Company Introduction

AI can make the world a better place

KONAN TECHNOLOGY

CONTENTS
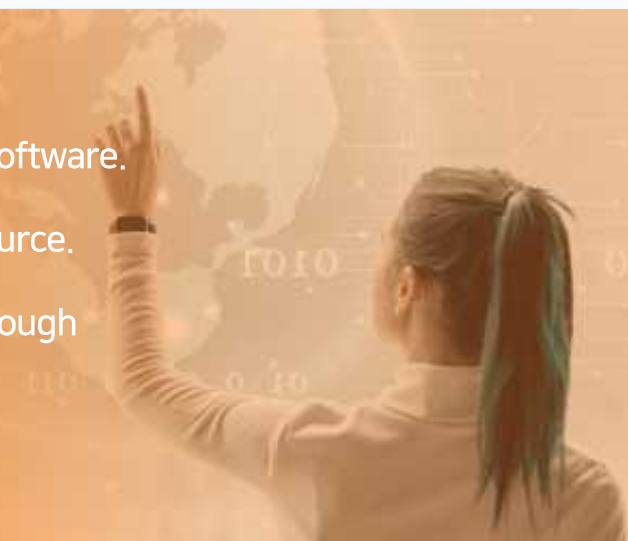
01

Company Introduction

KONAN
TECHNOLOGY

Konan Technology

Konan Technology is a company specializing in Artificial Intelligence software.

We have secured the original AI technologies that are not open source.

Please pay attention to Konan Technology, leading AI business through

"Human-like AIs that see, hear, understand, and speak."

Company Name	Konan Technology Inc.
CEO	Young Sum Kim
Date of Establishment	April 1999
Core Technologies	Generative AI, Text AI, Vision AI, Digital Twin
Key Products	LLM, RAG-X, AI PC/Server, AI Search/Analytics/Chatbot, AI Video/Speech Processing, AI Pilot, PHM
Number of Employees	213 (as of 2025.7.)
Address	327, Gangnam-daero, Seocho-gu, Seoul
Corporate Type	KOSDAQ-Listed Company

KONAN
TECHNOLOGY

Clients

Konan Technology has served over 2,900 clients across industries—from Hyundai Motor, Samsung Electronics, and SK Telecom to public institutions, financial firms, and media organizations—based on over 25 years of technical expertise and trusted partnerships.

2,900 + Clients   **3,400 + Projects**

| Enterprise | HYUNDAI | SAMSUNG | SK | 현대중공업 | LG전자 | KIA | olleh kt | HYOSUNG | SHINSEGAE | 두산건설 | CJ 헬로비전 | DOOSAN | 한일현대시멘트 |
| | AMORE PACIFIC | SPC | HANSSEM | 모두투어 | E:LAND MALL | DAEKYO 대교 | KPSA 한국프로스포츠협회 | 한국전력공사 | KAI | | | | |

| Public | 기획재정부 | 산업통상자원부 | 인사혁신처 | 특허청 | 과학기술정보통신부 | 조달청 | 외교부 | 문화체육관광부 | 국토교통부 | 국세청 | 여성가족부 | 통일부 | KTV 국민방송 |
| | 한국남부발전(주) | 대한민국 국방부 | 경기일자리재단 | 국제지식재산연수원 | NIA 한국정보화진흥원 | KDI 한국개발연구원 | TS 한국교통안전공단 | LH 한국토지주택공사 | 부산광역시 | 서울특별시 | | | |

| Commerce | 롯데홈쇼핑 | 11번가 | Shopping | 현대홈쇼핑 | AMORE PACIFIC | CLIO PROFESSIONAL | GS SHOP | Millie 밀리의 서재 | 오늘의집 | 롯데백화점 | FILA | HANSSEM | 인터파크 비즈마켓 |

| Finance | IBK기업은행 | 현대증권 | KB국민은행 | KB금융지주 | KB국민카드 | 우리투자증권 | 우리은행 | 하나카드 | 신한카드 | 신한은행 | BCcard | LOTTE CARD | 현대해상 |
| | 수호천사동양생명 | KRX 한국거래소 | 수협중앙회 | DAOL 다올투자증권 | 전북은행 | MG새마을금고중앙회 | 한국수출입은행 | 삼성화재 | | | | | |

| Media | KBS | SBS | MBC | YTN | EBS | JOINS | 매일경제 | 스포츠서울 | Mnet | MT 머니투데이 | 한국경제 | 파이낸셜뉴스 | 국회방송 |

| Education | 서울대학교 | 연세대학교 | 고려대학교 | 이화여자대학교 | KAIST | 경희대학교 | 숙명여자대학교 | 성균관대학교 | DCU 대구가톨릭대학교 | 한국방송통신대학교 | DKU 단국대학교 | 세종사이버대학교 | |

