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Lockheed Martin and the Future Factory

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Chief of Advanced Technology Concepts for Logistics

Agenda

- LM Challenges and RFID IoT Applications

- Personnel Tracking for Operational Efficiency and COVID Containment

- Real Time Location Holographic Visualization

- Virtual Reality and Augmented Reality RFID Enabled Warehousing

- Factory Wall to Wall Inventory Using Autonomous System Robot Tracking

- Program Outcomes and Discriminators

LOCKHEED MARTIN

AERONAUTICS

MISSILES AND FIRE CONTROL
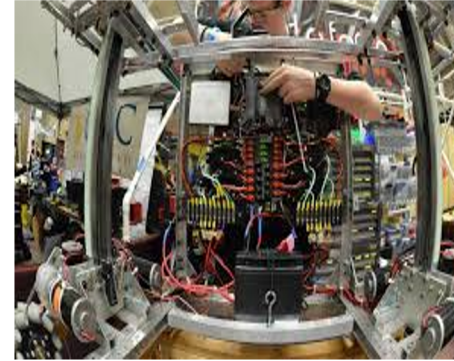
SPACE SYSTEMS

ROTARY AND MISSION SYSTEMS

Lockheed Martin Supply Chain Challenges

- Complex dynamic work environments

- Significant security requirements

- Workforce personnel issues

- Non-standardized processes

- Inventory validity issues

- Inconsistent productivity

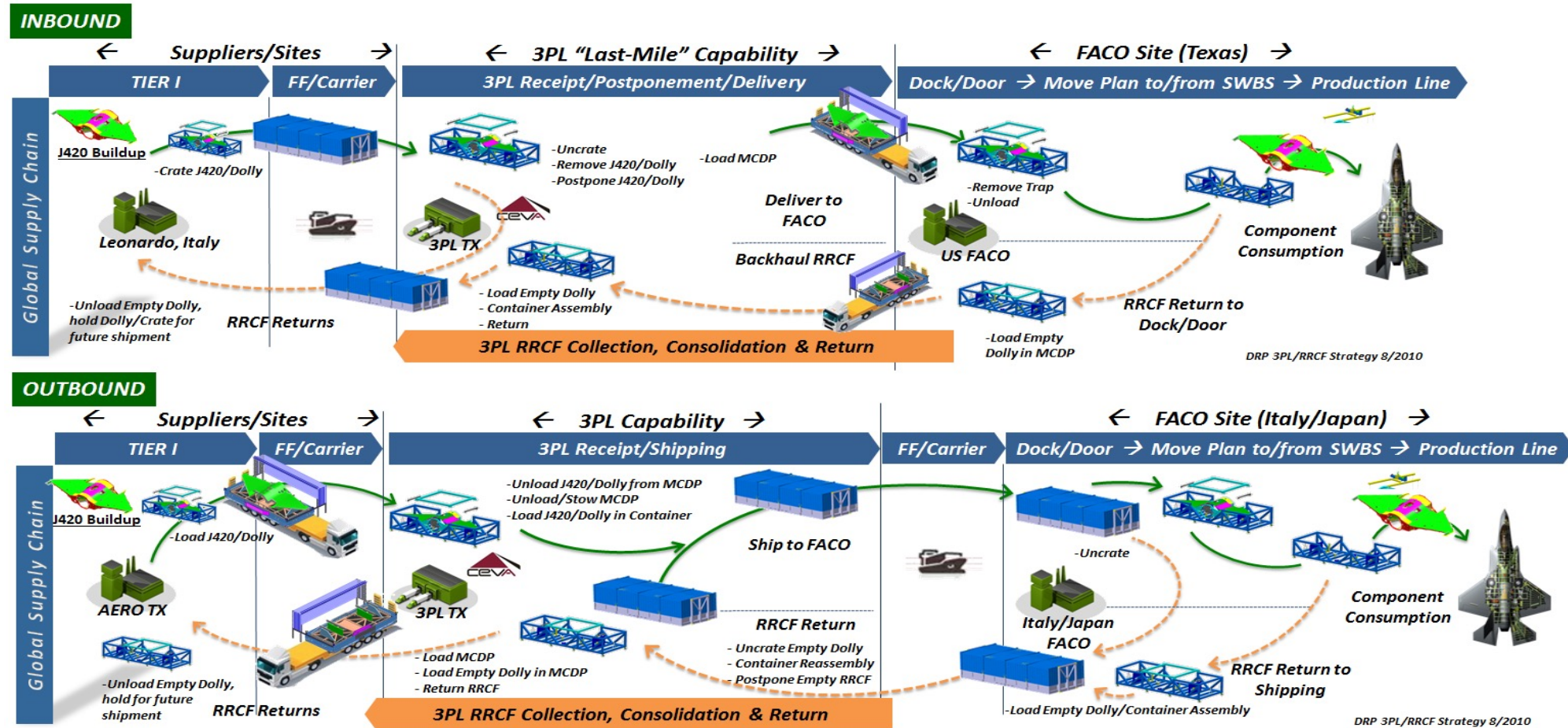- Poor metrics definition capability
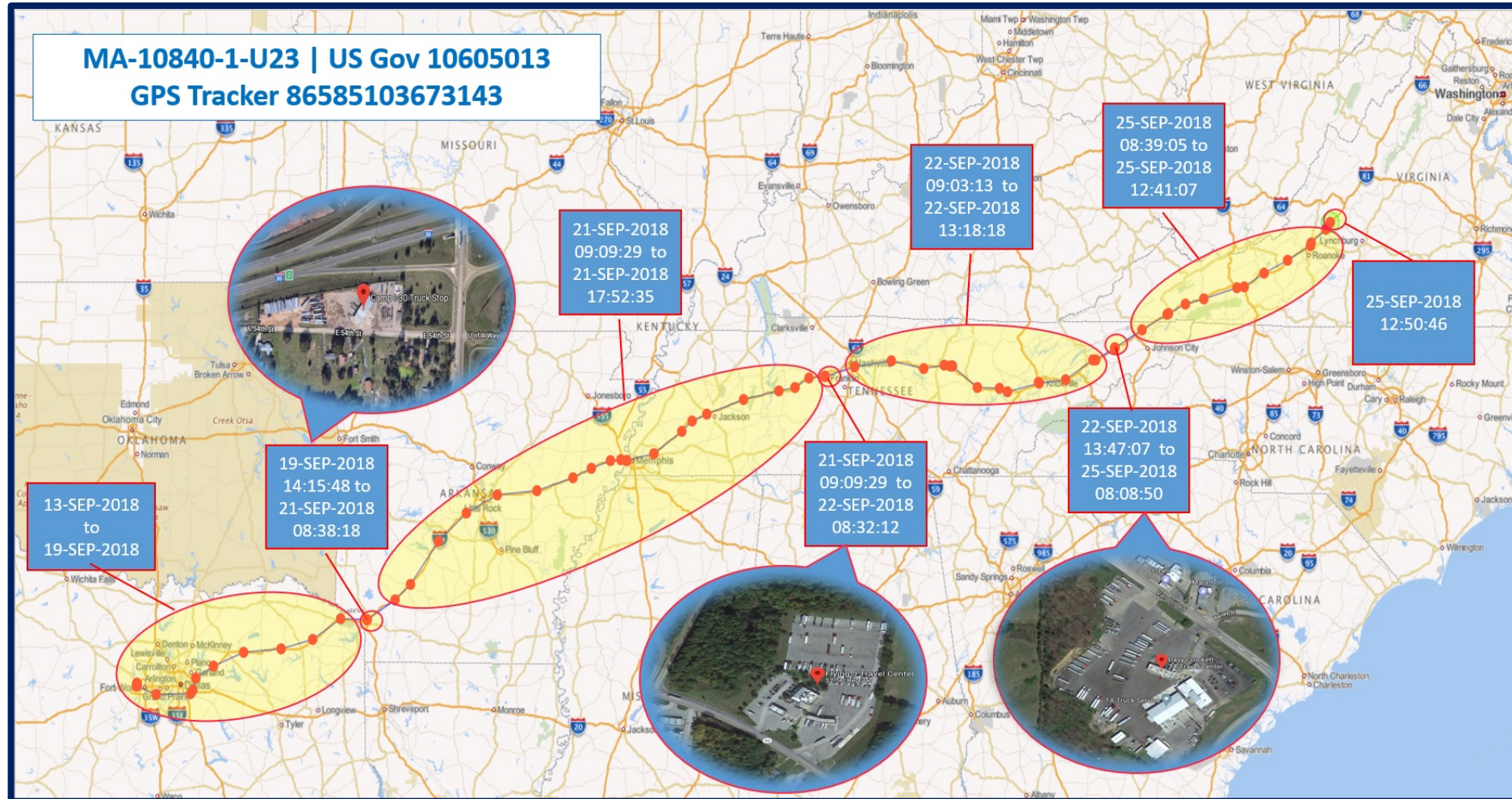
F-35 Global Asset Management

