

“RFID Security & Privacy ...”

PRISE

April 29'th 2008.

“Towards privacy enhancing security technologies – the next steps”

Henrik Granau

CEO RFIDsec

Member of AIM EMEA Leadership Council

Member of ATA RFID on Parts Team

Participation in EICTA's RFID Workgroup

Participation in EU's open consultation on RFID

Member of EPCglobal

Stephan J. Engberg




Stephan J. Engberg is member of the Strategic Advisory Board of the EU ICT Security & Dependability Taskforce and as such involved in roadmapping and writing the Recommendations Report.

Consumer concerns



BOYCOTT BENETTON



NO TRACKING

**SEND BENETTON A MESSAGE:
DON'T BUY CLOTHING WITH TRACKING DEVICES!**

press releases

news articles

links

I'd rather go naked.

BOYCOTT GILLETTE

SEND GILLETTE A MESSAGE:
DON'T BUY PRODUCTS WITH TRACKING DEVICES!



I would rather grow a beard.

GILLETTE SPY CHIPS

ABOUT RFID

SOUND OFF TO GILLETTE

FIGHT BACK

PRESS



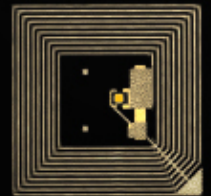
RFID
NINETEEN EIGHTY-FOUR

Spychips: How Major Corporations and Government Plan to Track Your Every Purchase and Watch Your Every Move
by Katherine Albrecht and Liz McIntyre

>> [click here](#) to order the new paperback...
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SPYCHIPS

HOW MAJOR CORPORATIONS AND GOVERNMENT PLAN TO TRACK YOUR EVERY PURCHASE AND WATCH YOUR EVERY MOVE



MAJOR FREQUENCIES IDENTIFICATION CHIP

"A chilling story about an emerging future in which spytechs run amok on Big Brother and Big Brother's inside car privacy is unprecedented ways."
-THE CHICAGO SUN TIMES

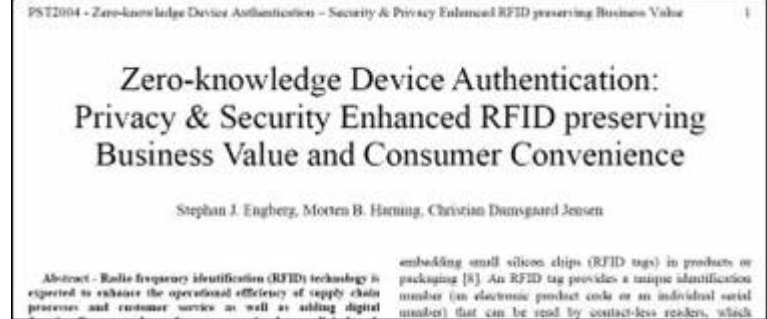
Katherine Albrecht and Liz McIntyre
Foreword by Bruce Sterling, Wired.com

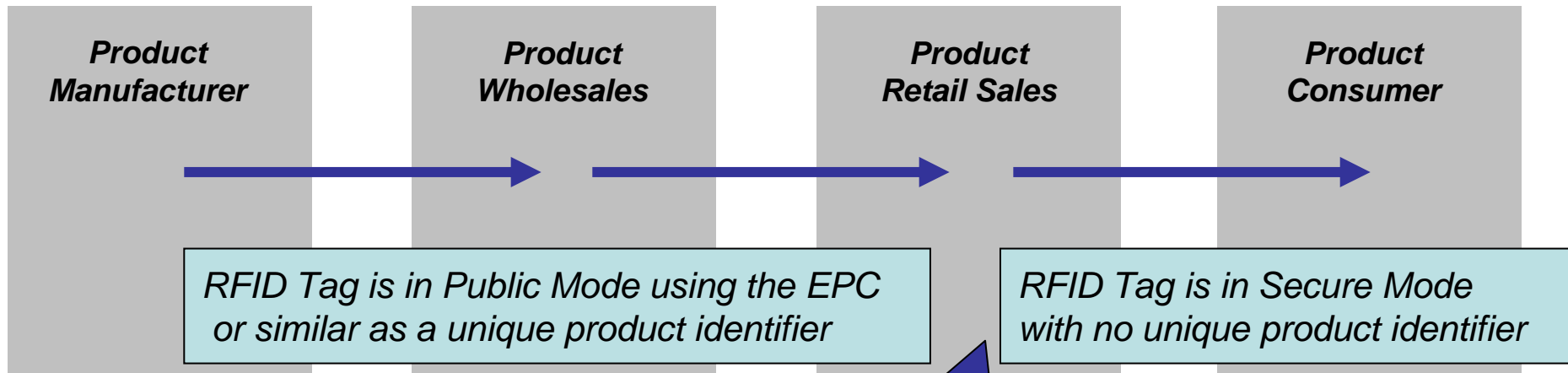
- A RFID Tag has a completely unique ID
- A RFID Tag will answer with it's ID to any RFID reader
- A RFID Tag can be so tiny that it's not visible to the Consumer
- The Consumer can not detect the RFID Tag's ID being read
- If the RFID Tag's ID of a product once has been linked to a person (i.e. in clothes) the person can be indirectly identified ("Spy Chips")

