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SMART FACTORY
TOMORROW MANUFACTURING
PHARMAPACK

SMART FACTORY AND SYSTEMS

Pharmapack Technologies Corporation



ABOUT US



Lean Manufacturing



Digitalization



Automation

500+ Patents

3 Brands



2001

Company
Establishment

Founded in 2001, Pharmapack has evolved into a leading provider of modern intelligent packaging equipment and solutions. Built on over 20 years of close collaboration with our partners, we have established ourselves as a well-recognized name in China's packaging equipment industry with over 500 patents and software copyrights. Our core products include smart bottle packaging lines, smart inspection packaging lines, smart flexible packing lines, smart secondary packaging lines, track and trace systems, and a wide range of supporting machines.

Pharmapack specializes in providing intelligent, automated, and integrated packaging line solutions for global pharmaceutical, health products, daily use chemicals, food, and other industries. We aim to build digital cloud platforms covering the full equipment lifecycle for customers, provide visualized smart factory solutions, and help corporate customers realize lean, automated, and digital production using the internet, IoT, 5G+, virtual reality, AI, and other technologies.

We own three major brands – PHARMAPACK, EC-JET, and Xingyang, and have established an R&D center and an engineering technology center in Bologna, Italy and at our headquarters, China, respectively. After more than 20 years of growth and development, Pharmapack Group has continued to introduce advanced production equipment and technologies and established a team of professionals across the entire process, from design and R&D to production and marketing. Our products are exported to Europe, the Americas (North and South), Asia, Oceania, and other countries and regions. Our marketing network covers major cities and regions, both at home and abroad.

Dreams of intelligence, hearts of innocence. Pharmapack adheres to the business philosophy of Change Originates from Innovation and upholds the core values of Honesty, Punctuality, Diligence, Innovation, Excellence, and Unity. We are committed to providing customers with high-quality products and attentive services, as we strive to achieve Pharmapack's illustrious dream to become a century-old enterprise.

PHARMA PACK

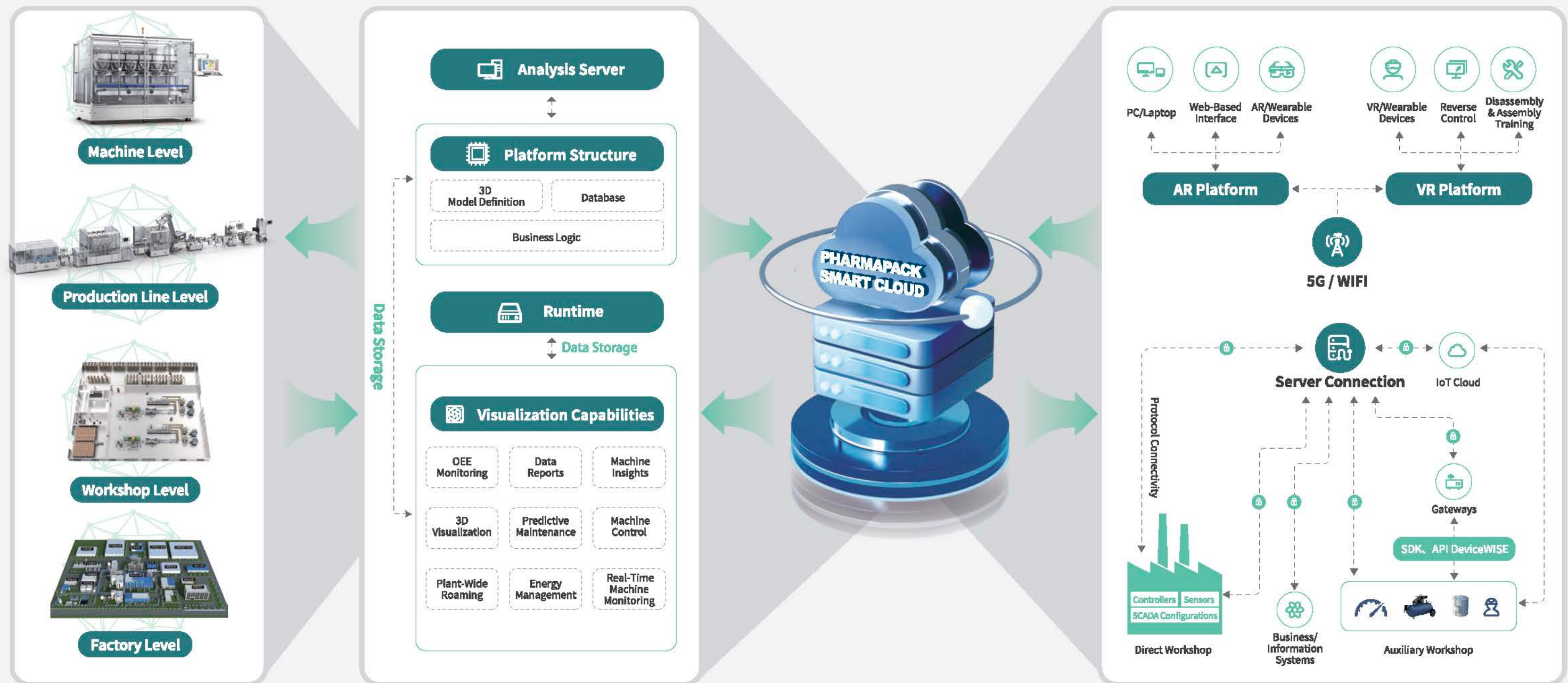
CHANGE BEGINS WITH INNOVATION

CONTENTS

SMART FACTORY OVERVIEW	03-14
PRODUCTION SYSTEM	15-18
REVERSE CONTROL SYSTEMOLOGY	19-20
ENERGY MANAGEMENT	21-22
AGV HANDLING SYSTEM	23-24
CAMPUS SECURITY MONITORING	25-26
TRACK AND TRACE SYS TEM	27-39

