Empower Smallholder Farmers Through Smart Agri Machinery

SINOMACH Digital Technology Corporation

Oct,2025

Content

Introduction to SINOMACH Digital Technology

Introduction to SINOMACH

Group Name: China National Machinery Industry Corporation

Group Abbreviation: SINOMACH

Established: January 1997, originating from the First Ministry of Machine Building

Key Features: State-owned enterprise：a key state-owned enterprise directly managed by Chinese central government

Fortune Global 500：Ranking 279 in 2023

二级公司	上市公司	驻外机构	从业人员
28	13	363	12万+
Secondaries	Listed Companies	Overseas Agencies	Employees

国机集团发展
DEVELOPMENT

Ranking
279
位

世界企业500强
Fortune Global 500

Ranking
28
位

全球最大250家
国际工程承包商
Top 250 International Contractors

Ranking
61
位

国际工程设计咨询
企业225强
Top 225 International Design Firms

Ranking
1
位

连续多年
中国机械工业百强
China's Top 100 Machinery Industry Companies

科技研发与服务
Scientific R&D and Services

科技研发平台
Platforms for Technical R&D

学术期刊
Periodicals

质检中心及标准委员会
Quality Inspection Centers &Committees of Standardization

科技人才
Scientific and Technological Talents

科技项目及成果
Scientific and Technological Projects and Achievements

先进装备制造
Manufacturing of Advanced Equipment

重型装备
Heavy Equipment

农林机械
Agriculture and Forestry Machinery

纺织机械
Textile Machinery

地质装备
Geological Equipment

石化通用装备
Petro-Chemical and General-Purpose Equipment

其他类别的设备、机械等
Other Products

工程承包与供应链
Engineering Contracting and Supply Chains

工程承包
Engineering Contracting

供应链集成与服务
Supply Chain Integration and Services

海外投资
Overseas Investments

- 国家级研发机构 24 家
  24 National Research & Development Institutions
- 国家企业技术中心 21家
  21 National Enterprise Technology Centers
- 国际科技合作基地 5 家
  5 International Science & Technology Cooperation Bases
- 博士后工作站 32 家
  32 Postdoctoral Stations

全国重点实验室6家　6 National Key Laboratories

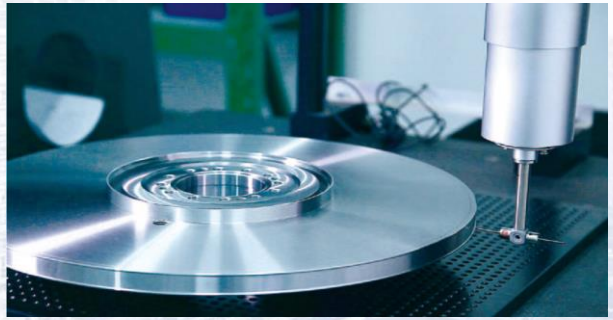
高端压缩机及系统技术全国重点实验室
National Key Laboratory of Advanced Compressor and System Technologies

农业装备技术全国重点实验室
National Key Laboratory of Agricultural Equipment Technologies

金属成形技术与重型装备全国重点实验室
National Key Laboratory of Metal Forming Technologies and Key Heavy Equipment

工业产品环境适应性全国重点实验室
National Key Laboratory of Environmental Adaptability for Industrial Products

智能农业动力装备全国重点实验室
National Key Laboratory of Intelligent Agricultural Power Equipment



高性能工具全国重点实验室
National Key Laboratory of High-performance Tools

科技人才方面 Scientific and Technological Talents

- 中国科学院院士1 人
  1 Academician of the Chinese Academy of Sciences
- 中国工程院院士 4 人
  4 Academicians of the Chinese Academy of Engineering
- 全国工程勘察设计大师 10 人
  10 National Engineering Survey and Design Masters
- 各类等高层次人才在内的科技人员近 3 万人
  Nearly 30,000 High-level Scientific and Technological Personnels of All Kinds

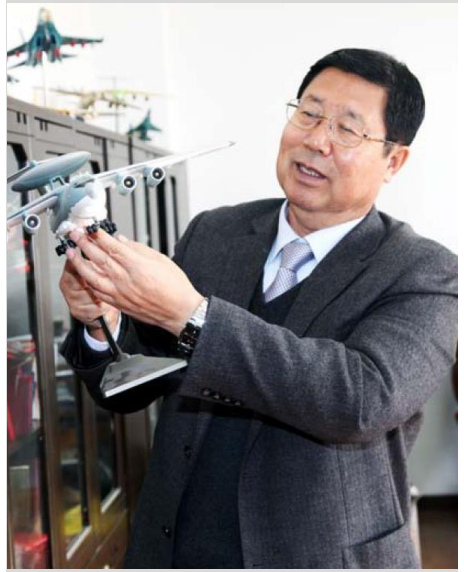
关 杰 Guan Jie

1997 年当选中国工程院院士
Elected academician of the Chinese Academy of Engineering in 1997

程泰宁 Cheng Taining

1997 年当选中国工程院院士
Elected academician of the Chinese Academy of Engineering in 1997

闫楚良 Yan Chuliang



2015 年当选中国科学院院士
Elected academician of the Chinese Academy of Sciences in 2015

陈学东 Chen Xuedong

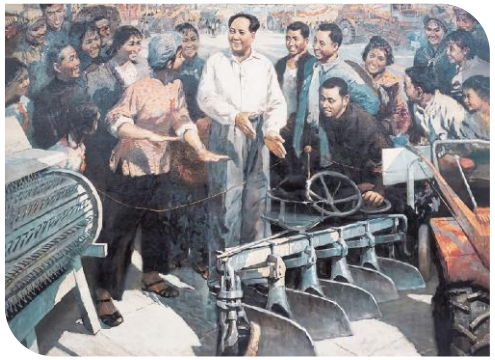
2015 年当选中国工程院院士
Elected academician of the Chinese Academy of Engineering in 2015

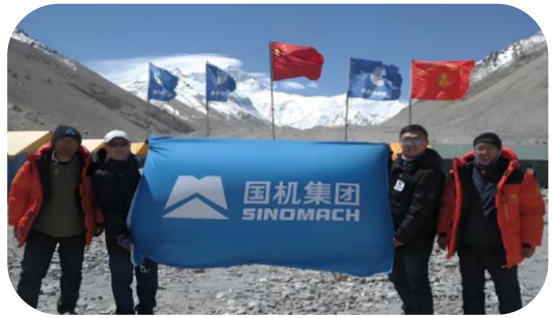
徐建 Xu Jian

2019 年当选中国工程院院士
Elected academician of the Chinese Academy of Engineering in 2019

主营业务 Main Services

先进装备制造 Manufacturing of Advanced Equipment





农机链长单位
Agricultural Machinery Chain Leader

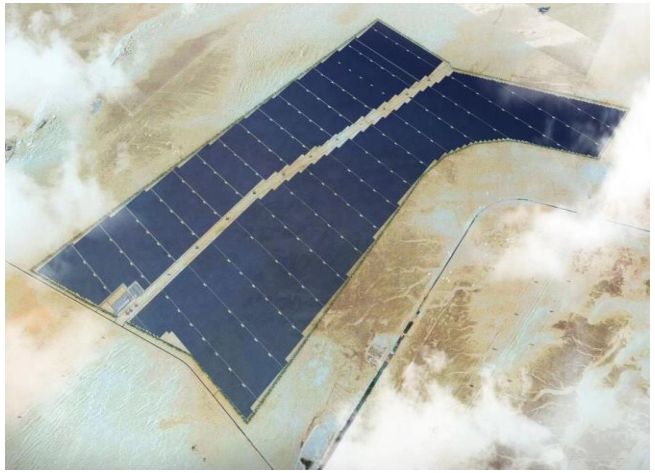
纺织全流程机械装备
Whole-process Textile Machinery

珠峰测绘重力仪
Gravimeter for Mount Everest Surveying and Mapping

8万吨模锻压力机
An 80,000-ton Die Forging Press

汽车智慧工厂
Intelligent Automobile Factory

工业工程项目
Industrial Engineering Porject



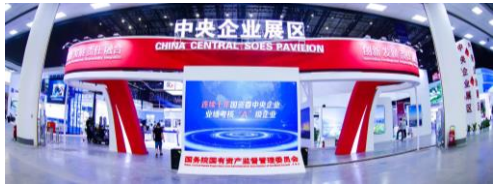
能源电力项目
Energy and Power Project

始终以客户为中心，采取灵活的贸易+服务模式，为客户提供信贷、配送等增值服务

Always centered on customers, a flexible trade + service model is adopted to provide customers with value-added services such as credit and distribution.

中国最大的展览服务公司，通过以展带贸，促成更多的商业合作机遇

As the largest exhibition service company in China, SINOMACH drives trade through exhibitions, facilitating more business cooperation opportunities.



国机集团积极进行海外投资，海外资产总额近百亿美元。

SINOMACH actively engages in overseas investment, with the total value of overseas assets approaching nearly $10 billion.

中白工业园
丝绸之路经济带上的标志性工程
The China-Belarus Industrial Park
A landmark project on the Silk Road Economic Belt

柬埔寨达岱水电站
The Stung Tatay Hydropower Station in Cambodia

巴基斯坦塔尔项目群
The project cluster in Thar, Pakistan

Introduction to SINOMACH Digital Technology

— SINOMACH Digital Technology Corporation —

Established Date: August 2023

Strategic Positioning: It serves as the main supporting force and overall coordinating platform for the digital transformation of SINOMACH, a promoter of neo-industrialization and the modernization of agriculture and rural areas, and shoulders the mission of developing the group's strategic emerging industries.

