



VBG-0986F

Insulin Vials

MEDPHARM INC.

12,000 VIALS
(500 PER PALLET)

PARKOURSC EBOOK

Revolutionizing the Cold Chain: How AI and Real-Time Insights Deliver Speed, Scale, and Safety

The Cold Chain Challenge

Every minute counts in the cold chain—especially when lives depend on it.

From personalized medicine to clinical trials to vaccines, temperature-sensitive products require precision, speed, and agility to maintain their integrity. Yet data silos, slow response times, and legacy systems make managing these high-stakes supply chains increasingly complex.

ParkourSC helps leading organizations like **Thermo Fisher**, **Takeda Pharmaceuticals**, **Novartis**, and **CSafe Global** navigate these challenges. With Artificial Intelligence (AI)-powered intelligence and real-time prescriptive actions, we help businesses move from reactive problem-solving to proactive, automated cold chain transformation.

Discover how ParkourSC can help you



Ensure real-time temperature visibility across storage and shipments of drugs, biologics, clinical trials material, vaccines, and cell and gene therapies from manufacturer to hospital to patient delivery.



Automate issue resolution with AI-driven interventions and recommendations.



Avoid quality release delays to ensure Fit for Use and safeguard patient outcomes with speed and accuracy.



Cold Chain Confidence when Every Minute Counts

70%

of companies lack efficient
cold chain logistics at scale

The pharmaceutical industry
alone loses

\$35B annually

due to failures in temperature-
controlled logistics



Why the Cold Chain Matters More Than Ever

The stakes have never been higher. Lack of real-time temperature visibility leads to delayed quality release, discarded product, costly expedited shipments, margin contraction – and ultimately, puts patient lives at risk.

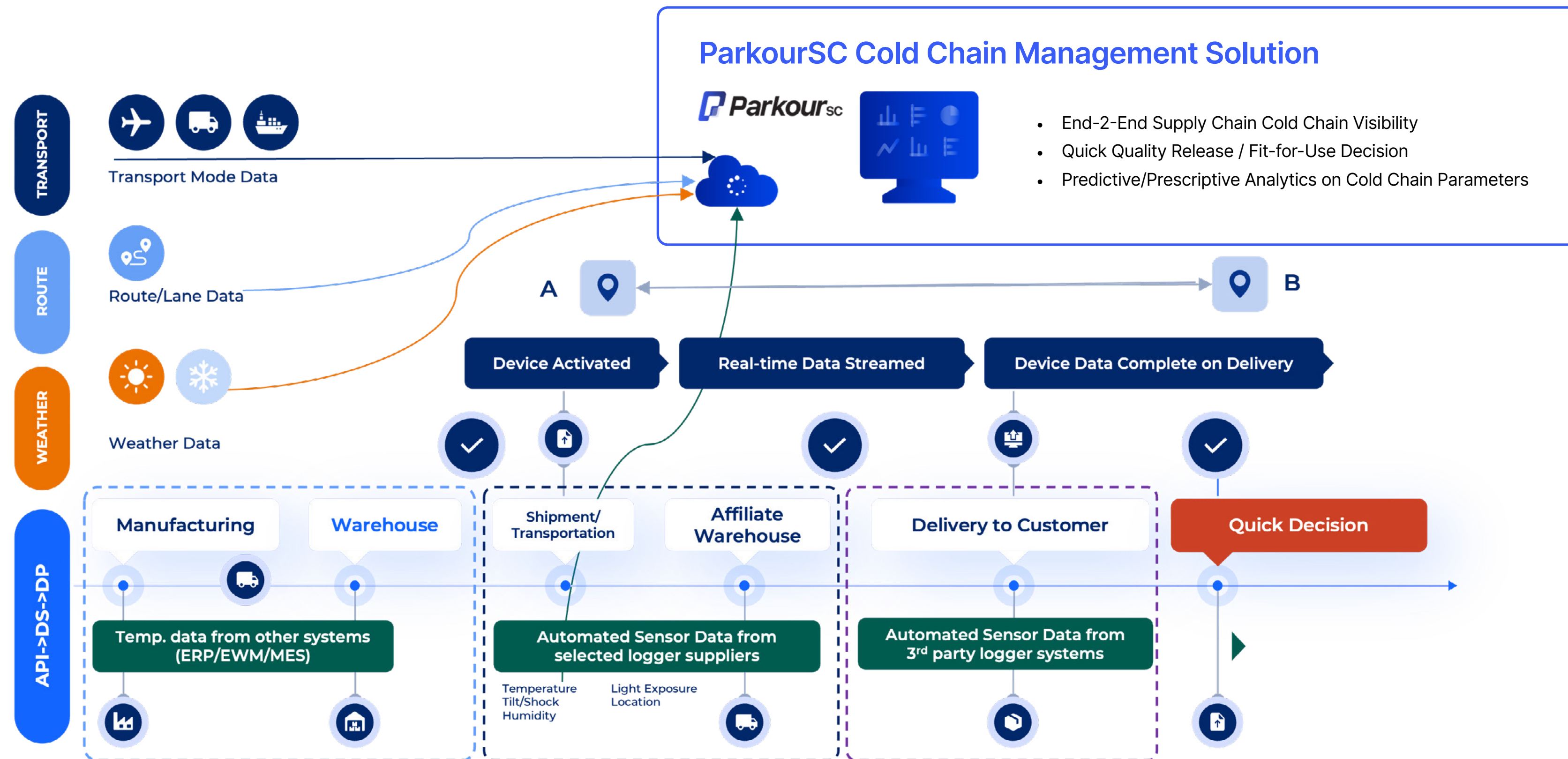
With biologics, cell and gene therapies, and decentralized trials on the rise, the cold chain market is growing at over 19% annually¹. According to current market projections, within the next five years, biologics are expected to steadily increase their share of the overall pharmaceutical market, with estimates suggesting they could account for around 55% of innovative drug sales, while small molecules will hold the remaining share. Yet many supply chains are still reactive, siloed, and vulnerable to disruptions.

