

## Smart Vaccine Tracking (SVaT)

Manage vaccine delivery and integrity from production to inoculation



## Introduction

COVID-19 dominated world-headlines for the majority of 2020, disrupting normal life. With multiple vaccines across the globe already been approved and vaccination drives started or beginning soon in many countries, including India, what lies ahead is a challenging scenario to transport the vaccine shipments from manufacturing to distributing it for last-mile administration. Topping the logistical puzzle are the stringent temperature-controlled storage requirements for maintaining the efficacy of the vaccine during its shelf life. The current global cold-chain infrastructure is inadequate to adhere to the distribution and storage norms and needs a safe, reliable and predictable real-time tracking & condition monitoring of the vaccine life-cycle to outlast its intended storage-life.

**Smart Vaccine Tracking (SVaT) by HCL** is an integrated offering that helps enterprises ease the challenges arising out of complex global distribution programs. SVaT comprises IoT sensors to vaccine tracking & monitor the condition/integrity of vaccine packages or containers and an interactive vaccine delivery management portal to maintain real-time visibility of the shipment. Further, by leveraging enterprise systems integrations and optional Blockchain synchronization, SVaT ensures truly intelligent vaccine distribution management by automating workflows that maximize efficiencies for every stakeholder in the value chain.

## Business drivers



Inadequate vaccine shipment traceability for foolproof consignment handling during its journey



Preventing counterfeiting or illegal diversion or theft of vaccine shipments from manufacturing to point of sale



Insufficient vaccine temperature monitoring at points of administration (pharmacies, community clinics, etc.) risking vaccine integrity leading to revaccination ordering



Risk of vaccine efficacy loss during transit and intermediate storage



Unauthorized access indicating malicious intent and causing temperature excursions



Sub-standard handling processes leading to expensive damages



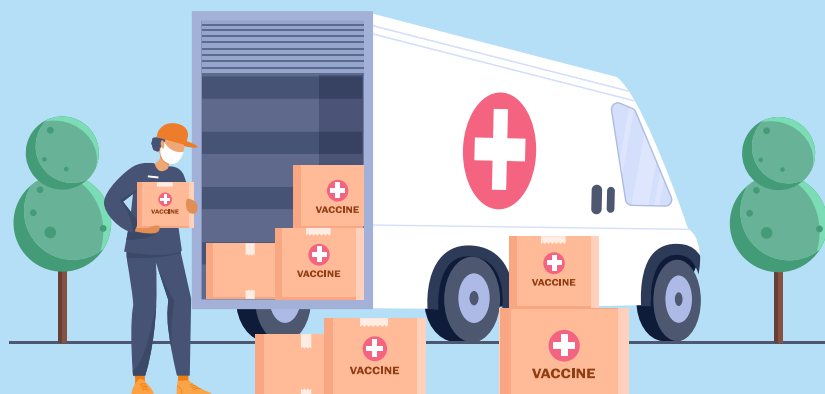
Highly manual, paper-dependent processes making compliance and audit trails cumbersome



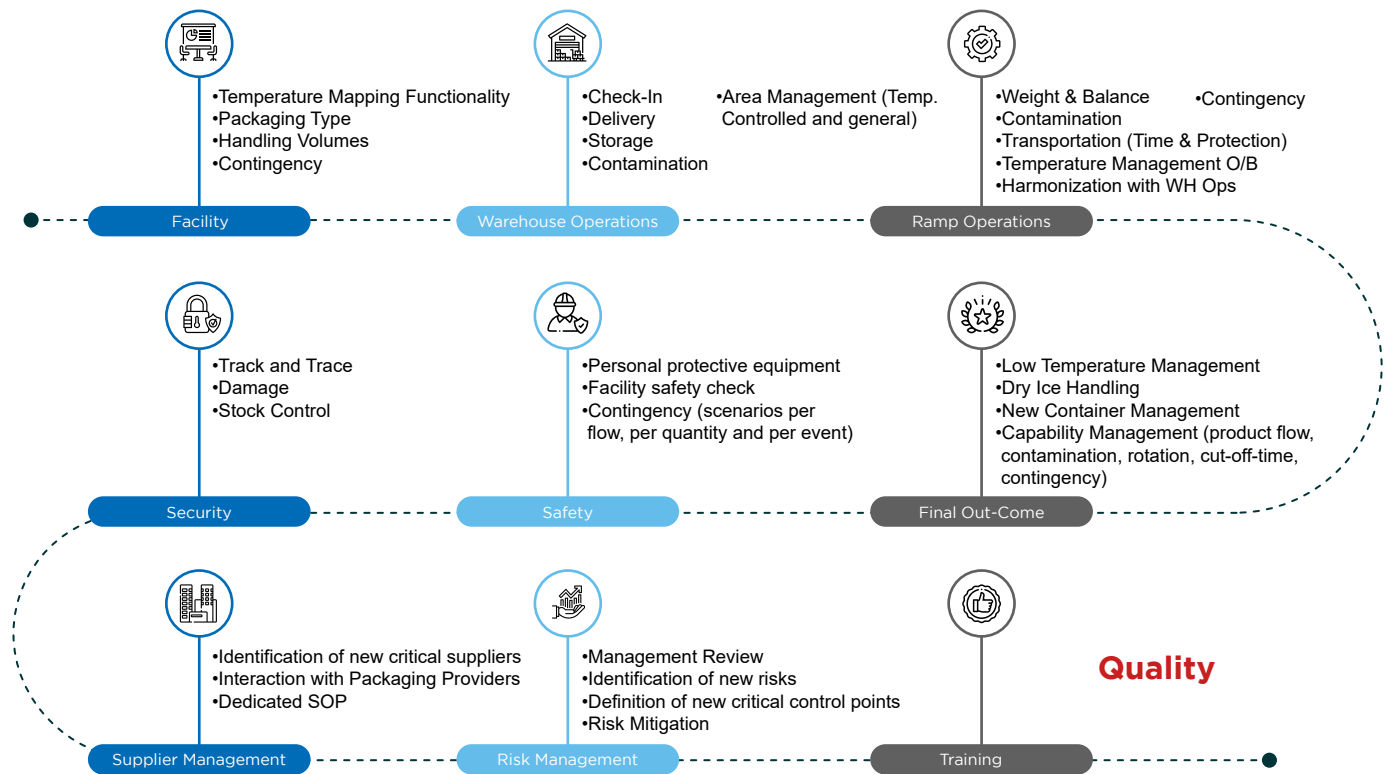
Unplanned in-transit stops and route deviations causing delays in delivery



