Real-time Visibility for SAP in Supply Chain & Logistics:
Cost Savings from Real-World Deployments

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Agenda

• Real-time Visibility = Real Cost Savings for Supply Chain and Logistics
• Where visibility adds the most value in SAP solutions
• How SAP and OAT work together for a complete solution
• SAP-OAT Platform
• Walk Through Specific Supply Chain and Logistics Use Cases and Process Flows
• How to get started
# Real-time Visibility

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<th>Supply Network Planning</th>
<th>Distribution Planning</th>
<th>Service Parts Planning</th>
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<td>Manufacturing</td>
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<td>Supply Chain Management with Duet”</td>
<td>Demand Planning in MS Excel</td>
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Figure: SAP® Supply Chain Management Solution Map
Where Real-time Visibility Reduces Costs

Real-time Enabling Reduces:
- Labor Costs
- On-hand Inventory
- Scrap
- Rework
- Make Goods
# Real-time Enabling Supply Chain & Logistics Process Areas

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<tr>
<th>Items to Track</th>
<th>Processes to Enable</th>
<th>Enterprise Systems to Enable</th>
<th>Infrastructure to Enable</th>
<th>Quantifying Value</th>
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<tbody>
<tr>
<td>Component Parts • Supplier • Batch Number • Due Date</td>
<td>Sourcing • Shipping/Receiving Yard Management Transportation</td>
<td>ERP • MMS • WMS</td>
<td>Barcode, RFID, CMBs, Wi-Fi, RTLS, GPS</td>
<td>Increased Forecast Accuracy</td>
</tr>
<tr>
<td>Carrier • Order Number • Order Contents • Final Destination • Due Date</td>
<td>Shipping/Receiving</td>
<td>ERP • MMS</td>
<td>Barcode, RFID, Wi-Fi, RTLS, GPS</td>
<td>Streamlined Shipping Costs &amp; Customer Satisfaction</td>
</tr>
<tr>
<td>Work-in-Process • Tools and Equipment • Test Results • Custom Order Details</td>
<td>Line-side Replenishment Assembly Asset Tracking Tool Tracking</td>
<td>ERP • MMS</td>
<td>Barcode, RFID, CMBs, Wi-Fi, PLCs, Stack Lights &amp; other sensors</td>
<td>Improved Product Quality, Fewer Returns</td>
</tr>
<tr>
<td>• Service History • Replacement Parts • Part Expiration Date • Service Due Date</td>
<td>Line-side Maintenance Reverse Logistics</td>
<td>ERP • MMS</td>
<td>Barcode, RFID, CMBs, Wi-Fi, RTLS, GPS</td>
<td>Reduced Downtime</td>
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**Processes to Enable:**
- Sourcing
- Shipping/Receiving
- Asset Tracking
- Yard Management
- Line-side Replenishment
- Assembly
- Line-side Maintenance
- Asset Tracking
- Tool Tracking
- Reverse Logistics

**Enterprise Systems to Enable:**
- ERP
- MMS
- WMS
- Field Service Enterprise Asset Management

**Infrastructure to Enable:**
- Barcode, RFID, CMBs, Wi-Fi
- Barcode, RFID, Wi-Fi, RTLS, GPS
- Barcode, RFID, CMBs, Wi-Fi, PLCs, Stack Lights & other sensors

**Quantifying Value:**
- Increased Forecast Accuracy
- Reduced Safety Stock
- Reduced Expedite Costs
- Streamlined Shipping Costs
- Improved Order Accuracy & Customer Satisfaction
- Reduced Downtime
- Reduced Scrap & Rework
- Reduced Expedite Costs
- Increased Time in Service
- Fewer Audits & Regulatory Fines
- Reduced Maintenance and Repair Costs
## Real-time Enabling Supply Chain & Logistics Systems

