



Company & Solutions Introduction

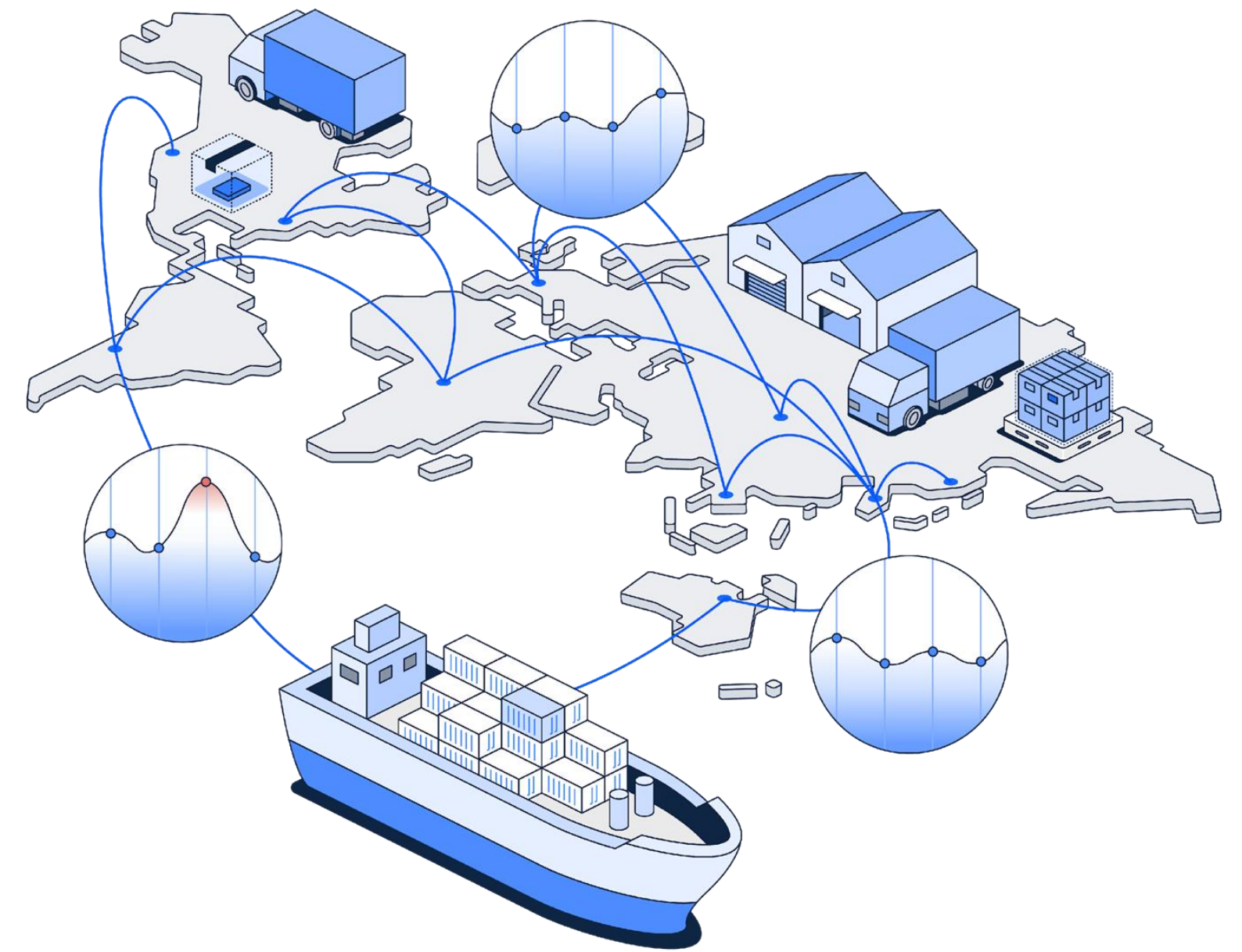
IoT and AI-powered
Logistics Intelligence Solution Provider



<https://willog.io/en>

Willog drives client business growth through AI-powered Digital Transformation in logistics.

1. Willog provides **patented IoT and AI-powered logistics intelligence**—offering **real-time visibility, condition monitoring**, and **predictive insights**—to ensure product integrity, enhance supply chain efficiency, and optimize operations.
1. Through innovative condition monitoring solutions **combining advanced IoT sensors and intelligent SaaS**, we help clients standardize and optimize their logistics, reduce costs, and improve decision-making.
1. Guided by a customer-centric philosophy, Willog continuously evolves to **deliver tailored solutions that align with each client's operational needs**—driving business growth through AI-powered digital transformation in logistics.



Our patented IoT sensors and advanced analytics provide real-time visibility, root cause diagnostics, and predictive insights for smarter logistics.

AIoT-powered Logistics Intelligence Solution

1 Willog Safe

Patented IoT Sensor Device

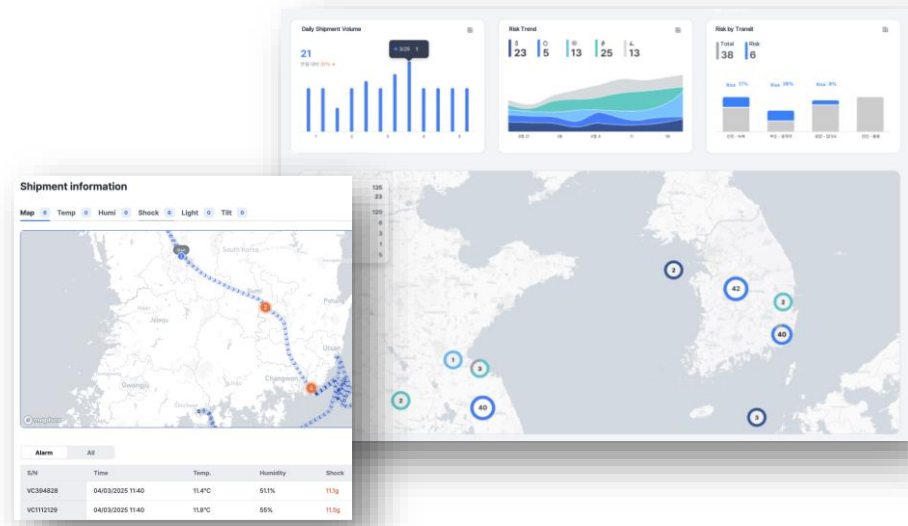


Our sensor collects real-time data across 6 critical conditions below for continuous condition monitoring.

- Location
- Temperature
- Humidity
- Shock
- Tilt
- Light

2 Willog Control Tower

Data Management Platform

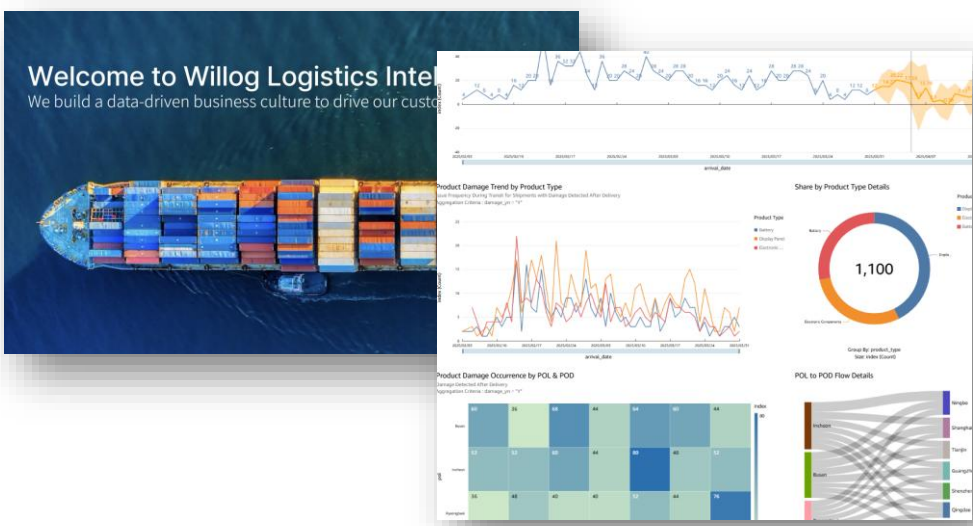


Our data platform provides comprehensive end-to-end visibility with quantitative analytics reports.

- End-to-End Visibility
- Granular Quantitative Insights
- Analytical Reports

3 Willog Intelligence

AI-powered Prediction Module



Our AI algorithm leverages forecasting to provide customized advice for proactive risk mitigation & cost reduction.

- AI & Machine Learning
- Precise Forecasting
- Data-Informed Decisions

Willog provides end-to-end visibility across all types of logistics, including international shipping, warehousing, inland trucking, pharma cold chain, and multi-modal shipping.

1

**International
Shipping**

2

**Warehouse
Monitoring**

3

**In-Land Fleet
Monitoring**

4

**Bio-Pharma
Cold Chain**

5

Multi-Modal Shipping

Backed by 44 patent and IP applications, Willog's domestically developed sensors hold international standard and technical certifications, rigorously tested including KOLAS verification.

Intellectual Property
(Domestic & International)

44 Intellectual Property Applications Filed

20

Tech Patents

7

Design Patents

17

Trademarks

International Standards

- ISO 14001 (Environmental Management System)
- ISO 27001 (Information Security Management System)
- ISO 27017 (Information Security Controls for Cloud Services)



Majority industries face significant challenges, including substantial financial losses from product spoilage, fragmented supply chain visibility that impedes proactive issue resolution, and the critical need for meticulous compliance and validation in cold chain logistics.

FINANCIAL LOSSES

Supply chain failures result in significant financial losses, as product spoilage alone annually costs companies 3% to 7% of their revenue.



Inventory Waste:
A Staggering \$163 Billion Annually

A study reveals 8% of global stock, or \$163 billion, is wasted annually. This massive loss, exceeding the combined GDPs of Croatia, Costa Rica, and Iceland, contributes to a broader \$1.1 trillion in lost revenue opportunities worldwide due to inventory distortion.

REGULATORY ENFORCEMENT

Strict adherence to compliance in pharmaceuticals is non-negotiable, requiring meticulous transport validation, proactive risk identification, and thorough documentation throughout the cold chain.

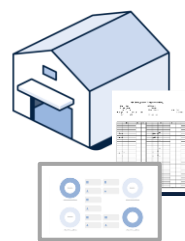


- Risk assessment for temperature, humidity, vibration, and contamination
- Adhere to regulatory standards and compliance like GDP, GxP, WHO and FDA
- Continuous monitoring to track shipment conditions & audit-ready documentation

DISCONNECTION & RISK

Fragmented supply chains and limited visibility tools, lacking crucial data beyond location, create significant logistics risks, hindering effective qualification and preventing true quality assurance for explaining or predicting issues.

