

# Smart Logistics The next breakthrough is on its way

Denis SENPERE  
Inspirage Europe

Oslo, April 11<sup>th</sup> 2019

ORACLE®

inspirage

# THE DIGITAL & INTEGRATED SUPPLY CHAIN SPECIALISTS



Integrate Information | Accelerate Innovation | Deliver Operational Excellence



Winner

ORACLE®



Oracle  
Excellence  
Award

SPECIALIZED PARTNER OF THE YEAR:  
SCM CLOUD – EUROPE,  
MIDDLE EAST, AND AFRICA

ORACLE®

Platinum Partner  
Cloud Premier  
EMEA

**450+**  
customers  
in 50+ countries

**1<sup>st</sup>**  
Longest-serving  
Oracle Cloud SCM  
co-development  
partner

**500+**  
Consultants  
certified and  
trained





# They have done it



# Oracle IoT Standard Applications

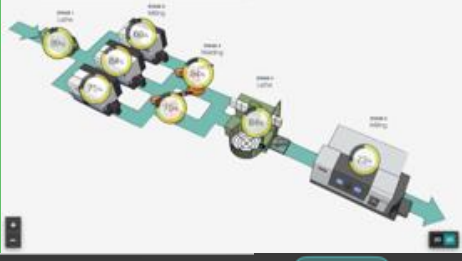
**Asset Monitoring**

**95%** Asset Availability      **1** Open Incidents

Monitor assets, their health, utilization & availability



**Production Monitoring**

**2%** Down      **78%** In Use      3h to 5h ago

Manufacturing equipment & production line monitoring & prognostics



**Fleet Monitoring**

**68%** On Track      **5%** Down      **3** Driver Alerts

Monitor shipments, fleet vehicles, driver behavior and costs



**Connected Worker**

**21** Over Time      **3** Evacuation risks      **0%** Unsafe Zones

Enhance worker safety through monitoring of workers and environment

**Service Monitoring for Connected Assets**

**38%** Assets Connected      **63%** Asset Utilization

Automate asset monitoring and customer service to enhance customer experience

Internet of Things Cloud Enterprise (Platform)

Connect 

Analyze 

Integrate 

Learn 

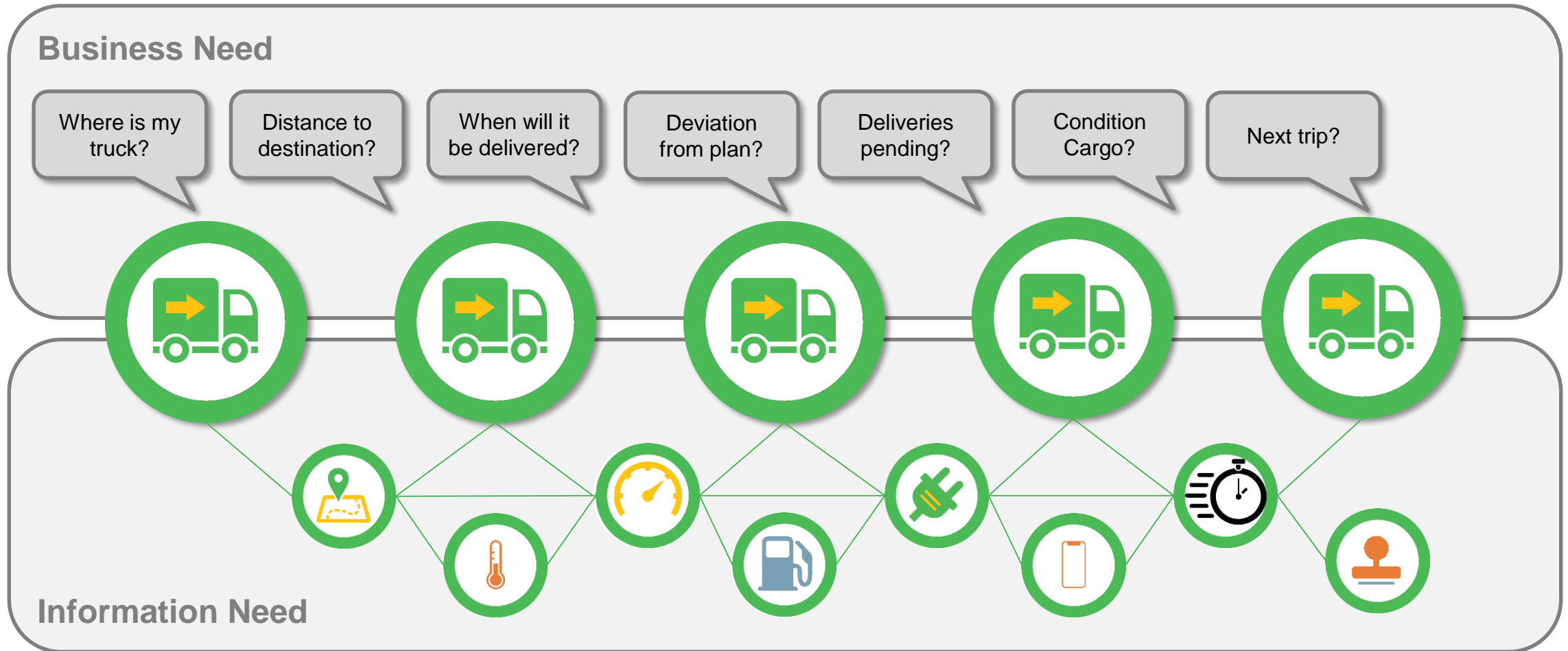


# Fleet Monitoring

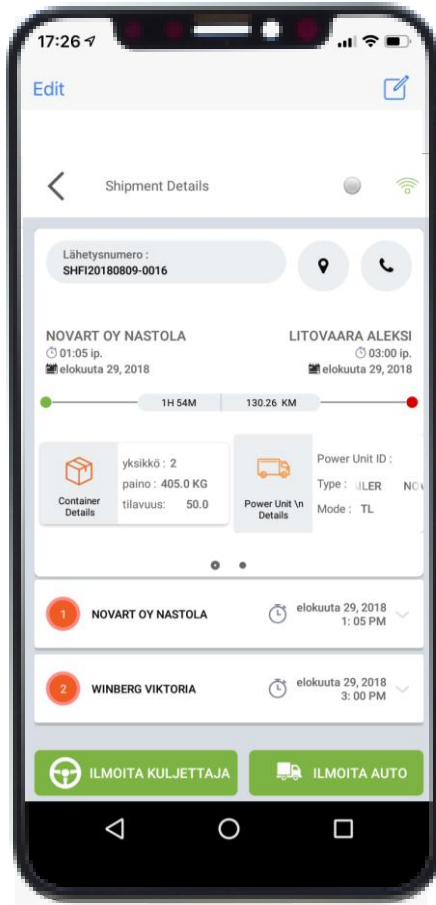




# Connected Fleet Monitoring



# ILM Control Tower



The desktop interface shows a list of vehicles with their status and location. The top section shows a selected vehicle (5772 EAJ) with a speed of 0 km/h and 7 units. Below this, a 'Change Oil' notification indicates 'Less than 6096 km left.' The main list contains 17 vehicles, including branches in Riyadh, Medina, and Jeddah, as well as service centers and head offices. To the right, a map of Saudi Arabia shows the location of vehicle 5772 EAJ near Jeddah. A pop-up window on the map lists details for several vehicles, including 1463 AVJ, 1928 DVJ, 2702 BXJ, 4734 VKA, 5692 LLJ, 5772 EAJ, 6682 DUJ, 7320 XJB, 8776 HI ace, and 9071. The map also shows various branches like URAYDAH (BRANCH), RIYADH (BRANCH), and KHAMIS (BRANCH).

