



Smart Port



AI/IoT



Safety/Health



IT Service



# Accompany Your Vision

Smart Port  
AI/IoT Platform  
Safety Solution  
IT Service

Smart Port IT Solution  
Artificial Intelligence of Things  
Industrial Safety/Healthcare  
IT Consulting · SI · SM

# GLOBAL IT FRONTIER GPANS



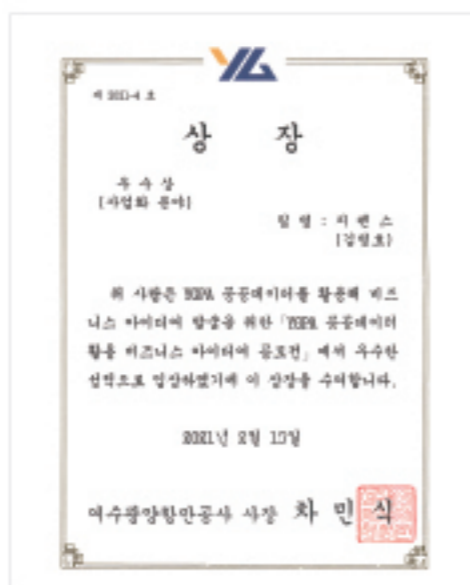
Small Giants IT includes smart port automation, AI, IoT platform, safety & healthcare solution, system integration, and system management.

Since its establishment in 1998, it has led the port logistics automation field, has many IT information system operational practical knowledge and various port logistics consulting experience, and has been recognized for its business performance in various fields such as the terminal automation construction.

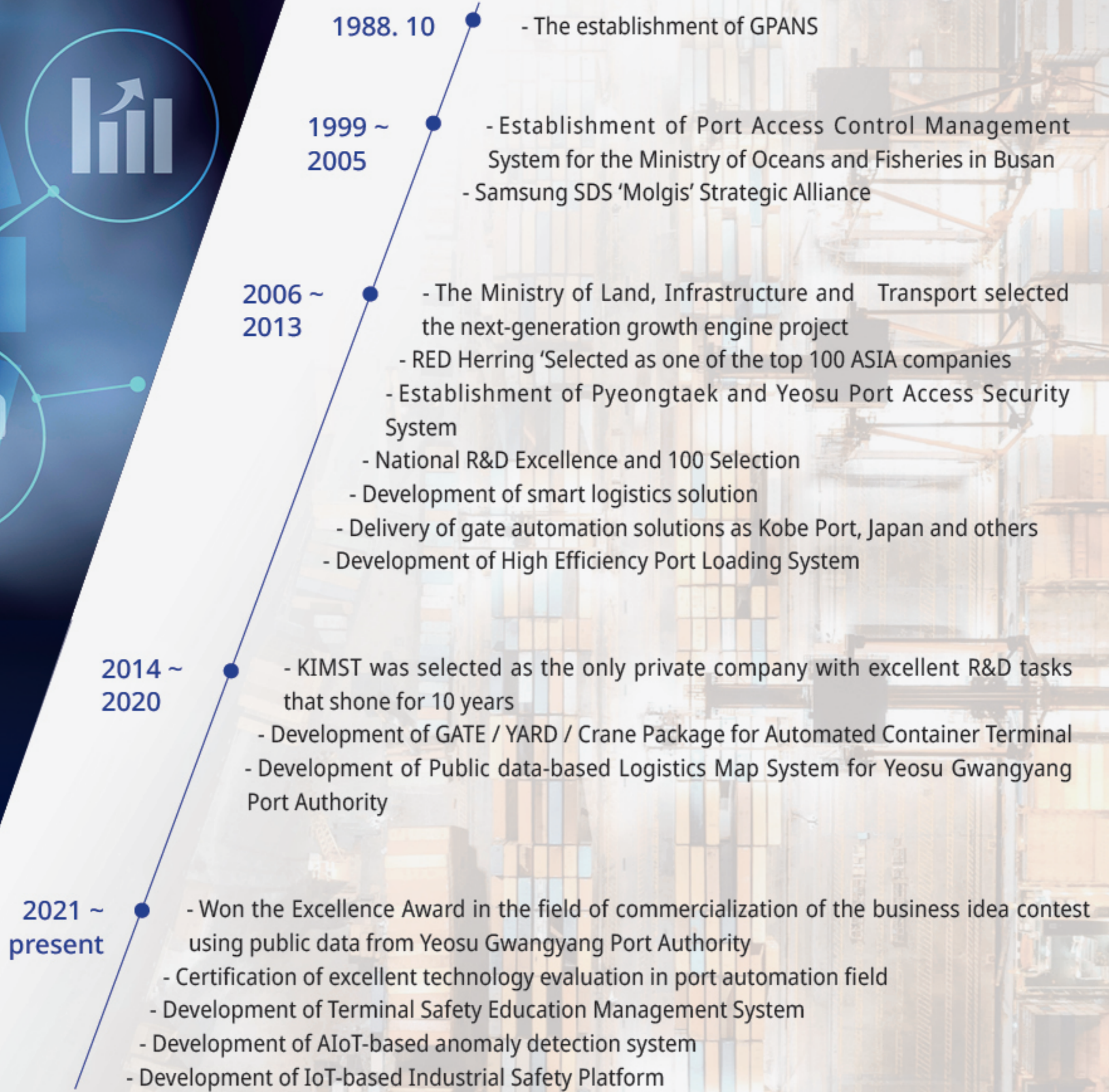
In addition, the 'Intelligent Gate System' was developed in order to advance AI and IoT-specialized companies in the fourth industrial revolution, which was achieved through the convergence of ICT, and we are securing new business areas in various fields by commercializing them.