### Auto-ID Integration Examples

<table>
<thead>
<tr>
<th>System Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enterprise Resource Planning (ERP) Systems</strong></td>
<td>• Verify physical components against bill of materials&lt;br&gt;  • Trigger inventory replenishment when low stock is detected</td>
</tr>
<tr>
<td><strong>Service and Asset Management Systems</strong></td>
<td>• Verify parts &amp; equipment against service orders&lt;br&gt;  • Monitor installation &amp; maintenance history&lt;br&gt;  • Locate recalled or expired service parts</td>
</tr>
<tr>
<td><strong>Warehouse Management Systems (WMS)</strong></td>
<td>• Verify manifest &amp; destination for outgoing shipments&lt;br&gt;  • Prevent mis-shipments with visual/audible alarms&lt;br&gt;  • Track finished goods inventory</td>
</tr>
<tr>
<td><strong>Business Activity Monitoring (BAM) Dashboards</strong></td>
<td>• Automatically update dashboards to reflect:&lt;br&gt;  – Physical inventory levels&lt;br&gt;  – Orders shipped&lt;br&gt;  – Manufacturing efficiency</td>
</tr>
</tbody>
</table>

A leading Aerospace Manufacturer added real-time visibility to Warehouse Logistics systems resulting in:<br>• significantly reduced on-hand inventory and handling costs<br>• 75% reduction in handling time for inbound receiving.
## OAT-SAP Customer Examples

<table>
<thead>
<tr>
<th>Industry:</th>
<th>Cost / Benefit from Real-time Visibility:</th>
</tr>
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<tbody>
<tr>
<td>Agriculture</td>
<td>• Significantly reduced scrap product by tracking batch #s and expiration dates</td>
</tr>
<tr>
<td></td>
<td>• Reduced on-hand inventory with auto-replenishment, while improving customer satisfaction</td>
</tr>
<tr>
<td>Aerospace</td>
<td>• Reduced on-hand inventory with RFID-enabled Kanban</td>
</tr>
<tr>
<td></td>
<td>• Reduced tool stores</td>
</tr>
<tr>
<td></td>
<td>• Eliminate assumed receipts in logistics</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>• Reduced on-hand inventory and rework costs</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>• Track movement of controlled substances in secured facilities</td>
</tr>
<tr>
<td>Industrial Equipment</td>
<td>• Reduced expedite and labor costs</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>• Increased sales of in-store promotions through on-time execution</td>
</tr>
</tbody>
</table>
Real-time Visibility for an Aerospace Supply Chain

Dan Ahearn, OATSystems
Real-time Visibility Benefits

Strategic Benefits:
• Real time visibility and automatic update of events across the value chain
• Unprecedented high level of information accuracy
• Move to a digital ‘fly by wire’ supply chain

Process Benefits:
• More efficient automated processes → shorter cycle times → less inventory
• Increased accuracy & control of business operations → less non conformities
• Increased traceability of part life cycle → less paper, less time → lower costs
• More automation → Less manual intervention → Improved labour productivity

Business Benefits:
• Business Benefits
• Reduction in Inventory & Capital Assets
• Increased Labour Productivity and better avoidance of Costs
An RFID-enabled Supply Chain Process

1. Tag Parts & Validate Shipment
2. Transmit ASN
3. Track Shipments Entering the Warehouse
4. Track Shipment Movement from Receiving to Inventory
5a. Track Parts Containers to Assembly Area

Parts Supplier
Advance Shipping No Box
SAP ERP
Parts Warehouse/Inventory
Furnishing Hangar
Elevator / Lift
Upper Deck
Lower Deck
Floor Deck
Assembly / Factory Floor

SAP
Real-time Visibility

RFID Readers (Identification Checkpoints): Can be deployed using RFID portals or Mobile RFID Solution
An RFID-enabled Supply Chain Process

1. Tag Parts & Validate Shipment
2. Transmit ASN
3. Track Shipments Entering the Warehouse
4. Track Movement from Receiving to Inventory
5a. Track Parts Containers to Assembly Area
5b. Alert if parts container is delivered to the wrong place

- Alert if the wrong shipment is delivered or if shipment contains wrong parts
- RFID Readers (Identification Checkpoints): Can be deployed using RFID portals or Mobile RFID Solution

Parts Warehouse/Inventory

- Furnishing Hangar
- Elevator/Lift
- Upper Deck
- Lower Deck
- Floor Deck

Alert if parts container is delivered to the wrong place
An RFID-enabled Supply Chain Process

1. Tag Parts & Validate Shipment
2. Transmit ASN
3. Track Shipments Entering the Warehouse
4. Parts Warehouse/Inventory
5a. Track Parts Containers to Assembly Area
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Alert if the wrong shipment is delivered or if shipment contains wrong parts

KPI Analysis

Parts Warehouse/Inventory

Receive Process Flow
Real-time Visibility
Packaged Solutions

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Andres Botero, SAP
Why Real-time Visibility?  Why Packaged Solutions?

