# Visibility Index - Mapping to Market

- Low value commodities
- Transactional visibility
- No location, condition
- 3PL Carrier data
- Near zero technology
- Primarily ERP systems

- High value commodities
- Losses can be high
- Transactional visibility
- Indoor location, condition
- In-transit visibility at fleet level
- Portals, APIs

- V.High value commodities
- Location, Condition must
- Contextual data must
- Real-time E-E visibility
- Strong compliance
- Platforms with APIs,
   S&OP, IBP integration

CVI <10%
Stages No Need

**25**%

**Low Visibility** 

50%

**Medium Visibility** 

**75**%

**High Visibility** 

~100%

**Fine Grain** 

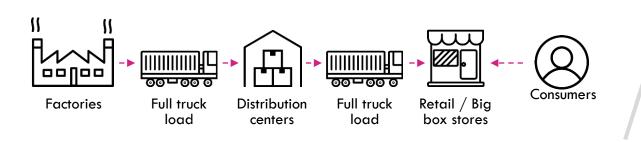
- Moderate value commodities
- Transactional visibility
- RFID/BC choke points
- No condition data
- 3PL Carrier data
- Limited technology
- No S&OP, IBP integrations

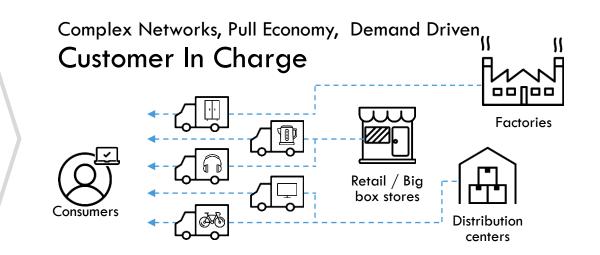
- V.High value commodities
- Losses can be significant
- Strong Location, Condition need
- Audit & Compliance
- Data loggers, 3PL carrier data
- Real-time E-E location
- APIs, S&OP integration

## Disruption in the Supply Chain

Simple Push Economy

The Linear Pipeline





"Commerce is shifting and the death of **Supply chain management** as we know it is on the horizon"

- HBR, 2018

### Capabilities of the supply chain in the future:

....faster, ....flexible, ....granular, ....accurate, ....efficient

- Operations Assets, Facility & In-transit Product Flow
- Control Quality, Cost, Speed
- Sensing Real-Time Multi-dimensional DATA across the Supply Chain

— Globally \$35Trillion will go through transformation over the next decade —

## Today's Challenge

Conventional Enterprise Supply Chains lack real-time DATA for PREDICTIVE INSIGHTS

### MANUAL, PASSIVE DATA CAPTURE

- Mostly transactional & delayed data
- RFID/Barcode provide Spotty coverage; Choke point limited

### DARK SPOTS AND LIMITED ONE-DIMENSIONAL DATA

- Lack in data visibility within facilities and in-transit
- Critical condition data not captured (temperature, humidity, shock, vibration, etc.)

