Real-time Visibility

RFID-enabled Applications for Supply Chain & Logistics Operations

Reference Guide
By adding real-time visibility to business systems, RFID technology drives operational efficiency. Optimizing order accuracy, inventory management and reverse logistics across multiple nodes in the value chain decreases inventory and handling costs, increases customer satisfaction, and creates a more predictable revenue stream.

This guide illustrates specific areas where manufacturers and logistics providers can quickly and cost-effectively RFID-enable their operations in the following areas:

- Receiving
- Container Tracking
- Order Tracking
- Real-Time Location Tracking (RTLS)
- Shipping

Case Study: RFID-enabled Tractor-Trailers

A leading electronics manufacturer with six North American production facilities realized over 250% ROI in under 12 months by recovering lost material, and reducing excess inventory and labor costs with OAT Asset Tracking software and Wi-Fi tagged delivery vehicles.

The most significant cost savings came from automating and error-proofing manifesting, loading and unloading processes, along with eliminating non-value-added tasks such as searching for missing orders and components.
Complex manufacturing processes can involve dozens of suppliers and tens of thousands of individual components. Addressing process issues at the sourcing stage can prevent costly errors later.

- RFID tagging and tracking major components before they are shipped, in transit and at the receiving dock, prevents costly shipping errors and production delays.
- Grouping components in RFID-enabled roll cages or reusable totes prior to shipment provides visibility into the shipping process and reduces errors and logistics costs.

Capital goods are often manufactured in large, multi-level facilities, and may involve 3PLs or cross-facility assembly processes. Components for a single product are commonly shipped to multiple areas within a location or across dozens of dispersed locations.

- Assigning a specific zone for each major component within the facility before the component is shipped, and verifying receipt with RFID reduces material management costs and reduces downtime.
- Tagging, grouping and tracking finished subassemblies by product, customer and final destination prior to shipment reduces production delays downstream.
Supply Chain RFID Applications

**Receiving**

**RFID Application**
- Automate receipt & verification of incoming goods

**Web Services Integration Options for ERP & WMS Systems**
- Compare received goods with content manifest or ASN
- Flag rush orders by comparing order number and special instructions
- Expedite rush orders
- Quarantine and track non-scheduled shipments

**RFID Value Add**
- 100% automated tracking & reliable identification of shipments as they are received
- Significantly reduce error rates and costly correction processes
- Focus staff on exception handling vs. administrative paperwork

**Container Tracking**

**RFID Application**
- Track reusable containers and contents from location to location

**Web Services Integration Options for ERP & WMS Systems**
- Pull parts manifest for each work order to track components
- Confirm final destination for each shipment & work order number
- Alert staff with a visual or audible alarm when a work order is received at the wrong location

**RFID Value Add**
- Automate check-in/check-out processes
- Obtain real time status of work orders and components
Many manufacturers manage materials, components and finished goods across multiple facilities. The more complex the logistics process, the more chances for shipping and receiving errors to propagate downstream. RFID-enabled processes can automatically track items once they pass through checkpoints within facilities, in transit, or at shipping and receiving points.

Tracking shipping containers, customer orders and delivery vehicles with an RFID-enabled ERP or WMS system:

- Prevents mis-shipments and make-goods, so less on-hand inventory is required at each location
- Increases product velocity, leading to higher cash flow
- Improves customer satisfaction
2. Logistics & Distribution RFID Applications

**Shipping**

**RFID Applications:**
- Automate Advanced Shipping Notices (ASNs)
- Verify outgoing orders

**Web Services Integration Options for ERP & WMS Systems:**
- Expedite rush orders
- Verify individual items with customer orders
- Verify final destination, carrier and dock door
- Trigger automatic inventory replenishment when items run low
- Flag rush orders by comparing order number & special instructions

**RFID Value Add:**
- 100% automated tracking & reliable confirmation of orders as they are shipped
- Significantly reduce error rates and costly correction processes
- Focus staff on exception handling vs. administrative paperwork

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**Real-Time Location Tracking (RTLS)**

**RFID Application:**
- Automate tracking of delivery vehicles and associated orders

**Web Services Integration Options for ERP & WMS Systems:**
- Verify individual items with customer order and final destination
- Alert staff to potential mis-shipments or delays

**RFID Value Add:**
- Automate manifesting, loading and unloading processes
- Reduce rush shipping costs
- Focus staff on on-time delivery vs. searching for missing items and orders

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**Order Tracking**

**RFID Application:**
- Track orders & their individual items from location to location

**Web Services Integration Options for ERP & WMS Systems:**
- Pull order details to track supplier, end customer, final destination & item numbers
- Alert staff with a visual or audible alarm when an order is received at the wrong location, or needs to be expedited

**RFID Value Add:**
- Real-time order status
- Reduce manual labor in confirmation, verification & search activities
While each organization's operations are unique, there are common challenges that can be addressed with real-time visibility. By automating and error-proofing critical processes, RFID-enabling existing applications and implementing RFID packaged solutions, manufacturers and logistics providers can reduce deployment time and accelerate the return on their technology investment.
ERP, WMS, MRO systems & business activity dashboards are the lifeblood of many manufacturing and logistics operations.

RFID-enabling enterprise systems incorporates real-time production and delivery status into day-to-day business metrics. This enables manufacturers and logistics providers to uncover and address process errors before they impact production schedules and product deliveries.

### RFID Integration Examples

| Enterprise Resource Planning (ERP) Systems | • Verify physical components against bill of materials  
• Trigger inventory replenishment when low stock is detected  
• Locate missing parts & equipment |
| Warehouse Management Systems (WMS) | • Verify manifest & destination for outgoing shipments  
• Confirm that custom orders match manifest  
• Prevent mis-shipments with visual/audible alarms  
• Track finished goods inventory |
| Maintenance & Repair (MRO) Systems | • Verify parts & equipment against service orders  
• Monitor installation & maintenance history  
• Locate recalled or expired service parts |
| Business Activity Monitoring (BAM) Dashboards | • Automatically update dashboards to reflect:  
  – Physical inventory levels  
  – Orders shipped  
  – Operational efficiency |

### Case Study: Product Tracking with RFID-enabled ERP Systems

A Global 500 Company RFID-enabled its ERP systems with OAT Asset Tracking to track high-value consumer electronics products from warehouse to vehicle to point-of-delivery.

Real-time order status enables them to provide more responsive customer service and to quickly test and roll out new product offerings.
About OATSystems
OATSystems has helped more than 100 companies take advantage of RFID to streamline operations, enhance customer satisfaction and increase bottom line results. OAT is the recognized RFID solution leader with software that empowers businesses to achieve a competitive advantage and ROI from RFID. As a pioneer in the development of RFID technology, OAT has been setting the standard in RFID for over half a decade and has provided RFID-enabled solutions to leading companies such as Airbus, Chevron, Best Buy, Tesco, Kimberly-Clark, Tyco Electronics, Shell, Cephalon and others.

Contact OATSystems today at www.oatsystems.com or 781-907-6100 and get ready to take control of your operations.