SMART FACTORY OVERVIEW

SMART FACTORY
TOMORROW MANUFACTURING

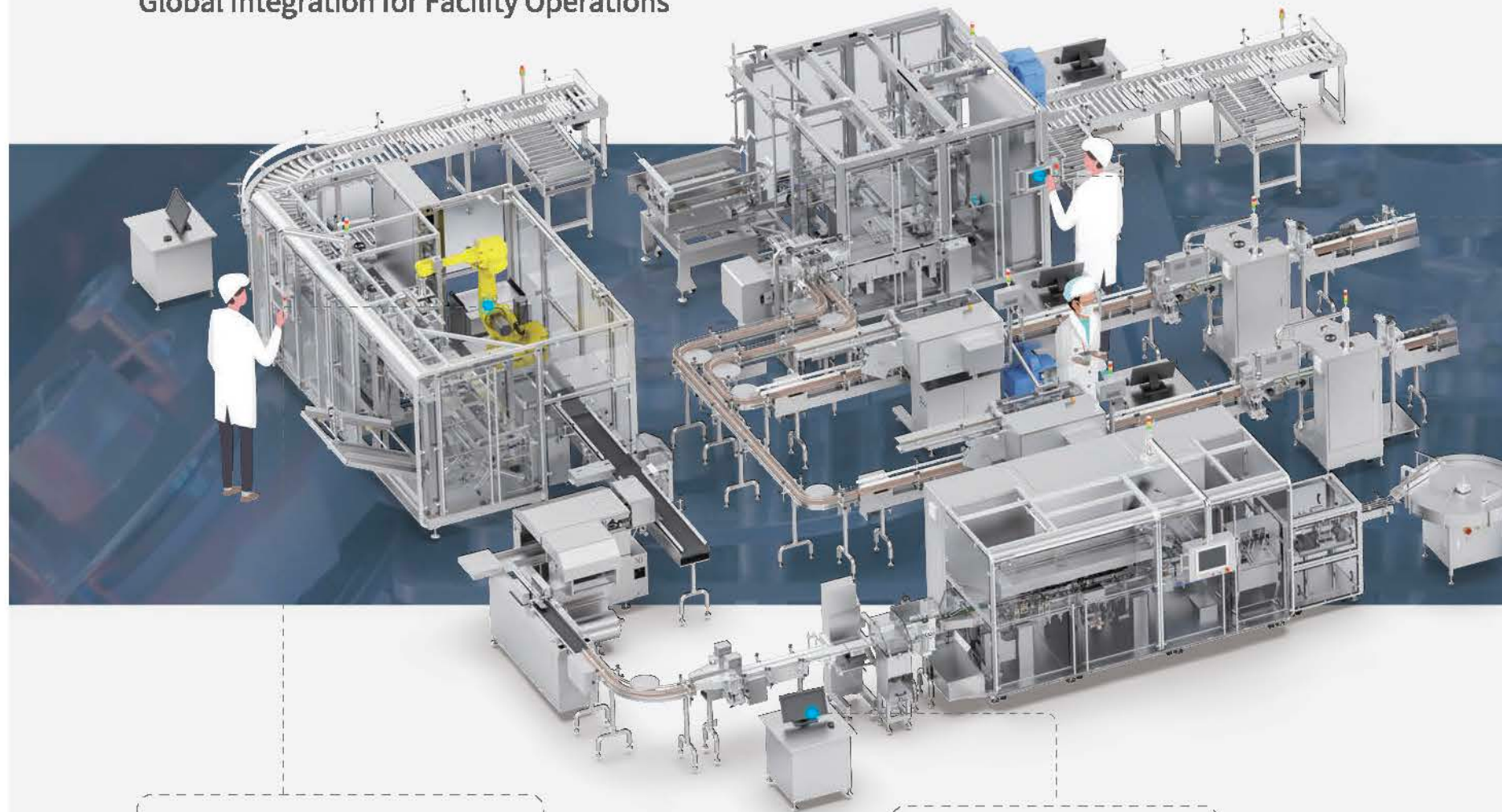


SMART FACTORY

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TOMORROW MANUFACTURING

Smart Factory Tomorrow Manufacturing

Global Integration for Facility Operations



3D Modeling & Cloud Platforms: Integrates real-time data collection and OEE monitoring to enhance production efficiency while reducing labor costs.



Data Integration: Consolidation of product data, customer feedback, and third-party inputs to identify and rectify quality issues.

IoT Connectivity: Enables seamless data exchange between machines, providing real-time insights to identify production issues, optimize workflows, and improve resource utilization.



Remote Management: Automation of production processes through remote machine management, significantly reducing labor costs and enabling 24-hour unmanned operation for enhanced efficiency.



Smart Factory Tomorrow Manufacturing

Global Integration for Facility Operations



Preventive Maintenance

Utilize 3D Modeling and AR Platforms for proactive maintenance, minimizing production downtime due to machine failures and ensuring higher stability and reliability.



Integrate smart manufacturing with smart production lines to allocate resources intelligently, dynamically adjusting production plans based on inventory levels for increased flexibility and responsiveness.

Research



Core data from multiple customers enables tracking of machine degradation, optimizing product quality and performance.

Management

Managers can track production line status and make adjustments to better manage operational costs.



Management & Operation

On-site Service



Deploy resources effectively for predictive maintenance to minimize equipment failures and service costs.

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Single Machine Control Platform



AR

Remote collaboration, Visualized Machine Commissioning & Inspection, Remote Factory Visiting, Remote Expert Assistance, Remote Training

AR-guided Inspections

Remote AR-assisted Maintenance

3D Explosion View for Operations Training

AR Remote Assistance

VR

Delivers immersive experiences with high-precision tracking and room-scale visualization, unlocking the full potential of VR technology.



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Production Line Control Platform



More Intuitive



Simpler



More Efficient



Integrated Displays Across Devices

Unified display boards showcasing production models and data reports on large screens or mobile devices for real-time monitoring.



Coordinated Management & Data Synergy

Integrates production, business, and maintenance systems for seamless collaboration across departments with clear insights into machine efficiency, production processes, energy consumption, material storage, and more.



Intelligent Analysis for Rapid Decisions

Decision models analyze data to generate standardized operational strategies, facilitating quick decisions to minimize losses.



