



# Industry AI Ecosystem Subcommittee (Industry AI Subcommittee)

- Lead Institution: Life Intelligence Consortium (LINC)
- Representative: Yasushi Okuno
- President Leader: Ryuichi Shimizu, Secretary General



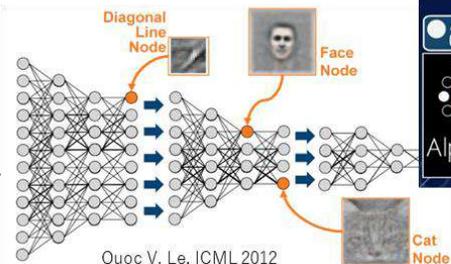
# The Era of AI Agents: Transitioning to Autonomous AI

## 2025 AI Agents



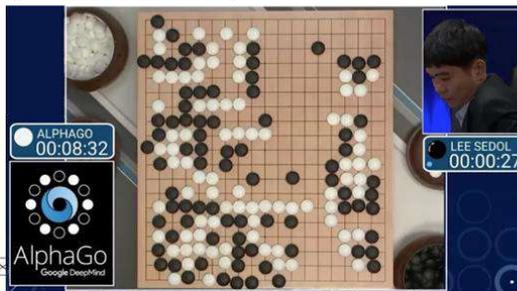
AI has moved beyond the era of optimizing single tasks. We have entered the age of AI Agents that perform autonomous reasoning, planning, and integration of specialized knowledge.

## 2012 Deep Learning



Quoc V. Le, ICML 2012

## 2015 AlphaGo



<https://www.bbc.com/news/technology-35785875>

## 2018 AlphaFold



<https://alphafoldserver.com/welcome>

## 2022 ChatGPT



<https://yourstory.com/2023/05/everything-you-need-to-know-about-chatgpt>

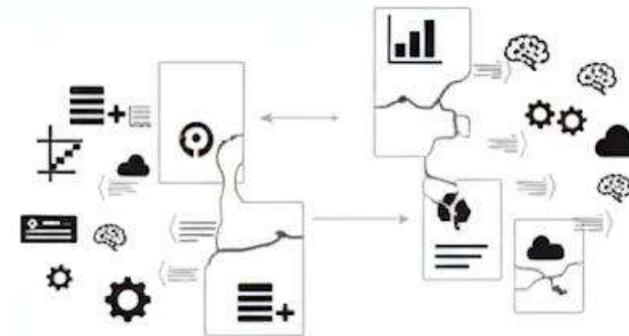
## Global Trends vs. Japan's Position

- Global Trend : Industry is being dominated by giant foundation models that bundle massive data and knowledge.
- Japan's Status : Japan possesses high-quality data and "tacit knowledge" (on-site experience), but these assets remain fragmented.



## Structural Challenges in Japanese Industry

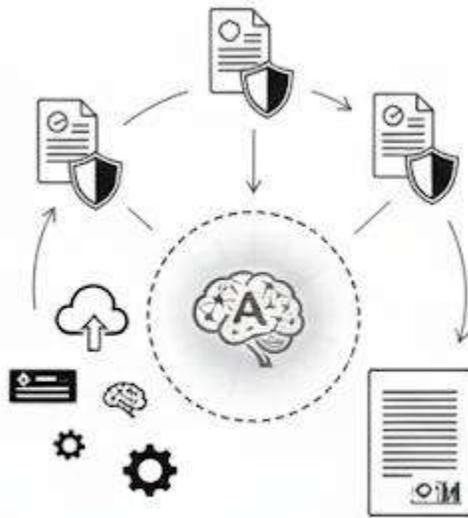
- Legacy Data: Valuable "intuition and experience" data supported high economic growth but remains trapped in legacy formats.
- Data Silos: Data exists but cannot be easily shared externally.
- Unstructured Know-how: Expert knowledge is not yet formalized into explicit knowledge (digitized logic).
- Sub-optimization: Efforts are limited to individual companies, making it difficult to compete globally



