

# RFID at IKEA

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## Agenda

- IKEA corporate overview
- Background
- Business Case
- Strategy & Forecast



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# Our business idea



...is to offer a wide range of well designed, functional home furnishing products at prices so low that as many people as possible will be able to afford them

# IKEA stores



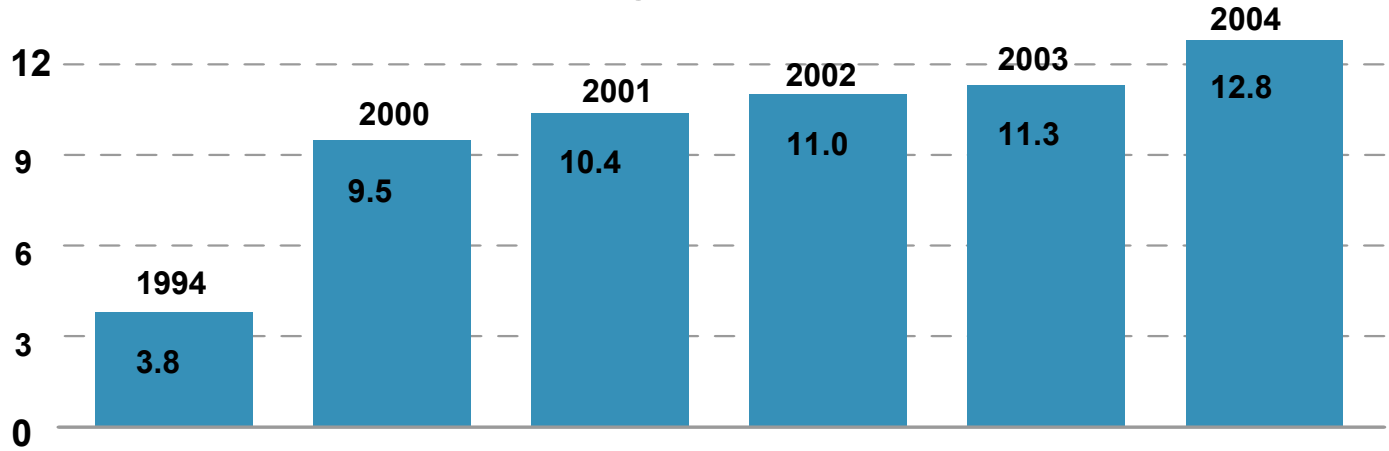
211 IKEA stores  
in 32 countries/territories:

- 188 IKEA Group stores  
in 23 countries  
*20 new openings FY 05*
- 23 stores in 14  
countries/territories run  
by franchisees outside  
the IKEA Group  
*3 new openings FY 05*

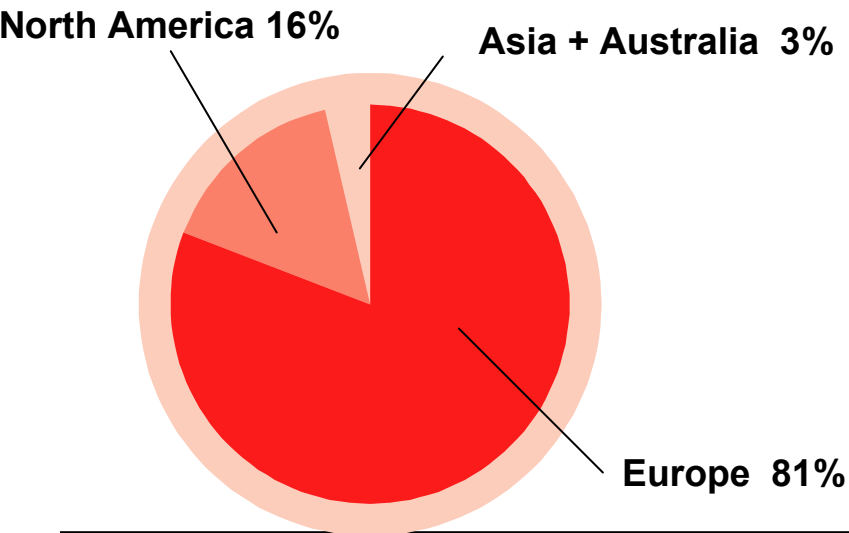
*store list on [www.ikea.com](http://www.ikea.com)*