Introduction: As a wholly-owned subsidiary of SINOMACH, SINOMACH Digital Technology focuses on the core functions of serving the construction of Digital China and builds the core competitiveness of the enterprise. By constructing two industry public cloud platforms, namely the Agri-Cloud and the Industry Cloud, it serves the modernization of agriculture and rural areas as well as neo-industrialization, helps implement national strategies such as building a strong manufacturing country, a strong agricultural country, and Digital China. It provides support for the digital, networked, and intelligent development of the machinery industry, offers professional services for the digital transformation of small and medium-sized enterprises, and strives to become a leader in the digital economy and a builder of Digital China.

SINOMACH Digital Technology firmly adheres to its strategic direction and development goals

SINOMACH Digital Technology focuses on the core function of serving the construction of Digital China and builds the core competitiveness of the enterprise. As a wholly-owned subsidiary of SINOMACH that promotes the digital transformation and development in an integrated manner, SINOMACH Digital Technology shoulders the mission of developing the SINOMACH's strategic emerging industries and is committed to promoting the systematic empowerment of digital technologies for the development of neo-industrialization and the modernization of agriculture and rural areas.

Based on the construction and operation of the platforms of "Agri-Cloud" and "Industry Cloud", SINOMACH Digital Technology provides support for the digital, networked and intelligent development of the machinery industry, offers professional services for the digital transformation of small and medium-sized enterprises, promotes the deep integration of digital technologies and the real economy, helps to achieve the national strategies of **building a "strong manufacturing country", a "strong agricultural country" and "Digital China"**, and strives to become a leader in the digital economy and a builder of Digital China.

Agri-Cloud Platform

The No. 1 Central Document in 2025 put forward the concept of “new quality productive forces in agriculture" for the first time, clearly taking scientific and technological innovation as the core driving force and constructing a “technology-institution” two-wheel drive system, providing systematic policy support for the transformation of agriculture from “scale expansion" to "quality and efficiency improvement" and promoting agricultural modernization to enter a new stage. From multiple dimensions such as technological research, smart agriculture, seed industry revitalization and agricultural machinery equipment upgrading, the document has drawn up a systematic blueprint for developing agriculture through science and technology.

Data is a key production factor in the development of the digital economy and also a new driving force for promoting the modernization of agriculture and rural areas. **General Secretary Xi Jinping has pointed out that informatization has brought a rare opportunity to the Chinese nation.**

for consecutive 7 years

From 2018 to 2024, the No. 1 Central Document has made arrangements for the development of **digital agriculture and digital rural areas** for seven consecutive years.

launch a three-year action

In 2024, **a three-year action of "Data Elements ×"** will be fully launched and implemented in multiple industry fields, including modern agriculture.

the informatization rate of agricultural production nationwide 25.4%

According to the Report on the Development of Digital Rural Areas in China (2022), the informatization rate of agricultural production nationwide was 25.4% in 2021.

Data is a new factor of production, a fundamental resource and a strategic resource, and also an important productive force.

Build the first batch of "Public Cloud Platforms for Central Enterprises in Industries"

In 2022, SINOMACH was approved by the State-owned Assets Supervision and Administration Commission (SASAC) to construct the public cloud platforms in the first batch of industry fields, namely the "Agri-Cloud" and the "Industry Cloud".
SINOMACH Digital Technology accelerates the construction and operation of the two platforms to provide systematic solutions for the digital transformation of industries in new industrialization and the modernization of agriculture and rural areas.

The digital transformation project is one of the special projects in the 14th Five-Year Plan of SINOMACH. SINOMACH aims to build itself into a national-level third-party data service platform based on the industry public cloud platform.

The "Agri-Cloud" deeply explores the value of data elements and consolidates the development foundation of building a "strong agricultural country".

TO C：Subscription for farmers **TO B：**Serving the government, enterprises, and partners in the ecological chain

1. Digital Agriculture App Store
Digital agriculture applications and solutions are listed uniformly

2. Agricultural Data Element Market
Governance and independent operation of digital agricultural data

The external service portal of the "Agri-Cloud"

Four major sources of digital agriculture services

Form three major types of assets

数字资产管理体系

		1 Independently developed by SINOMACH Digital Technology **Agri-Cloud Services** Agricultural machinery operation, agricultural improvement, government support	2 Subsidiaries of SINOMACH **Relevant applications of enterprises at all levels** National Innovation Center, YTO Group Corporation, Chinese Academy of Agricultural Mechanization Sciences	3 Government/Institutions **Ministry of Agriculture/all levels of government/agri-machinery bureau** Agricultural and rural government affairs applications of various provinces, cities and units	4 Industrial chain/ecological integration **Agri-applications of agri-machinery companies/agricultural institutions/ distributors/Internet/cloud service providers, etc.**
Application assets	self operation	• Listed in the app store for unified operation. • The application assets belong to SINOMACH Digital Technology			
	Entrusted/self-operation by enterprises		• Self-operation by enterprises (can be listed in the app store) • The application assets belong to the enterprises subordinate to SINOMACH.	• Listed in the app store and entrusted for operation • The application assets belong to the government/institutions.	• Self-operation by enterprises (can be listed in the app store) • The application assets belong to the ecological partners.
Data assets	self operation	• Manage data integratedly and list in the data element market. • The data belongs to SINOMACH. • Realize the value of data independently and conduct operations.			
	Multi-party data collaboration Co-governance and sharing	Classify and grade data for management, clarify the rights and responsibilities of multiple entities, and define the sharing mechanism among multiple entities.			
AI assets	Entrusted/self-operation	• List the AI models in the app store for unified operation. • The assets belong to SINOMACH Digital Technology.			
	Optimized model Co-governance and sharing	The model is continuously iterated and optimized on the cloud platform to generate an optimized model; clarify the rights and responsibilities of multiple entities for the optimized algorithm to realize the sharing mechanism among multiple entities.			

The two versions of “Agri-Cloud” have made stunning appearances in 2024

On May 25th,2024, the "Agri-Cloud" was made public.

On September 22nd, 2024,Version 2.0 of the "Agri-Cloud" was put into service.

2025

Major agricultural power machinery connected to the cloud	Provinces with local agricultural machinery cloud service	Cooperatives with cloud services for agri-machinery informatization	Types of equipment with scale access capability
1 Million+	5+	500+	30+

The next decade

Covering standardized access management of agri-machinery	Covering the national planting area of staple grains and major cash crops	Covering the agricultural production and life of agri-machinery operators	Covering the needs of major service objects
80%	80%	80%	Multiple scenarios

数字农业发展

5,746 生产企业（家）

932,957 农机联网（台）

6,588 覆盖品类（种）

15 服务场景（个）

The Overall Architecture of the “Agri-Cloud”

1. *Entrance of the Agri-Cloud*

- Portal to the Agri-Cloud
- Service in the agri-machinery industry & Management of the application market
- Agricultural application solutions [Sales/Delivery]

2. Management of the Agri-Cloud

- Service management [User interface]
- Analysis and performance management [Management interface]
- Policy-based business processes [Management interface]
- API integration [Management interface]
- Business/Technical/IT operation and maintenance [Operation and maintenance interface]
- Index supervision [Operation interface]
- Measurement/Billing [Operation interface]

3. Government Affairs Supervision

- Comprehensive agricultural law enforcement
- Business management of rural industries
- Management and service platform for agri-machinery mechanization
- Smart system for fishery administration management
- Command and dispatch of agri-machinery operation
- Management of agri-machinery certificates and licenses
- Monitoring and supervision of farmland construction
- Comprehensive information management of animal husbandry
- ...

4. Smart agriculture

- Digital facilities
- Smart farms
- Smart pastures
- Smart fishery farms
- Intelligent equipment
- Digital supply chain
- High-standard farmland
- Agricultural ERP
- ...

5. Digital countryside

- Primary-level Party building
- Rural governance
- People's livelihood services
- Characteristic industries
- Leisure tourism
- ...

6. Industry Empowerment

- Solutions
- Products
- Services
- Policy Information
- Enterprise Management
- APP Store
- Digital Tools
- Developer Ecosystem
- ...

7. Industry Capabilities

- Agricultural big data platform
- Pest and disease identification
- Soil moisture identification
- Shennong AI large model
- Agricultural knowledge graph
- AI-based seedling condition identification
- Agricultural meteorological prediction
- ...

8. Pass General Capabilities

- Remote Sensing GIS
- Audio and Video Live Streaming
- Internet of Things (IoT) Platform
- 5G Integrated Messaging
- Digital Twin
- Low-Code Platform
- Blockchain
- ...

9. PaaS Cluster - Basic Capability Platform

- Cache
- Message Queue
- Container
- Microservice
- Load Balancing
- Offline Computing
- Real-time Computing
- Database
- ...

