

RFID: Anwendungen, Chancen und Risiken

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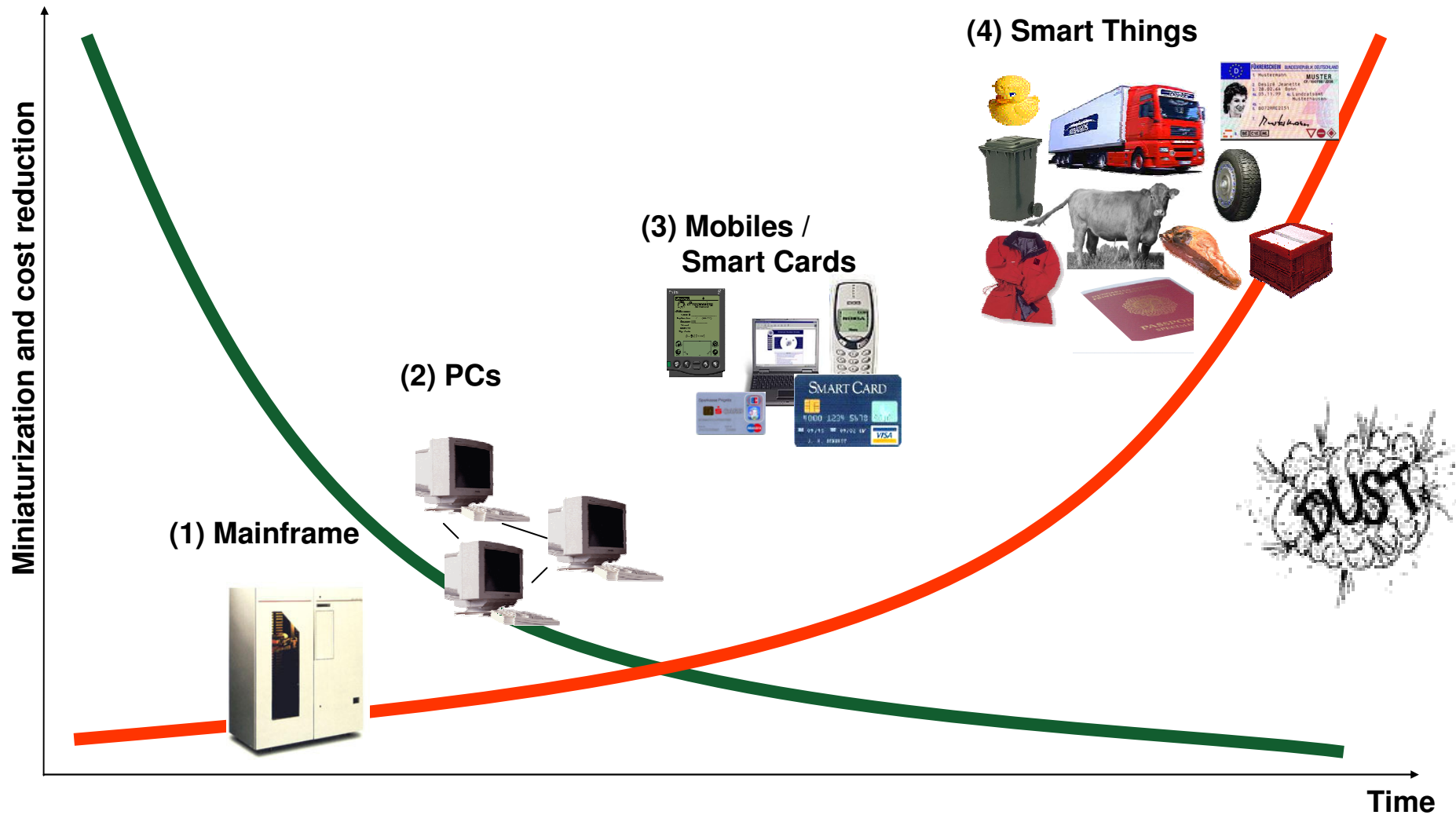
Münchener Kreis

München, am 24. November 2004

Agenda

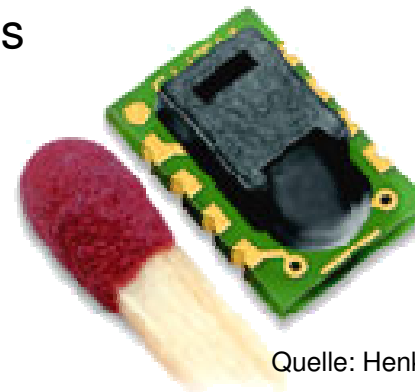
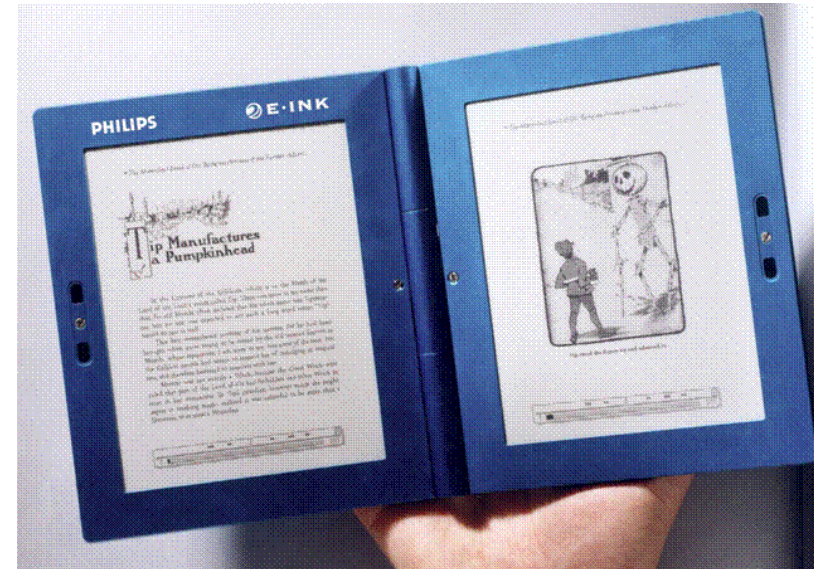
- Technology Trends
- Business Drivers
- The Internet of Things
- Management Agenda

Recent advances in miniaturization, ...



