Enabling RFID in book retail
How Centraal Boekhuis Implemented Item-Level Tagging
RFID, a fast track to losing hair
Agenda

• Introduction
• Business case (Q1 2005)
• Feasibility study (Q4 2005)
• Pilot project (Q1 2006)
• Bringing the solution to maturity (Q2 2006 - ...)

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Introduction (1)

- Centraal Boekhuis
  - Leading logistics services company for books and office supplies in the Benelux
  - We service over 500 publishers and 1800 booksellers
  - Appr. 80,000 titles on stock
  - Distribution of over 65 million copies annually
  - Over 700 employees
Business case (Q1 2005)

Business study done by LogicaCMG, together with Dutch publishers and retailers.

Publishers

- See little or no benefits in using RFID
- Focus: improve existing processes with already available technologies
- RFID is considered extra costs, no substantial benefits
Business case (Q1 2005)

Retailers

- There is a strong business case for item level tagging.
- The additional cost per item must be under €0.17
- The potential of RFID is higher in larger bookshops
- ROI can be achieved by optimizing logistic processes, eg. product availability and taking inventory
Business case (Q1 2005)

• Conclusion
  • Pull model – Retail will pull RFID through the supply chain
  • Applying tags in the logistic process ➔ Logistics partner (Centraal Boekhuis)
Feasibility study (Q4 2005)

Tests done in CaptureTech RFID lab (NL)

Test Cases:

- Scan the complete content of a CB carton box with up to 60 books inside
  - Orientation of books in all directions
  - Labels can be facing each other
- Scan the content up a cupboard shelf with up to 50 books
Feasibility study

- HF (13,56 MHz)
- Passed: No
Feasibility study

- UHF Gen2
- Tests with up to 86 books
- Passed: Yes
Pilot project (apr – nov 2006)

- Selexyz Bookstores in Almere and Maastricht
- Floor areas appr. 1000 m²
- 30,000 to 40,000 items on stock
Pilot Tagging process
Pilot project scope

- Scope of pilot implementation
  - 100% of the books must be tagged
  - Every tag contains a unique EPC
  - 100% check of goods received based on ASN
  - Kiosk application for customer self service
  - Taking inventory with a mobile scanning device
  - Signalling of misplaced books
  - Theft detection based on RFID
Pilot academic library

- Academic library of the VU in Amsterdam
- Pilot started in October 2007 (Improvement-it)
- Pilot in two department libraries with 220,000 books
- Self checkout, security, taking inventory
- 1,4 mln books in total
Pilot project result

• Based on the results of the pilot BGN/Selexyz has decided to roll out the use of RFID in all of its 16 consumer shops

• To be able to support that CB has to improve its tagging process
Bringing the solution to maturity

- Improving the RFID label
- Performance
  - Speed
  - Read rate
- Reliability
- Security
- Privacy
- Technology architecture
- Pricing
Improving the RFID label

- Up to now we have used a generally available Gen2 UHF RFID inlay
- Developing a RFID label that met our specifications has taken 1.5 years
Improving the RFID label

• Size equal to current price label (75x36mm)
• Adhesive characteristics both removable and permanent
• Design and extensive testing with different suppliers
• We planned to start using the label in November this year
• Continuous improvement
Performance

- Books have to tagged at a speed of 1 per second
- Read rate 99,99% on item level
- Writing the EPC is critical
- Boxes have to be scanned at a speed of max. 1500 boxes per hour
- Tunnel read performance is critical
- Allow tagging total volume
Reliability

- Avoid quality issues in production
- Multi vendor policy
- Clear contract, Safety stock and SLA
- Quality control on far field performance
- Knowledge throughout the company
- Centralized technology architecture
Security

- Customer application requires a password protected kill possibility
- Combination of EPC and UID
- Preferably EAS
Privacy

- Communicate to the customer
- Bring benefits to the customer
- Offer the possibility to kill the chip
- Make the EPC as meaningless as possible
Pricing

• Additional costs < €0,17 per item
• Cost effective tagging process
  • Mechanisation
  • Performance
  • Reliability
Thank You!

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