Vehicle ID	Location / Branch	Status
1463 AVJ	RM SERVICE CENTER, الرحلات الداخلية	Green
1928 DVJ	Aban Ibn Al Ass Street 4911, Al Faihaa, Makkah ...	Green
2702 BXJ	الرحلات الداخلية	Green
4734 VKA	Al Rawabi 3, Makkah, Saudi Arabia	Green
5692 LLJ	Jaber Bin Samra Street 8288, Bani Malek, Makka ...	Green
5772 EAJ	Omarah Ibn Hazm Street 7461, Al Kandarrah, Ma...	Green
5785 ZUJ	Abdulrhman Ibn Afef 3295, Al Athir, Eastern Prov...	Green
5786 ZUJ (Madina)	Khudaij Bin Slamah Street, Bir Othman, Madinah...	Green
6307 JDJ (RIYADH)	Al Hasibi Path, Al Oud, Riyadh, Saudi Arabia	Green
6682 DUJ	RM HEADOFFICE	Green
7320 XJB	RM SERVICE CENTER, الرحلات الداخلية	Green
7828 KUB (RIYADH)	RIYADH (BRANCH)	Green
8076 RBB	Al Waha, Aseer, Saudi Arabia	Green
8504 DUA (DMM)	Abdulrhman Ibn Afef 3295, Al Athir, Eastern Prov...	Green
8522 URA (RIYADH)	RIYADH (BRANCH)	Green
8776 HI ace	RM HEADOFFICE	Green