# Sales

1994 - 2004 figures in billions of euros



## By region



## Top 5 sales countries

|                |     |
|----------------|-----|
| Germany        | 20% |
| United Kingdom | 12% |
| USA            | 11% |
| France         | 9%  |
| Sweden         | 8%  |

# Purchasing

**43 Trading Service Offices**  
in 33 countries working with  
**1500 suppliers in 55**  
**countries.**

**Top purchasing**  
**countries are China,**  
**Poland and Sweden**



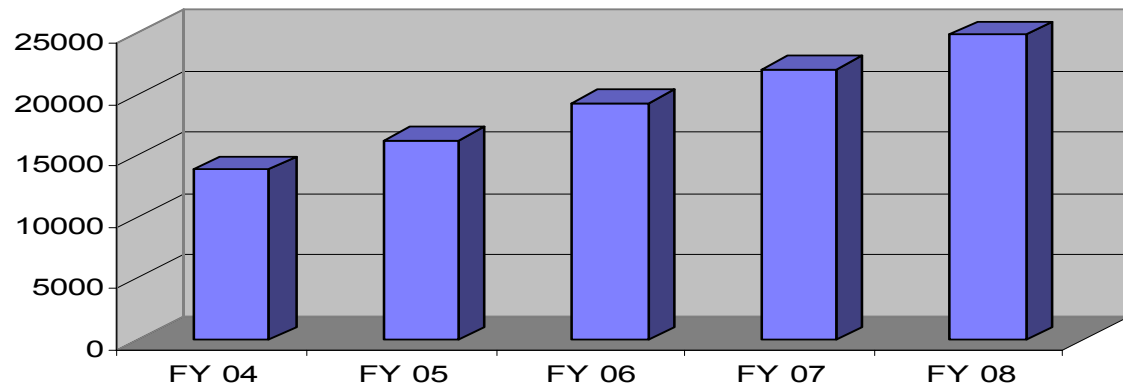
# Distribution

Secure high and stable service level  
in the stores at lowest possible cost.



30 Distribution centres  
around the world

Flow forecast (TM3)





# Why is IKEA looking into RFID

# Why is IKEA looking into RFID

- Increased availability
- Lean retailing
- Double volume
- Increased Visibility
- Improved Traceability
- Reduce Deviations





# Why is IKEA looking into RFID - Market factors

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- Decreasing costs of tags and readers
- Standards
- Increasing knowledge
- Large retailers & competitors making strategic mandates of RFID
- Huge potentials, positive ROI's



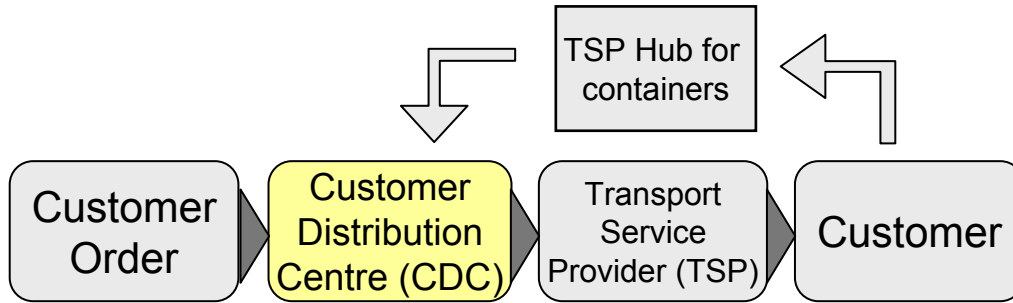
# Customer Distribution Centre Jönköping - RFID test