Central Characteristics
- Hub and Spoke Operation
- Bi-directional Materiel Movement

Pratt & Whitney

Lockheed & Martin

U.S. is the central
materiel movement hub

Pacific	North America	Europe
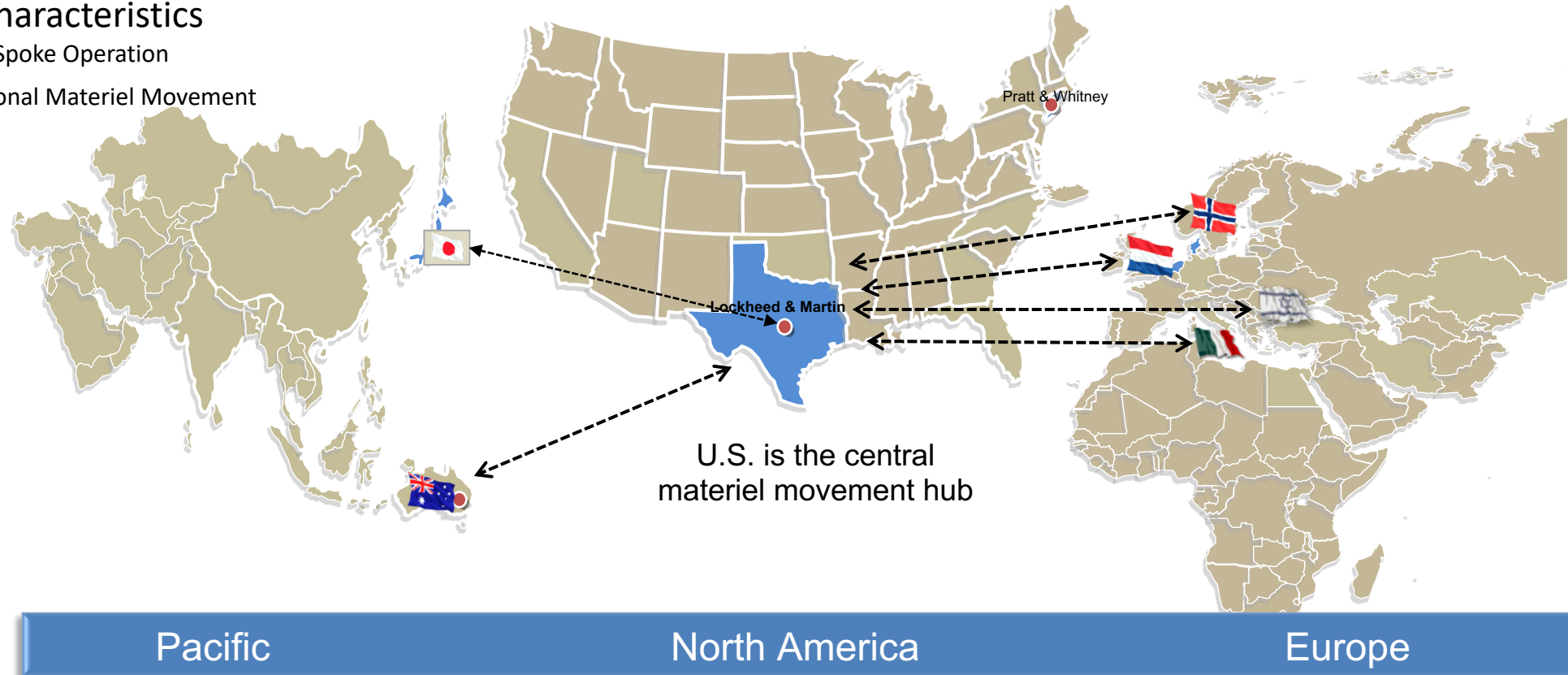
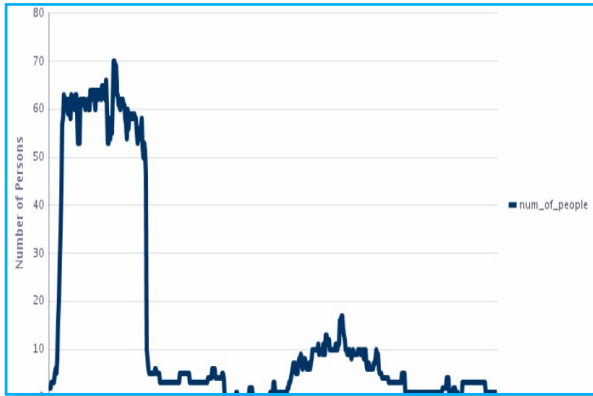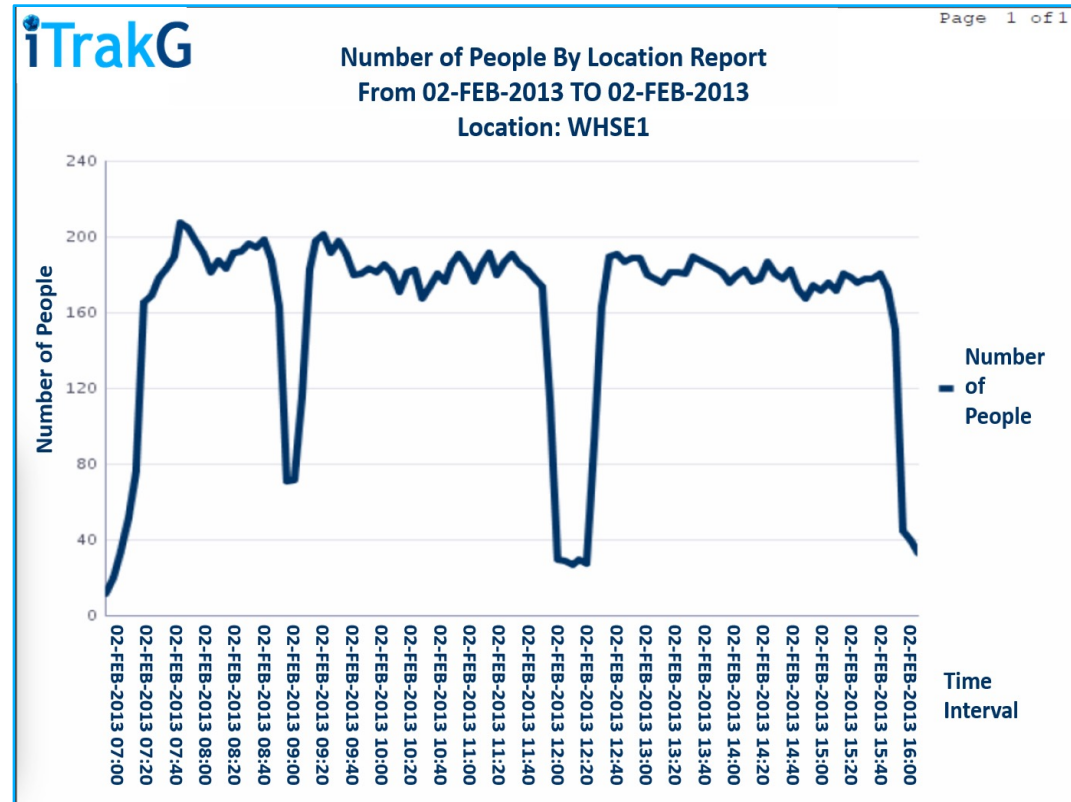# F-35 Supply Chain Distribution System