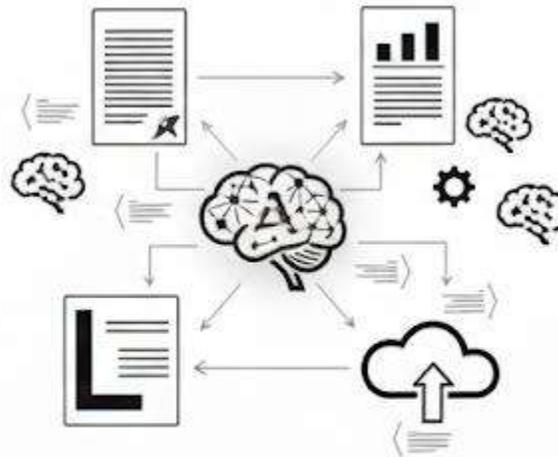
# 1 Goals and Objectives

## Building Collective Intelligence AI

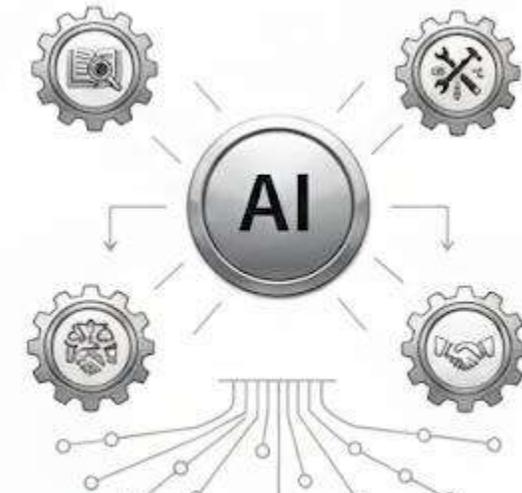
- ◆ Building Collective Intelligence AI: Use Federated Learning to ensure data privacy for each company while building shared intelligence.
- ◆ Formalizing Knowledge: Use LLMs to convert and accumulate experts' tacit knowledge (experience/know-how) into explicit knowledge.
- ◆ Common Infrastructure: Develop a shared AI Agent platform for the industry.