- Communication between RFID Tag and reader can be eavesdropped
- Communication between RFID Tag and reader can be recorded and later replayed
- Communication between RFID Tag and reader can be manipulated ("man in the middle attack")

- A RFID Tag can relatively easy be copied (cloned)
- Data stored on a RFID Tag can be read by others
- Data on a RFID Tag can be over written by others

- RFIDsec founded 2005
- Based upon unique Danish innovation 1999 - 2004
- Scientific Paper on RFID October 2004
- Peer Reviewed November 2004
- First Concepts launched June 2006
- First products launched September 2007





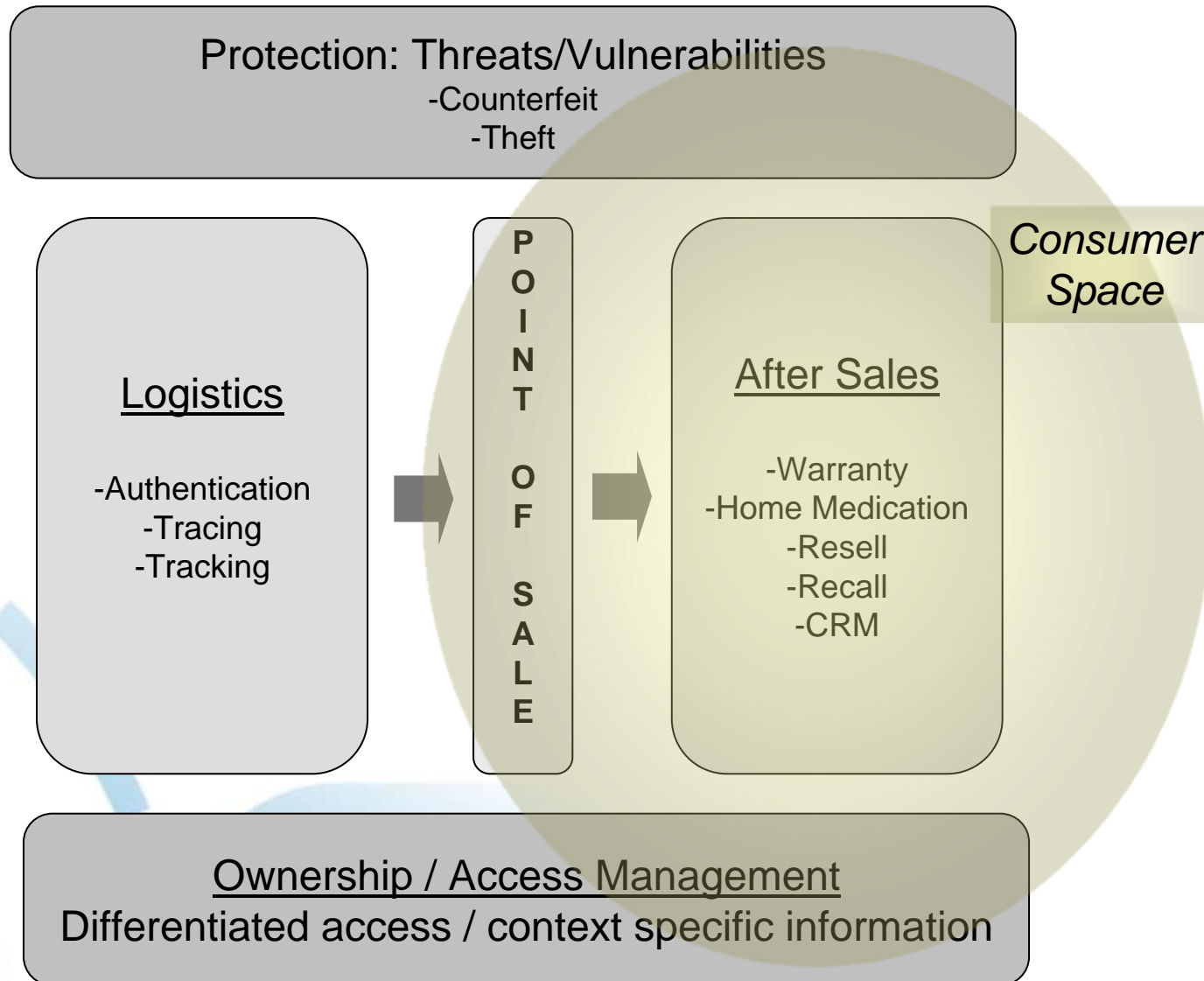
Set RFID tag into 'Privacy Mode':

