

**High-Tech in the Supermarket:
Opportunities from Integrating Information and Technologies**

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Agenda

- Integrating Information and Technologies
- METRO Group's Future Store
- Content Integration in the Supermarket
 - Technologies
 - Assessment
- RFID – Enriching the Supply Chain
 - Overview
 - RFID on Pallets and Cases
 - RFID on Items
- Future Issues and Other Application Areas
- References

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**Integrating Information and Technologies
in the Supermarket**

Goal: "Making Money" ☺

Pleasing Customers	Content Integration	<ul style="list-style-type: none"> • Possibility ? • Reputation as Innovator ? • Revenue for Retailer ? • Profit for Retailer ? • Stockmarket Value ?
Efficiency in Store & Supply Chain	Enriching the Supply Chain - RFID -	

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**Integrating Information and Technologies
in the Supermarket**

Content Integration	Enriching the Supply Chain
Content Provision Devices	RFID on Pallets and Cases
RFID on Items	RFID on Pallets and Cases

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Metro Group's Future Store Initiative (FSI)

Premier **integrated real-world** roll-out
of **existing & new IT** in brick-and-mortar supermarket
aiming at consumer convenience

Technicalities

- Integration of front end, application layer, and back end
- Integration of structured and unstructured data from internal and external data sources
- Availability of almost all information sources for customers

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mm Back Up

Partners in Future Store Initiative

Intel
Cisco Systems IBM SAP
Fujitsu Siemens Oracle
Hewlett Packard Pironet Microsoft
Philips
Future Store Initiative
DHL Kraft Foods
Boston Coca Cola Gillette
Consulting Henkel Nestlé
Group Johnson & Johnson
Procter & Gamble

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Imagine ...

... a machine that knows the difference ...

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Imagine ...

... a machine that helps finding the bottle you look for

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Tipps für Wein-Genießer

Infos zum Thema Wein?
Bekomme ich vom Wein-Geräte!

