

Storage Decisions

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# The Impact of RFID on IT

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## Agenda

- **What is RFID?**
- **Examples of RFID**
- **Impact on IT**
  - Data
  - Applications
  - Information security
  - ILM

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## What is RFID?

- **Radio Frequency Identification**
- **Transmits the unique identify of an object – or person – over radio waves**
- **Like other means of automatic identification (e.g. barcode, biometrics) but:**
  - Small
  - Cheap
  - No human intervention!

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## What is RFID?

- **Cost:**
  - \$0.20 to \$0.40 per tag today
  - Less than \$0.05 in 24 months
- **Readers: Potential for factories, warehouses, transportation, stores, shelves, cars, houses, schools, etc.**
- **The result? Everything can – and will – be tagged!**




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## How RFID evolves

- **Today: Retailers like Walmart use RFID to improve inventory efficiencies**
- **Tomorrow: RFID is used to create data, not just read it**
  - The ultimate ILM data generator!

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## Example – Supply Chain/Manufacturing

**Sugar Supplier**

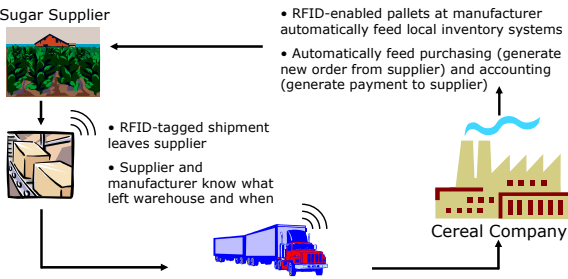
- RFID-enabled pallets at manufacturer automatically feed local inventory systems
- Automatically feed purchasing (generate new order from supplier) and accounting (generate payment to supplier)

**RFID-tagged shipment leaves supplier**

- Supplier and manufacturer know what left warehouse and when

**Cereal Company**

- RFID tags allow automated in-transit tracking




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### Example – Manufacturing/Retail

- Chocolate-Covered sugar pellets (CCSP) are packaged
- Pallets and/or individual cartons/boxes have RFID tags
- Info includes date and location of manufacture, destination, etc.

- CCSP pallets placed into local inventory
- RFID tags scanned and inventory systems updated
- Logistics software notified – delivery is scheduled

- Pallets leave factory, en route to MegaMart warehouse
- RFID tags allow automated in-transit tracking
- RFID readers at MegaMart warehouse acknowledge delivery and initiate payment to manufacturer

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### Example – Manufacturing/Retail (cont.)

- Pallets leave store warehouse

- RFID readers in individual stores update inventory systems as shipment enters premises

- MegaMart store shelves are stocked
- Retailer knows 87 units of CCSP needed on shelf 14, and 37 on end-cap display

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### Marketing Implications

- Manufacturer and retailer track end-cap sales of Chocolate Covered Sugar Pellets**
- Normal is 8 units/hour**
- RFID-enabled systems indicate that 12 units/hour are moving after recent marketing campaign (validates campaign effectiveness)**
- Marketing dept. raises price \$0.05 – volume stays same, profits increase**

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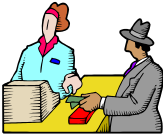
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### Physical lifecycle monitoring

- **RFID-enabled feedback loop involving suppliers, manufacturers, retailers, consumers, and other interested third-parties (marketers, government, health care, etc.)**
  - Joe buys box of CCSP and swipes customer rewards card
  - Retailer customer-rewards system asks Joe if wants his usual 6-pack of Genesee Cream Ale
    - Joe says "Yes"




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### Physical lifecycle monitoring (cont.)

- **Joe gets home and in-home RFID reader identifies and records purchases**
- **"Home ERP system" is updated**
- **Tracks product inventory, usage, expiration dates, etc.**
- **Purchases, payments, etc.**




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### Physical lifecycle monitoring (cont.)

- **Home ERP system mines historical data for usage/consumption patterns**
- **Recognizes that there's a 90% probability that pizza will be ordered within 2 hours of beer entering house**
- **System asks Joe if he wants to place order.**




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### Physical lifecycle monitoring (cont.)

- **Endless possibilities. Some examples:**
  - Home system becomes increasingly intelligent over time – proactively compiles shopping lists, opt-in links to preferred retailers for price comparison, orders goods via Internet and direct-debit payments
  - With permission, physicians and personal trainers check on patients walking regimen
  - Every toll booth, gas station, airport, mall, rest area has an RFID emergency reader activated by the AMBER alert system

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### RFID will create a data goldmine

- **Retailers, manufacturers, service bureaus and other constituents will solicit customers with opt-in programs to share data for a monetary (or other) incentive**
- **Like today's loyalty/rewards cards but potentially not tied to a single store/restaurant/product/ airline, etc.**
- **Marketing people everywhere drool**

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### Data issues

- **Corporate: Supply-side data will double**
- **Demand-side/marketing data will grow 10-100x**
- **Consumer data will grow 1,000x**

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## Application issues

- **Need smarter decision support systems**
- **Need better middleware integration**

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## Security/Data privacy issues

- **Consumer right-to-privacy**
- **Safeguarding consumer data/purchasing patterns**
- **Secure data transmission**
- **There will be regulation**

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## RFID and lifecycle management

- **Physical ILM turns into data lifecycle management**

<b>Data Creation:</b> Inventory, Finance, Real-time Sales/Marketing Tier-1 Storage, Platinum Protection/Recovery
<b>Data Mining/Decision Support:</b> Tier-2 Storage, Gold Protection/Recovery
<b>Reference Data:</b> Tier-3 Storage, Bronze Protection/Recovery

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## Summary

- **RFID will be everywhere**
- **Data will be tracked, created, and manipulated in ways we've never done before**
- **Security and privacy concerns are real**
- **Bottom line: Another data explosion is coming**

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# Thank You!

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