- Call back to Product Manufacturer using URL from the RFID tag
- Use a service the Product Manufacturer has set up on the web to set tags into Privacy Mode
- Have the key transferred to the Product consumer via PDA, Mobile, paper or other
- The new owner can see all keys on the RFID tag

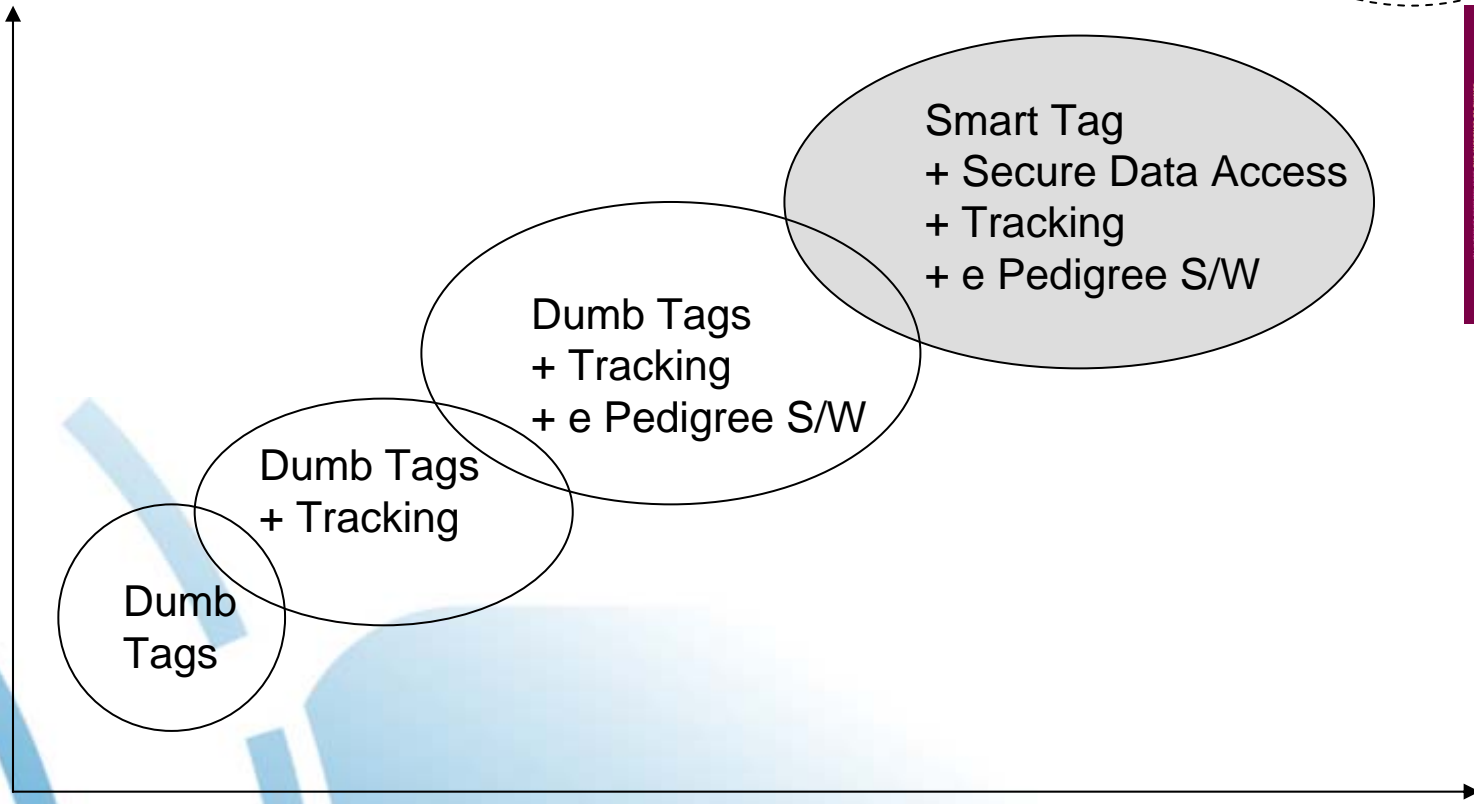
- The RFID tag will only answer to authorised requests
- The Owner (the consumer) can use the Owner key to access the RFID tag
 - Read/Write/Update/Delete information
- The Owner can add new keys which tell nothing about the product
- The Owner can allow others to access the RFID via keys
- Even with a key, it would not be possible to recognize a certain RFID, hence unwanted tracking is avoided