# Cargo Monitoring

## Pilferage?

### Door

- No of times Opened
- No of Stops

## Cargo Damaged?

### Temperature:

- Ideal Range – 0- 5 c
- Current – 8 c

## Pilferage?

### Weight:

- Loaded weight – 9 T
- Current Weight – 8.5 T

## Damaged / Wrong Dly?

### Contents:

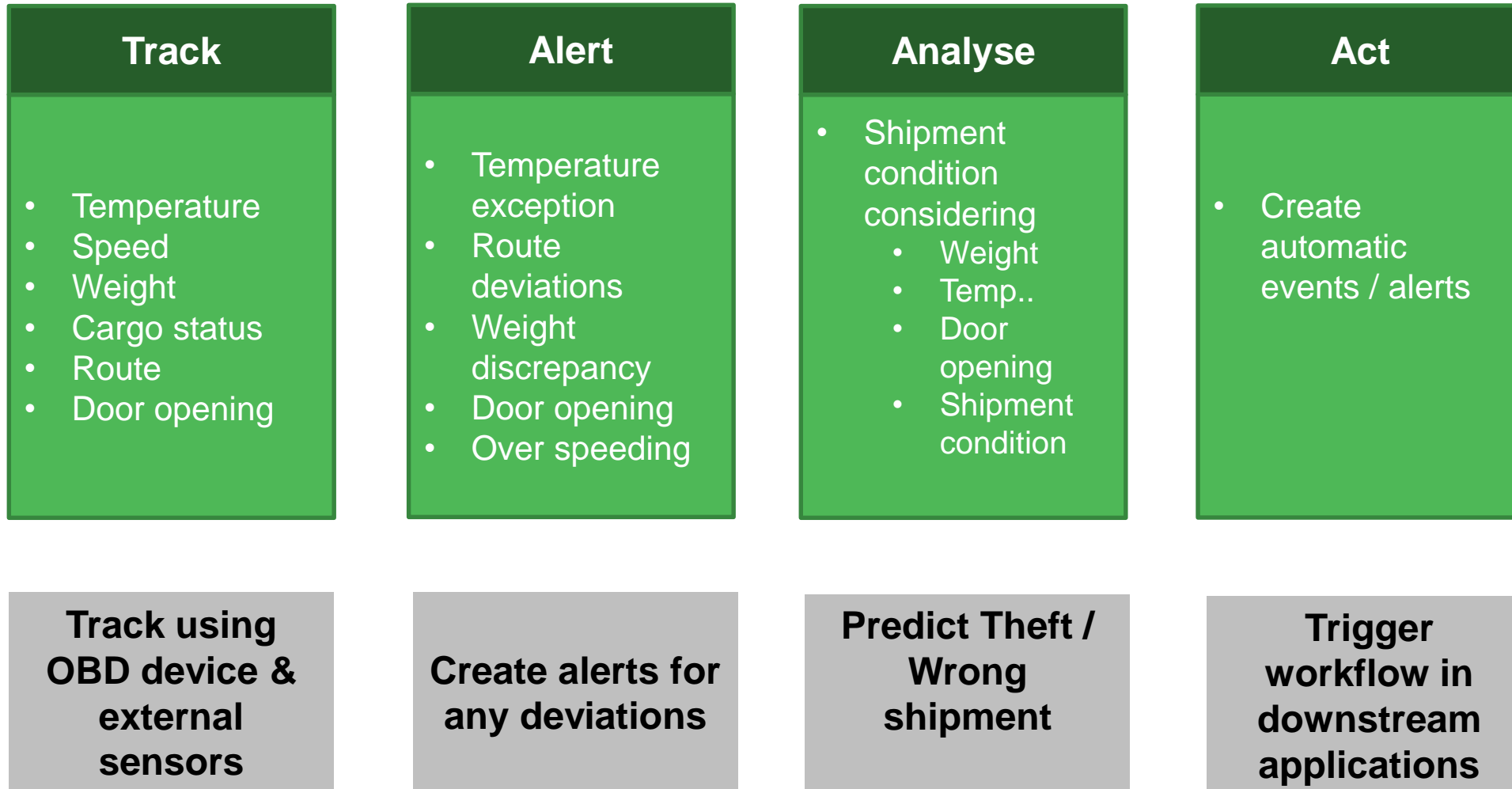
- Cargo status

## Pilferage

### Route:

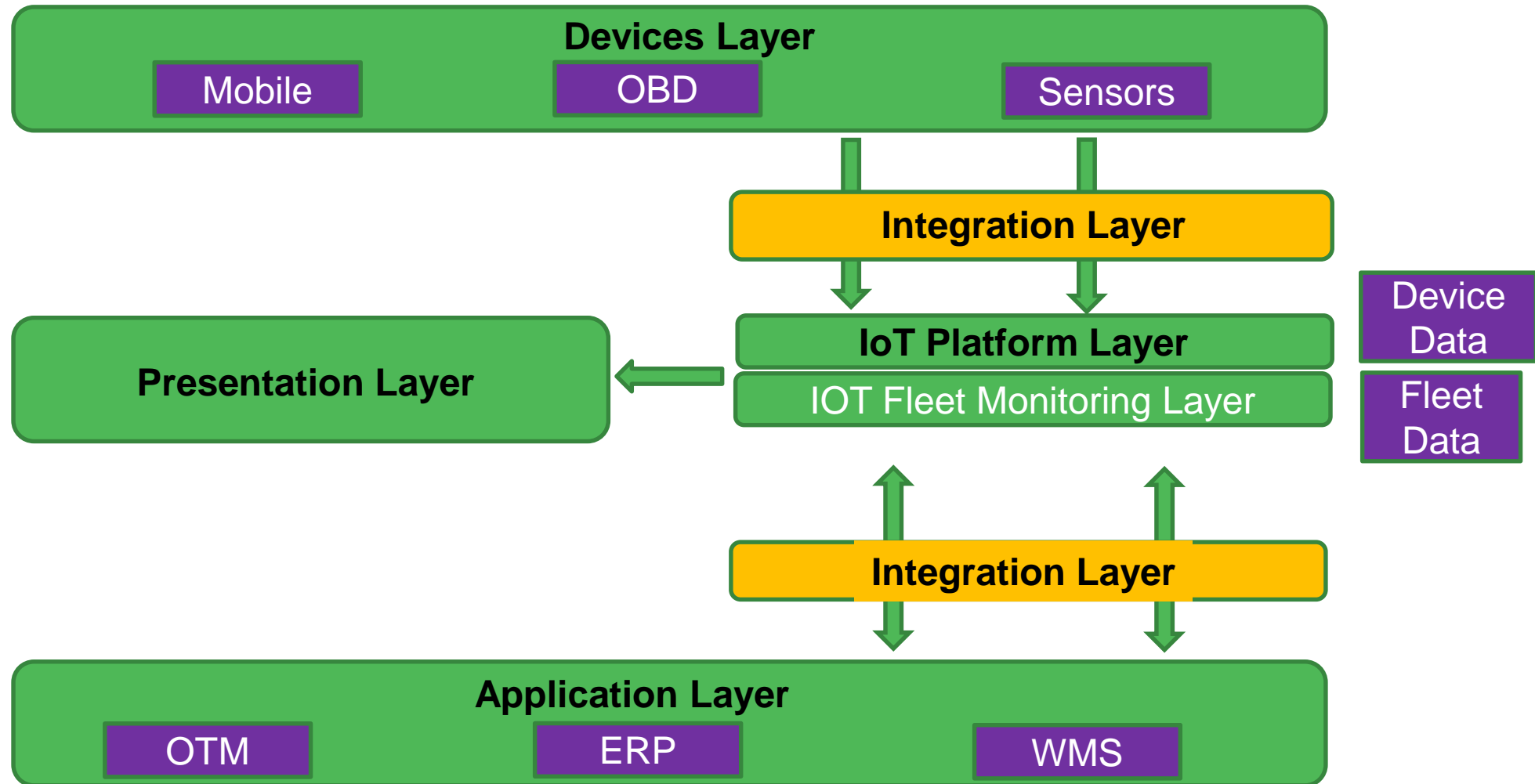
- Planned vs Actual
- Stop Sequence

# Business needs

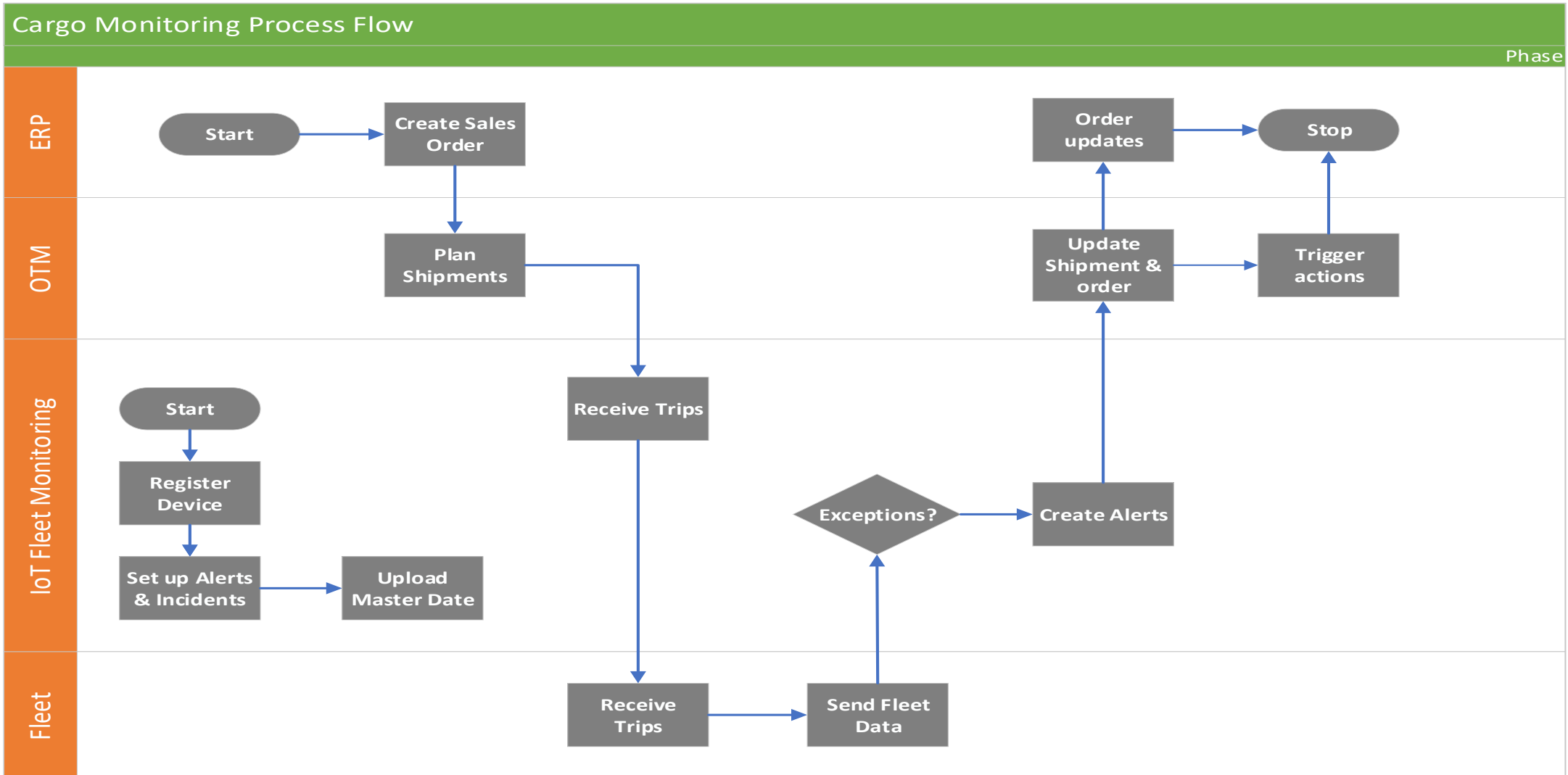




# architecture



# Process flow





# Business benefits

## Business Benefits

- Minimize Shipment damages
- Improve fill rate
- Minimize theft and pilferage

## Best Use cases

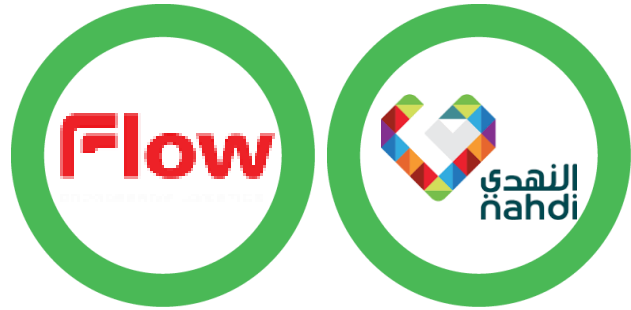
- High value goods transportation
- Perishable (Temp Controlled) Cargo transportation

## Customers:

- Shipper with own or dedicated or contracted fleet
  - Pharma
  - Food & Beverages
  - 3PL

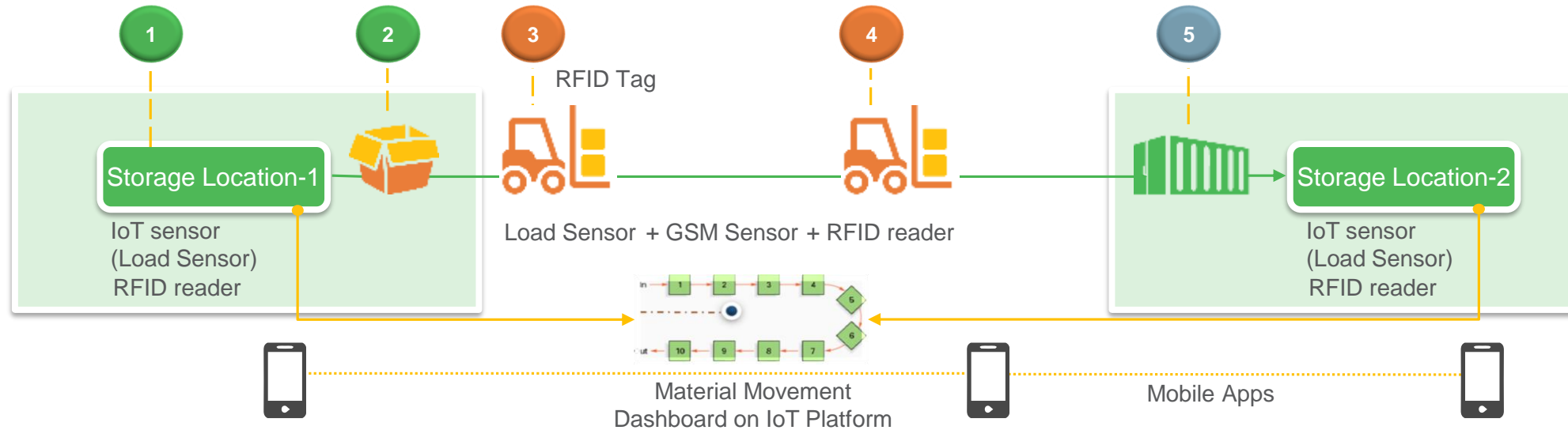


# Connected Warehouse





# In-Plant Traceability



1 2

## Picking

**WHAT**

- Auto-identify Material Picking and Picker
- Auto-calculate Units Picked
- Notify Stakeholders

**HOW**

- Parameter Monitored : Weight and SKU
- Sensor Type : IoT Sensor (Load Sensor) and RFID
- Technology : IoT, SCM Cloud, Mobility, RFID

3 4

## Transfer

- Auto-validate Material & Quantity
- Automated System Record
- Exception Management
- In-Transit Material display on the Dashboard

- Parameter Monitored : Weight, SKU and Position
- Sensor Type : IoT Sensor (Load Sensor), GSM Sensor and RFID
- Technology : IoT, SCM Cloud, Mobility, RFID

