
WESTWELL
AI World Model for Intelligent Site-Wide Schedule
ReeWell
An Industry-Leading AI World-Model Driven, Full-Scene, All-Factor Intelligent Scheduling & Management Platform
AI World Model for Intelligent Site-Wide Schedule
WESTWELL | The Next Decade of Logistics Schedule

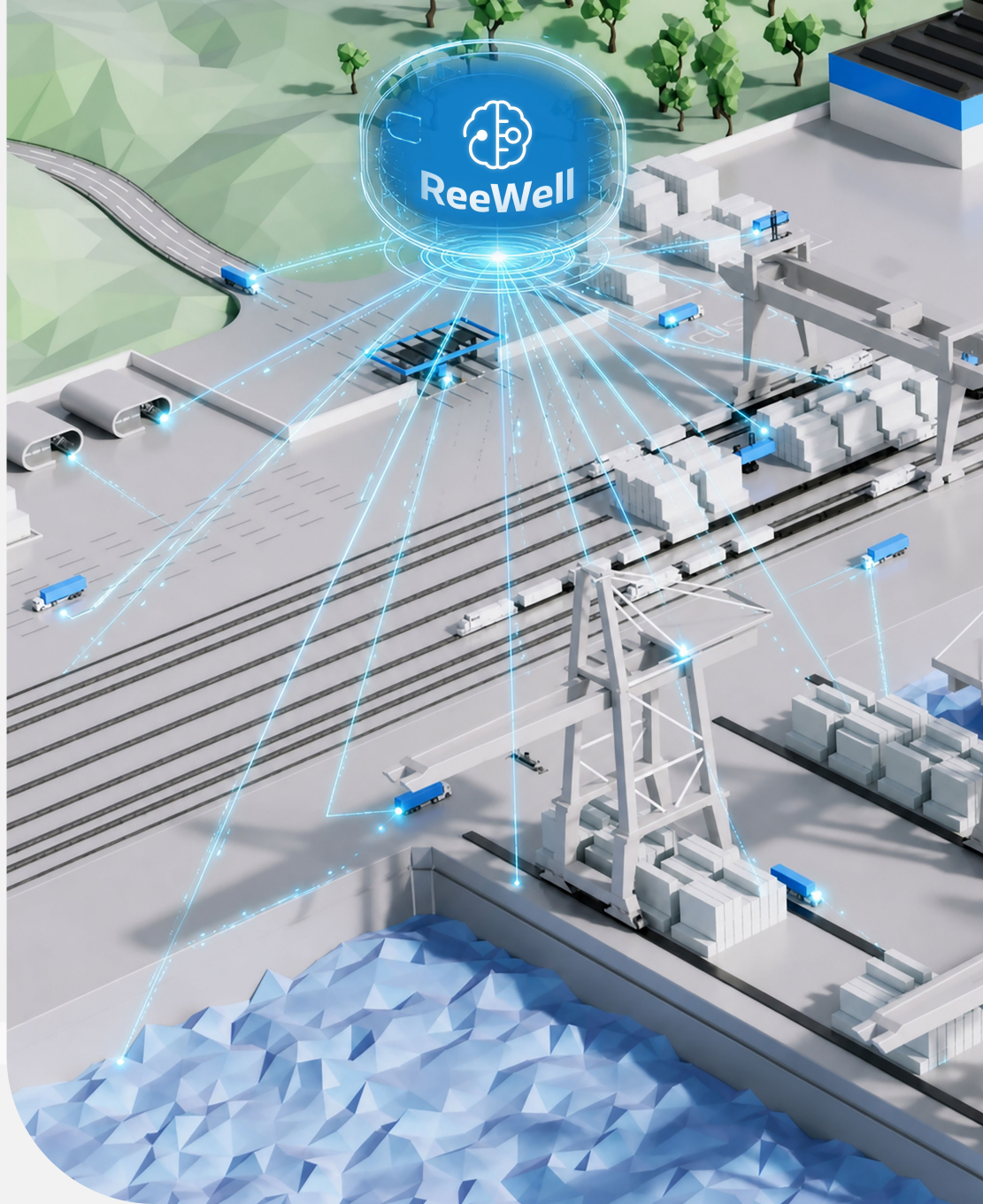
ReeWell

Product Definition & Application Scenarios

ReeWell is a multi-agent AI schedule platform. It connects cranes, AGVs, trucks, and operators into one intelligent system. Powered by Hymala and Nexus, it reduces idle gaps and turns fragmented moves into smooth logistics flow.