Our goal is to deliver innovative and differentiated IT solutions through continuous customer interaction, based on a growing corporate spirit with our customers. And we ourselves will become members of society and grow champions of small business that develop, coexist, and symbiosis with various stakeholders.

## Certificate & Awards



## Histry



## Patents



Container 3D expression image acquisition system and method' and 12 other patents (12 domestic patents and 1 overseas patent)

# Smart Port IT Solution

01

## GATE Package - Intelligent GATE System

- A system that automatically acquires and manages comprehensive container information
- Lower container terminal gate operating costs and improve productivity
- User-centered interface configuration and external information systems can be linked
- Preventing safety accidents by minimizing the external inspection part of the GATE inspectors



### Container Surface Detect Recognition

Damage verification system for restoration of the exterior surface of the container, location of the container store, and system for distinguishing the direction of the door

### Container Number/License Plate number Recognition

AI-based container number and vehicle number automatic recognition system

### Container Size/Type Recognition

Automatic container size/type recognition system

### Container Weight Computation

Automatic Container Weight Measurement

### Gate Kiosk (Barcode/RFID Reader)

Bar-code and RFID Card Recognition System

### Gate Operation Manager

Mobile Applications for PDA/HT

## BENEFITS

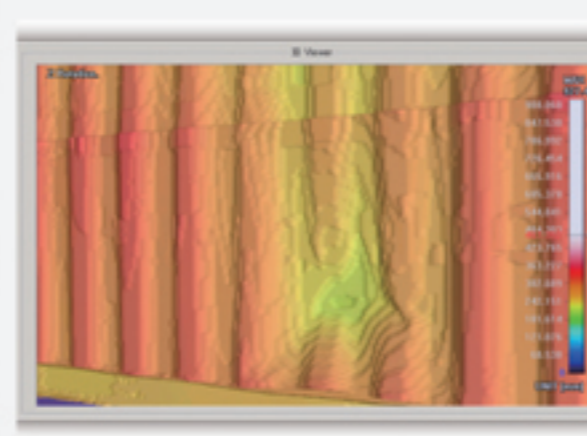
- One-stop processing for containers' information (container numbers, damage, weight, types, sizes, etc.)
- Reduce gate processing time with container information recognition automation system
- Acquiring damage information (damage types, sizes, locations, etc.) reduces damage processing costs
- Reducing automation block rework by linking container parking location and door direction information
- Improved customer container terminal service
- Provide Equipment Interchange Receipt (EIR) in customer electronic document format



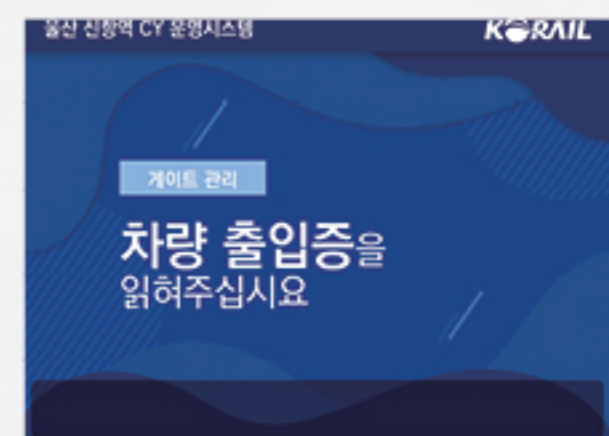
IGS Monitoring UI



GATE Control Center



Container Inspection



GATE ATM

# Smart Port IT Solution

02

## YARD Package

- The integrated control system makes it easy to understand the overall operational situation and safety-related situation within the yard
- Reduce container terminal yard operational costs and improve productivity
- Interface configuration from user-centered and external information system connection can be linked
- Anomalies Detection and Safety Education Management System for the Prevention of Critical Disasters



### CCTV Integrated Control System

Integrated yard monitoring and ai-based object recognition and intelligent integrated control system

### RFID System

Real Time location tracking and history management system based on RFID

### VMT(Vehicle Mounted Terminal) Operating System

Operating system of interfaces between TOS and each loading and unloading equipment

