RFID Beyond the Hype
Delivering an Adaptive Supply Chain Solution

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**SAP RFID Evolution**

- **1998** Research Begins
  - SAP Corporate Research begins work with RFID

- **1999** Join MIT Auto-ID
  - Founding member of MIT Auto-ID center (now called EPC Global)
  - First DEMO at SAPPHIRE in Philadelphia

- **2001** All Dev. Begins
  - SAP Auto-ID Infrastructure development begins

- **2002 / 2003** Early Pilots & RFID Middleware
  - P&G and Metro Pilots begin at Shelf level & future store concepts
  - Fraport RFID Asset Management Pilot enabled SAP Mobile Infrastructure
  - Created SAP RFID Customer council
  - ASUG executive exchange group on RFID started
  - Global Auto-ID customer survey (>400 respondents)
  - Wall Street Journal Award for Metro Superstore Project

- **2004** RFID Enabled Business Processes Delivered
  - RFID Solution Package for Logistics and Enterprise Asset Management announced
  - Purdue Pilot – item level tagging
  - RFID enabled MySAP ERP and SCM 4.1
  - First set SAP Customers ship RFID tagged goods to Wall*Mart

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**Comprehensive RFID Solution Building Blocks**

- **Increased Business Visibility & Insights**

- **Event Management – Business Intelligence**
  - Enterprise Asset Management...
  - Increased Operational Flexibility & Efficiency
  - Enterprise Applications ERP, SCM, ...
  - Partner Connectivity XI, MDM, EP

- **Mobile Infrastructure**

- **Auto-ID Infrastructure**

- **Realtime Awareness**
  - RFID Readers
**SAP Standard Solution - RFID for EAM**

**Business Process:**
- Scan RFID information on the equipment, corresponding order is found automatically and can be opened.
- After completion of work order relevant information is written to tag (date, timestamp, order number).
- For creation of new notifications/orders, the object-ID on the equipment can be read.

**Solution Components**
- SAP Mobile Asset Management 2.5, with Mobile RFID Interface
- SAP Auto-ID Infrastructure- mobile device controllers
- SAP Netweaver integration to mySAP ERP, or other back-end

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**RFID for SCM – The Impact is everywhere**

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Company A

Company B
Understanding the RFID Landscape

Depth of Integration – Real-World Awareness Across Enterprise

- Master Data Management
- SRM
- CRM
- Financials
- Supply Chain Planning
- Event Management
- Inventory Management
- Warehouse Management

Goods Receipt
Goods Issue
Change Bin Location
Change Pallet Ownership
Unexpected Pallet Arrival
Update

Event Management is SAP’s solution for EPCIS

- Supplier
- Customer
- EPCIS (EM)
- ONS (EM)

Supplier Systems
- Scan EPC data
- Sense new GTINS to register in ONS
- Track EPC
- Provide Tracking Info
- Retrieve Tracking Info
- Provide Tracking Info
- Extract Business Info
- Ship Goods

Customer Systems
- Scan EPC data
- Extract Business Info
- Provide Tracking Info
- Track EPC
- Retrieve Tracking Info
- Sense new GTINS to register in ONS
- Provide Tracking Info
- Extract Business Info
- Ship Goods

Register GTIN
Point back to EM
SAP solved the myth around ASN with RFID data

- **Header Segment**: Delivery Type, Adress, Partners, Times, Total Weights, Total Volumes
- **Item Segment**: Product Infos, Unit of Measure, Quantity, Batch
- **Packaging Data**: Identification (SSCC, EPC), inner/outer dimensions, Weight / Volume by package, packaging hierarchy, packaging materials
- **EPC Data**: Item and case (GTIN) EPC’s, relationship to higher level EPC (pallet)
RFID – searching for Value

Today’s Reality –
Inventory levels across the Supply Chain can be reduced through higher operational speed and higher visibility
In-store out-of-stock levels are too high
Forecasting to guard against out-of-stocks is not existing
Theft and counterfeiting are growing problems; worldwide
Legal regulations for tracking are growing

Recognize:
Benefits will not come initially from inside 4 walls operational efficiency
But we can use the technology to follow the process better, sense and respond in time
Maintaining Assets with RFID provides substantial benefits

What do we want to do with the RFID data?