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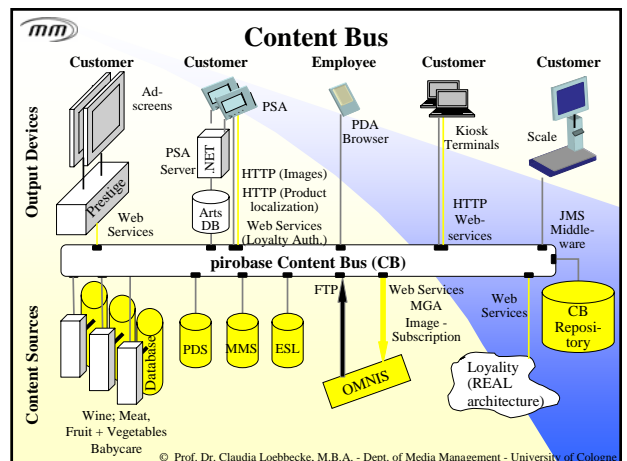
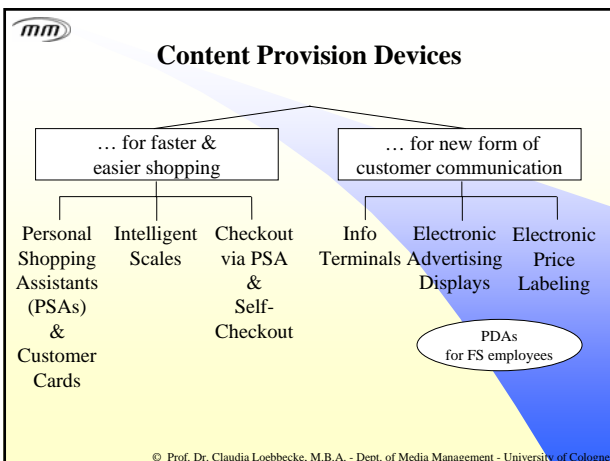
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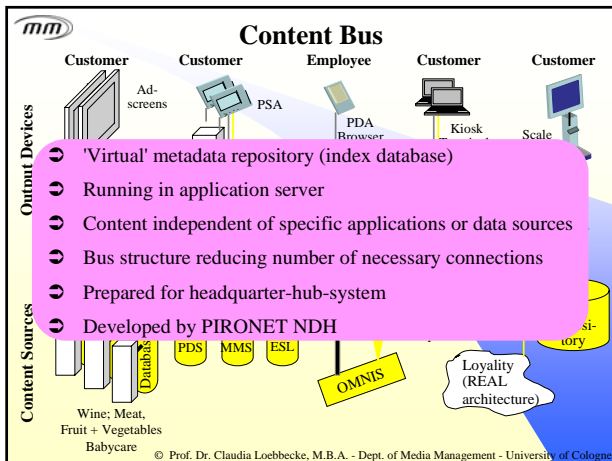
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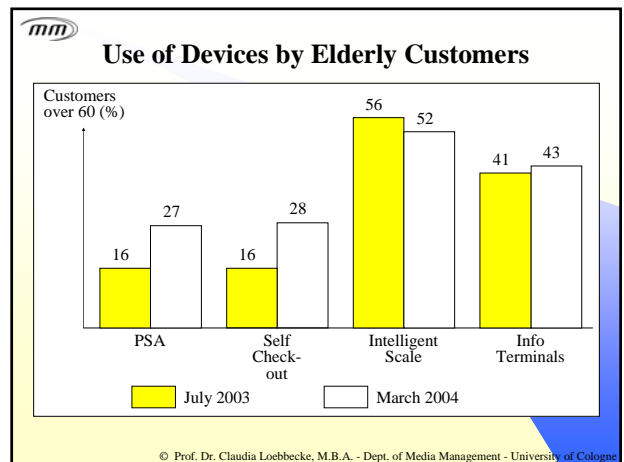
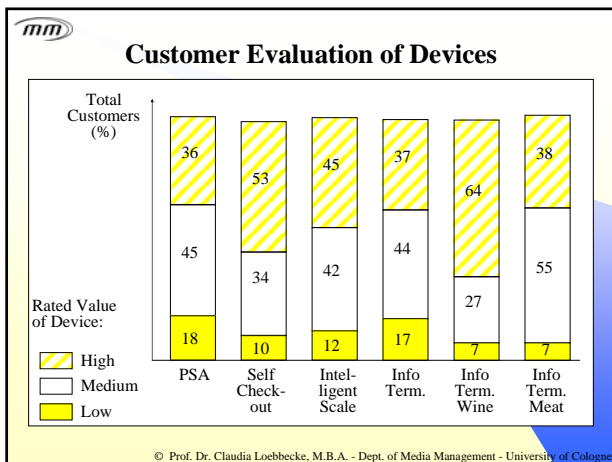


Content Integration in the Supermarket: Measurable Results

- Increased Customer Satisfaction -

Individuality, Reliability, Convenience

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Integrating Information and Technologies in the Supermarket

Goal: "Making Money" 😊

Pleasing Customers → **Content Integration**

- Possibility 😊
- Reputation as Innovator 😊
- Revenue for Retailer 😊
- Profit for Retailer 😊
- Stockmarket Value ?

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- **RFID – Enriching the Supply Chain** → **Efficiency in Store & Supply Chain ...**
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Radio Frequency Identification (RFID)

- Reading and saving data via electromagnetic waves (radio frequency field)
- Contact-free
- No line-of-sight needed between transmitter and receiver
- 'Complete infrastructure'