Delays Cost Time & Money

Continue the iTrakG Innovation

- Personnel Tracking for Operational Efficiency and COVID Containment

- Real Time Location Holographic Visualization

- Virtual Reality and Augmented Reality RFID Enabled Warehousing

- Wall to Wall Inventory Using Autonomous System Robot Tracking

- Program Discriminators and Outcomes

Personnel Tracking Production M-Curve Reporting

After RFID

iTrakG

Number of People By Location Report
From 02-FEB-2013 TO 02-FEB-2013
Location: WHSE1

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Results

- **Just one area added $38K to the bottom line every half hour immediately after install**
- **Security responds instantly when emergencies happen**
- **Mustering is guaranteed for success**
- **Personnel are only in areas where permitted**
- **And more…**

Personnel Tracking for Operational Efficiency and COVID Containment

In Contact

Possible Contact

Real Time Location Holographic Visualization

Real-Time
- Data Visualization
- Planning
- Forecasting
- Location
- What moves where?
- What If?

Asset Visibility, Planning & Forecasting

euclideon HOLOGRAPHICS

NSN:4630-24-345-8109 Cable Assy 1 EA

JLTV 16

JLV 15

iTrakG integrates into Euclideon to reflect assets in a holographic model of RMS Orlando.

Virtual Reality and Augmented Reality RFID Enabled Warehousing
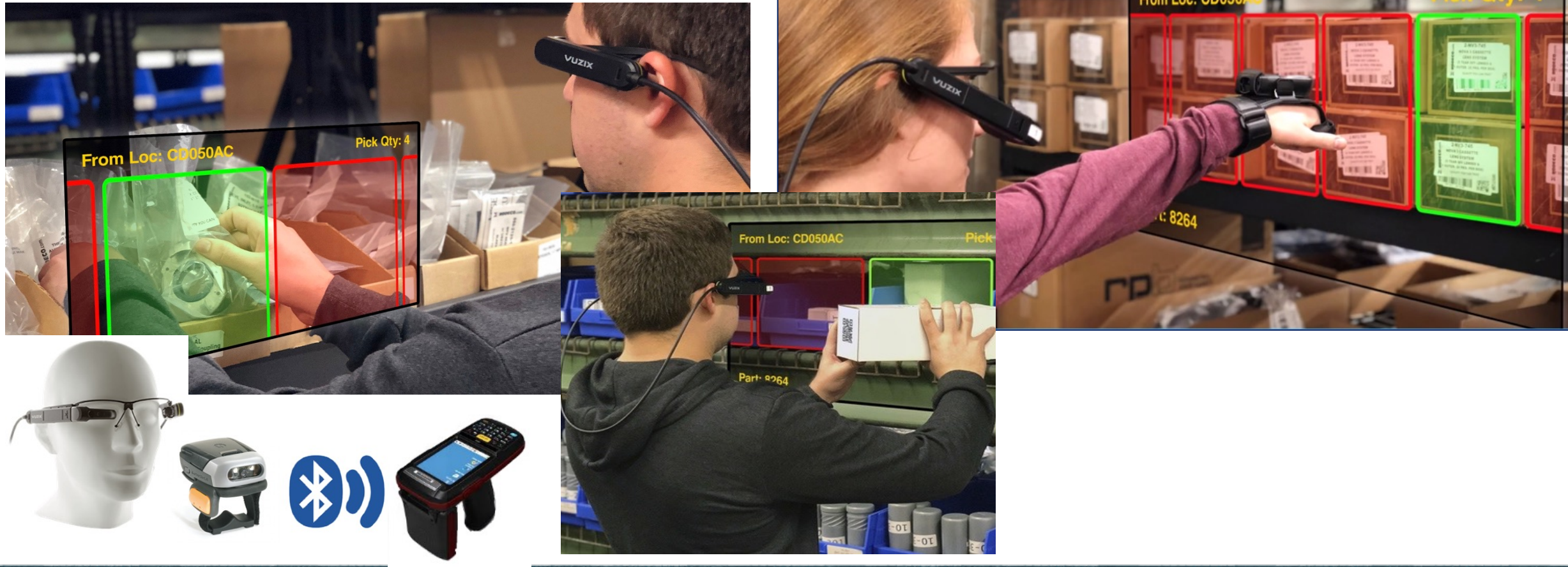
Wall to Wall Inventory Using Autonomous System Robot Tracking