Lack of holistic real-time information resulting in drastically reduced visibility and control over vaccine supply chain operations and planning



## Evolution matrix



### Blockchain-integrated custody management:

Paper-less, shared decentralized ledger for increased transparency and accountability among stakeholders helps pinpoint and minimize compromises to the efficacy and authenticity of the vaccine. Smart contracts can also be leveraged to automate payment release to well-performing supply chain partners and initiate audit trails for those needing process improvements.

### Autonomous supply chain management:

SVaT's enterprise systems integrations with supply chain management systems like TMSes and WMSes auto-initiate corrective courses of action such as re-routing of vaccine shipments and replenishment of expired or compromised inventory right from the start of the vaccine distribution at manufacturer's premises until the time of consumption at the point of vaccine administration.

### Real-time vaccine tracking & integrity management:

Round the clock monitoring of shipment in transit and during storage – using configurable location and environment – monitoring sensors – can be integrated with maps that recommend optimal routes avoiding pandemic hot-spots to ensure safe and timely vaccine delivery.

**Data-driven preemptive decisioning:** A 24x7 monitoring team predicts and proactively manages issues before they spiral out of control by coordinating with relevant stakeholders throughout the shipment's lifecycle.



# Smart Vaccine Tracking (SVaT)

The future of cold chain implementation – converging integrated technologies



**TMS/WMS/Air-Cargo integration for real-time event traceability**

Seamless integration with transport management system ERP enables event and shipment traceability

Pallet and product traceability from one system

**Continuous sensor data for event alerts**

Synchronous data feed from over a dozen device variables like environment, motion, condition, etc.

Facilitates root cause assessments and improvements

**Exception notifications**

Real-time monitoring and reporting along with exception-based workflow notifications

Respond only when needed proactively correct problems



## Expected business outcomes



**Trace shipment availability and efficacy:** Utilize real-time insights of a shipment's location through its journey, enabling optimal COVID-free route with minimal disruptions, ensuring uncompromised delivery of the shipment in the right time and at the right location while realizing cost reduction



**Safety and training:** Utilizing real-time insights on works environment from air quality, impact and motion detection to ensure workers safety in a critical cold shipment. AR/VR to ensure fast and correct training to certification process, to ensure more safe hands on ground to achieve global vaccine effort



**Integrated operations:** Seamless synergies between warehouse and ground operations; allowing land/airside collaboration with warehouse ensuring complete visibility and availability of space and staff to handle large temperature controlled ULDs



**Reimagine cold chain:** Utilize accurate vaccine package tracking and logging to improve supply chain efficiency, reduce manual intervention, automate and digitize the audit trail to boost productivity thereby improving demand planning and optimization



**Enhance end-user satisfaction and experience:** Minimize integrity compromise of vaccines, ensure timely availability and administration schedule compliance, prevent stockout situations, and deliver proactive support and peace of mind



**Ensure increased accountability:** Blockchain enabled chain of custody management ensures transparency by and among stakeholders and reduces the hassles of paper documentation while upholding adherence to social-distancing norms. Supply chain partners can request manufacturers for audit trails and environment condition logs to carry out best practices in the transition of vaccines



Up to 90% reduction in shipment damages ensuring safer delivery of essentials



Improvements of up to 50% in SLA compliance due to immediate, proactive alarms & resulting rapid response

For more details, please write to us at [MEGA-LT@hcl.com](mailto:MEGA-LT@hcl.com)



# HCL

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