Federated Learning



LLMs experience/know-how



Common AI Agents

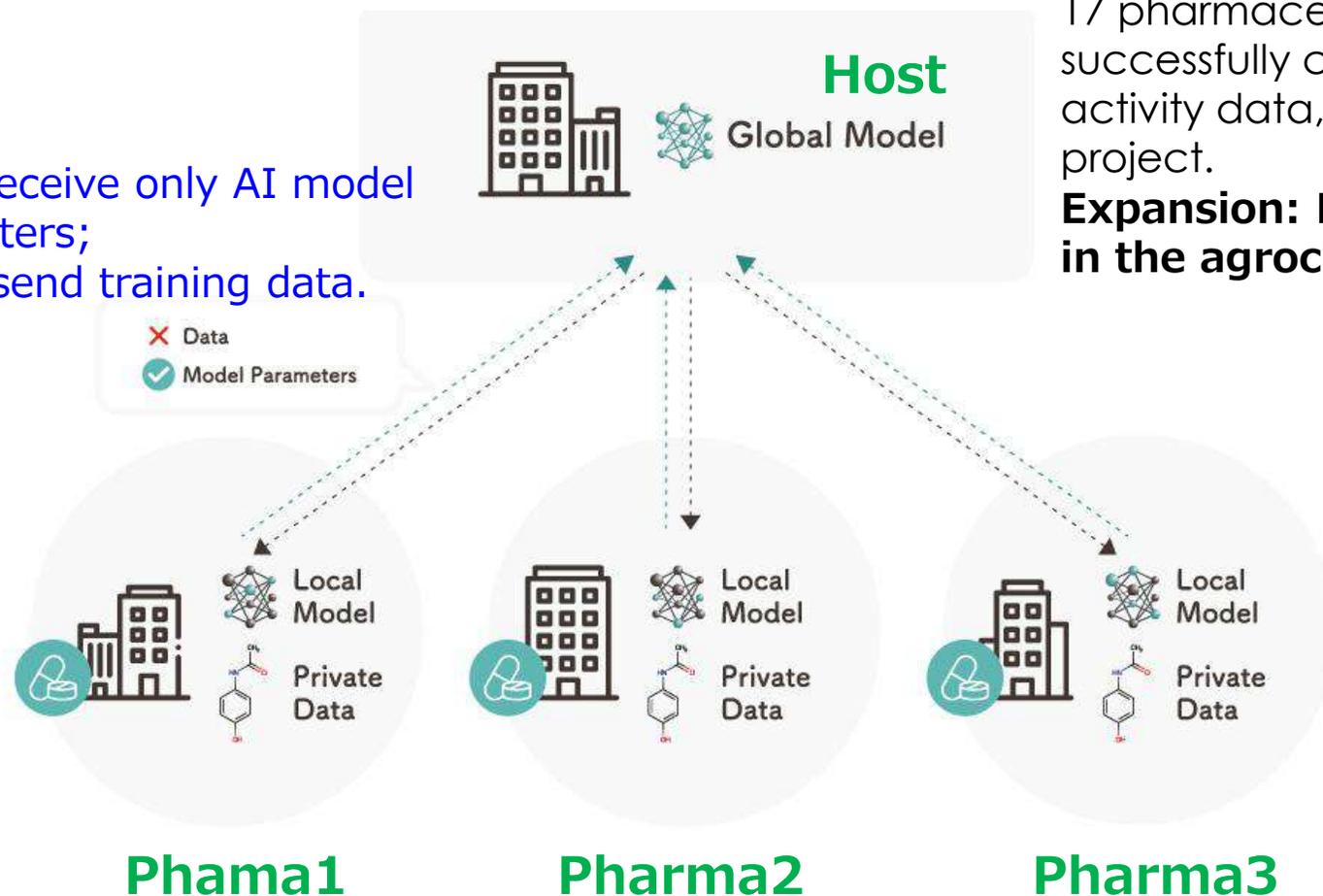
## 2 Implementation Themes

Themes	Overview
1 Federated Learning	High-value data in companies and hospitals is hard to share due to regulations. Federated Learning builds "Collective Intelligence" by sharing only model updates, keeping raw data local.
2 LLM Knowledge Formalization	Extracts "intuition" and "reasoning" from experts via dialogue/logs. Converts these into prompts, rules, and decision templates using LLMs.
3 Shared AI Agent Platform	Integrates Collective Intelligence with formalized expert knowledge to provide an AI that understands tasks, selects tools, and supports decision-making.

# 3 Success Story: Pharmaceutical Industry

## Implementation of Federated Learning in Drug Discovery

- Send/Receive only AI model parameters;
- do not send training data.



17 pharmaceutical companies and Kyoto University successfully collaborated on compound structures, activity data, and toxicity data via the AMED/DAIIA project.

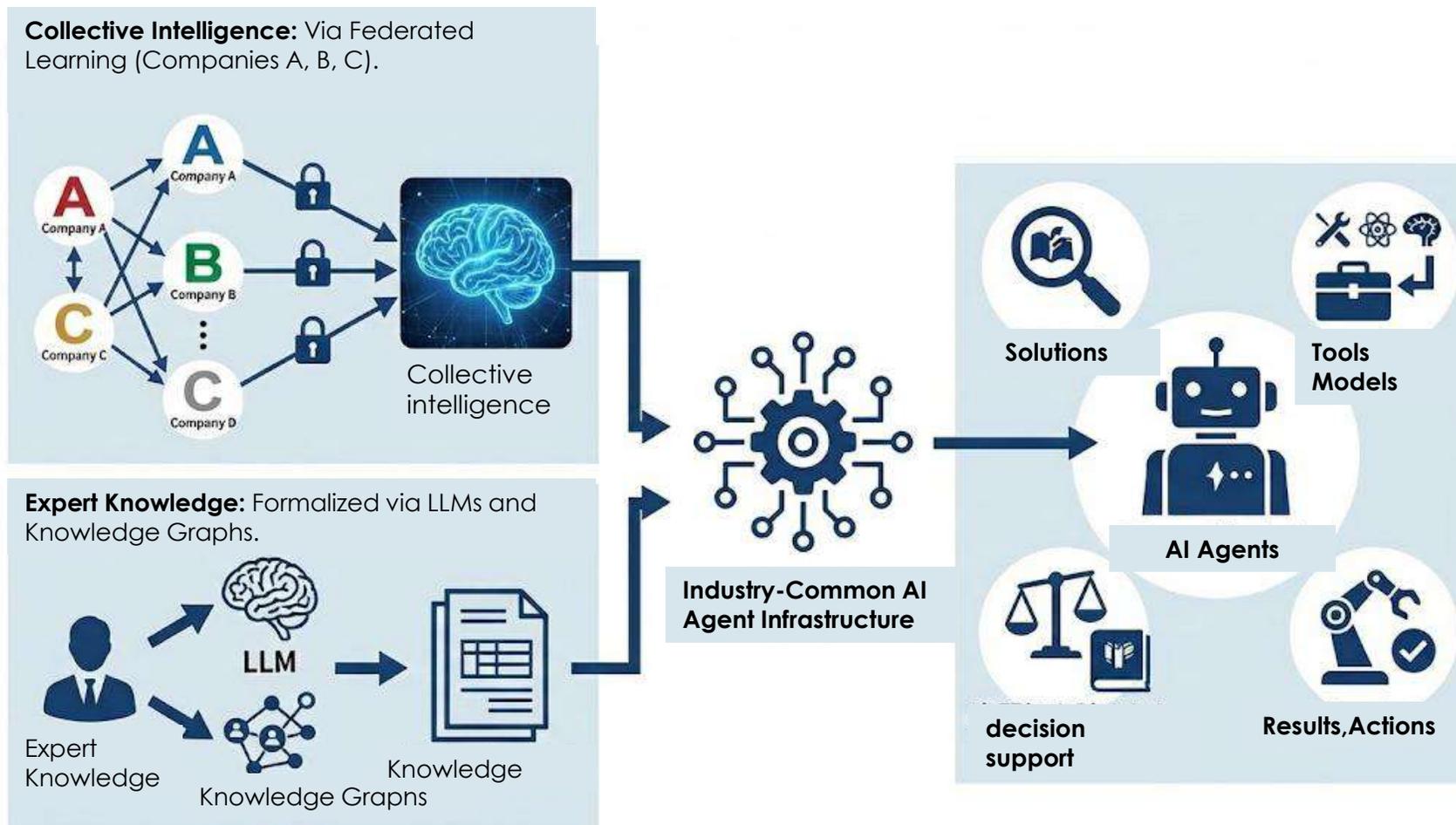
**Expansion: New demand for federated learning in the agrochemical industry.**