OEE Management

BI Display Board

3D Embedded Production
Line Display

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Workshop Control Platform



Real-Time Data
Visualization

3D Embedded Modeling

Intelligent Monitoring
& Alerts

Factory Control Platform



Cross-System Data
Interconnectivity

Multi-Scenario Integrated
Management

Smart Decision
Support

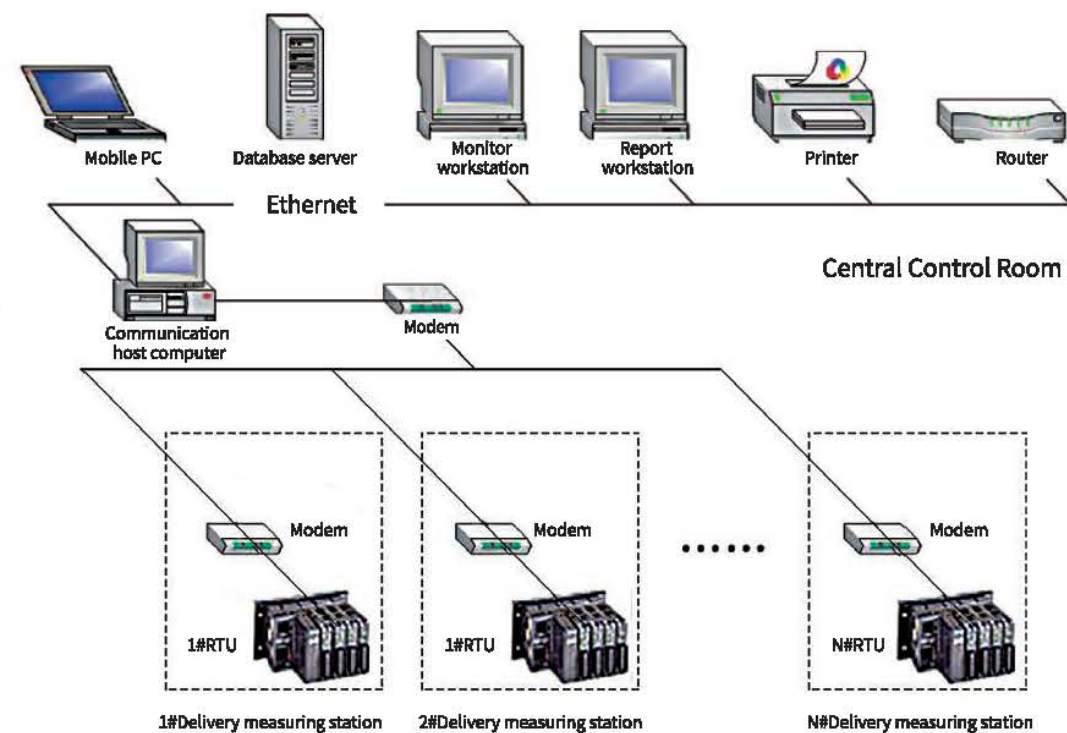
PRODUCTION SYSTEM

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SCADA System

Supervisory Control & Data Acquisition System

The SCADA system is a computer-based DCS and power automation monitoring system. It is widely used in various industries for data acquisition, monitoring control, and process control. The system is most extensively utilized in power systems, where its technology is highly developed and mature, involving configuration software and data transmission links.



EIS System

Efficiency Information System

The EIS is designed for collecting and analyzing data related to production lines and operational efficiency. It can be considered a scaled-down, single-function SCADA system, focusing on capturing parameters, signals, and information associated with OEE performance. EIS provides real-time OEE calculations displayed on the control panel, with cloud-based accessibility allowing mobile devices to monitor workshop OEE and machine status anytime, anywhere.

OEE Monitoring

03/19/2019

Line 1

INJECTION LINE 1

09: 12: 38

Tray Thermoforming Machine

Operation Time: 58 min
Faulty Time: 9 min

Cartoners

Operation Time: 57 min
Faulty Time: 10 min

Packing Machine

Operation Time: 59 min
Faulty Time: 8 min

Case Packers

Operation Time: 58 min
Faulty Time: 9 min

Current Yield (Boxes)

11200

Operation Time

01: 07: 21

OEE%

79.6%

Shift: Day Shift (8 hours)

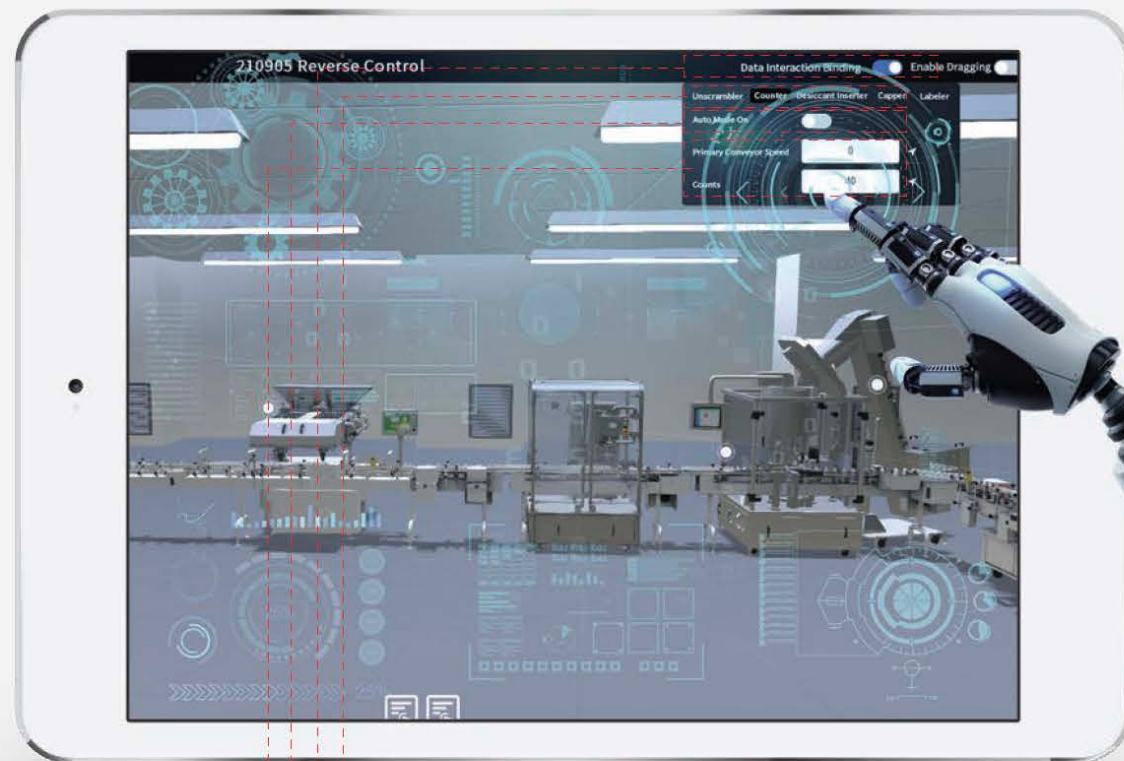
Product Name: 20ml

REVERSE CONTROL TECHNOLOGY

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24 Hour
24-hour unmanned operation

Reverse control enables remote operation of machines through intelligent controllers. Operators can control devices via a console, such as powering on/off or pausing, allowing 24-hour unmanned operation. The system also supports networked device management with real-time data access and monitoring.



Functions

-  Data Interaction Binding – Reverse Control Switch
-  Production Line Selection – Configure individual machine models for control
-  Machine Start Button – Initiate machine operation
-  Machine Parameter Settings – Achieve real-time synchronization between virtual and physical machines via CPE, 5G gateways, and Wi-Fi

ADVANTAGE

Operators can adjust parameters like counts, output, and speed to meet varying production demands.



