HCL

SAP LEONARDO

HCL Smart Logistics Solution for
Inventory Tracking

SAP
Global
Partner
TM

SOLUTION SUMMARY

Use Case - Inventory tracking

OVERVIEW

The HCL Smart Logistics Solution for Inventory Tracking, utilizes SAP Leonardo Blockchain and IOT Application Enablement Framework that transforms the way enterprises manage their inventory levels and accounts receivables by providing role-based access to location, condition and usage of their products in real-time.

BUSINESS CHALLENGES ADDRESSED

- High Daily Sales Outstanding
- Inability to track product delivery and consumption. Dependent on distributors or end customers to provide product status
- Delay in processing accounts receivable
- Shipping
    - Inability to track the product integrity across multiple custodians during the delivery process
- Inventory Management
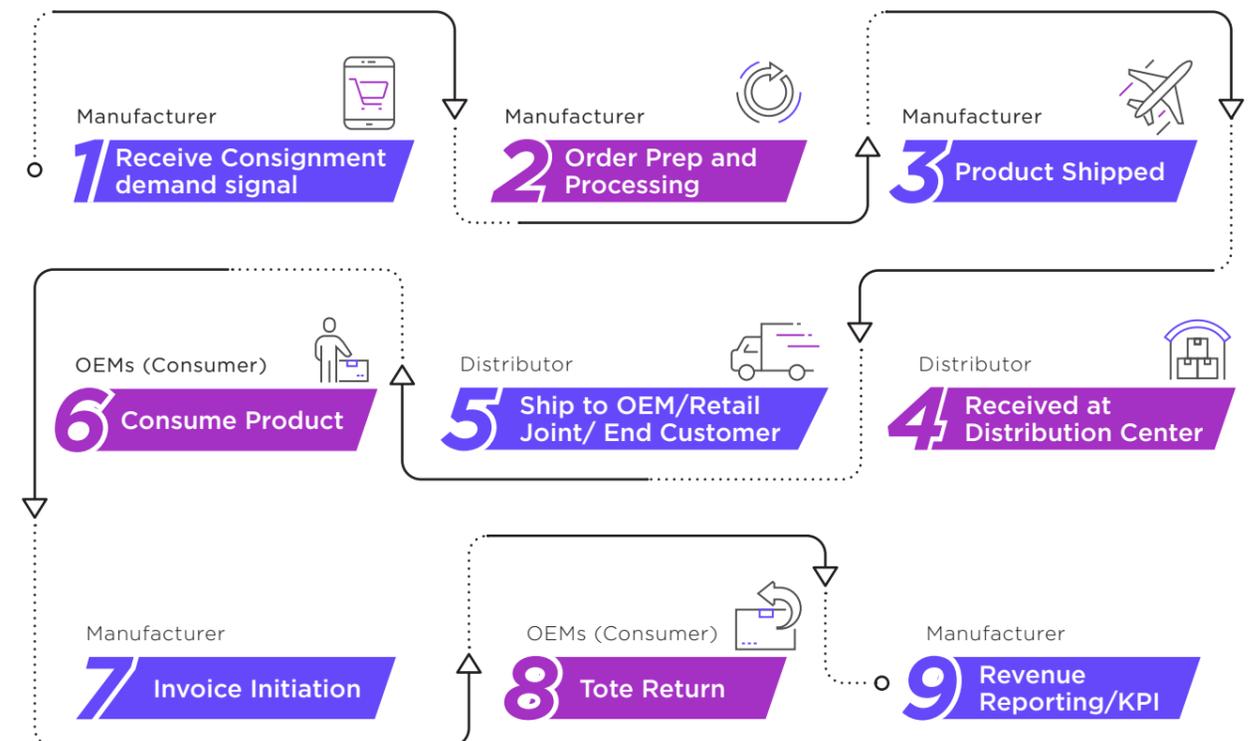   - Limited visibility of product consumption impacts inventory stocking and forecasting process

FEATURES

- Real time Track and Trace capabilities using IOT
- Immediate Status update captured in Blockchain as soon as the Product packaging is opened for consumption
- Multiple Personas for different custodians in the Delivery process
- API Integration with Billing and AR

PRODUCT DATA & LABELLING

PACKAGING

DISTRIBUTION AND RETURN

WHOLESALERS

CONSUMERS

SOLUTION OVERVIEW

SOLUTION PROCESS FLOW

With advances in the Supply Chain and Logistics business process, there is a growing demand for solutions that can **trace the location and condition of Assets** in a multi-stakeholder process flow. Organizations increasingly want ways and means to ensure that their **products reach the end consumer in the right condition**. Also new business models have emerged where the organizations supply their products through a **series of resellers and distributors & invoice customers once they start consuming the product**.