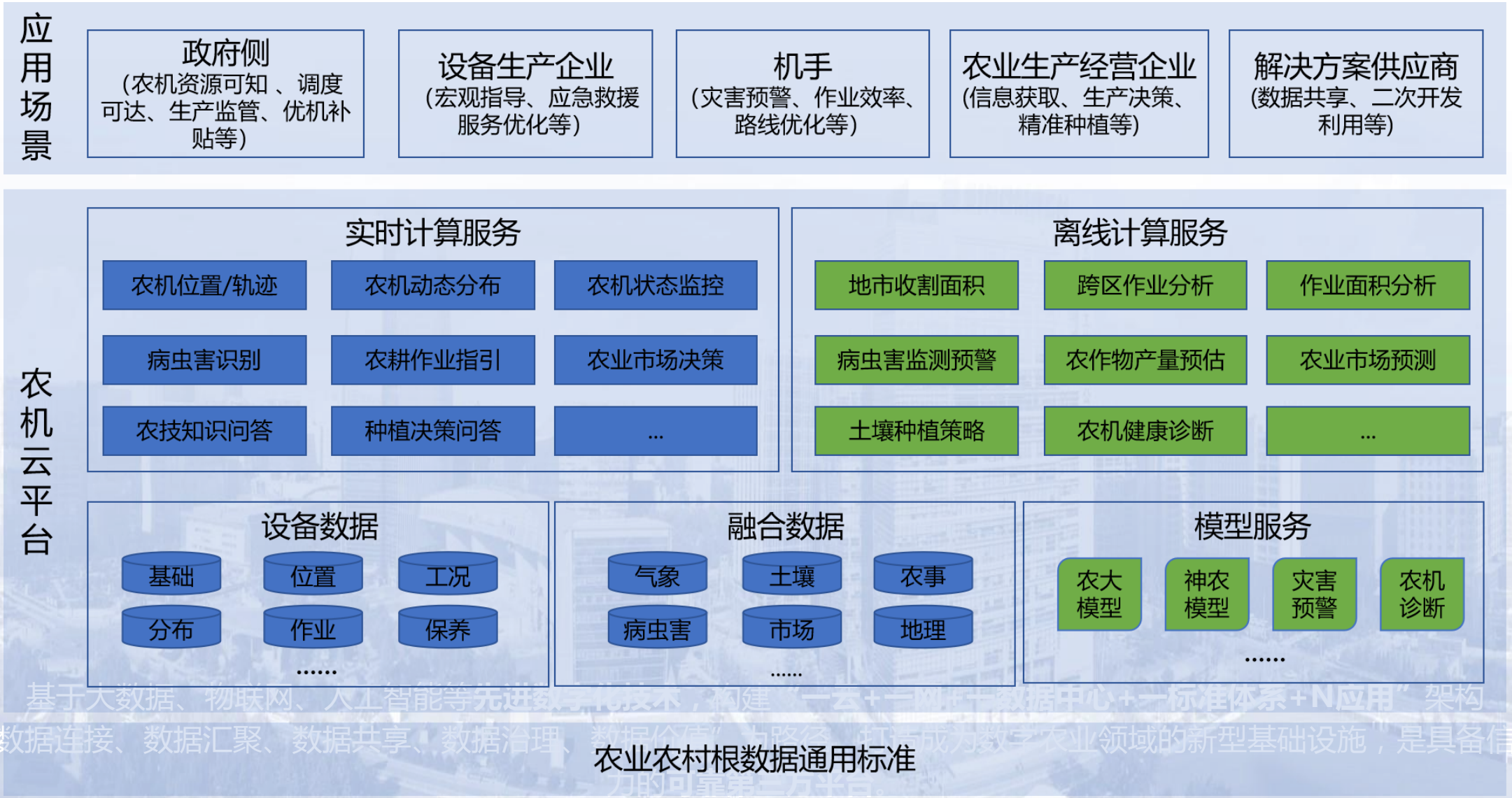
10. IaaS - Cloud Infrastructure

- **Public Cloud**
- **Domestically Developed Technology Cloud**

11. Cloud Management and Operation

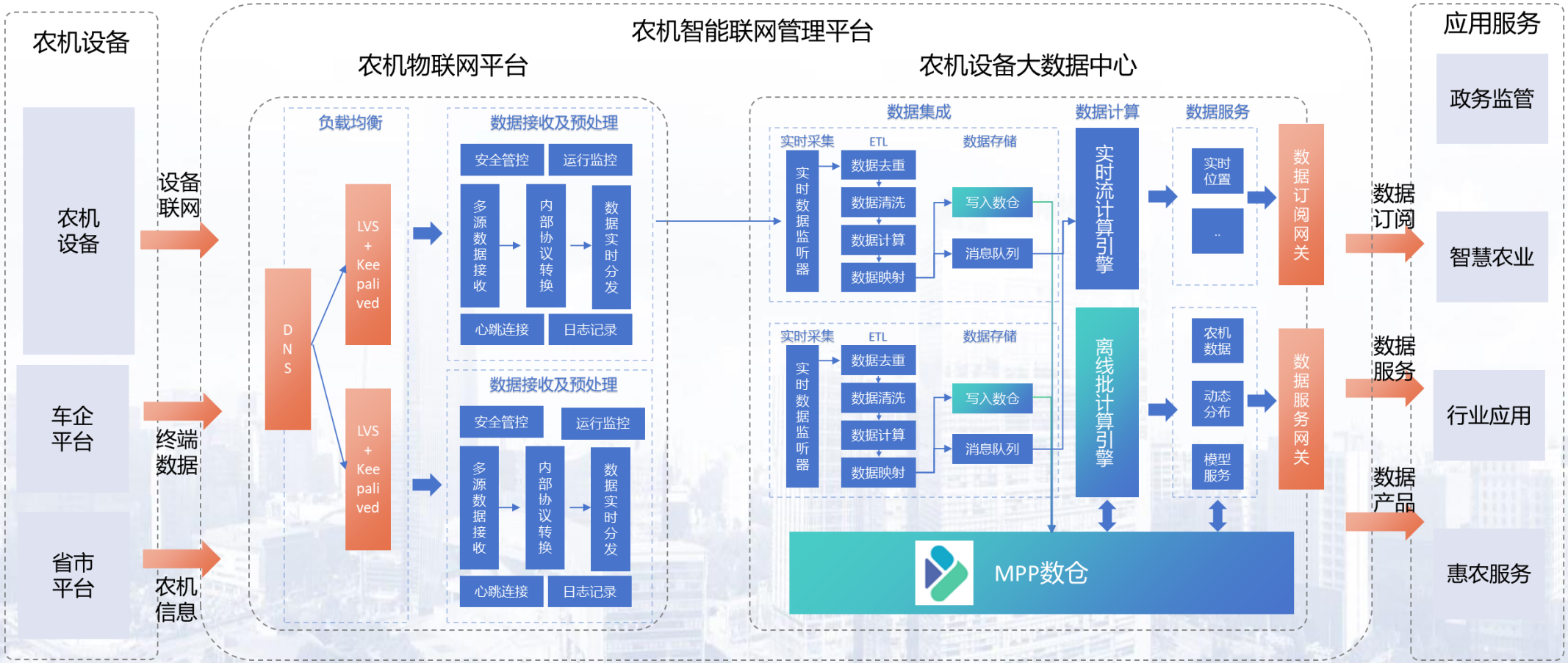
- Demand/Capability Management
- Service Level Agreement Management
- Service Desk
- Life Cycle Management
- IT Service Management
- Application Performance Monitoring
- Measurement/Billing
- Account Management

The Data Services Architecture of the “Agri-Cloud”



基于大数据、物联网、人工智能等先进数字化技术，构建“一云+一网+一数据中心+一标准体系+N应用”架构，以“数据连接、数据汇聚、数据共享、数据治理、数据价值”为路径，打造成为数字农业领域的新型基础设施，是具备信创能力的国家一级平台。

The Architecture of the IoT Platform of the "Agri-Cloud"



Based on advanced digital technologies such as big data, the Internet of Things, and artificial intelligence, an architecture of **"One Cloud + One Network + One Data Center + One Standard System + N Applications"** is constructed.

Taking **"data connection, data aggregation, data sharing, data governance, and data value"** as the approach, it is built into a new type of infrastructure in the field of digital agriculture, and it is a reliable third-party platform with the capability of domestically developed technology.

Develop a new path for the development of agricultural digitization based on “Agri-Cloud” platform

SINOMACH Digital Technology plans and constructs the “Agri-Cloud”, an industry public cloud platform serving agricultural production. Taking agri-machinery as the driving force, it integrates various elemental data in the agricultural production process. Through artificial intelligence, big data, and cloud computing among other digital means, and combined with the large-scale application capabilities of Beidou Navigation Satellite System, it forms industry knowledge and empowers intelligent applications in the industry. Promote the intelligent development of agri-machinery through agricultural digitization, and drive the improvement of agricultural production efficiency.

The industry value of the “Agri-Cloud”

- ✓ Solve the problem of “information silos” in rural areas and agriculture, and remove the “data chimneys”.
- ✓ Empower agri-machinery with digital technology and adapt agri-machinery to crops.
- ✓ Gather agri-machinery data and deeply explore the data value of the entire industrial chain of agri-machinery production.

Intelligent applications

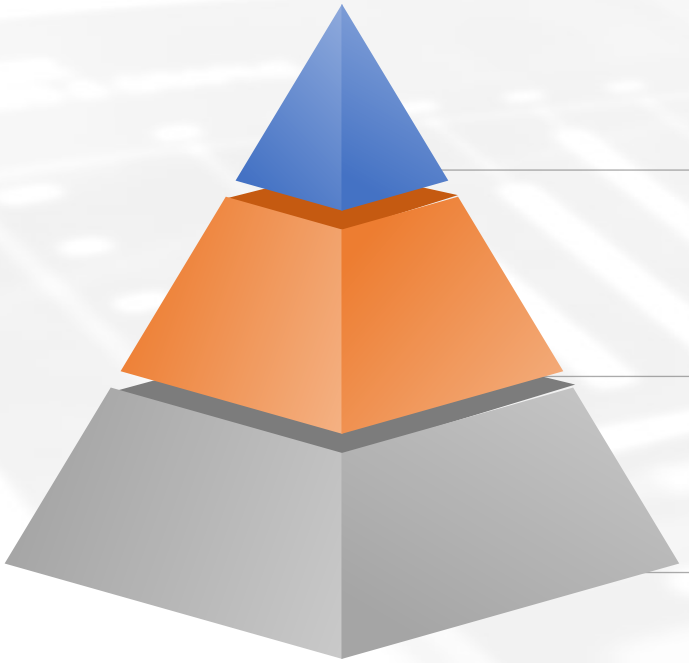
Industry knowledge

Digital means

Integrate production factors data

Build a comprehensive system for smart agriculture and provide systematic solutions for "Rural Revitalization"

SINOMACH Digital Technology will make full use of digital technology means, rely on the "Agri-Cloud" to build an agricultural brain, form the foundation of a digital countryside, output systematic solutions, promote the development of smart agriculture, and empower the "Rural Revitalization" strategy.