ADVANTAGE

When an alarm occurs, operators can quickly identify and resolve issues via the control console. Alarm data is stored in the monitoring center for timely warnings and actions, boosting efficiency, maintainability, and reducing labor costs.



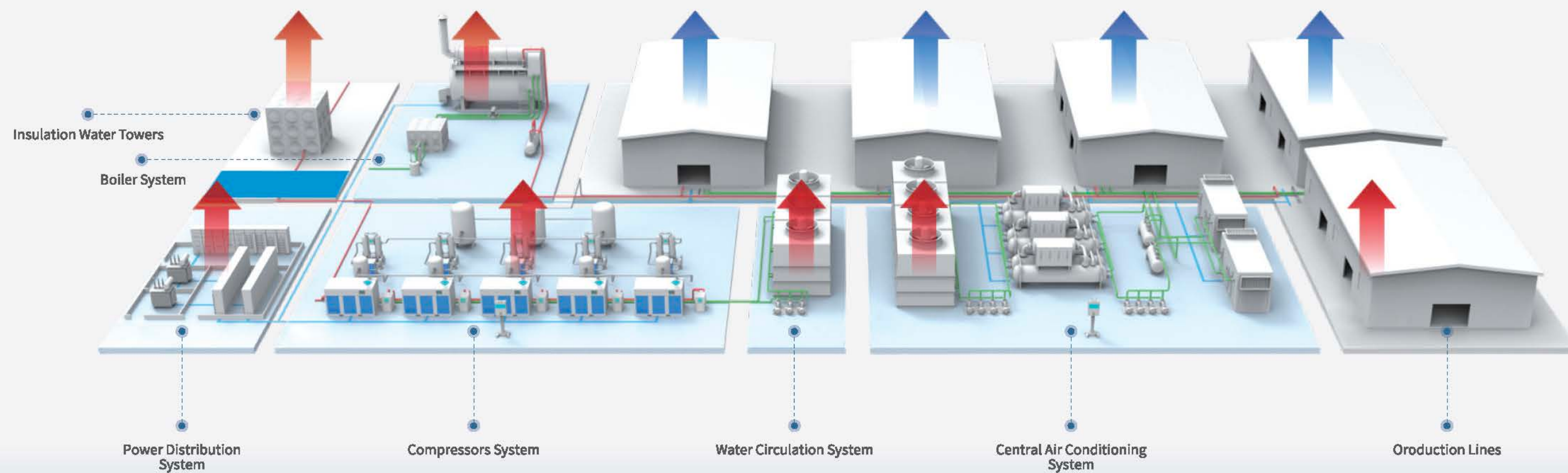
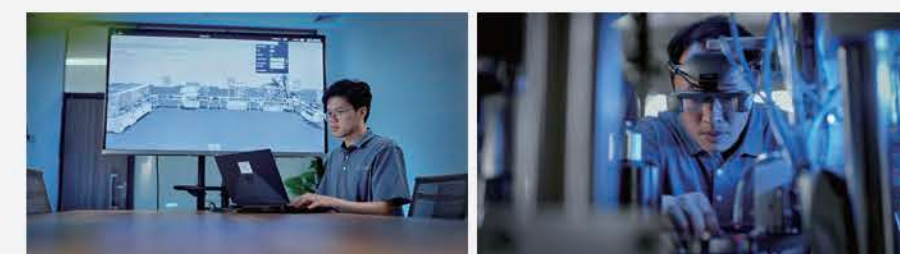
ENERGY CONSUMPTION MANAGEMENT

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Energy Management: The control platform analyzes data to reduce energy consumption and optimize management.

Direct Production Workshop

Auxiliary Workshop



MATERIAL HANDLING SYSTEM-AGV

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Real-Time Monitoring

Video monitoring via mobile app.



Extended Battery Life

Over 8 hours of continuous operation.



Advanced Navigation

Laser-guided navigation with $\pm 10\text{mm}$ precision.



Flexible Connectivity

Supports Wi-Fi and 5G for seamless adaptability.



Autonomous Charging

Reduces downtime.



Automated Patrol

Operates without manual intervention.



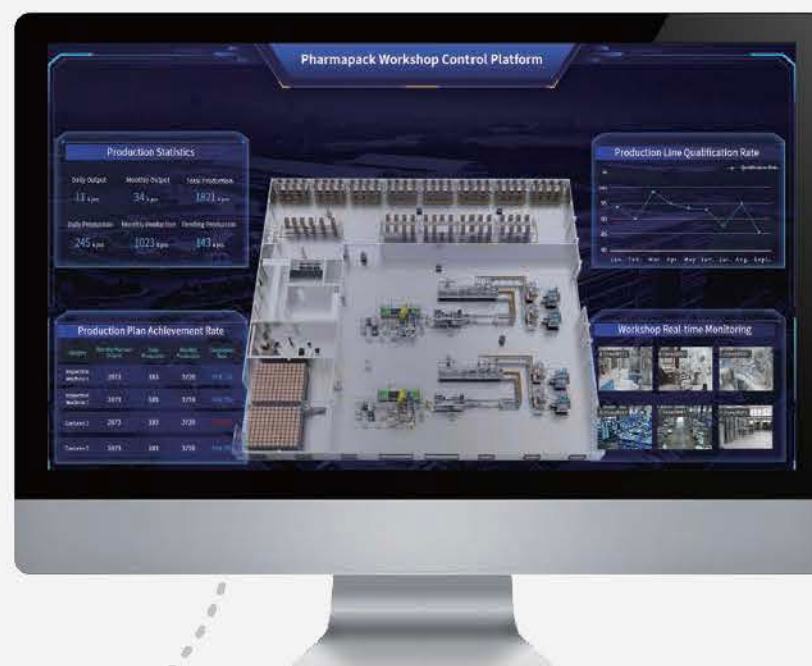
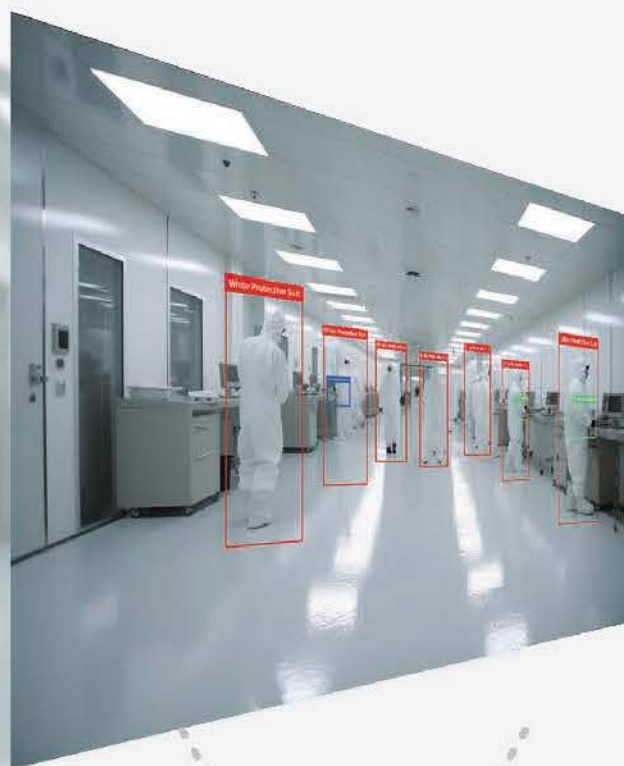
360° Surveillance