One Core · All Scenarios

Core stack: Cactus Data Foundation · Hymala World Model · Nexus Schedule Engine



The Cost of Fragmented Systems

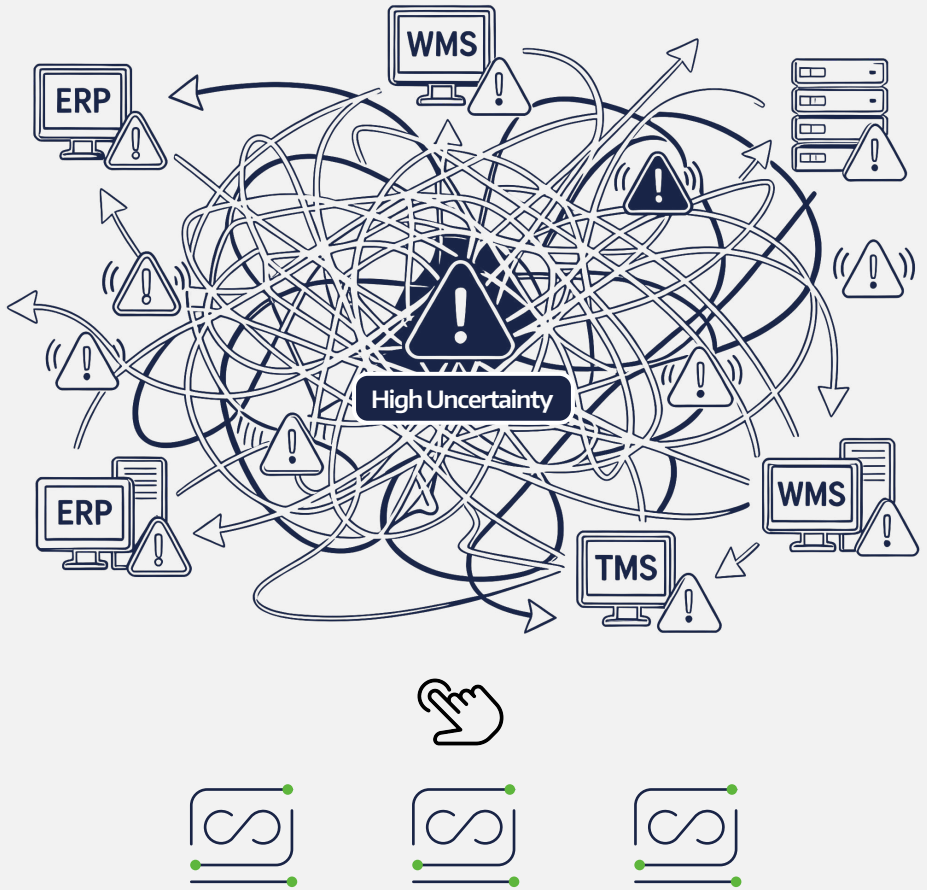
Why does efficiency still hit a ceiling?
Large logistics sites often run many disconnected systems.

- Data mismatch: TOS says “arrived”; FMS says “ready”. Timing often differs.
- Process mismatch: Cross-team handoffs still need manual confirmation.
- Timing mismatch: No global clock. No future-state simulation.

Result

Systems output noise, not clear instructions.

Operations fall back to radios and dispatcher experience.
Efficiency and automation both stall.



ReeWell Overall Product Architecture

World-Leading AI World-Model-Driven All-Factor Intelligent Scheduling Platform

A software ecosystem for end-to-end operations, integrating multiple subsystems and modular capabilities, from single-device management to site-wide all-factor collaborative scheduling

Core Functional Application Layer

1.Situational Awareness& Intelligent Interaction

- ·Full-Element Map
- ·Operations Alert
- ·Risk Warning
- ·AI Expert
- ·AI Smart Reminder
- ·Insight Center(KPI)

2.Platform Foundation& Endpoints

- ·Product ConfigCenter
- ·User Management
- ·Handheld Terminal
- ·Scheduling ConfigCenter
- ·Simulation Accelerator
- ·Full-ProcessReplay

3.Equipment &Station Monitoring

- ·Vehicle Monitoring
- ·Swap Station Monitoring
- ·Quay Crane Monitoring
- ·Yard Crane Monitoring