WMS



TMS



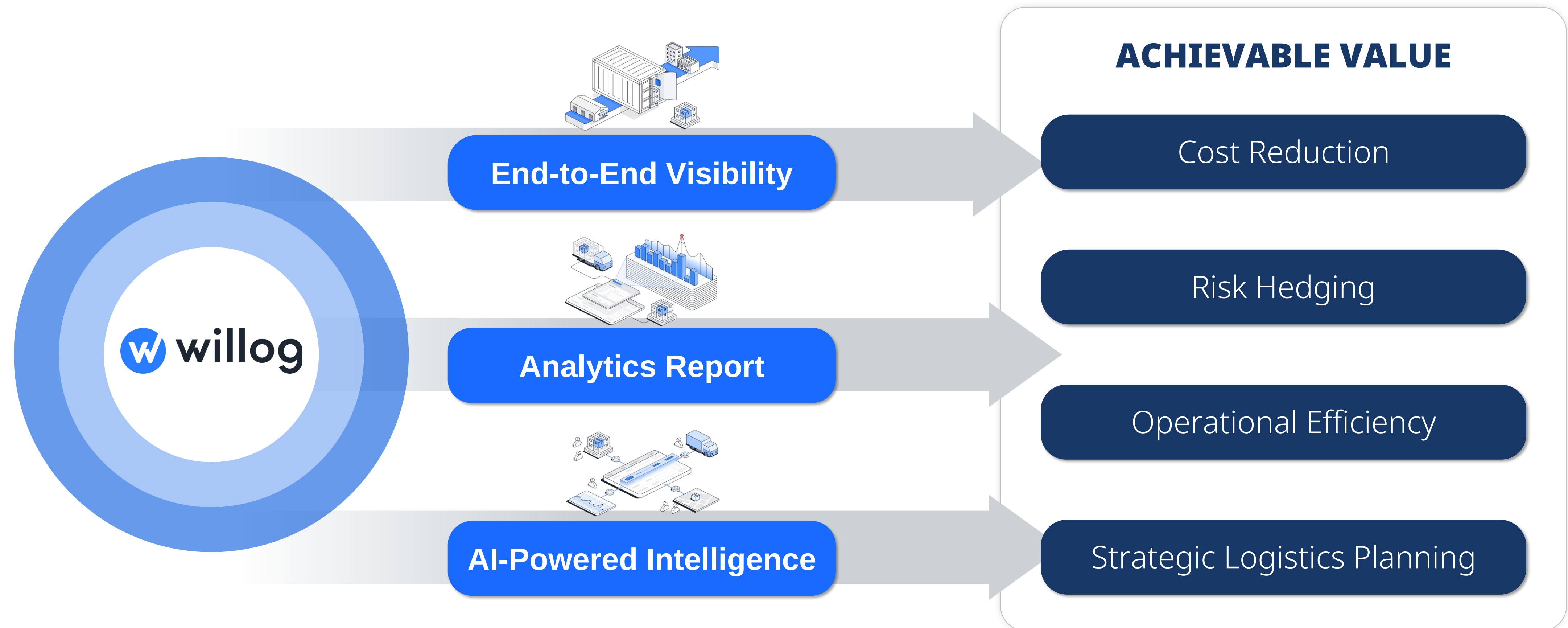
VMS



Gartner's latest Supply Chain Survey reveals a significant "Digital-to-Reality Gap,"

indicating that 80% of the supply chain remains unaddressed by current digital decision models, thus failing to enhance outcomes for decision-makers.

Leveraging the IoT & AI-Powered Logistics intelligence solution from Willog enables cost reduction, risk hedging, operational efficiency, and optimized strategic logistics planning.



Since 2021, Willog has rapidly developed proprietary solutions for a growing client base, a trajectory highlighted by close Korean government collaboration and a ministerial award.



More than 90 enterprises and public institutions collaborate with Willog
to optimize logistics operations and accelerate business growth.

+90
Clients

Biologics

Pharmaceutical

Healthcare

Logistics & Distribution

Chemicals & Materials

Automotive

Food & Consumer Goods

+20
Partners

Government & Military

Industry Associations

SAMSUNG SDS

SAMSUNG
BIOEPIS

HYUNDAI

HYUNDAI
GLOVIS

H 현대해상

SK telecom

GS 리테일

SPC
SAMLIP

Kurly

CJ 대한통운

CJ

KIA

웅마로지스

coupang

CORNING

BAYER

Abbott

LOGISALL

DONGJIN
DONGJIN SEMICHEM CO.,LTD.

KUMHO MITSUI
CHEMICALS

동성화학

환인제약

ECOVICE

신동제약주식회사

중근당

지오영

동아ST

DH PHARM
DRUG & HEALTHCARE

Alcon

OSSTEM[®]
IMPLANT

posco
포스코인터내셔널

LX 판토스

KOLON PHARMA

하나제약주식회사

고려택배

ASETEC

We entered into an MOU partnership with the Republic of Korea Army to modernize and advance military logistics with our solutions.



Willog Partners With Republic Of Korea Army To Modernize Military Logistics With AI And IoT Solutions

SEOUL, South Korea, Aug. 12, 2025 /PRNewswire/ -- Willog, a leading provider of IoT and AI-powered supply chain intelligence solutions, today announced the signing of a Memorandum of Understanding (MOU) with the Republic of Korea (R.O.K.) Army Consolidated Supply Depot(Army Logistics Command). The partnership marks a significant step in the South Korean Army's ongoing digital transformation.



Willog Partners with Republic of Korea Army to Modernize Military Logistics with AI and IoT Solutions

Under the agreement, Willog will provide its cutting-edge technology and expertise to support the digital transformation of the Army's supply chain. This collaboration will involve joint research, technical advisory, and the integration of Willog's advanced ICT logistics solutions to enhance the efficiency and reliability of military logistics operations.

CISION

Willog Partners with Republic of Korea Army to Modernize Military Logistics with AI and IoT Solutions

PR Newswire Asia
13 August 2025 • 3 min read



SEOUL, South Korea, Aug. 12, 2025 /PRNewswire/ -- Willog, a leading provider of IoT and AI-powered supply chain intelligence solutions, today announced the signing of a Memorandum of Understanding (MOU) with the Republic of Korea (R.O.K.) Army Consolidated Supply Depot(**Army Logistics Command**). The partnership marks a significant step in the South Korean Army's ongoing digital transformation.



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Under the agreement, Willog will provide its cutting-edge technology and expertise to support the digital transformation of the Army's supply chain. This collaboration will involve joint research, technical advisory, and the integration of Willog's advanced ICT logistics solutions to enhance the efficiency and reliability of military logistics operations.

We also entered into an MOU partnership with the Indonesia Cold-Chain Association.

MEMORANDUM OF UNDERSTANDING

BETWEEN

WILLOG CO., LTD. (Hereinafter referred to as "Willog")

AND

INDONESIA COLD CHAIN ASSOCIATION (ICCA) (Hereinafter referred to as "ICCA")

This Memorandum of Understanding (hereinafter referred to as "this MOU") is entered into between Willog Inc. and the Indonesia Cold Chain Association (ICCA).

Willog Co., Ltd. is a corporation duly established and validly existing under the laws of the Republic of Korea, with its principal place of business located at [308, 507, Samseong-ro, Gangnam-gu, Seoul, Republic of Korea] and its business registration number [286-88-02459].

ICCA is a non-profit organization duly established and validly existing under the laws of Indonesia, with its principal place of business located at [Perkantoran Graha Kencana Blok CH-CI, Jl. Raya Perjuangan No. 88, Jakarta 11530, Indonesia].

Willog and ICCA are hereinafter individually referred to as "Party" or "One Party," and collectively as "Both Parties."

RECITALS

Willog is a leading AIoT- and data-powered logistics intelligence solutions company from Korea that designs, manufactures, and provides advanced supply chain monitoring and visibility solutions. ICCA is a non-profit organization that plays a role in mediating the continuous development of the Indonesian cold chain industry, industry requirements, and government policies. Both Parties recognize the growth potential of the Indonesian cold chain market and the potential contribution of Willog's solutions. Based on mutual trust and respect, Both Parties intend to establish a strategic cooperative relationship. Accordingly, Both Parties hereby agree to enter into this MOU to confirm their common understanding and commitment to the modernization and efficiency improvement of the Indonesian cold chain industry, and to specify the concrete terms of cooperation.

w

willog

Willog

CEO, Sunghoon Bae & Ji Hyun Yun

Indonesia Cold Chain Association

Chairman, Yasni Hasanuddin

A photograph of two men standing in front of a wall. The man on the left is wearing a dark suit and a white shirt, smiling. The man on the right is wearing a dark suit, a white shirt, and glasses, looking at the camera. Both are holding large black folders containing signed documents. The background wall is light-colored and features a large golden Garuda emblem in the center, flanked by two framed portraits of Indonesian officials. The lower part of the wall has a wooden panel.

Highly satisfied with our solutions for cost reduction, risk mitigation, and better decision-making,
+90 our clients ensure 100% contract renewal and 0% churn.



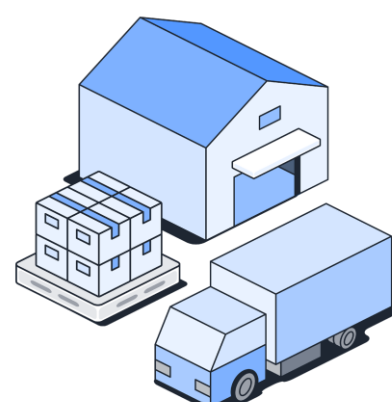
" Willog identified and resolved temperature issues in **11% of our shipments**, preventing an estimated **\$2 million in potential losses**. This directly reduced waste and operational costs. "

- Bio & Pharma Client -



" Thanks to Willog's data/reporting systems, we were able to pinpoint the root cause of over **60% of returned products**, which helped reduce potential costs and prevent customer dissatisfaction. "

- F&B Client -



" We transport over \$10 million worth of high-value goods monthly. With integrated monitoring, we've been able to identify and prevent an average of **10% of potential losses** due to external shock and impact. "

- 3PL Logistics Client -



Renewal Rate

100%

Churn Rate

0%

**Willog started expanding globally in 2025,
based on local offices in the United States, Singapore, Japan, and Korea.**



1 Willog Safe

Patented IoT Sensor Device

Sensor devices collect 7 key condition data including location, temperature, humidity, shock, pressure, tilt, and light in real time.



Willog's patented device, secured by multiple patents and proprietary IP, utilizes advanced sensor technology for accurate data collection and rigorous data validation, serving as the fundamental cornerstone for comprehensive logistics intelligence.

Willog Safe - S1



- Real-time
- Single use (no retrieval needed)
- Inflexible operation (without Probe)
- Location, Temperature, Humidity, Shock, Pressure, Tilt, Light

Willog Safe - T1



- Real-time
- Multi use
- Flexible operation (with/without Probe)
- Location, Temperature, Humidity, Shock, Pressure, Tilt, Light

Willog Safe – V2



- On-time (Real-time via App)
- Multi use
- Extended battery life
- Flexible operation (with/without Probe)
- Temperature, Humidity