• Real-time Visibility
  – Enhance the value of SAP Applications to cut inventory, labor and operations costs
  – Discuss strategic issues and interdependencies that impact enterprise efficiencies
  – Enterprise workflows; integrated solution

• Packaged Solutions
  – Proven solutions at multiple customer sites
  – Rapid deployment
    • Out-of-the-box solutions for tool tracking, RTI tracking, Kanban, etc.
  – Enterprise scale
  – SAP-certified
SAP Auto-ID Solution Landscape

Tags, CMBs

- Auto-ID Readers, RTLS, Wi-Fi, GPS

Sensors: Auto-ID Readers, RTLS, Wi-Fi, GPS

Sensor Management

“Edge” execution

SAP Process Integration

Enterprise Applications

Function

- Read / write / transmit data to systems
- Manage multiple readers
- Cleanse data
- Operator workflow
- Translate raw data to business execution
- Enrich core functions with Auto-ID data
- Decision support and execute transactions

Delivery

- Physics/Device expertise
- System Integration Services: Value generation with RFID

Partner

- SAP Offering
- OAT Offering
- Partner Offering
Real-time Visibility: Real-World Scenarios

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Supply Chain Process Areas

- Directed Putaway
- Reusable Container (RTI) Tracking
- Yard Management
- Inbound Receiving
- 3PL
- Parts Warehouse
- Returns
- Final Assembly/Manufacturing
- Elevator/Lift
- Gate In/Gate Out
Supply Chain Process Areas:
Inbound Receiving/RTI Tracking

[Diagram showing supply chain process areas with Inbound Receiving and RTI Tracking]
Validating order & manifest details against physical containers and their contents
Inbound Receiving: Value Proposition

- Reduce Discrepancy Handling Costs
  - Proof of delivery process (RTI based)
  - RTI differences based on Serial Shipping Container Code (SSCC)
  - Additional information provided through Global Returnable Asset Identifier (GRAI) visibility

- Improve Business Processes between trading partners
  - Improved receiving process, does not require manual counting
  - Automatic RTI management, reducing administrative responsibilities
  - Improved billing processes

- Improve Supply Chain Metrics
  - Improve cycle time
  - Appropriate inventory levels
  - Reduction in out-of-stock

- Reduce Costs
  - Reduce Mis-shipments, Rework and SafetyStock
  - Reduce Container Replacement Cost and Spares
  - Reuse tags, leverage barcoding
Supply Chain Process Areas:
Yard Management
Yard Tracking: Sample Process Flow

- Verifying Finished Goods Location and Maintenance during Check-In – Check-Out Process

**Sample Process Flow**

1. Get delivery schedule from ERP / EWM / Service & Asset Management
2. Assign finished goods to zone within laydown yard
3. Update yard management map
4. Get location details for trailer
5. Validate against inventory / location table
6. Send configuration details to All
7. Receipt at laydown yard
8. Read product ID, trailer ID, location
9. Operator feedback

**Pinpoint goods location in yard**
Yard Tracking: Process Improvements

- Significantly reduced error rates and costly correction processes
- Reduced expedite costs and safety stock to cover lost shipments
- Reduced labor costs for tracking down missing assets and managing administrative paperwork
- Reduction in asset shrinkage
- Improved shipping estimates, leading to better customer service
Next Steps: How to Get Started

Dan Ahearn, OATSystems
Next Steps

• Evaluate Key Process Areas
  – Closed-loop
  – Labor-intensive
  – Customer facing

• Articulate Value
  – Labor savings
  – Reduced inventory
  – Shipping costs/logistics
Real-time Visibility for SAP in Supply Chain & Logistics:

Cost Savings from Real-World Deployments

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