Empower "Rural Revitalization"

- Output systematic and expert solutions for the industry

Coordinate SINOMACH's advantages

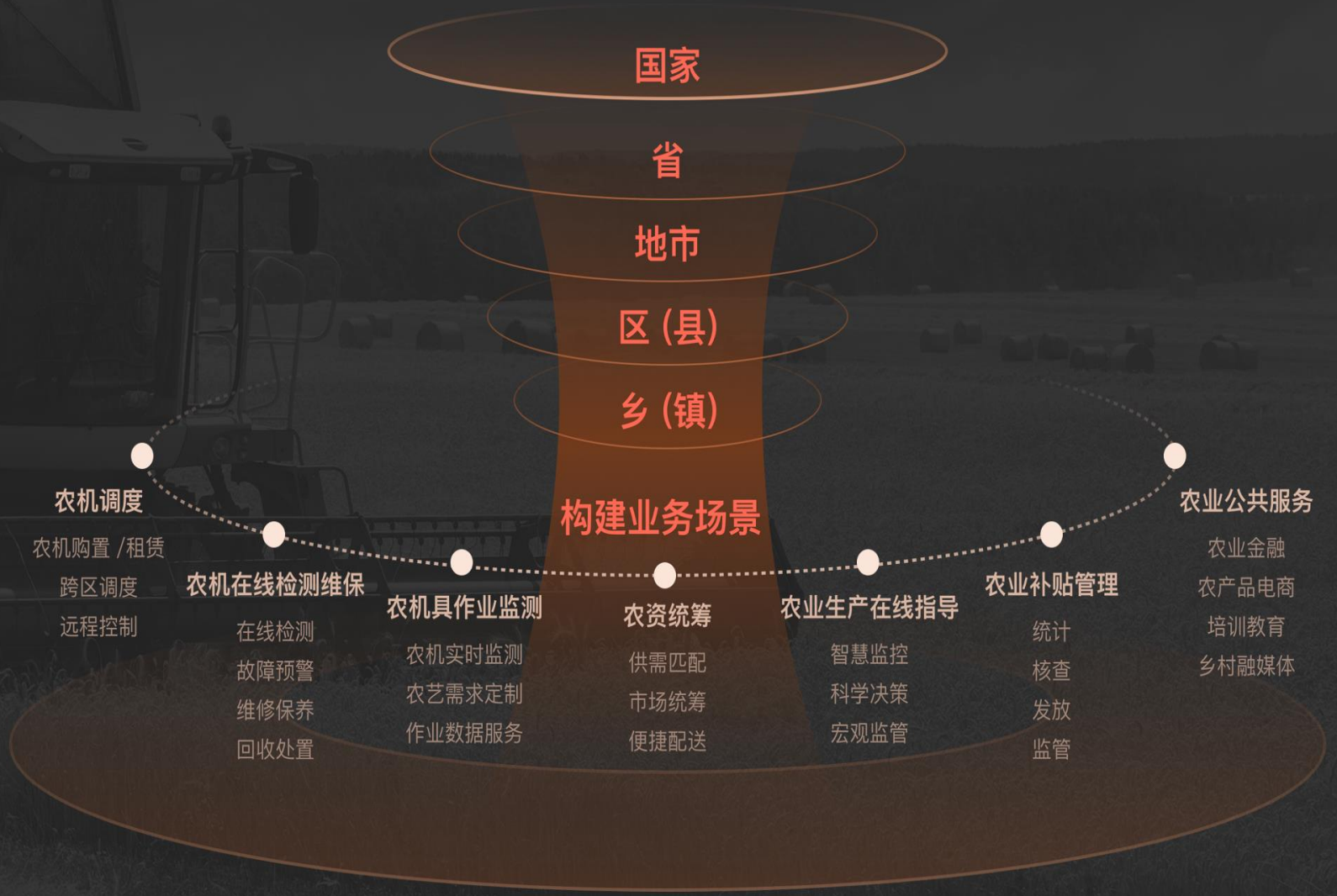
- Sort out a number of typical demonstrations of SINOMACH's services for "Rural Revitalization", and coordinate internal advantages and resources

Build the foundation of the digital countryside

- Build the foundation of the digital countryside with the "Agri-Cloud" as the agricultural brain

Agri-machinery and equipment	Facility agriculture	Rural construction	Agricultural engineering	Agricultural product trade	Exhibitions	Education and training	Cross-border platforms

中国农机云


国家
省
地市
区（县）
乡（镇）
构建业务场景
农机调度
农机购置 /租赁
跨区调度
远程控制
农机在线检测维保
在线检测
故障预警
维修保养
回收处置
农机具作业监测
农机实时监测
农艺需求定制
作业数据服务
农资统筹
供需匹配
市场统筹
便捷配送
农业生产在线指导
智慧监控
科学决策
宏观监管
农业补贴管理
统计
核查
发放
监管
农业公共服务
农业金融
农产品电商
培训教育
乡村融媒体

Open up for cooperation, gather momentum to form an industrial chain, and focus on building an ecological circle

Join hands with major domestic agricultural machinery enterprises and terminal production enterprises to apply for special projects from the National Development and Reform Commission, further enriching the data sources of the platform.

Application Achievements

Deploy high-quality industry applications and provide SAAS-based services

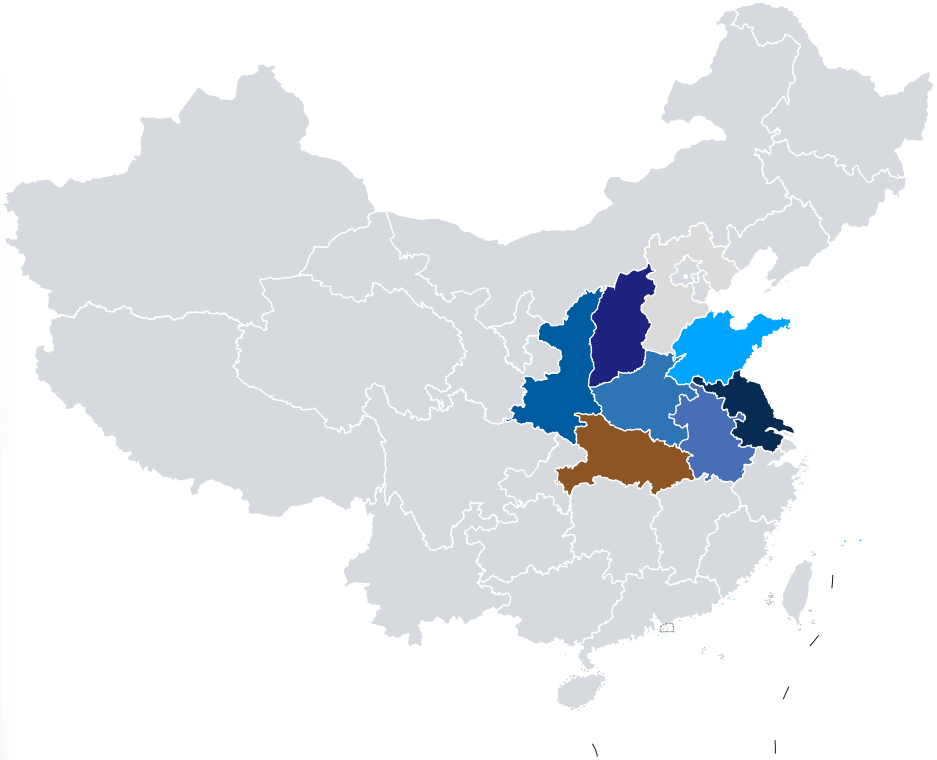
Utilize the third-party secure and trustworthy cloud infrastructure of the "Agri-Cloud" to deploy SAAS-based service products for applications. Provide innovative cloud service capabilities for industry ecological partners, establish a cloud service system, serve the digitization of agriculture, and contribute to the modernization of agriculture and rural areas.

Build the "National Agricultural Machinery Operation Command and Dispatch Platform" for the Ministry of Agriculture and Rural Affairs

The platform was officially launched on April 29th. On April 29th, 1959, Mao Zedong put forward the famous assertion in the "Internal Party Communication" that "the fundamental way out for agriculture lies in mechanization". In accordance with the deployment requirements of government departments, and following the approach of “pilot first and then promote step - by - step”, a pilot promotion was carried out in the Huanghuaihai region during the last May and June. The 2.0 version is in the planning stage.

Platform Launching Ceremony

Form a Party Member Commando Team



- The average daily data access on the platform exceeds 600 million.
- 1005000 agri-machines installed with Beidou terminals have been connected.
- 972 regional agricultural emergency relief centers have been connected.
- 1,898 regional agri-machinery social service centers have been connected.
- 4,073 regular agri-machinery emergency operation service teams have been connected.

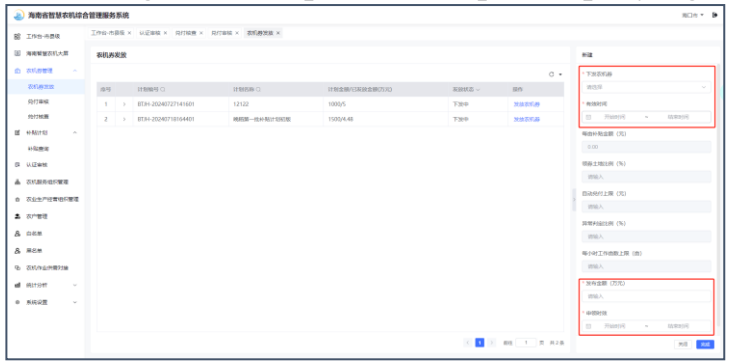
Statistics as of December 31, 2024

Build the "National Agricultural Machinery Operation Command and Dispatch Platform"

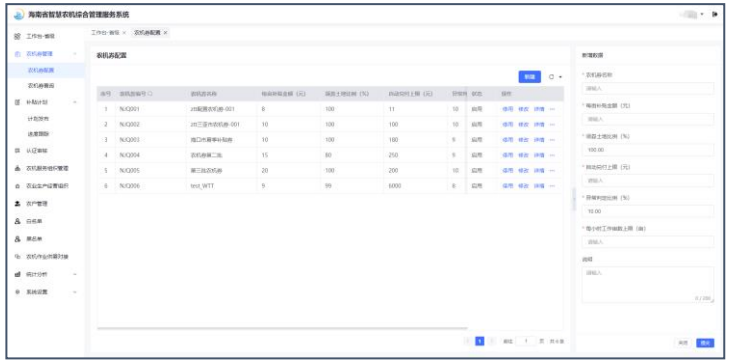
View the operation information of agri-machinery accurately and query the track data of agricultural machinery operations.

