RFID: Searching for Value
Beyond the Hype

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PEAK Technologies
Improving the Flow of Business™
RFID Landscape

Implementation Approach

RFID Technology

RFID Case Study
Who is Peak, what do they do

Turn Key RFID solutions integration:
- Tag Manufacturers
- RFID Hardware Integrators
- SAP Technical Functional Expertise
- Integration Services
- Ongoing Support and Maintenance

How long in business
Service and support
RFID Services...
Value Proposition

PEAK strives to exceed customers’ quality expectations by leveraging our knowledge and experience to **lower your risk** and deliver solutions that solve your true business problems!
SAP has several years of experience in RFID

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 (Shelf / future store)
• Fraport RFID Asset Management Pilot enabled SAP Mobile Infrastructure
• Created SAP RFID Customer council and ASUG exec exchange
• 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 delivered
• All 2.0 and All 2.1 released
• RFID enabled MySAP ERP and SCM 4.1
• 19 Customers signed for SAP RFID solution
• Purdue goes LIVE (item level tagging)
• SC Johnson goes LIVE
• First set SAP Customers ship RFID tagged goods to Wall*Mart
• Analysts / Customers rank SAP at the top
The RFID Solution Landscape

**Function**

- **Hold Data**
  - Transmit data using radio waves

- **Read / write**
  - Transmit data to systems

- **Manage multiple Readers & standardizes data**

- **Store and translate raw EPC data to business data**

- **Route business data and events to applications**

- **Provide Decision Support and execute transactions**

**Delivery**

- **Hardware Expertise Consulting**

- **System Integration Services: Value generation with RFID**

**SAP Offering**

**Partner Offering**

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RFID Value Proposition Spans Across Three Phases

Data Capture
(From Tags to Useable Data)

- Hardware
  - Tags
  - Readers
  - Other devices
- Device Mgmt.
  - RFID Readers
  - Bar Code Scanners
  - Printers
- RFID Physics
  - Environment
  - Metal/Liquid
- Data Filtering
  - Security
  - Accuracy / validation
  - Availability
  - Storage
- Data writing on tag

Date Use (today)
Real-Time Data
Accurate Data

- Visibility / Monitoring
  - Inventory Visibility
  - Tracking and tracing
- Analytics
  - Inventory

Data Use (future)
Real-Time Data
Accurate Data
More Data

- Revised Business Processes
  - SCM, CRM, ERP, etc.
  - Demand Planning
  - Responsive Replenishment.
- Reused Business Processes
  - Centralized Intelligence
  - New Applications
  - Tracking Medical Waste
- Across Multiple Industries
- Master Data Synchronization
- Scalability of RFID solution

Increased Automation

SAP Auto-ID Infrastructure

Hardware Providers
(Symbol, Alien, Intermec)

Selected RFID Partners
Device Management Partners
ACSIS, Infineon

SAP Business Applications
SAP core strength
Insights and recommendations into hardware
RFID Technology

RFID Case Study

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RFID Technology

RFID Case Study
RF/RFID System Blue Print

Changes in the physical process
- How are EPC tags to be applied
- Data collection points
- Impact to labor or automation equipment
- Exception Handling

RFID Site survey
- Infrastructure, Facility modifications
- Live on-site environmental product testing
- Material handling equipment

Software to support process change
- User transaction (SAP GUI or RF SAP Console)
- Automated SAP postings and error handling

ERP System interfaces
- SAP Landscape

User feedback loops
- Light stacks, RF Terminals, Reports
Implementation Methodology

Phase One - RFID Product Compatibility

- RFID tags, hardware and product are compatible

Phase Two - Process Evaluation Blueprint

- Understanding of how the technology affects Process

Phase Three - Pilot

- Local test of data collection points and feedback loops

Phase Four - Pilot Review

- Lessons Learned
- ERP data Integration review and plans

Phase Five - Leverage Technology Investment

- Determine where RFID has incremental benefits
- Supply chain integration
SAP AII 2.1 Installation Options