... sensor & communication technology, and new materials drive for a new computing paradigm.

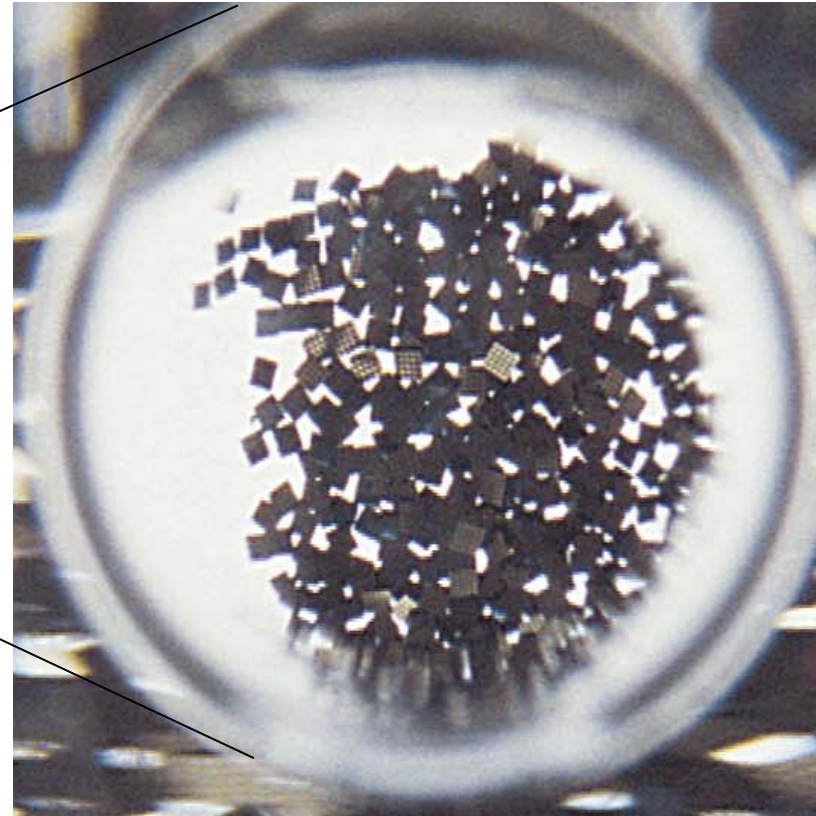
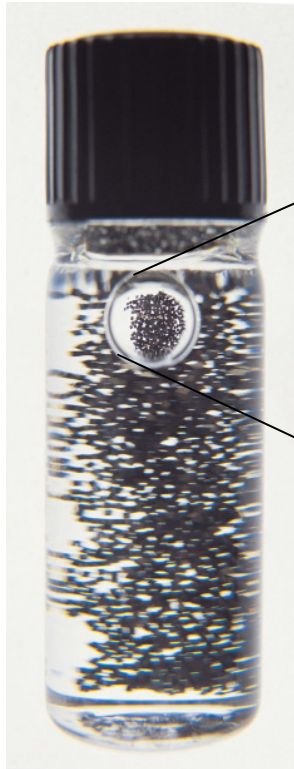
- Communication protocols
 - Wi-Fi
 - Bluetooth
 - RFID
 - ZigBee
- Sensors
- Polymer-based electronics
 - Organic light emitting diodes
 - RFID
 - Sensors
 - Actuators



