CASE STUDY

Biotech & Biologics

Pharma Supply Chain Intelligence

Three cold chain write-offs in one quarter. Temperature excursions discovered at delivery - too late. Now detected in 8 minutes.

Biopharmaceutical distributor · Biologics, vaccines & cell therapies · Temperature-controlled logistics

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1. Overview

A biopharmaceutical distributor handling biologics, vaccines, and cell therapies experienced three significant cold chain failures in a single quarter - each resulting in batch write-offs of temperature-sensitive product. In all three cases, the temperature excursion was discovered at the point of delivery inspection, when the product had already been compromised for hours. The cost of the three write-offs exceeded ₹2.4 crore. The commercial impact - customer confidence, replacement supply, and logistics overhead - added significantly to this figure.

Their cold chain monitoring system logged temperature data from sensors in transit - but did not have automated alerting configured to notify operations when a breach occurred. Log review was manual, periodic, and happened too late to intervene. The fix was not a new monitoring system. It was connecting the existing sensor data to an alerting and response workflow that could act within minutes of a breach, not hours.

2. Key Results

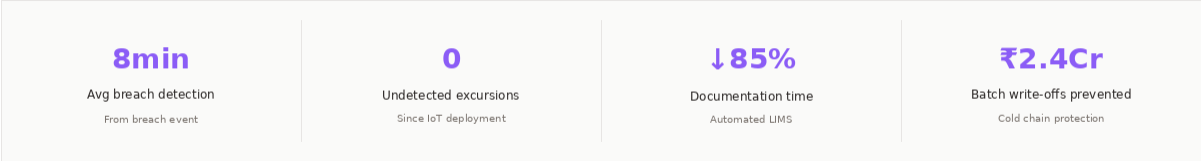

Figure 1: Cold chain and compliance outcomes - 6 months post-deployment

3. Challenges

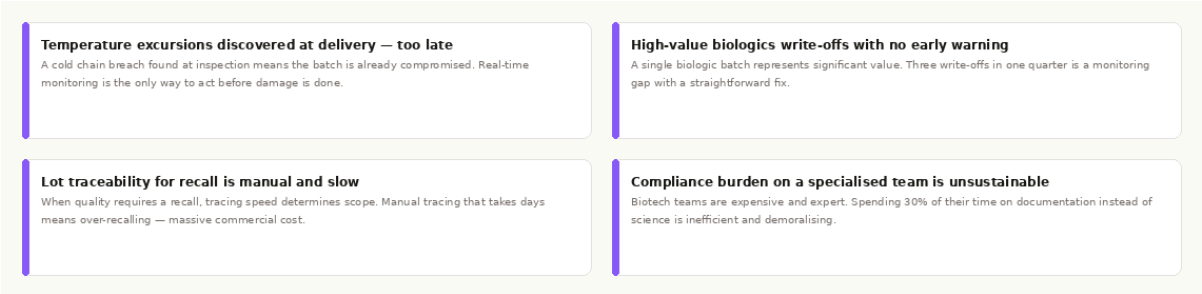

Figure 2: Four cold chain and compliance challenges in biopharmaceutical distribution

Temperature Breaches Discovered at Delivery - Too Late

A cold chain excursion that goes undetected for 4 hours in transit cannot be reversed at the delivery point. The batch is already compromised. The only way to prevent the commercial and patient safety consequence is to detect the breach within minutes - while there is still time to divert, replace, or quarantine the shipment. This requires real-time monitoring with automated alerting, not periodic log review.

High-Value Batch Write-Offs With No Early Warning System

Three write-offs exceeding ₹2.4 crore in one quarter is not a logistics problem - it is a monitoring gap. Each individual write-off could have been prevented or significantly mitigated with a real-time alert system. The cost of the alert system is a fraction of a single batch write-off.

Lot Traceability for Recall Investigations Is Manual and Slow

When a biologic product quality event requires a recall or investigation, the speed of lot tracing determines the scope of the recall. A manual tracing process that takes 2–3 days means the recall must be broader than the actual risk - pulling product that doesn't need to be pulled, at enormous commercial cost. Digital lot traceability reduces this to minutes.

Compliance Documentation Burden on a Specialised Team

Biotech and biologic distribution teams are expensive to hire, difficult to retain, and deeply specialised. Spending 30% of their working time on compliance documentation and audit preparation is both commercially inefficient and demoralising. Automated documentation frees this capacity for higher-value work.

4. Our Solution

We integrated with their existing IoT cold chain monitoring system via direct API - reading temperature sensor data from every shipment in real time. We configured automated breach alerts that fired to the logistics manager, QA officer, and customer within 8 minutes of any excursion. We also connected to their LIMS to digitise lot traceability - creating a complete chain from biologic batch to distribution point, searchable in seconds for any recall investigation.

Modules Deployed

Real-Time Cold Chain Monitoring	**Automated Breach Alert System**	**Predictive Route Risk Scoring**
Batch & Lot Traceability	**Automated Compliance Reporting**	**AI Assistant**

Implementation Timeline

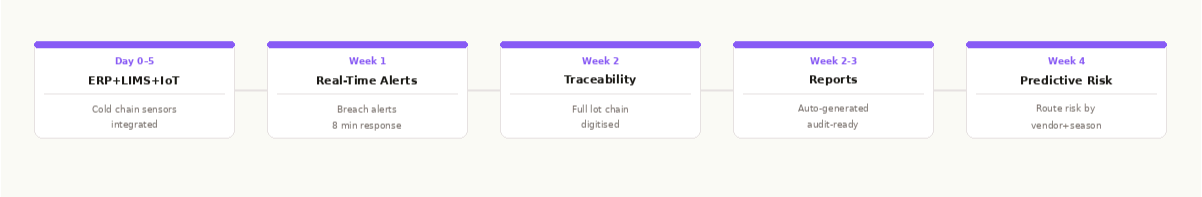

Figure 3: IoT integrated day 5. Real-time alerts week 1. Full traceability week 2.

Key Capabilities

- **Real-time monitoring:** Real-time cold chain monitoring - temperature sensor data from every shipment, every 5 minutes, with automated breach detection
- **Breach alerting:** 8-minute breach alert - fires to logistics manager, QA officer, and customer within 8 minutes of excursion detection
- **Predictive risk:** Predictive route risk scoring - AI scores each route, vendor, and season for cold chain failure probability
- **Traceability:** Digital lot traceability - complete chain from biologic batch to delivery point, searchable in seconds for recall investigations
- **AI chatbot:** AI Assistant: 'Which shipments in transit are showing temperature risk right now?' - instant real-time answer

5. Results - Before & After

Area	Before	With Innovacio
Breach detection	At delivery point — too late	8 minutes from breach event
Undetected excursions	3 write-offs one quarter	0 since monitoring live
Lot traceability	Manual — recall: days	Digital — trace in seconds
Documentation time	30% of team time	↓85% reduction
Batch write-off frequency	Regular — cold chain gaps	0 in 6 months
Compliance readiness	2-week prep per cycle	On-demand — always ready

Figure 4: Cold chain and compliance metrics - before and after

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> Three write-offs in one quarter. Zero in the six months since deployment. The difference is 8 minutes. That is how long it now takes from a temperature breach to the first person getting a call. In three of those events this year, we caught the excursion in time to replace the shipment before delivery. The system paid for itself in the first month.

- Karan Mehta, VP Logistics · BioLink Pharma Distribution

6. See It in Your Operation

We connect to your existing cold chain monitoring system and show you - in 30 minutes - what a real-time breach alert workflow looks like on your actual shipment data.

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