Build a Smart Agricultural Machinery Service and Management Platform for the Department of Agriculture of Hainan Province

It is an online management platform that comprehensively covers the supervision of subsidies for agricultural machinery operations (transplanters). It realizes the comprehensive online management of agricultural machinery operations, with real-time information updates, querying, and statistics, ensuring the accuracy and integrity of agricultural machinery data. Through the construction of the platform and the introduction of agri-machinery vouchers, the entire process of managing various links such as subsidy applications, reviews, and disbursements is fully digitized, reducing manual operation steps, simplifying the subsidy application process, and improving the efficiency of policy implementation.



Configuration of agricultural machinery vouchers



Issuance of agricultural machinery vouchers

Application for agricultural machinery vouchers

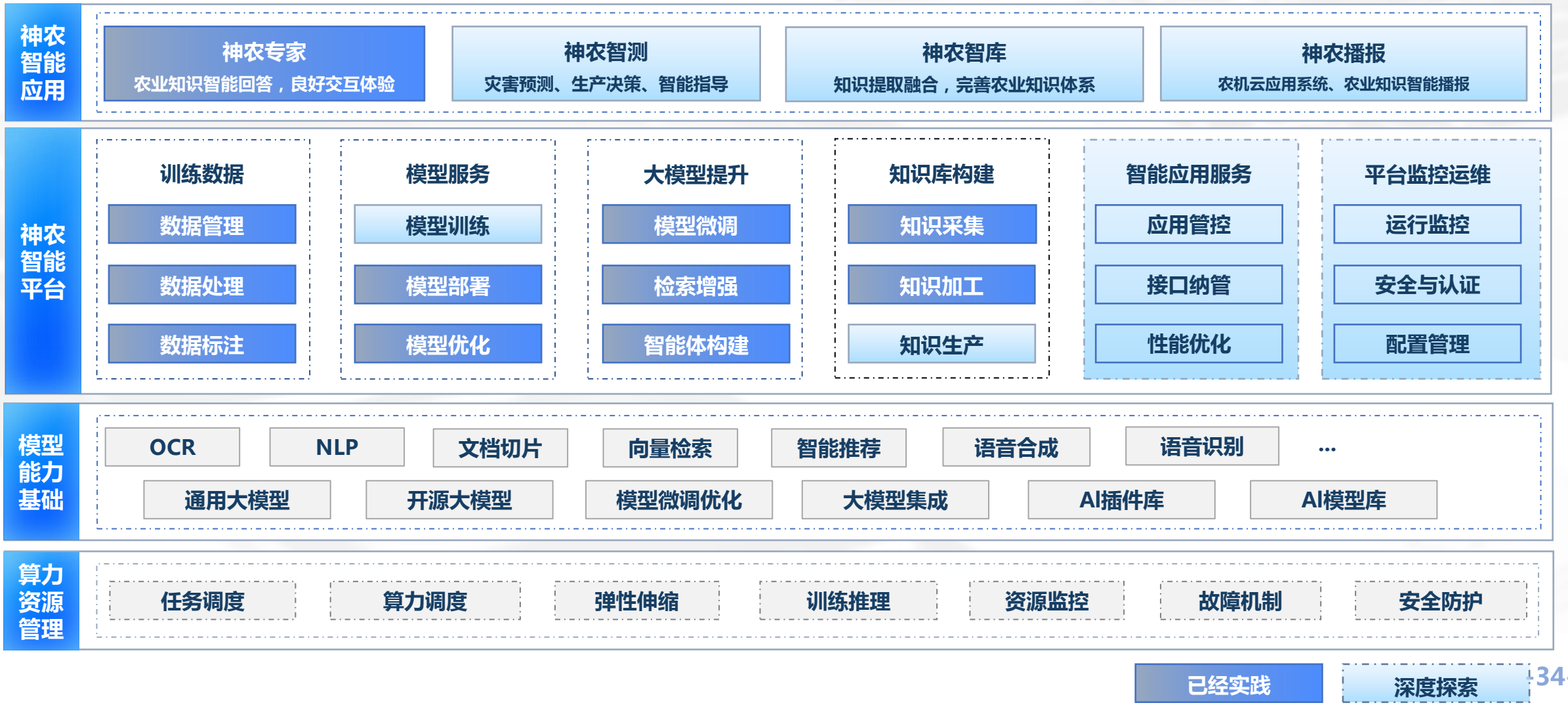
Machine operator submits the operation record

Farm household confirms

Write-off of agricultural machinery vouchers

Hainan Smart Agricultural Machinery Management Platform Supply and Demand Matching

Smart Application Scenarios of Agri Cloud Large Model

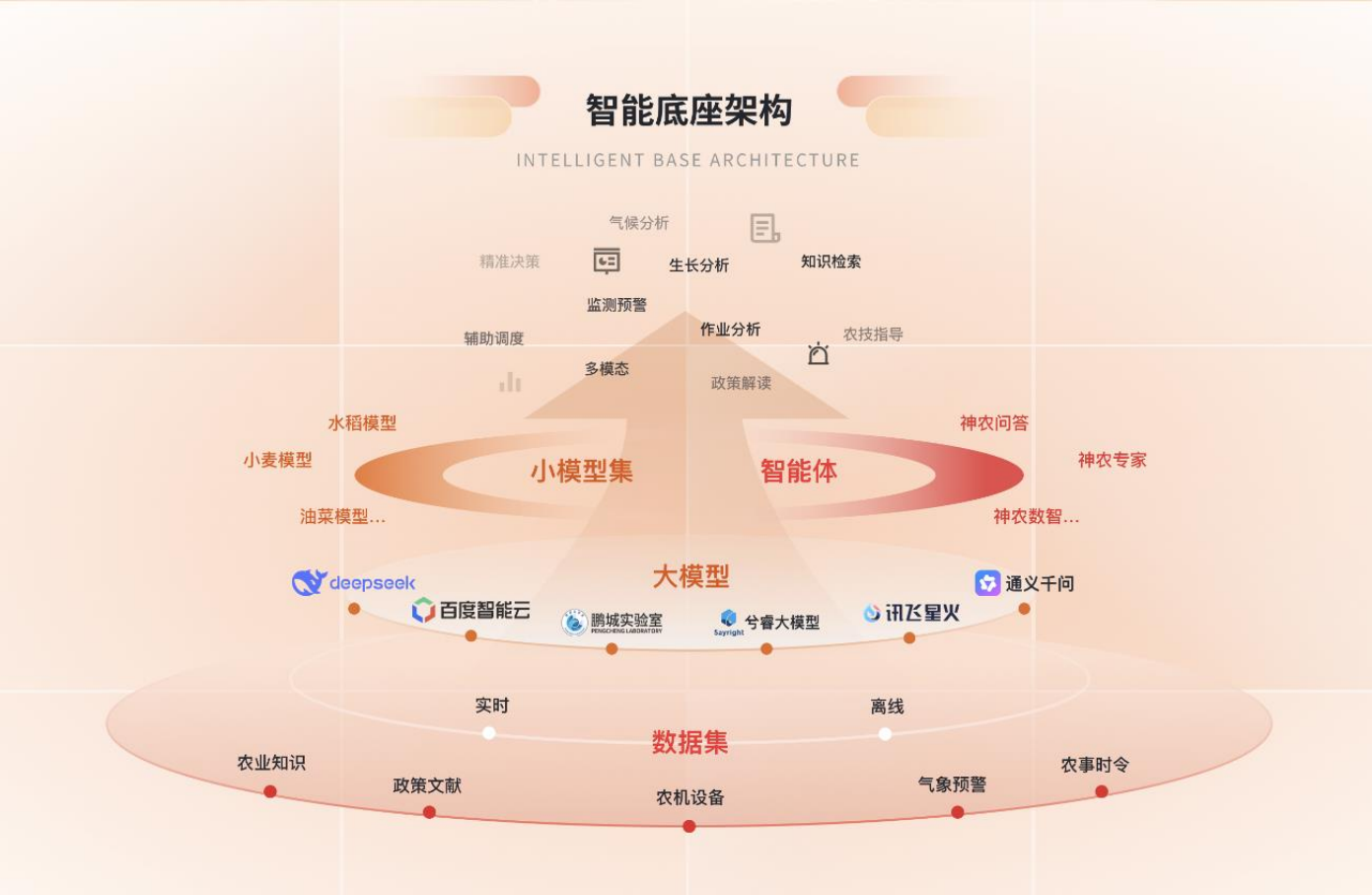


Building a National - Level Agricultural AI Platform

Leveraging the massive information resources of the industry-owned public "Agri-Cloud" platform approved by SASAC, and by collaborating with superior industry resources, we aim to establish an innovative pilot project for an industry-trusted data space under the National Data Bureau. This involves deeply integrating big data and artificial intelligence technologies to construct a system featuring "the integration of data and models as well as intelligent collaboration."

It will provide specialized decision-making support for government administrative departments and offer intelligent services such as auxiliary guidance for agricultural production to agricultural users. This approach addresses the issues of insufficient agricultural data mining and multi-source integrated applications, enabling the realization of multimodal agricultural intelligent applications driven by both knowledge and data, and thereby promoting the high-quality development of modern agriculture.

Platform Core Architecture and AI Capability Building



Overall Platform Architecture:

Data Resource Layer:

Agricultural machinery operation data, agricultural knowledge, policy documents, agricultural machinery, meteorological early warnings, farming seasons and timings, etc.