AS RFID IOT Applications

- Autonomous Inventory Counts in fully mapped (x,y,z axis) warehouse
- Item Location Validation to shelf location
- Tracking Technology Agnostic (RFID, BLE, etc.)
- 100% Item Accountability Without Manual Processes
- Passive RFID (pRFID) Eliminates Tag Re-Use Leaving Tags on Items During Full Lifecycle
- pRFID works for Calibration, Space and SCIF Assets
- Reading Passive and Active RFID Simultaneously
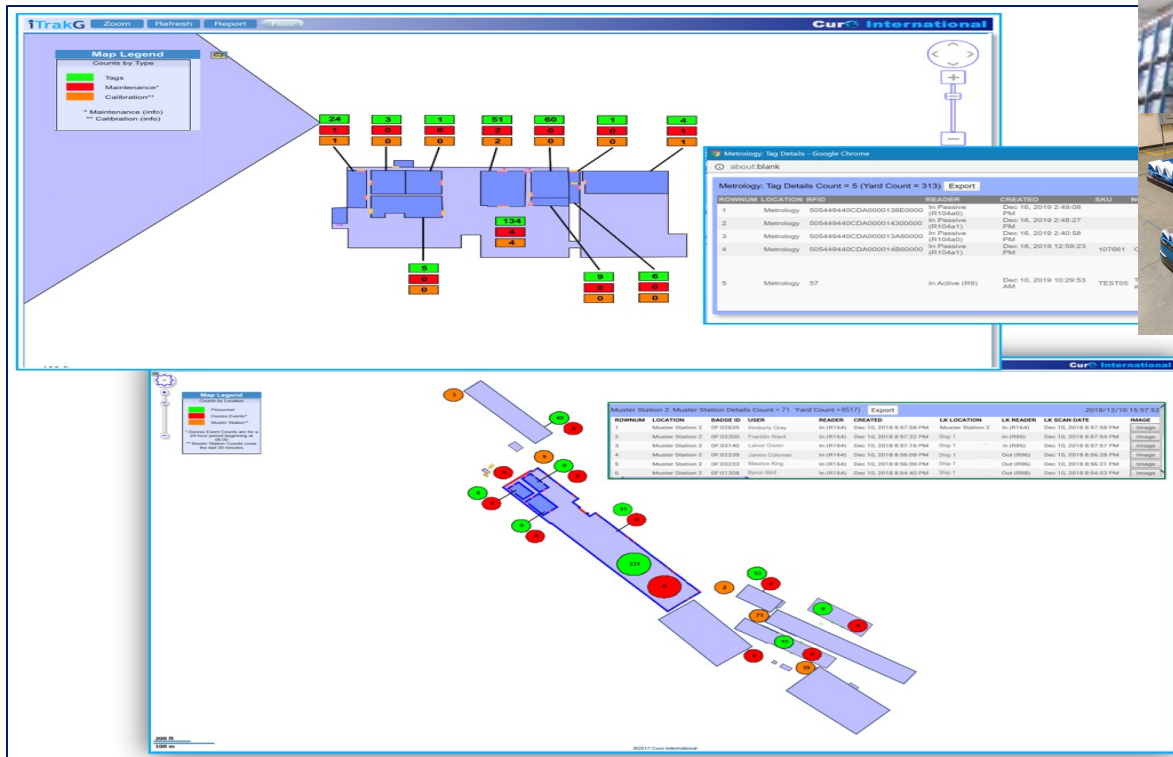
Program Outcomes

- Ease of autonomous IoT platform installation

- Defined & standardized the supply chain process

- Rapid training and worker acceptance

- 381% LPH rate increase (16 to 77) in 6 weeks

- Inventory validity from 66% to 99.98%.

- ROI in 9 months with estimated savings of $1.5M

- Developed a "Warehouse of the Future" for collaborative robotic supply chain R&D.