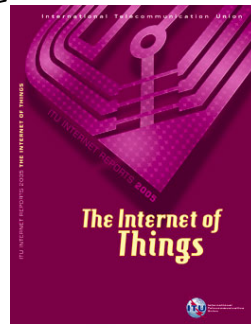
- Product Manufacturer can get information from POS
- Even with sophisticated technology a counterfeiter can not make a clone
- Retailer can let the RFID tag be alive after POS
- The End Customer can have RFID based post-sales services



Average \$
Value per Tag



Intelligent Products



RFID Tag Evolution

RFID 1.0

- Intelligent barcode →
- Static →
- Single purpose →
- One Access Point →
- Auto ID →
- Limited security →
- Use in Supply Chain →

RFID 2.0

- RFID as a computer
- Dynamic
- Context aware
- Multiple Access Points
- Collaborative usage
- Rich security
- Use in full Product Life Cycle



Design patterns and Business Models for a New Generation of RFID Solutions.

Henrik Granau
12/11/2007

Market expectations that widespread deployment of RFID for item-level tagging would by now be commonplace are being viewed as exaggerated by some industry watchers.

However, as Geoffrey Moore ("Crossing the Chasm") and others have observed, "bubbles" and their consequent shakeout are a natural process for most new technologies. Shakeouts typically mark the point at which an emerging technology is ready to take off. Clayton Christensen ("The Innovator's Dilemma") highlights how truly important breakthrough, 'disruptive', technologies are often rejected initially by mainstream customers.

Could it be that the early disappointments with expectations for item-level tagging now mark a turning point for RFID? **RFIDsec** and our global partners believe that RFID technology is now more important than ever. We see exciting new possibilities, based on the new generation of RFID Solutions" or "RFID 2.0."

Although the term "Web 2.0" suggests a new version of the Web, it does not imply an update to any technical specifications, but to changes in the ways that developers and end-users can now use the Web, moving from pure content provision to collaborative development of content.

With RFID, it is different. In addition to changes in the ways that developers and end-users can use RFID technology, "RFID 2.0" will require enhanced security in the RFID Tags and in the communication between Reader and RFID Tag.

This article is an attempt to clarify just what we at **RFIDsec** mean by "RFID 2.0", the new generation of RFID Solutions.

Today's perspective

Although the principles of RFID technology are more than 50 years old, **RFIDsec** considers that the AutoID Labs and EPCglobal initiatives, driven primarily by WalMart and DoD, mark the beginning of the widespread use of RFID technology.

In many cases it is still hard for manufacturers to justify an investment in RFID. When the focus is often only on replacing barcodes, the manufacturer has to carry the bulk of the costs, while the benefits are spread over the entire supply chain. This is seen as a major inhibitor to widespread adoption of RFID technology, at least until the involvement of the large retailers.

The lack of volume demand means a relatively high unit production cost of RFID tags, further limiting economic business cases for RFID. A variety of RFID implementations, based upon various standards, typically specifying just the lower level, technical communication interfaces, is a further obstacle to widespread adoption and significant volumes.

The Commission concluded from the initial analysis of public consultation results that:

- It is necessary to develop an effective set of European rules, based on transparency and choice, to support the development of RFID;
- Particular effort needs to be invested in explaining the risks and benefits of RFID to the general public;
- The issue of privacy needs to be seriously addressed, in particular through ongoing research into privacy enhancing technologies.

Commissioner Reding also highlighted the need to act on a global scale and renewed her commitment to strengthening international dialogue on RFID.

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- The Technology has to be designed in a way which enables the user of the technology to be in complete control of information
- This has not earlier been a significant design criteria
- If users in general continue to 'live with the disadvantages' we will never get any further!
- RFIDsec is a private funded company, which has invested a significant amount to show that it's possible
....

■ Pilot Projects:

- Carl Hansen (Designer Furniture)
- DGM (Dangerous Goods)
- TagVision (Libraries)
- Asset Management

- Reusable Containers
- Aviation Industry
- Military
- Pharma
- "Consumer Privacy" with partners





Fyens Stiftstidende

www.fyens.dk

Chip som våben mod møbeltyve

Aarup-virksomheden Carl Hansen & Søn bygger sladrehank ind i designklassikere

AF CHARLOTTE PEDERSEN
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Møbelbutikant Carl Hansen & Søn i Aarup tager som den første møbelbutikant i Danmark en krypeteret chip i brug i kampen mod tyve med hang til design-ikoner.

Aarup-virksomheden er kendt for sin produktion af eksklusive Wegner-møbler, der sælger overordenligt godt i forretningerne, men også er stærkt eftertragtede i den kriminelle verden.