5

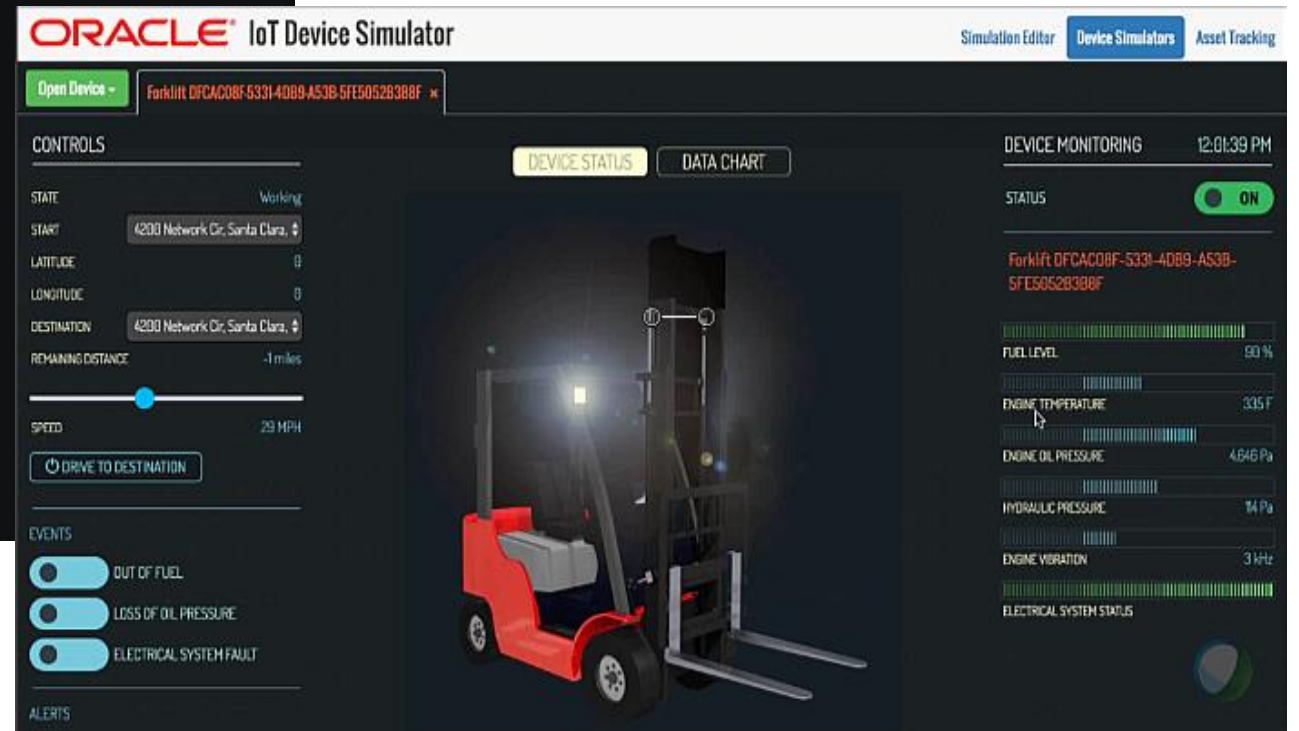
## Put Away

- Auto-identify Put away
- Auto-validate Material & Quantity
- Automated System Record
- Exception Management & Notify Stakeholders

- Parameter Monitored : Weight and SKU
- Sensor Type : IoT Sensor (Load Sensor) and RFID
- Technology : IoT, SCM Cloud, Mobility, RFID

# MATERIAL TRACKING – WEIGHT BASED AUTO PICKING AND RECEIPT

## REGISTER THE DEVICE IN SIMULATOR



# Solution Value Proposition



## Smart Production with Automated Material Transfer and Improved In-Plant Traceability

60%-  
70%



Reduction in Data Entry Time <sup>★1</sup>

20%-  
30%



Reduction in Labor Cost <sup>★2</sup>

### Real-Time System of Records

1. Real-Time Information of Critical High Value Items
2. Minimal Manual entry of data from Job Card – Effort Reduction

### Proactive Exception Handling

1. Picking Wrong Item: Auto Alert
2. Picking Wrong Quantity: Auto Alert
3. Material moved out of Handler Bin : Auto Alert with Location identification in the Process Exception Dashboard

### Real-Time in-Plant Tracking of Critical Items

1. Material Movement Dashboard
2. No “Misplaced” items leading to “Lost Inventory”
3. Higher Inventory accuracy leading to improved Fulfillment rates

### Intelligent System Guided Controls

1. Material delivered to Incorrect Work Center: Auto Alert
2. Minimizes multiple Picker trips for the same Material against a Job (Incorrect Item, Qty.)

### Control Towers To Manage Operations

1. Minimizes Picker Route Deviation
2. Picker Efficiency Data which can be linked to Compensation Benefits

<sup>★1</sup> <http://www.assemblymag.com/articles/92976-ensuring-traceability-in-electronics-assembly> <sup>★2</sup> The 2015 MHI Annual Industry Report by Deloitte and MHI

### For a large logistics organizations

150,000 pallets for In-Plant movement

6 minutes of staff time per pallet

2 Man-Years of labor savings



# Connected Assets



# Use Case for Port of Colombo

## Asset Full : In-House

- Asset Health Monitoring
- Predictive Analytics

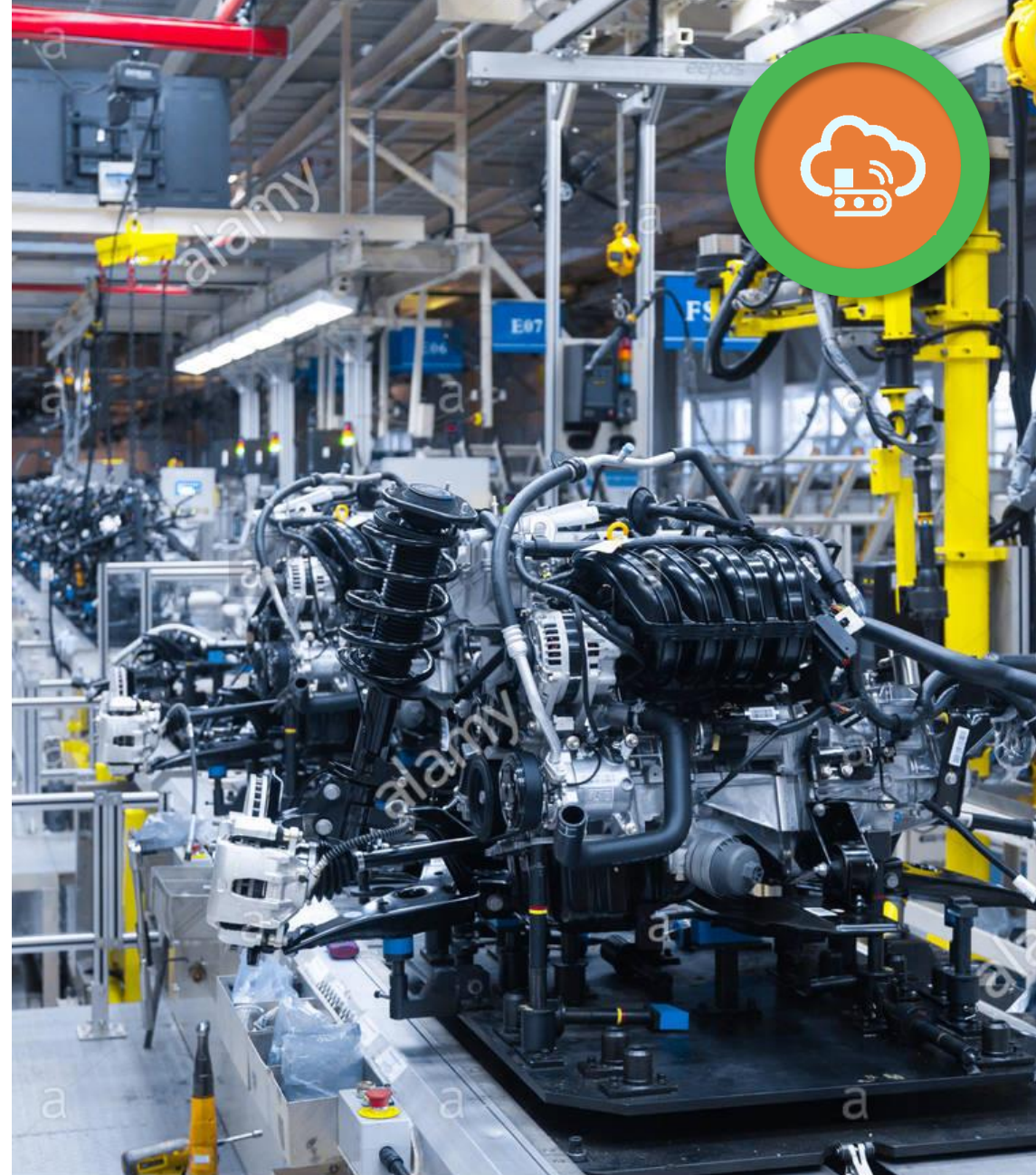
## Asset Parameters

- **Heavy Duty Crane:**
  - Hydraulic Oil Pressure
  - Lubricant Oil Temperature
  - Oil Level
- **Mid-Range Yard Truck:**
  - Engine Oil Temperature
  - Average Engine Oil Temperature
  - Tire Pressure
  - Location