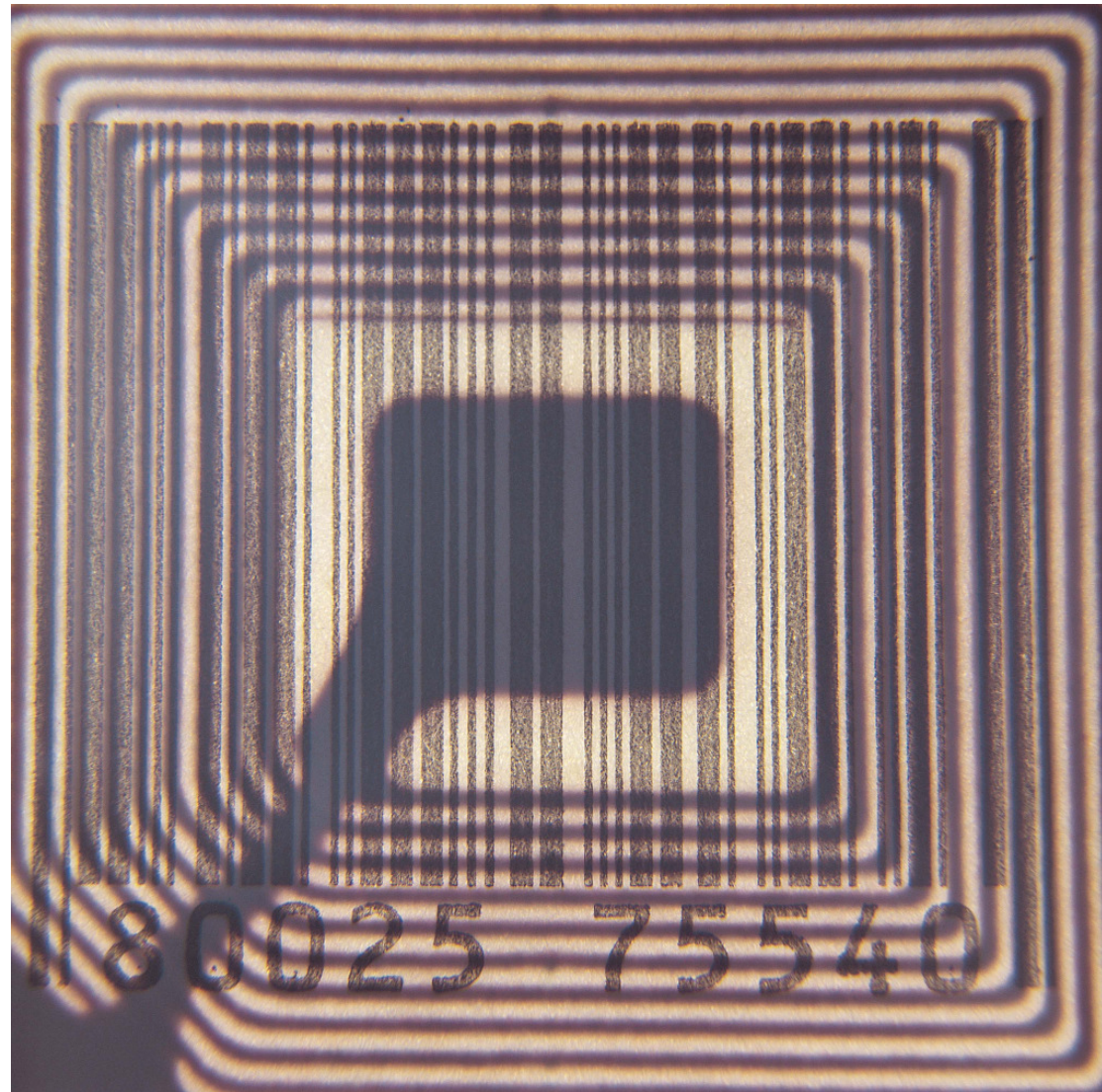
Quelle: Henkel



Low cost minicomputers ...

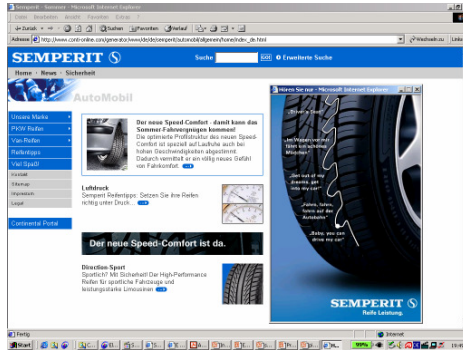


... with mobile communication capabilities ...



... finally help to implement the vision of ubiquitous computing.

Virtual world



Real world



Agenda

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But what is it good for? No technology for technologies sake.



The lack of integration ...

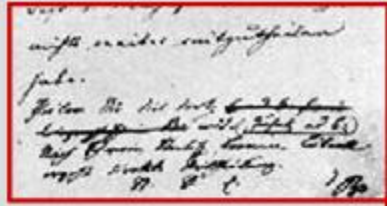
- Out-of-stock
 - Average OOS level in retail industry: 8.3%
 - Average OOS level in direct store delivery product categories in US: 7.4%
- Shrinkage
 - Average shrinkage rate for supermarkets/grocery in US: 1.5% of sales
- Invoice inaccuracy
 - Average deduction level: 9.9% of annual invoiced sales in US
- Unsaleable products
 - Cost of unsaleable food and grocery products in US: 1% of sales
- Inventory data inaccuracy
 - Mean difference between physical and book inventory in a single case study: 6.8 units per SKU or on average 35% of target inventory

Source: C. Tellkamp, E. Fleisch, Auto-ID Lab St. Gallen

... between the real and the virtual world ...



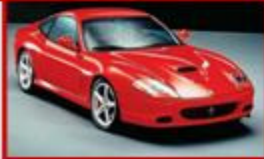
Konstantinische Schenkung



Emser Depesche



Himmelsbriefe



Source: Koblischke, Lüpke, MBA Thesis, HSG

... causes many tough business problems ...

- Counterfeiting
 - Product counterfeiting is estimated to account for between 5 and 7% of world trade, with a value of 280 billion USD.
 - 30% of pharmaceuticals in the developing world and 6-10% in the developed world are counterfeits.
- Medication errors
 - Non-compliance with medication in the US causes 125,000 deaths yearly, 11% of hospital admissions and 23% of nursing home admissions.
 - Preventable medication errors in the US cause between 44,000 and 98,000 deaths yearly.
- Handling cost
 - Up to 25% of a physician's time is spent for filling in forms, computer entry and data searching.
- Recall
 - In the automotive industry in Germany, there were 113 official recalls in 2001.
 - In 2000, Firestone had to recall 14.4 million tires of which 6.5 million were still in use.

Source: <http://www.idtechex.com/smarthealthcareusa/index.asp>, C. Tellkamp, T. Staake, E. Fleisch, Auto-ID Lab St. Gallen

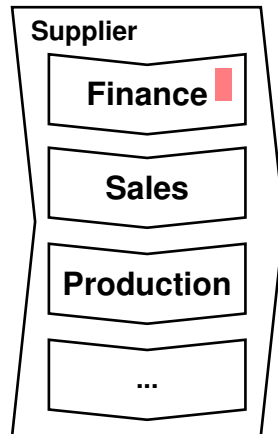
... some of which also have become a target for legislation.