2

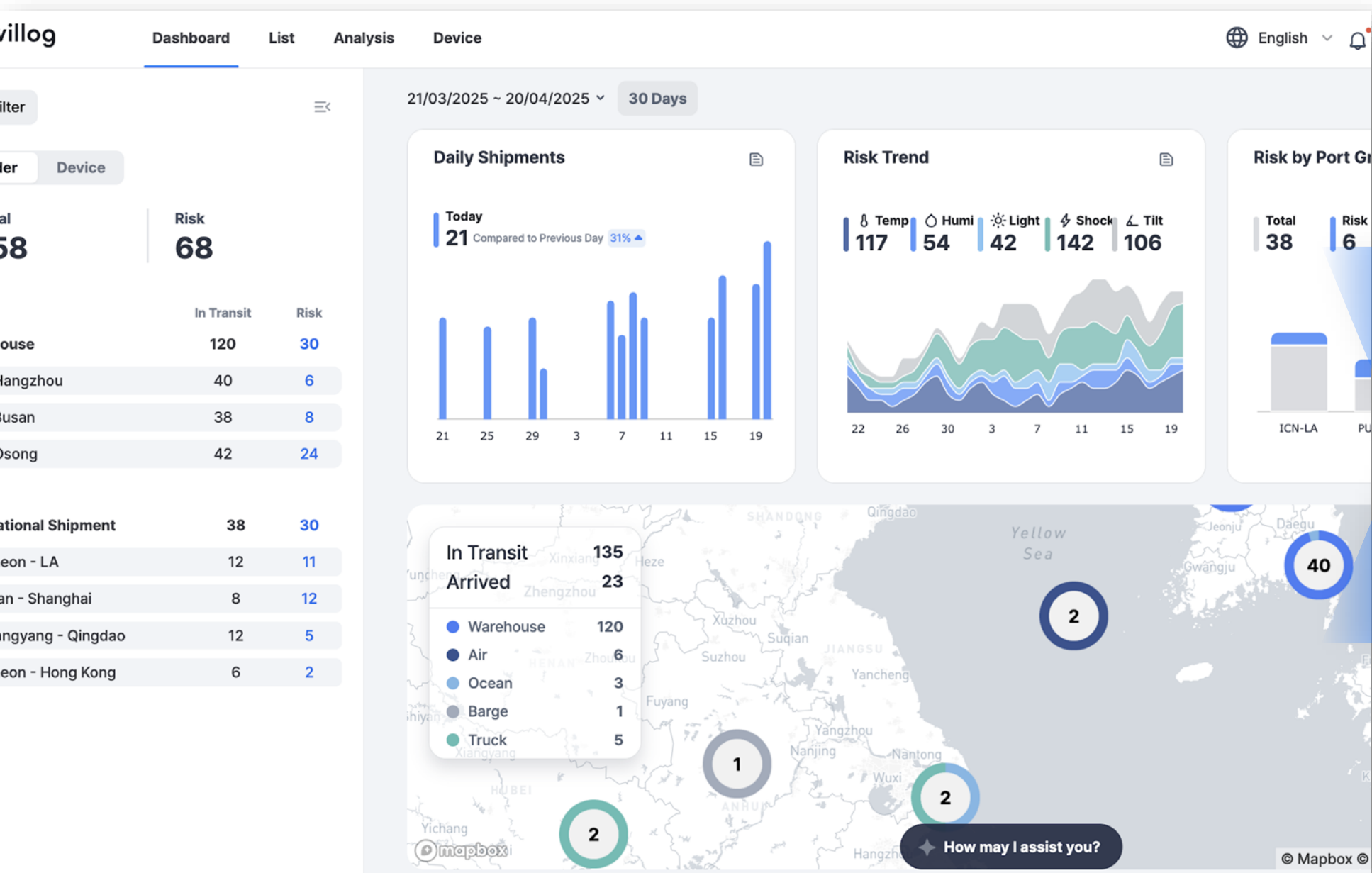
Willog Control Tower

Integrated Condition Monitoring and Data Management Platform

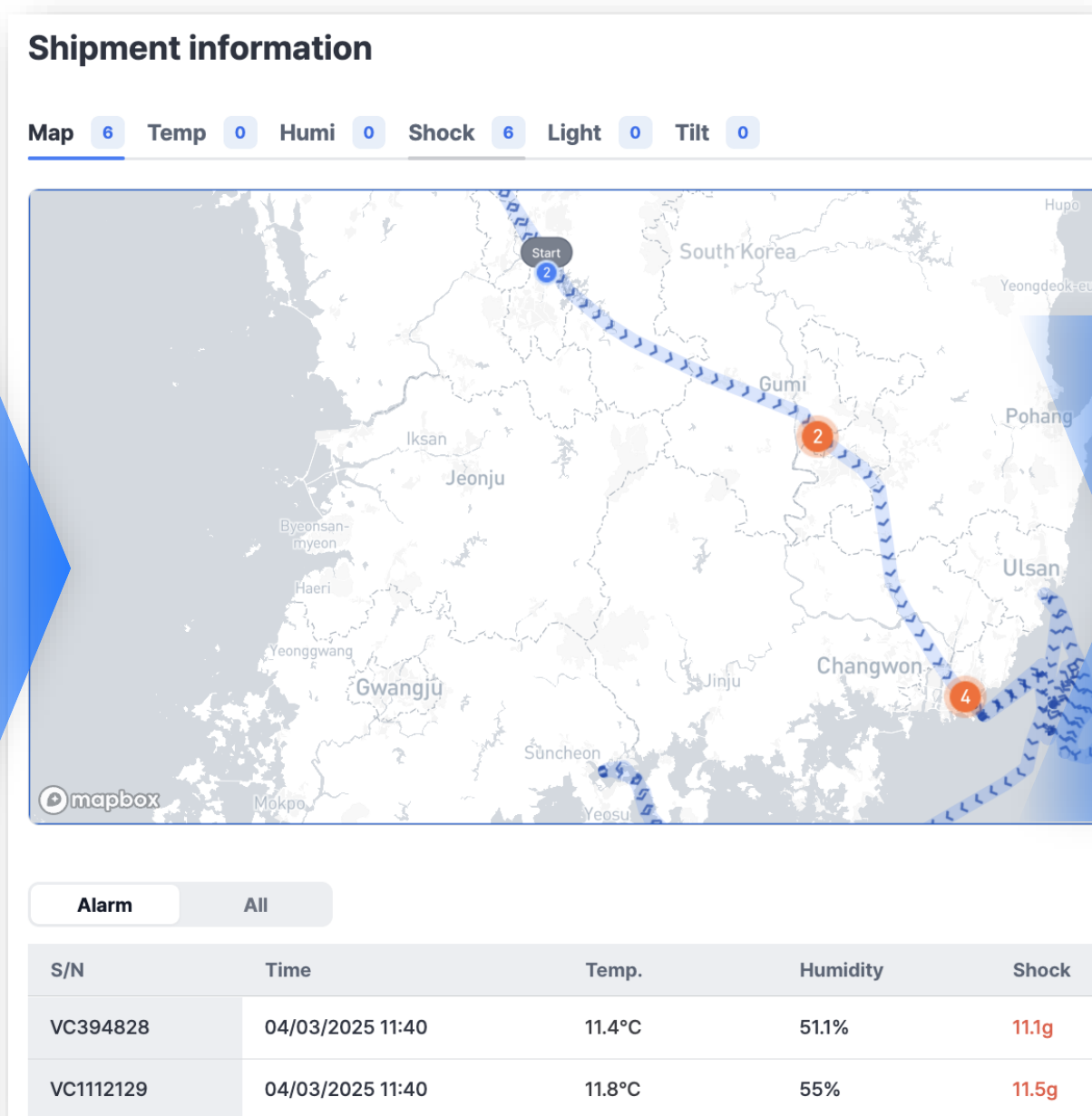
Achieve seamless, end-to-end visibility across the entire supply chain through unified monitoring and data.

Willog offers user-friendly visualization via customized dashboards with business-relevant data points, providing real-time tracking updates and end-to-end visibility through a fully integrated journey of historical and real-time analytics.

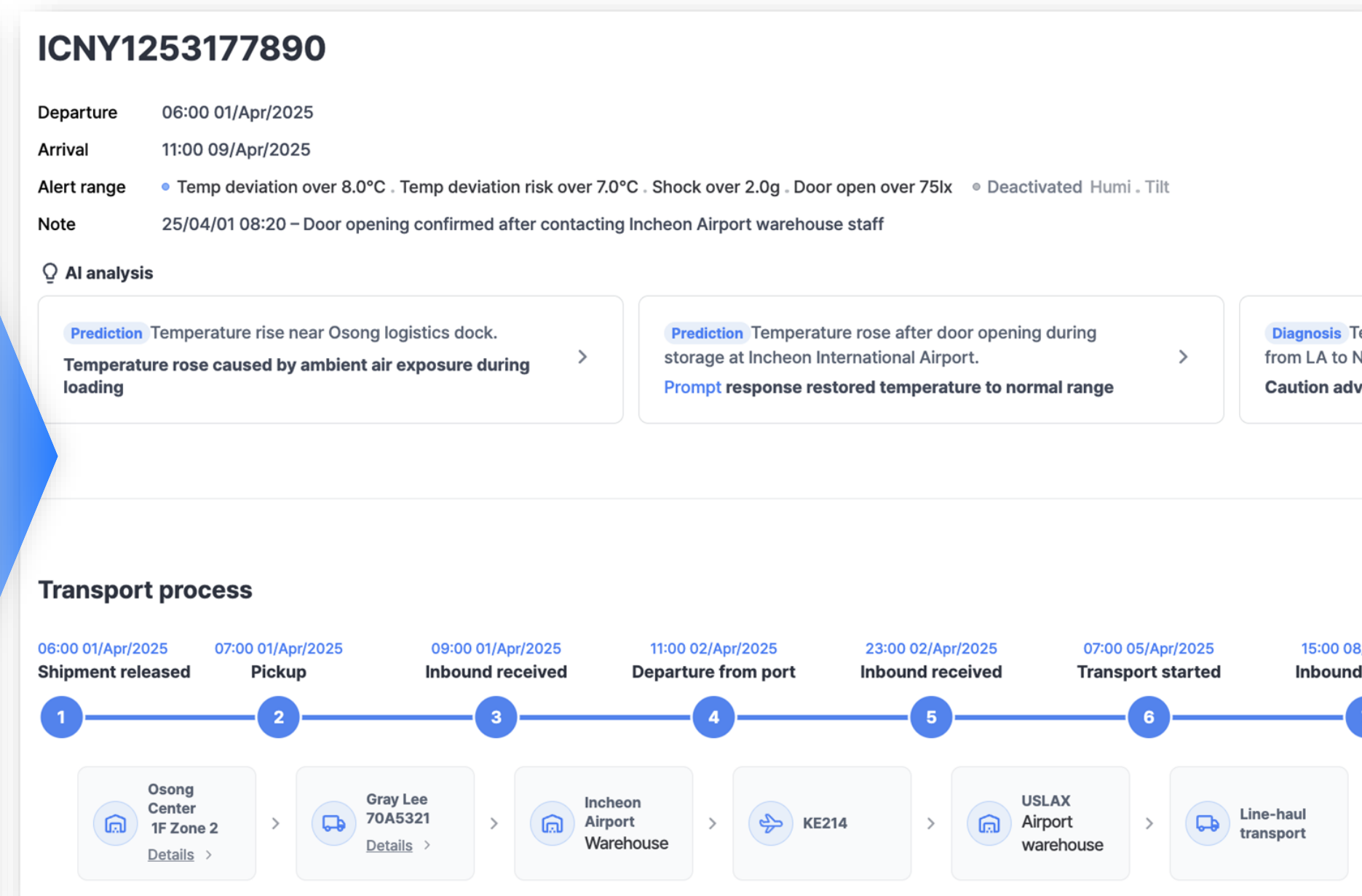
Main Dashboard



Real-time Location & Alarm



First Mile to Last Mile, Multi-Modal Visibility



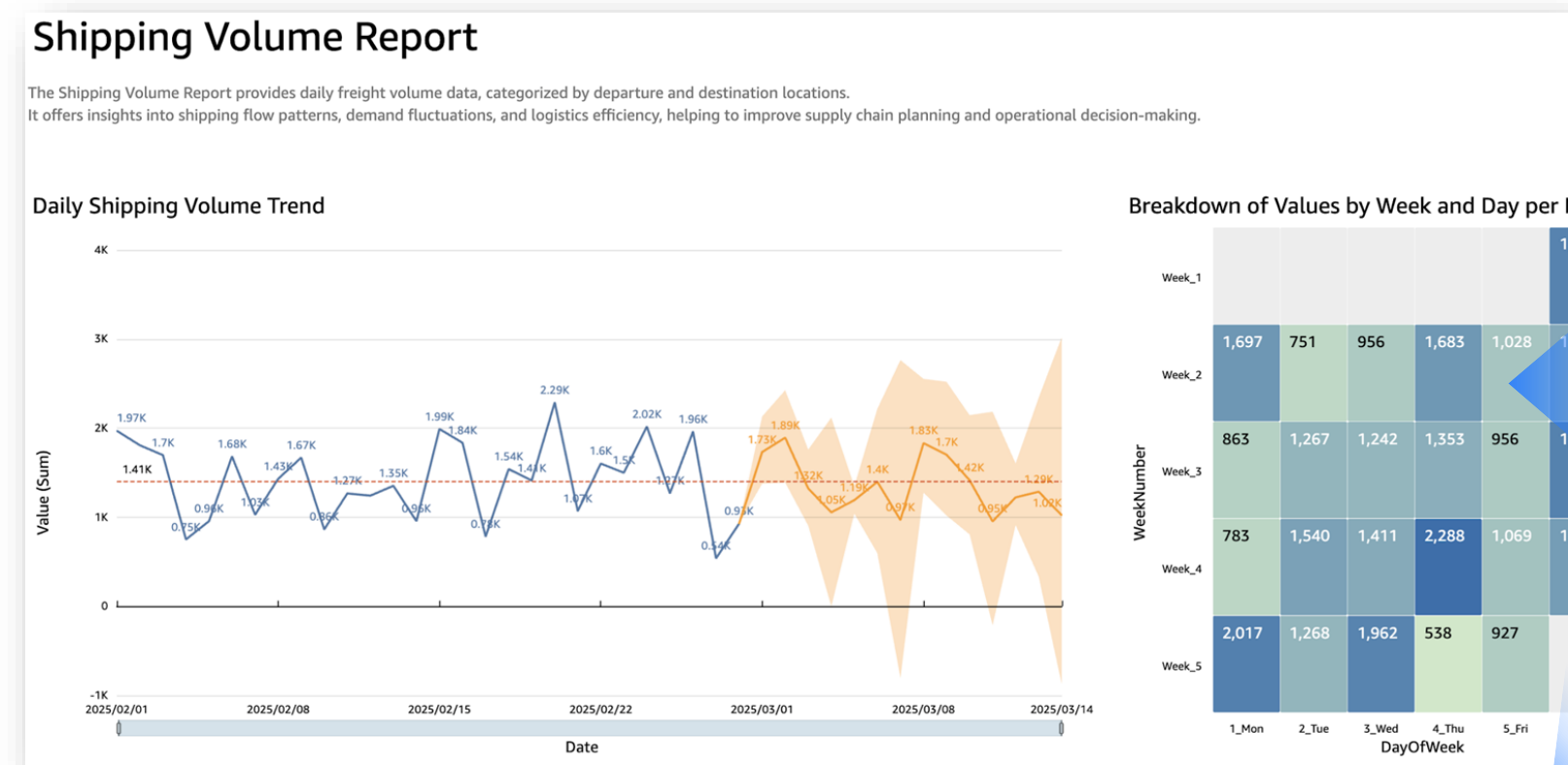
3 Willog Intelligence

AI-powered Decision Intelligence

Enable precise analysis and forecasting at every stage of logistics with our advanced AI-driven intelligence platform.