KONAN TECHNOLOGY
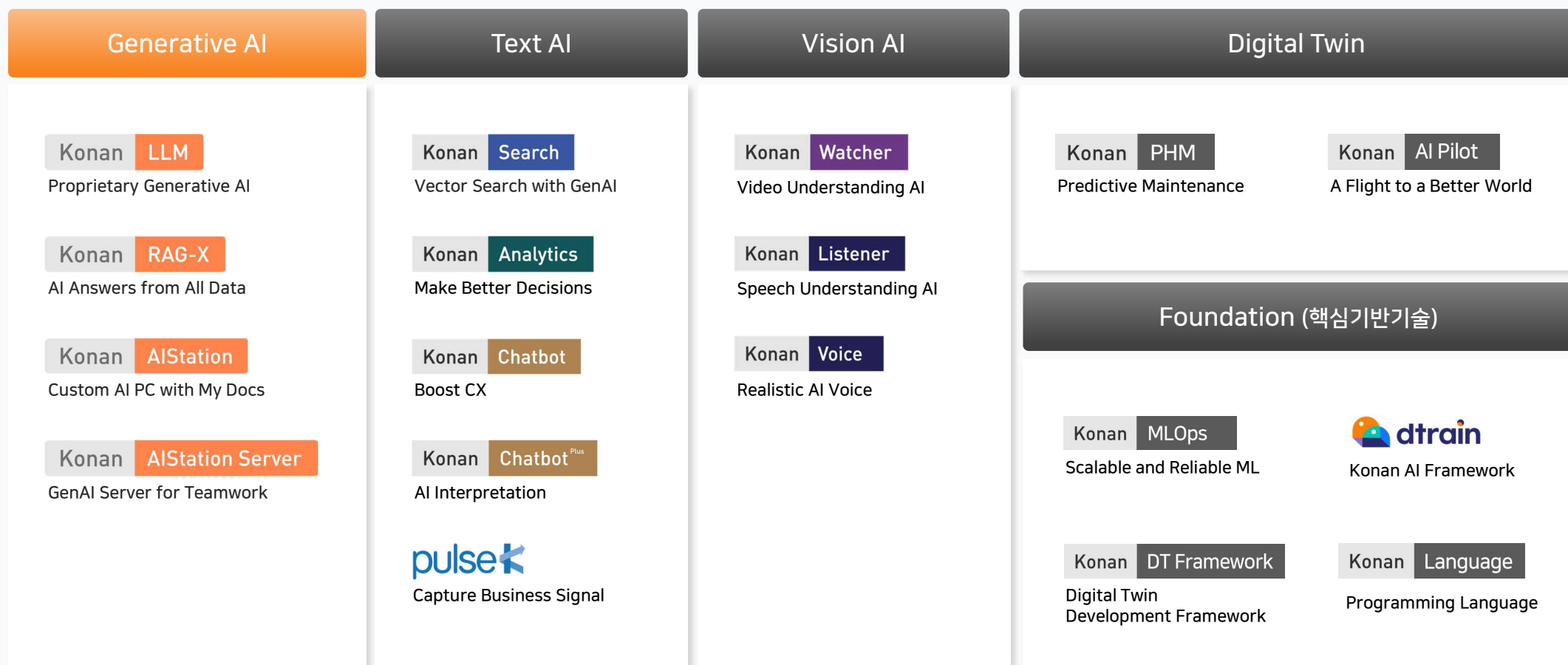
Key Products

Konan Technology offers a wide range of solutions based on its proprietary technologies across
5 key domains: Generative AI, Text AI, Vision AI, Digital Twin, and Foundation Technologies.
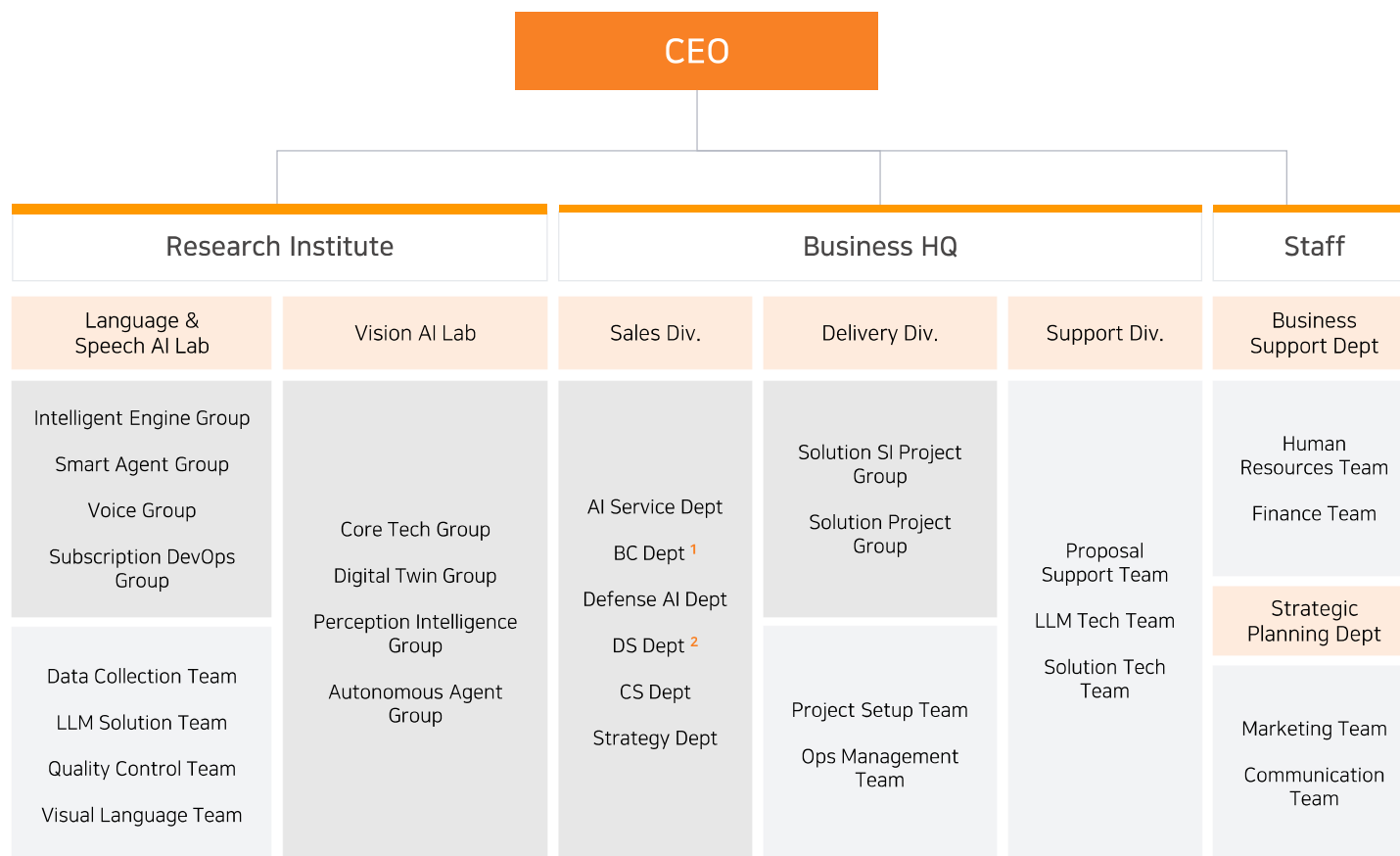
Generative AI

Konan LLM
Proprietary Generative AI

Konan RAG-X
AI Answers from All Data

Konan AIStation
Custom AI PC with My Docs

Konan AIStation Server
GenAI Server for Teamwork

Text AI

Konan Search
Vector Search with GenAI

Konan Analytics
Make Better Decisions

Konan Chatbot
Boost CX

Konan Chatbot Plus
AI Interpretation

pulse K
Capture Business Signal

Vision AI

Konan Watcher
Video Understanding AI

Konan Listener
Speech Understanding AI

Konan Voice
Realistic AI Voice

Digital Twin

Konan PHM
Predictive Maintenance

Konan AI Pilot
A Flight to a Better World

Foundation (핵심기반기술)

Konan MLOps
Scalable and Reliable ML

dtrain
Konan AI Framework

Konan DT Framework
Digital Twin
Development Framework

Konan Language
Programming Language

KONAN TECHNOLOGY

History

Company Introduction

Konan Technology has been building unstructured big data analysis and AI technology for the past 24 years. For the next 10 years, we will write a history of leading the AI industry as an AI-specialized company that understands and services all image, voice and text.
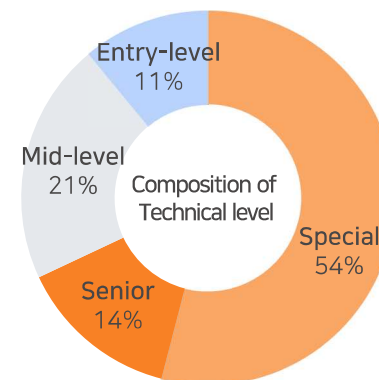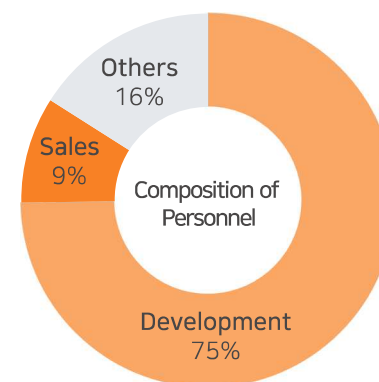
Acceleration

2025 · Secured Gyeonggi-do Generative AI Platform contract
· Launched Konan LLM ENT-11 & RAG-X
· Built Korea's first medical LLM platform with HUMC-Hallym
· Top 100 Emerging AI+X company for 5 years
2024 · Signed a contract with KOEN to build and train a generative AI system
· Received the Minister's Award at the Korea AI Industry Awards (MSIT)
2023 · Selected for Defense Innovation 100 (2nd round)
· Launch of the large language model, 'Konan LLM'
· Awarded a KRW 5.1 billion contract for building the Ministry of National Defense's intelligent platform
2022 · Listed on KOSDAQ (402030)
· Signed an MOU with KAI to enhance AI-driven aerospace technologies
2021 · Received Ministerial Commendation for excellence in data openness and distribution (MSIT)
· Developed a proprietary deep learning framework (100% in-house technology)
· Selected as a model case of proactive public service by the Ministry of Personnel Management
2020 · Introduction of AI Testing Guidelines
· Selected as best practice for SP certification

Growth

2019 · Business Agreement on AI-based Services with SK Broadband Content Platform
2018 · Launched AI-enhanced products ('Konan Search 5, etc.)
· 'Konan Search 5', 'Konan Bot' GS Certification
· Completed automatically generated subtitle project for Korea National Open University
2017 · Started applying AI technology to commercial products
· 'Konan Analytics 4' GS Certification
· Launched voice recognition technology product 'Konan Listener'
· Collected and calibrated data for video understanding Developed automated system(VTT)
2016 · SP(Software Process) Certification Grade 2
2015 · 'Konan Media Arc' GS Certification
2012 · Opened social analysis platform 'pulseK'
2011 · Launched start TV search platform 'Interactive Semantic'

Establishment

2009 · Adopted Image search engine on Nate Portal
2007 · Provides integrated search for Nate and Cyworld
2006 · Strategic alliance with SK Communications
2005 · Established Konan Digital Inc., foreign corporation
2004 · Launched 'Konan Digital Arc' based SBS Digital News
2001 · Konan image search technology adopted as MPEG7 international standard
1999 · Established Konan Technology Ltd.