¹ Grand View Research, Cold Chain Market Size and Share Industry Report, 2025 - 2030



ParkourSC enables a self-driving cold chain, where AI and automation work together to keep products safe, compliant, and on track—without manual intervention.

Figure 1:
End-to-End Cold Chain Visualization



“

Our team spent months evaluating the right partner for our new track and trace product offering. ParkourSC stood out with a modern software architecture, visionary product roadmap, and a relentless focus on customer success.

– Chief Operating Officer,
Cold Chain Management Provider

”



Challenges in Cold Chain Management

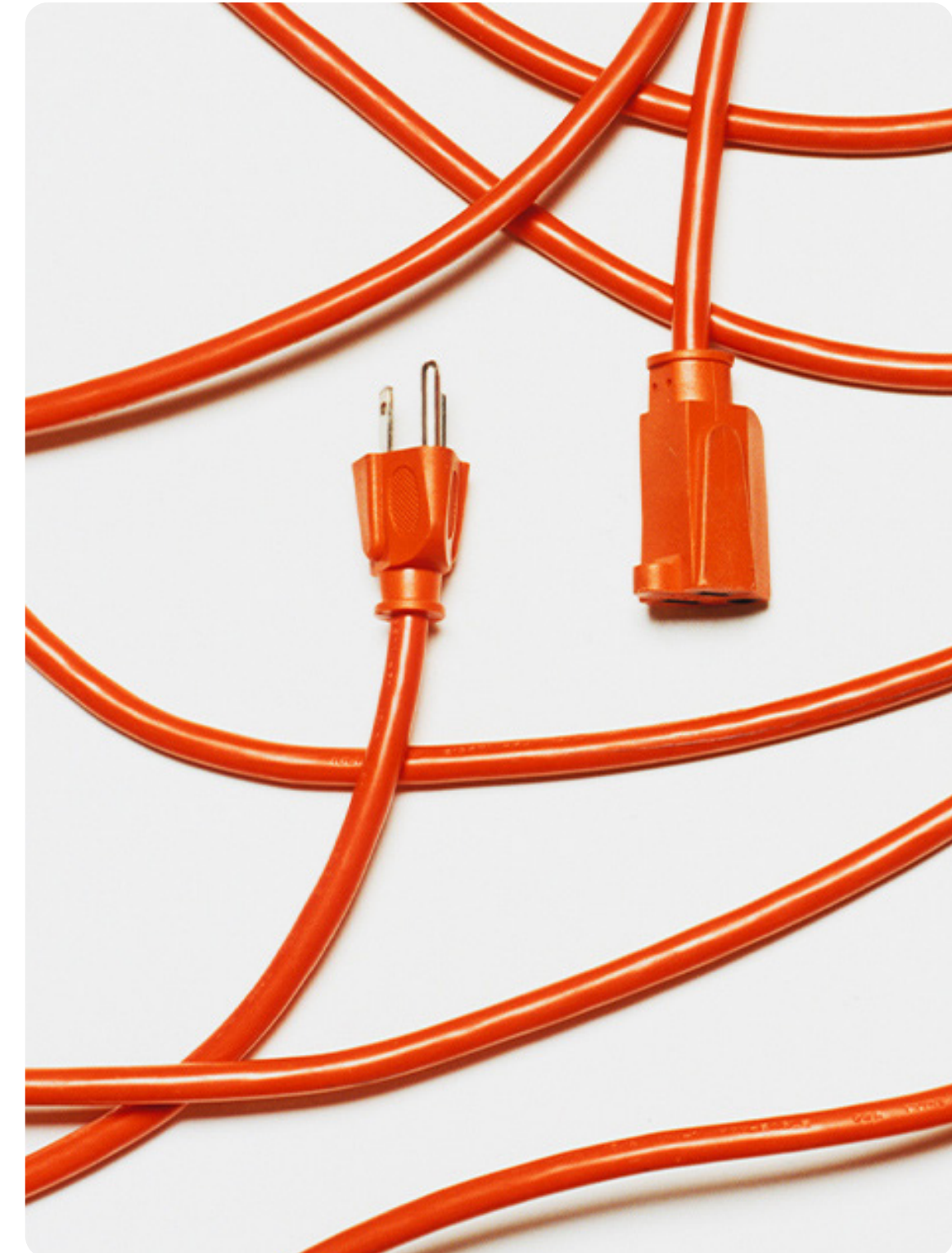
Many Executives responsible for cold chain struggle with:

Fragmented Systems: Data silos and information gaps make it difficult to track critical cold chain parameters across the end-to-end supply chain from manufacturing to patient delivery. Typical systems and data silos include separate order management systems, production MES (manufacturing execution systems), TMS (transport management systems), carrier portals, sensor data portals, last mile data, hospital patient care systems as well as syndicated data like traffic, weather etc.

Delayed Responses: Manual processes, data latency, and manual correlations across systems slow down quality release decisions, and timely interventions that increase product discards.

Limited Proactivity: Many traditional systems stop at visibility and only provide exception management keeping you in reactive mode.