# Customer Order Distribution is a substantial part of IKEA sales

## Customer order process

- Orders received via internet, phone etc.
- Handling material in closed loop



## Customer order is distributed using CDC container

- Flexible carrier designed to increase filling rate in customer distribution



# Background

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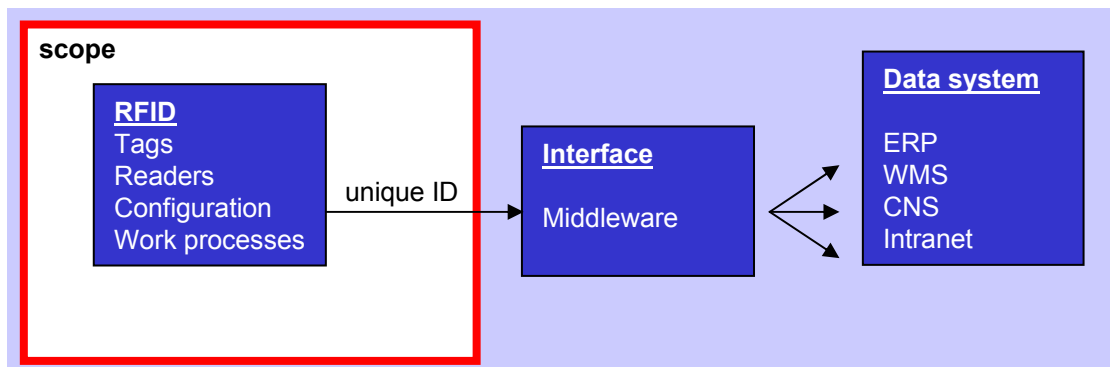
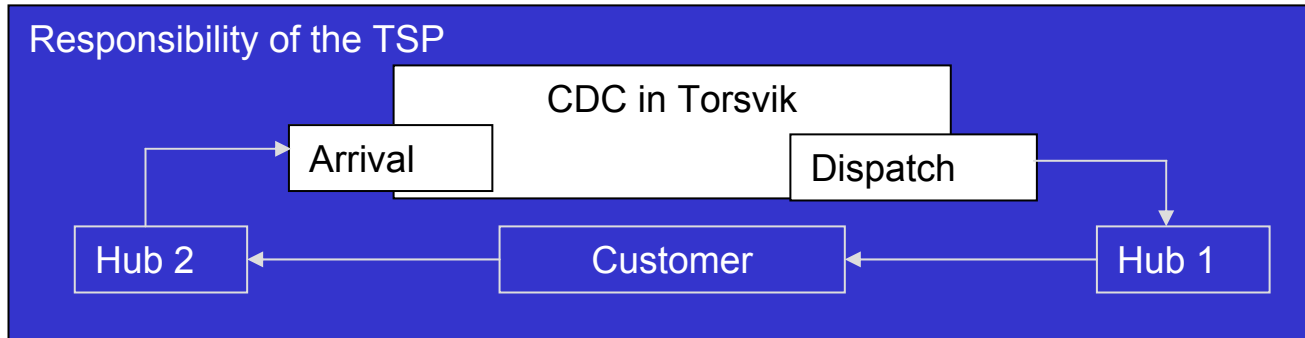
- Lack of visibility over the CDC containers, inside and outside of the CDC
- Shrinkage leading to.....
- ..... usage of EUR pallets resulting in decreased filling rate and damages