**SAP AII 2.1 Option 1**

**Customer Requirements**
- Customers seeking to pilot RFID technologies
- Customers seeking simple RFID Solutions not integrated with backend systems
- CPG Customer seeking a low investment Wal*Mart compliant RFID solution

**Installation Option**
- Stand-Alone AII 2.1 supporting manual outbound processing - Slap & Ship

**Option 1 Solution Offerings**
A. Stand-alone AII 2.1 with integration to Device Management (partner)

**SAP AII 2.1 Option 2**

**Customer Requirements**
- Customers seeking to enable & integrate standard business processes with RFID
- Customers seeking to roll-out RFID Technology beyond piloting

**Installation Option**
- All 2.1 integrated with Enterprise backend system
- RFID enabled integrated Outbound Processing & Inbound Processing
- Seeking to successively RFID enable Standard Business Processes

**Option 2 Solution Offerings**
A. All 2.1 integrated with Enterprise backend with Device Management System
**Roadmap to Value**

- **SAP All 2.1 Standalone**
- **Integrated to R/3**
- **Event Management (EM)**
  - Track & Trace
  - Proof of Delivery
  - Trigger Actions
  - Diversion
- **Business Warehouse (BW)**
  - Inventory Visibility
  - Store Level Visibility
  - Back Room to Sales Floor
  - Promotion compliance
  - RFID Consolidated Reporting
- **Future**
  - VMI
  - Returnable Containers (3.0)
  - Demand Planning
What SAP All 2.1 Solution Offers

SAP All 2.1 provides a SAP RFID Technology solution that:

- Support pre-configured Wal-Mart compliant “Slap&Ship” Scenario
- Lower Implementation Cost
  - Can be installed and implemented in a few days
- “Standalone” Implementation Capabilities
  - No integration required to R/3 or other enterprise applications
- Ability to easily extend to enable SCM processes with mySAP SCM

Reduces Cost of ownership of SAP RFID Solution

Provides a competitive offering for customers looking for low-cost Pilots to prove RFID value proposition
RFID Technology

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RFID Case Study
### All 2.1 Technology Stack Supporting Installation Options

#### Option 1 - Installation Option
**SAP Stand-Alone All**

- SAP All 2.1
- SAP WebAS 6.40
- SAP Preconfigured BI

#### Option 2 - Installation Option
**SAP All integrated with Backend**

- SAP All 2.1
- SAP WebAS 6.40
- SAP Preconfigured BI
- SAP Exchange Infrastructure 3.0
- Event Management (SCM 4.1)
- R/3 Adaptors

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**Manual RFID enabled Outbound Processing**

**Tag at Ship Technology**

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**RFID enabled Outbound Processing**

**Infrastructure for future and successively enabled RFID enabled Standard Business Processes**
## All 2.1 Product Capabilities

### Process Capabilities

**Tag Commissioning:** Pre-encoded tags, write on empty tags, printing tags

**Execution Flexibility:** Outbound delivery reference information can be assigned at each process step, i.e. at tag printing, packing and loading

**Enhanced User Interface:** UI for manual entry of base delivery information and association with EPCs scanned - possible at each process step; addition of Desk-Top UI

### Technical Architecture

**“Standalone” Deployment:** Scans can be captured without any assignment to any document

**Multiple deployment options:** Can operate with or without mySAP ERP integration

**One Instance deployment option:** Comprising All, WebAS and Preconfigured BI

**Preconfigured pack and load processes:** Speeding up implementation

### Reporting

**Pre-shipped EPC BI Reports:**
- EPC view per location/per process with time stamps – EPC ins and outs per location
- EPC read/write rates

**CCMS Auto-ID Alert Monitor**
- Message Alerts & Resolution

**Write Success**
- Performance of Devices & Process Steps = messages & tags per minute

### Data Management

**Local Master Data Management Maintenance option in SAP All (Location, Product, Business Partners) for stand-alone All deployment**

