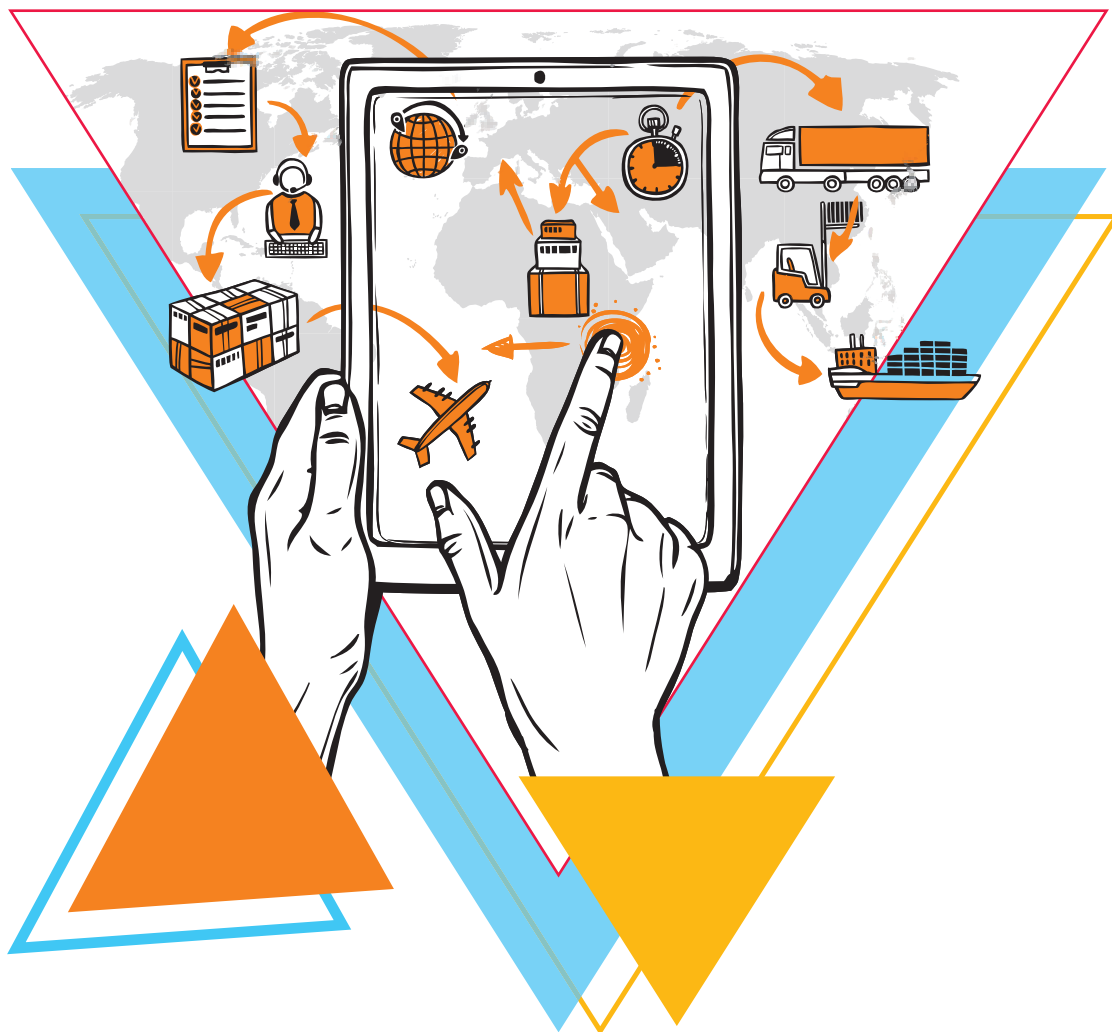HCL

IoT + Blockchain driven
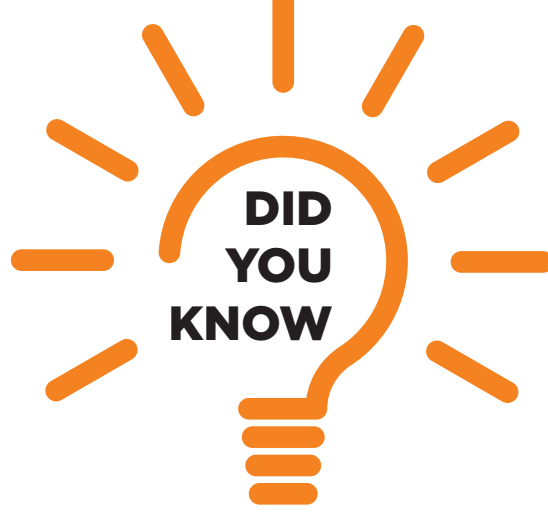# **'Chain of Custody'**
Management for Cold Chain

The Cold Chain Logistics market is a growing area, but near-real-time visibility into each transaction is insufficient, and at best cumbersome & error-prone. HCL's Cold Chain Logistics Monitoring solution coupled with Blockchain addresses this gap, while enabling asset/shipment integrity to be maintained in the desired manner and bring about trust & transparency across all stakeholders in a supply chain transaction.

The solution is built on Microsoft's Azure IoT Suite as the IoT platform to handle the data requirements. It can also be deployed on other IoT platforms as well.

HCL's Cold Chain of Custody management solution leverages IoT to provide continuous visibility into shipment location & integrity. This is done using tracking & condition monitoring devices. Additionally, the solution is powered by Smart Contracts, which is a core component of the Blockchain technology. This helps enable trust across the entire stakeholder network & automate workflows among different systems (think Interoperability).

The solution addresses challenges related to obtaining visibility into shipment conditions and finding out where contract violations (if any) are occurring. The solution provides scope for further customization & integration as an end-to-end offering tailored to customers' specific needs. This could include reduced (minimal to none) paperwork, self-executing contracts such as payment release automation, and tamperproof audit trails management.

DID YOU KNOW

Cold Chain Breaches

▷ About 12-14% of $400Bn worth of fresh produce gets spoilt during transit every year due to suboptimal refrigeration conditions

(https://www.wsj.com/articles/cold-shipping-in-hot-demand-as-the-world-craves-more-fresh-food-1525003200)

▷ $35 billion is lost each year through healthcare products damaged by temperature deviation in transportation

(https://www.iata.org/whatwedo/cargo/pharma/Documents/ceiv-pharma-specifications.pdf)