### FRAGMENTED DATA, SYSTEM SILOS

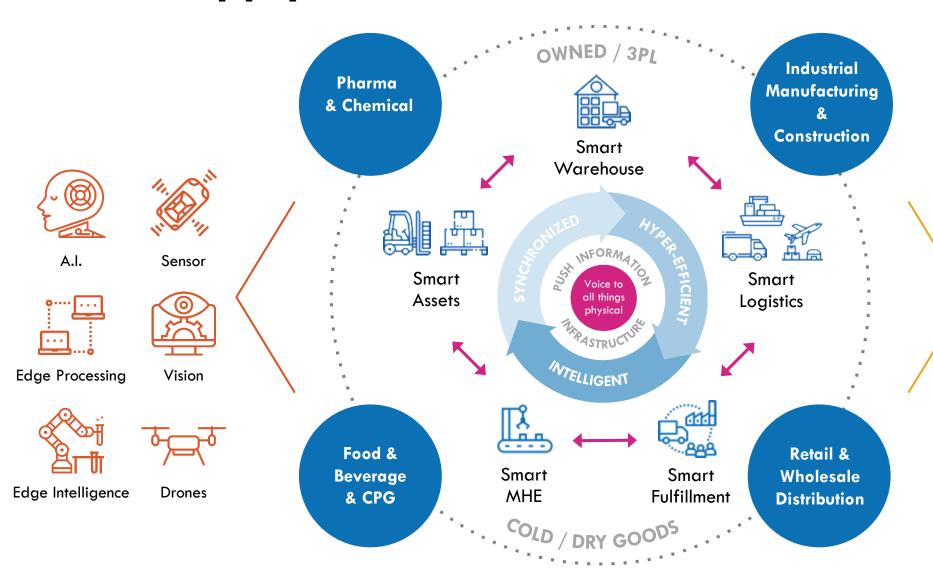
- On premise system, enterprise silos, islands of data
- Lack of seamless connectivity in product flow & asset management



— Lost Revenue, Higher operating costs, Material losses, Non-compliance penalties

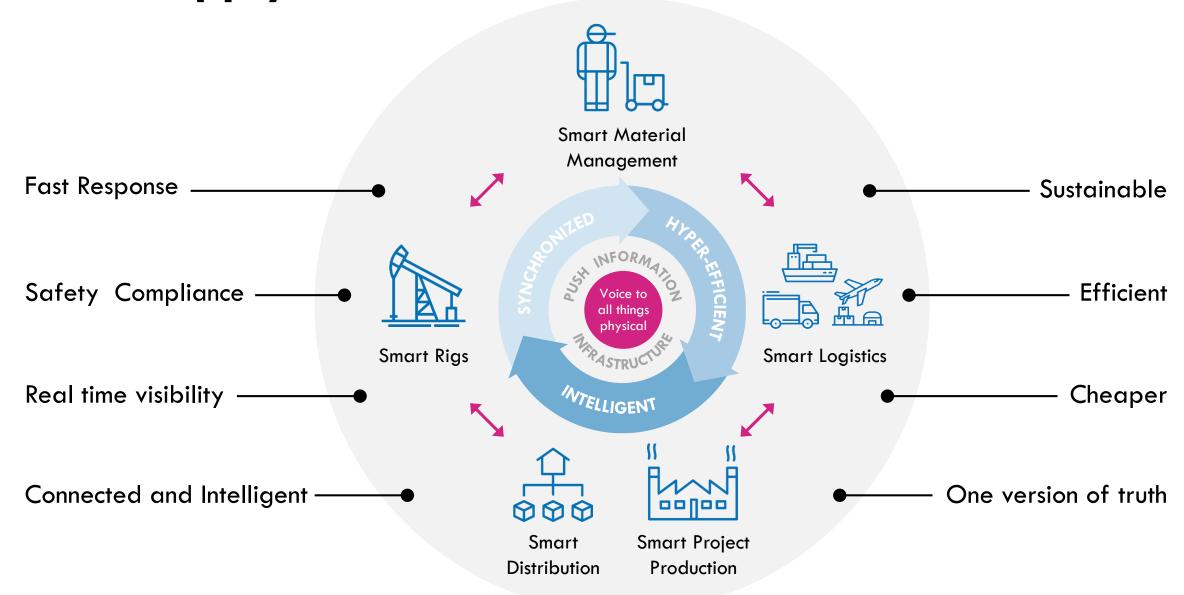
## **Future Supply Chain**

"The death of supply chain management as we know it is on the horizon – HBR, 2018"



- ✓ Velocity & Precision of Commerce
- Predictive & End to End Visibility
- ✓ Trust, Safety, Compliance
- Customer/Brand experience
- Flexible and connected operations