Daily Throughput and Pick Rates at OKC LM IPV Facility (CLEAN DATA)
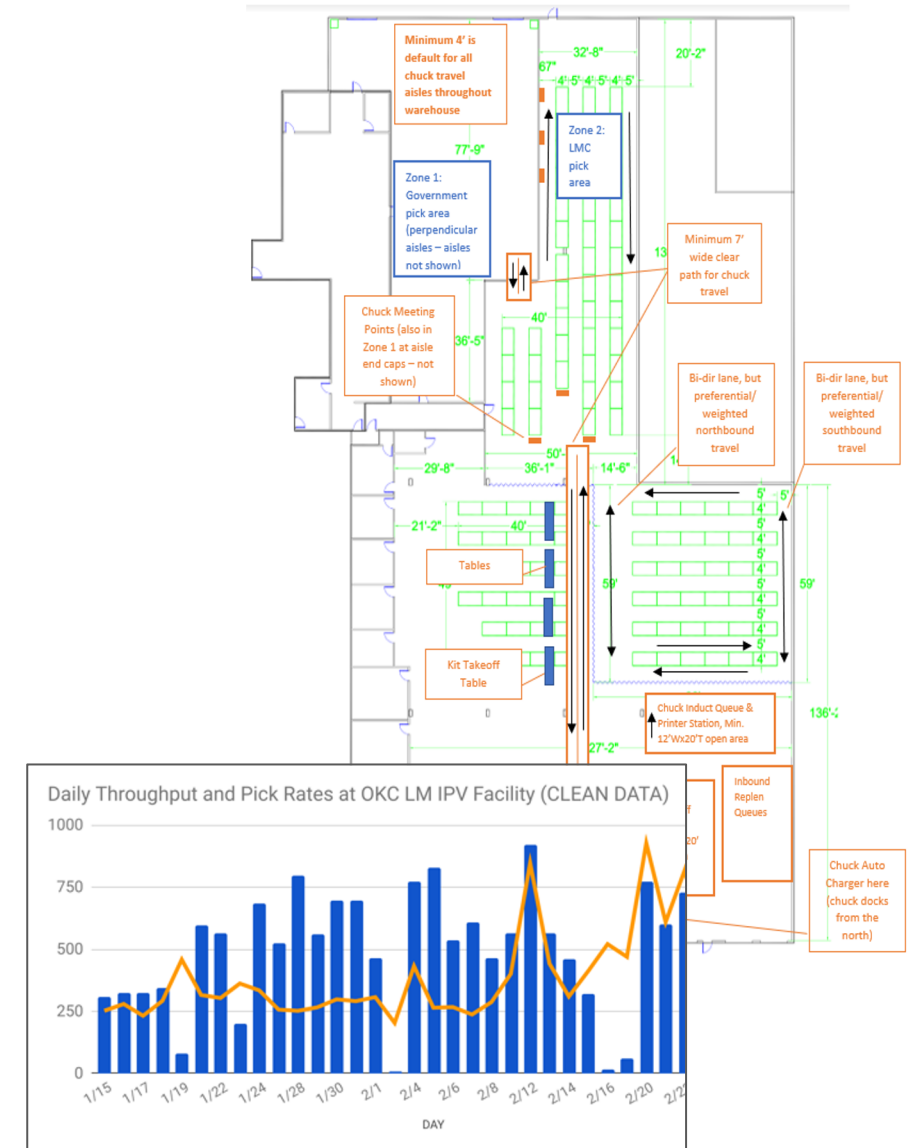
iTrakG Program Discriminators

- Real Time In-Transit Visibility and Improved Asset Management that agnostically integrates with various vendor technologies under one platform

- User friendly, simple to maintain & sustain across the enterprise

- Highly advanced with autonomous system and VR integration

- 5G Compliant and operationally tested

- Demonstratable lower cost than our competitors

- Manufactured in the U.S. and approved member nations (Australia, UK, etc.)

- ITAR, NATO, TAA, and BAA Compliant. Air – Flight and Cargo Lux Approval

- Allows single channel tracking from LM to DoD customers

- SAP/CEVA/iTrakG Systems and Process Integration

- Meets Federal Acquisition Supply Chain Security Act of 2018

- Security (Behind the Lockheed Martin Firewall)

- Encompasses a mobile iPhone app available to LM users

Questions?

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THANK YOU

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