Harnessing AI algorithms, Willog analyzes transportation data including condition and context factors to deliver forecasting and predictive analytics, generating actionable insights that proactively manage logistics risks, optimize operations, and reduce costs.

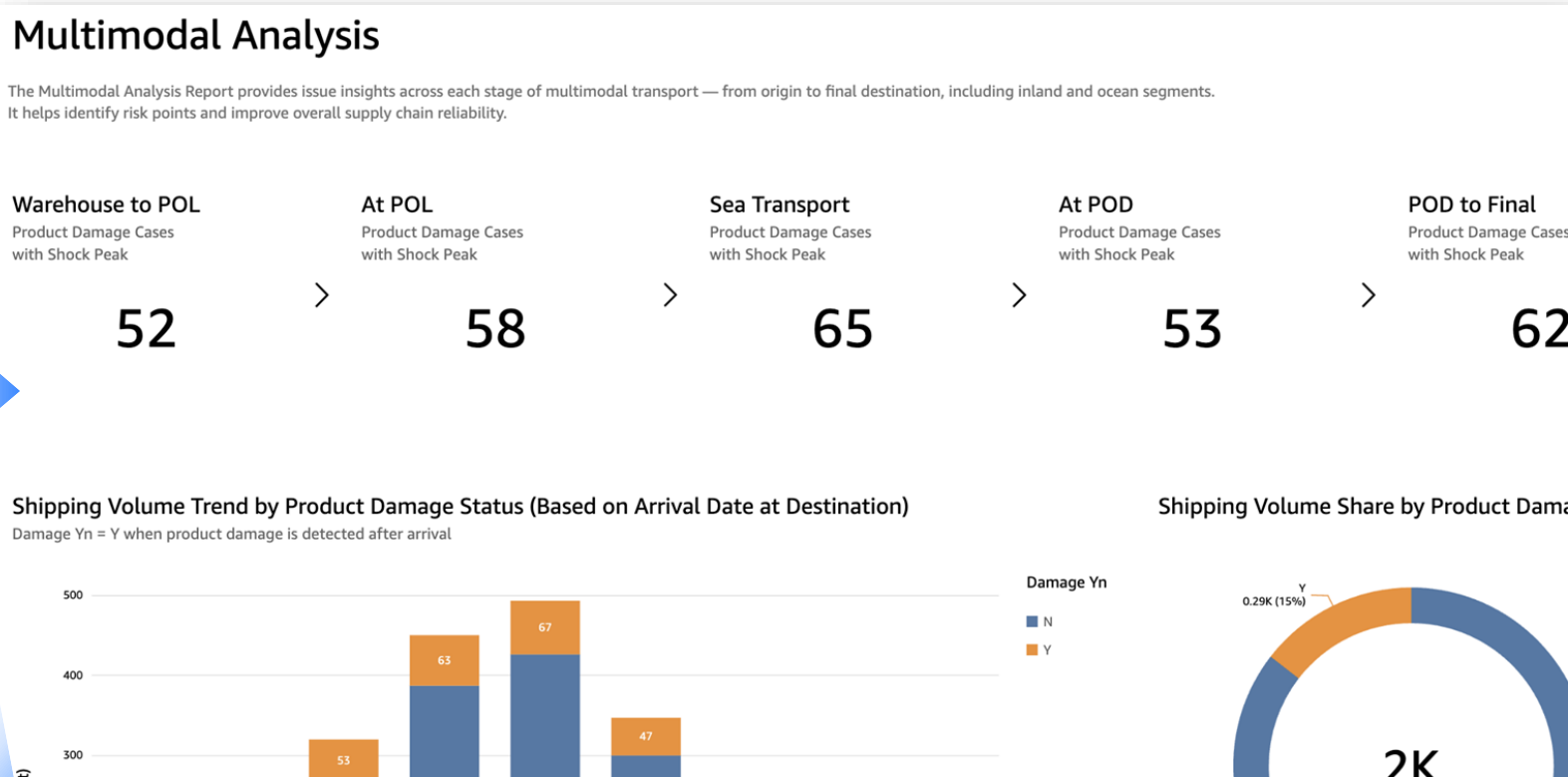
Shipping Volume Analytics



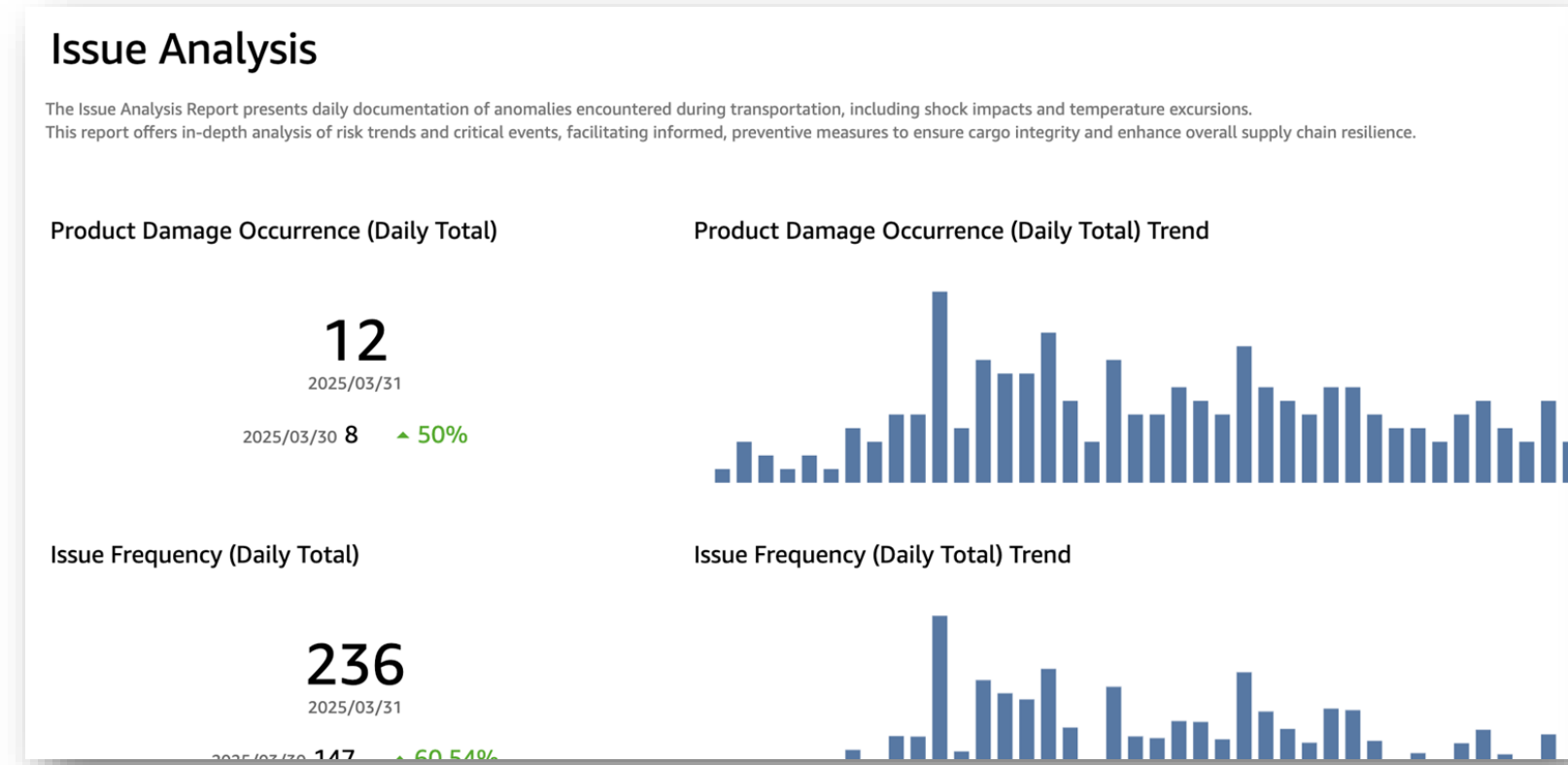
AI-Powered Decision Algorithm



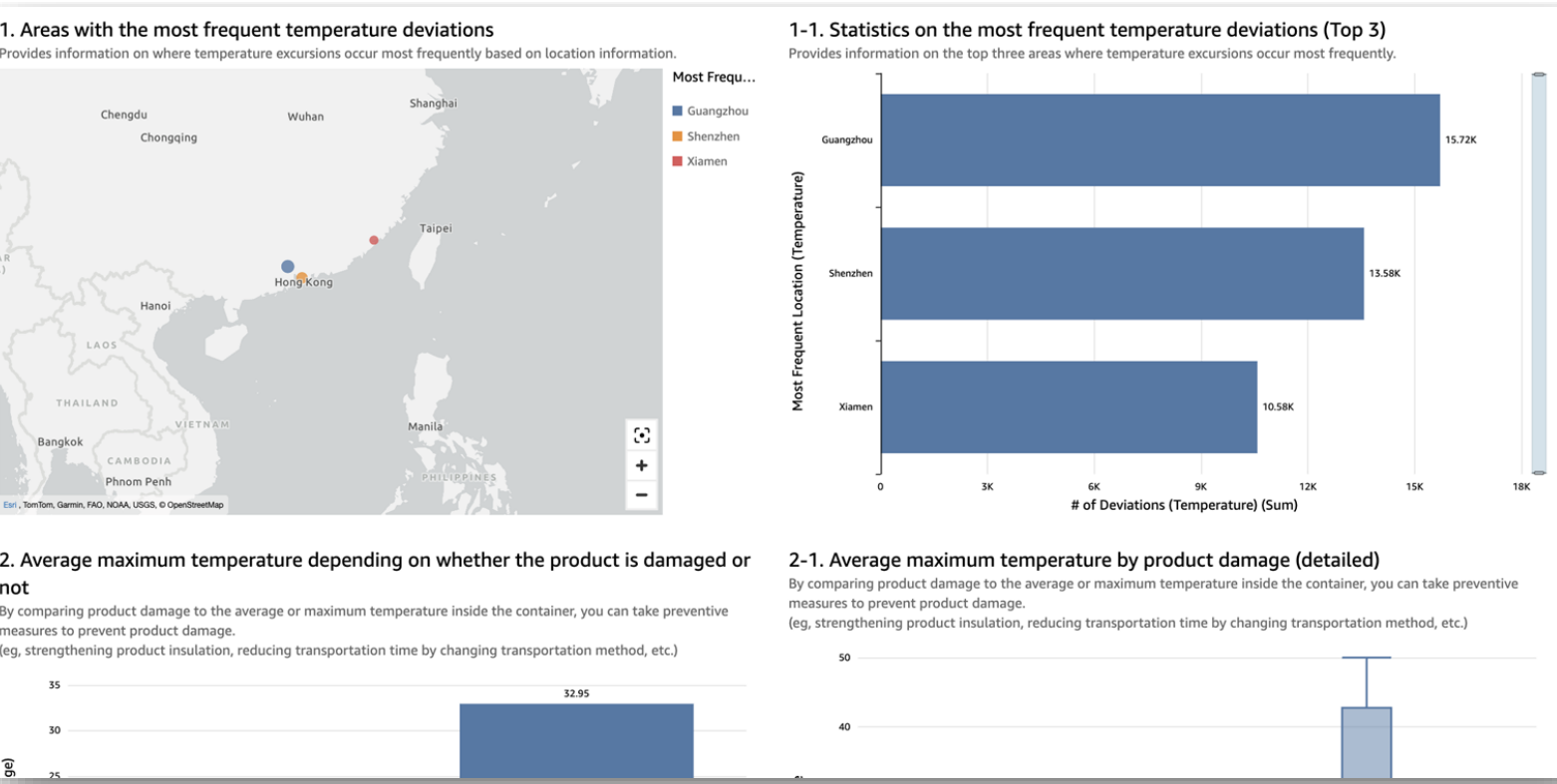
Multimodal Analytics



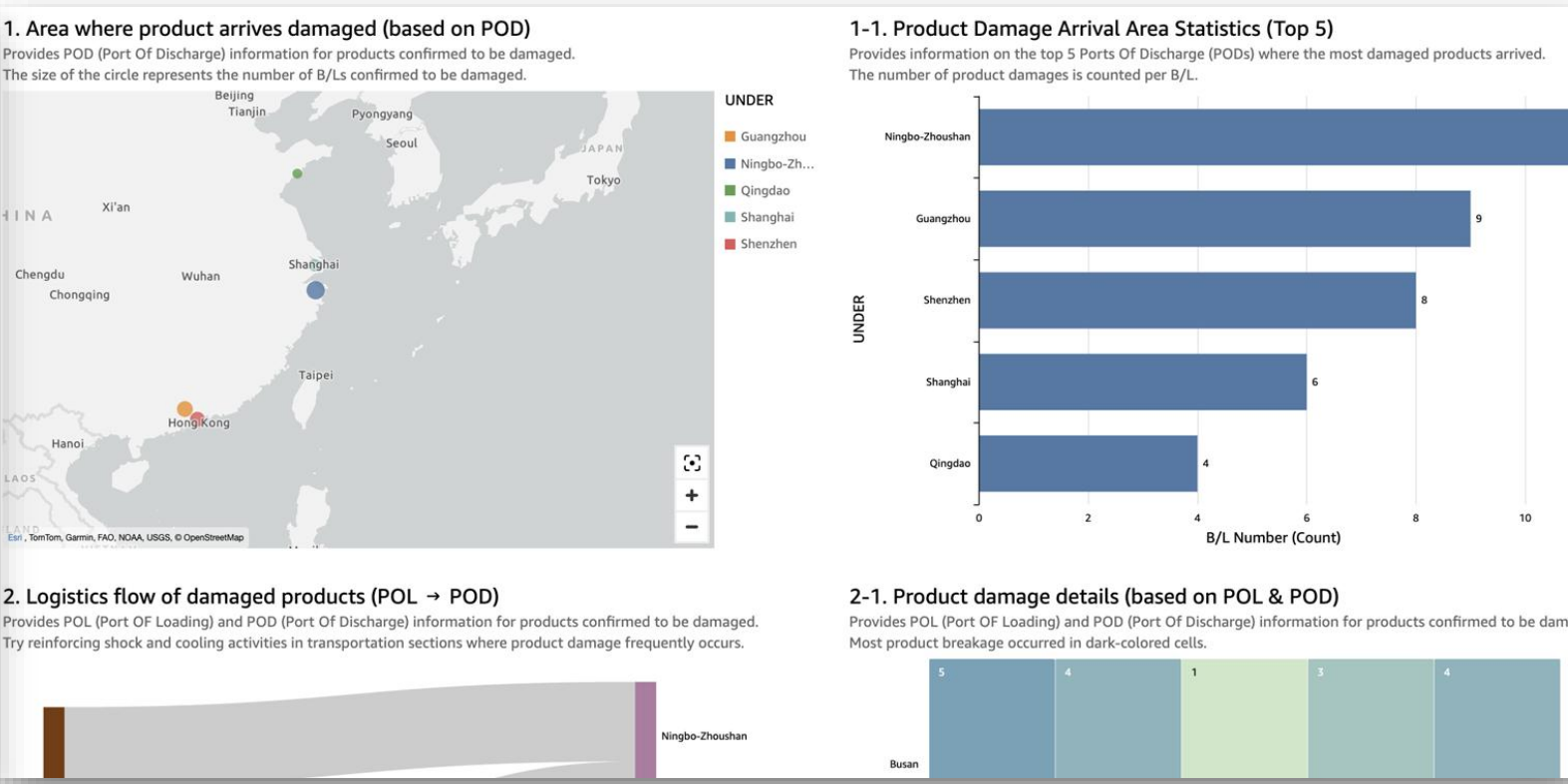
Issue Analytics



Root Cause Analytics



Product Spoilage Status Analytics



Willog provides end-to-end visibility across all types of logistics, including international shipping, warehousing, inland trucking, pharma cold chain, and multi-modal shipping.

1



2



3



4



The Willog Safe-S1 model effectively monitors critical cargo conditions like temperature, humidity, shock, tilt, and light in real time, utilizing convenient single-use devices that eliminate return logistics and streamline international shipping workflows.

Willog Safe - S1



Product Type		Real time
Usage Type		Single-use
Transmission Type		Global cellular connectivity
Measurement Range	Temperature	Internal temperature sensor : -30°C ~ +70°C