Theft of shipments

▷ Online sales of luxury goods have doubled from 2014–2019, to around $42 billion. This represents a great opportunity for local businesses to expand. However, when watches, jewellery, and loose stones worth up to $300,000 or more are shipped routinely, risk mitigation is a necessity. Total dollar losses from crimes committed against U.S. jewellery firms are more than $69 million annually, according to the Jewellers' Security Alliance. There has also been a marked increase in the number of thefts for high-end clothing and shoes, particularly in California and Florida.

(https://www.ups.com/us/en/services/knowledge-center/article.page?kid=a0f28c70)

▷ According to National Retail Federation's 14th annual organized retail crime (ORC) study, 92% of retailers that were surveyed acknowledged having an ORC within the last year (29% stating that they occurred during the supply chain process) and 71% found the problem to be increasing. According to retailers, the digital environment is making it easier and easier for thieves to sell stolen goods and that harsher penalties need to be enforced for cargo theft, with 73% of surveyors believing that there should be a federal ORC law in place.

(https://roadscholar.com/blog/holiday-cargo-theft-continues-to-strike-retailers-as-value-of-stolen-goods-rise)

Counterfeit products in retail industry

▷ Everything from luxury watches to handbags, computer games to—most scary of all—medicines, have been affected. Although the scourge of counterfeiting is not new, the sale of fake goods has certainly increased post digital transformation and with increasing globalisation. Today, the amount of total counterfeiting has reached a staggering 1.2 Trillion USD globally according to the Global Brand Counterfeiting Report 2018.

▷ eCommerce sales in 2016 were estimated to be worth $1.86 trillion and are projected to grow to $4.48 trillion by 2021—almost equivalent to the GDP of Japan! With counterfeiting on the rise, it has become a big slice of an incredibly big pie.