### TPDU(Trailer Position Detecting Unit)

External Trailer to Manned/Unmanned RMGC Interface System

### RTLS(Real Time Location System)

Real time location tracking management system

### Reefer Container Block anomaly Detection System

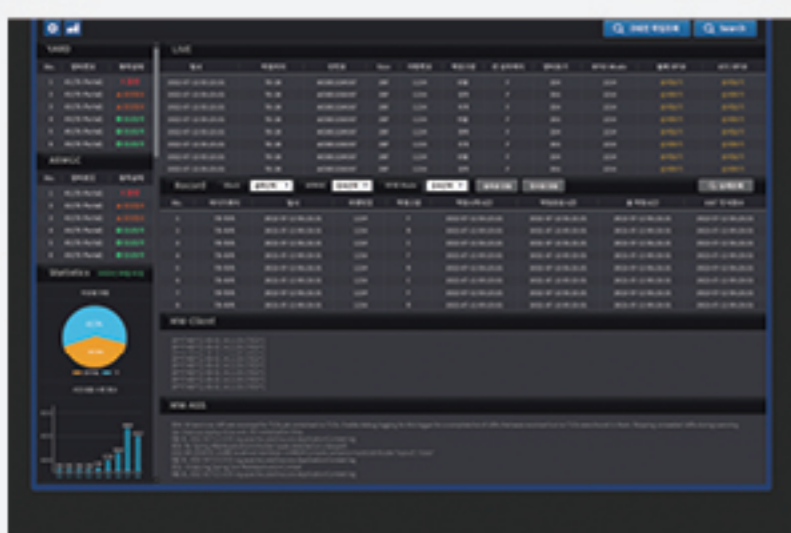
AI-based Reefer Container Block Abnormal Sign Detection System

### Port-Safety Education Training System

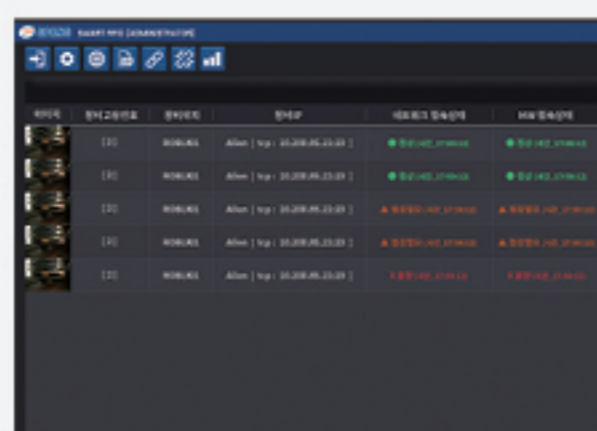
Safety Education Management System for Terminal Workers

## BENEFITS

- Reduce operational efficiency and costs by building a unified control infrastructure environment
- The RFID system improves productivity by minimizing the latency of each loading and unloading equipment
- VMT design for external environment is resistant to vibration and productivity is improved through operation at ultra-low temperatures
- Reduce operational costs and improve customer service through AI-based refrigeration block facility and container anomaly management
- Effectiveness of Port Safety Management and Critical Disaster Prevention through Safety Management of Workers
- Green ports are realized through port safety and carbon emission reduction through yard operation optimization



SMART RFID M/W



RFID Management



Port Safety Education



VMT System

# Smart Port IT Solution

03

## Crane Package

- Increase crane operational efficiency and productivity through high-efficiency crane packages
- Improve customer service through comprehensive management of Berth load/unload operation container information
- User-centered interface configuration and external information system can be linked
- Prevent critical failures and prevent safety accidents by detecting abnormalities



### Integrated Berth management system

System for managing container load/unload through CCTV of ship crane

### CNRS + CDI System

Internal Vehicle Number, Container Number Recognition and Container Monitoring System

### CPS(Chassis Positioning System)

A system that recognizes the automatic chassis stop position of the internal vehicle

### TLA(Truck Lifting Avoidance) System

Truck lifting avoidance system

### SPSS(Stacking Profile Scanning System)

Stacking profile scanning system

### Crane Anomaly Detection System

Precision vibration and temperature-based anomaly detection system for cranes

### ACS(Anti Collision System)

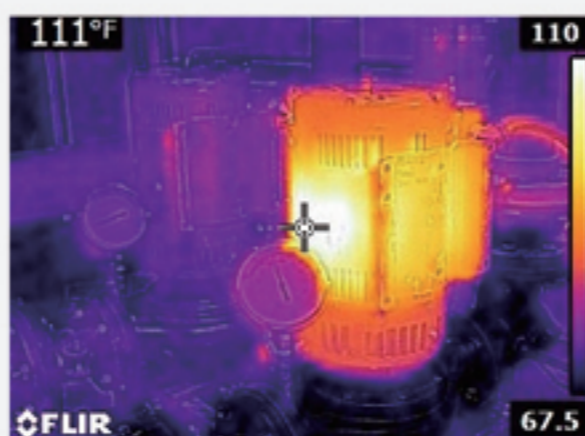
Anti-collision system between driving routes and cranes

## BENEFITS

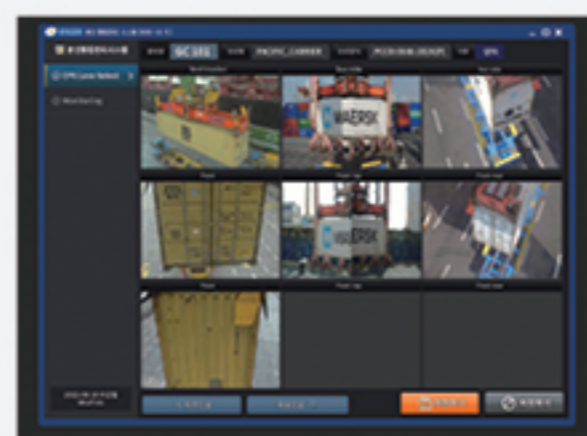
- Increase productivity and operational efficiency of ship operations
- Optimize resource management according to efficient vehicle allocation management and appropriate resource input
- Get competitiveness and improve customer service by reducing unnecessary resource waste
- Reducing the probability of serious accidents and preventing safety accidents
- Precise vibration pattern monitoring in accordance with ISO 10816 guidelines to prevent major failures
- Prevent safety accidents caused by fire prevention or preventive maintenance due to temperature detection