Includes audio announcements, voice alerts, and high-definition panoramic video.



CAMPUS SECURITY MONITORING

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BEHAVIOR ANALYSIS

Captures and analyzes human actions using pose detection technology to identify abnormal behavior patterns, enhancing public security.

SAFETY MONITORING

Combines pose detection and video surveillance to monitor sensitive areas, promptly identifying potential risks to ensure security.



Project Scope



Implementation Results

Project Scope: Material digitization, audit, tracking, and recording in production processes; Machine usage monitoring, OEE efficiency analysis, and streamlined smart logistics.

Implementation Results: Production data visualization, Digitalized OEE efficiency analysis, Fully automated logistics.



Value Benefits

Establish a national benchmark smart manufacturing factory.

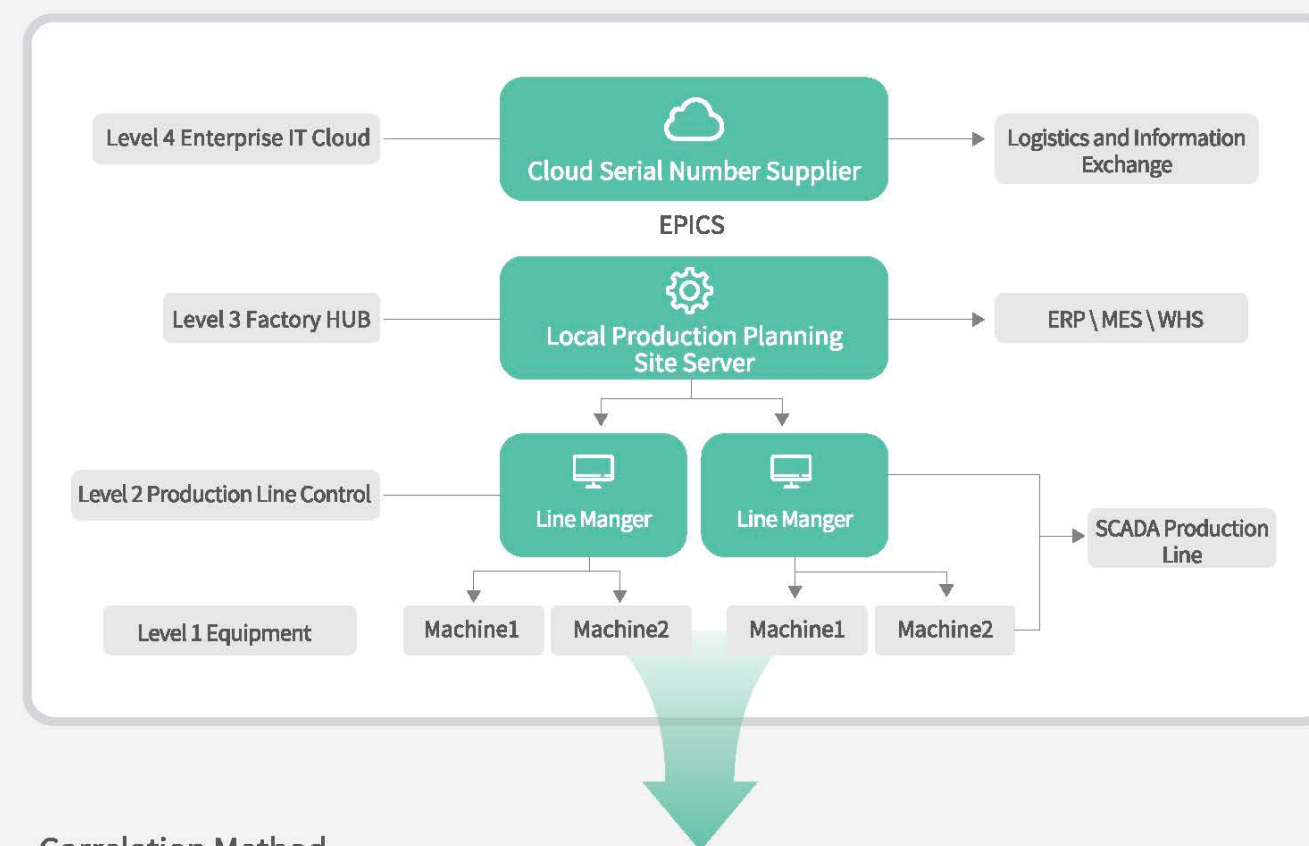
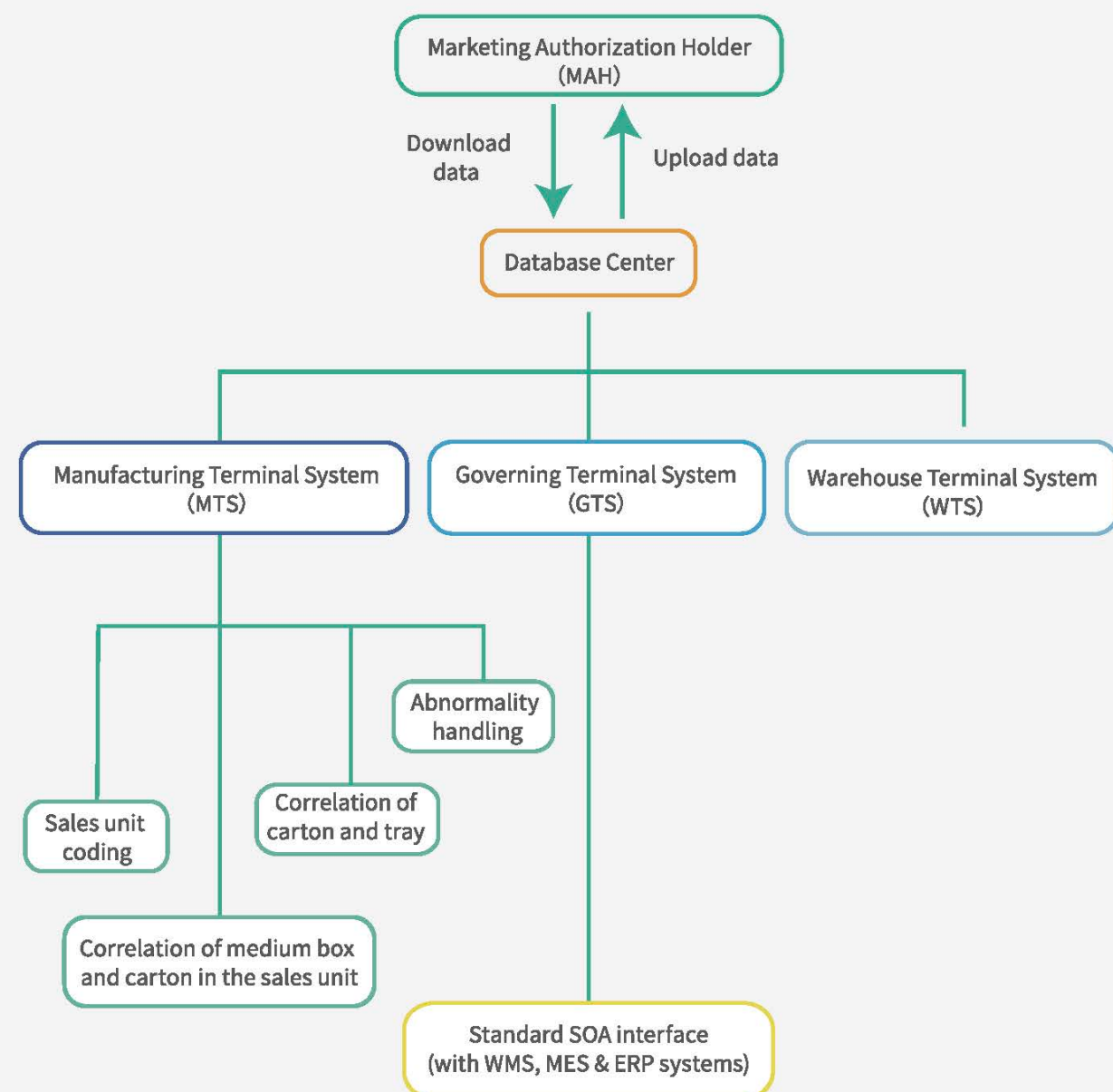
Implement advanced management practices to enhance efficiency and profitability.