KONAN
TECHNOLOGY

Organizational Chart

Konan Technology is an organization composed of artificial intelligence software experts.

CEO

Research Institute

Language & Speech AI Lab	Vision AI Lab
Intelligent Engine Group	
Smart Agent Group	
Voice Group	Core Tech Group
Subscription DevOps Group	Digital Twin Group
	Perception Intelligence Group
Data Collection Team	Autonomous Agent Group
LLM Solution Team	
Quality Control Team	
Visual Language Team	

Business HQ

Sales Div.	Delivery Div.	Support Div.
AI Service Dept	Solution SI Project Group	
BC Dept [1]	Solution Project Group	Proposal Support Team
Defense AI Dept		LLM Tech Team
DS Dept [2]		Solution Tech Team
CS Dept	Project Setup Team	
Strategy Dept	Ops Management Team	

Staff

Business Support Dept
Human Resources Team
Finance Team
Strategic Planning Dept
Marketing Team
Communication Team

*1.BC Dept =Bigdata Convergence Dept, 2.DS Dept =Data Science Dept

Composition of Personnel

- Others 16%
- Sales 9%
- Development 75%

Composition of Technical level

- Entry-level 11%
- Mid-level 21%
- Senior 14%
- Special 54%

*As of 2025.7, 213 people

8

KONAN TECHNOLOGY

02

Generative AI

KONAN
TECHNOLOGY

Generative AI Lineup

Based on various Konan LLM models (OND, PRO, ENT), we provide customer-optimized solutions ranging from AI Appliances (AIStation / AIStation Server) to On-Premise (RAG-X) deployments.

Konan LLM

On-device

| LLM OND |

Professional

| LLM PRO-10 | LLM PRO-20 |

Enterprise

| LLM ENT-11 *new* | LLM ENT-20 |

AIStation

AI Appliance

AIStation Server

On-Premise(+ RAG-X)

KONAN TECHNOLOGY
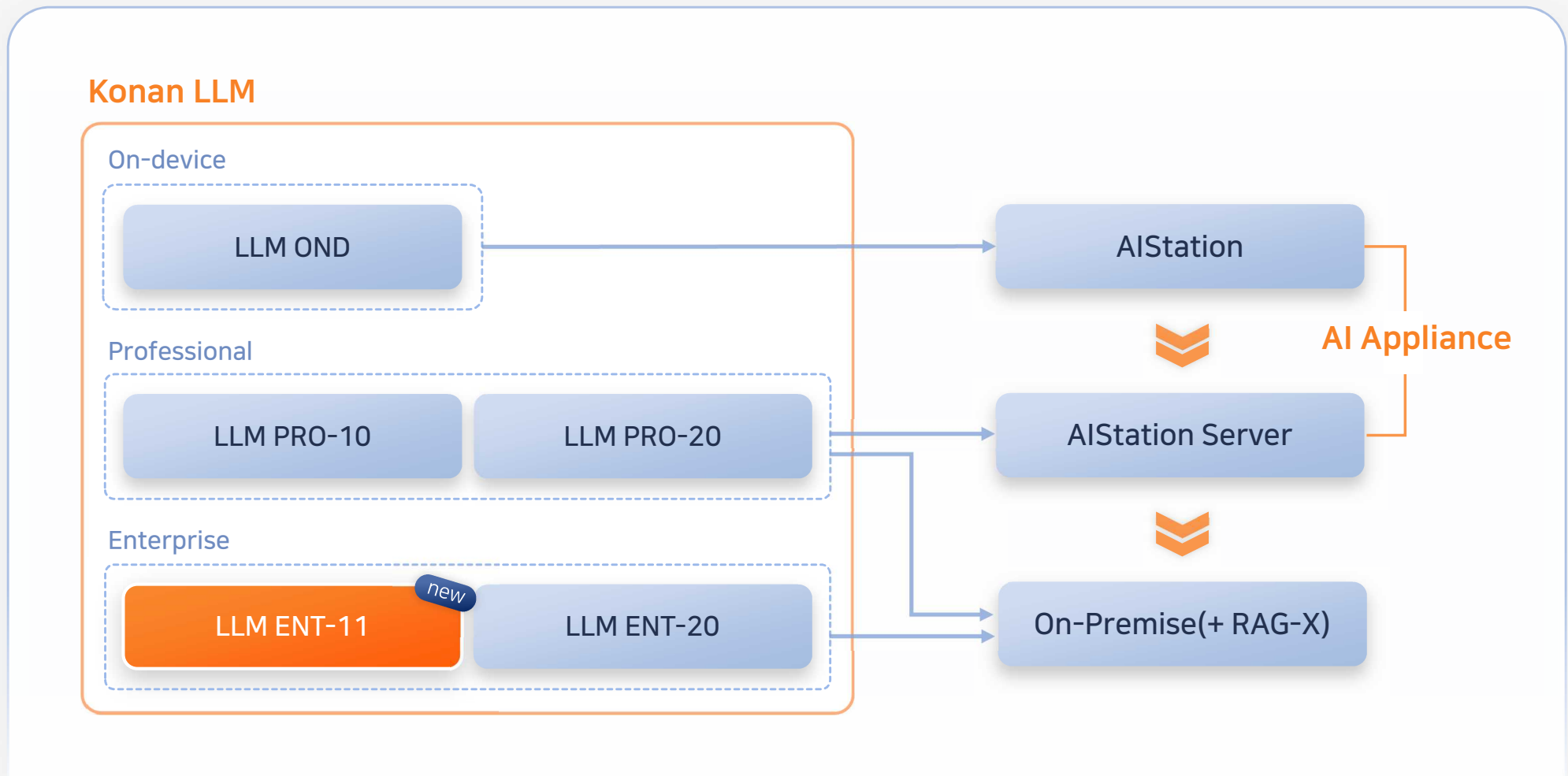
Proprietary Generative AI, **Konan LLM**

Konan LLM is an on-premise solution offering models tailored to your business size. It delivers reliable answers by combining internal data with up-to-date web information using RAG and simplifies model operation with a no-code MLOps tool.

Customized Models
- Offers On-device, Professional, and Enterprise models tailored to your business scale for optimal selection.
- Generates more accurate and up-to-date answers using RAG-X based on internal data.

Secure, no data leaks
- An on-premise solution that ensures no risk of sensitive business information leaks.
- Applies filtering technology compliant with personal data protection guidelines.

High-Quality Data
- Selects highly reliable data from specialized fields such as legal, patents, reports, and news.
- Removes low-quality data through strict filtering.

Accurate source-based answers
- Provides reliable answers from internal company data while reflecting the latest information from web-based external data

Permission-based data access
- Minimizes information leakage risks by checking access permissions for each user.