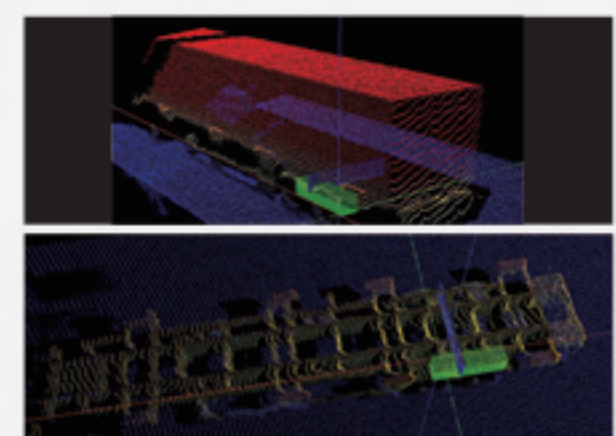
Crane anomaly Detection



Thermal image Detection



Intergrated Berth management system



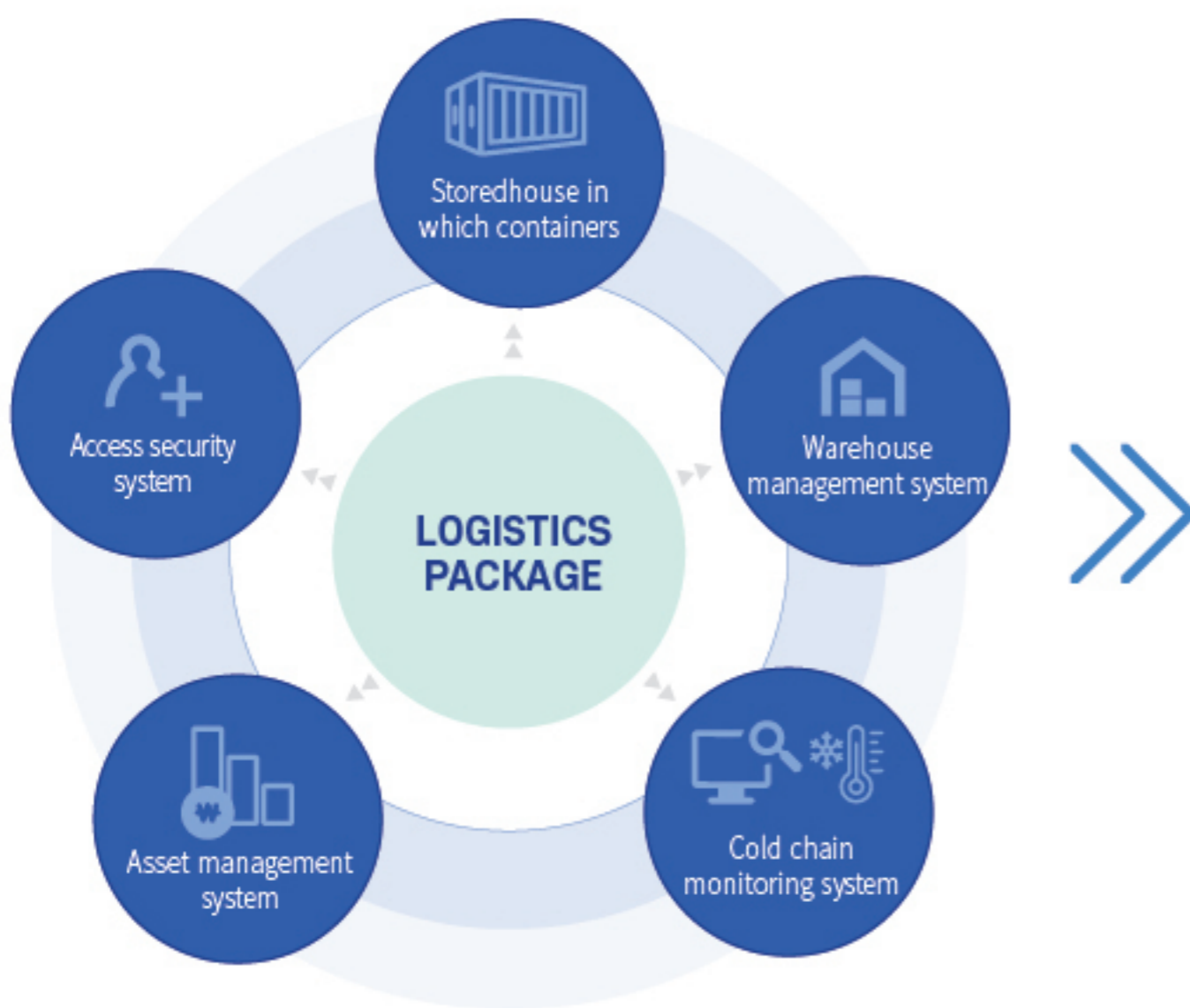
CPS (ARMGC/STS)

# Smart Logistics IT Solution

04

## Logistics Package

- Unmanned automated container loading hangar
- Access security system
- RFID/IoT-based Asset Management System
- Cold Chain Monitoring System