# Scope

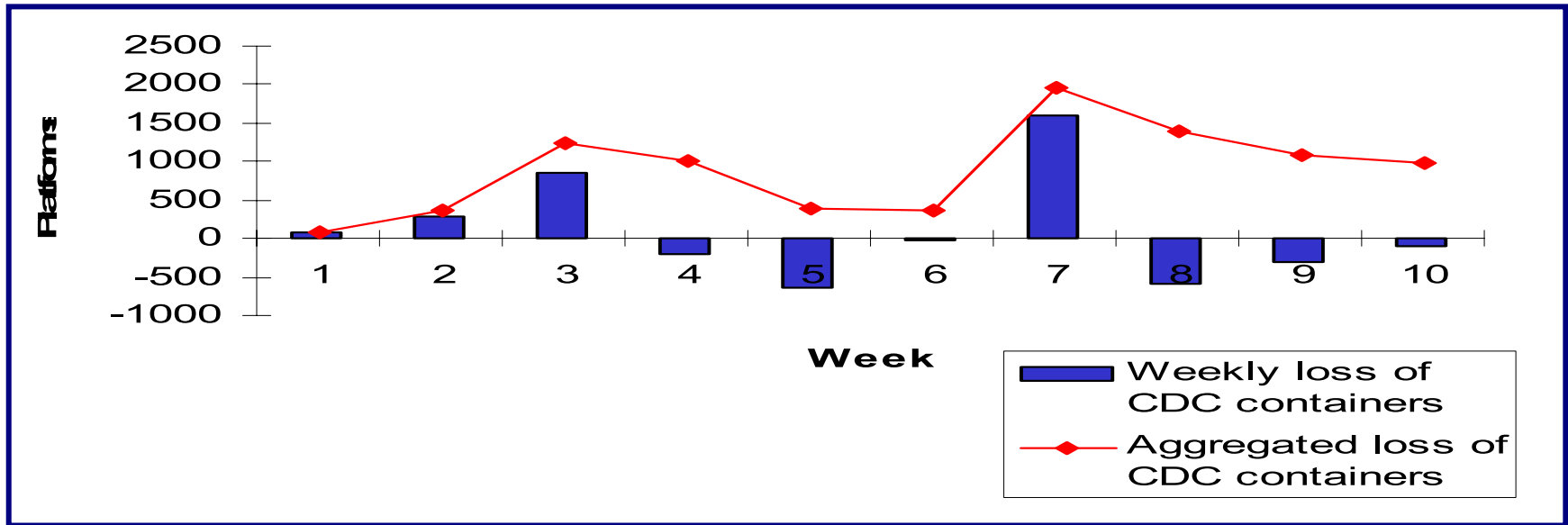
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The test was aiming to improve visibility over CDC containers as well as to gain knowledge and experience of RFID



# Profitability - losses

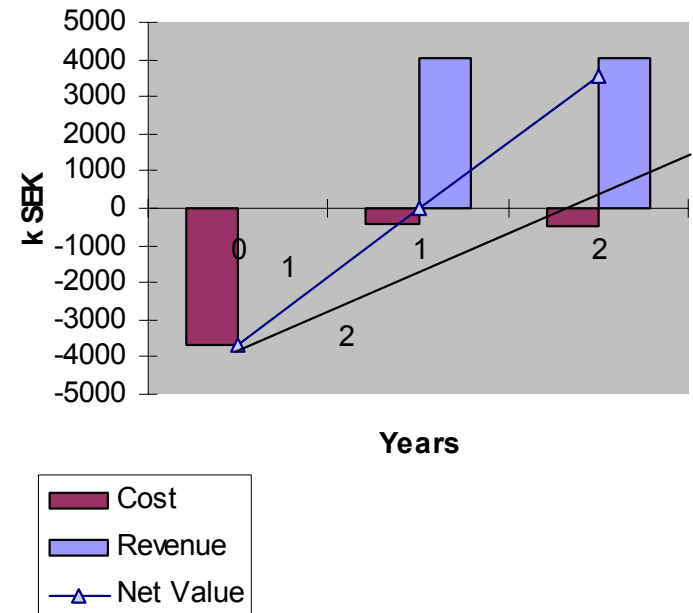
Annual losses was calculated based on two different methods and was estimated to 4 mSEK



*Losses over a ten week period*







# Implementation of RFID at the IKEA CDC is justified within 26 months

- ❖ High initial investment
- ❖ Estimated low annual cost
- ❖ Calculation based on lost containers only, no other improvements are included
- ❖ Payback period from 12 to 26 months
  - ❖ Two different scenarios



# Profitability - intangible

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| Type of benefit            | Description  | Impact  |
|----------------------------|--|---|
| Improvements in processes  | - Reducing time for manual counting  |    |
| Reduced administration     | - Automatic update of container stock balance                                |    |
| Reduced cycle time         | - Due to better visibility at IKEA the TSP's will improve internal processes |    |
| Visibility over HM         | - Better information for planning ensuring availability                      |    |
| Implementation experience  | - Every implementation is unique   |  |
| Improved knowledge of RFID | - Information that is difficult to get elsewhere                             |  |



## Our choice

- UHF 902-928 MHz
- Passive tags
  - External power source
  - Less expensive
- Read only tags
  - Unique ID can be read only
  - Information stored in database
  - Increased database load
  - Less expensive