- The guidance of the FDA
 - 2004, Performance of Mass Serialization/RFID feasibility studies
 - 2005, Mass Serialization of some packages, cases & pallets likely to be counterfeited
 - Use of RFID by some manufacturers, large wholesalers and some chain drug stores and hospitals
 - 2006, Mass serialization of most packages, cases & pallets likely to be counterfeited
 - 2007, Mass Serialization of all pallets & cases and most packages
 - Use of RFID by all manufacturers, wholesalers, chain drug stores, hospitals and most small retailers
- EU Laws
 - Food traceability
 - Electronic waste recycling
 - Product liability
- Portugal
 - 2D Code on drug packages starting since January, 2004
- Italy
 - SSN: « Bollini » Law 388 Dec. 23, 2000 & DDL Aug. 2, 2001
 - Recommendation for Patient Safety in the Medical Practice
- CEN TC 251 Health Informatics
 - Tech Report SAFE ID N00-049 – Safety Procedures for Identification of Patient and Related Objects
- Florida
 - July 2003, pedigree for Top 30 drugs
 - July 2006, pedigree for all drugs
- Department of Defense
 - June 2004, detailed Implementation & Roll out RFID Plan.
- Wal-Mart
 - June 2004, all CII drugs into Bentonville

Source: Auto-ID Lab Health Care Initiative, M-Lab


Information system integration did not stop here ...

Phase 1: Computerization of individual functions
(support of isolated functions such as invoicing)



... because interfaces were still bio-mechanic.

reparalux
 1, rue Gay-Lussac
 BP 1453 - 25007 Besançon cedex



Spécialiste terminant
 Tous câbles soudeés
 Atelier de service
 après-vente

Nombre de page 1

TELEPHONE 03 81 50 34 77
 ou 03 81 50 23 87

TELEFAX 03 81 50 07 65

A l'attention de Service Fournitures Besançon, le 16.06.00

Société: ETA

de la part de: M. BADEY

MESSAGE

Veuillez trouver ci-joint, une
 commande de
 5 Mouvements. Cal 201.001
 H^t Aiq. 3.

10 Chauffés HT. Aiq. 1
 10 Roues des heures. u u

Cal 201.001.

Expédit. à: Par transitaire TREMAIL
 Avec nos remerciements.

ETA S. A.
 Fabriques d'Etauches
 Customer Service
 2540 Granchen
 Tél. + 41(0)32-456-2777
 Fax + 41(0)32-455-8431

DELLSTIER & CIE S. a r. l.
 GRAND-RUE 36
 2732 RECONVILIER

Granchen, le 16/06/2000

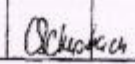
CONFIRMATION DE COMMANDE No. 5100-06121

N ^o /No. client	3401 / 1706004	Date	16/06/00
V/référence	14.06.2000	N/référence	00
V/numéro	FAX NO 85	N/dossier	8
V/date	16/06/00	N/No FAX	102 205
TVA	7,5 %		
Cond. paiement	5 à 30 jours, 60 nos	Déclarations dans les 15 jours	

REFERENCE	DESCRIPTION	ABSOLO	MOQU	QUANTITE	PPrix	%	MONTANT CHF
06009.97002	MOUVEN	ELECTRONIQUE	20	1 Pcs	519.00		5.30
1239.236.02		122225					
978.002							
Valeur marchandise							5.30
Montant minimal à facturer 50.-, différence							44.70
TVA 7.50 % SUR CHF 50.00							3.75
TOTAL							CHF 53.75

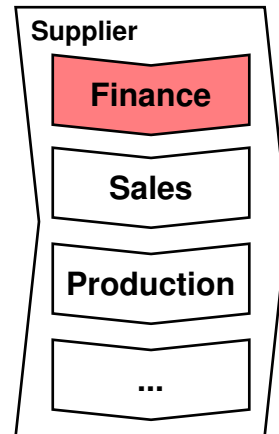
ETA S. A.
 Fabriques d'Etauches

+ 5 mouvements cal. 95C/14 aig. 1. sans secondes
 à ajouter sur cette commande, afin de nous être
 les 50- de plus

Salutations


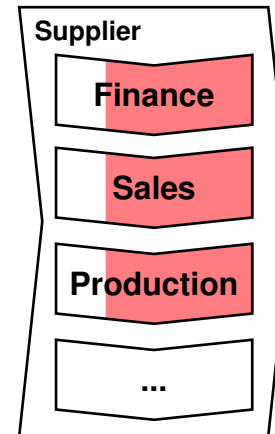
Information system integration did not stop here ...

Phase 2: Computerization of functional areas
(integrated functional areas such as financial accounting)