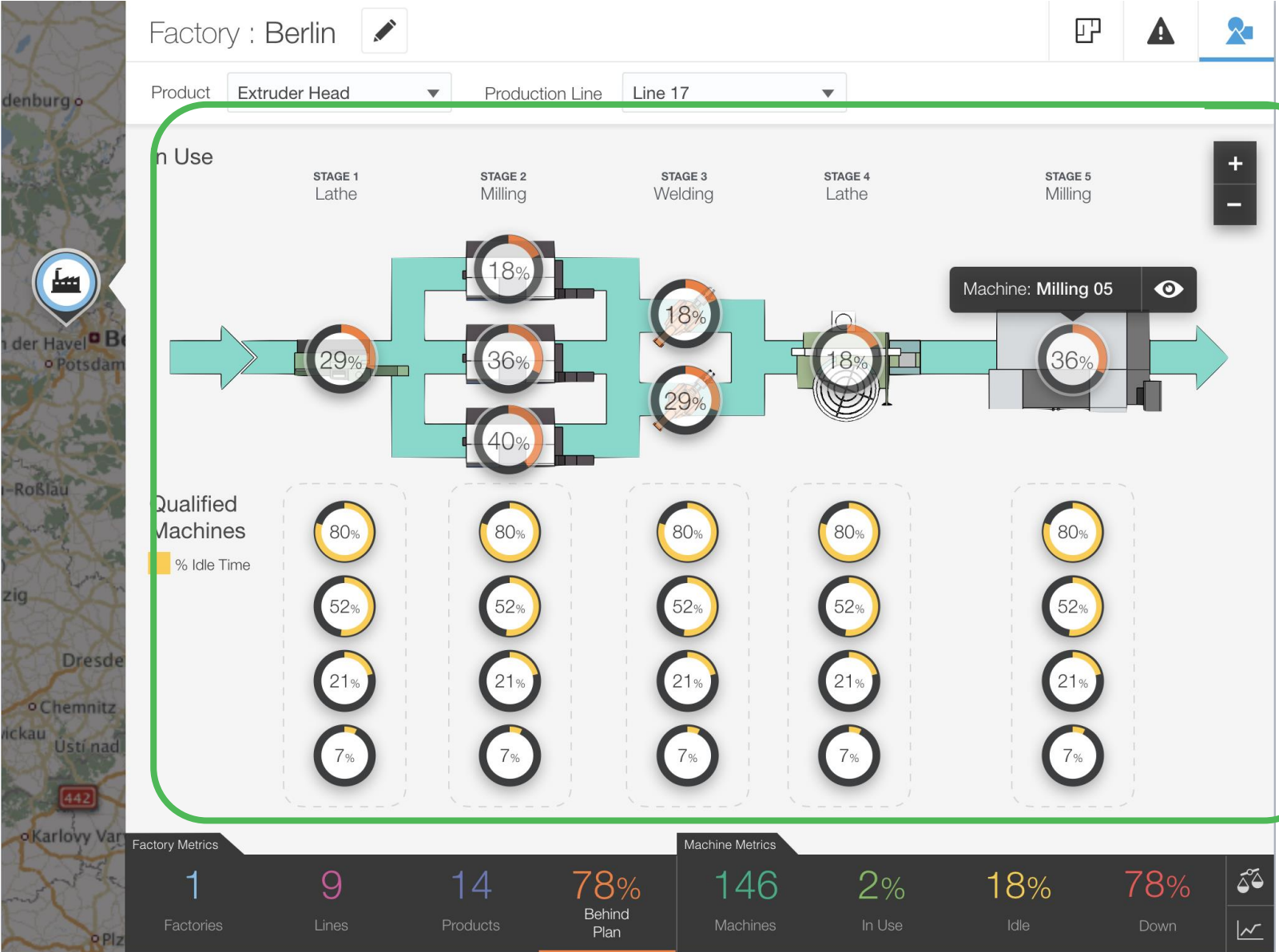


# Production Monitoring





# Drill Down to Factory

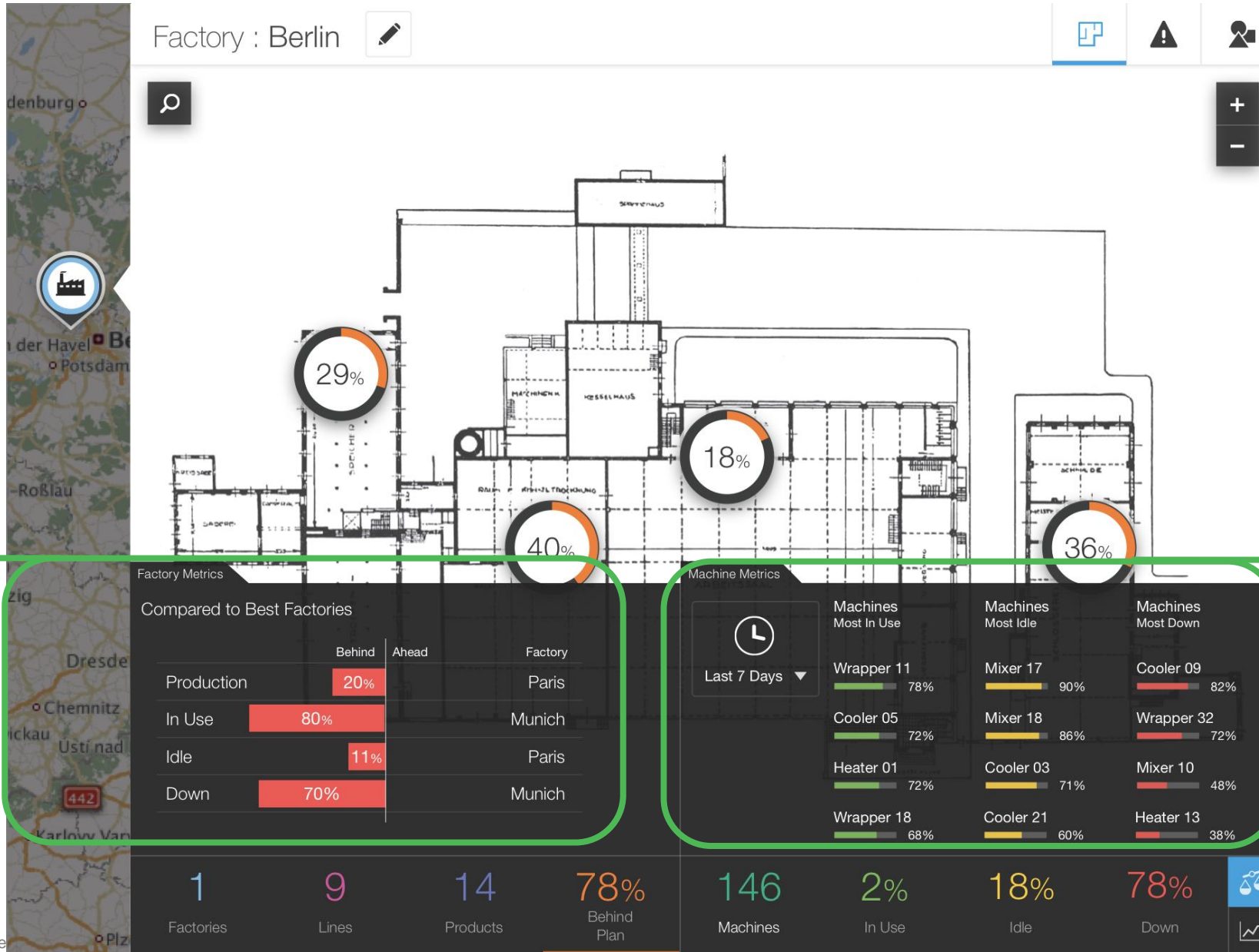


Deep dive into production lines, and machines to gain operational insights

Factory managers can track machine availability and view the reported percentage of machines in use, idle, and out of service