Strengthen quality control by identifying and mitigating production risks.

TRACK AND TRACE SYSTEM

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Working Principle



Correlation Method

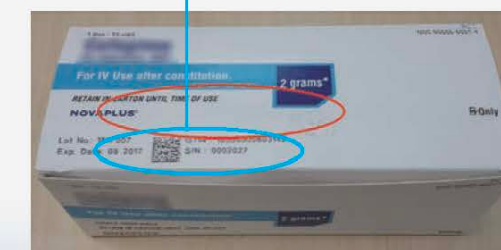
A Level 3 Coding

- LV1: Single package (e.g., bottle/bag) to sales package (e.g., box)
- LV2: Several packages to form a carton
- LV3: Place the carton into the tray

b Level 4 Coding

- LV1: Single package (e.g., bottle/bag) to sales package (e.g., box)
- LV2: Sales package to form a bundle (or medium package)
- LV3: Several bundles (or medium packages) to form a carton
- LV4: Place the carton into the tray

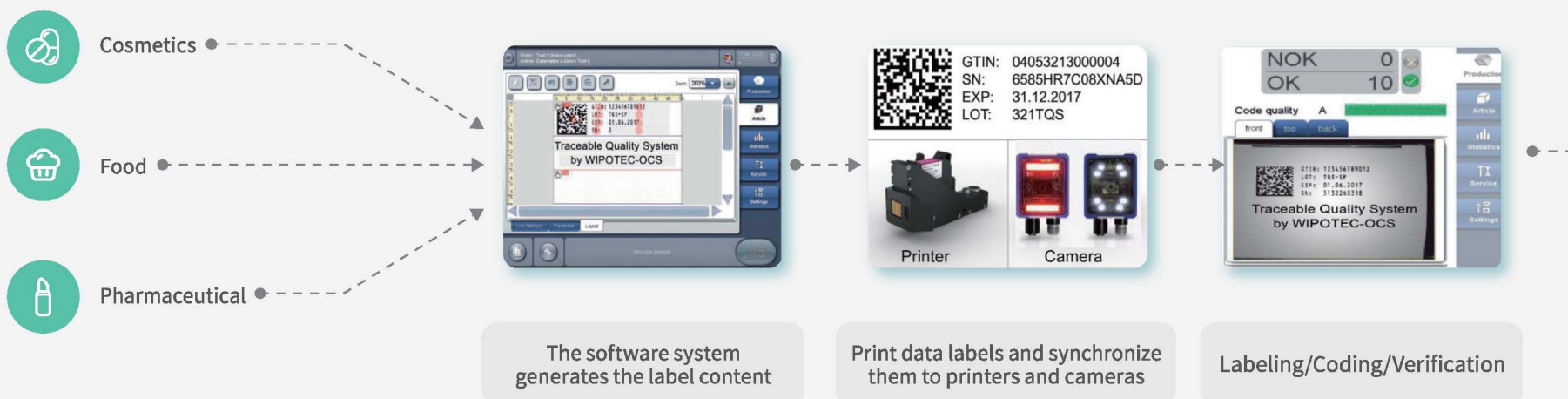
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TRACK AND TRACE SYSTEM

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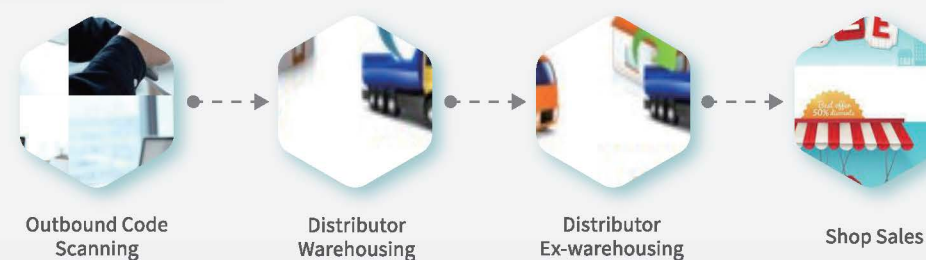
Pharmapack provides a complete product traceability system to perform all-round tracing of the whole production, circulation and quality of products.



