A Strategic Guide for European Healthcare Supply Chains

Your Guide to Compliant, Reliable Supply Chains

Locus

WHITEPAPER

Executive Note

Across European healthcare, one thing is clear: rules now expect proof in motion, not paperwork after the fact. This calls for clean data first, proof along the way, and less friction later. In EU healthcare, two frameworks set the direction. The Falsified Medicines Directive (FMD) already requires serialization and end-point verification across the supply chain. The European Health Data Space (EHDS) takes the next step, standardizing electronic health records and enabling cross-border data flows on a common infrastructure. Together, they push every trading partner toward the same standard: interoperable, verifiable data that travels with the product.[1][2]

This paper explains what we mean by turning rules into reliable operations. It's the shift from "document later" to "enforce now," carried out through three practical ideas with the help of Locus: a single operational record everyone works from, in-plan validation so bad data doesn't reach the dock, and real-time execution so rules trigger real actions—not just alarms.

Sector Blueprint: Europe Healthcare

From FMD and EHDS to dependable service

FMD serialization and end-point verification are already in force. EHDS is the next layer; it turns data exchange from bilateral agreements into a common infrastructure. For logistics, the combined effect is clear: every movement must carry interoperable, verifiable data. Partners who cannot provide it will become friction points in chains that can.[1][2]

The advantage of doing this well goes beyond the rule. It improves recall readiness and counterfeit resilience, and reduces patient risk during shortages or disruptions.

What that looks like on the floor

Three operational realities define what FMD and EHDS compliance looks like in practice:

Serialized verification at the release gate. If data is inconsistent or missing, the carton doesn't advance. FMD end-point verification must happen inside the same system that records the handoff.

Cold-chain thresholds tied to automatic plan changes. When thresholds are breached, the system changes the route or asset, and everyone sees the update. GDP-compliant documentation is generated by the run, not re-entered later.

Custody and ePOD in one record. When a handoff occurs, custody and ePOD land in the same record the planner used. EHDS-compatible data structures mean the record is also readable downstream, no re-entry.

Margins are tight while expectations rise

In European healthcare logistics, the cost of small operational misses compounds quickly. A failed verification hold delays patient care. A cold-chain breach wastes product and triggers regulatory scrutiny under GDP guidelines. A missed handoff creates reconciliation overhead that slows every downstream partner. The expectation from providers, payers, and patients is zero tolerance for avoidable failure.

ZEZs are expanding across European cities, adding a second layer of constraint: last-mile pharmaceutical delivery must be zone-aware by default. A vehicle turned away at a ZEZ boundary is a delay, a compliance event, and a cost.[3][4]

The technology is ready, adoption is the gap

Serialization, digital documents, and modern planning engines are already here. What often fails is the handoff between insight and action: a rule violation shows up on a dashboard, but it doesn't change the route, asset, or slot in time. In 2026, leaders stand out by making sure trusted data automatically changes how work executes, and that each change leaves proof behind.

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What “good” looks like in action

A reliable European healthcare network demonstrates four habits consistently. Together, they are the operational expression of the model.

Traceability with proof: Every unit or delivery has a searchable trail of identity, custody, and condition; each handoff is visible to the partner that needs to see it. In EU healthcare, this includes FMD serialization checks and EHDS-compatible records. The audit trail is produced by the run itself, not reconstructed from emails.

What this means operationally: traceability is not “after the fact.” It is embedded at the point where work is released and accepted.

Exception prevention at the edge: In cold supply chains, when temperature drifts, a policy reroutes or swaps the asset. When a route crosses a ZEZ, the optimizer prefers compliant vehicles and streets by default. Exceptions don’t wait to become incidents; they’re addressed while the run is still salvageable.

What this means operationally: the system does more than surface risk. It changes the plan early enough to protect integrity.

One plan that updates with reality: Contact centers, planners, depots, and field teams share the same live state. A decision made in planning is visible on the floor; a proof captured in the field is visible to the teams coordinating care and service. Disputes and duplicate effort shrink.

What this means operationally: instead of “two truths” (a planning truth and a field truth), you get one living record that reduces rework and time lost in reconciliation.

Right-first-time documents and labels: Declarations, labels, and required fields (including FMD serialization, GDP documentation, and EHDS-compatible data) are generated from governed truth and validated before release. If anything is missing or out of spec, the carton does not advance.

What this means operationally: correctness is checked at the point where it’s cheapest to fix, not when the clock is already ticking downstream.