Easy Model Management & Evaluation
- Provides 'Konan LLM Studio,' a no-code MLOps management tool.
- Enables system operators and administrators to directly manage models and assess performance.

Konan LLM

KONAN TECHNOLOGY

Konan LLM Use Cases

Building a Generative AI for Internal Staff

- Collects and trains knowledge in common and specialized public sector areas
- Supports Korean-language report writing, summarization, translation, analysis, coding, and Q&A

Korea's 1st LLM-based patient record integration system

- Developed a RAG-based knowledge consultation platform enabling real-time information retrieval and support for medical staff and faculty

산업분야	회사명
Government Services	Anti-Corruption & Civil Rights Commission, National Assembly Secretariat, Supreme Court of Korea, KOSPO (Korea Southern Power Co.,Ltd.), Korea Gas Safety Corporation, KIDS, Ministry of the Interior and Safety, KOMIPO, POBA (Public Officials Benefit Association)
Finance Insurance Medical care	KB Securities, ShinhanLife, Hanwha General Insurance, Hallym University Sacred Heart Hospital (Hallym University Medical Center)
Aviation Manufacturing	JEJUair, Incheon Airport, HYUNDAI Rotem

AI Answers from All Data, **Konan RAG-X**

Konan RAG-X, powered by advanced RAG technology, is a B2B AI platform that delivers answers based on comprehensive search results—from internal documents and databases to real-time websites, online communities, and customer-specific sources.

From Every Source to Instant Answers.

Generate

Internal Sources

Search internal documents and data of companies and organizations.

External Sources

Search the latest publicly available information on the internet.

Client-Specific Sources

Search the latest data collected from customer-designated websites.

Scholarly Sources

Search verified academic databases for the latest research papers and scientific information.

KONAN TECHNOLOGY

Konan RAG-X Use Case

A risk management officer at a bank uses Konan RAG-X to create risk reports for specific industries. The solution enables early detection of financial risks to minimize potential losses, while significantly reducing the time and manpower required for report generation.

Risk management report on the construction industry by a bank risk officer

User
"Check our internal database and summarize how loan delinquency rates for construction companies have changed over the past 3 months."

1 Check internal data for early signs of risk

User
"Find performance and capital data of Company A from the Ministry of Land, Infrastructure and Transport, and also search for related materials from the Financial Supervisory Service."

2 Review documents from the specific organization

User
"Summarize any recent news or rumors related to Company A's sales performance and funding status."

3 Search for related news and updates online

User
"Based on the above information and our internal risk management guidelines, draft a response report for Company A."

4 Create a report per internal regulations using internal, external, and target data sources.
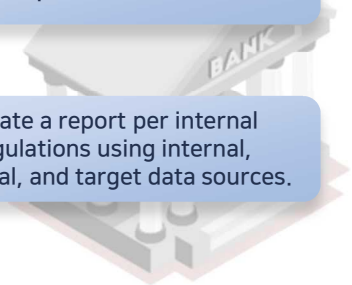
KONAN
TECHNOLOGY

Konan AIStation & AIStation Server

Konan AIStation & AIStation Server is an on-device solution featuring a proprietary Korean LLM and RAG-based generative AI, supporting real-time document workflows offline—from PCs to enterprise servers.

Optimized Technology Performance for Korea

- Achieves high language understanding based on over 25 years of accumulated Korean NLP expertise
- Optimized system design runs on RTX 5090 without requiring multiple GPUs
- Package-based delivery minimizes initial deployment costs
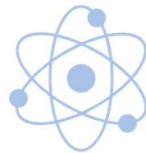
Reliable and Secure Operating System

- Pre-trained on large-scale, high-quality documents to provide superior document handling and responses
- Enhances generation reliability with Retrieval-Augmented Generation (RAG) technology
- Supports air-gapped environments and minimizes data leakage risks with personal information filtering

Fast and Easy Deployment

- Delivered as a pre-configured OS and generative AI software package, ready to use without installation or setup
- Operates independently without internet access, suitable for internal or closed network environments

User-friendly design

- Enables generative AI usage easily without specialized knowledge
- Features an intuitive interface and lightweight architecture for improved accessibility and convenience

KONAN TECHNOLOGY

Konan AIStation(Server) Use Cases

Konan AIStation & AIStation Server significantly improve efficiency and processing speed across various business areas, including content generation and summarization, AI chatbots, search, data analysis/classification, and translation.

Generation & Summarization

- Report drafting
- Promotional content drafting
- Presentation summarization
- Document summarization

AI Chatbot

- Knowledge consultation
- Response generation
- Task assistance
- Document-based Q&A

AI Search

- Document search
- Searching within documents
- Custom search for policies·laws·documents
- Custom content search

Analysis & Classification

- Extracting key insights
- Classifying customer intent and usage patterns

Multilingual Translation

- Korean
- English
- Japanese
- Chinese

KONAN TECHNOLOGY

03

Text AI

1) Vector Search with GenAI, **Konan Search**

2) Make Better Decisions, **Konan Analytics**

3) Boost CX, **Konan Chatbot**

4) AI Interpretation, **Konan Chatbot +**

5) Capture Business Signal, **pulseK**

KONAN TECHNOLOGY

Vector Search with GenAI, **Konan Search**

Konan Search supports 'vector search' that understands meaning and context, 'hybrid search' that enhances accuracy by combining vector and keyword methods, and 'Scalable disk-based vector search'.
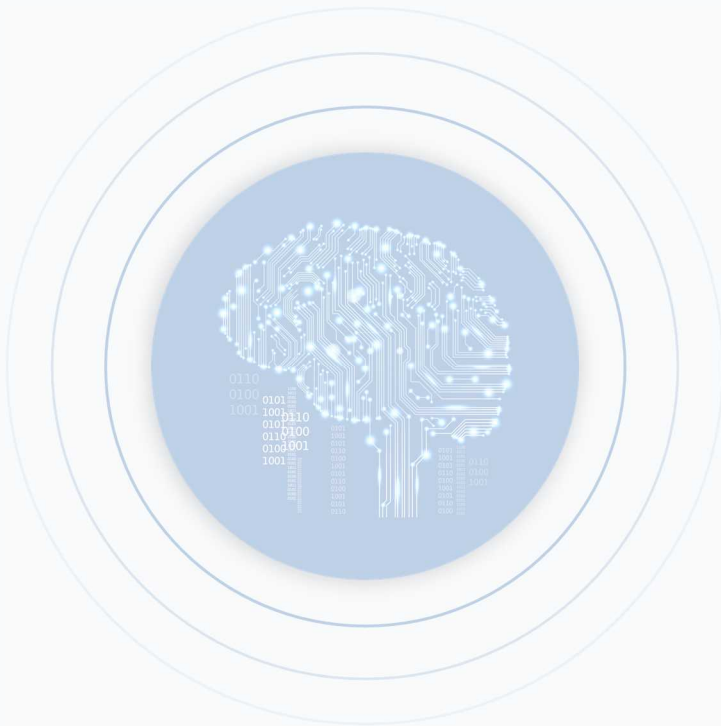
Vector Search with GenAI,
Konan Search

Feature

Neural search-based semantic search
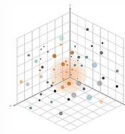
- Vector search enables synonym search without a synonym dictionary
- Image vector search enables similar image search without image captioning

Hybrid Search System

- Increase search accuracy with a hybrid approach that analyzes data with rule-based NLP technology first and then further analyzes data with deep NLP technology

Scalable disk-based vector search
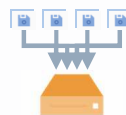
- Disk-based algorithms support Vector Search of Billion-Scale, processing at index speed 9 times faster than open source

Use Cases

Centralized Document Management

A system that allows you to centrally search and manage large amounts of documents distributed within a company.