Packaging Process



Circulation Link



Sales Link



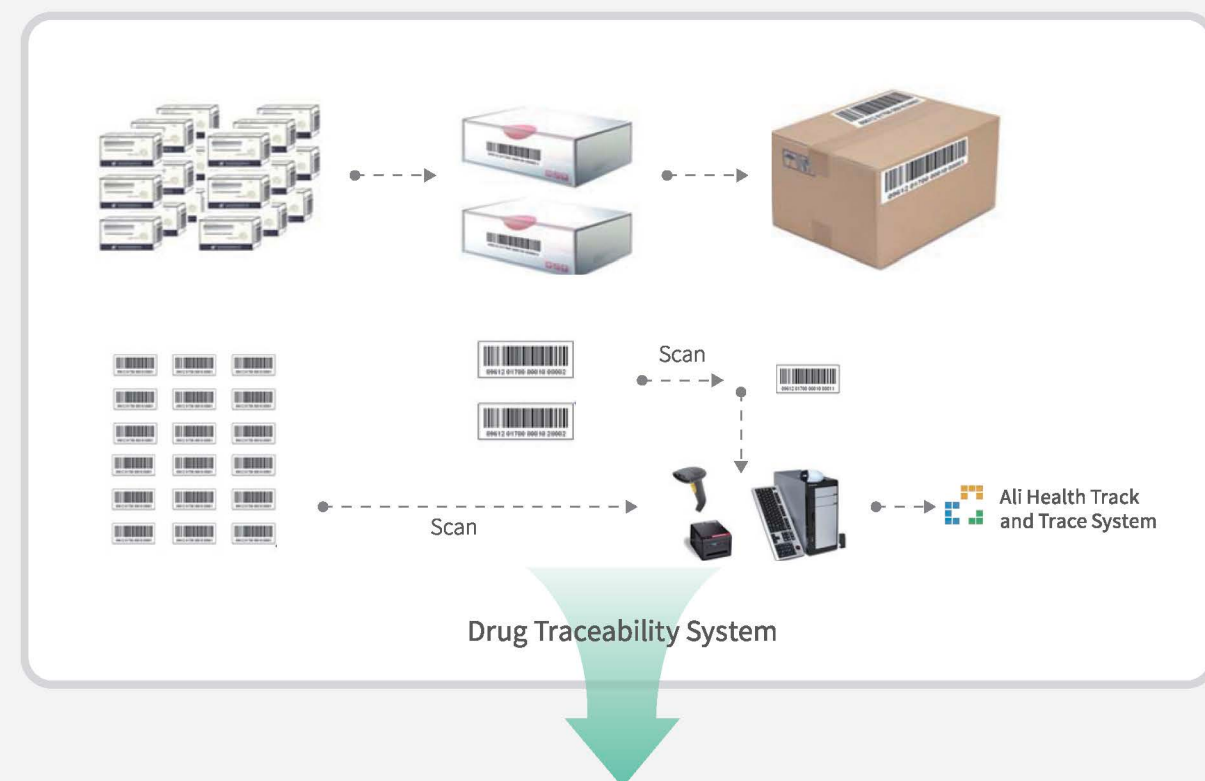
Market Link



TRACK AND TRACE SYSTEM

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Drug Traceability System



A The drug traceability system is an information system to collect, track and trace the whole process of the drug, from manufacturing to logistic and retail to end users.

B Integrate hardware and software, can satisfy internal packaging data in pharmaceutical industry, Pharmapack track and trace system can connect to Ali Health track and trace system.

C The correlated data can be used to tail-make other application for customers.



DSCSA
The Drug Supply Chain
Security Act



GS1 Track and Trace System

A The GS1 Drug Traceability System is used to code and correlate drugs based on the GS1 standard (a global EPC electronic coding standard). Its data collection and correlation procedures are similar to those of the Chinese Electronic Drug Monitoring Code but have stricter requirements.

B The data should be correlated to a third-party platform L4. Common platforms may include TRACELINK, RFXCEL, and EMOV.



TRACK AND TRACE SYSTEM

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Bottle Track and Trace System



360°

360° Panoramic Camera
Detection System

Track and Trace System for Bottle Packaging Lines consist of turntable, vertical round bottle labeler, 360° camera detection system for bottles and vials, case packer (case forming & sealing). It can effectively achieve the process of serializing, labeling, detecting, case forming & sealing at high-speed, full line speed up to 200 bottles/min. The line uses servo control and high-precision & speed camera. Widely use in pharmaceutical, healthcare, food and confectionery industries.

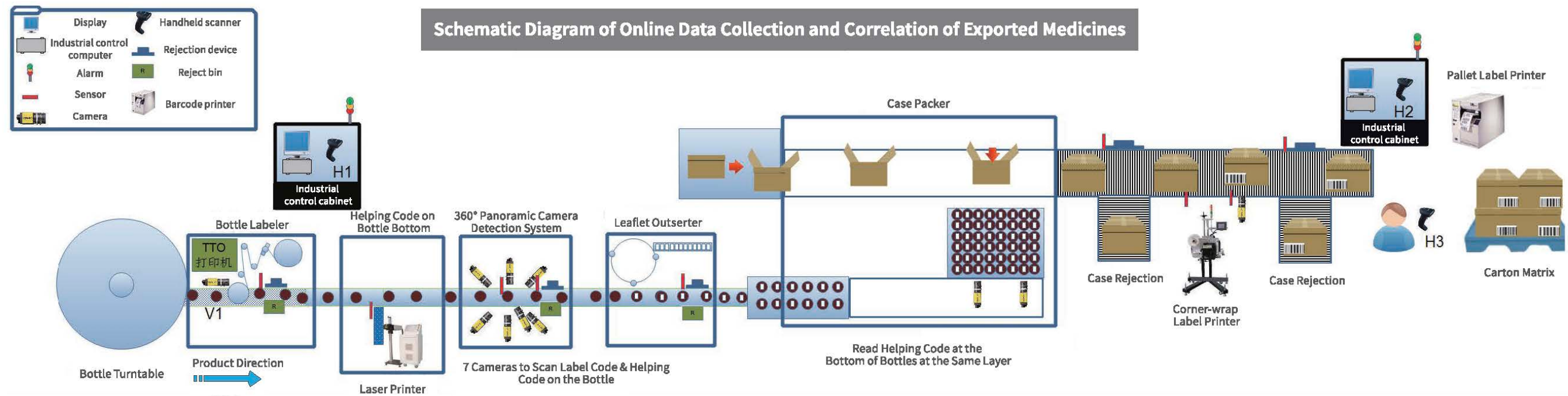


TRACK AND TRACE SYSTEM

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Bottle Track and Trace System

Schematic Diagram of Online Data Collection and Correlation of Exported Medicines



1

The labeling machine applies labels and assigns an unique identification code to each bottle online, forming a Level-1 label code.