Three moves that make compliance practical

(EU healthcare operating model)

Move 1: Unify data to decide action

Start with a single operational record that connects orders, product truth (SKU, batch/lot, cold-chain), compliance fields (FMD serialization, EHDS data standards, GDP), partners, assets, and lanes. Make planning the actuator of compliance: if the declaration is incomplete, the plan doesn't release; if a label fails validation, no tender goes out. Decisions are then executed inside the run, and the system keeps the proof.[1][2]

Move 2: Prevent exceptions at the edge

Place verification where work happens. Before movement, run digital checks for FMD serialization data, GDP documentation, and EHDS-compatible fields. During movement, apply policy actions for temperature or ZEZ rules that actually change the route or asset. At handoff, verify identity and custody inside the same system that records proof.[1][2][3][4]

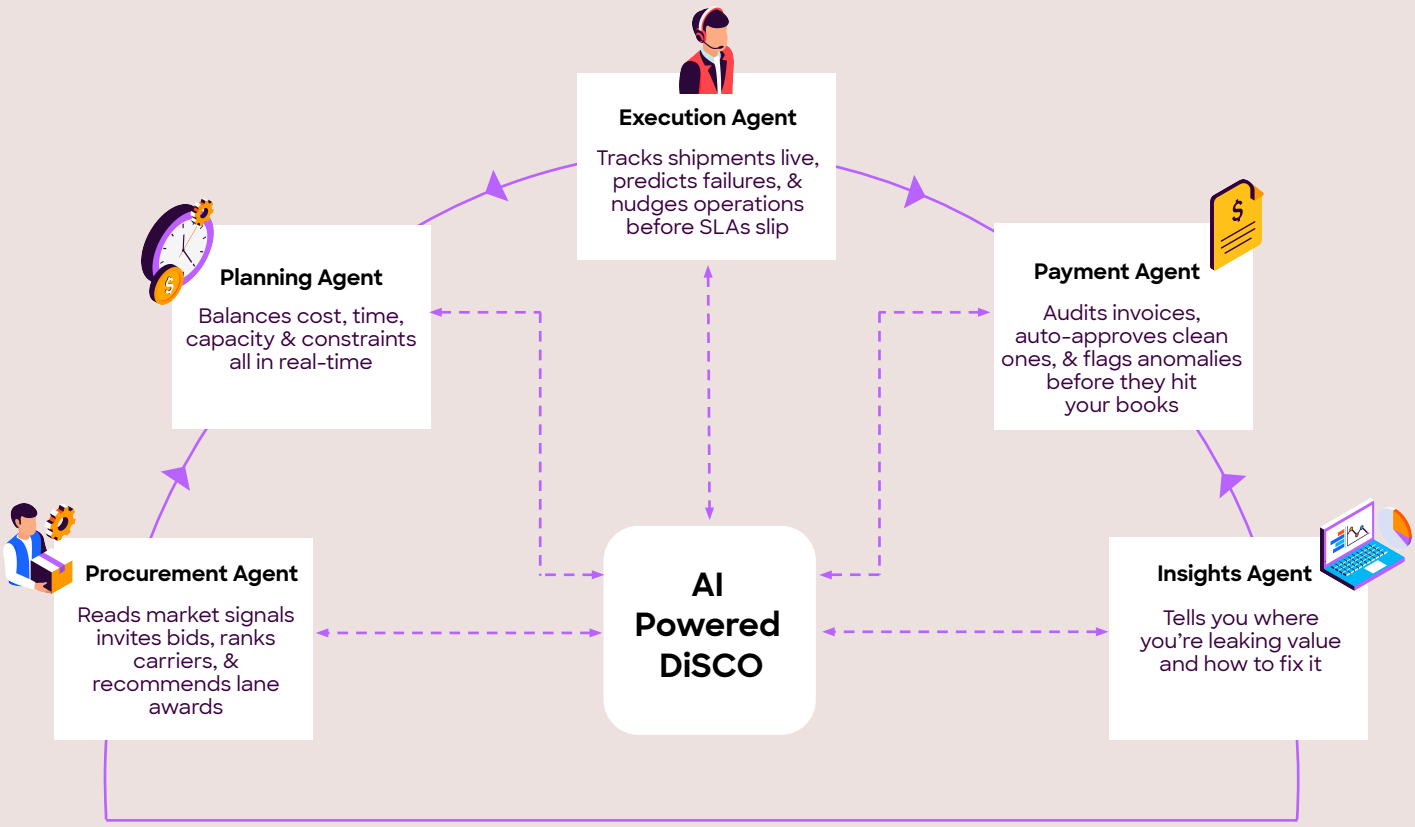
Move 3: Design adoption so it sticks

Change that adds dashboards but doesn't remove work will stall. Roll out in narrow waves with clear definitions of done. Give managers and field teams the same live view and a small, stable KPI set: first-attempt success, cold-chain breach rate, serialization exception rate, ZEZ compliance rate, and auto-resolved exceptions. Train against the top failure modes until responses are reflexive.