(https://www.wsj.com/articles/cold-shipping-in-hot-demand-as-the-world-craves-more-fresh-food-1525003200)

▷ The global luxury industry is worth $320 billion of which the fake luxury product market stands at $22 billion

(https://www.indianretailer.com/article/technology/back-end/How-retailers-can-deal-with-counterfeit-luxury.a5671/)

▷ There were predictions issued by the International Trademark Association (INTA) and the International Chamber of Commerce, saying that the global economic value for counterfeiting could reach as high as $2.3 trillion by 2022 compared to $1.7 trillion in 2015.

(https://www.sci.ca/the-hub/retail-ecommerce-logistics/counterfeit-prevention-in-the-supply-chain/)

Product recalls & Reverse Logistics

▷ Shipping costs aren't the only thing weighing retailers' digital profits this holiday season. As operations become more complex for companies doing business both online and in store, out-of-stocks, overstocks and returns are costing retailers $1.75 trillion a year — a number that's only moving higher.
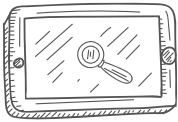
(https://multichannelmerchant.com/blog/reverse-logistics-biggest-retail-problem-technology-yet-solve/)

▷ According to the Reverse Logistics Association, the value of returns annually is estimated to cost between USD 150 and 200 billion. Up to 91% of returns are a direct result of retailers' efforts to attract new customers through free returns on unwanted purchases, prompting customers to deliberately over-order. aw in place.
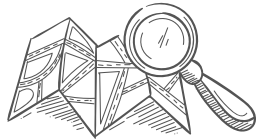
(https://www.tcs.com/blogs/the-digital-opportunity-in-outbound-and-reverse-logistics)

HCL's Cold Chain Monitoring solution transforms how an enterprise's supply chain gains visibility & insights of the asset location, condition & integrity in near-real time. The IoT-enabled shipment integrity management solution leverages smart sensors to create an accurate, efficient & holistic view of the shipment status and condition, thus helping improve the productivity & efficiency of the supply chain network & process.
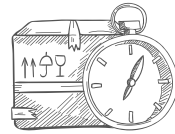
Features:

▷ Complete Supply Chain visibility solution including a tracking device and a cloud application for monitoring anytime, anywhere
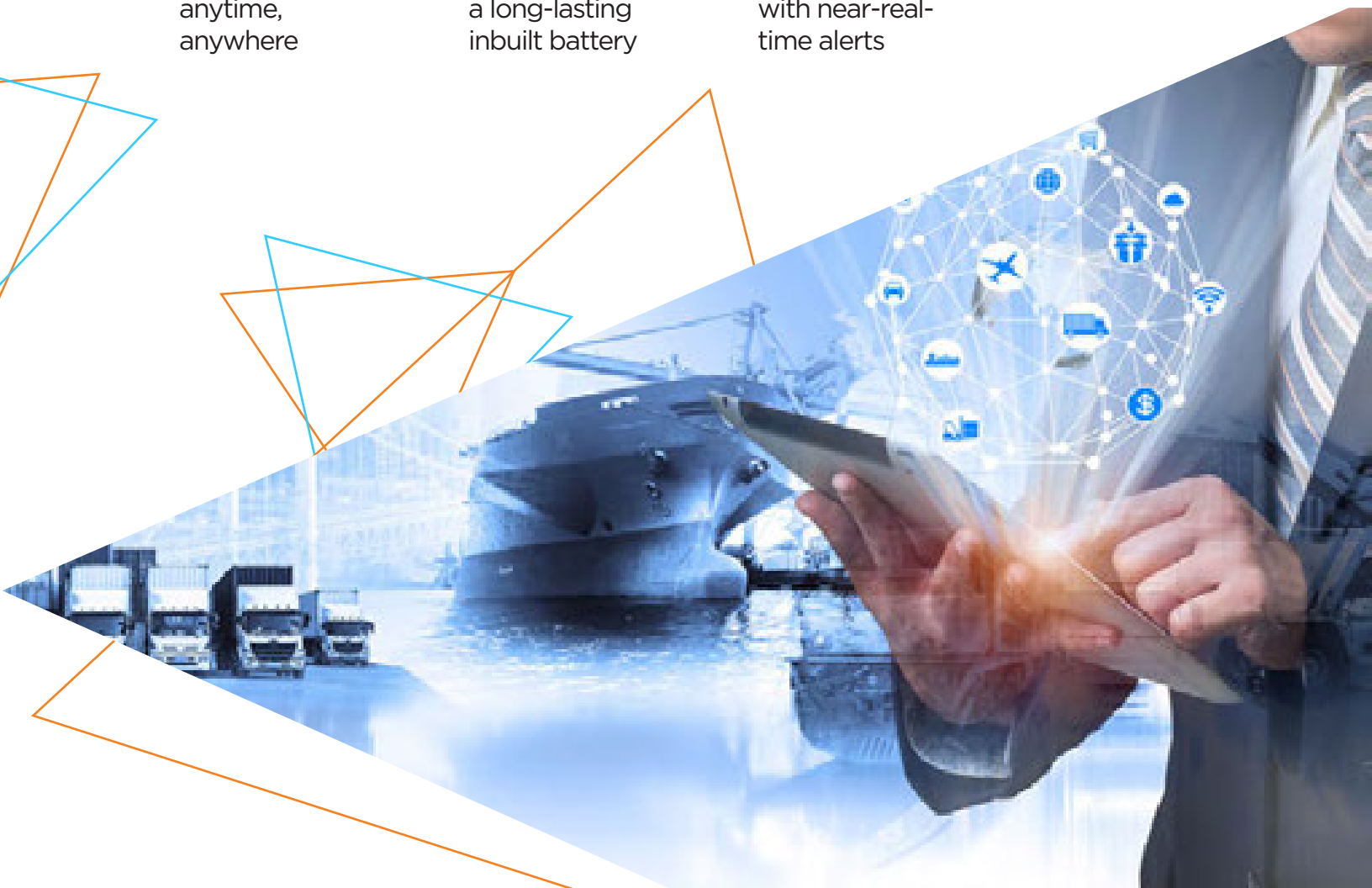
▷ Smart Multi-Sensor Tracker that provides asset location & condition information with global cellular connectivity and a long-lasting inbuilt battery

▷ Interactive, Cloud-based Dashboard to monitor shipment status and analyze supply chain performance with near-real-time alerts

▷ Integration with Enterprise Systems by way of using APIs to automate workflows

The Cold Chain Logistics solution leverages IoT to monitor location, condition and integrity of perishable shipments from points of production to consumption. The solution addresses challenges w.r.t. lack of timely visibility, people dependency, and lengthy audit & compliance processes faced by a dynamic & complex multi-stakeholder freight value chain. Additionally, the plug & play solution creates a transparent and seamless flow of shipment ownership information. All of these lead to reduction in shipment costs & damages and improved transactional efficiencies resulting in an improved customer experience.

Solution: Improve Asset Visibility & Traceability in a Cold Supply Chain Transaction across all stakeholders

Get timely & only the required contextual data from sensors monitoring multiple condition parameters, regardless of the mode of transport.

Realise up to 90% reduction in shipment damages.

Keep Track of the Chain of Custody even as the shipment changes multiple hands during its journey by leveraging IoT & automation.

Create a Tamper-proof Network of Accountability & Trust.

Utilize the power of Proactive Alerts to immediately address situations of Compromise in Shipment conditon & integrity.

Improve SLA Compliance rates by up to 50% across the network.