- HCL's Smart Logistics Solution for Inventory Tracking is designed to address these requirements. The solution involves installing **IOT device on each container carrying the consumable product** thus turning it into an **Intelligent Asset.**

- The IOT device has **light, temperature and pressure sensors** along with **GPS** to track the condition and location of the container carrying the consumable product. Further the IOT device will be connected to the **proximity sensor** that detects the **Opening & Closing of the Faucet/Valve** of the container carrying the consumable product.

- The IOT devices will transmit the Location and Sensor values through the **SAP IOT Gateway Edge 4.0** and SAP Leonardo IOT Services 4.0 to **SAP IOT Application Enablement Framework.**

- The solution also utilizes **SAP Hyperledger Fabric Blockchain** service to store the current custodian and condition of the container carrying the consumable product (Asset) when critical events occur during its Logistics and Shipping process.

Solution Process Flow

Manufacturer
1 Receive Consignment demand signal

Manufacturer
2 Order Prep and Processing

Manufacturer
3 Product Shipped

Distributor
4 Received at Distribution Center

Distributor
5 Ship to OEM/Retail Joint/ End Customer

OEMs (Consumer)
6 Consume Product

Manufacturer
7 Invoice Initiation

OEMs (Consumer)
8 Tote Return

Manufacturer
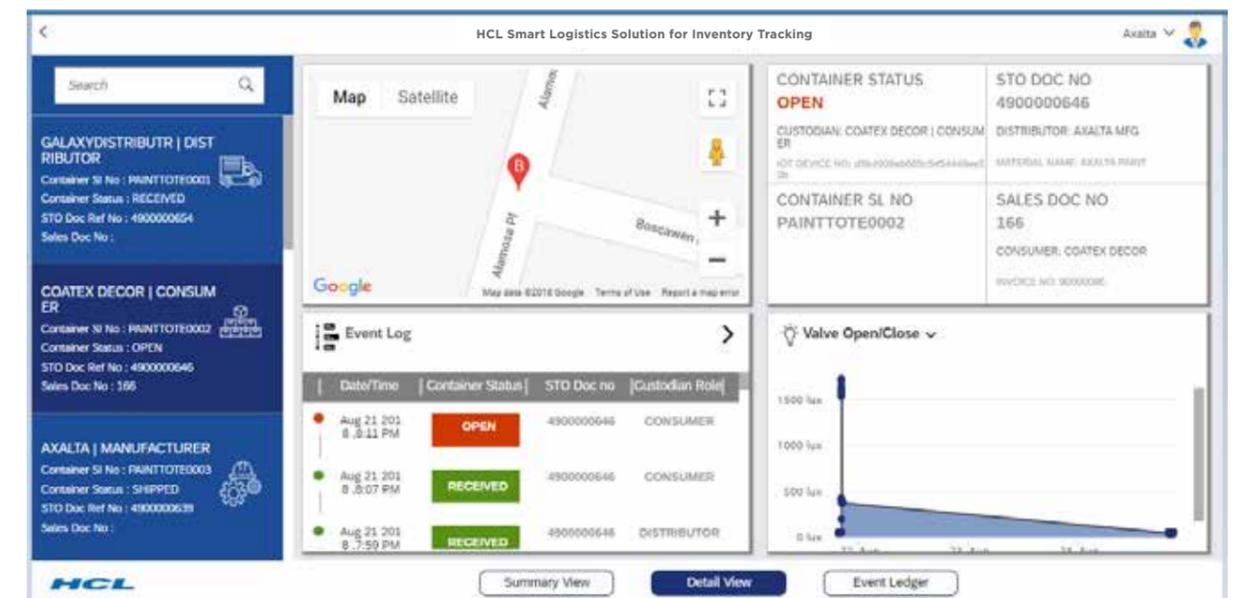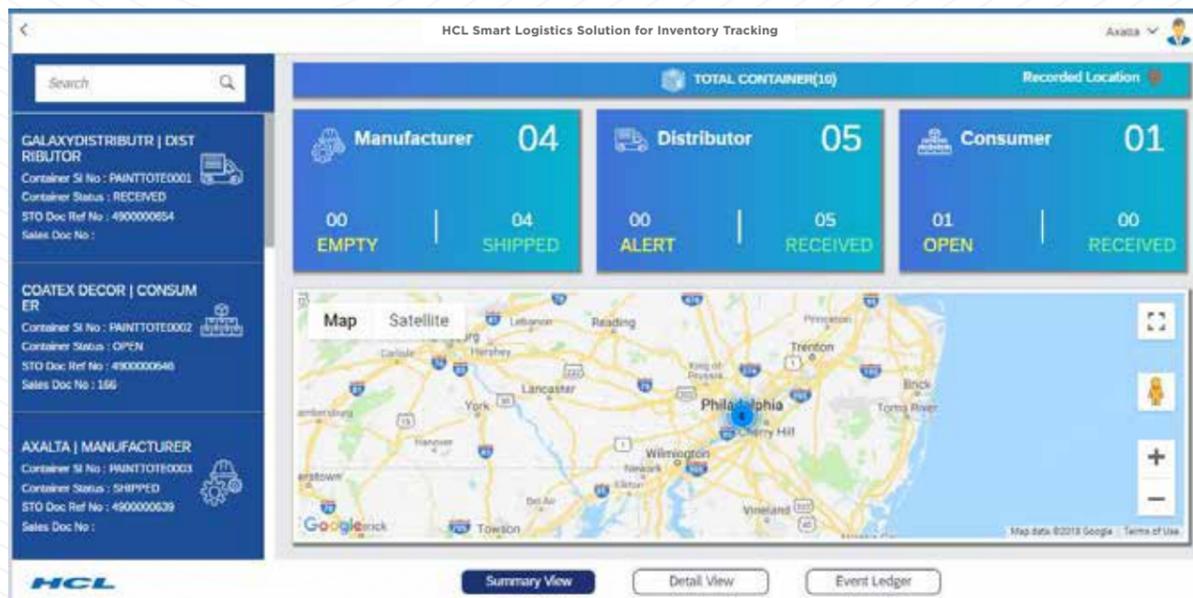**9** Revenue Reporting/KPI

DASHBOARD

The Manufacturer Dashboard has 3 views:

Summary View shows details of all the assets w.r.t.

- Current location/recorded location
- Current custodian and the custodian role(manufacturer, distributor, consumer)
- Current status(Shipped, Received, Alert, Open, Empty)

Detail View for the Manufacturer shows the details of the selected asset w.r.t.

- Route travelled from the manufacturer warehouse to the distributors/consumers location
- Current status of the asset (Shipped, Received, Alert, Open, Empty)
- Corresponding stock transfer order, sales order document number and invoicing details
- Quantity of the product consumed from the container
- Event Log — shows the complete chain of events that the asset went through
- Light, Temperature and Pressure readings come from the sensor 6 l attached to the assets

EVENT LEDGER

Event Ledger displays the transactions stored on the Hyperledger network like Block Number, Transaction Id, Creator node, Total number of Blocks etc. This is an administrator view of the solution

ALL BLOCKCHAIN

TOTAL BLOCKS	HEIGHT	CURRENT BLOCK #	PREVIOUS BLOCK #
50	284	VBPL3Aj2nw+yxSRz6EWWt U92UA7BwsrBkLi/nPGaMS8 =	+krgIkOOk8Vugj+5H6+PdPN EtBLPD/3XHWRRVt5Tkzl=