	Humidity	5% ~ 95% (at 25°C)
	Shock	0~16G
	Light	0~52,000 Lux
Resolution	Temperature	0.1°C
	Tilt	0.1°
GPS		O
Sensors		Temperature, Humidity, Light , Shock, Tilt
Certificate of Calibration		3-Point, ISO 17025
External Temperature Probe (Option)		O
Measurement Interval		Default 10 min, programmable (Server control) : 10 min ~ 120 min
Transmission Interval		Default 60 min, programmable (Server control) : 10 min ~ 120 min
Management / Monitoring		Willog platform
Battery Life		60 days (w/ 60 min. interval) or 10 days (10 min, Transmission interval)
Charge		X
Battery Type		Li-PO 2,900mAh
IP Rating		IP65
Dimensions		61.3mm(W) x 103mm(H) x 23mm(T)
Weight		130g
Certifications		KC, FCC, CE, RTCA/DO-160G, UN38.3



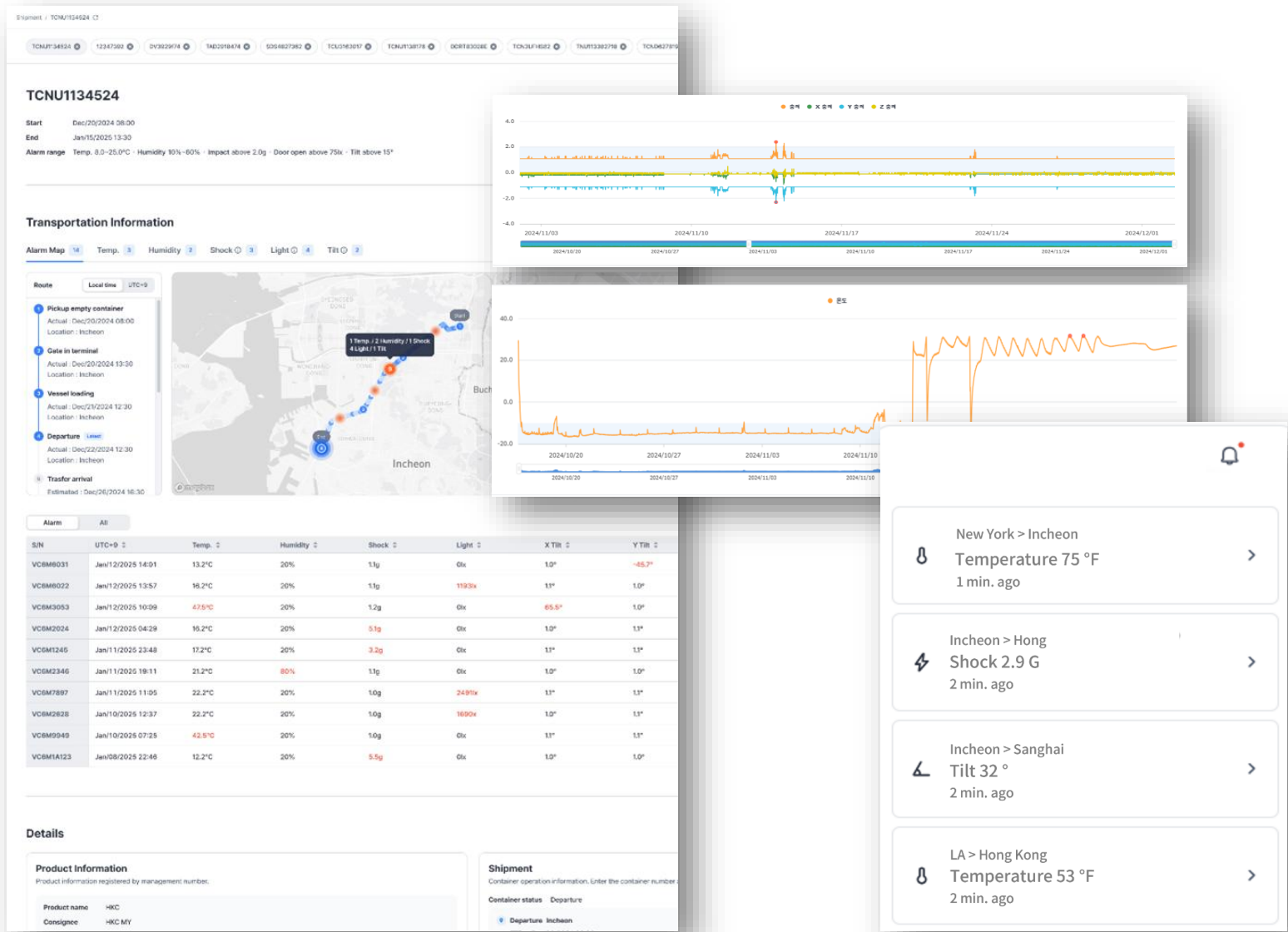
Willog Safe

Condition Data Collection



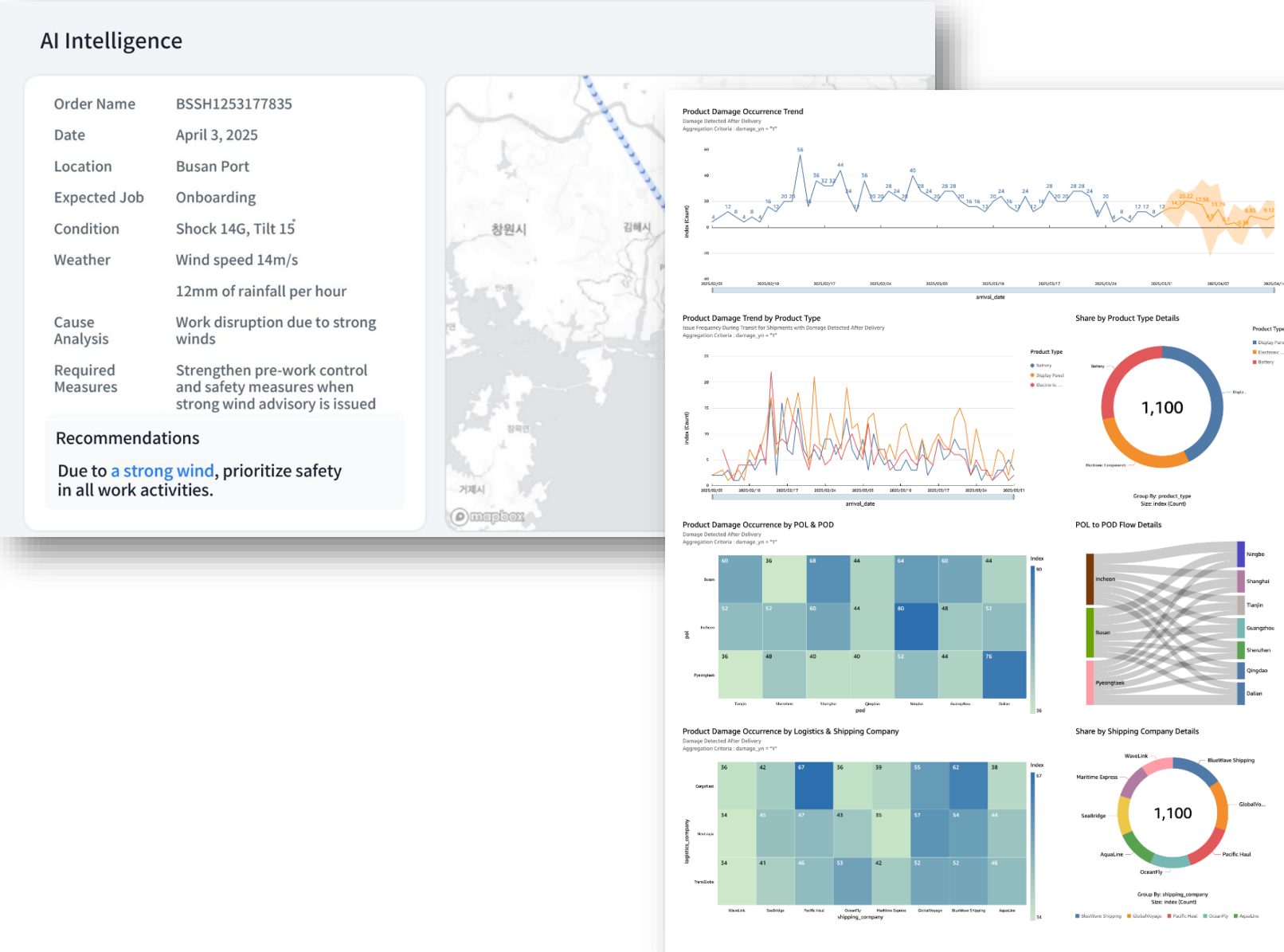
Willog Control Tower

Integrated Insights with Real-time Alerts



Willog Intelligence

Analytics with Predictive & Actionable Insights



End-to-End Tracking & Complete Condition Awareness

- Seamlessly track your cargo from warehouse to final destination across land, sea, and air, monitoring diverse environmental factors (temperature, humidity, shock, etc.) throughout the entire journey.