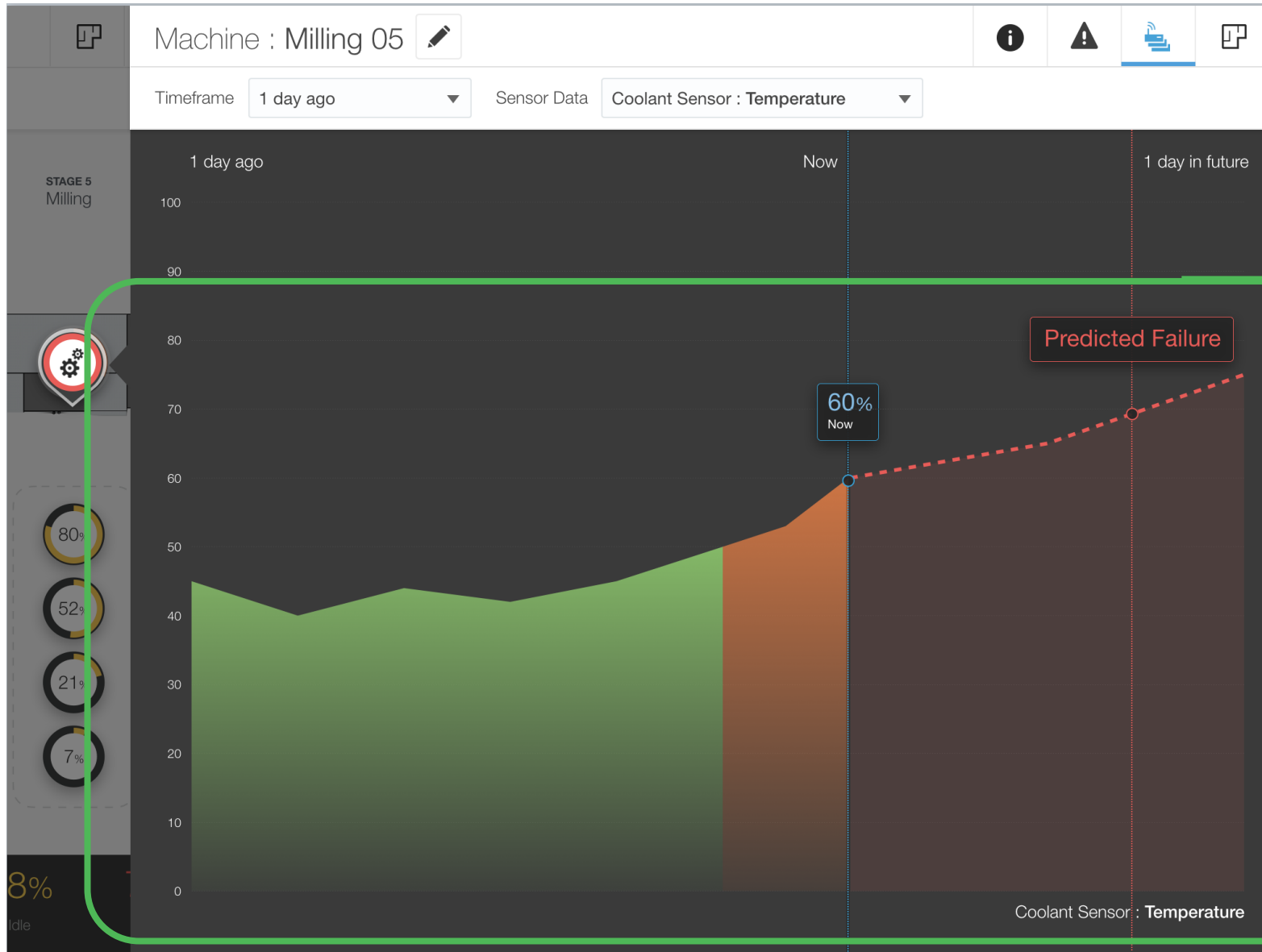
# With Clear KPIs

Identify root cause of sub-par performance using deep dive on specific KPIs and sensor data.



Identify anomalies in machine performance and its effect on production

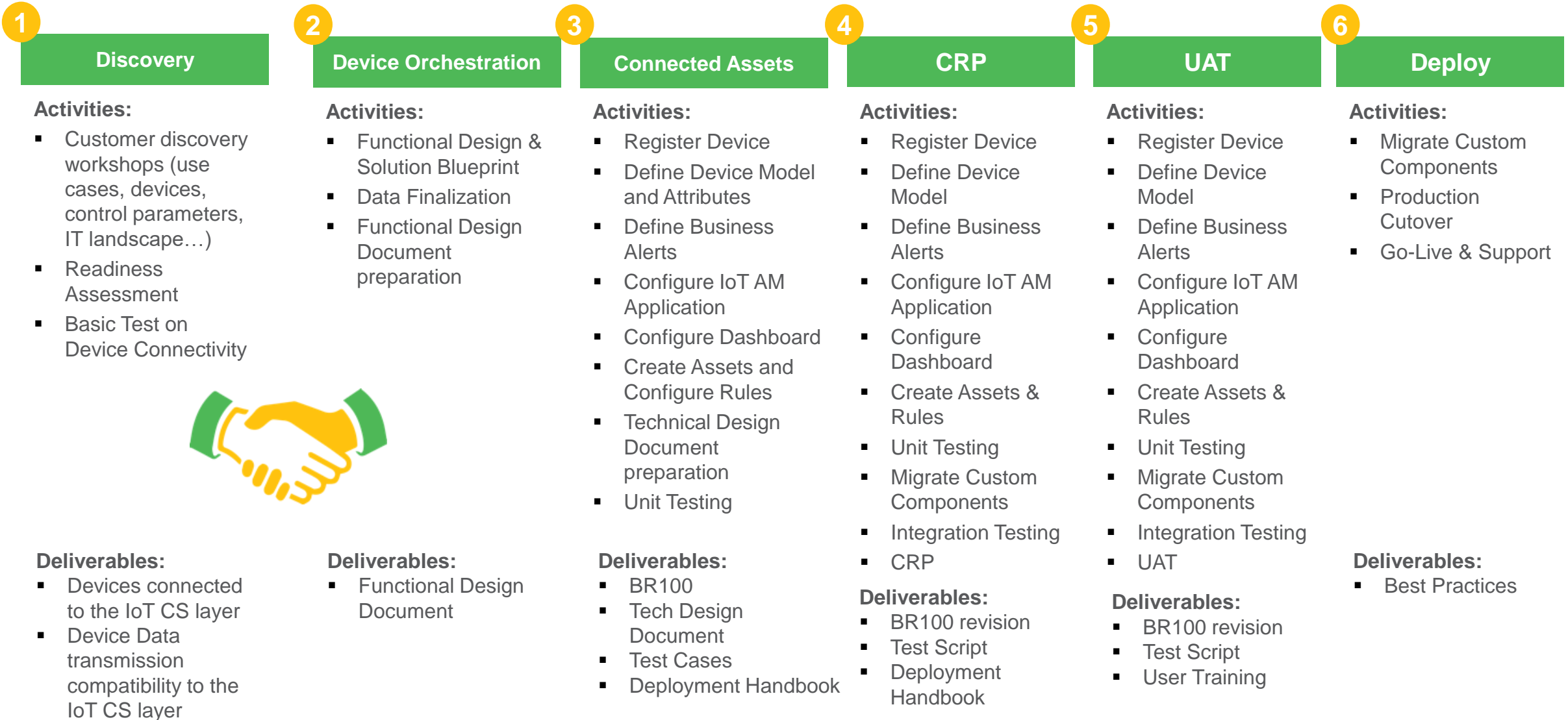
# and Gain Insight on Probable Future Behaviour



Predict the future state of equipment, identify anomalies in machine performance and its effect on production.