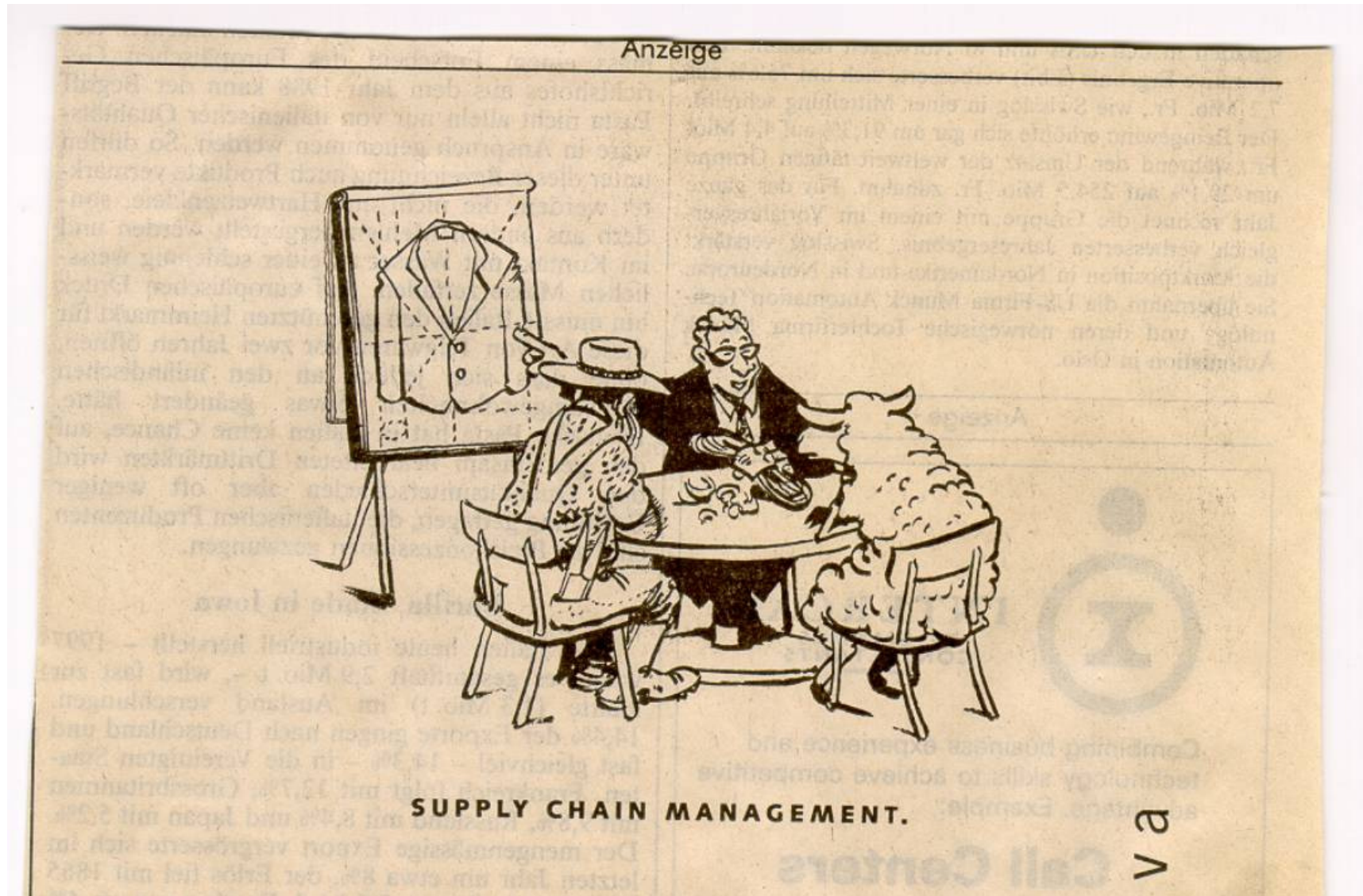


... and here.

Phase 3: Design of integrated processes
(internally between departments such as order processing)



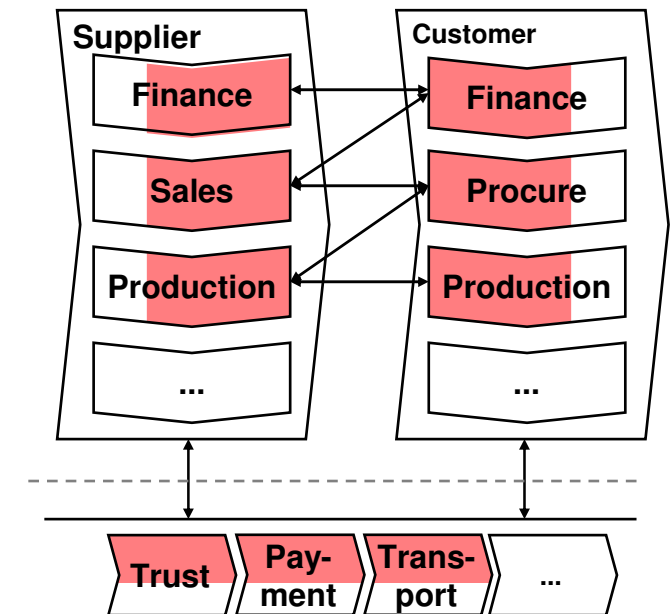
However, ...



Quelle: NZZ

... information systems integration will not stop here either.