Intuitive Dashboard & Customized Alerts

- Gain instant understanding of real-time status through clear, user-friendly views on an intuitive dashboard.
- Set unique alert rules for specific needs and receive customized alerts with real-time notifications for critical deviations.

Context-Aware Analysis & Proactive Risk Management

- Gain accurate insights by integrating condition factors (temperature, etc.) with context data (season, etc.) to identify root causes impacting your cargo.
- Benefit from risk prediction based on historical data, enabling proactive intervention and alternative route suggestions to avoid high-risk zones.

The Willog Safe-T1 model effectively monitors warehouse conditions such as temperature, humidity, shock, tilt, and light in real time, utilizing convenient multi-use and rechargeable devices that continuously collect data on warehouse status.



Product Type		Real time
Usage Type		Multi-use
Transmission Type		Global cellular connectivity
Measurement Range	Temperature	Internal Sensor : -30°C ~ +70°C External Sensor : -40°C ~ +80°C External cryogenic temperature sensor : -200°C ~ +400°C
	Humidity	10 ~ 90% (at 25°C)
	Shock	-16G~+16G
	Light	0~10,000 Lux
Resolution	Temperature	0.1°C
	Tilt	0.1°
GPS		O
Sensors		Temperature, Humidity, Light , Shock, Tilt
Certificate of Calibration		3-Point, ISO 17025(KOLAS)
External Temperature Probe (Option)		O
Measurement Interval		Default 10 min, programmable (Server control) : 10 min ~ 120 min
Transmission Interval		Default 60 min, programmable (Server control) : 10 min ~ 120 min
Management / Monitoring		Willog platform
Battery Life		60 days (w/ 60 min. interval or 10 days (10 min, Transmission interval)
Charge		O
Battery Type		Li-PO 3,000mAh
IP Rating		IP65
Dimensions		65mm(W) x 115mm(H) x 20mm(T)
Weight		145g (Incl. External temperature sensor)
Certifications		KC, TBD(FCC, CE, RTCA/DO-160G, UN38.3)



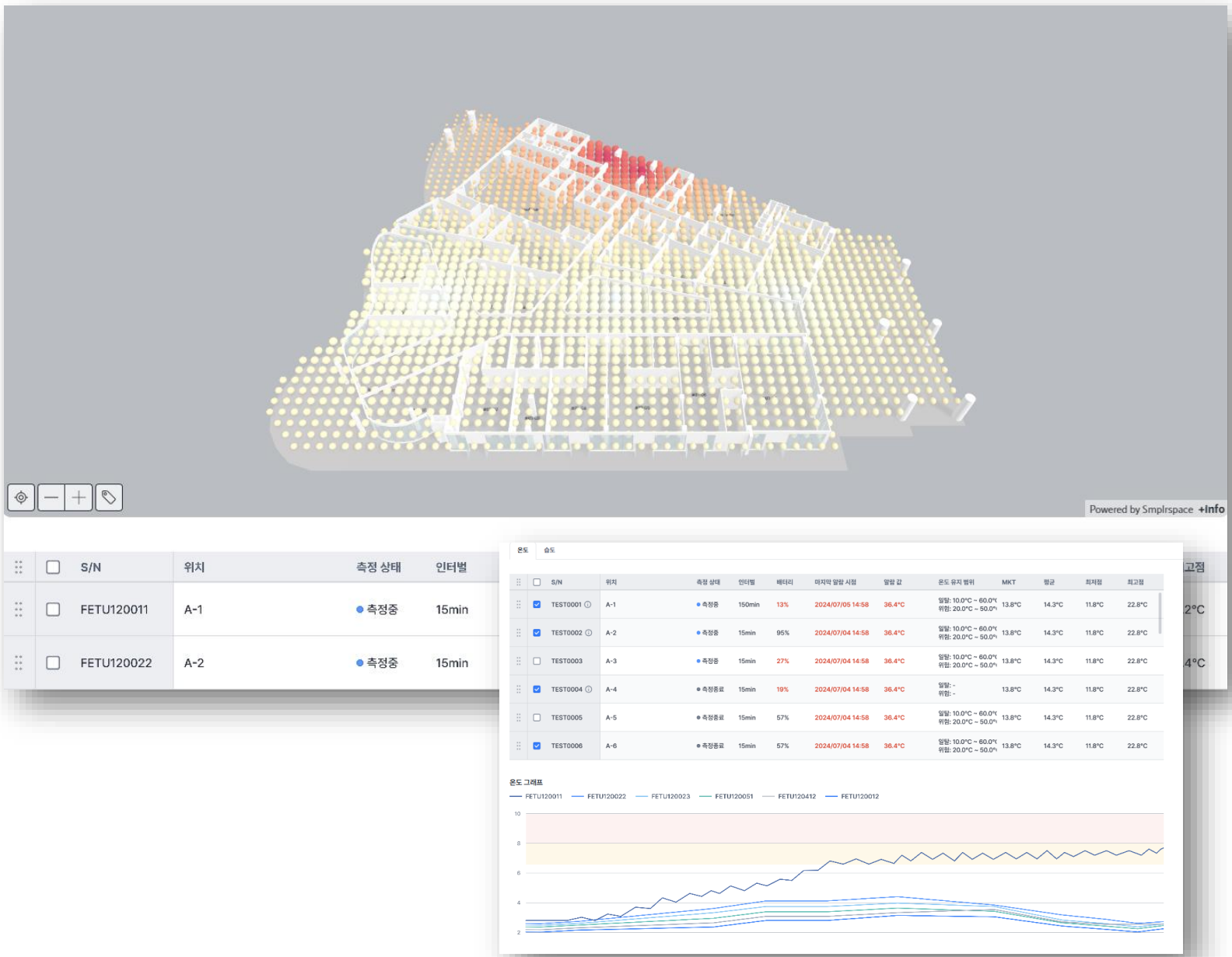
Willog Safe

Condition Data Collection



Willog Control Tower

Integrated Insights with Real-time Alerts



Willog Intelligence

Analytics with Predictive & Actionable Insights



Warehouse Condition Monitoring

- Continuously monitor diverse environmental factors (temperature, humidity, shock, etc.) within your warehouse, ensuring complete condition awareness.

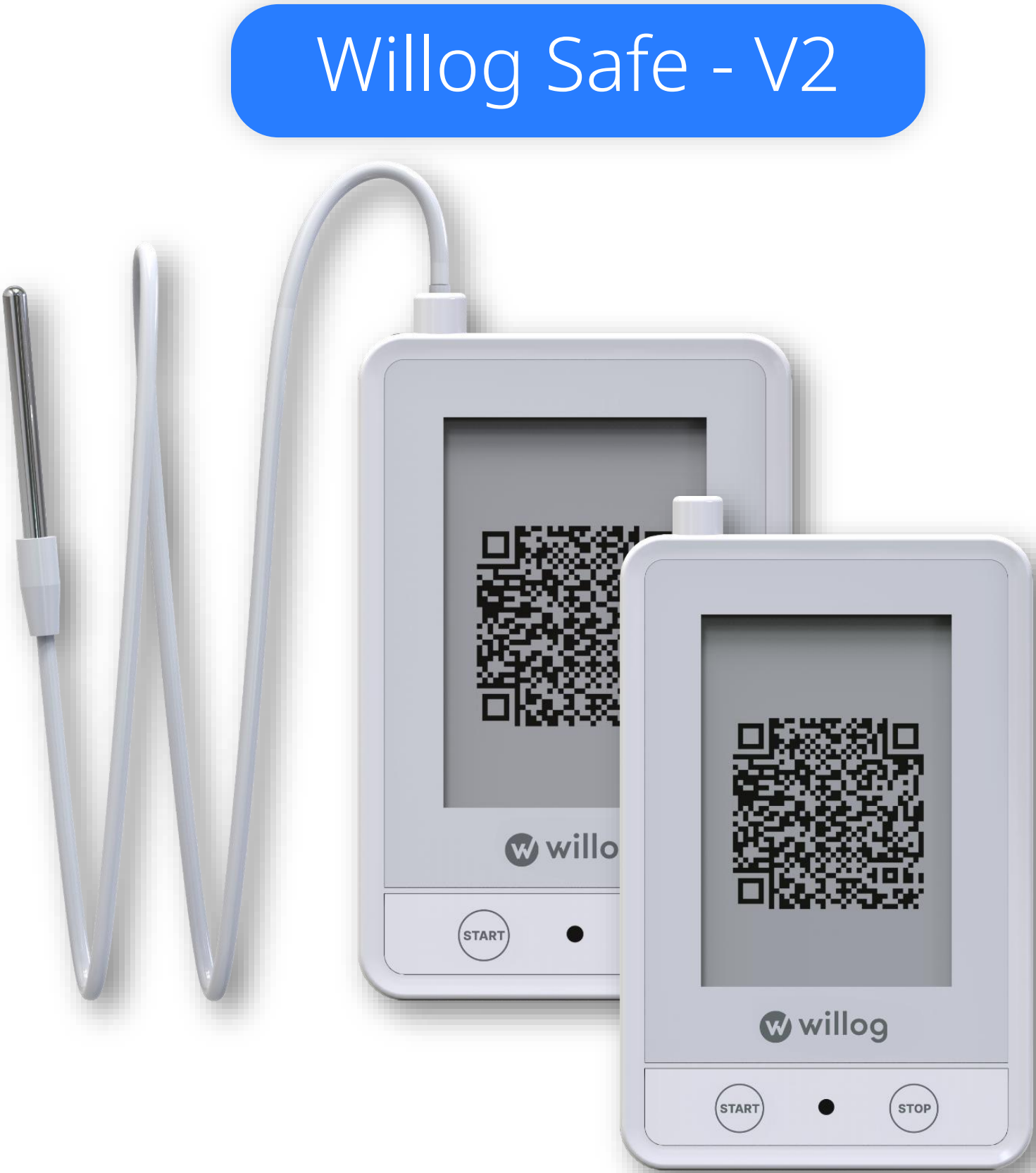
Warehouse Monitoring & Anomaly Detection

- Real-time Space Visibility with 3D Modeling: Continuously oversee your environment and assets with instant, intuitive 3D visualization of conditions, enhancing real-time anomaly detection and 24/7 monitoring.
- Critical Condition Capture: The system captures vital conditions like temperature, humidity, and more.
- Immediate & Customized Alerts: Receive instant, tailored alerts to the right personnel upon issue detection, minimizing noise.
- Plug & Play Installation: Deploy instantly without wires or infrastructure.