4.Operations Management& Unified Scheduling

- ·PlanScheduling
- ·Vessel Operations Mgmt
- ·Vehicle Scheduling
- ·Quay Crane Scheduling
- ·Yard Crane Scheduling
- ·Yard Scheduling
- ·Energy Scheduling
- ·Unified Scheduling

Software Ecosystem Capability Federation WellFMS • AdaOps • WellQCMS • WellRCMS • WellSimtec • WellOcean • EMS • WellSwift • WeWell • 第三方 TOS/WMS/ERP

Data → Simulation → Decision → Execution → Feedback

L1 Data Foundation · Cactus

- · Full-domain data ingestion, cleansing,fusion & governance
- · Distributed edge access with real-timeoperational visibility
- · Unified data ontology poweringupper-layer intelligence

Order Flow	Cameras	Device Status	Weather
Vessel Schedule	Sensors	Energy	HD Map

L2 Hymala World Model & Digital Sandbox

- · 3DGS + ST-GNN scene reconstruction
- · Event-driven real-time situational awareness
- · Future-state prediction and 24Hlook-ahead simulation
- · Physical constraints: gravity / spatiallimits / process cadence

L3 Nexus Agent Decision Layer

- · MARL + OR dual-engine driveMulti-agent optimization and task allocation
- · Millisecond dynamic rescheduling
- · Three-tier memory: task /mid-term/ long-term

L4 Kinetic Autonomous Execution Layer

- · Command dispatch and closed-loop feedback
- · Autonomous vehicles / automatedequipment / HOTL dashboard
- · WL series edge-computing support
- · Unified charging and swap scheduling,with green energy priority

Applicable Scenarios


Port


Airport


Logistics Park


Rail Hub


Factory

Hymala AI World Model + Nexus MARL and OR co-optimizeto continuously reduce operational queue gaps and improveefficiency at every production node.

Dual-Screen Panorama · Control the Yard in One View

All-Element Awareness · Visualize site-wide schedule capability

- One-screen overview: Zones, equipment, vessels, and energy facilities in real time.
- Layer subscriptions: Add key views by scenario.
  - · Traffic heatmap → congestion risk
  - · Task map → workload imbalance
  - · Route layer → execution tracking
  - · Allocation layer → task clusters

Value

90% fewer dispatcher actions. Exceptions surface automatically.

Dual-Screen Panorama · Act When Needed

Open the second screen only when needed

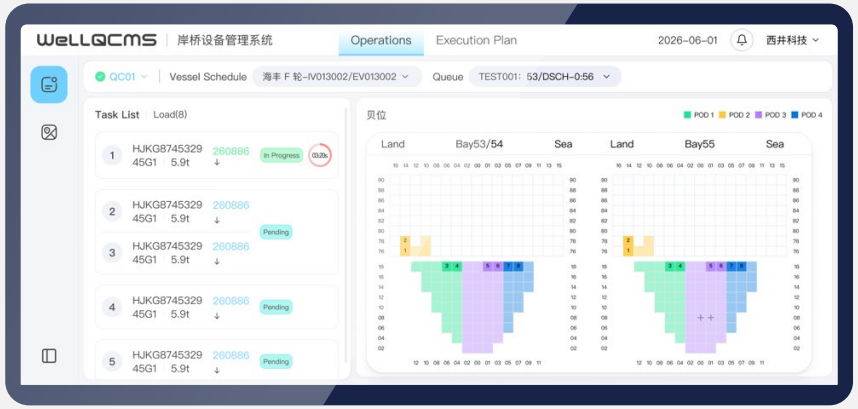
- Drill down from any object in the main view.
- Fast drill-down:

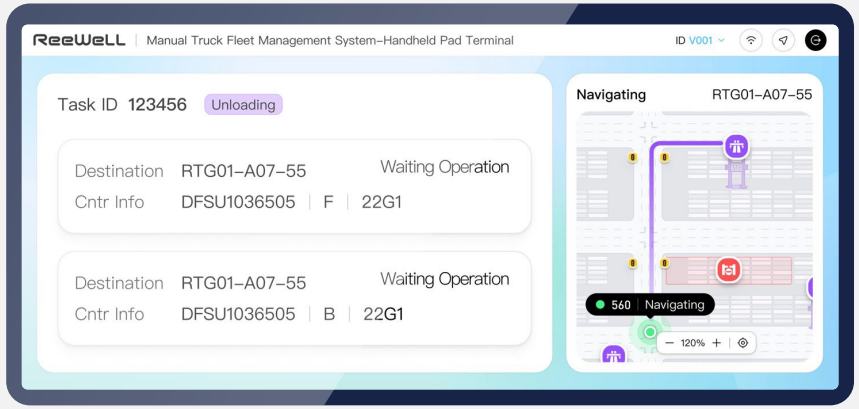
  ·Click vehicle → fleet platform
  ·Double-click vehicle → vehicle & exception management
  ·Click dashboard → KPI view

Mobile Access · Turn Intelligence into Action

Mobile Access · Turn Intelligence into Action
ReeWell pushes Nexus decisions directly to frontline operators.

- Yard Crane/Quay Crane Driver — Task Queue Cards + Target Bay Preview
- Container Truck Driver — Terminal Navigation Map + Current Planned Route + Queue Task Card
- Empty Handler/Reach Stacker — Empty-container Operation Queue + Cotainer Info List





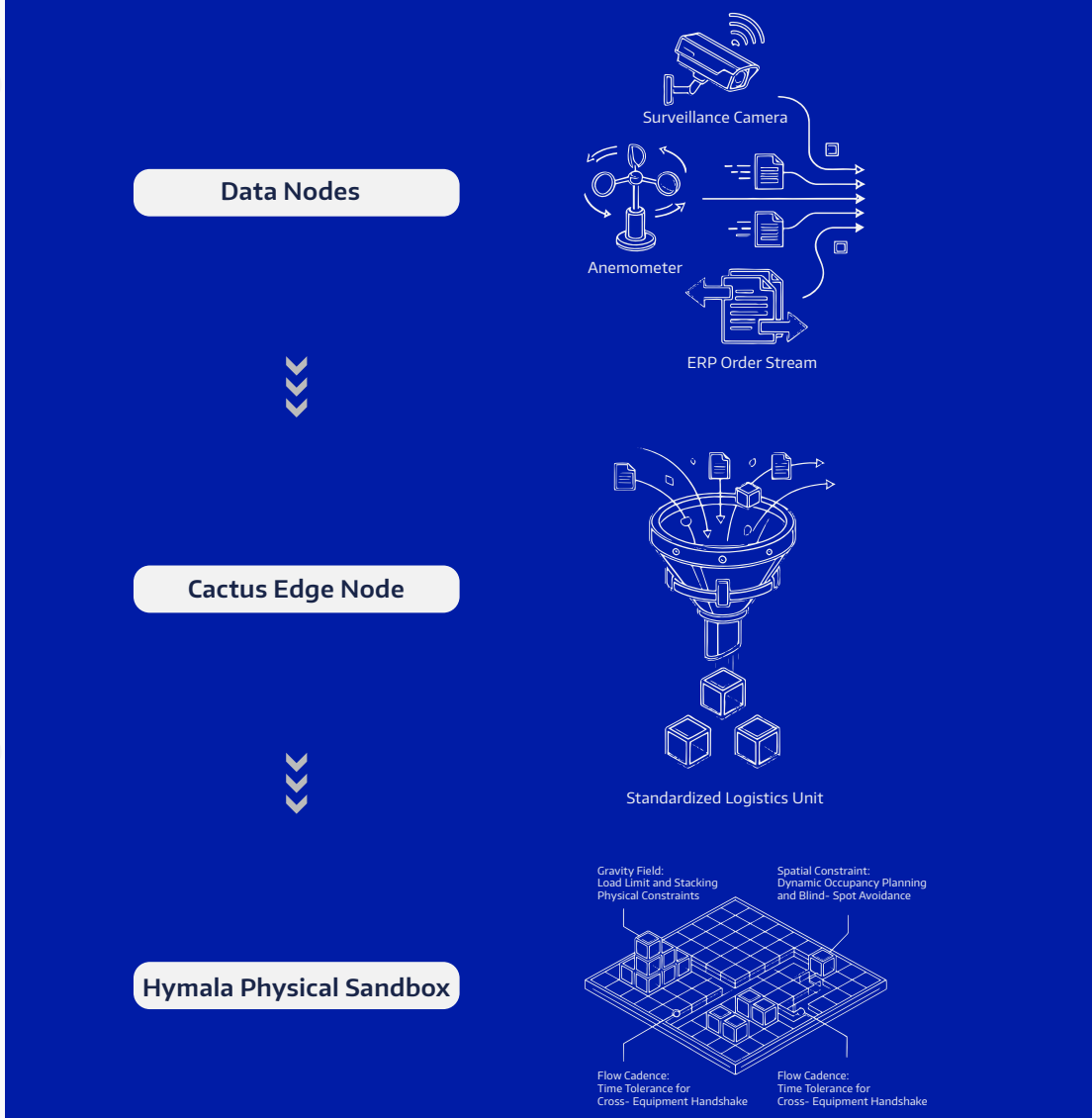
Hymala World Model · Physical Simulation Sandbox