### STOREHOUSE IN WHICH CONTAINERS

Unmanned automated container loading hangar

### ACCESS SECURITY SYSTEM

Access security system

### ASSET MANAGEMENT SYSTEM

RFID/IoT-based Asset Management System

### COLD CHAIN MONITORING SYSTEM

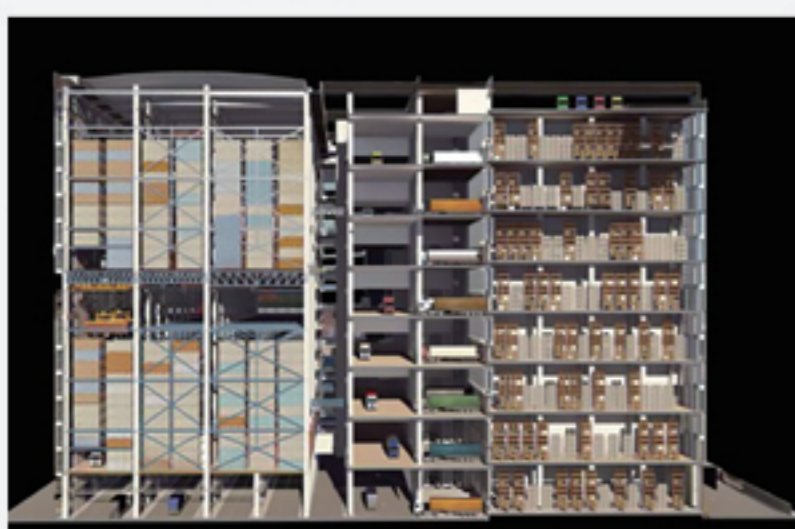
Cold Chain Monitoring System

### WAREHOUSE MANAGEMENT SYSTEM

General or Refrigerated Warehouse Management System

## BENEFITS

- Unmanned automated container loading hangar enables container CY/Depot operation on small land
- Real-time access monitoring of personnel and vehicles through the access security system
- Provides on-site demand information optimization and custom monitoring services through RFID/IoT-based asset management
- Provide logistics data control services and prevent risk of corporate transport regulation through cold chain monitoring
- Deliver real-time data from supply chain management through efficient operation of inventory management, workers and unloading equipment



Storedhouse in which containers



Access security system



Asset management system

USUARIO	RSOS	II	POS	BLOQUE	PLA
ALL	YY	YS	GE	VI	YO
GO	VO	CR	03B	25/26	
YO	MGC01571258	7/11/19	30		
CP03B	ZL 54.5	CP03	1.20		
YO	H0M00027223	11/11/19	30		
CP03B	ZL 54.3	CP03	1.20		
YO	GE00273326	11/11/19	30		
CP03B	ZL 54.4	CP03	1.20		
YO	MGC0396232	11/11/19	30		
CP03B	ZL 54.1	CP03	1.20		
YO	ME002248302	11/11/19	30		
CP03B	ZL 54.2	CP03	1.20		
YO	CP03A	ZL 54.3	CP03	1.20	
YO	MGC03550429	11/11/19	25		
CP03A	41 02.3	CP03	1.20		

