



## RFID Cost / Benefits along the Supply Chain

**Professor Dr. Claudia Loebbecke, M.B.A.**

Department of Media Management  
University of Cologne, Germany

President, **Association for Information Systems** ([www.aisnet.org](http://www.aisnet.org))

[claudia.loebbecke@uni-koeln.de](mailto:claudia.loebbecke@uni-koeln.de)  
[www.mm.uni-koeln.de](http://www.mm.uni-koeln.de)

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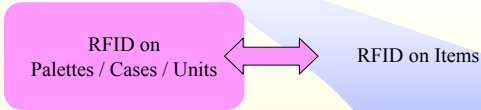
## RFID Applications along the Supply Chain

- Logistics**
  - Unit quantity control
  - Item quantity control
  - Data acquisition - incoming
  - Sorting / distribution (questionable due to costs)
  - Reusable transport item, tracing
- Store Level**
  - Inventory registration
  - Article location
  - Cashing
  - Preparation of return delivery of goods to supplier
  - Visual sales support for customers
  - Customer service (warranty, kiosk systems)

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## RFID along the Supply Chain



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## Time Savings from RFID on Units (Fast Moving Consumer Goods)

	Warehouse Processes		Store Processes	
	Goods receipt	Verify DESADV	Goods receipt	Verify DESADV
<b>Before</b>	90 sec	15 min	80 sec	8 min
<b>After</b>	70 sec	3 min	60 sec	2 min
<b>Time Saved</b>	22%	80%	25%	75%

Source: Metro Group '05 © Prof. Dr. Claudia Loebbecke, M.B.A. - Dept. of Media Management - University of Cologne



## RFID on Palettes / Cases / Units: Measurable Results (Fast Moving CGs)

### Speed

- Accurately monitored warehouse inventories
- Fast passed replenishment orders
- Improved availability of goods in store

-9% to -14% out-of-stocks

### Transparency

- Localization of goods
- Transparent warehouse and shop inventories
- Improved sales controlling

### Effectiveness

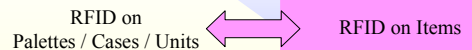
- Accurate control of quantities ordered
- Exactly matching production planning
- New types of customer services
- Improved theft protection
- Less storage space

-11% warehousing & handling costs

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## RFID along the Supply Chain



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**mm** **Item-Level Tags in 'Future Store'**  
- **Worldwide First Real-Life Retail Test -**

Test Product in Future Store	Focus
- 'Philadelphia' cream cheese (Kraft Food)	➤ Expiration dates and out-of-stock issues
- 'Pantene' shampoo (Procter & Gamble)	➤ Innovative marketing concepts
- 'Mach 3 Turbo' razor blades (Gillette)	➤ Anti-theft protection
- CDs, DVDs, VHS (various manufacturers / labels)	➤ Youth protection etc, theft prevention (similar to Electronic Article Surveillance - EAS)

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**mm** **Kaufhof\*: Item Level Tagging**

2003 - 2004: **Pilot** with Gerry Weber

Nov 1, 2004: Twenty **initial suppliers** to Metro distribution centers (three suppliers - Gerry Weber, Esprit, Triumph - to Kaufhof)

2006: Integration of **stores** (most likely on item level only)

\*Kaufhof = Department Store chain of METRO Group

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**mm** **Discussion: RFID Tags on Items**


Proposition: Walmart, Tesco, Marks & Spencer

868 Mhz\*

**Radio Wave Technology**

- Reach: 7m
- Like palettes, cases, units
- Problem: Liquids, metal, etc.
  - Inventory Control
  - ≠ Theft Protection
  - ≠ Cashier

'Solution' on Case Level



\* US: 915 Mhz, China / Japan: 950 Mhz

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**mm** **Discussion: RFID Tags on Items**

Proposition: Walmart, Tesco, Marks & Spencer

868 Mhz\*

Pilots: Metro Group, GS1

13.56 Mhz

**Radio Wave Technology**

- Reach: 7m
- Like palettes, cases, units
- Problem: Liquids, metal, etc.
  - Inventory Control
  - ≠ Theft Protection
  - ≠ Cashier

**Induction-Based Technology**

- Reach: 0.8m-1.3m
- 100% data collection
  - Theft Protection
  - Cashier
  - ≠ Inventory Control
- BUT: Different from palettes, cases, units

\* US: 915 Mhz, China / Japan: 950 Mhz

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**mm** **Main Points**

- (1) For real economic evaluation: Large roll-out necessary
- (2) Palettes, cases, packaging units VERSUS item level (retail unit)
- (3) To combine Point (1) and Point (2), also for item-levels in global consumer goods retailing: STANDARDS and agreement on frequencies

This will help to go back to point (1)

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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 at 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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.... Questions, Comments, Complaints ?



Source: Metro Group '05

**Thanks for your attention !**

✉ [claudia.loebbecke@uni-koeln.de](mailto:claudia.loebbecke@uni-koeln.de)

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