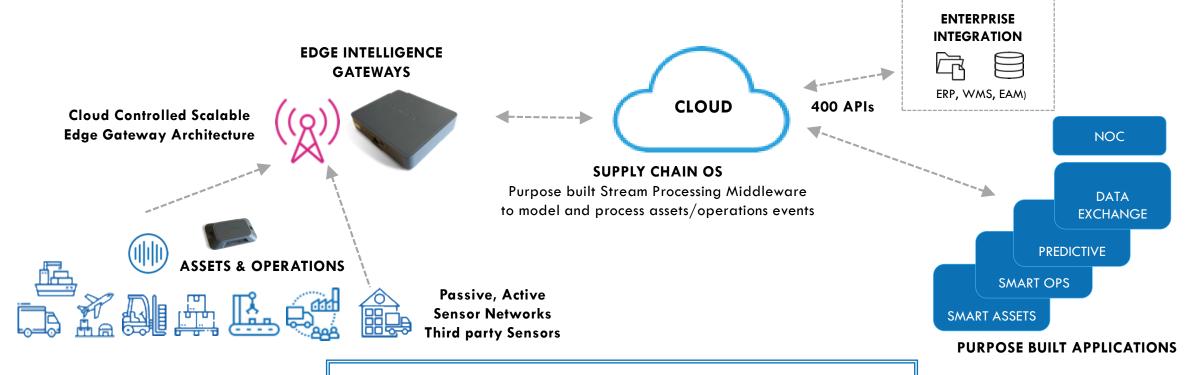
# Future Supply Chain — Oil & Gas



## **Digital Enterprise**



## Opportunity – Create a Talking Supply Chain

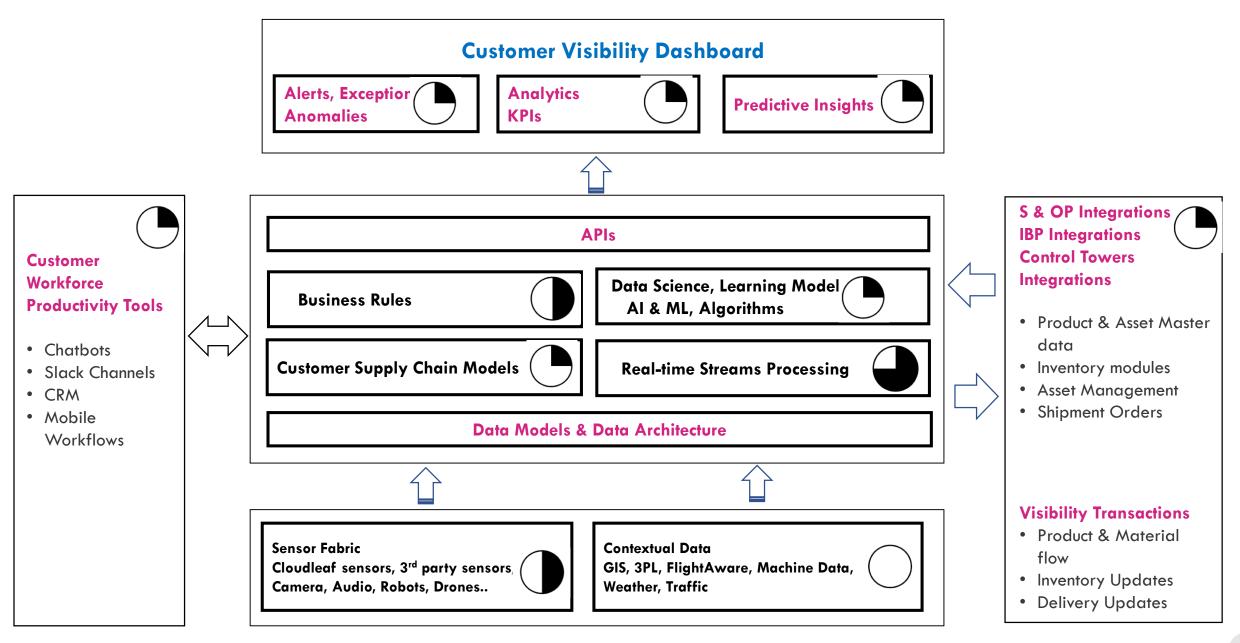


### **MULTI-DIMENSIONAL DATA**

- Location
- Condition temp, humidity shock, vibration, pressure
- Time Data dwell times, aging, cycle time