SL Corporation

Job Portal

Provided a robust solution the 1st and 2nd largest online Job Portal in Korea

JOBKOREA

saramin

Open Government Portal

2.3 billion document search engine in the information disclosure portal of the Ministry of the Interior and Safety

Ministry of the Interior and Safety

Lifestyle E-commerce Search

Supports mobile commerce search traffic of 'O!House' with more than 20 million users operate

O!House
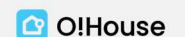
KONAN TECHNOLOGY

Make Better Decisions, **Konan Analytics**

Konan Analytics is an 'intelligent text analytics engine' that analyzes structured and unstructured data based on machine learning, artificial intelligence, and data science technologies to discover business insights.

Machine Learning · AI

Perform classification, prediction and summarization based on machine learning and AI-based learning models

Analytics Studio

Easily and intuitively handle complex data processing tasks such as extract-transform-load (ETL) and exploratory data analysis (EDA) using the GUI

Business Insight

A system that assists with quick decisions based on big data in a rapidly changing business environment

Big Data Processing

Promptly analyze large amounts of data that cannot be processed via in-memory method

Data Science

Extract refined knowledge and insights from structured and unstructured data through preprocessing, visualization, and modeling

Deep Natural Language Processing

Performs tasks such as deep learning-based sentiment analysis, text summarization, machine reading comprehension (MRC), and named entity recognition (NER).

코난 애널리틱스 구축사례

|	
Ministry of the Interior and Safety	Ministry of Personnel Management
Ministry of National Defense Republic of Korea	GS SHOP
SK magic	LOTTE DEPARTMENT STORE
kt cs	경찰청 KOREAN NATIONAL POLICE AGENCY
Industrial Bank of Korea	SAMSUNG

KONAN TECHNOLOGY

Boost CX, **Konan Chatbot**

Konan Chatbot is a conversational AI with advanced Korean language understanding, delivering accurate answers through hybrid intent inference. It supports voice interaction and scalable use, enhancing user convenience and experience.
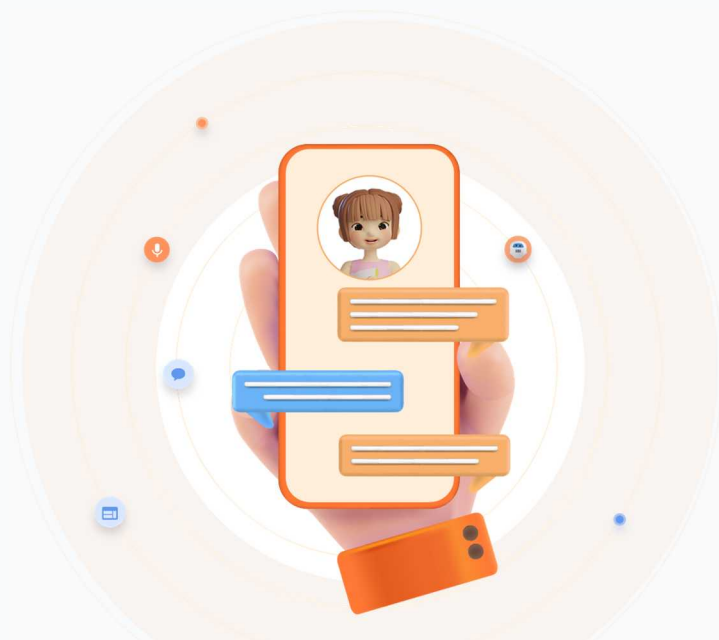
Konan Chatbot
Boost CX

Feature

• **Hybrid conversational intent inference**

Provides optimal responses to off-script queries through deep learning-based natural language analysis, multi-layer intent inference, and integration with **Konan LLM**.

• **Cut conversation data costs**

By using **Document AI** technology, conversation data is automatically generated from unstructured documents such as manuals and rulebooks, reducing both time and costs.

• **Easy and intuitive development tools**

Easily integrate with legacy systems with minimal coding using the '**Conversation Scenario Editor**.'

Technology

• Natural Language Processing (NLP)
• Natural Language Understanding (NLU)
• Document AI

Use Cases

Workplace Services

Operated chatbots in 6 areas including HR, IT, health, production, and finance

SK hynix

National Tax Service

Tax consulting on value-added tax, comprehensive income tax, and year-end tax reporting

인터넷 납세서비스
Hometax.

Academic Advisors Assistant

Personalized information access (e.g., bills, class schedules, grades)

SEOULTECH SEOUL NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY

Call Center Chatbot Service

24/7 Voice Phishing Response and Improved Response Rate

경찰청 KOREAN NATIONAL POLICE AGENCY

KONAN
TECHNOLOGY

AI Interpretation, **Konan Chatbot +**

Konan Chatbot+ is an AI-powered conversational chatbot that combines high-quality speech recognition, machine translation, and natural chatbot technology to enable smooth and convenient communication with foreigners in their native languages.

International visitor

English question
Which exit is Gyeongbokgung Palace?

English translation
You can go out exit 5.

13-language AI interpreter
Konan Chatbot+

Information staff

Korean translation
경복궁은 몇 번 출구인가요?

Korean answer
5번 출구로 나가시면 됩니다.

Seoul Metro
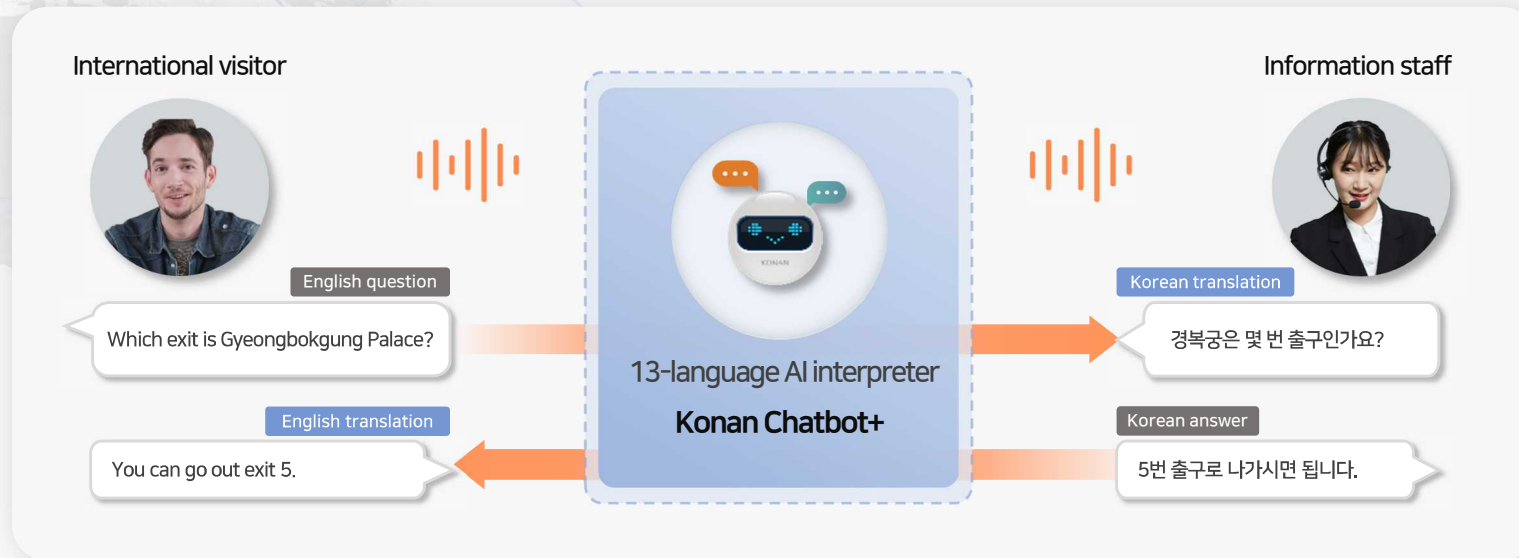
Service Introduced
at Seoul Myeongdong
and 10 Other Stations

LOTTE DEPARTMENT STORE

Lotte Department Store
Jamsil: Korea's first to
adopt 'AI Interpretation'

Shinhan Bank

Launch of visualized
consultation service
'Banking for Everyone'

Yeungnam University

Providing convenience
services for
international students

KONAN TECHNOLOGY

Capture Business Signal, **pulseK**

pulseK is a real-time analytics service that leverages AI-powered data science to deeply analyze current online issues and uncover valuable business signals.
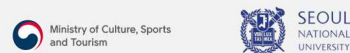
pulseK
Online media analysis service based on real-time collection and analysis

Data Collection/Processing — Collects data in real time and at high speed from various channels, then flexibly structures and transforms it for stable management of large-scale datasets.