Scaling Complexity: Legacy systems weren't built to quickly ingest real-time data from sensors, carriers, and external large data sources that can help your business scale to support growing biologic portfolios, decentralized trials, personalized therapies and growing volumes that increase risk.



These challenges lead to inefficiencies and higher costs—but they're solvable.



The Solution: ParkourSC's AI-Driven Platform

ParkourSC transforms complexity into confidence with AI, real-time event monitoring, and automation decision intelligence to revolutionize cold chain performance.

Hyper-Scalable Data Ingestion: Capture and consolidate data from sensors, carriers, and enterprise systems into one unified platform for event-driven response.

Digital Twin of the Supply Chain Network: Build and model a hyper scalable graph based digital twin of your physical network that includes suppliers, warehouses, plants, labs, distribution centers, hospitals and any other nodes in the network. Every node in the network is modeled with meta data, dynamic event stream and most importantly linked with actions to be executed when an event occurs.

Comprehensive Cold Chain Tracking: Monitor sensor data, event history and batch genealogy for tracking critical cold chain parameters such as stability budgets, time in/out of refrigeration, and thawing cycles. Integrated visibility of cold chain parameters from API manufacturing through to final distribution to facilitate quick quality release and disposition decisions.

Configurable Behavioral Engine: Adapt cold chain logic with a low-code/no-code framework tailored to your specific business needs.