## Alternatively

- Active or semi active tags
  - Powered by battery
  - Longer reading range
  - More expensive
- Writable tags
  - Information stored on tag
  - Can be changed
  - More expensive

There are still some problems concerning frequency standard and power regulations (US-EU)

# Metal tags



Sidebars



Platform



# Setup

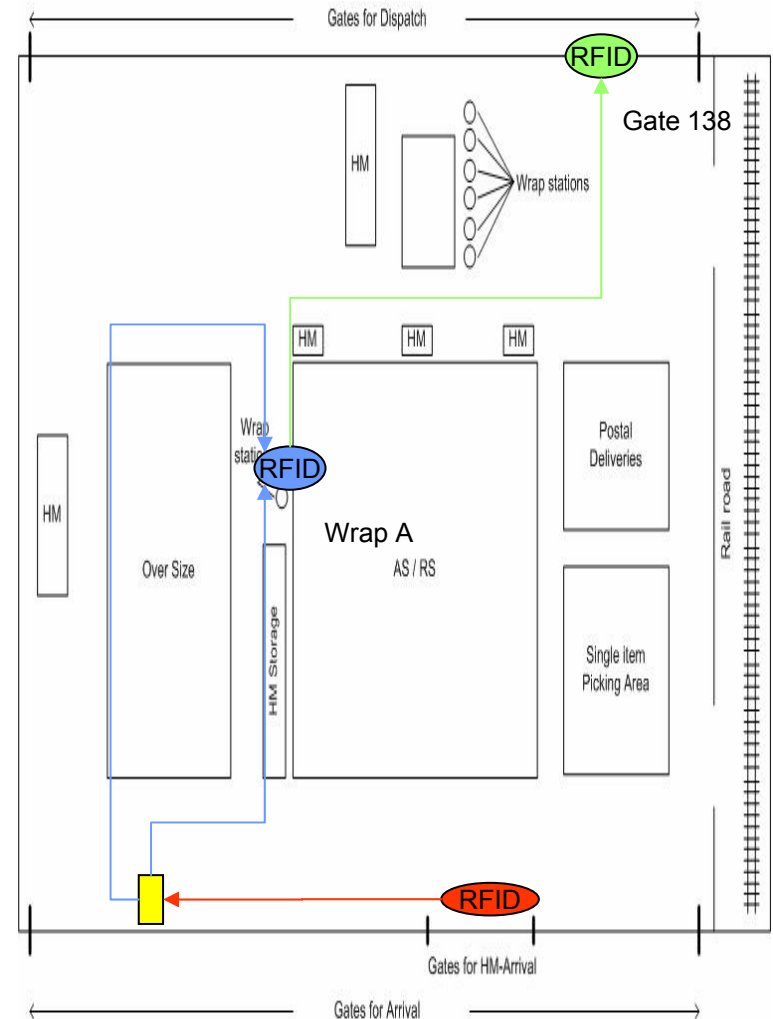
Three reading points were tested;

- Ingate
- Wrapping station
- Outgate

Platforms and sidepanels were tagged

Different tag locations were tested and evaluated.