Intelligent Computing Layer:

Three engines comprising large models + small models + intelligent agents

Intelligent Application Layer:

Scenario-based AI productivity tools

The closed loop of "Data-Algorithm-Scenario" drives the continuous evolution of AI.

Agricultural Knowledge Repository and Intelligent Collaboration

Leverage AI technology to build a professional knowledge base in the agricultural field. By utilizing knowledge graphs and large language models, achieve precise knowledge retrieval and question-answering capabilities, addressing issues such as fragmented knowledge and insufficient precise services in the agricultural machinery sector, thereby promoting the digital development of agricultural machinery.

Intelligent Integration of Multi-source Documents: Build a comprehensive knowledge foundation across the entire domain. Based on a vector database, construct an intelligent agricultural machinery knowledge management platform that integrates multi-source heterogeneous data, including technical documents, policy files, and seasonal knowledge.

AI-powered Intelligent Semantic Retrieval: Driven by knowledge graphs and large language models, precisely enhance the accuracy of semantic understanding.

Scenario-based Knowledge Services: Transition from passive query responses to proactive empowerment, resolving the last-mile challenge in knowledge services and driving the digital development of agricultural machinery services.

Fragmented documents → Vectorized storage → AI semantic parsing → Scenario-based services → Feedback-driven knowledge base optimization

Agricultural Intelligent Agent Applications

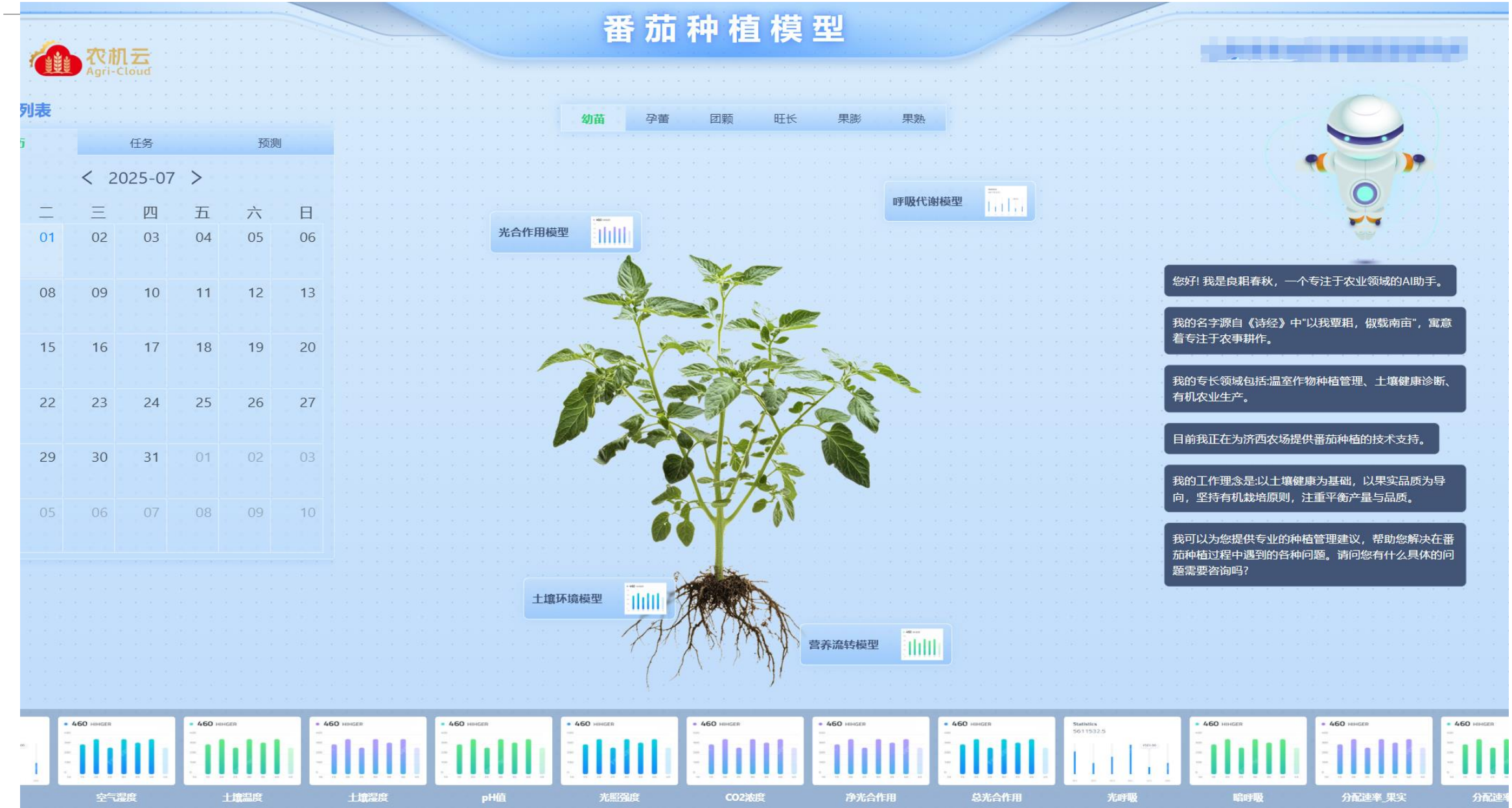
Building Agricultural Intelligent Agent Applications

Leveraging knowledge repositories and vertical model clusters, we realize precise responses to farmers' inquiries through "Shennong Q&A", drive the optimization of cultivation decisions via "Shennong Experts", and enhance equipment efficiency with "Shennong Digital Intelligence". With multi-objective optimization algorithms and domestic computing power infrastructure, we will solidify an intelligent defense line for food security.

Agricultural Professional Small Model Sets

Focusing on practical application scenarios in the agricultural field, we will build agricultural professional small model sets and form an ecological system where the industry development is driven by data.

Agricultural Professional Small Model Sets



International Cooperation Cases

Build the Family Farming Big Data System in Thailand, Brazil and other countries

In 2024 Dec, SINOMACH, China Agricultural University (CAU) and University of Brasilia (UnB) jointly promoted and in partnership with the International Association for Popular Cooperation (IAPC) and the Landless Workers' Organization (MST) with the support of the Ministry of Agrarian Development and Family Farming (MDA). Among them, SINOMACH Digital Technology was responsible for the construction of **the family farming big data system**, supporting the construction of the Brazilian Science and Technology Courtyard and the development of smart agriculture with independently controllable technologies.

In addition, SINOMACH Digital Technology has also actively applied the "Science and Technology Courtyard" model to Thailand. The China-Thailand Kamphaeng Saen Smart Agricultural Machinery and Smart Agriculture Science and Technology Courtyard was inaugurated in 2024 December.

China-Thailand Demonstration Base for Mechanization of Rice Production

SINOMACH DT, the College of Engineering of China Agricultural University, the Belt and Road International Innovation Institute of Agricultural Equipment and Smart Agricultural, and the Faculty of Engineering at Kamphaeng Saen Campus of Kasetsart University have signed a MoU. The four parties will jointly establish the Sino-Thai Kamphaeng Saen Science and Technology Backyard for Intelligent Agricultural Machinery and Smart Agriculture, along with a smart agricultural management system, to enhance regional agricultural modernization and promote sustainable agricultural development.

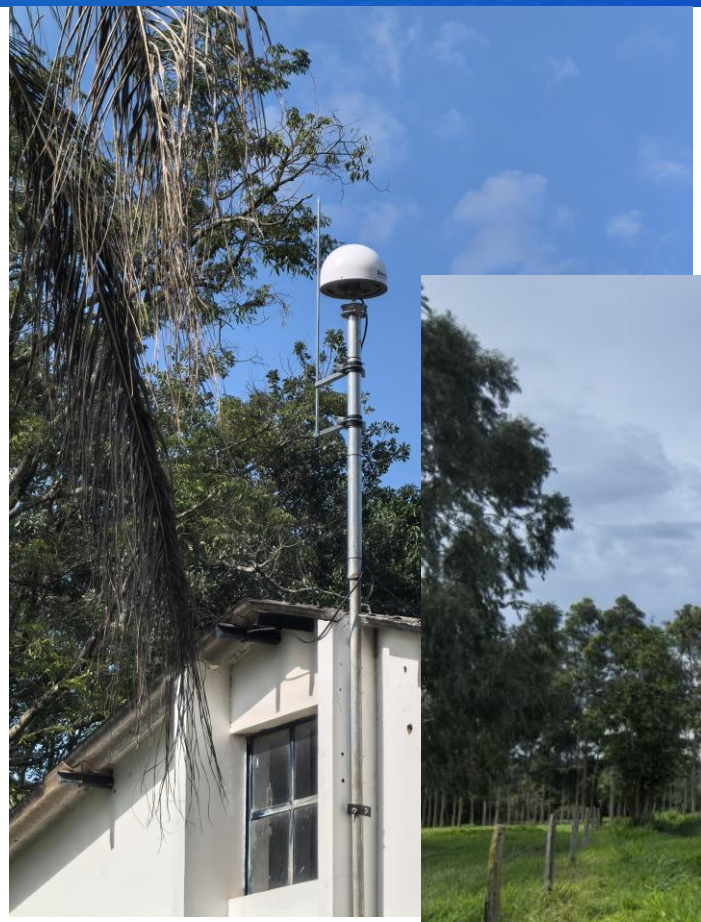
Sinomach Digital Technology signed MoU with Brazilian partner

In July 2025, SINOMACH Digital Technology signed memorandums of understanding (MOUs) with the Brazilian Agricultural Research Corporation (Embrapa), Maricá Development Company, and OZ Company, respectively. This collaboration aims to assist Brazil in establishing smart agricultural machinery service centers through the construction of a digital agricultural machinery management platform, introducing agricultural socialized services to enhance the agricultural production income of family farmers. Notably, the cooperative project between SINOMACH Digital Technology and Embrapa was included in the collaborative outcomes **witnessed by Premier Li Qiang and Brazilian President Luiz Inácio Lula da Silva during the 17th BRICS Summit.。**

Signed MoU with EMBRAPA

Signed MoU with Marica Development Company and OZ Earth

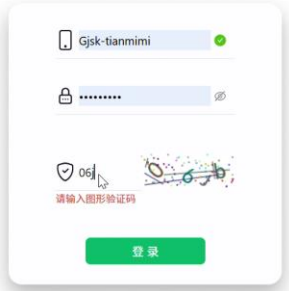
FAL Smart Farm in Brazil



CN EN PT

中国-巴西家庭农业生产大数据系统

Sistema Brasil-China de Big Data para Agricultura Familiar



Smart Farm ERP Solution

The system was independently developed by SINOMACH Digital Technolgy in October 2024. The system utilizes IoT, big data, artificial intelligence and other technologies to comprehensively cover farm monitoring, production and planting, warehouse management and other aspects, thus realizing intelligent monitoring, analysis and accurate decision-making.