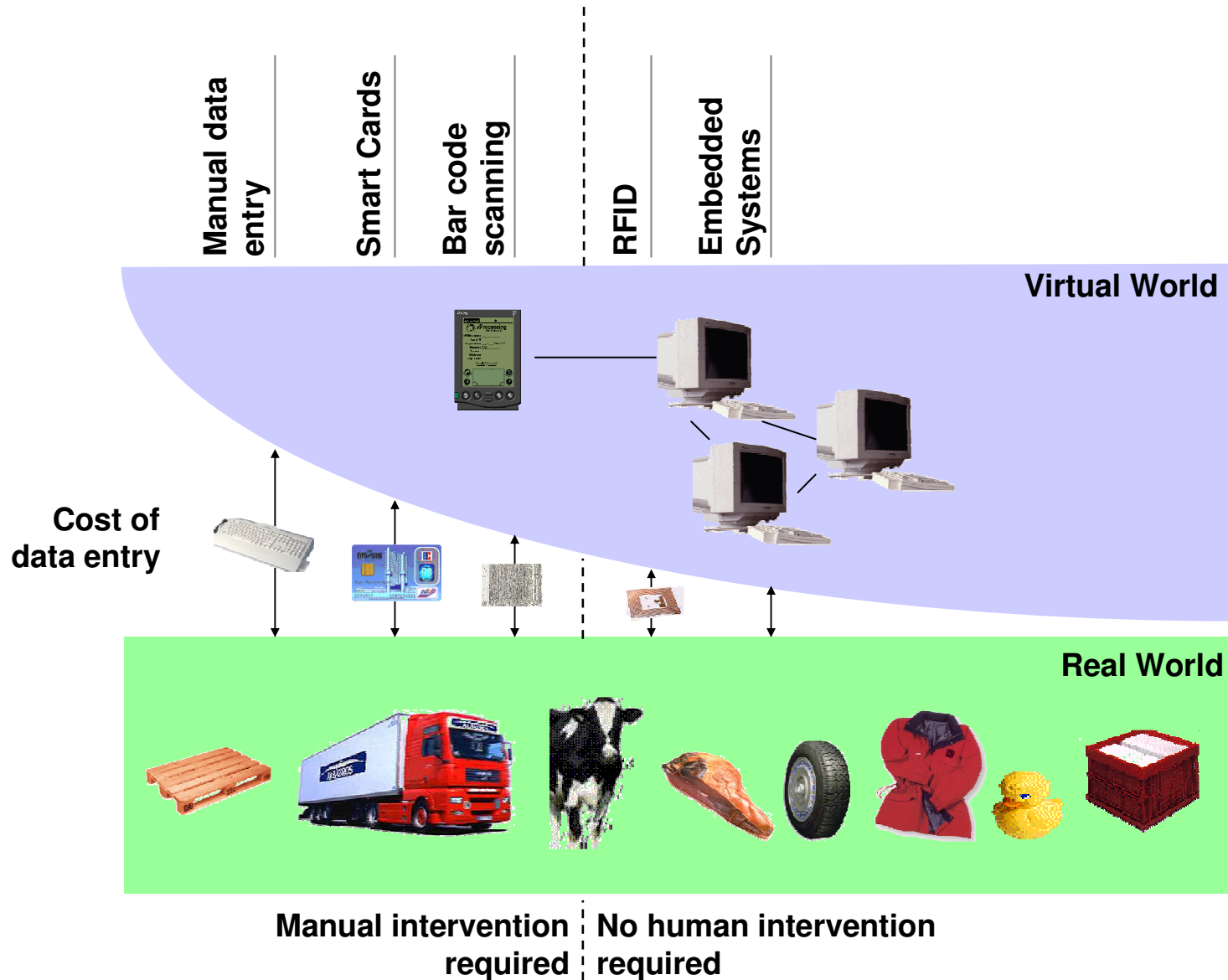
Phases 4 & 5: Individual 1 : 1-integration and consistent m : n-integration of cross-enterprise processes based on web services and a networking infrastructure



So what comes next?



The information system integration of the real world.



Agenda

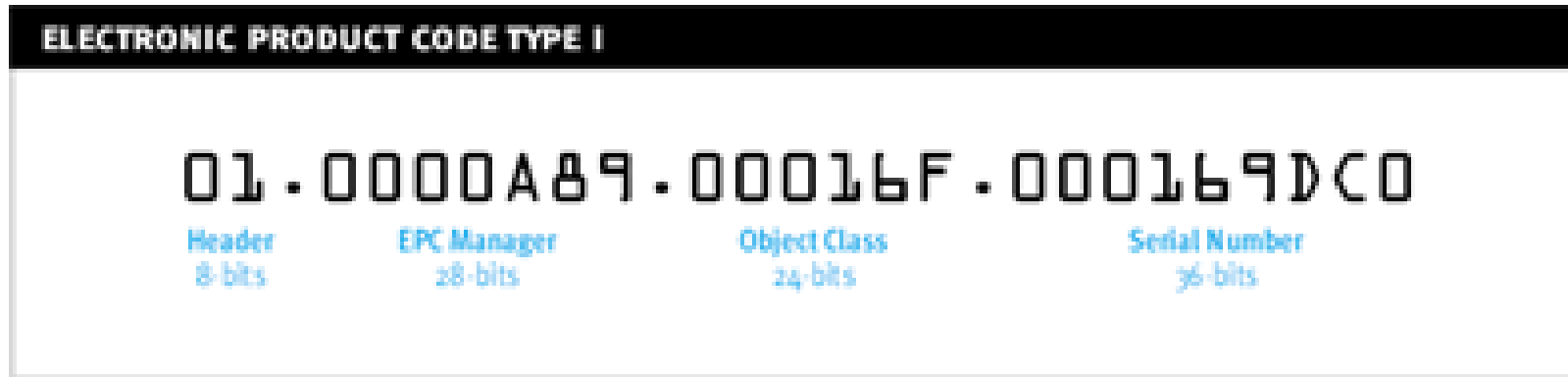
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Automatically connecting objects around the world is a vision of many powerful player.