- Counts inventories
- Path Data route info
- Hierarchy asset, sub-asset, case
- Meta Data pics, part#

## Product Offering & Experience – Today



## How the Digital Supply Chain Journey will Unfold









Assets to monitor location, condition, utilization, maintenance etc. used to enable operations, warehouses, factories. — e.g. Containers, Pallets, Machines, Tools,

Connected Smart

Smart Operations is about tracking the product inside the facility and in-transit; monitor and manage workflows

and prescient insights
both on assets and the
product workflows

Data Exchange and governance – across the extended supply chain

Forklifts...

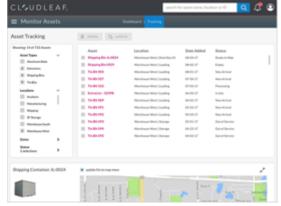
## Benefits through the entire Supply Chain

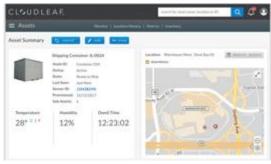
Driving Increased Quality, Lower Costs, and Enhanced Customer Service

### Quality • Condition, Performance, Useful Life Customer Satisfaction Accuracy Traceability Corporate Brand Reputation Cost Speed Resource optimization Service Levels to Partners • Labor, Material, Energy, and Customers Capital Timeliness of Production Compliance and Delivery • Liability Responsibility Flexibility to Dynamically • Risk Respond Utilization

## **Smart Assets**







### **PERSONAS**

- Plant Manager
- Finance Staff
- Operations Manager
- Maintenance Manager
- Maintenance Service Provider

#### **CUSTOMER SUCCESSES**



### ROI

Time To value: <3 Months

Payback: **30X** 

Implementation time: <4 Weeks

Cloudleaf Confidential and Proprietary

### **KEY QUESTIONS**

- Where is my asset
- What is the count
- What is the condition
- Where was it last
- What is the useful life

- When is maintenance due
- How much is it utilized
- Are we financially compliant

### **CAPABILITIES**

- Asset Health
- Asset Condition
- Asset Utilization
- Audit Compliance
- Asset Maintenance
- Asset Location and cycle times Management

#### **FEATURES**

- Easy and flexible deployment
- Model Sites, Work areas and Factories
- Asset Classes
- Self-service business rules systems

- Customizable Notifications and Alerts
- KPI reports and Actionable Insights
- ERP Integration ready
- Asset Paths

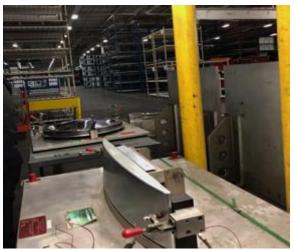




## **Smart Assets**









- Opportunity Appliance maker with 100K+ tools across multiple sites with Visibility, Financial Audit Records & compliance problem
- Problem Millions of \$\$ equipment write downs annually
- Need 100% accurate counts, locations of tools across facilities
- Before Manual, RFID
- After Deployed 32K assets with realtime visibility and JDE integration
- Result 99.9% live visibility
- Expansion Opportunity to expand to multiple facilities with over >100k assets and condition data monitoring