1. april begynder vi at bygge en lille chip ind i de dyreste af vores møbler. Chippen er så lille, at den ikke kan ses, men den er krypeteret og kan aktiveres med et særligt apparat, hvis man står tre-seks meter fra den. Vi registrerer møblerne på edb, og på den måde vil vi kunne få vished for, om det er et af vores originale møbler, siger direktør Knud Erik Hansen, hvis virksomhed ved juletid fik stjålet et anseeligt parti Wegner-klassikere fra et lager i Nyborg.



Nogle af møblerne var nummererede jubilæums-udgaver, tyveriet løb op i en halv million kroner, og møblerne er pist forsvundet.

Tyveriet var dét, der gjorde udslaget til, at vi tager den her teknologi i brug. Med den håber vi at kunne dæmme op for både tyverier og kopier.

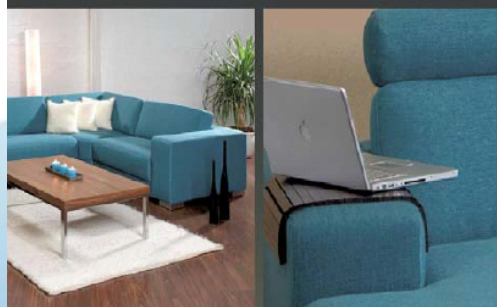
Chippen kræver en del edb-udvikling og administration, men nu prøver vi, og meningen er, at det skal blive en fast del af produktionen, fastslår direktøren, hvis virksomhed har oplevet så stor efterspørgsel på møbelklassikerne, at den i løbet af de næste fem år har 10-doblet sin omsætning.

1. SEKTION SIDE 2 >

Wegner - nu med chip

Carl Hansen & Søn i Aarup blev lænset for designklassikere til en halv million - nu udstyrer fabrikken som den første møbelbutikant i Danmark sine møbler med krypeteret chip

END BAZAAR RES 4800 m2 STORE BOLIGHUS



litet... Kan sammensættes efter behov. Flere farver og stoftyper.
bude og armbord. 16750,-



- Nu forsøger vi at dæmme op for tyverier og kopier, siger direktør Knud Erik Hansen fra Carl Hansen & Søn. FOTO: YLMALE POUlsen

Den er krypeteret, den koster en euro (7,50 kroner), og den er møbelbutikantemes sidste nye sværd i kampen mod møbeltyve og kopi-pirater.

1. april begynder Aarup-virksomheden Carl Hansen & Søn som den første møbelbutikant i Danmark at bygge en lille chip ind i de dyreste af sine Wegner-klassikere, som ikke blot den designglade forbruger, men også den kriminelle verden har set sig lun på.

Tyverier og kopier er et stadigt stigende problem i møbelbranchen, og da Carl Hansen & Søn ved juletid blev lænset for designklassikere for en halv million, blæste direktør Knud Erik Hansen til angreb.

Nu forsøger vi at dæmme op for tyverier og kopier. I første omgang indbygger vi en chip i de største af vores møbler, så vi - hvis vi kommer i nærheden af et af vores stjålne møbler - kan finde ud af, om det er en af vores regi-

strerede originaler. Chippen kan aktiveres, hvis man står inden for tre-seks meter af møbellet, og det er i hvert fald forsøgt værd, siger Knud Erik Hansen.

Umulig at kopiere

Den danske møbelbranche har i adskillige år ledt efter en fælles, teknologisk tyverisikring, men selv om tyverier og kopier griber om sig, er der endnu ikke fælles forslag i branchen, og nu tager Carl Hansen & Søn første skridt på egen hånd.

Virksomheden har købt chippen af den danske virksomhed RFIDsec, og fidusen ved den nye teknologi er, at chippen er krypeteret.

Den indeholder et krypeteret område, så vi til enhver tid kan se, om det er et af vores, originale møbler. Tyvene kan godt kopiere chippen, men så kan vi se, at den er kopieret. De kan ikke pille ved den krypeterede del, siger Per Latorn, it-chef hos Carl Hansen

& Søn.

Det fynske initiativ bliver fulgt med spænding hos blandt andre Fritz Hansen A/S, der bruger millioner af kroner på at sikre sine møbler, hvadenten det er mod piratkopier eller tyverier.

Hvis en virksomhed f.eks. køber et parti svære, kan vi også forsyne stolene med et firmalogo i ryggen, så tyvene nærmest skal bore i stoleryggen for at få det væk, siger Jan Hellekov, hvis virksomhed også bruger røgkanoner i sine show-rooms.

Røgkanoner

Fritz Hansen har en omfattende kollektion af de mest eftertragtede designere med Arne Jacobsen og Poul Kjerholm som et par af frontfigurerne.