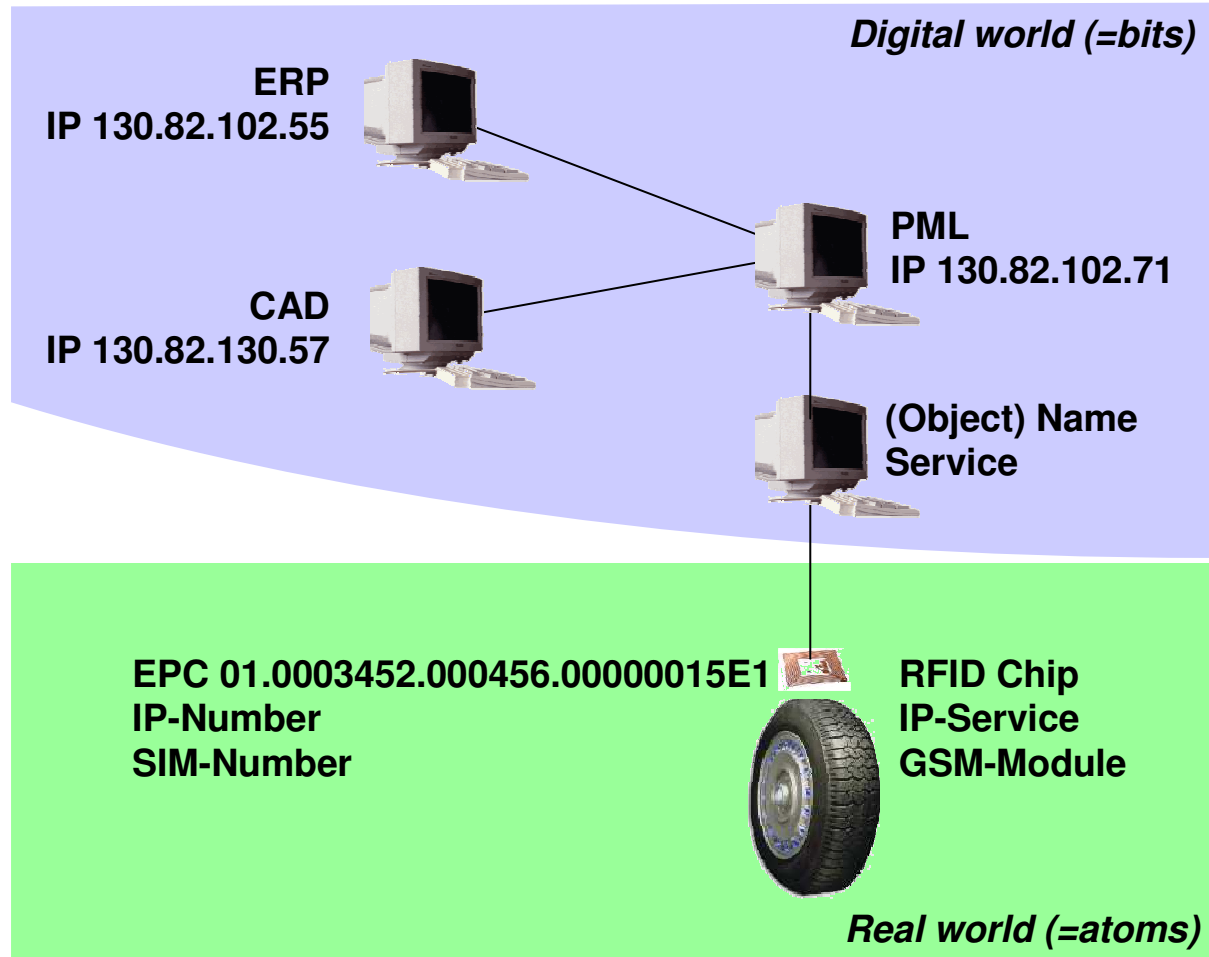
- Gillette
- Wal-Mart
- P&G
- Unilever
- Kraft
- Philip Morris
- Nestle
- Best Buy
- Target
- Tesco
- Home Depot
- CVS
- Sun
- Philips
- Intel
- ST Micro
- Canon
- Alien
- ET
- NTT
- Metro
- Mitsui
- Pfizer
- Sara Lee
- USPS
- UPS
- D&D
- UCC/EAN
- Accenture
- IBM
- Coca-Cola
- Pepsi
- Kodak
- NCR
- SAP
- Symbol

Over 100 in total!

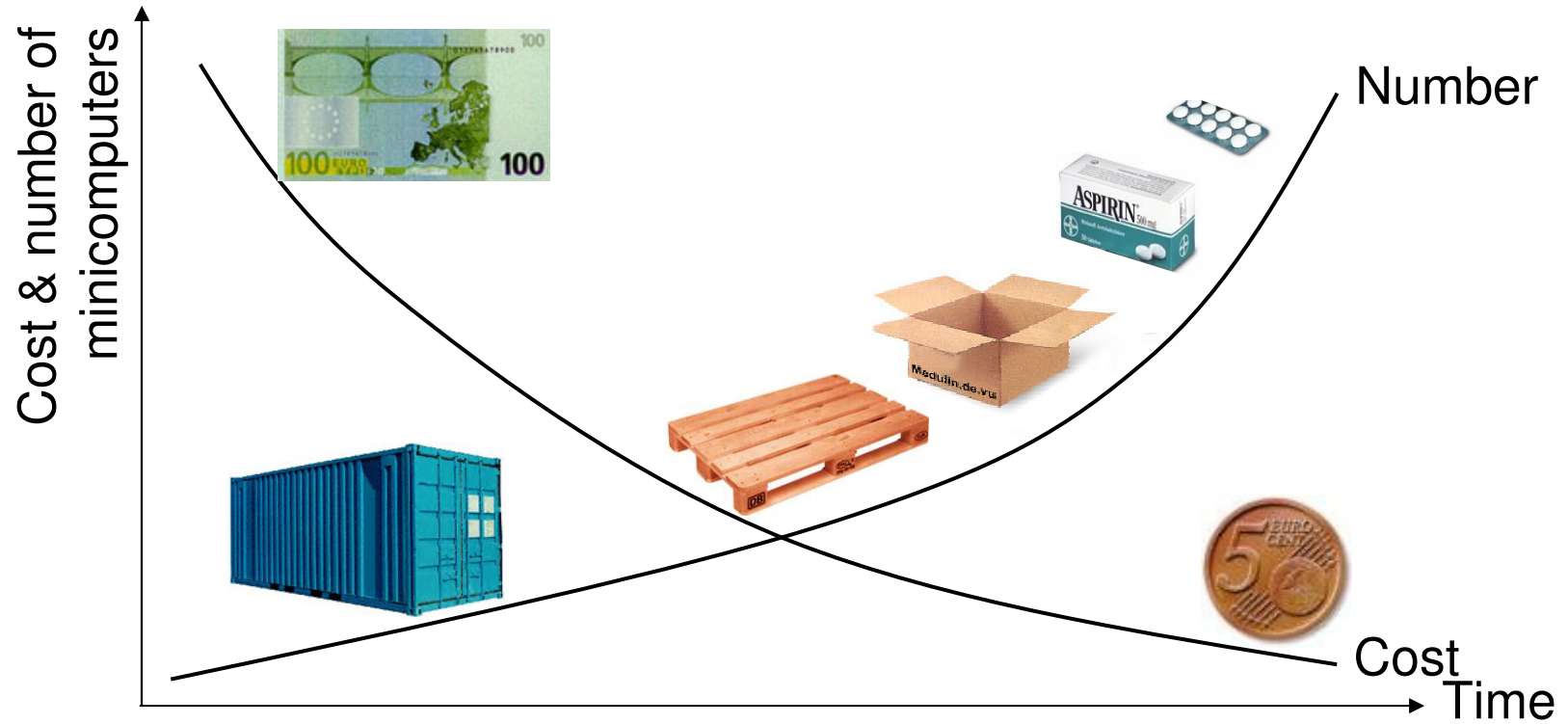
So, we started to number the world ...