Dynamic Decision Intelligence: Receive real-time AI-powered alerts and prescriptive action recommendations to ensure product quality and mitigate risks. Leverage AI-driven insights to increase operational flexibility, avoid quality CAPAs and manage stability budgets for cold chain manufacturing, packaging and distribution operations.

Case in Point— Thermo Fisher:

ThermoFisher
SCIENTIFIC

ParkourSC helped Thermo Fisher Scientific reduce fit-for-use confirmation times from 3 days to 1 minute, monitor 500K+ shipments annually, and automate decision-making to improve the customer/patient experience, boost business performance and reduce costs.

500K+

tracked shipments
per year

100+

global sites tracked
in platform

4000X

time improvement for fit-for-use
confirmation (3 days to 1 minute)



“

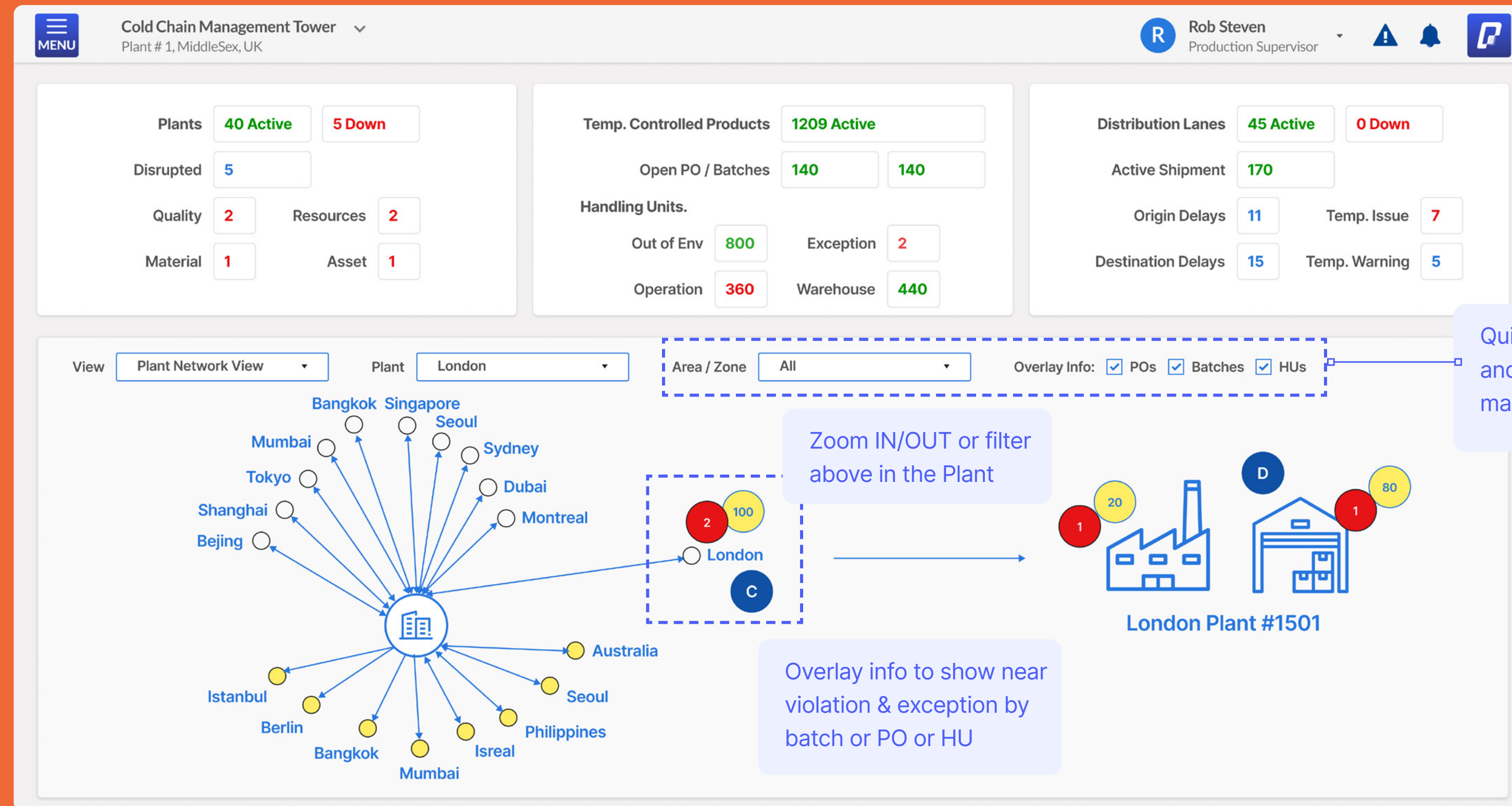
ParkourSC helped us enable the visibility we need across the value chain.