Hymala builds an event-driven physical sandbox with 3DGS + ST-GNN.

- Exception detection: Equipment health, vessel ETA, and yard congestion.
- 24-hour lookahead: Load limits, space constraints, blind spots, and timing tolerance.
- Event trigger: Predicted risks launch a full schedule refresh.

Value

AI decisions that are optimized and physically executable.



Nexus Schedule Engine · MARL + OR Dual Core

Nexus combines two decision engines:

MARL

Finds high-efficiency moves
in dynamic environments.

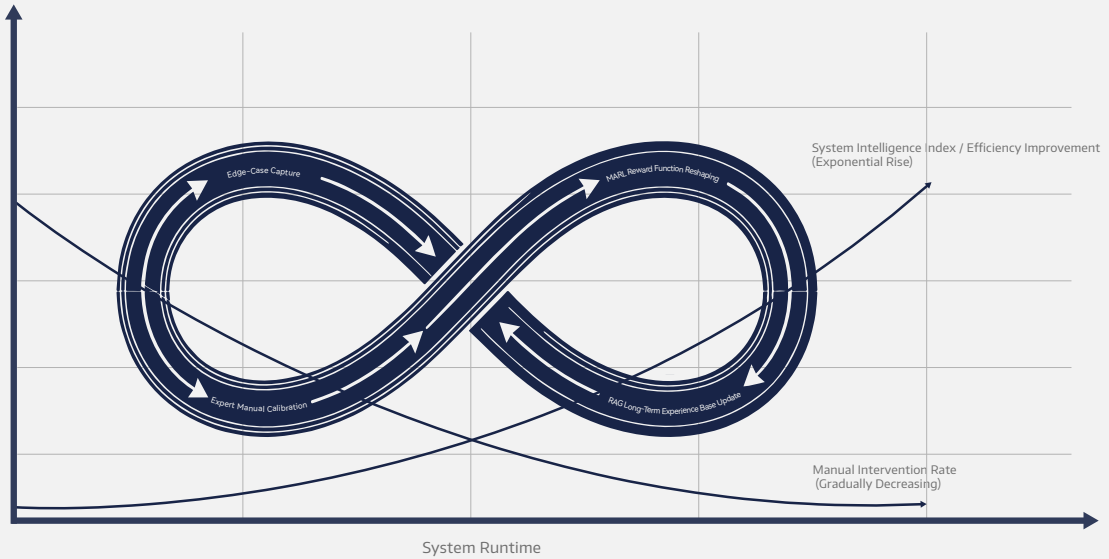
OR

Applies safety and physical
constraints to prevent deadlocks.

Millisecond output. One-click modes: efficiency-first, cost-first, or balanced.

Business Data Flywheel · Intelligence That Compounds

ReeWell grows smarter with every operation.



Value

From assisted decisions to unsupervised operations.