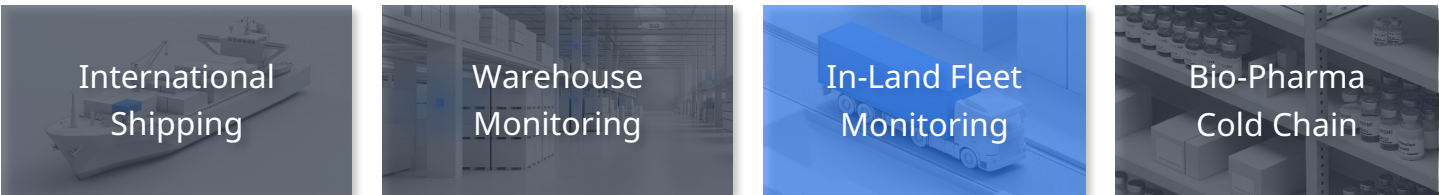
Warehouse Monitoring Intelligence

- Optimized Operations: Our solution identifies factors impacting workspace and product conditions, leveraging spatial data and external context like climate and season.
- Risk Management: It assesses potential zone-specific threshold deviations for enhanced risk mitigation and optimized storage.
- Automated Reporting: The system generates customizable reports directly from collected data, enabling efficient decision-making.

The Willog Safe-V2 model effectively monitors in-land trucking conditions such as temperature, humidity, shock, tilt, and light, utilizing convenient, multi-use, and rechargeable devices that easily activate with a QR code to collect condition data.



Product Type		On time (Not Real time)
Usage Type		Multi-use
Transmission Type		NFC, BLE
Measurement Range	Temperature	Internal Sensor : -30°C ~ +70°C External Sensor : -40°C ~ +80°C
	Humidity	20% ~ 80% (at 25°C)
	Shock	X
	Light	X
Resolution	Temperature	0.1°C
	Tilt	X
GPS		O
Sensors		Temperature, Humidity
Certificate of Calibration		3-Point, ISO 17025(KOLAS)
External Temperature Probe (Option)		O
Measurement Interval		Default 15 min, programmable 10 min ~ 120 min
Transmission Interval		X
Management / Monitoring		Willog platform / Mobile application
Battery Life		1 year (w/ 15 min. interval)
Charge		O
Battery Type		Li-Coin 1,240mAh
IP Rating		IP55
Dimensions		65mm(W) x 100mm(H) x 13.5mm(T)
Weight		93g (Incl. External temperature sensor)
Certifications		KC, RoHS, RTCA/DO-160G



Willog Safe

Willog Control Tower

Willog Intelligence

Condition Data Collection

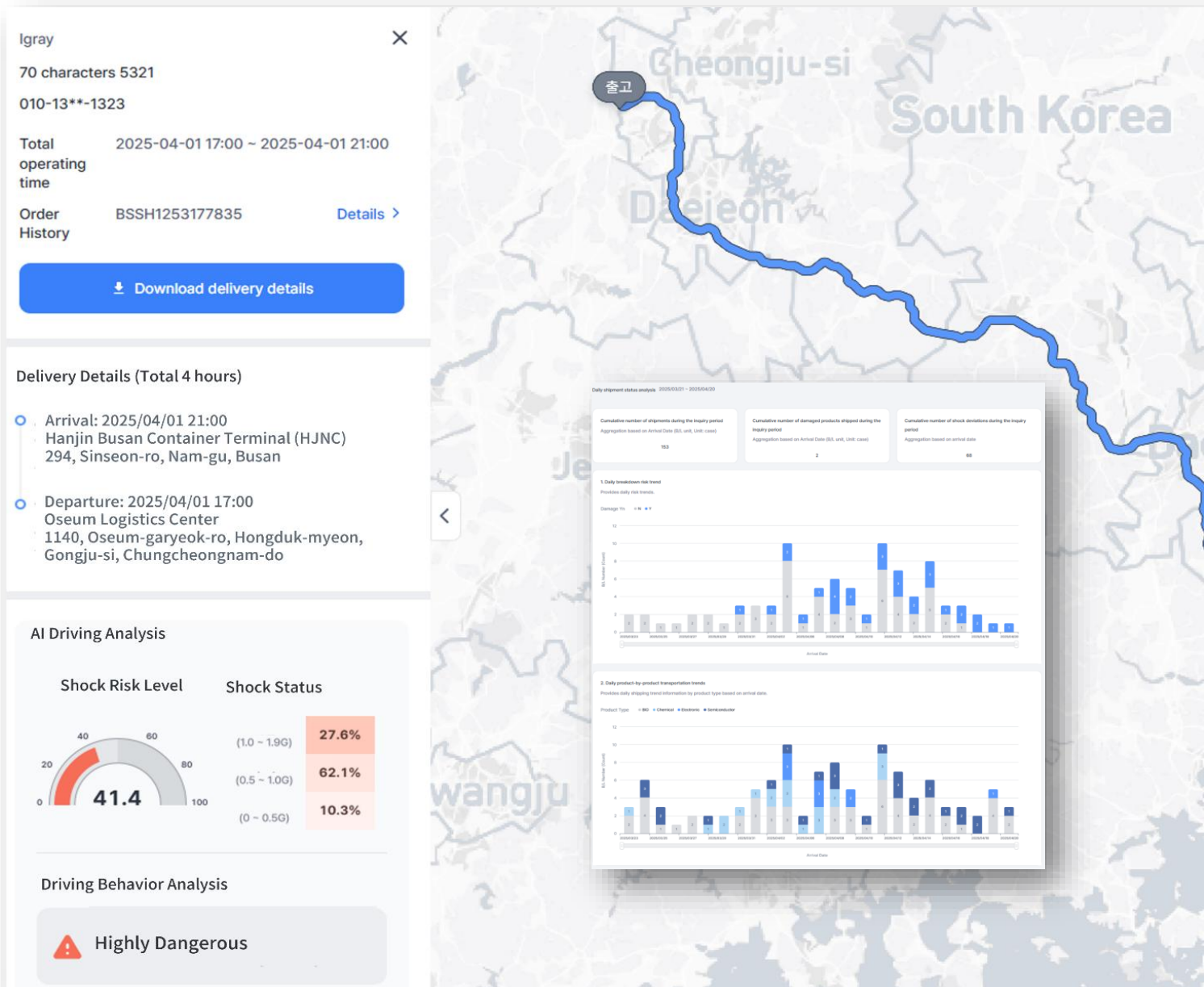
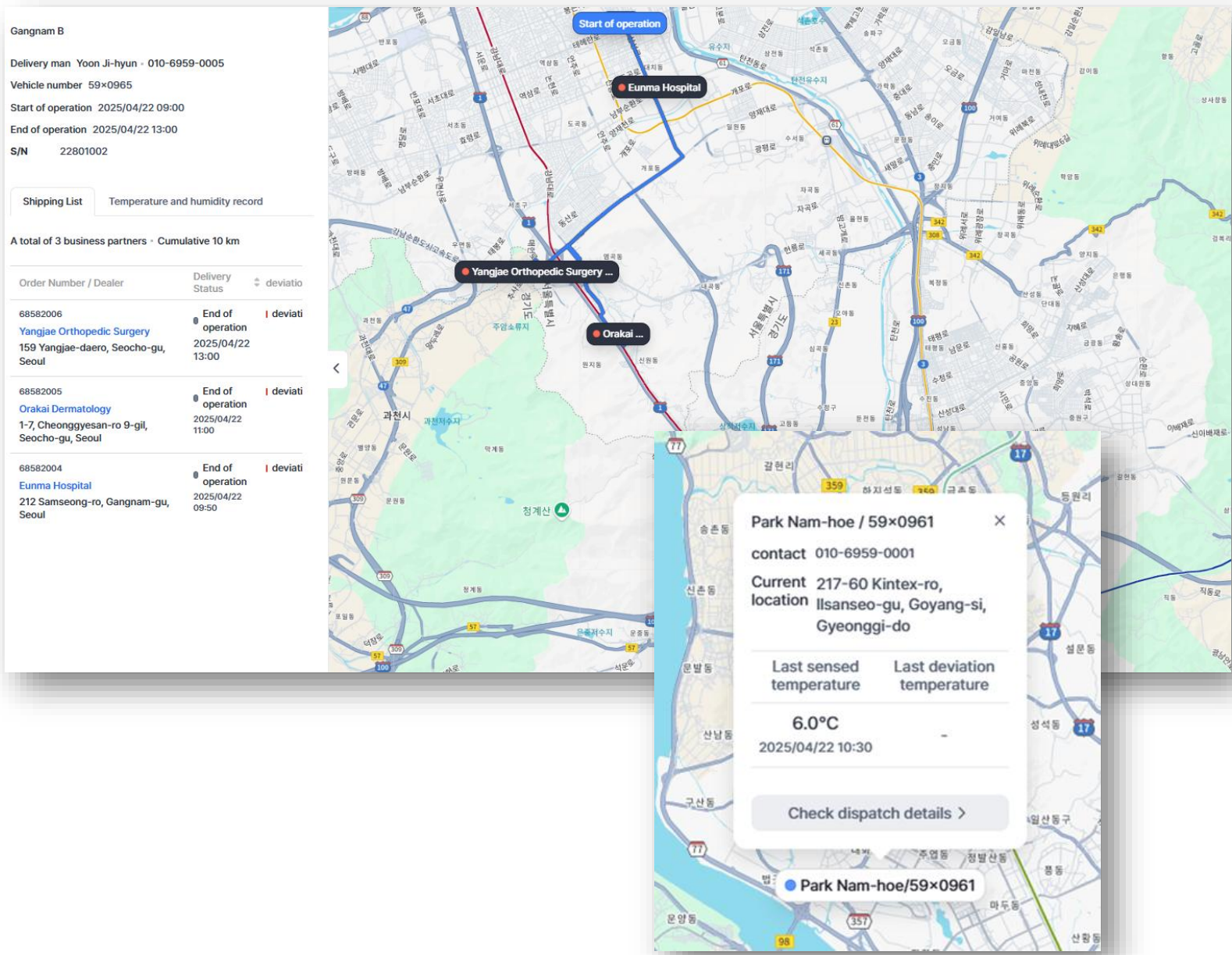
Integrated Insights with Real-time Alerts

Analytics with Predictive & Actionable Insights



Real-time

Non-Real-time



Willog Safe for In-Land Fleet Condition Monitoring

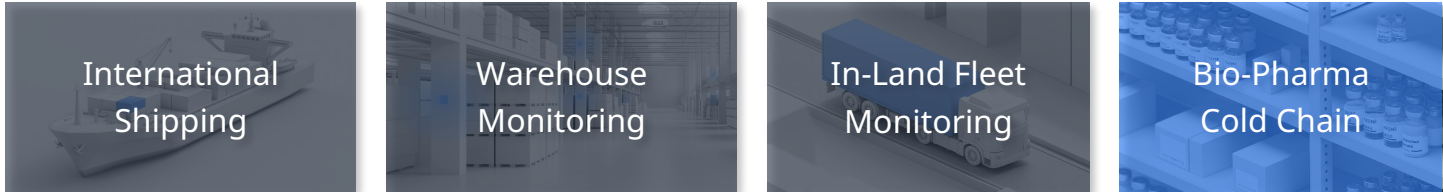
- Flexible Device Options:** Willog offers real-time Safe-T1 and non-real-time Safe-V2 models, enabling tailored sensor selection for diverse in-land fleet monitoring scenarios.
- Comprehensive & Integrated Data Collection:** Our devices accurately measure critical in-transit conditions like temperature, humidity, shock, tilt, and light, providing essential environmental data via easy activation (Safe-V2) or continuous monitoring (Safe-T1).

Real-time Transportation Visibility

- Comprehensive & Reliable Coverage:** Accurately tracks environmental data (temperature, humidity, light, shock, and more) inside vehicles, providing real-time event visibility.
- Integrated In-transit Visibility:** Combines delivery routes, driver, and vehicle information for comprehensive monitoring.

In-land Fleet Monitoring Intelligence

- Precise Pattern & Issue Analysis:** Our system analyzes vehicle operations using GPS and external factors like weather to identify the frequency of transportation delays and problems.
- Predictive & Prescriptive Actions:** We provide optimal route guidance to minimize road impact and proactive risk alerts, predicting weather-related risks for timely warnings and preventative action.
- Customized Analytics Reports:** Generate tailored reports to support data-driven decisions and maximize transportation efficiency.