Warehouse management system

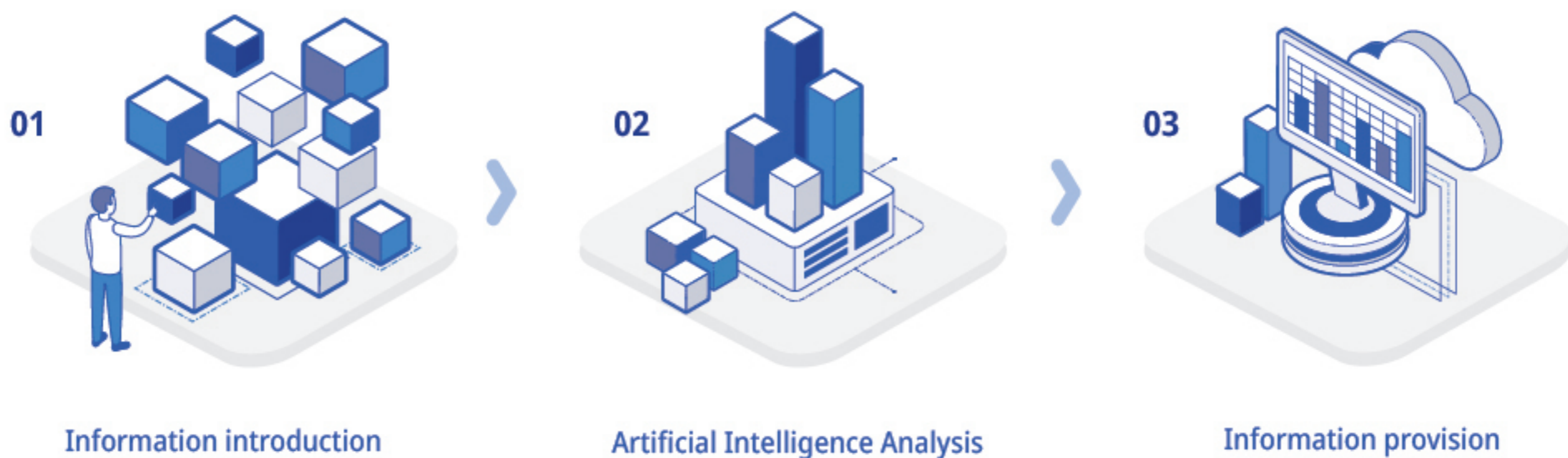
# AI/IoT Platform

05

## Ultivis IoT Platform

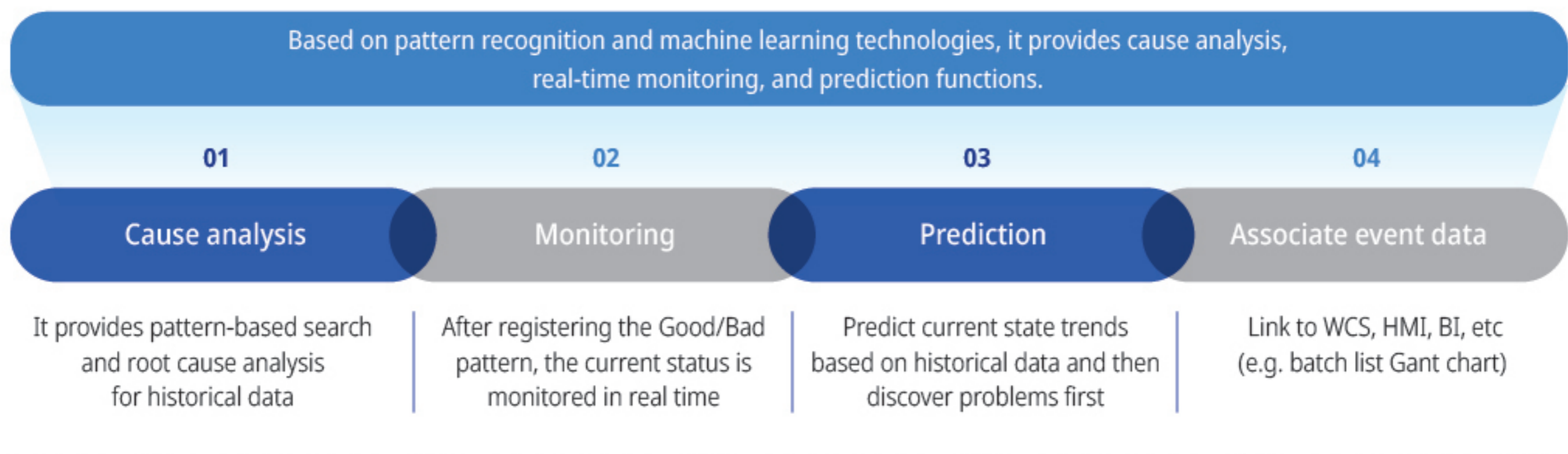
### Introducing the platform of Ultivis IoT

The IoT platform Ultivis manages business risks, improves productivity, reduces operating costs, and maximizes corporate competitiveness.