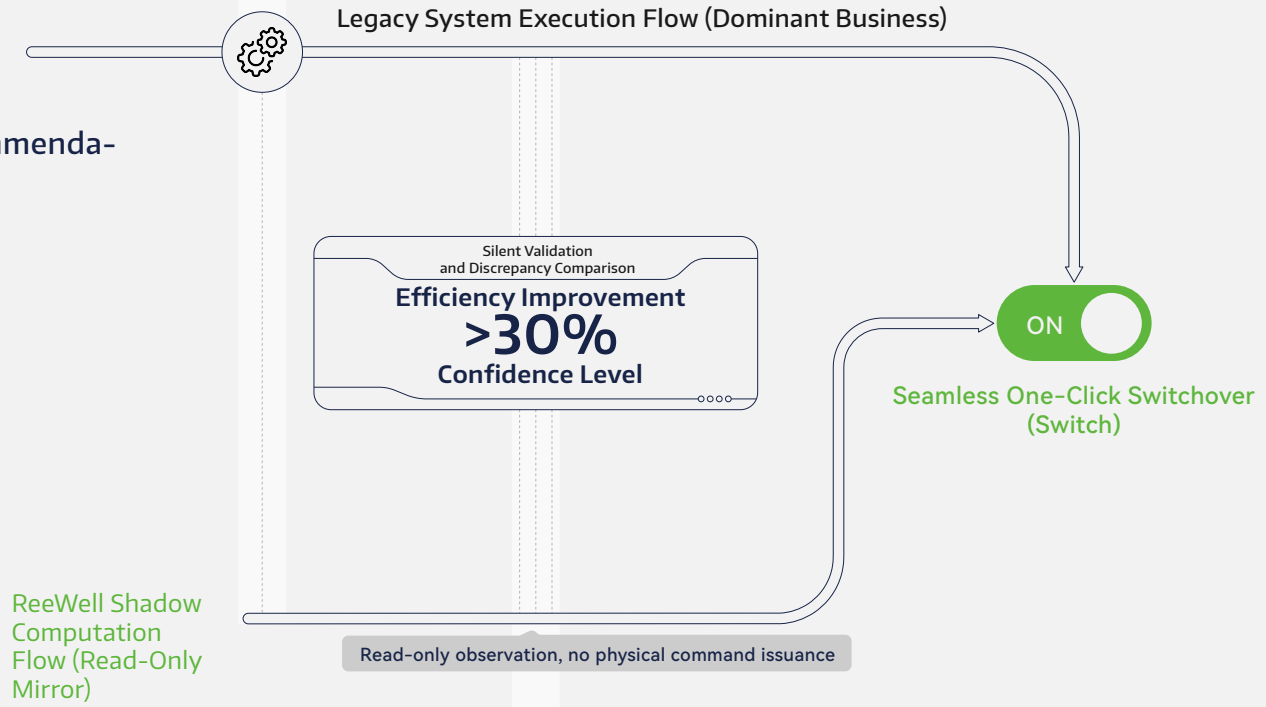
- Cold start + shadow mode: Learn from top dispatcher decisions.
- Corner cases: Learn from weather, failures, and rare events.
- Closed loop: Every intervention improves the model and experience base.

Shadow Mode for Smooth Transition

Run beside legacy systems. Operators confirm Nexus recommendations.
Validate silently. Compare results. Switch over when ready.

Value

Keep operations stable while proving the new system.



Autonomous Decision Loop · Dynamic Reschedule

When congestion or failure occurs, Nexus detects, decides, and executes.

- Rerouting: Rebuild site-wide routes in milliseconds.
- Task reassignment: Move tasks to nearby idle equipment.

Value

Turn disruptions into triggers for optimization.

Kinetic Execution Layer · Compute to Movement

Kinetic closes the last 50 ms from decision to equipment action.

- WL edge computing: Industrial-grade, ultra-low latency.
- Capacity atom (Qomolo): Turn vehicles and equipment into schedulable units.
- Beyond human reflex: Millisecond commands go straight to equipment.

Value

Dynamic reschedule becomes precise physical action.

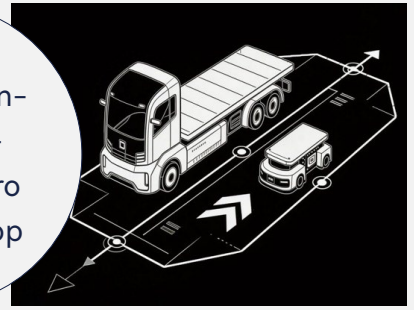
Computation

Computation Cornerstone: WL-Series Train-Inference Integrated Hardware

Provides on-site ultra-low latency edge computing support, bearing the full- factory digital twin. From single-station 50ms response to thousand-stream concurrent global scheduling, enabling "god's-eye view" command dispatch.

Computation-Command-Motion Micro Closed- Loop

Physical Execution



Physical Actuators: AI Transport Primitives (Qomolo)

Automated transport units. No longer reliant on human driver reaction time, perfectly executing commands issued by Synapse, achieving millisecond- level dynamic rescheduling amid road congestion or equipment failure.