”

– Sarah Englert,
Thermo Fisher Scientific

Figure 2:

Get real-time alerts on various cold chain materials covering production operation, warehouse/plants and In-Transit Shipments



Overcoming the Concerns About AI in Cold Chain

AI is no longer a future concept—it’s a necessity. ParkourSC addresses common concerns:

- ✓ **Trust:** Validated, transparent AI-driven insights built on industry best practices.
- ✓ **Scalability:** Harness massive data volumes in real-time with ease and precision.
- ✓ **Adoption:** User-friendly tools empower teams to act with confidence.
- ✓ **Explainability:** How decisions are derived and the data artifacts to support them.

Transforming the Cold Chain

With ParkourSC’s Pharma GxP Validated platform, businesses achieve:

- ✓ **Speed:** Instant temperature monitoring, faster quality release, and automated compliance confirmation.
- ✓ **Scale:** Seamless management of global, high-volume operational events including shipments.
- ✓ **Safety:** Preserve product integrity, reduce waste, and safeguard patients outcomes.

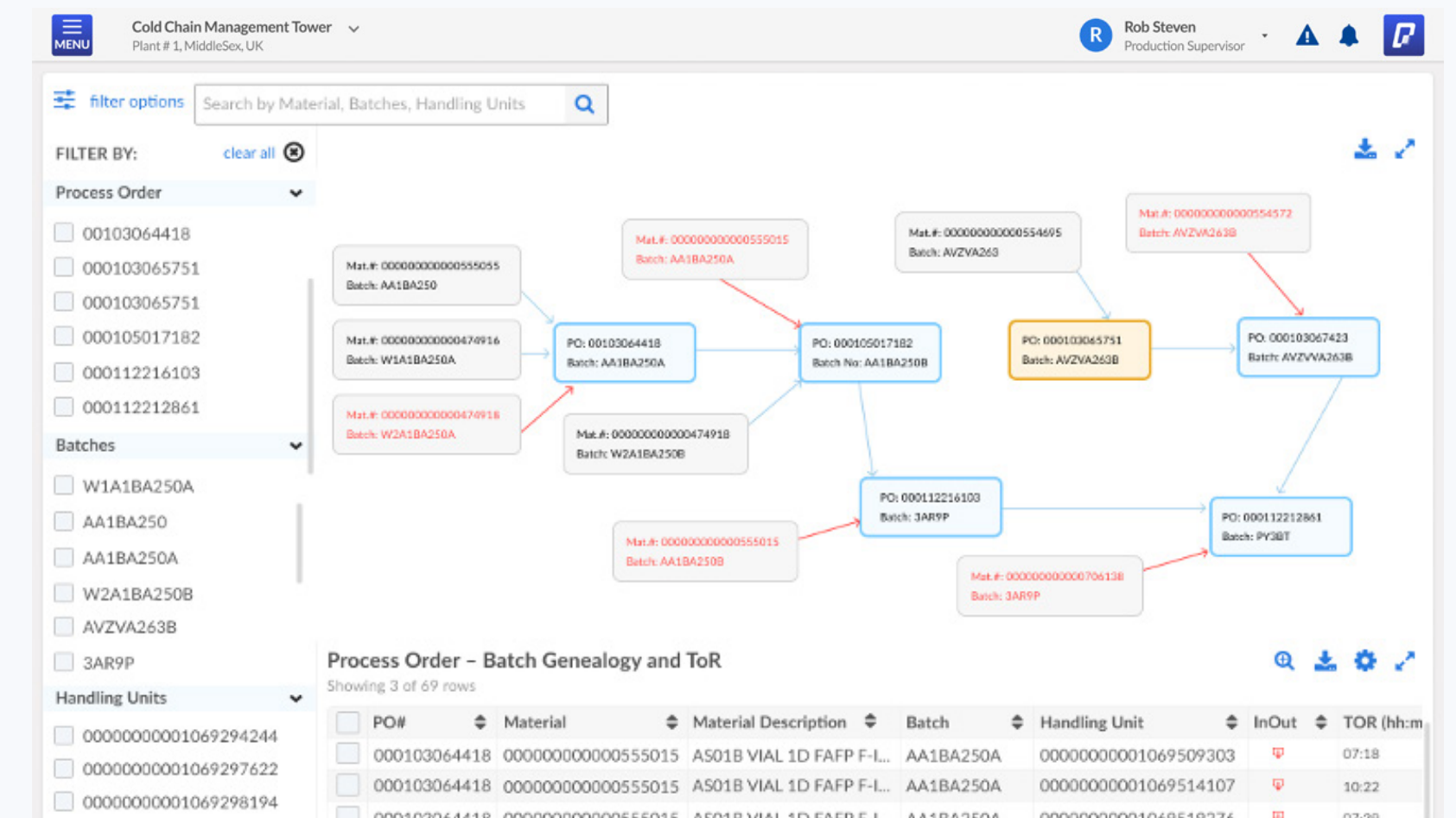


Figure 3: Visualize Process Orders and Cold Chain Batch Genealogy to quickly make batch release decisions and know which process / product handling unit contributed to most “Time out of Environment / Remaining Time” for the output product batch