**Local EPC Number Range Maintenance in SAP All for stand-alone All deployment**
Example: Business Process Flow enabled by SAP All 2.1

Example Scenario: Pack Cases to Stock, then Pack and Load

- **Tag Commissioning**
- **Pack**
- **Load**

**Process Steps**
- **Select Product Name/ Enter or Scan GTIN**
- **Print Case Tags**
- **Assign & Move pre-tagged cases to Stock**
- **Move Cases from Stock Location**
- **Pack Cases to Pallet**
- **Print Pallet Tags**
- **Assign Delivery Reference Information**
- **Load**

**Using Mobile Transaction**

**View**

- Stock location of pre-tagged case stock

**Hardware Examples**
- Zebra Printer
- Feig Writer
- Mobile or Fixed Reader

**Configuration based on this example**

- Predefine “location” as a field name in configuration

**Software Examples**
- SAP All 2.1
- SAP WebAS 6.40
- SAP Preconfigured BI
Packing, Goods Issue & Receipt Process with RFID

Vendor

- Pick or Produce
- Build Handling Unit
- Issue/Receive Goods (Loading/Unloading)
- Associate Items / Pallet / Tags
- Feedback
- Scan IDs for accuracy
- Register ID of Pallet
- Post Goods Issue or Receipt
- Create HU
- Register EPCs
- Create Event Handler

SAP

- Delivery
- WM TRM
- Cust. Order
- AII
- SAP Event Mgmt EPCIS
- Status updates

Buyer

- Adv. Ship Notification via EDI/other
- Purchase Order
Need more info on the Technology you provide
SAP Centric RFID Infrastructure

- RFID Readers/Incoders
- RF Hand Held transactions
- SAP GUI Transaction
- SAP WAS 6.20
- NetWeaver
- SAP Business Connectors
- XML Over HTTP or SOAP
- Peak's Feature Set
- SAP's All Module
- Peak's RFID Infrastructure
- Mobile Devices
- Ethernet I/O Controllers
- Secondary sub systems
- RFID Printer Incoders
- XML Over HTTP or SOAP
- SAP's AII Module
- Peak's RFID Infrastructure
Case Study: Pacific Cycle

Consumer Goods meeting Wal-Mart Compliance
  • Leading Edge implementer of technology
  • Started piloting one year ago
  • Majority of product is large and cumbersome
  • Specific sku’s are all metal (wagons)

Pacific Cycle was working with SAMSys reader company who recommended an integrator to assist with the project.

Wanted on-site testing of their product with the following technology:
  • SAMSys Reader
  • Alien Class 1 Squiggle tags
  • Printronix RFID printer
Environmental RFID testing
Case Study Environment

1. Very limited staging area
   • Readers on dock doors would read product in staging

2. Fork truck drivers drove at high speeds
   • Causing missed reads of pallets
   • Driver was physically on the truck before lights were illuminated

3. Very low read rates on the metal products (wagons)
RFID Applicator In Operation
Case Study Project Status

5 week project
Project Go Live March 14th

Installed All 2.1 fully integrated into R/3.
  • Visibility across supply chain utilizing All

Current RFID technology platform
  • Matric 0+ tags
  • Matric DC400 readers
  • Zebra Printers
  • Symbol Readers
Case Study Lessons Learned

1. Pilot was a learning experience
   - Tagging on outside corrugate did not meet Pacific Cycle’s vision. Would not provide down-line visibility from Wal-Mart as product is unpackaged.

2. Modified Pilot multiple times
   - In an effort to identify the ROI in the supply chain

3. Use established hardware
3. Continued to test and "try out" new technology as it was introduced to the market
   - Tag types
   - Antenna configurations
   - Readers
The Plan Moving Forward

• MUST MOVE THE TECHNOLOGY INTO THE MANUFACTURING PLANTS IN CHINA TO RECEIVE ANY RETURN ON INVESTMENT

• Tag must be placed on warranty paperwork attached to each product

• Visibility to Store Level
Questions???