\*<https://www.elix-inc.com/jp/news/newsrelease/1412/>

# 4 Overall Vision of the AI Agent

## Industry-Common AI Agent Infrastructure

Companies utilize industry collective intelligence without disclosing their own raw data.





## 5 Participation Benefits

Don't Give It Up. Don't Lose It. Let AI Return the Value.

### ① Keep Your Edge

Use industry AI while keeping your company's unique strengths (intuition/experience) private.

### ② Data Privacy

You don't have to "hand over" your data. Only the results/intelligence are shared.

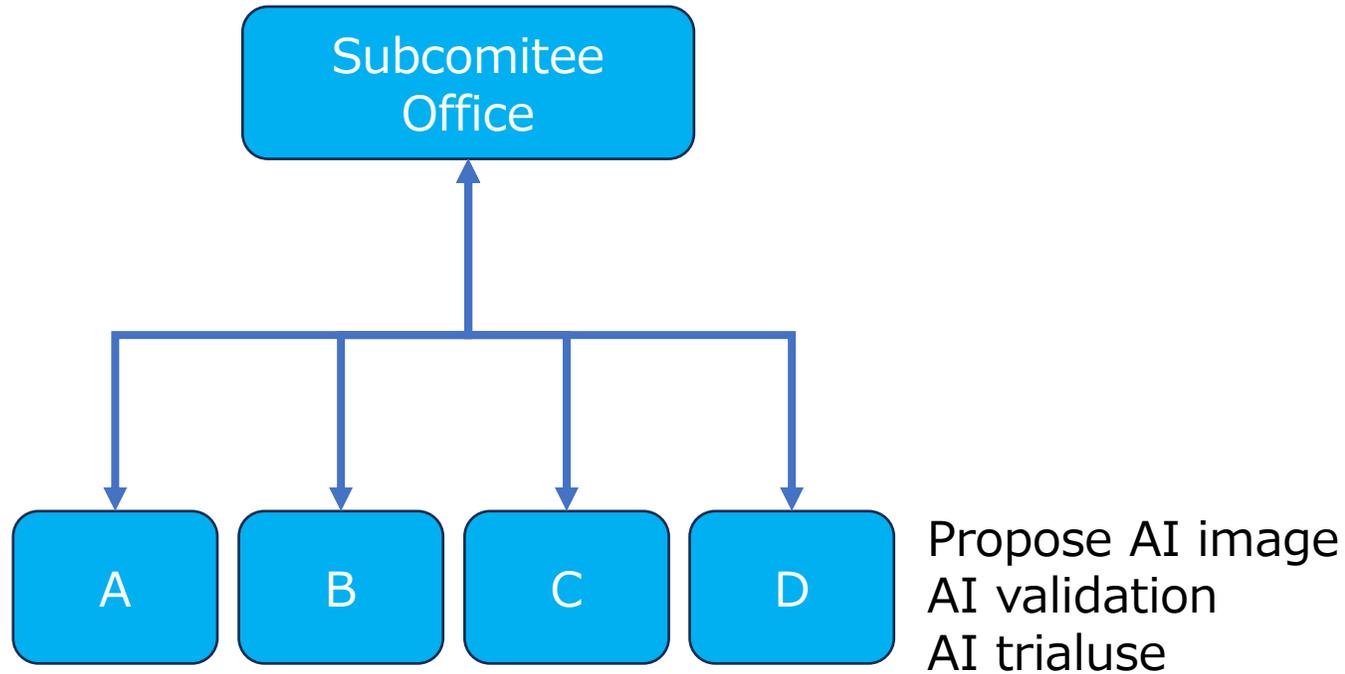
### ③ Leverage

Achieve accuracy and insights that no single company could reach alone.

### ④ Asset Transformation

Turn human-dependent intuition into an organizational asset (AI Agent).

# 6 Project Roadmap



Hold regular meetings, data collection, Design AI system

How We Proceed  
 Concept: Propose the desired AI image.  
 Requirement: Determine the data and expertise needed for construction.  
 Feasibility: Review data/expertise each company can contribute.  
 Prototyping: Build a prototype using public data.  
 Validation: Verify the prototype AI.  
 Production: Build the final AI using Federated Learning.



**Thank you  
Industry AI Ecosystem  
Subcommittee**