

New Managerial Approaches and Governance in the Light of the Technological Developments and the Information Age (Example: RFID in Several Sectors)

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Agenda

- Introduction to RFID
- RFID on Palettes and Cases - Example: Supply Chain
- RFID on Items - Selected Examples
 - U.S. Military
 - Vienna Library
 - Animal / Cattle Farms
 - Airline Baggage
 - Retailing
- Future RFID Issues
 - Overview
 - Towards RFID Privacy Legislation in the EU
- Outlook: Further Opportunities



Passive Tag, 13.56 Mhz, < 1.5 meter range

Radio Frequency Identification (RFID)

- Data saved on RFID transponders (tags) and read via electromagnetic waves (radio frequency field)
- Reading and saving data, contact-free, and with no line-of-sight needed between transmitter and receiver

Printers for RFID-Transponders



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mm **Radio Frequency Identification (RFID)**

on Palettes and Cases ↔ on Items

'Complete infrastructure'
enabling wireless reading of information from RFID tags
as well as integration into enterprise systems

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mm **Potential of RFID on Palettes and Cases in Retailing**

- ⇒ Improved demand forecasting (10-30%)
- ⇒ Reduced inventory levels (10-30%)
- ⇒ Lowered running inventory costs (5%)
- ⇒ Lowered warehouse labor costs (8%)
- ⇒ Increased sales (2%)

Standards Necessary !

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mm **RFID in US Military: - Integrating Supply Chain -**

- Logistics problems during Operations Desert Shield, Desert Storm, Iraqi Freedom, and Enduring Freedom
 - ⇒ Lack of flexibility and responsiveness
- DoD's 'Integrate the Supply Chain Initiative'
 - ⇒ Suppliers required to include passive RFID tags on the lowest possible piece part, case, or palette by 2005
- Goal: Visibility of all assets, weapon systems, and equipment throughout the supply chain, and use
- RFID is a key component to realize 'Total Asset Visibility'
- Dec 2004: RFID tests combined with GPS to locate tags at any time anywhere in the world
- Investments: US \$100 million since 1995
- 2005: 175 RFID interrogation points in Iraq / Kuwait (2003: 1)


Changes in Work Processes and Governance Approaches !

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mm **RFID in Vienna City Library**

- One RFID chip per book and other media
- 300,000 RFID chips
- Since April 2003
- Costs: € 675,000


- ⇒ Easily locating books
- ⇒ Automated lending process
- ⇒ Self service stations to check out books
- ⇒ Faster return of books



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mm **RFID on Animals / Cattle**

- Canadian Cattle Identification Agency (CCIA)
 - Barcodes on cattle since 1998
 - RFID on cattle since 2005
 - 98% of cattle tagged
- US Animal Identification Plan (US AIP)
 - Founded in 2003
 - System capabilities since 7/04
 - Significant integration 7/05
 - Cattle slaughter plants & state licensed markets need RFID readers by 7/05



- ⇒ Tracking cattle along value chain (from ranch to consumer)
- ⇒ Locating individual cattle in 48 hours (formerly 6 weeks)

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mm **RFID Tags on Airline Baggage Items**

\$1 Bill. Loss per year due to misplaced bags with barcodes

Accuracy of barcode 80% ↔ Accuracy of RFID tag > 95%

RFID tags instead of barcode

<p>Pre-printed RFID tags</p> <ul style="list-style-type: none"> • Cheap (\$0.05) • On chip: Only ID • Additional information in database 	<p>Re-writable RFID tags</p> <ul style="list-style-type: none"> • More expensive (\$0.25) • Routing information on chip • Lower price in future (economies of scale)
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↻ Pre-printed tags problematic when two or more airlines involved

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mm **RFID in Retailing: Metro Group's 'Future Store'**

<p>Test Product in Future Store</p> <ul style="list-style-type: none"> - 'Philadelphia' cream cheese (Kraft Food) - 'Pantene' shampoo (Procter & Gamble) - 'Mach 3 Turbo' razor blades (Gillette) - CDs, DVDs, VHS (various manufacturers / labels) 	<p>Focus</p> <ul style="list-style-type: none"> ↻ Expiration dates and out-of-stock issues ↻ Innovative marketing concepts ↻ Anti-theft protection ↻ Youth protection etc., theft prevention (similar to Electronic Article Surveillance - EAS)
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mm **Future RFID Issues**

Technical

- Transmission problems depending on product material
- Metal or liquids often causing failures

Data management

- Information creation reaching new order of magnitude with individual products being tracked through complete product life-cycle
- Revolutionized data management required

Privacy issues

- Consumer perception level
- Legal level

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mm **EU RFID Privacy Legislation - First Working Group Document 105 (Jan. 2005) -**

- Outlining RFID's potential in variety of business sectors, incl. health care, retail, pharmaceutical, and logistics
- Calling attention to need for companies to comply with principals in EU privacy directives whenever personal data is collected using RFID
- Guiding makers of RFID tags, readers, applications, as well as standards bodies on their responsibility to develop privacy-compliant technology
- Requiring consumers possibility to delete personal information from tags if tags affixed permanently

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Further RFID Application Opportunities

- Electronic money
- Banknotes (security)
- Health sector
- Tickets (public transport, concerts...)
- ...



Association of Information Systems

➔ www.aisnet.org

Thank you very much for your attention!

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