# IoT RAPID IMPLEMENTATION METHODOLOGY



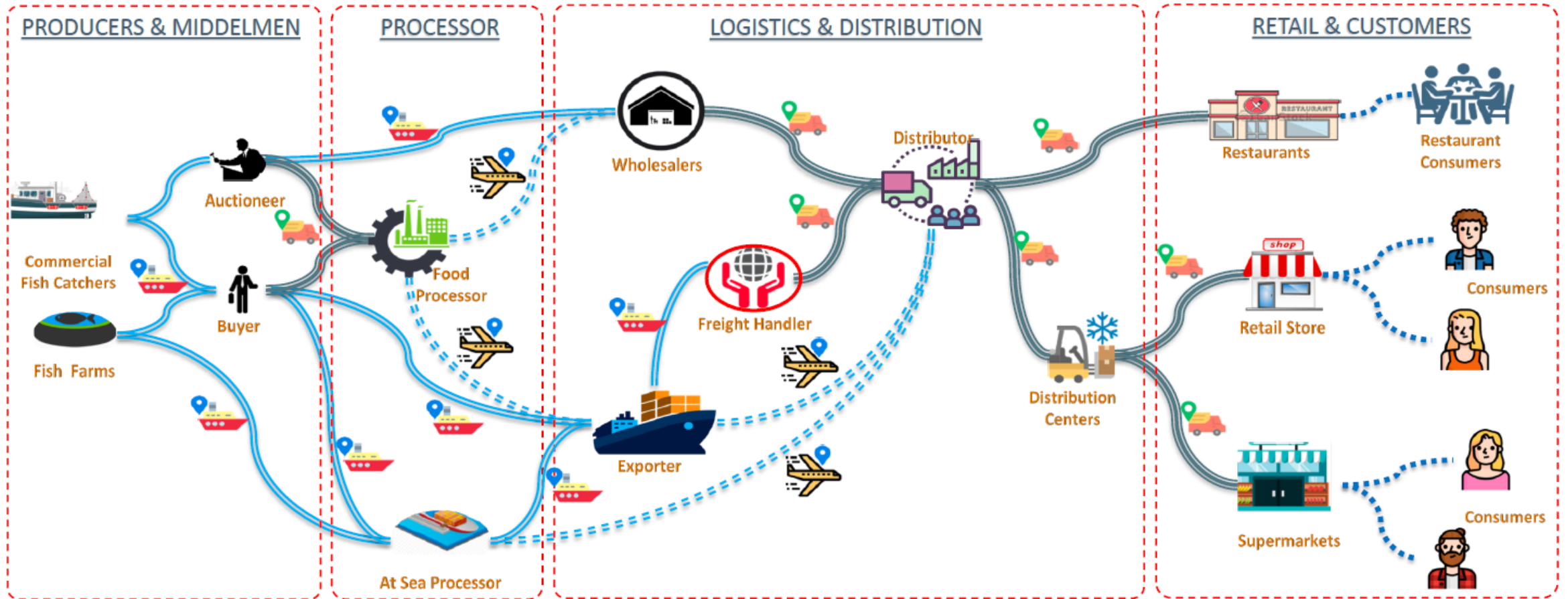


# BLOCKCHAIN APPS

Oracle Blockchain Applications  
augment existing  
**Business Processes**

# Product Traceability with IoT and Blockchain

## Example: "from Hook to Fork"

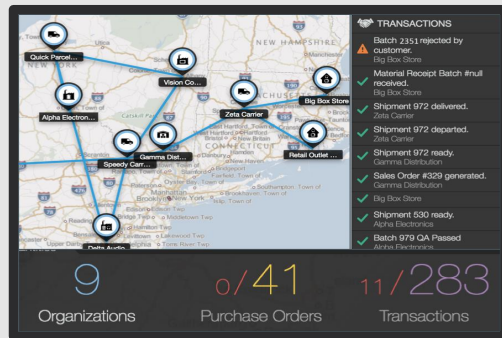




# Oracle Blockchain Applications Cloud

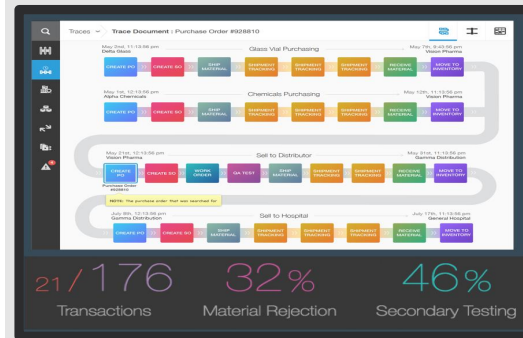


## Intelligent Track and Trace



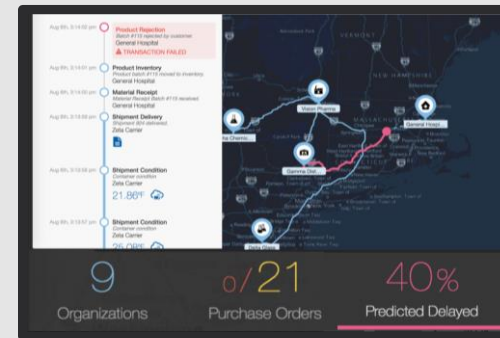
Monitor transactions and movement of assets or goods across organizations

## Lot Lineage and Provenance



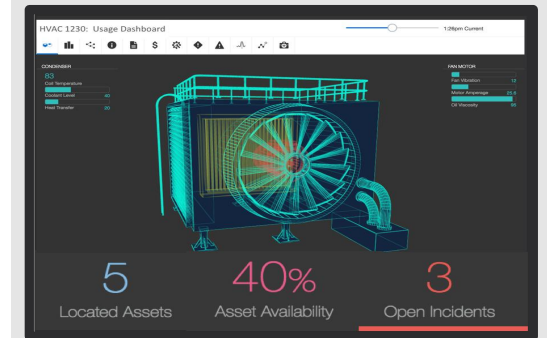
Pedigree, Serialization and Genealogy of product components

## Intelligent Cold Chain



Comprehensive Track and Trace system for food and pharmaceuticals safety

## Warranty and Usage Tracking



Product usage tracking for Rental, Warranty, Service, & Insurance for high-value assets

## Smart Contracts, Distributed Ledger on Blockchain Platform

Shipment Notifications, Bill of Lading, Manufacturing work orders

Purchase order, Sales order

Service records, Warranty information

Assets, Equipment and cargo conditions, Predictive Insights

## Sources of Input



Supply Chain



ERP



HCM



Customer Experience

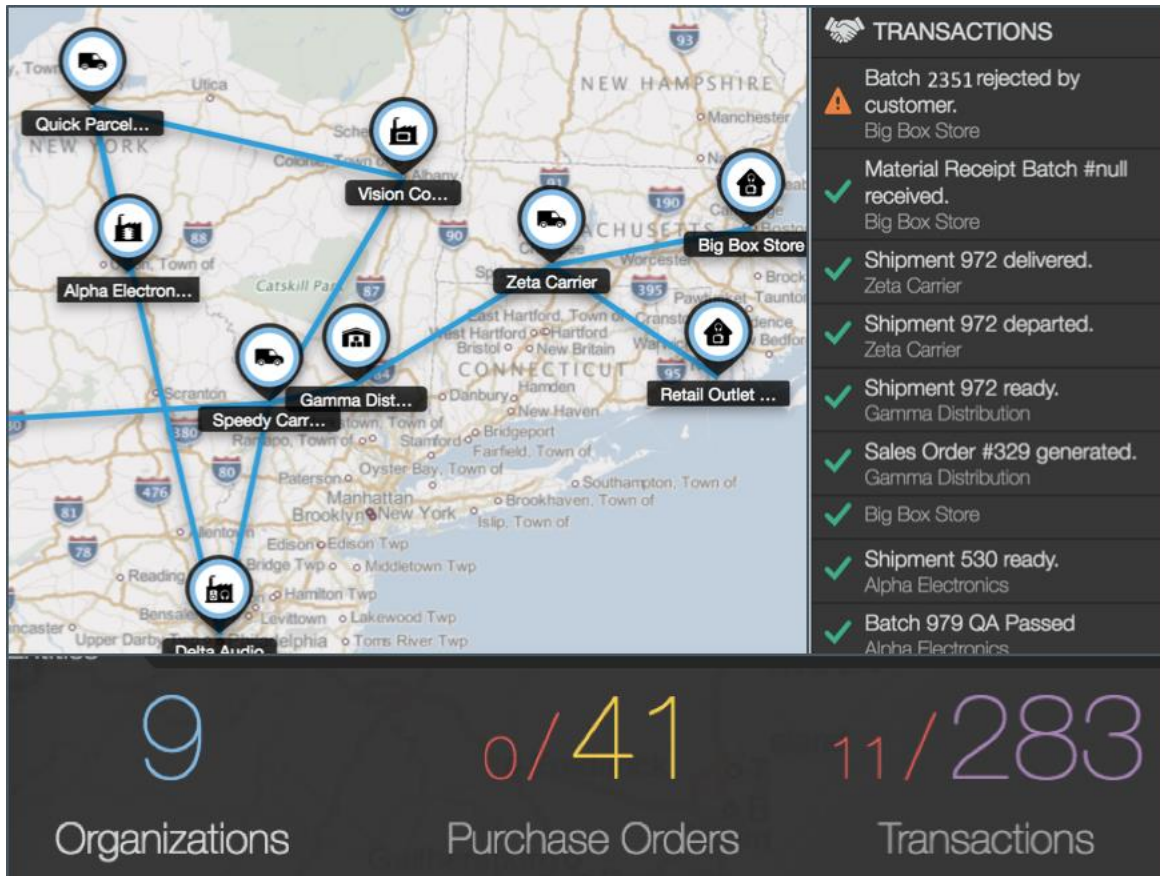


Internet of Things



# Blockchain App – Intelligent Track and Trace

Digital trail of transactions & events in multi-tier supply chain and business networks