2

Customers can set a case corner labeler and pallet labeler printer to establish a Level-3 code for full traceability in warehousing and logistics.



3

A 360° panoramic inspection captures the bottle's identification code and assigns auxiliary codes to the cap, cap leaflet, and bottom, linking them to the label code.

4

After 360° inspection, bottles enter the semi-automatic palletizer or automatic cartoner for packing. The bottom, cap, and leaflet codes are scanned to generate a Level-2 bottle code.



TRACK AND TRACE SYSTEM

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Carton Track and Trace System

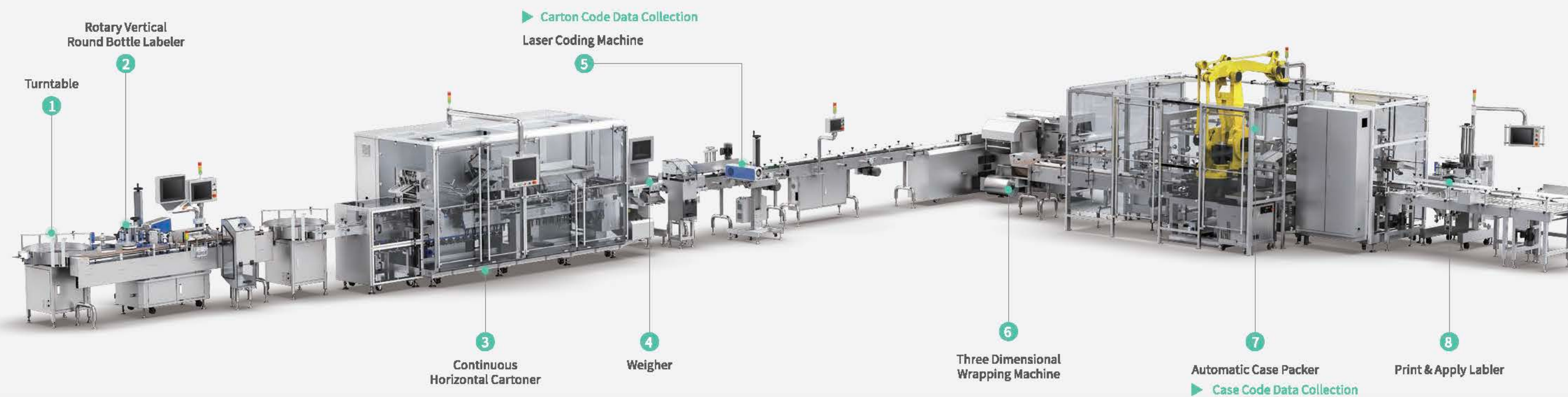


High-Speed
& Efficient



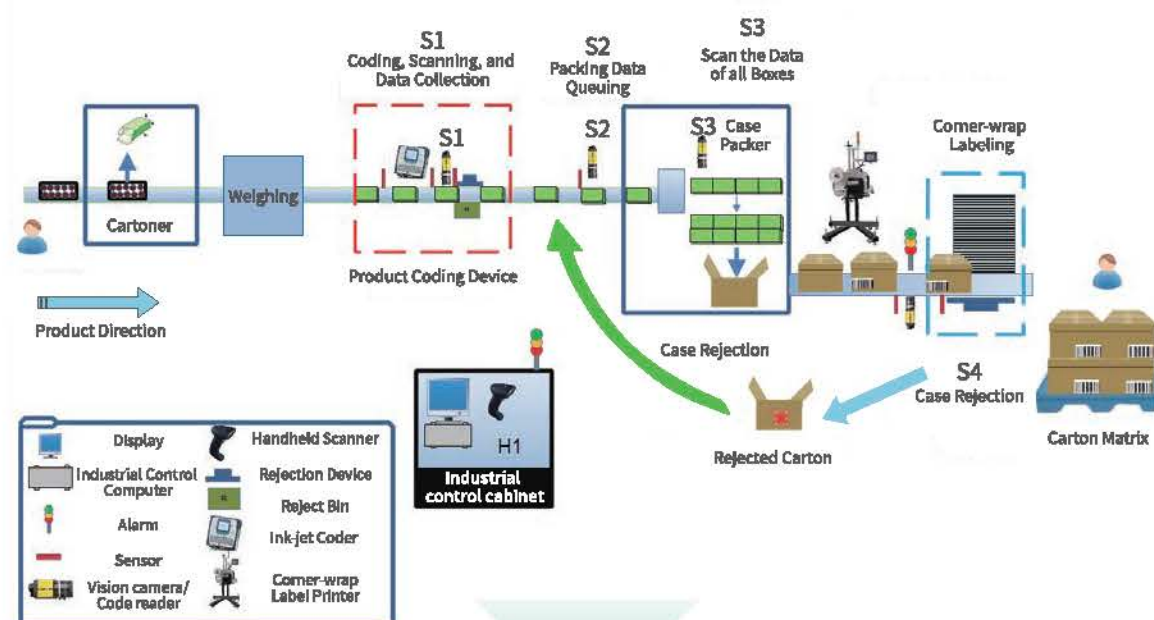
Custom
& Tailored

Track and Trace System for Carton Packaging Lines consists of continuous horizontal cartoner serialization, check weigher and tamper-evident labeling, semi-automatic aggregation. It can effectively achieve the process of cartoning, weight checking & labeling, case packaging & its serializing at high-speed. Whole line speed to up 250 bottles/min. Compact design, convenient to maintain. This system especially suitable for factory with limited space. Widely use in pharmaceutical, healthcare, food and confectionery industries.



CUSTOMER CASES

Schematic Diagram of Data Correlation and Collection
Process of Production Line



01.

The cartoner print codes on boxes online, to get the level 1 code.

02.

The labeler with weighing applies anti-counterfeit labels to boxes. When the boxes enter case packer, they are packed and applied with level 2 codes.

03.

Customers can set corner-wrap labelers and pallet labeler with printers to form level 3 or 4 codes (determines by machine configuration) to trace the whole process from warehouse to logistics and retail.

SMART FACTORY TOMORROW MANUFACTURING

BOTTLE PACKAGING SERIES

FLEXIBLE PACKAGING SERIES

INSPECTION SERIES

SMART FACTORY AND SYSTEMS