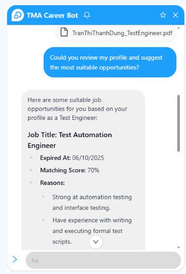
Technologies

- **Cloud & edge computing:** Azure
- **AI techniques:** Azure Speech Avatar, OpenAI (GPT-4o), OpenAI Whisper, LangChain, FastAPI, Python, Milvus
- **Database:** PostgreSQL
- **Back-end:** C#, .NET, Umbraco
- **Front-end:** ReactJS, Angular, PrimeNG

Benefits and Applications

- **Clear assessment:** Automates level checks, reducing manual onboarding
- **Adaptive learning:** Tailors content to goals and learning styles
- **Real-world practice:** Simulates job-specific conversations with instant feedback
- **Instant guidance:** Real-time support on pronunciation, tone, and fluency
- **Continuous progress:** Ongoing AI tutor assistance with smart alerts

6. Job Advisor – AI Chatbot for Candidate Support & Smart Job Matching



Chatbot (Text Mode)



Candidate Journey

Description

An AI job advisor enhances candidate engagement by scanning CVs, suggesting the right job matches, and answering candidate questions 24/7 – helping HR teams deliver smarter hiring support and a better candidate experience.

Functions

- **24/7 candidate support:** Provides instant AI-powered responses to candidate questions
- **Smart CV scanning & role matching:** Automatically extracts CVs key details and suggests best-fit roles
- **Seamless application:** Auto-fills applications from your CV or chat history, reducing drop-off
- **Recruiter dashboard:** Centralized hub to manage candidates and update chatbot knowledge

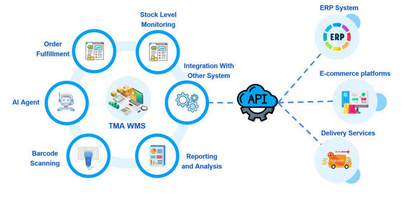
Technologies

- **AI techniques:** OpenAI (GPT-4.1 mini), OpenAI Whisper, LangGraph
- **Database:** PostgreSQL, Milvus
- **Back-end:** FastAPI, Python
- **Front-end:** ReactJS

Benefits and Applications

- **Engage candidates 24/7:** Provides instant answers, improving responsiveness and employer brand perception
- **Smart job matching:** Automatically scans CVs and suggests suitable jobs for clearer career choices
- **Reduce workload:** Offload repetitive Q&A and prescreening tasks to AI
- **Improve candidate experience:** Guides candidates with personalized suggestions and next steps

7. Warehouse Management System (WMS) Agent



Warehouse Management System



WMS Agent Workflow

Description

The Warehouse Management System (WMS) Agent leverages AI to transform warehouse operations. It enables teams to search inventory instantly, track goods and orders in real time, and generate data-driven insights that enhance accuracy, speed, and decision-making.

Functions

- **Instant inventory search:** Retrieves product details by SKU or description within seconds
- **Smart location tracking:** Identifies precise storage positions and provides detailed item location data
- **Real-time order monitoring:** Tracks inbound and outbound orders to maintain visibility across the supply chain
- **Automated reporting:** Delivers instant reports and alerts, including top-performing SKUs, low-stock notifications, and stock movement summaries

Technologies

- **AI techniques:** n8n framework, OCR model, Gemini model, Prompt Engineering
- **Front-end:** React, Chakra, Redux
- **Back-end:** Python, FastAPI
- **Tool & service:** Firebase, Jenkins, Swagger
- **Infrastructure:** Keycloak, Redis, PostgreSQL, RabbitMQ, Docker, Kubernetes
- **Architecture:** Microservices

Benefits and Applications

- **Enhanced efficiency:** Automates routine warehouse tasks, reducing manual effort and speeding up operations
- **Smarter decision-making:** Leverages real-time insights and predictive analytics to optimize inventory and order management
- **Improved user experience:** Provides intuitive interaction via chat, voice, or image queries, making the system easier and faster to use

Explore TMA AI Solutions: TMA AI Solutions