Carl Hansens initiativ vil vi helt sikkert følge. Chippen er meget interessant, og det er noget, vi overvejer, men på den lange bane. På den korte har vi ikke tænkt os at bruge chippen - vi venter på det, vi synes, er den rigtige teknologi, siger Jan Hellekov, chef hos Fritz Hansen, der bruger andre metoder for at tage modet fra hysky elementer.

For en lille håndfuld år siden begynde virksomheden

at give blandt andre Poul Kjerholm-møblerne stelnumre.

På den måde kan vi spore, om det er et af vores møbler. Det gør det svært for tyvene.

Skulle en tyv smadre et vindue i et showroom, bliver både han og møblerne indhylllet i røg. Det sker i løbet af 30 sekunder, og så skal man ikke bare være langfingeret, men også overordenligt hurtig for at slippe af sted med andet end en lang næse.

AF CHARLOTTE PEDERSEN
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RFIDsec Partner DGM-SS using RFIDsec secure tags for Dangerous Goods Management

Tag-it to logistic
Tag-it from web

dgm
SECURITY SOLUTIONS

SECURE RFID-tag TECHNOLOGY

We are connecting secure RFID-technology to logistics solutions

! DANGEROUS GOODS - ON THE INTERNET


-truck driver, warehouse & administration!
-Dangerous Goods document and look-up!
-PC, PDA & Smartphone solutions!

Dangerous Goods data sheet
Direct web look-up for transfer to document.
Direct web look-up to dangerous Goods data
- Parcel and tank carrier data.

Transport Module 1:
*Classification information:
- after selected UN number and/or
- after substance name

*Drivers check list:
- after selected UN number in 30 country languages.
- after selected UN number in 42 country languages.
- and transfer to transport document.

Transport Module 2:
Track and trace
Station
Can bus data
Surveillance of vehicle
Temperature control
RFID tag module



We are connecting secure RFID-technology to logistics solutions

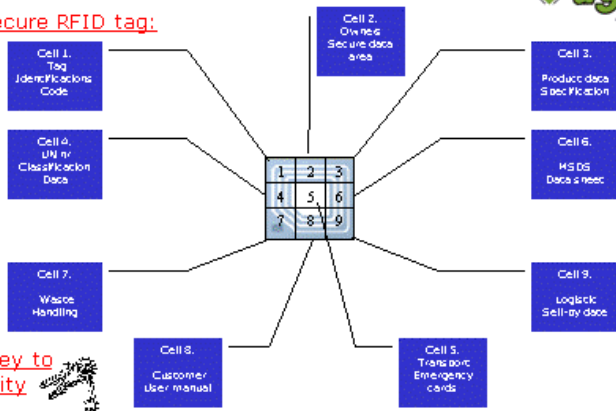
Tag-it to logistic
Tag-it from web

Secure RFID tag solutions.

- Our RFID Access Management application allows the tag owner to control access – both read and write – to the RFID tag.
- Our RFID Authentication application provides a trustworthy and reliable authentication of the RFID tag and can be used as an effective anti-counterfeiting measure.
- Our RFID solution can be integrated in existing IT systems or implemented as a stand-alone solution.
- Our secure RFID solution can be integrated in supply chain logistics.