Analysis Services — Delivers machine learning–based insights such as sentiment, trends, and weak signals through real-time monitoring and customer-tailored analysis.

Big Data Consulting — Provides advanced big data consulting with predictive and prescriptive approaches, leveraging diverse analytical techniques and domain expertise.

Use Cases

Data Collecting/Processing
- Provided loading data to a social big data system for 'Woori Bank'
- Collects data for research on economic policies and issues at 'KDI(Korea Development Institute)'

Big Data Consulting
- Establishes policy direction by analyzing people's thoughts on 'The Ministry of Culture, Sports and Tourism'
- Seoul National University published '2022 Trend Korea' by researching trends across society and analyzing big data using pulseK.

Trend Analysis Service
- 'INNOCEAN' used pulseK to understand the lifestyle and characteristics of the target.
- 'Shinhan Card' used pulseK to analyze social consumption trends and the target's lifestyle.

Analysis Service
- Real-time online monitoring service to discover policy issues and establish communication strategies for 'The Seoul Metropolitan Government'
- 'pulseK' is used for online market research for 'SK Magic' product sourcing.

KONAN TECHNOLOGY
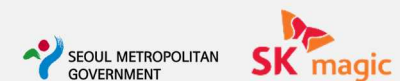
04

Vision AI

1) Video Understanding AI, **Konan Watcher**

2) Speech Understanding AI, **Konan Listener**

3) Realistic AI Voice, **Konan Voice**

KONAN
TECHNOLOGY

Video Understanding AI, **Konan Watcher**

Konan Watcher is an AI Platform specialized in video processing. It enables the development of various AI applications in defense, safety, and broadcasting by supporting object recognition and anomaly detection within video content.

Deep Vision

Facial Recognition /
Object Recognition /
Anomaly Detection

MLOps

All in One Workflow

Deep Speech

Speech Recognition /
Speech Synthesis

Feature

- Applied data augmentation and correction techniques to secure training data.
- Extraction and generation of various deep metadata within digital content.
- Automatic subtitle generation for real-time video, combined with high-quality TTS technology at a professional voice actor level.
- An all-in-one workflow for video collection, analysis, processing, tagging, and training.

Technology

- SOTA object detection technologies such as YOLO, Co-DETR, and RT-DETR.
- Flexible Adaptive Object Tracking technology that handles frame drops effectively.
- Speaker-adaptive end-to-end speech recognition and multi-speaker speech synthesis technology.
- Automating model execution, training, evaluation, and deployment via a machine learning pipeline.

Konan Watcher Defense Use Case

Client

Ministry of National Defense
Republic of Korea

Details

- Use case of AI-Based Combat vehicles Operation System Development
- Developed AI recognition models capable of identifying enemy combat equipment.
- Created optimized firepower recommendation models for various scenarios.
- Established an MLOps-based training platform for AI model development.
- Displayed target information and firepower recommendations on a web GIS-based map.
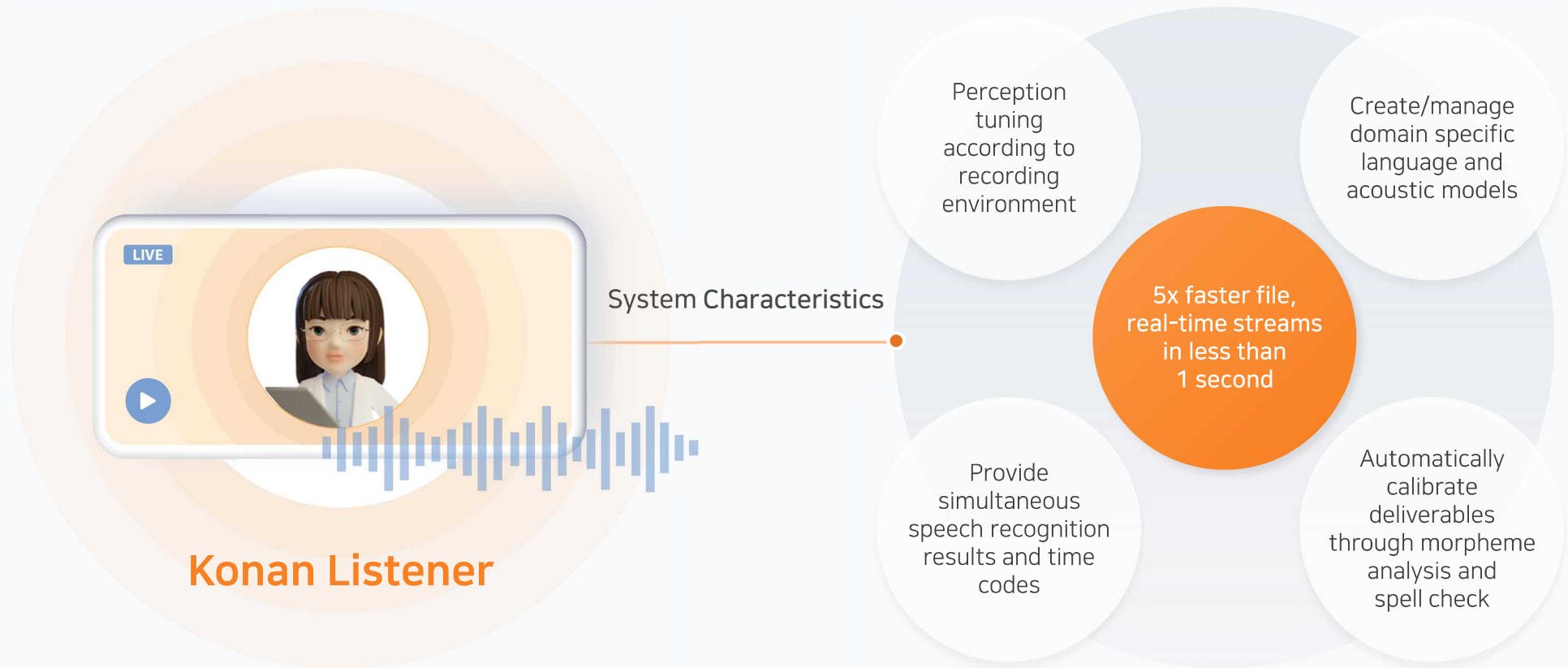- Developed a drone communication interface for real-time

Benefits

- Provides command and control support as an AI advisor for strategic and efficient strike tactics in network-based air and ground combat operations.
- Establishes an MLOps-based AI platform optimized for K-defense.
- Ensures efficient budget allocation in the defense sector, considering the declining domestic population.

