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Serialization for Supply Chain Resilience

How Pharma Leaders Are Using Serialization to Protect and Strengthen the Supply Chain

In today's volatile global environment, supply chain resilience is no longer optional, it's a business imperative. Pharma companies are increasingly leveraging serialization not just to meet regulations, but to enhance visibility, control, and agility across the entire product lifecycle.

From factory floor to patient, serialization is helping leaders address disruption, manage risk, and respond faster to change.

End–to–End Traceability: Identifying Bottlenecks and Diversion Risks

Serialization data provides a digital footprint for every unit, enabling full visibility across manufacturing, packaging, logistics, and distribution.

- Track products from batch release through warehouses, 3PLs, and points of dispense
- Use scan data to detect unexpected detours, duplicate shipments, or delays
- Identify choke points in production or logistics by analyzing time stamped event trails (e.g., commissioning, shipping, receiving)

Use case: A sudden spike in transit time for a specific lane reveals a customs bottleneck or regional carrier issue, triggering immediate action.

Targeted Recalls & Faster Issue Response

Without serialization, recalls are often blunt instruments. With it, they become surgical.

- Identify exactly which units, batches, or even cartons are affected, based on commissioning, aggregation, and shipment data
- Isolate problems quickly (e.g., cold chain failure, contamination risk) and avoid pulling unaffected inventory
- Demonstrate regulatory control and product accountability in audits and safety events

Result: Faster response, less waste, and stronger public trust.





Inventory Optimization & FEFO – Serialization Data Powering Better Inventory Management

Serialization brings intelligence to inventory, especially for high value, short shelf life, or temperature sensitive products.

- Enable First Expired, First Out (FEFO) strategies with item level expiry tracking
- Reduce overstocking and obsolescence by improving demand supply alignment at a granular level
- Identify inventory that is close to expiry or stalled in the wrong market and move it proactively

Advanced benefit: Integrating expiry data from serialized packs into ERP systems enables smarter allocation and automatic reordering triggers.

Improving Security & Controlling Parallel Trade

Pharma products are vulnerable to diversion, theft, and grey market sales especially in high–demand or high-cost therapeutic areas.

- Serialization enables authentication of every unit at each handoff point, deterring counterfeiters and verifying legitimate flows
- Detect parallel trade and unauthorized exports by analyzing scan locations and timing
- Geofence product flows to validate that shipments are received only in intended markets

Outcome: Stronger brand protection and pricing control, especially in fragmented regulatory regions.

Enabling Real Time Logistics Visibility – Where Serialization + IoT Shines

Combining serialization with IoT technologies unlocks true in transit visibility and risk monitoring.

- Use IoT devices (e.g., GPS, temperature, humidity sensors) linked to serialized pallets or cartons to monitor conditions in real time
- Tie the data back to serial numbers for audit-able proof of compliance and faster intervention when thresholds are breached
- Provide live shipment tracking dashboards for internal teams, partners, and even regulators

Emerging capability: Serialization, integrated IoT enables real time alerts (e.g., "pallet exposed to >8°C for 2 hours") tied directly to specific product SKUs or serials.

Resilience in Action

By building traceability into the fabric of their operations, pharma companies are transforming serialization into a strategic risk management tool.

- Prevent disruptions before they cascade
- React faster when issues arise
- Protect product integrity and patient safety

In a world of constant change, serialization is helping pharma leaders stay not just compliant, but resilient, responsive, and ready.



Want the full guide?

Serialization is no longer a regulatory checkbox. It's now a strategic enabler for pharmaceutical manufacturers, contract packagers, and supply chain leaders. **This guide shows you how to:**

- Understand global serialization requirements for 2026 & beyond
- Implement best practices on the line and across your supply chain
- Optimize serialization for efficiency, sustainability, and competitive edge

TALK TO AN EXPERT

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