Base Tracking Process Example
Create EPC
Leave Plant
Arrive DC
Leave DC
Arrive DC
Leave DC
Arrive Store Backroom
Package Damaged
Move to Sales room
Kill EPC

EPC shows up at different location
RFID Visibility and Inventory Visibility

Distribution Velocity (Lead Times) between sites

Comparison IM Inventory ↔ EPC tracked inventory

Exceptions like „EPC shows up in different location“

Reducing Inventory
- compare days of supply in each location with speed of distribution
- decide on reducing safety stock levels per location

Secure Supply Chain
- Detect shrinkage
- Detect counterfeit

Improve Order Performance
- Detect lateness of distribution
- Assign to Partners (3PL, Suppliers etc)
- Detect order accuracy problems
- Measure Customer Service level on arrival

Reduce „In-Store-Out-of-Stock“
- Alert on low inventory levels in backroom / frontroom
- Accelerate replenishment

Speed up decision mechanisms for Returns / Credits
- Easier to find out if customer is entitled for Credits
Digital and Real World are Emerging

ALWAYS ON, ALWAYS AWARE, ALWAYS ACTIVE

Power User
Manual data entry, transactions

Data Base model

Batch-based data feeds

LOW AUTOMATION

Everybody
Insights, alerts

Real World model

Real-time Data from real world objects

HIGH AUTOMATION

Real World Web
Speed of business is accelerating

How long does it take you today?

- to reroute goods with a given destination
  - within your company
  - in the supply chain of your service partner
- to adjust errors
  - within your company
  - at your service partner
- to establish a new process
  - in your own organisation
  - in one of your partners organisation
- to change a plan
- to harmonize Master Data
- to cut order cycle times
- to establish a new partnership
- to integrate a purchased company into your organisation

Constant Change

“In the real world, you have to be ready for the unexpected”

Stock market reactions on days when supply chain glitches are reported:

- Delays in product development: by -10%
- Ramp-up/rollout problems: by -11%
- Production problems: by -10%
- Quality problems: by -9%
- Parts shortage in manufacturing: by -7.5%

Source: Prof. Vinod Singhal, DuPree College of Management, Georgia Institute of Technology
Get yourself ready for changes...

mySAP Business Suite

Composite

- Role-specific UI
- Dynamic Sourcing
- Multi-Channel Order Mgmt.
- Fulfillment Coordination
- Settlement

SAP NetWeaver*

- Supplier’s ERP
- Supplier’s CRM
- SCM Services
- ERP Services
- CRM Services
- Buyer’s SCM

Components & Engines

*feat. SAP Master Data Management

... and be responsive in a Collaborative Value Network

Retailers  Wholesalers

CPG Companies  Customers  Service Companies

Manufacturers  Investment Goods
**Bringing Real World Events into a Business Context**

SAP integrates people, real-world objects, applications, infrastructures and content into closed loop business processes leveraging SAP NetWeaver.

**Role based Portal**
leveraging self services
real-time alerts, business analytics and transactions

**SAP NetWeaver**

**Mobile Computing**
Wireless Access and Offline Applications

**Real-World Awareness**
leveraging RFID, Sensors, Controls
to integrate object information

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**Real-World Aware Manufacturing**

SAP integrates “the Shop Floor to the Top Floor” via its Partner Program to close the loop between the Factory and the Enterprise.

**Production Supervisor**
leveraging real-time alerts, and ERP based MRP and Production Management

**Plant Manager**
leverage Constrained based Master Planning and Demand/Order Visibility

**Control and Sensor Factory Networks**
leveraging Factory Ethernet and Shop Floor Automation and Control Systems
SAP integrates RFID tagged objects and distribution processes to create a universal view of the CP/Retail chain.

RFID tagged Pallets, Cartoons, Items, ...
leverage RFID for EPC based identification.

SAP integrates asset tracking and maintenance data flows to enable preventive maintenance and serve the complexity of Service Parts Handling.

Assets
leveraging sensors for real-time data capture and RFID for asset identification and local information.
Thank You!

THE BEST-RUN BUSINESSES RUN SAP

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