KONAN
TECHNOLOGY

Speech Understanding AI, **Konan Listener**

Konan Listener is a speech recognition solution that recognizes speech in a video, converts it into text, and provides it with a time code. The competitive edge is the ability to automatically correct voice recognition results through in-depth text analysis technology, along with high speed that processes files five times faster and streams in real-time.

LIVE

Konan Listener

System Characteristics

Perception tuning according to recording environment

Create/manage domain specific language and acoustic models

5x faster file, real-time streams in less than 1 second

Provide simultaneous speech recognition results and time codes

Automatically calibrate deliverables through morpheme analysis and spell check

KONAN TECHNOLOGY

Realistic AI Voice, **Konan Voice**

Konan Voice is an end-to-end speech synthesis solution that uses a single neural network technology to synthesize voice waveforms from text inputs instantly. It has the competitive edge to quickly synthesize the most natural high-quality voice.

Konan Voice
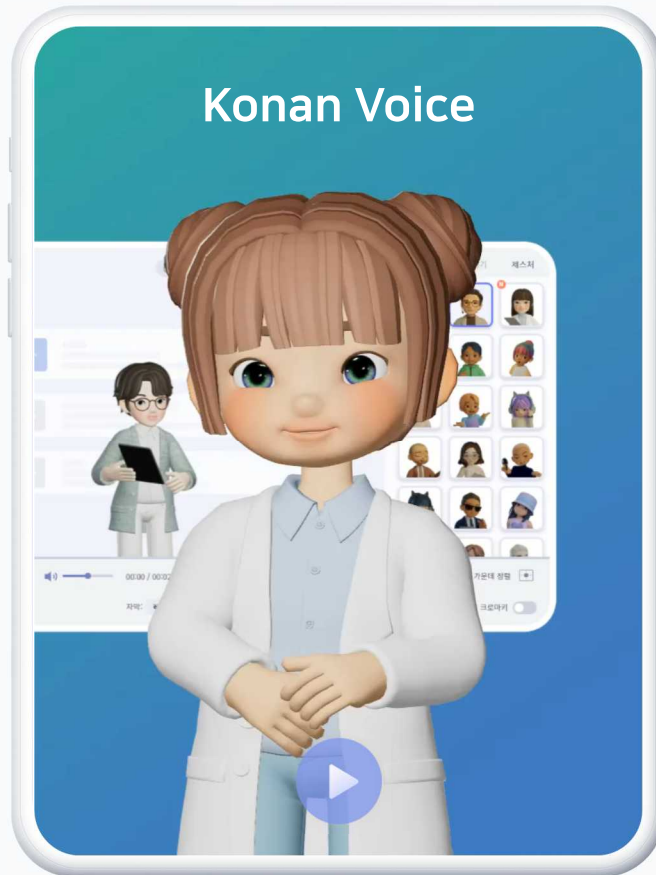
3D characters with 6 facial emotions

Type your script text and the 3D character will automatically lip-sync and dubs.(6 emotions available: happy, sad, angry, embarrassed, anxious, and nervous)

Easy to use

High-quality speech synthesis service that generates voices by selecting a voice actor and inputting a script

High-Quality Voice that Surpasses Professional

MOS 4.5+ natural, high-quality voice production capability

*Mean Opinion Score (MOS): A quality index that subjectively evaluates voice quality into five levels

Natural Reading that Understands the Context

Provides the most natural reading quality by understanding context and meaning, such as spacing correction, sentence closing-ending recognition, postposition correction, and dual expression recognition

KONAN
TECHNOLOGY

05

Digital Twin

1) A Flight to a Better World, **Konan AI Pilot**

2) Predictive Maintenance, **Konan PHM**

KONAN
TECHNOLOGY

A Flight to a Better World, **Konan AI Pilot**

Konan AI pilot can team up and collaborate with pilots.
It learns and understands missions like a human and can perform high-risk missions on behalf of humans.

**Autonomous
Flight Simulation**

**Team up with
human pilots**

**Installed on an UAV*
to perform high-risk missions**

Features

• Simulated engagement training with human pilots, including many-to-many engagements
• Perform missions for tactical purposes and provide a briefing system to analyze/validate them
• Realistic mission rehearsal and simulation of edge cases* at low cost

*Edge cases: rare situations, extreme situations

Technology

• Autonomous flight simulation utilizing hybrid reinforcement learning
• 3D rendering technology that visualizes real fighters
• Installed on an UAV* to perform high-risk missions instead of humans
• Voice recognition command and control

*UAV: Unmanned Aerial Vehicles

Predictive Maintenance, **Konan PHM**

Konan PHM is a solution that combines digital twins and AI technologies (PBDL and RL)
to help diagnose equipment/component failures and make residual life prediction decisions.

AI-based Physics Simulation
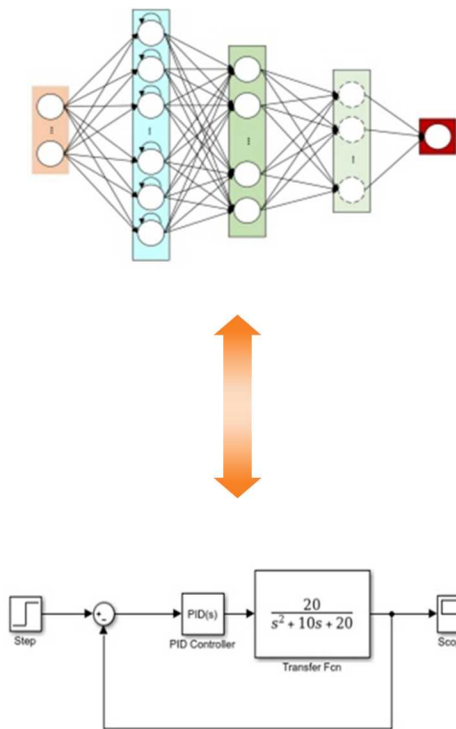
CAD
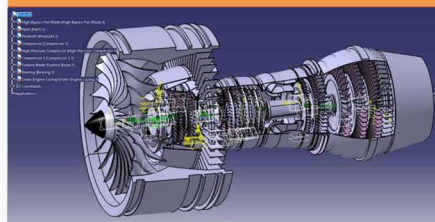
Optimization

3D Visualization

3d models

Real-Time Simulation
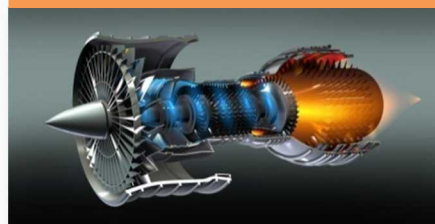
Data

Features

- AI analytics service based on Deep Learning

- Monitoring function for faster fault diagnosis and lifetime prediction in the field

- When equipment/parts fail, it helps to find the cause and make decisions to solve it

Technology

- Time Series Sensor Data-Based Deep Learning Diagnostic Algorithm

- Physical Simulation Interlinked Deep Learning (PINN) Algorithm

- Real-time, high-quality visualization

- Digital twin for fault diagnosis/prediction/cause analysis of equipment

KONAN
TECHNOLOGY

06

Foundation
(Core Technologies)

1) **Konan MLOps**

2) Konan AI Framework, **dtrain**

3) **Konan Digital Twin Framework**

4) Programming Language, **K-Language**

KONAN
TECHNOLOGY

Scalable and Reliable ML, **Konan MLOps**

Konan MLOps automates the entire process from deep learning model training to deploying, providing operation convenient.

It is also a flexible solution that provides an optimized operating environment tailored to each project's characteristics.