Data was collected on a PC using WLAN



# In- & Outgate

Antennas

Reader



# Returns handling material



Antennas

Wrapping station



**100 % reading rate has been achieved...**

...at the wrap station using two antennas

...at the out-gate using four antennas

**Returned side panels can not be 100 % read due to (when using gate antennas):**

...stacked 19 by 19 made simultaneous reading difficult

...steel interferes with radiowaves

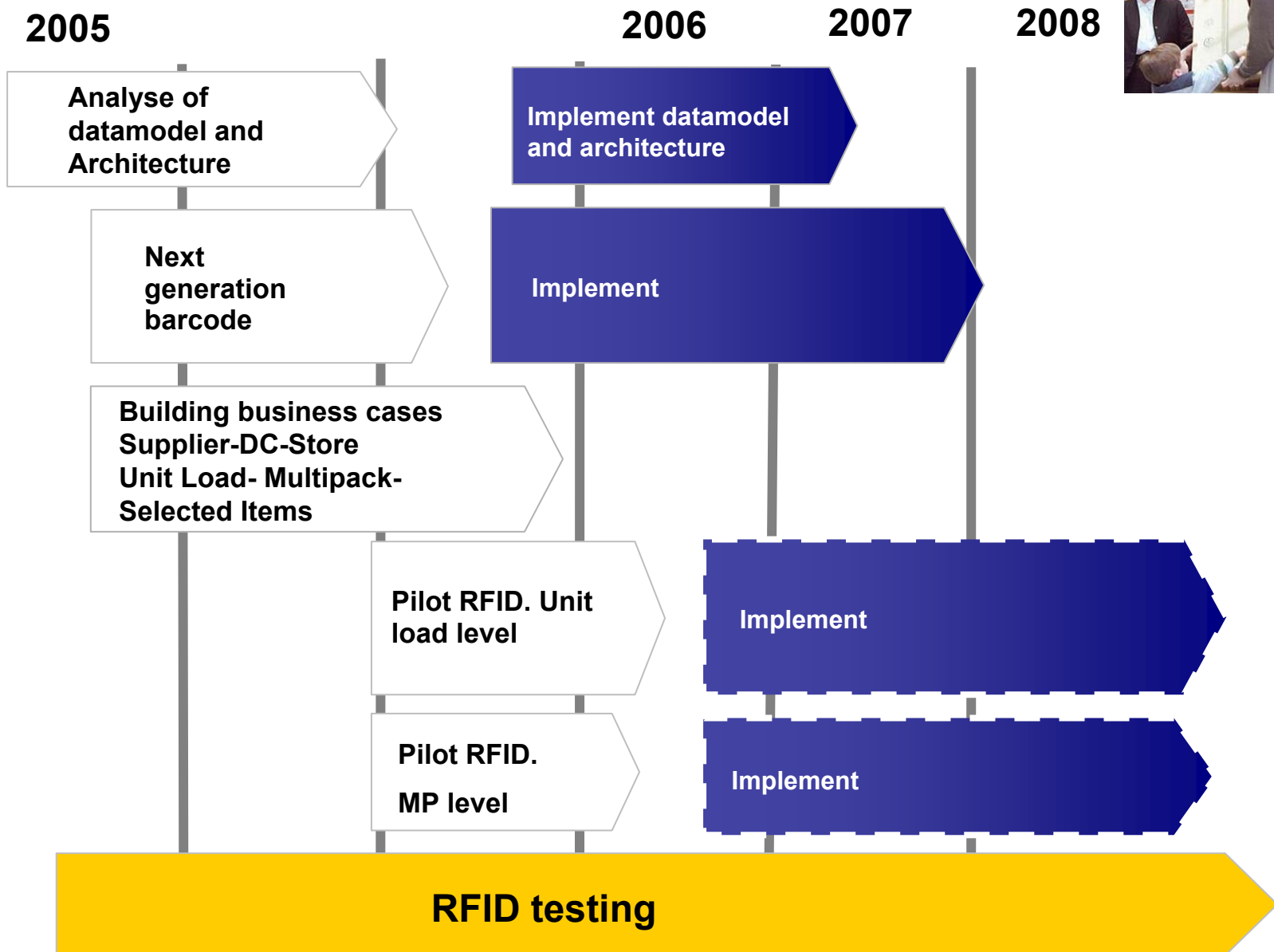


## Conclusions

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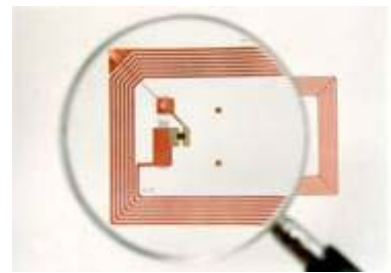
- ❖ **The tests has proved that RFID can increase control over CDC cages and can be financially justified in a short period of time.**
- ❖ **The RFID technology is “mature” and proven to work well under right conditions**
- ❖ **Every scenario must be tested in order to do a successful implementation**
- ❖ **Standards still causes confusion and problems**

# Strategy / Timeplan



# Key statements

- Keep it simple
- Share information and knowledge
- Involve SC partners
- Use open standards (EPC...), world compliant
- It is not about all or nothing!
- Learn by testing!!!





# Questions