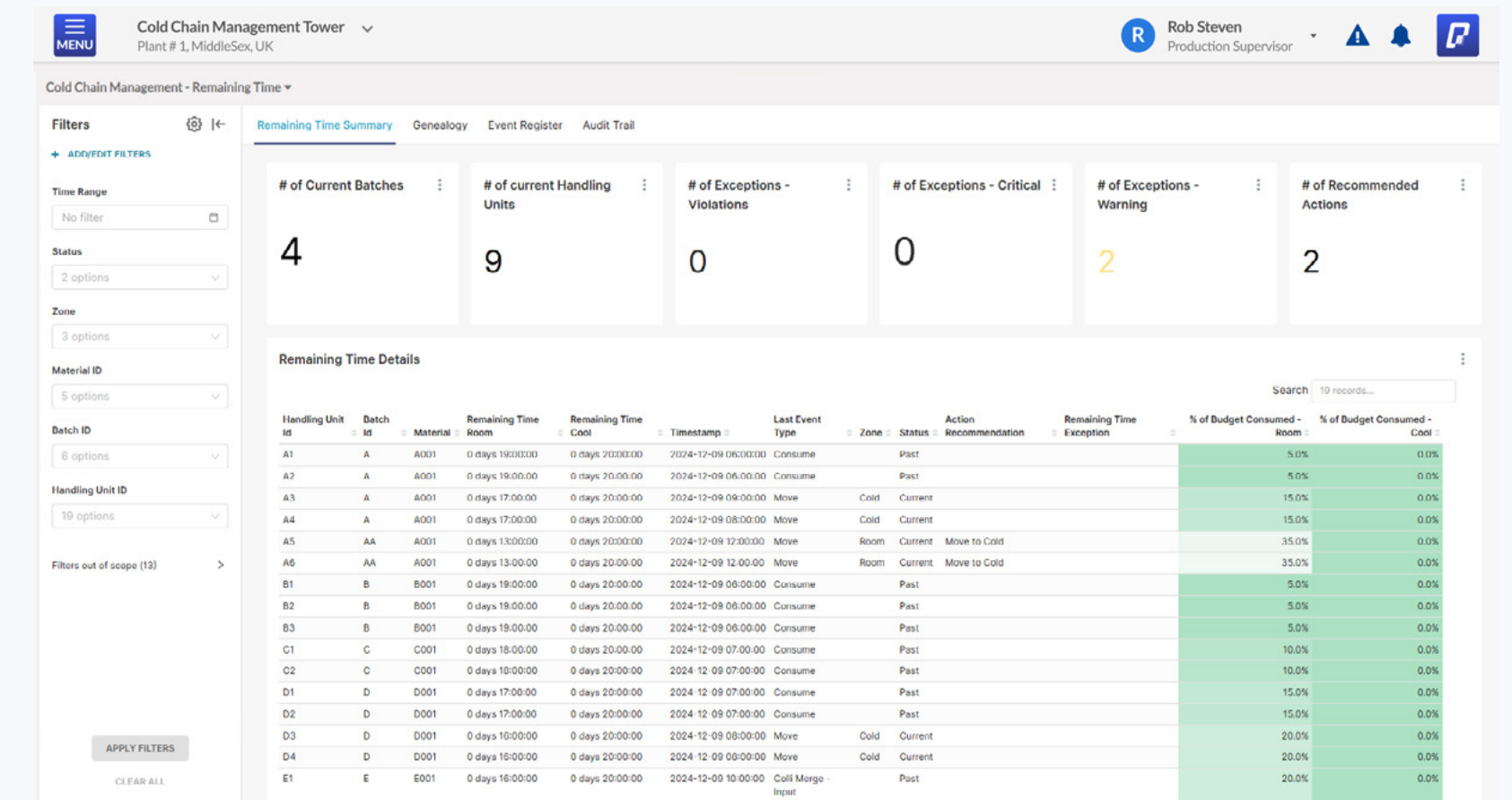


Figure 4: Let the AI Dynamic Decision Intelligence help you with the recommendations to increase operational efficiency, flexibility and reduce temperature excursion (i.e. Quality CAPAs)



Regulatory Compliance and Pharma GxP Validation

Quality and Compliance are crucial when making drug product quality decisions. ParkourSC offers an out-of-the-box Pharma Validated Platform, reducing the burden during solution implementation and ongoing operations.