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Radio Frequency Identification (RFID)

on Pallets
and Cases

↔

on Items /
Persons

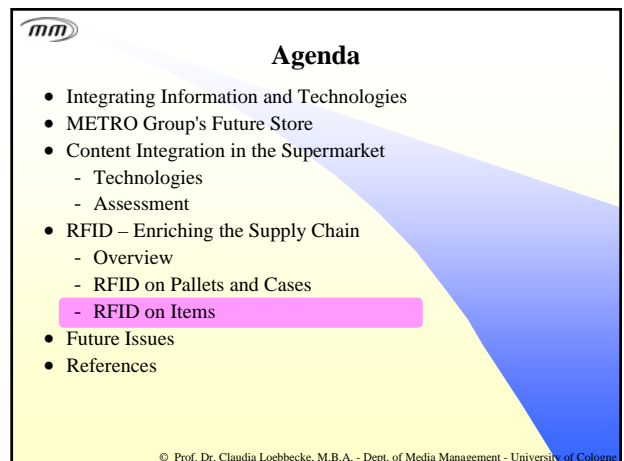
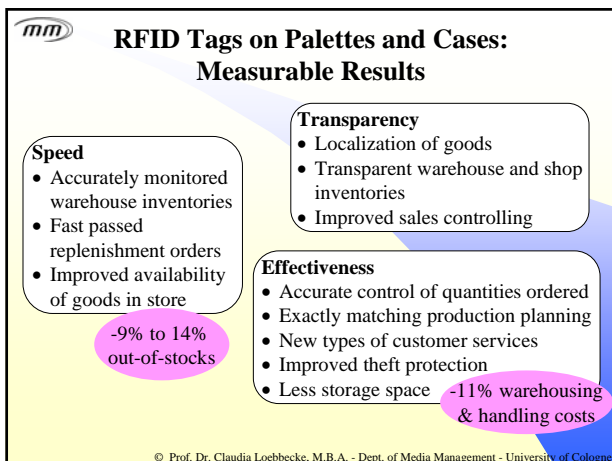
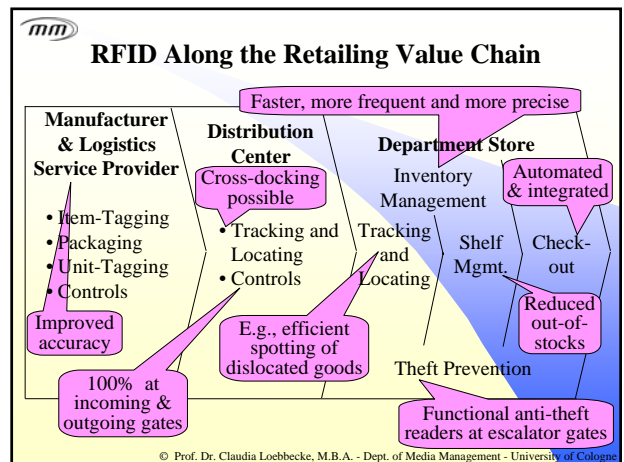
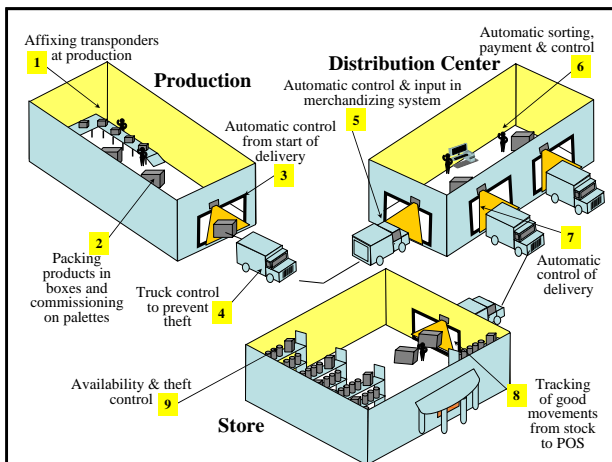
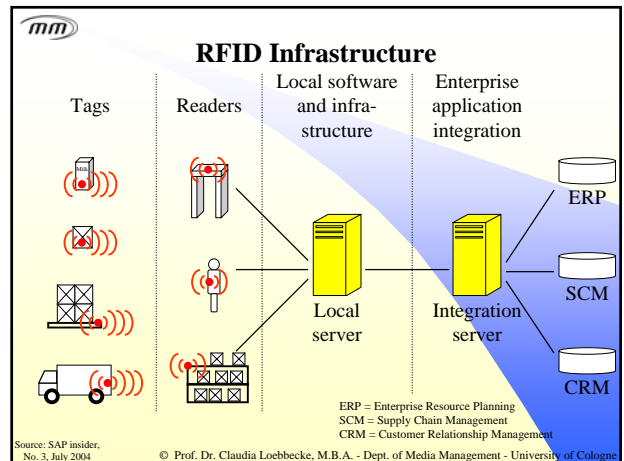
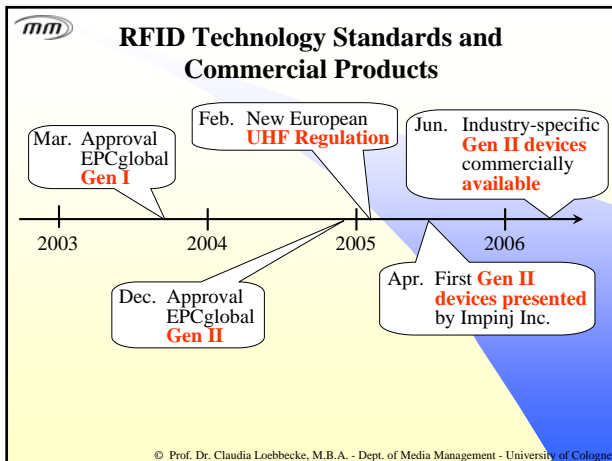
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Printers for RFID-Transponders