Visibility



Root-Cause Analysis



Compliance



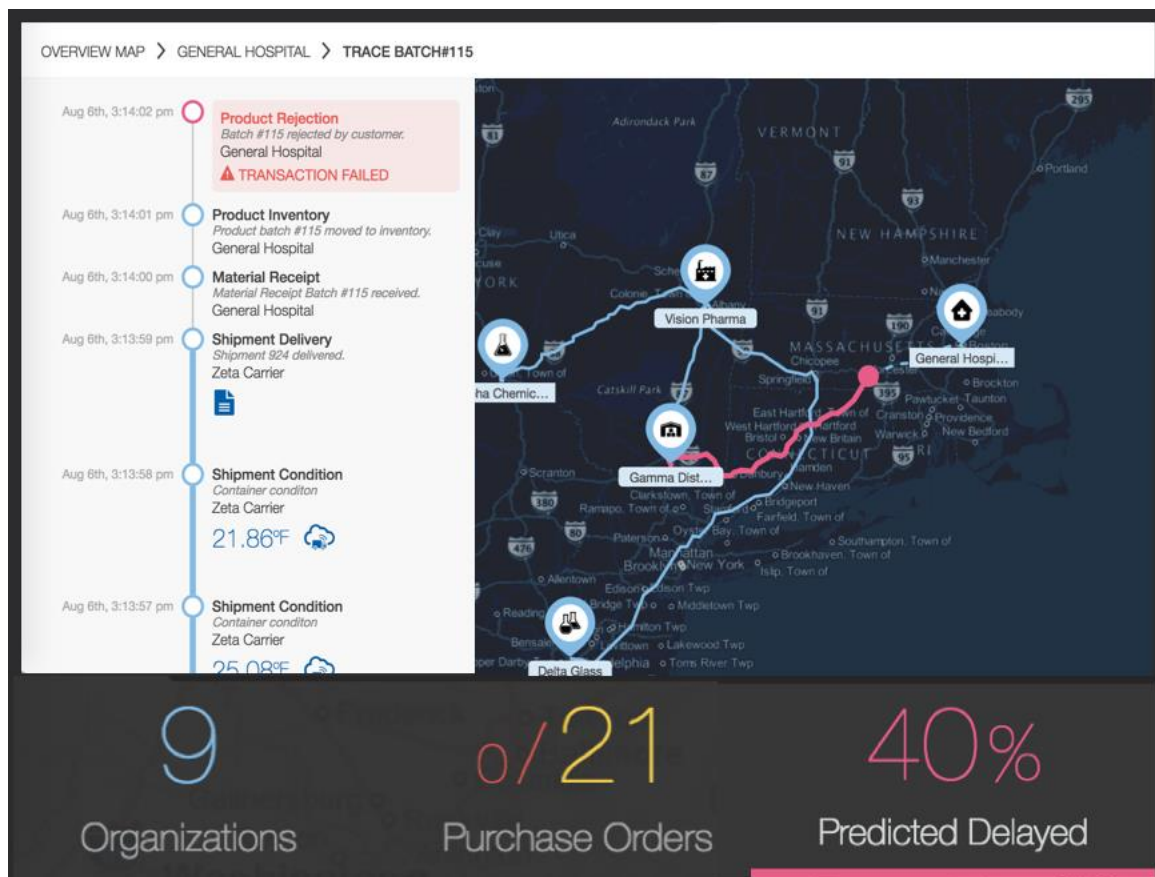
Trust





# Blockchain App – Intelligent Cold Chain

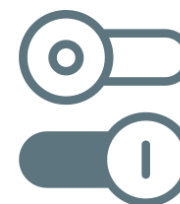
## Comprehensive Track and trace system for food and pharmaceuticals safety



Traceability



Condition Monitoring



Actionable Intelligence



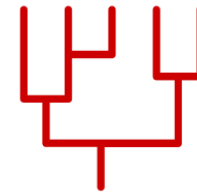
Corrective Actions





# Blockchain App – Lot Lineage and Provenance

## Pedigree, Serialization & Genealogy to verify origin and authenticity



Pedigree



Serialization



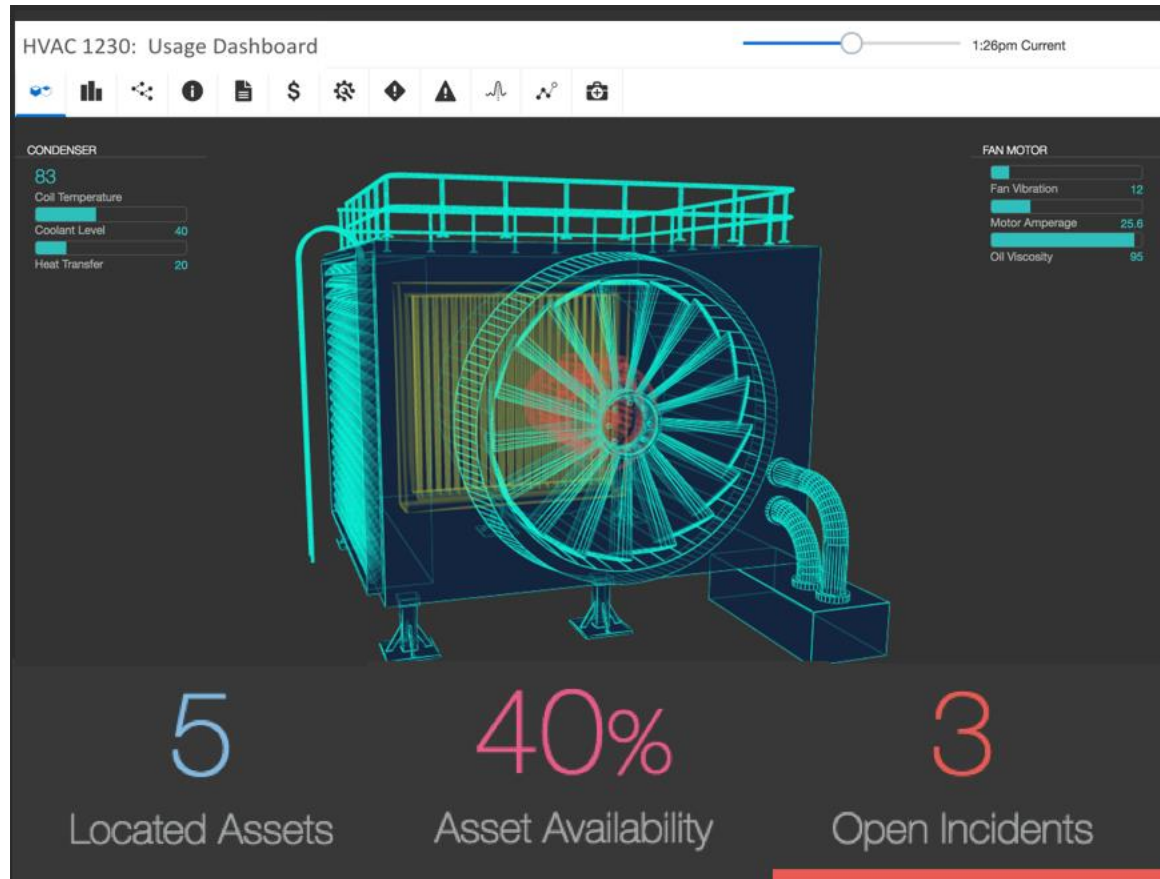
Anti-Counterfeit



Recall

# Blockchain App – Warranty and Usage Tracking

Usage tracking for Rental, Warranty, Service, and Insurance for high-value assets



Auditable



Verifiable



Smart Service Contracts



Contract Enforcement



# Thank You !