Benefits:

▷ Drive **Cost Savings & Improved Operational Efficiencies** by filtering out the noise (excessive, irrelevant data) at the edge and letting the system push alerts & corrective notifications, proactively

▷ Document & track Change of Ownership of shipments accurately and efficiently to **satisfy Audit Trail requirements** and avoid disputes

▷ Prove Your **Network's Commitment to Quality Control & Cold Chain Compliance** by tracking the location & condition of your Assets/Shipments in near-real-time

▷ Realise the benefits of Smart Contracts powered by IoT + Blockchain in the form of **Faster, Safer, and Cheaper Transactions**
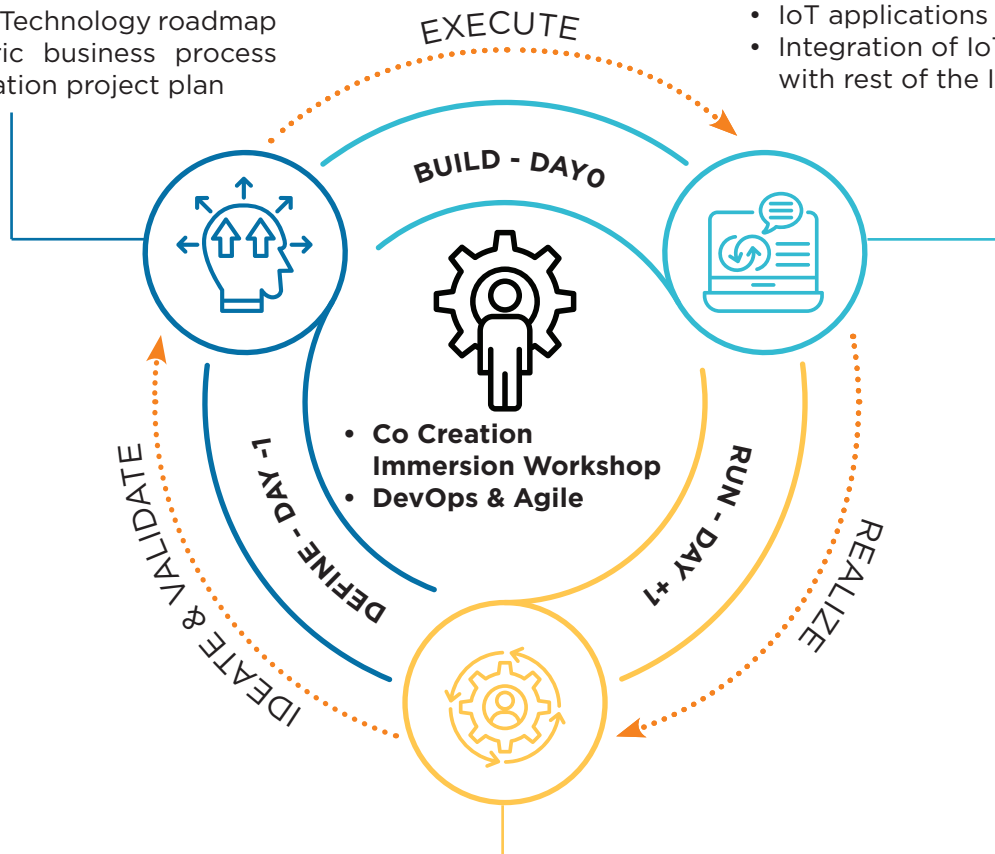
We have developed End-to-End IoT offerings for organizations across different IoT Maturity Levels

Plan your IoT program customized to your needs
- Identify business case (RoI) and business pain points that IoT can solve
- Industry thoughts and benchmark
- IoT roadmap in line with desired business outcomes
- POC Plan/Technology roadmap
- User-centric business process transformation project plan

Implement your IoT program with secure ecosystem-based solutions
- Iotization- Device Gateway connectivity and security
- IoT Platform - Data storage, device management, data service and work bench
- IoT applications and analytics
- Integration of IoT applications with rest of the IT Landscape

EXECUTE

BUILD - DAY0

DEFINE - DAY -1

RUN - DAY +1

IDEATE & VALIDATE

REALIZE

- **Co Creation Immersion Workshop**
- **DevOps & Agile**

Realize value from your IoT program with state-of-art IT/OT support services and analytics expertise
- Provisioning measuring & Monitoring
- Orchestrate IT/OT
- Platform hosting and Micro-services
- High Performance Analytics and Insight -as-a-service
- Uptime Assurance -24x7 support

Leverage the power of IoT + Blockchain in your business across multiple levels including tight integration with your existing IT-infrastructure and achieve transformational ROI.

To know more, write to us at **iot@hcl.com**

HCL

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