## **Smart In-Transit**





Order->
Configure->
Manufacture



Plan Shipment



Pack Tools Bind Devices Ship





Shipment @ Destination WH / Staging Area



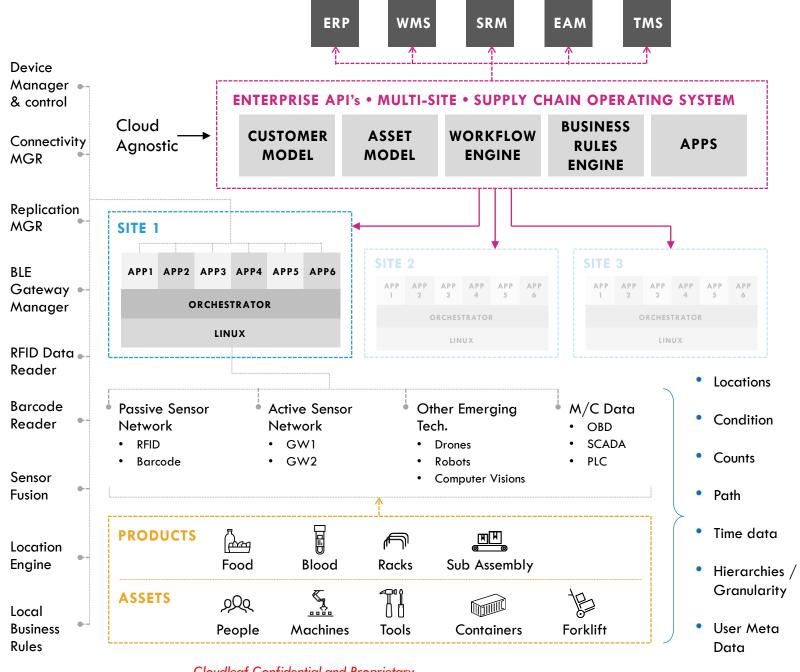
Installation & POD
Acceptance



Cash Collection

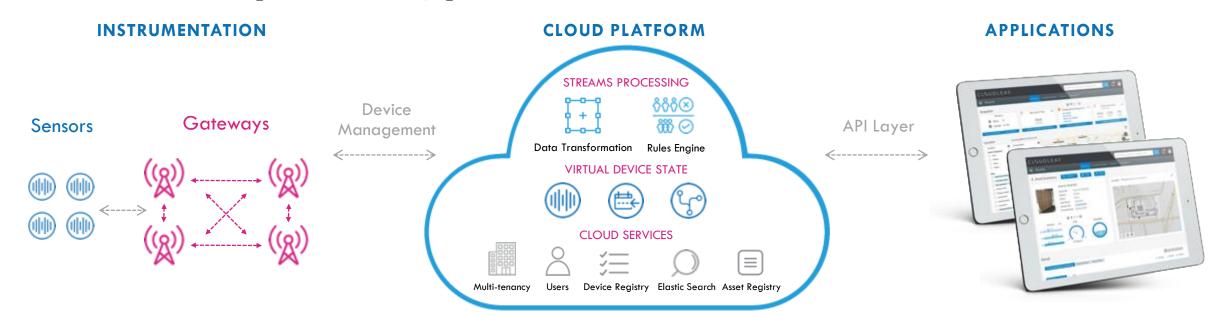
# Edge Intelligent Sensor Network

- **✓ SCALABLE**
- ✓ CONTAINERIZED
- ✓ EASY TO DEPLOY
- ✓ CLOUD-MANAGED
- ✓ HIGHLY SECURE
- ✓ BUILDS ON EXISTING **PASSIVE SENSORS**



Cloudleaf Confidential and Proprietary

# **Partnership Strategy**



— Cloudleaf enables customers Digital Supply Chain needs —

"Create the Data pipe & Data exchange"









## A CURATED PROCESS FLOW FOR MACHINE-GENERATED DATA



Car & truck fleets, trains, autonomous land vehicles, manned and unmanned aircraft, many other mobility options



Cell towers, buildings, billboards, light poles and other smart city sources

### **IOT DATA SOURCE PLATFORMS**

Sensor data sourced from virtually any platform and type



### **IOT DATA USER PLATFORMS**

**Analytics Software** 

Vehicle Fleets

Sector-Specific IoT Systems

**Smart Buildings** 

Power Utilities

Financial Services Providers

Federal / State / County /

Municipal Agencies

Regulatory Oversight Bodies

Other Ecosystem Participants