With 5 Market Advantages

Covering all types of farm production scenarios

Effectively realize accurate production, lean management and precise traceability of farms

Meeting the differentiated needs of different roles

Interaction between farm manager, plot manager, warehouse clerk, machine operator/planter

Simple configuration and operation

Compatible with large-scale reclamation and small-plot farm management mode;
Support cross-region farm management;
Support rapid map drawing, establish a new farm/plot in one second

Fully adapted to Beidou devices

Support the docking of various brands of Beidou monitoring terminals to ensure the effective interconnection of agri-machinery

Multi-language switching

Support Chinese, English, Portuguese, Russian and other languages to meet the needs of domestic and international use

Smart Farm Management System

Coverage of 6 demand markets

- Large-scale farmers
- Large agribusiness
- Farmers' cooperatives
- Government agricultural management departments
- Agricultural universities
- Agricultural Research Institutions

Meet the differentiated needs of different roles, support multi-interaction of multi-roles

Support three presentation forms:

Farm Overview

Visualize and integrate various elemental data of the farm, providing decision-making support for production management, resource planning, etc.

PC End

Farm Digital Operation and Management Command Center

APP

Portable Operation Execution Platform Based on Positioning and Message Push

Multi-role interaction to meet the differentiated needs of various roles on the farm

Covering four types of roles

Farm manager

Manage comprehensively the information of various elements such as people, machinery, materials, methods and the environment on the farm

Plot manager

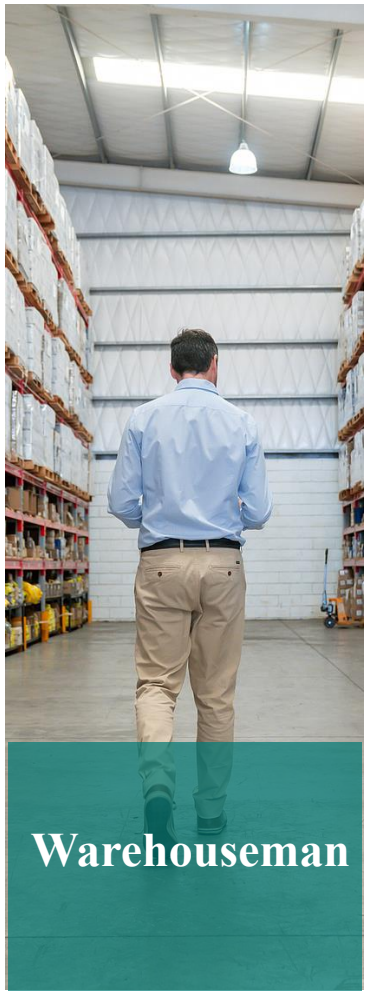
Manage the crop planting tasks and agricultural tasks of specific plots

Warehouseman

Scientifically control and efficiently track the inputs in the warehouse

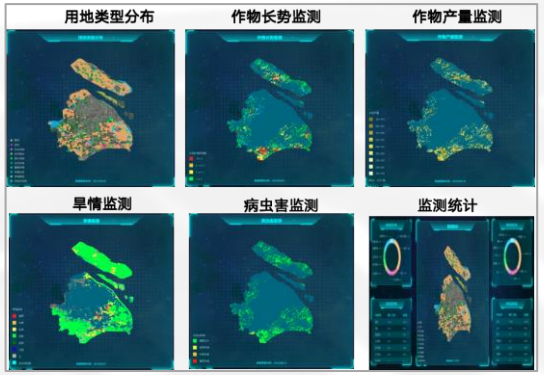
Machine operator/ planter

Visualize the farm monitoring data and participate in agricultural tasks online



Focus on smart farms to create an “Space-Air-Ground-Machine” full-dimensional data perception system

Taking the “Agri-Cloud”as the core data and technical capabilities, focusing on the needs of farms, providing integrated solutions for smart farms. With the help of high-tech means such as data, models and computing power, precise regulation, precise operation and precise management are carried out to comprehensively improve the production efficiency of farms and create a new stage of modern agricultural development.

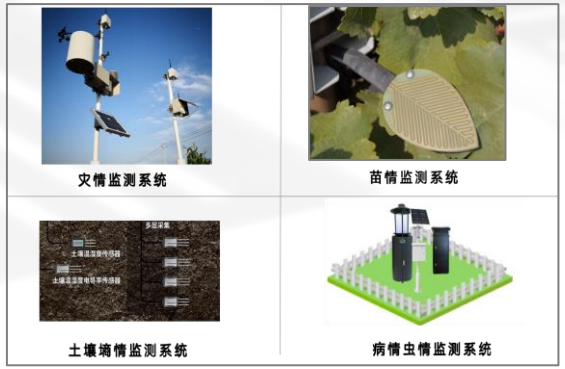


High-precision monitoring of large space with satellite remote sensing

- 10-meter Remote Sensing Satellite Imagery
- Crop growth monitoring
- Crop Pest and Disease Monitoring
- Crop Yield Monitoring

Unmanned aerial vehicle (UAV) field patrol

- 3M wave-band UAV for daily field inspections
- Realize growth and yield monitoring, combined with remote sensing satellite imagery.



Meteorological, soil moisture, pest monitoring adn seedling monitoring

- Farm Meteorology Station
- Soil moisture station
- Pest and Disease Monitoring Station
- Seedling Monitoring Station

Intelligent monitoring terminal for agricultural machinery

- Agri-Machine Positioning
- Operation track
- Operation area
- Path Planning

Next step: scale up the impact for family farmers

Key Challenges in Brazilian Family Agriculture:

- **Smallholder Affordability:** Smallholders cannot afford agricultural machinery and face difficulties obtaining equipment loans, leading to "no machinery available" and low production efficiency.
- **Manufacturer Reluctance:** Small-to-medium machinery manufacturers show low willingness to build factories or produce due to market uncertainty.
- **Financial Institution Hesitation:** Lenders(including PRONAF) are concerned about smallholders' repayment capacity, resulting in inefficient loan distribution.

Solution:

- **Provide selection of smart small-medium agri-machinery,** with all machinery installed with intelligent terminals. Data transmitted to a customized agricultural machinery management platform for providing agri service organizations with work-area verification for payment collection, and real-time monitoring of machinery activities to ensure proper utilization.
- **Establish Smart Agri Machinery Service Centers of** agri social service organizations, with the support of organizations such as MST. The yield gains could cover the cost of the machinery in 3-5 year.
- **Replicate service centers as standardized modules** across Brazil. Build a national agricultural machinery management platform to create smallholder credit profiles based on operational data. Enhance agricultural loan efficiency through data-driven risk assessment.

Smart Livestock Farming Solution

Livestock are equipped with intelligent terminal devices to collect a series of data, such as Beidou positioning data, the surrounding environment data where the livestock live, and the physiological indicators of the livestock, to the platform. Through the Smart Pasture APP, herders can achieve grazing management, livestock positioning and monitoring, and checking the health status of livestock anytime and anywhere. At the same time, it can also realize multi-dimensional traceability methods for livestock food safety.

- **Theft prevention and anti-loss**
- **Traceability for quality improvement**
- **Increasing income**
- **Efficient traceability**
- **Scientific supervision**
- **Environmental protection**
- **Market expansion**

Smart Livestock Farming Management System

Managers of livestock farms can check the positioning of cattle and sheep through the system, and realize functions such as warning for cattle and sheep straying from the herd during the breeding process, anti-disassembly alarm, environmental monitoring, etc. Through scientific and informatized management, the economic benefits of the pasture can be improved.

Positioning of Cattle and Sheep

Carry out intelligent identification, positioning, tracking, alarming, monitoring and management of the livestock herd, and achieve refined, remote and automated intelligent grazing management.

Free-range Enclosure

Carry out intelligent identification, positioning, tracking, alarming, monitoring and management of the pasture and the livestock herd, and achieve refined, remote and automated intelligent grazing management.