21 CFR Part 11 and EU Annex 11: Making quality decisions (batch release or shipment fit for use) require rigorous processes, Quality Management System (QMS) and GxP validation of the solution.

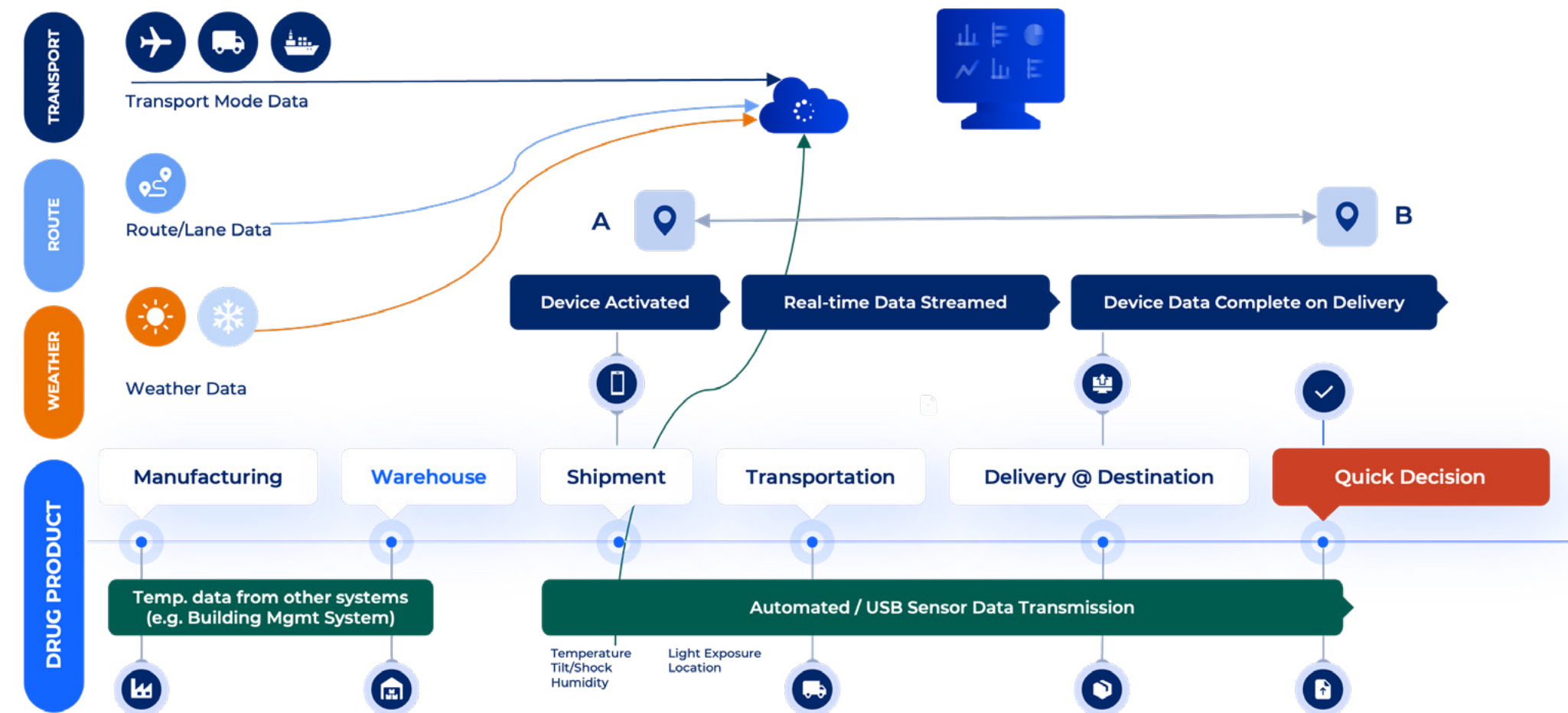
Data Integrity: Ensuring ALCOA+ (Attributable, Legible, Contemporaneous, Original and, Accurate) principle and presence of Audit Trail to further support GxP validation requirements.