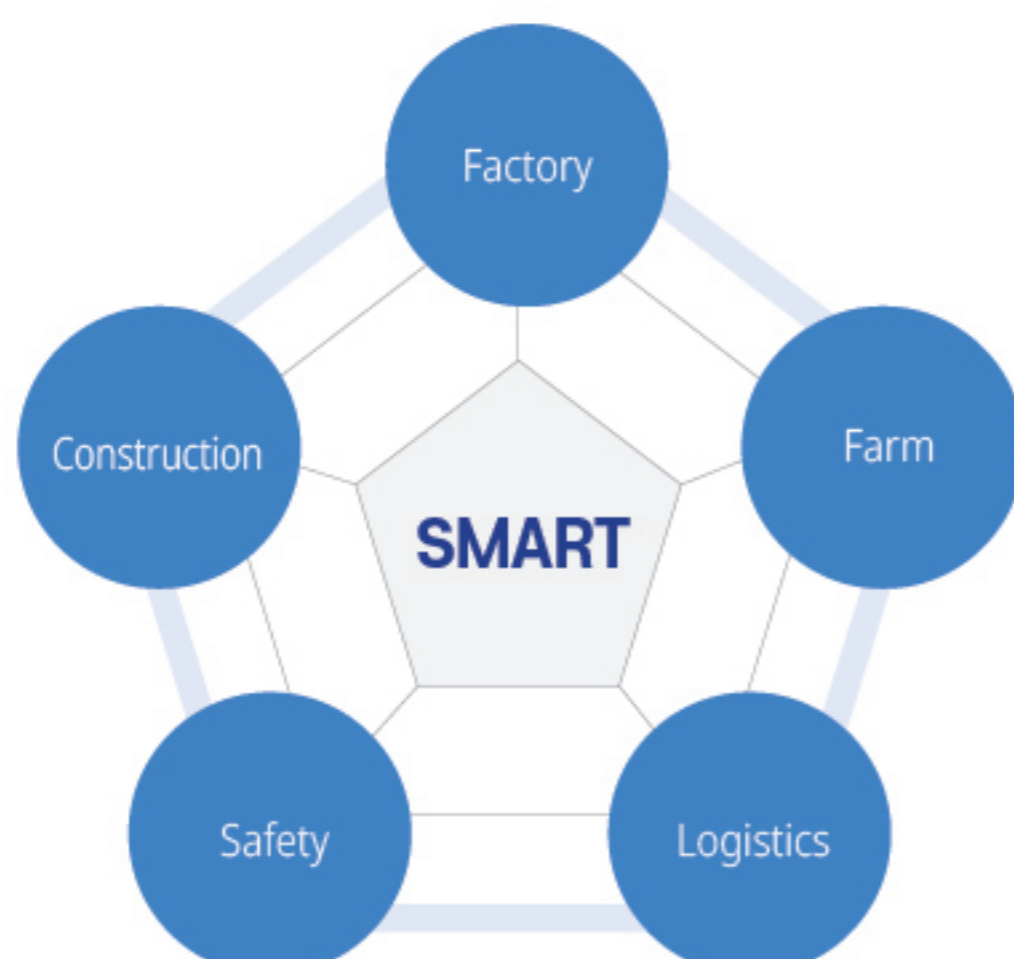


### Features of Ultivis AI

Field managers diagnose problems, analyze causes, and predict the future of facilities through the analysis of AI integrated data from Ultivis.



### Part of the application



### Expectation effectiveness

- 
**Increased work efficiency**
  - Easy interface
  - Operational Efficiency Optimization
- 
**Increase productivity**
  - 40% average improvement in productivity
  - 25% reduction in quality control costs
  - Reduce energy costs
- 
**Improved downtime**
  - Maintenance by monitoring
  - Reduced downtime by 50% or more
  - Prevent faults and safety accidents



# Smart Facility Management System

## Introduction to the Facility Management System

- Based on wireless sensors and wireless communication, a number of facilities are checked through real-time monitoring without conducting electrical work. We provide integrated management services through environmental control and anomaly notifications due to environmental changes and user usage patterns and usage analysis statistics.

## Part of the application



## Features of the system

- Based on wireless sensors and wireless communication, it can be performed without a separate construction work, and wireless communication without obstacle interference is implemented through Sensor-Gateway of Star-type

Temperature	Temperature 3 Foot Probe	High Temperature	Low Temperature	Duct Temperature	Water Temperature	Thermostat	Thermocouple	Dry Contact
Ultrasonic	Water Detection	Water Rope	DC Voltage Meter (200VDC)	AC Voltage Meter (500VAC)	AC Voltage Meter (500VAC)	AC Voltage Detection (500VAC)	3 Phase AC Current Meter (20/150/500Amp)	AC Current Meter (20/150/500Amp)
Resistance	DC Current Meter (0-20mA)	Button	Pulse Counter	Motion	Vehicle Detect Counter	Light Meter	Activity Detection	Open/Close (Door)
Control	Air Quality	Carbon Monoxide (CO)	Hydrogen Sulfide Gas	Carbon Dioxide (CO <sub>2</sub> )	Air Velocity	Humidity	Pressure Meter	Differential Air Pressure
Tilt	Tilt Detection	Vibration Meter	Advanced Vibration Meter	G-force Snapshot	G-Force Max-Avg	Impact Detect		



## Expectation effectiveness

Managing Existing Facilities	<ul style="list-style-type: none"> <li>- Increased management costs due to increased labor costs and shorter working hours</li> <li>- Safety list still exists due to work gaps and reporting delays</li> <li>- Surveillance blind spots due to multiple administrative tasks</li> </ul>	<ul style="list-style-type: none"> <li>- Minimize on-site personnel and reduce management costs by building sensor-based systems</li> <li>- Web/mobile systems enable immediate context and response actions</li> <li>- Real-time current status can be checked</li> <li>- Increase efficiency by automating operations such as lighting, heating and cooling, and signage control</li> </ul>	Facilities Management in Ultivis
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# Safety Solution

06

## Smart Safety/Healthcare

### Construction Safety

- Smartize construction safety management by utilizing IoT devices suitable for various construction site situations.