How Locus turns policy into proof in motion

Locus connects orders, product truth, compliance fields, partners, assets, and lanes into one live record, validates labels/serialization/GDP documentation before release, and enforces rules while work is moving. DiSCO (Digital Supply Chain Officer) is the agentic AI that powers this run, sensing issues, deciding the next best move, and acting in the tool, with an audit trail by default.

The platform's agents bring structure and adaptability across the run: procurement (bids and lane awards), planning (balancing cost/time/capacity/constraints), execution (tracking live, predicting failures, nudging ops before SLAs slip), payment (auditing invoices), and insights (showing where value leaks and how to fix it).



For European healthcare operations specifically, Locus:

- **Orchestrates procure-to-pay on a modular TMS:** one place to plan, execute, and prove.
- **Validates FMD serialization and GDP documentation pre-tender,** so bad data never ships and non-compliant cartons never advance.
- **Automates ZEZ-aware routing by default, with live policy enforcement;** reroutes and asset swaps when zone rules or cold-chain thresholds are breached.
- **Generates EHDS-compatible records at handoff,** so proof isn't fragmented across tools and teams.
- **Optimizes fleet mix across captive/3PL/crowd** and reallocates orders intelligently during spikes or disruptions.
- **Handles reschedules via natural-language prompts,** keeping operations and communications in sync.

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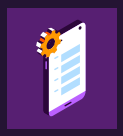
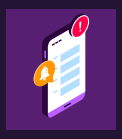
Use Case: Pharma Diagnostics Network

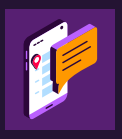
A leading diagnostics provider operating in 190+ cities with ~4,000 field agents digitized end-to-end home collections with the help of Locus. What changed in the operating model:



A custom mobile app replaced manual steps; orders from app/web/call center were auto-batched, optimized, and assigned with real-time tracking and ePOD.

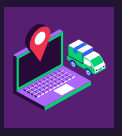


Automated alerts (SLA risk, low battery, customer events) enabled proactive interventions.



Customers received live updates and confirmations, lifting trust and CSAT.

The routing engine protected the 2-3-hour lab window to maintain sample integrity.



A control dashboard provided live plan-vs-actual across routes, fleet, and performance.

THE RESULT Faster routes, no temperature breaches, and cleaner proofs in the same operational record used by planners and contact centers.

What locus delivers in practice

8-12%
reduction in freight costs

40%
faster planning cycles

10-15%
SLA improvement

15%
lower emissions

Automation builds structure; agentic AI adds judgment and adaptability.

A Future-Focused Operational Outlook

The policy arc is clear. FMD enforcement will deepen as trading partners raise their own baseline requirements. EHDS will expand the scope of interoperable data exchange across borders. ZEZs will keep tightening city access for last-mile pharmaceutical delivery. Every node that is not digitally ready will become a friction point and a liability for the networks it serves.[1][2][3][4]

The imperative is equally clear. Winners won't be those with the most dashboards; they'll be those whose decisions reach the dock in time and leave a clean trace. That is the essence of turning rules into reliable operations. With a single operational record, in-plan validation, and edge-executed policies, policy becomes action, and action becomes proof.

References

[1] European Commission. Commission Delegated Regulation (EU) 2016/161 of 2 October 2015 supplementing Directive 2001/83/EC. Consolidated version.

[2] European Commission. "European Health Data Space (EHDS) Regulation." Adopted Apr 2025.
[3] Transport & Environment. "State of Transport 2025 – Cities." 2025.
[4] EU Urban Mobility Observatory. "The Netherlands leads Europe's transition to zero-emission freight zones." Oct 20, 2025.

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Battle-tested in 350+ deployments across 30+ countries, Locus is an agentic TMS for all-mile, all-channel, trusted by enterprises like Unilever, Nestlé, CP Axtra and many more.

The platform unifies orders, capacity, and carriers into a living plan, with AI co-pilots guiding real-time decisions to protect SLAs and reduce waste.

In 2025, *Locus joined Ingka Group* (IKEA Retail), accelerating its mission to build faster, smarter, and greener supply chains.

Since 2015, Locus has powered billions of deliveries with measurable savings and sustainability impact. Headquartered in Bangalore with teams across the U.S., U.K., UAE, and SEA, its 170+ experts are redefining how the world moves goods across all channels and all miles.

1.5B+
Total deliveries optimized

17M+ KGs
Reduction in GHG emissions

$320M+
Savings in logistics costs

GROWTH, DELIVERED.