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RFID Tags on Items in the Future Store

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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Item-Level RFID: Testing the Intelligent Catwalk

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Item-Level RFID on Consumer Premises

Potential end-consumer applications (no roll-out yet)

Intelligent fridge

Intelligent washing machine

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Integrating Information and Technologies in the Supermarket

Goal: "Making Money" 😊

Efficiency in Store & Supply Chain

Enriching the Supply Chain - RFID -

- Possibility
- Reputation as Innovator
- Revenue for Retailer
- Profit for Retailer
- Stockmarket Value

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RFID in Retailing: Industry Potential

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

Standards!

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Future Issues

Technical

- Transmission problems depending on product material
- Metal or liquids still 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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.... Questions, Comments, Complaints ?

Thank you very much for your attention!

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RFID Journal Papers

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- Loebbecke, C. (2007) Adopting IT for Content Integration in the Supermarket: The METRO Group Case, **European Journal of Information Systems (EJIS)**.
- Loebbecke, C. (2007) Piloting RFID Along the Supply Chain: A Case Analysis, **Electronic Markets (EM)**, 17(1), 29-37.
- Loebbecke, C., Huyskens, C. (2006) Weaving the RFID Yarn in the Fashion Industry: The Kaufhof Case, **Management Information Systems Quarterly Executive (MISQE)**, 5(4), 169-179.
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- Loebbecke, C. (2004) Modernizing Retailing Worldwide at the Point of Sale, **Management Information Systems Quarterly Executive (MISQE)**, 3(4), 177-187 (*Top 10 MISQE' paper 2002-2004*).

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Recent RFID Conference Papers (2007)

- Loebbecke, C., Huyskens, C. (2007) Towards **Standardizing** Success: RFID in Fashion Retailing, **International Bled eConference**, Bled, Slovenia, June, 4-6.
- Huyskens, C., Loebbecke, C. (2007) RFID Adoption: Theoretical Concepts and Their Practical Application in Fashion, **Organisational Dynamics of Technology-based Innovation: Diversifying the Research Agenda (IFIP TC8 / WG 8.6 Conference)**, Manchester, UK, June 14-16.
- Loebbecke, C., Huyskens, C. (2007) **RFID in Media: Trials** in the Japanese Publishing Industry, **International Media Management Academic Association (IMMAA)**, Saarbruecken, Germany, July 1-4.
- Loebbecke, C., Fujita, M., Huyskens, C. (2007) Towards Item-Level RFID in the **Japanese Publishing Industry**, **Americas Conference on Information Systems (AMCIS)**, Keystone, Colorado, US, August 9-12.

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