ReeWell Delivers Measurable Value

Waitting Time Reduction

10%

- Reduce Container-Hanging Waitting Time;
- Identify Traffic Flow in advance with Prioritize Selecting Idle Lanes

Empty Travel Distance

20%

- Optimize Yard Layout, · Reduce Vehicle Empty · Travel Distance

Single-Trip Efficiency Improvement

10%

- Optimize Route Allocation Enhance Intersection Decision-Making

Reduced Carbon Energy Consumption

(Without Altering Traditional Energy Sources)

10%

- Optimize Equipment Dispatch
- Secondary Energy Recovery Utilization

Idle Rate Reduced

60%

Optimize Supply Chain of Spare Parts;

- Proactive Prevention and Maintenance
- Rapid Remote Issue Resolution

ROI Strategy Compass · See the Real Return

Traditional ROI relies on fragmented data and after-the-fact accounting.
ReeWell quantifies ROI with Cactus all-element data and physical simulation.

- Global modeling: Energy, depreciation, throughput, and revenue in one view.
- Realistic simulation: Measure labor savings and capacity gains.
- Strategy planning: Compare efficiency-first and cost-first modes.

Value

Turn IT spend into measurable profit impact.

ReeWell Ecosystem · From Tools to Capability Federation

ReeWell connects Westwell capabilities and external systems.

- Central hub: Integrate FMS, AdaOps, RCMS/QCMS, WellOcean, EMS, and more.
- Easy integration: APIs and Cactus ontology turn TOS/ERP silos into a data lake.

Value

One governed platform for all-element collaboration.

Technical Architecture · From Raw Data to Physical Sandbox

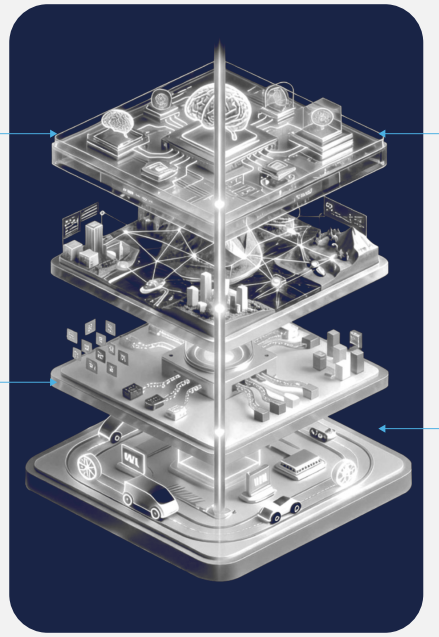
ReeWell defines a four-layer architecture for industrial AI schedule.
End state: Transparent, structured, predictable, pro-grammable logistics flow.

L3 NEXUS Intelligent Decision-Making

Dual-core game-theoretic engine powered by MARL + OR. Enables millisecond-level dynamic rescheduling to replace humans in complex computation and coordination.

L1 Cactus Data Foundation

Comprehensive data-domain collection, cleansing, integration, and governance. Builds a unified data ontology and eliminates semantic gaps.



L2 Hymala World Model & Digital Sandbox

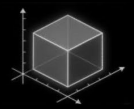
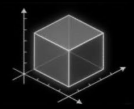
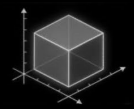
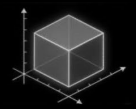
High-fidelity 3DGS reconstruction and ST-GNN prediction. Builds an event-driven AI physical sandbox with built-in physical commonsense constraints.

L4 Kinetic Autonomous Execution (REEWELLProprietary))

Ultra-low-latency command dispatch based on WL hardware. Enables a micro closed loop from computation to instruction to movement.

Infinite Replication · Everything Can Become an SLU

One Core Logic · For All Production Logistics Scenarios

	Smart Seaport	Airport Hub	Auto Manufacturing Plant	Large Steel Mill
Physical Reality	 Maritime Container	 Air Freight ULD	 Automotive Wire Harness Rack	 Thousand-Degree Hot Steel Coil
Transformation				
System Abstract				

Value:

Seaport-proven schedule algorithms can scale to steel mills, airports, and more. ReeWell delivers replicable industrial AI infrastructure.

WESTWELL

ReeWell

Make every flow precise, make every inch of space count.

www.westwell-lab.com

Make a WELL Change.