Measurement of cement curing temperature



Slope Prediction System



Construction Site Environmental Monitoring

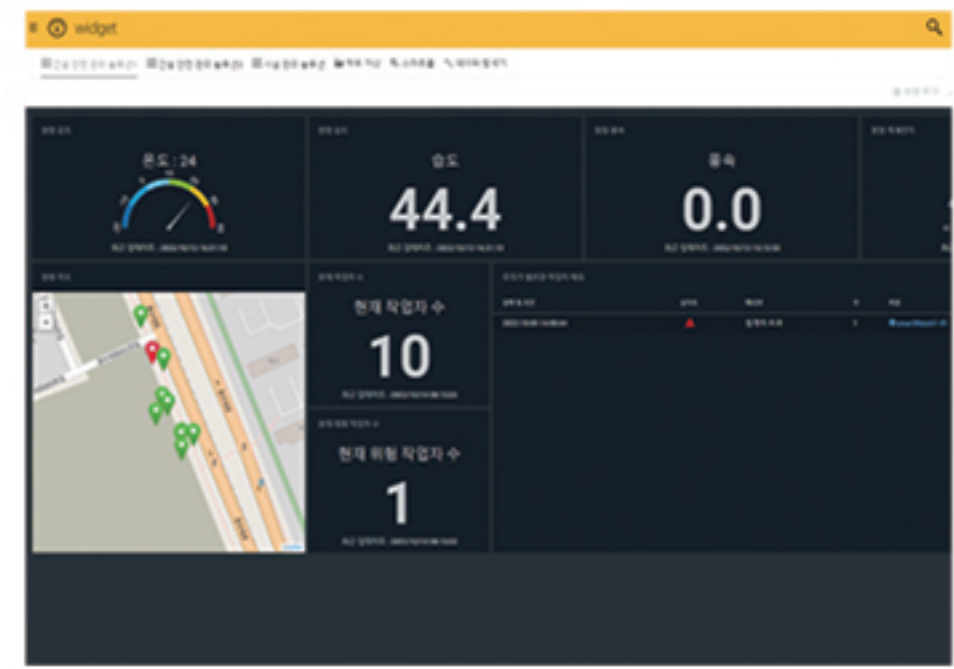


Hazardous compound detection



Safety management of workers

Detection Event Type					
Fire	Smoke	Pulse Counter	Fall Detect	Temperature and Humidity	24-500 VAC Electric current
Location	Complex Gas	Hazardous zone Approach	Air Velocity	G-Force	Tilt



### Logistics Safety

- The smart logistics safety management solution detects the risk of accidents and fire damage in the logistics center in real time and minimizes damage.



Fire, carbon dioxide detection



Temperature/humidity PM Monitoring



Unloading Equipment Operation data collection

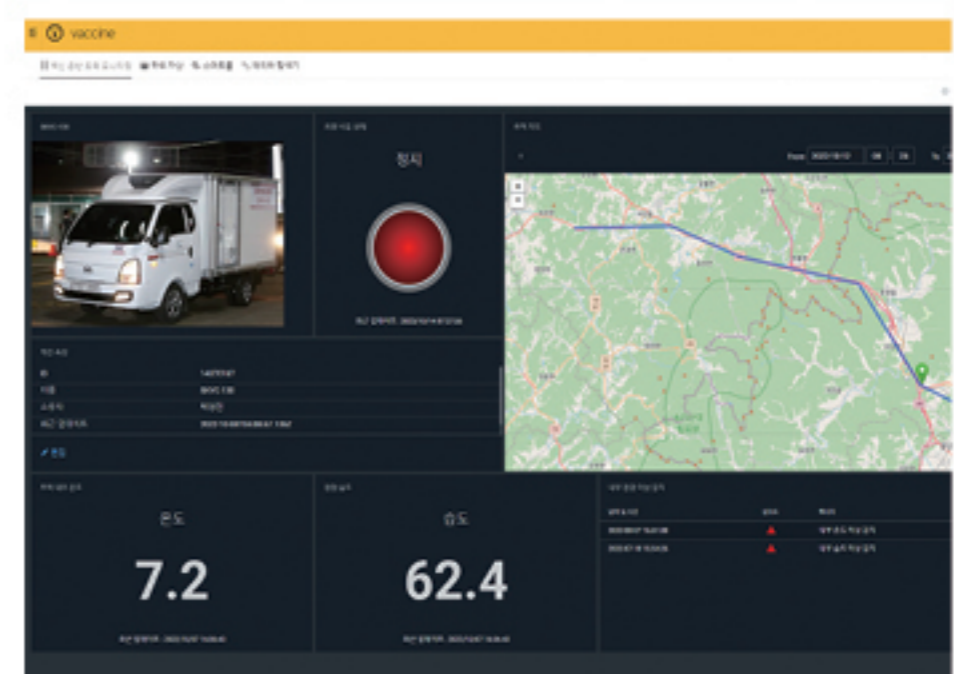


Tire management



Workers safety management

Detection Event Type				
Fire	Smoke	Pulse Counter	Temperature and Humidity	Hazardous zone Approach
Motion Detect	Tire pressure	Tire temperature	Location Info	EOI



# IT Service

07

## IT Service (IT Consulting, SI, SM)

- Provide the best service to improve customer competitiveness by diagnosing, designing, building, and integrating the best IT system to meet customer's business environment and needs through various consulting experiences in port logistics and know-how in operating IT information systems
- IoT Service Design/Development/Security Consulting
- IT Infrastructure Consignment Operations and Integrated Maintenance
- Discover and apply new technologies and provide innovative services according to the flow of information technology

### Contents of the service



#### Application Operations Services

##### Application Operations Services

- By entrusting some or all of the operations and maintenance of the applications used by the enterprise, it can be competitive by focusing on its core tasks.



#### IT INFRA MANAGEMENT & MAINTENANCE

##### Infrastructure Operations and Integrated Maintenance

- It provides advanced IT infrastructure services, unlike simple maintenance, which used to manage a variety of IT infrastructures individually. Helps you respond effectively to enterprise IT environments that are increasingly diverse and complex.



#### BUSINESS PROCESS OUTSOURCING

##### Outsourcing of business processes

- Data Migration and Managed Printing Service Business Process Outsourcing (BPO) services are provided to enhance business competitiveness while satisfying various quality needs for each customer type.

### Expectation effectiveness



#### High Quality Service

Delivering high-quality operations management services rather than performing themselves



#### Concentration of core competencies

Focus on key strategically important tasks



#### Flexibility of supply and demand of manpower

Entrustment and operation of personnel working in the target business area



#### Predictability

Predictable service costs



#### Efficient utilization of financial assets

Efficiently leverage financial assets by selling assets invested in IT to external vendors



#### Cost reduction

Performing high value-added tasks at a lower cost than professionalism

Partner in Every ICT

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