IT Security and Role Based Access Controls: Cyber Security is crucial. SOC 2 Type 2 certification ensures robust security measures. It includes various authentication methods like single sign-on which eliminates the need for multiple usernames and passwords, and role-based access control to ensure only authorized users can access and perform specific actions.



Are You Ready to Transform Your Cold Chain Today?

Your cold chain doesn't just deliver—it protects lives. ParkourSC empowers you to optimize operations, safeguard critical therapies, and drive measurable results.



Collaborate Beta Send AU

No unread messages

Status: In-Transit (1/1)

Actual Departure: 24/Apr/2024 10:35:28 AM + 10 min

ETA: 26/Apr/2024 4:58:33 PM + 2 hrs, 3 mins

Catalog type	Standard Shipment
Name	Germany - Site003 - Patient301 - Shipment
External ID	Germany - Site003 - Patient301 - Shipment
Order Number	192202
Shipper Name	
Carrier Name	DHL Express

Included Assets Bind Unbind Complete

Package - VIAL...
8.3 °C

Activity Progress

Select Asset: Package - VIAL - Patie

- AUS Lab 1
Neustiftgasse 131, 1070 Wien, Austria
- In-Transit
79.19 miles away from AUS Lab 1
- Origin
GER Site 1
Prälat-Zistel-Straße 20, 80331 München, Germany

Challenges

- Silo temperature data for each sub-process
- Complex manual calculations and lengthy E2E product ToR using business rules
- No proactive planning or visibility and impact to product due to ToR excursion
- Challenge meeting regulatory audit needs and timely access to data

Solution

- Global ToR dashboards for E2E product mfg. to delivery
- Configurable 'Recipes' for ToR/TiR calculations & proactive/predictive alerts
- Pharma compliant Batch Quality Release and support for audits
- Connected 'transaction data' across plants and systems and 3rd party providers for a 'single source of truth'

Outcome

- ✔ Cold chain parameter tracking across a complex manufacturing, logistics and distribution network
- ✔ Track, proactively Alert & Anticipate Cold Chain management issues
- ✔ Data analytics driven Predictive cold chain Risk Mitigation
- ✔ Non-emotional Decision-Making using Data & Patterns
- ✔ Dramatic improvement in Agility through Automation





See what smart can do™

Let ParkourSC guide your journey
to a faster, safer, and more scalable cold chain.

[SCHEDULE A DEMO TODAY](#)

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