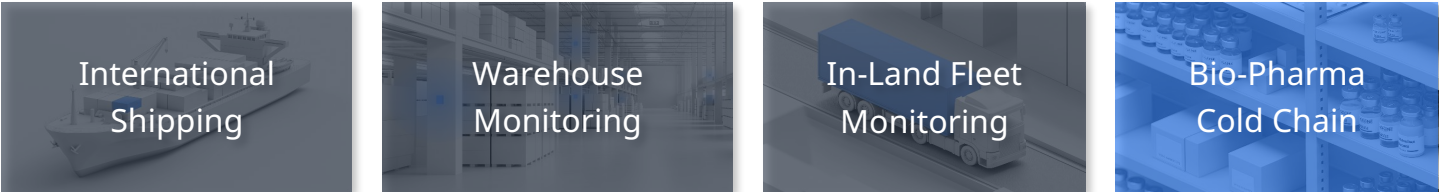


The Willog Safe-T1 model effectively monitors bio-pharma cold chain conditions like temperature, humidity, shock, tilt, and light in real time, using convenient multi-use, rechargeable devices that continuously collect data on sensitive medical freight.

Willog Safe - T1



Product Type		Real time
Usage Type		Multi-use
Transmission Type		Global cellular connectivity
Measurement Range	Temperature	Internal Sensor : -30°C ~ +70°C External Sensor : -40°C ~ +80°C External cryogenic temperature sensor : -200°C ~ +400°C
	Humidity	10 ~ 90% (at 25°C)
	Shock	-16G~+16G
	Light	0~10,000 Lux
Resolution	Temperature	0.1°C
	Tilt	0.1°
GPS		O
Sensors		Temperature, Humidity, Light , Shock, Tilt
Certificate of Calibration		3-Point, ISO 17025(KOLAS)
External Temperature Probe (Option)		O
Measurement Interval		Default 10 min, programmable (Server control) : 10 min ~ 120 min
Transmission Interval		Default 60 min, programmable (Server control) : 10 min ~ 120 min
Management / Monitoring		Willog platform
Battery Life		60 days (w/ 60 min. interval or 10 days (10 min, Transmission interval)
Charge		O
Battery Type		Li-PO 3,000mAh
IP Rating		IP65
Dimensions		65mm(W) x 115mm(H) x 20mm(T)
Weight		145g (Incl. External temperature sensor)
Certifications		KC, TBD(FCC, CE, RTCA/DO-160G, UN38.3)



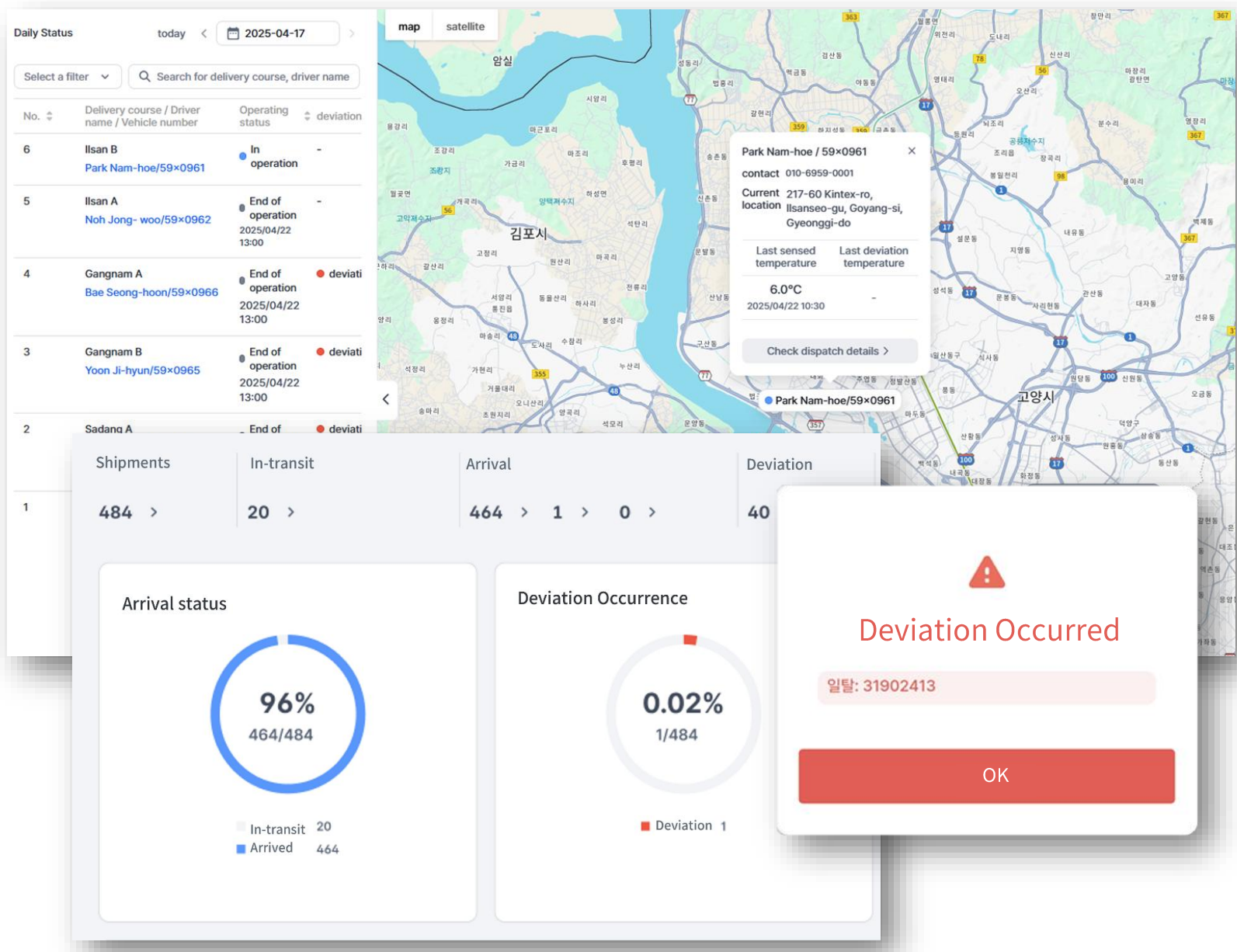
Willog Safe

Condition Data Collection



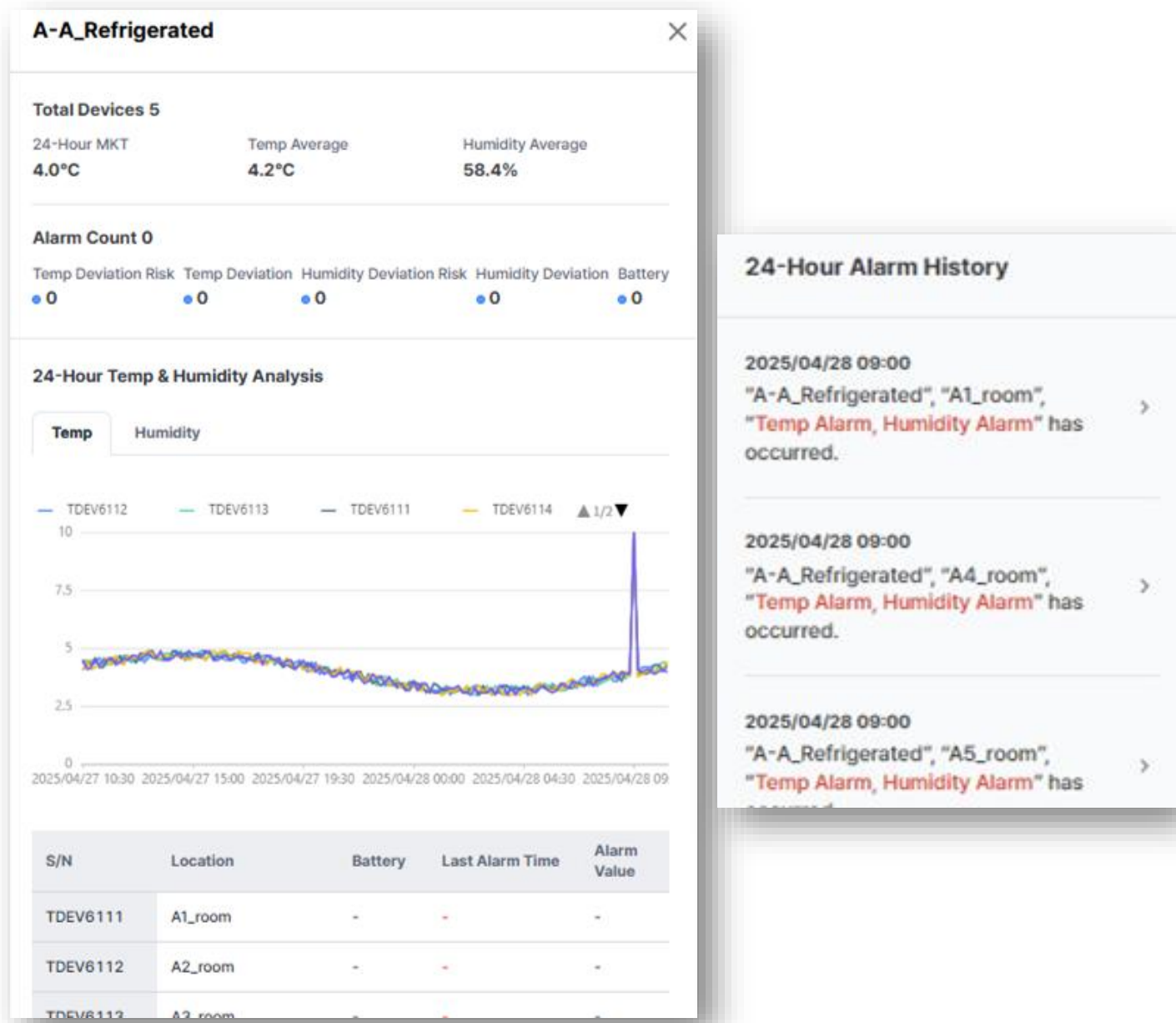
Willog Control Tower

Integrated Insights with Real-time Alerts



Willog Intelligence

Analytics with Predictive & Actionable Insights



Willog Safe for Bio-Pharma Cold Chain Condition Monitoring

- **Flexible Device Options:** Willog offers Safe-T1 (real-time) and Safe-V2 (non-real-time) for tailored bio-pharma cold chain selection.
- **Comprehensive Data Collection:** Devices measure in-transit conditions (temp, humidity, shock, tilt, light) via activation (V2) or continuous monitoring (T1).
- **GMP Compliance:** Ensures GMP compliance through flexible production/storage monitoring, with real-time/non-real-time data, customizable alerts, automated reports, and history tracking.

Bio-Pharma Cold Chain Transportation

- **Compliance & Automation:** Our solution integrates seamlessly with ERP or databases to streamline workflows, ensuring compliance and enhancing automation for sensitive bio-pharma shipments.
- **Comprehensive Visibility:** Achieve detailed, box-level monitoring, linked with full vehicle and shipment details, for complete oversight throughout the cold chain journey.
- **Simplified Data Handling:** Benefit from easy device retrieval and efficient batch data extraction, simplifying post-transport data management.

Bio-Pharma Cold Chain Monitoring Intelligence

- **Enhanced Cold Chain Visibility & Analysis:** Offers granular visibility of conditions, integrating data to identify integrity and compliance deviations.
- **Proactive Risk Mitigation & Predictive Actions:** Leveraging visibility, delivers predictive insights and optimal routes to prevent excursions, ensuring stability via proactive alerts.
- **Compliance-Driven Reporting & Optimization:** Generates tailored reports for cold chain transparency, supporting compliance, investigations, and data-driven optimization.

Our fully customized deployment and operational support delivers end-to-end assistance tailored to each client's environment, ensuring seamless adoption and optimal solution utilization.

01

Comprehensive
Environmental Analysis

- We begin by deeply analyzing your current logistics environment, understanding your specific business goals, and assessing the potential impact our solution can deliver.

02

Data Strategy &
Solution Deployment

- We define relevant data types, precise measurement methodologies, and critical monitoring conditions based on your products, then strategically design optimal sensor placement in your operational spaces like containers and warehouses.

03

Anomaly Detection &
Workflow Integration

- We establish clear, actionable criteria for anomaly detection and seamlessly integrate these insights into your existing operational workflows for immediate impact.

04

Tailored Design of
User Experience

- Understanding your unique operational environment and key stakeholders, we craft a customized user experience (UX) that aligns perfectly with your team's needs.

05

Optimized Data Structure
& Actionable Insights

- We ensure your data structure is optimized and that the insights derived are directly aligned with your business objectives, empowering you to achieve your desired impact.



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