Konan MLOps Process ∞

Data Sources

Data Mart
- Text
- Image
- Video
- Audio

Machine Learning Pipeline

Learning Pipeline

| Data Validation | Model Learning | Model Evaluation | Model Registration |

Inference Pipeline

| Data Validation | Inference | Model Validation | Model Deployment |

Monitoring Resource Log Management

Integration Dashboard

Output Data

Application Server

Users

Flexible architecture
- Modular components Customizable for each project Easy integration with existing systems Offers various interfaces (CLI/SDK/GUI/Rest API)

Efficient resource management
- Offers optimized plans from single GPU servers to enterprise-level scale.
- Unified management of GPU, CPU, and memory resources.

Process automation
- Automation of the entire process of model execution, training, evaluation, and deployment through a pipeline.

Q&A Feature
- Convenient operation support with alert, reporting, and monitoring features.
- Management capabilities at the project, group, and task levels.

Dashboard provision
- easily view and manage all the elements needed for model development through a dashboard.

KONAN TECHNOLOGY

Konan AI Framework, **dtrain**

dtrain is a deep learning framework developed by Konan Technology. It supports on-premise deployment
to prevent data and model leakage, protecting domestic AI from external threats.
As a core technology, it meets research and application needs, contributing to AI industry growth.

dtrain Process

AI platform
Next-gen AI testbed
Various Apps
Web services

GPU GPU GPU GPU GPU GPU GPU

REST API

Low-level API
High-level API

CUDA integration

Deep learning engine
Various DL algorithms support

Eco system
Multi-tasking Data Loader DL Model
Visualization/deployment
Python front-end interface

Model library

Python example program
Various DL Models
Outputs for each model

Python interpreter

General user

Feature

Technological Independence
Achieves technological
self-reliance through the
localization of core
technologies

Flexibility
Easily adaptable for
implementing and
expanding various AI
models

Lightweight Design
Optimized for
deployment across
diverse environments
with minimal system load

Reliability
Prevents data leaks and
ensures secure, stable
operation in sensitive
settings

KONAN
TECHNOLOGY

Konan Digital Twin Framework

Konan Technology is developing a digital twin framework applicable to the aerospace and defense industries. This framework supports system diagnostics, predictions, and optimization tasks through simulations within a digital twin environment.
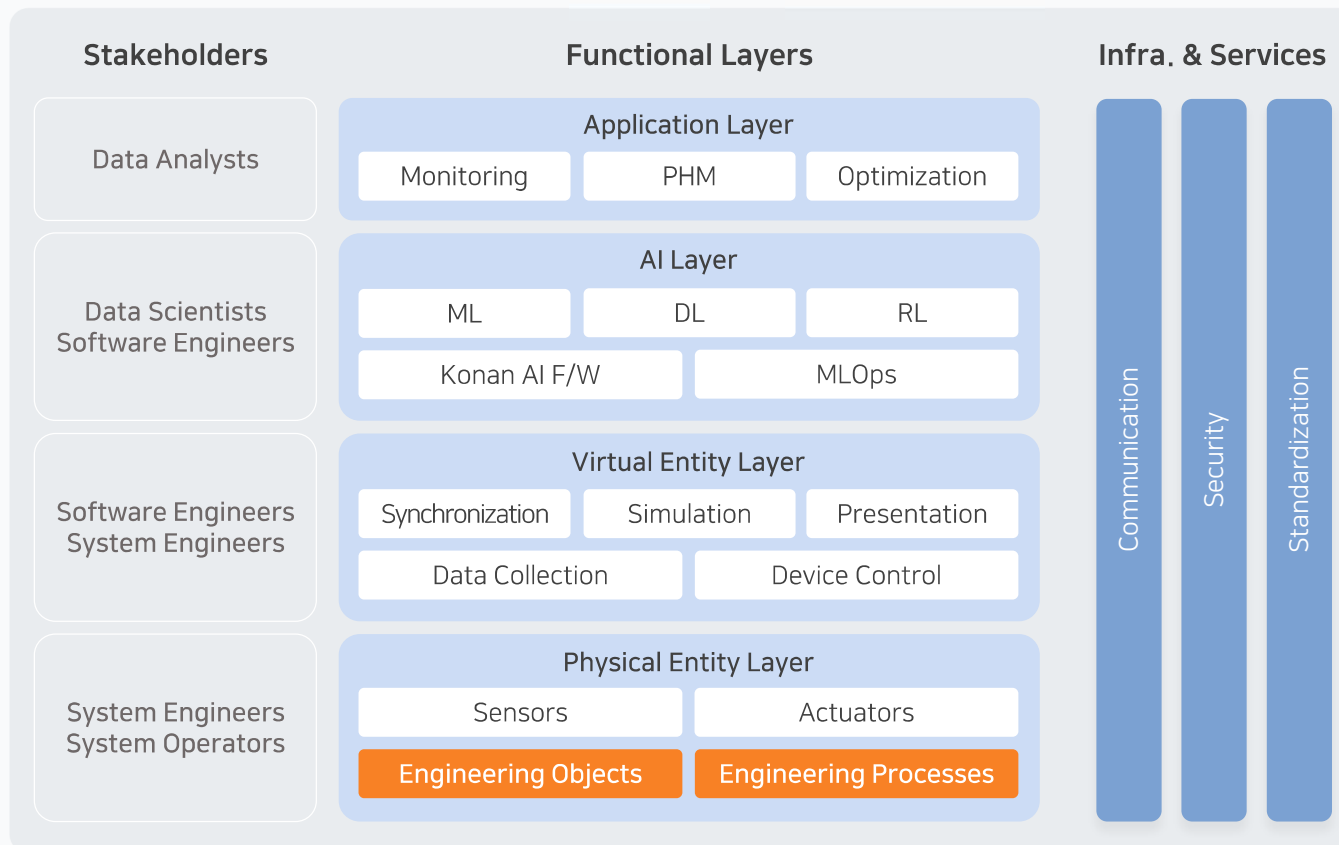
Stakeholders

- Data Analysts
- Data Scientists / Software Engineers
- Software Engineers / System Engineers
- System Engineers / System Operators

Functional Layers

Application Layer
Monitoring	PHM	Optimization

AI Layer
ML	DL	RL
Konan AI F/W		MLOps

Virtual Entity Layer
Synchronization	Simulation	Presentation
Data Collection		Device Control

Physical Entity Layer
Sensors	Actuators
Engineering Objects	Engineering Processes

Infra. & Services
- Communication
- Security
- Standardization

Feature

- A high-resolution digital twin development framework for high-quality PLM decision-making.
- ISO 23247 standard framework

Functionality

- Cross Commissioning using Digital Twin
- Interoperability between heterogeneous Digital Twin objects
- Building explainable decision-making application models
- High-speed PINN (Physics Informed Neural Network) inference engine
- Synthetic data generation for AI training
- Hardware-accelerated high-quality visualization

KONAN TECHNOLOGY

Programming Language, **K-Language**

K-Language is a programming language developed by Konan Technology for AI and big data development.
It is the foundation technology for all product development in the Text AI field.

K-Language

In-house developed language

Easy and versatile use

Concentration of the original technologies

AI programming language

- Development of products related to AI, natural language processing, big data analysis, and search
- It provides a grammar design that is suitable for the algorithms used in these fields, as well as a variety of related libraries. This helps to shorten development time and improve quality.

A culmination of the original technologies

- A programming language developed and deployed in-house, not relying on foreign development languages
- The original technology accumulated over 20 years of in-house research without relying on open source

Easy-to-learn language

- It includes the expressiveness of Python, the data processing capabilities of SQL, and the efficiency of C++
- K-framework, a technology stack based on K-language, is commonly used in product development (consists of high/low-level libraries, virtual machines, data languages, storage, and hosting demos)

KONAN TECHNOLOGY

Thank you

---

www.konantech.com

konan@konantech.com

02-3469-8555

KONAN
TECHNOLOGY