We are connecting secure RFID-technology to logistics solutions

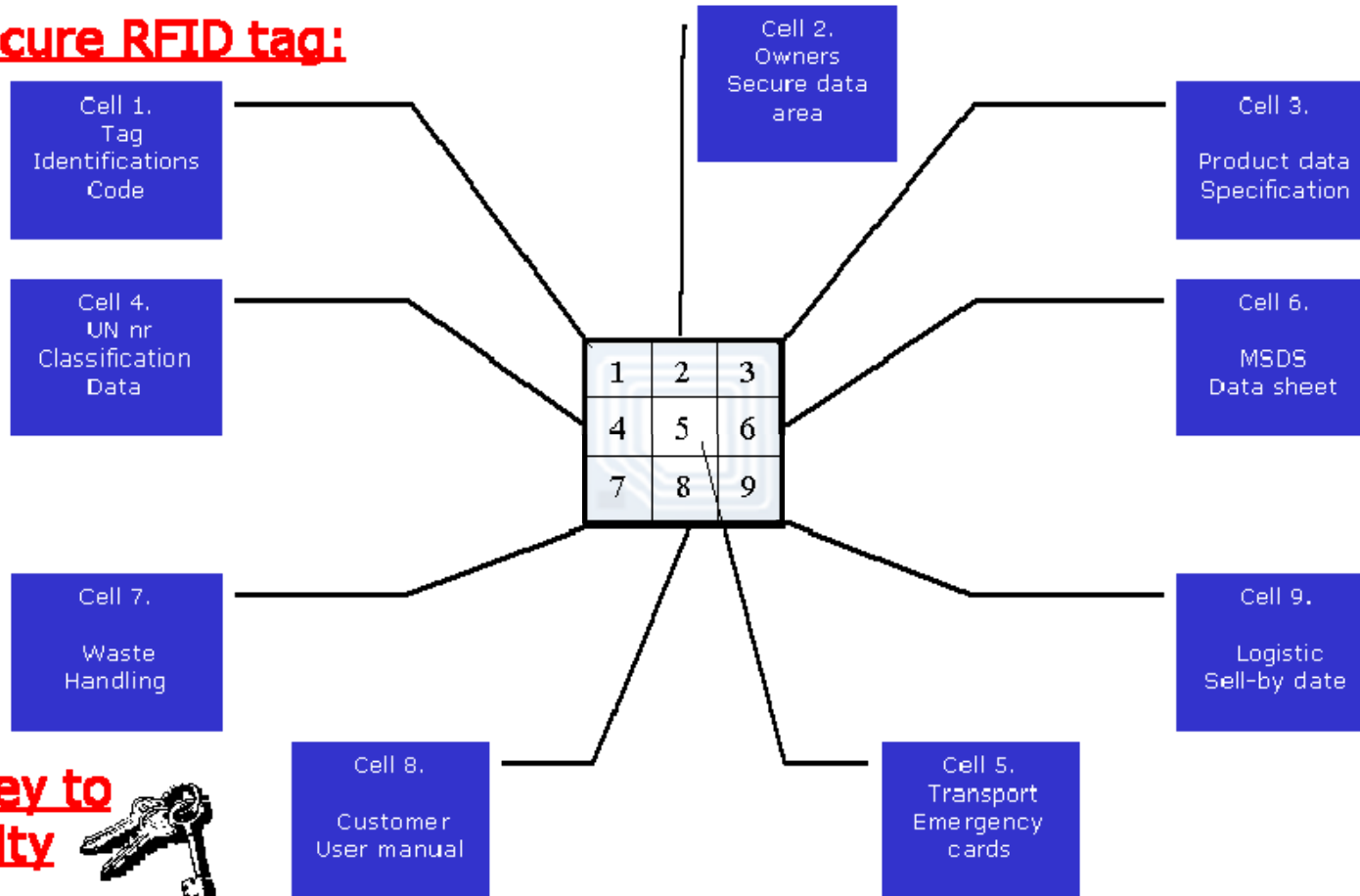
Secure RFID tag:



The key to Security

We are connecting secure RFID-technology to logistics solutions

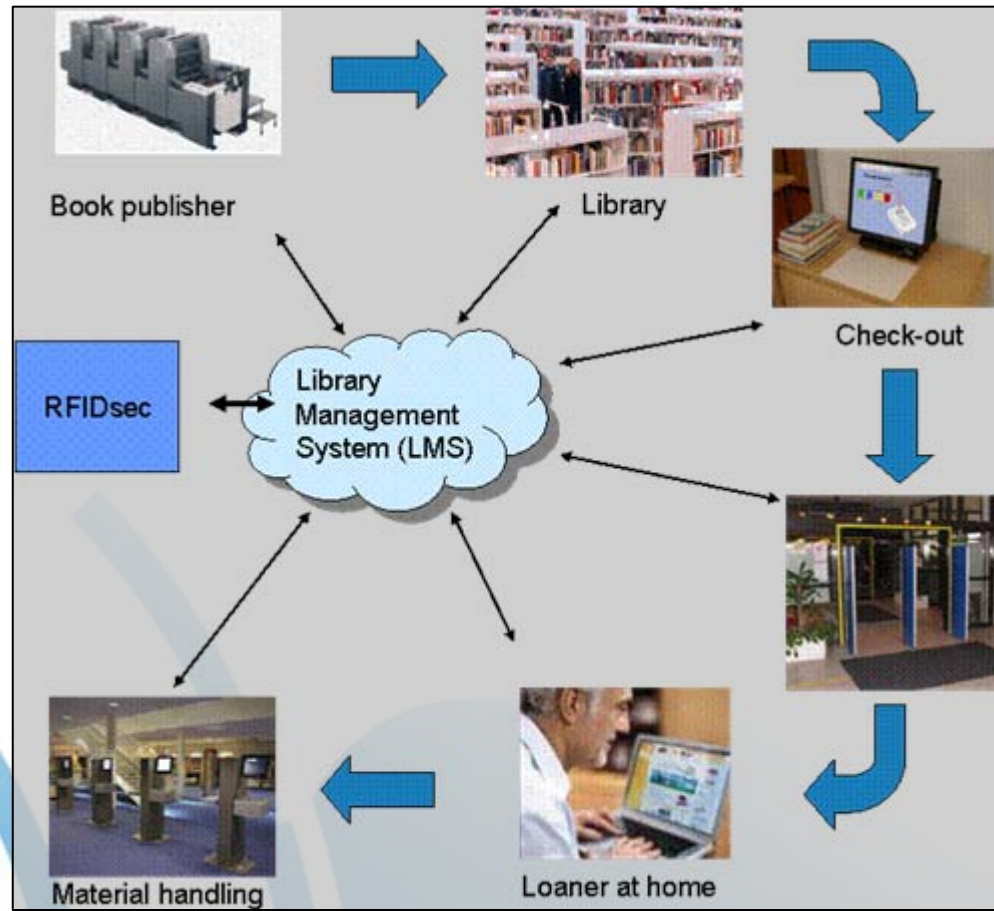
Secure RFID tag:



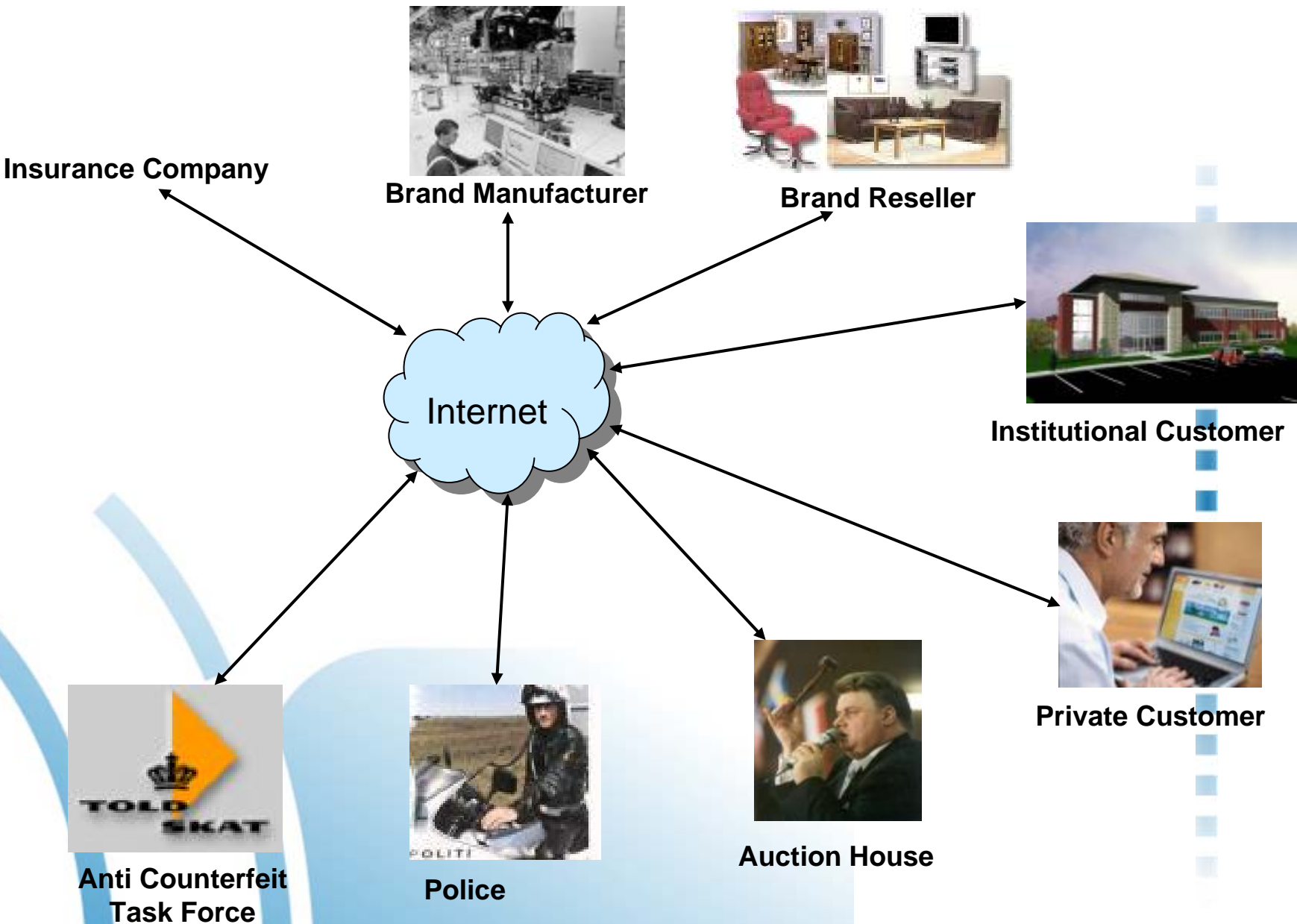
The key to Security



- Using RFIDsec secure tags for libraries



Prime reason: the RFID Tags can remain silent when outside the Library!



Thank You

- Questions ?



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