RFIDJOURNAL VIRTUAL EVENTS



Improving Asset Tracking & Management with an IoT-enabled RFID Solution



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Introduction to ESI

Enterprise Sensor Integration





Enterprise Sensor Integration

ESI is an intelligent IIoT Computing platform that connects IoT devices and data along with business processes and people across an enterprise to support IIoT ecosystem management, enhanced operational awareness, asset management, process automation, data analytics and business intelligence.





Key Capabilities

Sensor Agnostic Middleware

- Ability to interface with any type of sensor (RFID, GPS, motion, temp, shock, humidity, Mesh BLE, transponders, etc.)
- Scales vertically and horizontally

Global Asset Track & Trace

- Map-centric digital twin
- Position Location Information (PLI)
- Calibration tracking & expiry dates

Workflow Ecosystems

- Auto inventory, auto replenishment,
- Auto receiving, parts attrition
- Work in Process (WIP) tracking
- Composite freezer management
- Asset security

Reports

- User, Calibration, Assets, Tag, Tools, FOD etc.
- Customizable
- On-demand and scheduled

Events Engine

- Triggers, events, actions
- Alerts and notifications
- Supports ERP, MRP & MES Integration
- Oracle, SAP, Solumina, etc.
- Tapestry Device Management
 - Data Collection Billions of transactions daily
 - Device configurations and revisions
 - Filters data set at the Edge



Challenges & Opportunities in an IoT-Rich Operational Environment





Connecting your world with the Industrial Internet of Things (IIoT)



Challenge of Managing IIoT

IIoT Ecosystems

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Optimize Time





Improve Velocity









Connecting your world with the Industrial Internet of Things (IIoT)



Challenge of Managing IIoT

IIoT Ecosystems

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- Connects critical data providers and edge sensors
- Introduces GPIO to the ecosystem allows for autonomous self-healing actions
- Enables predictive troubleshooting
- Enables enhanced intelligence as a connected ecosystem

Optimize Time

Reduce Cost

Improve Velocity

Improve Compliance







Connecting your world with the Industrial Internet of Things (IIoT)



Challenge of Managing IIoT

IIoT Ecosystems

🛆 Optimize Time

Reduce Cost

- Process automation
- Disruption management
- Increased accountability
- Supply chain automated ecosystem
- Time to locate assets, parts and tools
- Improved manpower utilization
- Improved workflow tracking

Improve Velocity

Improve Compliance



Connecting your world with the Industrial Internet of Things (IIoT)



IIoT Ecosystems

🛆 Optimize Time



Reduce Cost

Improve Velocity

- Process automation
- Increased accountability
- Supply chain optimizing ecosystem
- Disruption management
- Alerts and notifications
- Data accuracy
- Improved asset, part & tool visibility

Challenge of Managing IIoT





Connecting your World with The Industrial Internet of Things



IIoT Ecosystems

🛆 Optimize Time







(IIoT)

Improve Compliance

- Improve Metrology
 - Calibration due
 - Inspection date
- Reduce risk of out-of-compliance usage
 - Alerts & notifications
 - Map visual for each asset or tool
 - Time to locate assets, parts and tools







DEFENSE

- Cybersecurity
- IIoT Ecosystems
- Reduce Cost
- Accurate & Timely information
- Tool Management
- Resource utilization
- Improved Mission Generation
- Leveled maintenance
- Trust partnerships
- High performance
- Global scalability
- Technical debt
- IoT Security
- Velocity



AEROSPACE

- IIoT Ecosystems
- Turn Times
- Reduce Cost
- Accurate & Timely information
- Tool Management
- Resource utilization
- Trust partnerships
- High performance
- Global Scalability
- Infrastructure
- IoT Security
- Cybersecurity
- Increased velocity
- Supply Chain



Use Cases & IOT Ecosystems



Tool Management & FOD Control

- In this vignette, the mechanic doing maintenance at the aircraft needs a tool to complete a repair, and initiates a tool request from his mobile device connected to the Wi-Fi or cellular service.
- The request is pulled up in the ESI tool management module at the tool crib, where the crib worker pulls the tool, and provides it to the expediter.
- The expediter, in turn, delivers the tool plane side where the mechanic verifies the tool, serial number and serviceability on his mobile device, and accepts custody of the tool.
- The mechanics then complete the repair, and the aircraft backs away from the gate (or maintenance area) and returns to a revenue-generating status.
- The mechanic returns the tool or conducts a mobile handoff of the tool to another authorized mechanic. Continuous accountability combined with enabled sensors can provide the last known electronically reported location to assist in FOD control.
- This ecosystem reduces the turn times, cost, and enhances tool compliance traceability and accountability.



Tool Management & FOD Control Ecosystem





Use Case: Fleet Utilization at the Asset Level

The following is a textual description for the fleet utilization use case:

- The fleet utilization use case represents the movement across the operational space over time, based on a mission.
- In this example, we have selected a C-Duct Pump asset group. When looking at a collection of assets or an "Asset Group" you begin to notice the amount of history-based utilization.
- When you combine this with the deep local insights of a first line supervisor or maintenance supervisor, the digital twin becomes an opportunity for optimizing location of assets and maintenance leveling. Plus it helps determine the quantities of assets needed to accomplish the task across a site or the entire enterprise.
- This use case can be applied to vehicles, assets, and tools and more.





Use Case: Fleet Utilization – All Tracked Assets





Use Case: Fleet Utilization – Boom Lift, 60FT Propane

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Use Case: Fleet Utilization – Past 5 Days Utilization History





Use Case: Fleet Utilization – For Specific Boom Lift, 60FT

😻 Assets								
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Value Proposition

- Award-Winning
- Total Asset Visibility
- High Availability
- Scalability –
 Stream Processing
- High Performance
- Enterprise-Class
- Cloud-Enabled

- IoT Ecosystems
- Improved Cost Performance
- Edge Computing
- Improved Velocity
- Process Automation
- Centralized Infrastructure Management
- ERP, MRP & MES Integration





Why Are Ecosystems So Important?

Promotes momentum gains across your operations & manufacturing footprint

- Defines current workflows enabling advance insights across organizational boundaries
- Takes advantage of your deep local insights to determine automation touchpoints to increase velocity, drive down cost, and enable ramp-to-rate efficiencies
- Identifies triggers to generate events that drive actions
- Reduces cost, minimizes disruption by creating integrations capable of increased efficiency, and optimization that is greater than the sum of its parts



Transforming Your Business

CHALLENGES

- ✓ Increasing Velocity
- ✓ Reducing Cost
- ✓ Resource Utilization

✓ Improving Compliance

PARADIGM SHIFT

- ✓ Infrastructure Improvements
- ✓ Process Automation
- ✓ IIoT Ecosystem
 Creation
- ✓ Alerts & Notifications
- Automated Asset Track
 & Trace
- ✓ Inventory in Motion
- ✓ Improved Accountability

RESULTS

- Improved data collection
- Reduced manual intervention
- Advanced control systems
 - Improved disruption response times
 - Increased Velocity
 - Improved compliance





Thank you for attending our presentation! The Boeing ESI Team

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THANK YOU