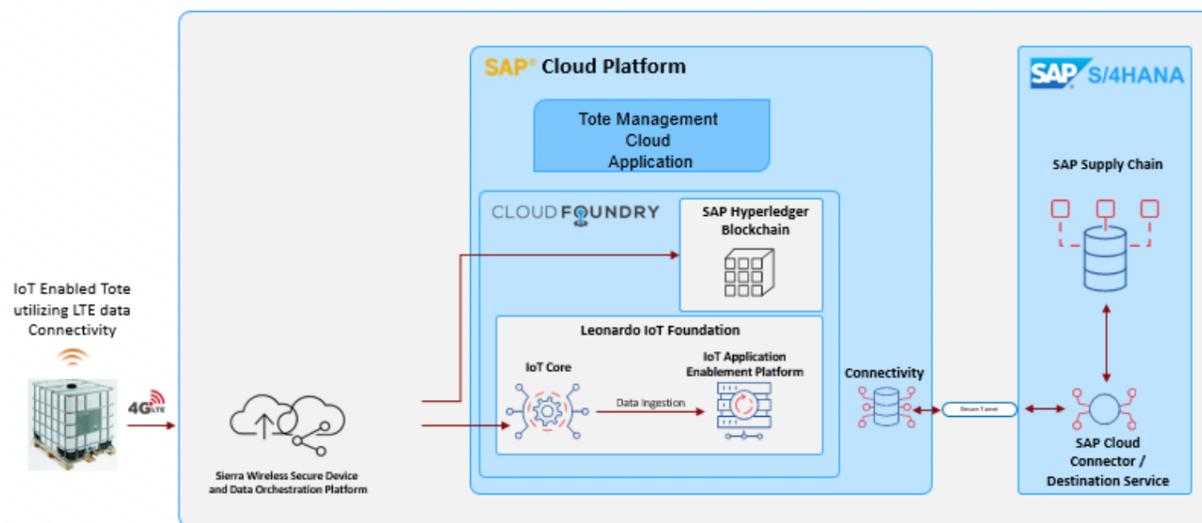| BLOCK NUMBER	TRANSACTION ID	TIMESTAMP	CREATOR	DATA #
49	5007610c3616a22e22a5cd9b9e1e d11fc4c63b270de63806f2ac89ec6 402ed5b	May 09 2018 ,1:14 PM	OrdererdevMSP	YHKkQTaarUhN9Ncq56EByjpnC5 hDM01mYZX7Rd5qSE=
48	0c726b38ef9bfb6b5bfcea11e531a c3e58c456c785aeeb9c90fbd926da 87cfca	May 09 2018 ,5:50 AM	OrdererdevMSP	iGu4EPYwPJ5iSztiFD1B4VpP5aeV 7jbGVobODGGMHFl=
47	b0e70a85aa2788de84df8d8a285c 56d0f31141a09a8eeef297e86782fa d24297	May 09 2018 ,5:49 AM	OrdererdevMSP	sTW4bbQYCblEMGCpjmryuzLjgT 4X1vWRYePGPGkYKFo=

- **Expedited Revenue Recognition**
  - Ability to invoice as soon as the product is used by the end consumer

- **Optimized Inventory Management**
  - Real-time inventory, deliveries and shipment information

- **Automated Status Monitoring**
  - Tracking and transparency on the status of assets

- **Seamless integration with Supply Chain & Logistics Operations** running in S/4HANA Enterprise Management Suite

- **Increased Productivity and Trust** by storing critical data points in Blockchain Distributed Ledger.

SOLUTION ARCHITECTURE

TECHNOLOGIES USED

IoT Enabled Tote utilizing LTE data Connectivity

SAP® Cloud Platform

Tote Management Cloud Application

CLOUD FOUNDRY

SAP Hyperledger Blockchain

Leonardo IoT Foundation

IoT Core

IoT Application Enablement Platform

Data Ingestion

Connectivity

SAP® S/4HANA

SAP Supply Chain

SAP Cloud Connector / Destination Service

Sierra Wireless Secure Device and Data Orchestration Platform

SAP Leonardo Blockchain

SAP IoT Application Enablement Framework

SAP Cloud Platform

SAP S/4 HANA

SAP Internet of Things Service 4.0

SAP Internet of Things Gateway Edge 4.0

OpenUI5

PARTNERSHIP

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