繁殖管理

- 繁殖记录
- 饲养记录
- 事件记录
- 谱系记录

圈舍环境管理

- 智能温控
- 智能温度
- 光源控制
- 氨气监控

监控管理

- 疫苗信息
- 疫苗管理
- 疫苗注射
- 疫情管理

AI应用

- 生物识别
- 品质预测
- 疾病预警
- 行为监控

放养围栏管理

- 越界报警
- 范围设定
- 远程管理
- 数据分析

智能设备管理

- 饲养设备
- 环境传感
- 摄像设备
- 设备故障

农机云平台技术底座

Smart Aquaculture Solution

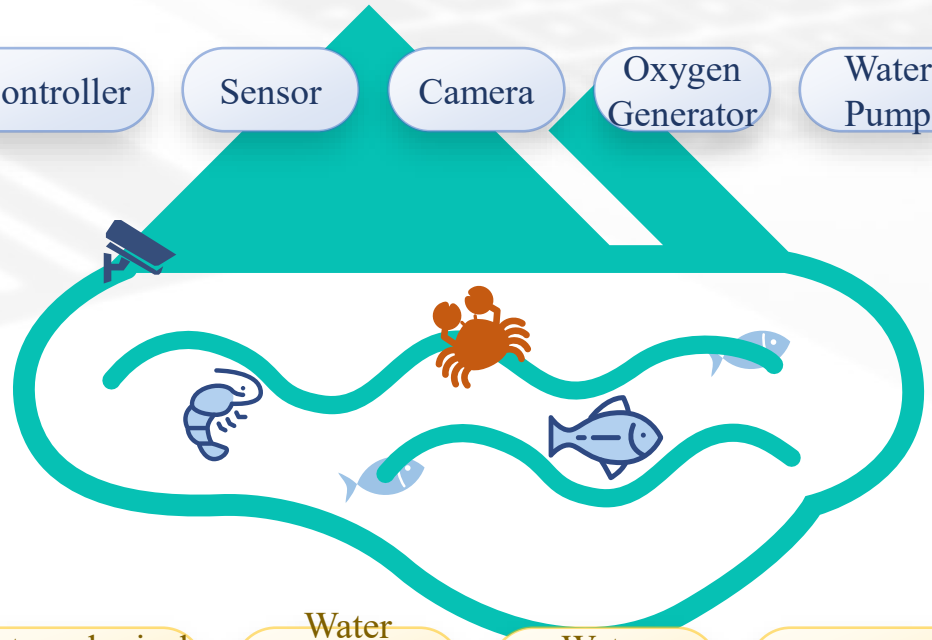
Based on information technologies such as Beidou navigation, the Internet of Things, big data, and artificial intelligence, accurately collect and conduct real-time monitoring of data such as meteorology, environment, water quality, and images in large-scale aquaculture ponds for aquatic products. And automatically increase the oxygen content, feed, etc. according to the aquaculture situation. Through modules such as aquaculture management, traceability management, tail water treatment, and data analysis, create digital ponds and intelligent aquaculture processes, providing aquaculture farmers with precise management decisions, refined aquaculture of aquatic products, and integrated production traceability.

Data Aggregation | Data Modeling | Data Analysis

Smart Control

Real-time Monitoring

Controller | Sensor | Camera | Oxygen Generator | Water Pump



Meteorological Data | Water Temperature Data | Water Quality Data | Image Data

Aquaculture Control

Real-time Alarm
Scientific Guidance

PC | Mini Program

Aquaculture Farmer

Precise management decisions
Refined aquaculture of aquatic products
Integrated production traceability

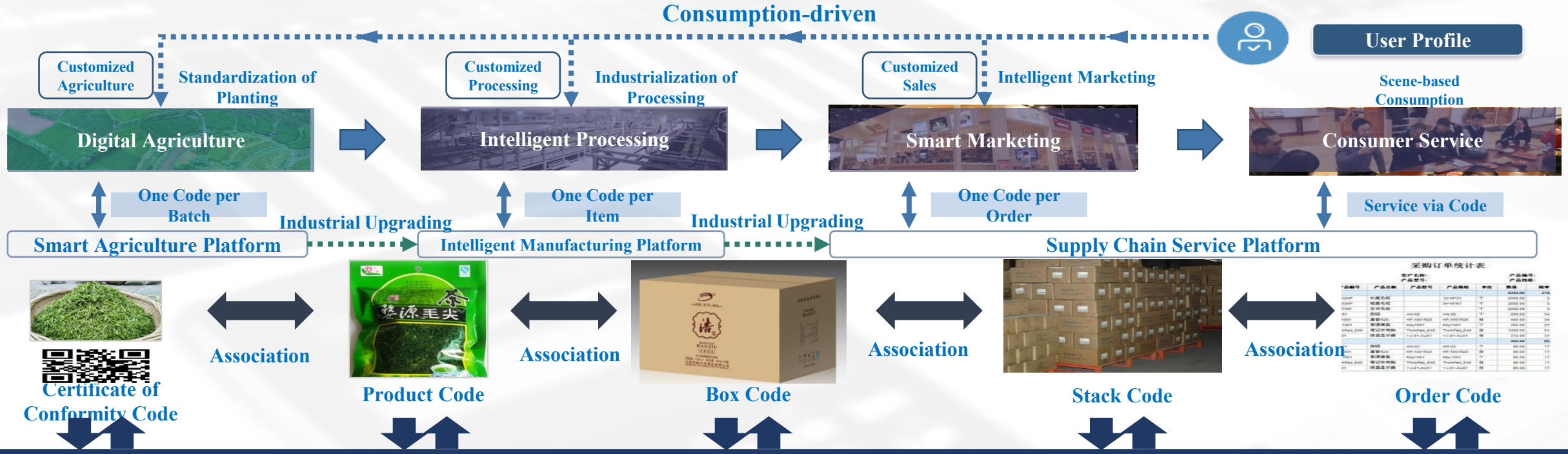
IoT Sensing | Environmental Monitoring | Pond Management | Aquaculture Process

Quality Traceability and Supply Chain Collaboration

Identification Resolution: Break down the data barriers in all links based on the identification resolution system, and use blockchain to lock the liability of the subject information.

Quality Traceability: Through scanning codes in the circulation process, quickly realize the transfer of product subject data, traceability data, and quality data.

Supply Chain Collaboration: Achieve rapid connection with sales entities such as agricultural product wholesale markets and supermarkets, and establish a real and reliable supply chain collaboration system.



Full-element and Full-process Data Service Based on Identification Resolution and Blockchain

Agricultural Circulation Service Center (Taking Tea as an Example)

Utilize the technical capabilities of the digital and intelligent supply chain to upgrade the entire chain of the tea industry, covering production, processing, warehousing, logistics, marketing, and industrial service links. At the same time, establish the capabilities for industrial investment attraction, platform operation, and data operation to create a national circulation service center for the tea industry.

Service Objects

Competent Department | Tea Merchant | Brand Owner | Retailer and Consumer | Financial Institution

Services

Tea Circulation Service Center Integrating Online and Offline Operations

Processing Service | Warehousing/Aging Service | Logistics Service | Marketing Service | Industrial Service

Full-chain Upgrade

Intelligent Manufacturing

Intelligent Tea Warehouse

Smart Logistics

Provincial Tea IP

Digital Marketing

Supply Chain Finance

Pu'er Tea Industry

Tea Processing

Aging Warehouse

Logistics

Brand Building

Product Sales

Industrial Finance

Operation System

- Industrial Investment Promotion
- Brand Operation
- Platform Operation
- User Operation
- Data Operation

Digital Village

Gather all kinds of data at different levels in the village, including those related to industry, ecology, culture, services, and governance. Create a single map for rural industry, a single map for rural governance, and a single map for rural services. Achieve the comprehensive operation management of the village and present the construction achievements, so as to improve the digital and intelligent level of rural management.

	Rural Governance Overview	Rural Industries Overview	Rural Services Overview
Positioning	■ Combining multiple businesses such as Party building, primary-level governance, and ecological supervision, this "Rural Governance Overview" showcases a new pattern and achievements of rural governance featuring multi-party collaboration and full-area coverage.	■ Gather data of various rural industries, including agriculture, forestry, animal husbandry, fishery, culture and tourism, as well as data on the circulation of agricultural products and macroeconomic data of agriculture and rural areas such as the total value of agricultural GDP. Present these data macroscopically through professional dynamic diagrams, providing a basis for grasping the agricultural economic situation in rural areas and conducting macro-control.	■ Focusing on rural communities, gather data and information related to rural culture, people's livelihood services, social conditions and public opinions, etc., and achieve the display of various people's livelihood service data on a single map.
Display content	• The basic situation of the rural area can be clarified. Queries can be made based on elements such as people, land, objects, events, and organizations in combination with the map. • The ecological situation of the rural area can be presented, and a visual display of rural resources such as farmland, forest land, and water areas can be carried out. • Rural warnings can be shown. By checking the video points within the rural area, it can assist users in making commands and decisions on a large screen.	• Access to the real scenes of industries and display of real-time images; • The total value of industries, industrial entities, and the changing trends of industries; • Information about key industries, key enterprises, and agricultural products; • ...	• Rural culture and tourism map, trends in culture and tourism, real-time passenger flow; • Analysis of people's livelihood services, hot data; • ...
Display Effect			

The application of industrial technologies is constantly being innovated and deepened

In the future, as the application of technologies keeps deepening, high-tech will inject powerful impetus into farm management.

Big Data and Cloud Computing

Big Data provides **storage, processing and analysis** capabilities for the whole process of smart agriculture.

Cloud Computing can rationally allocate resources such as farmland, labor and funds on the farm to achieve **the optimal utilization of resources.**

Artificial Intelligence and Machine Learning

Utilize AI and machine learning algorithms to conduct in-depth analysis and mining of various data on the farm, continuously optimize the farm planting plan, and predict the yield. At the same time, achieve automated production on the farm, improve production efficiency and quality, reduce labor costs, and create greater economic benefits for the farm.

Blockchain

Record and trace the whole process of farm production, enabling the traceability of the quality and safety of agricultural produce.

Optimize the supply chain management of the farm, realizing information sharing and collaborative operations among various roles such as suppliers, producers and distributors.

Farm construction becomes more ecologically sustainable

While developing smart agriculture, promote the coordinated development of agriculture and ecological environmental protection.

02 Efficient Utilization of Resources

Reduce the waste of water resources and fertilizers through precise irrigation and fertilization.

Improve energy-saving equipment and technologies, cut down energy consumption and enhance the energy utilization efficiency in agricultural production.

01 Ecological Environmental Protection

In the process of agricultural production, emphasis is placed on ecological environmental protection. High-tech means are adopted to reduce the pollution of soil, water bodies and air caused by the production process.

03 Optimization of Agricultural Ecosystems

Smart farms are committed to building more optimized agricultural ecosystems and achieving a virtuous cycle of agricultural ecosystems through reasonable planting structures and breeding models.

Bring more advanced technologies into the agricultural sector

Strengthen industrial support for agricultural development

Ensure that every farmer benefits from digital dividends

Thank you!

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