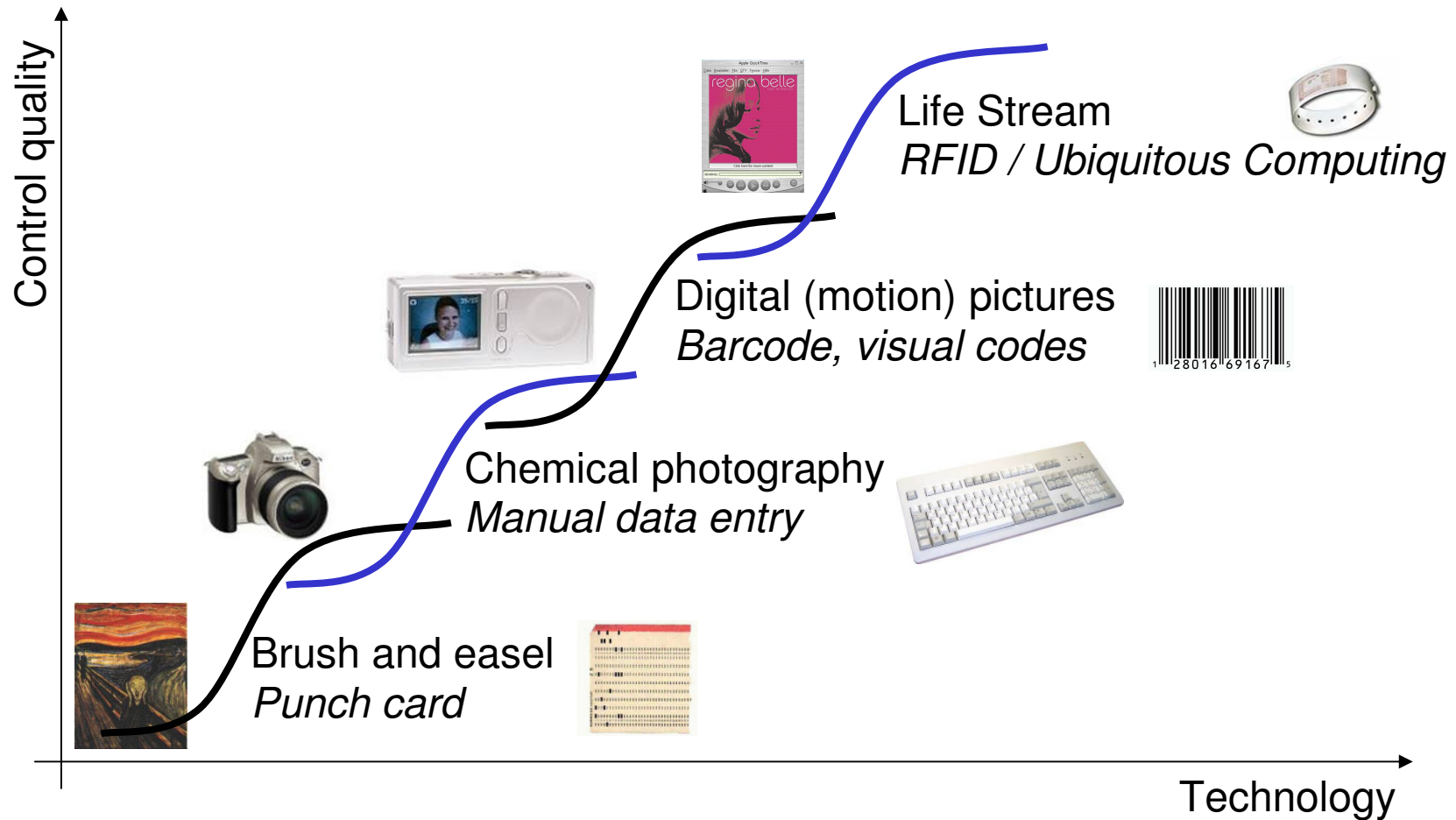
... and built the infrastructure for the Internet of Things ...



... to track every physical object in the world.



Because only what you can measure you can manage. RFID leads to better processes, new products and new services.



Better processes: Libraries around the world are tagging media.

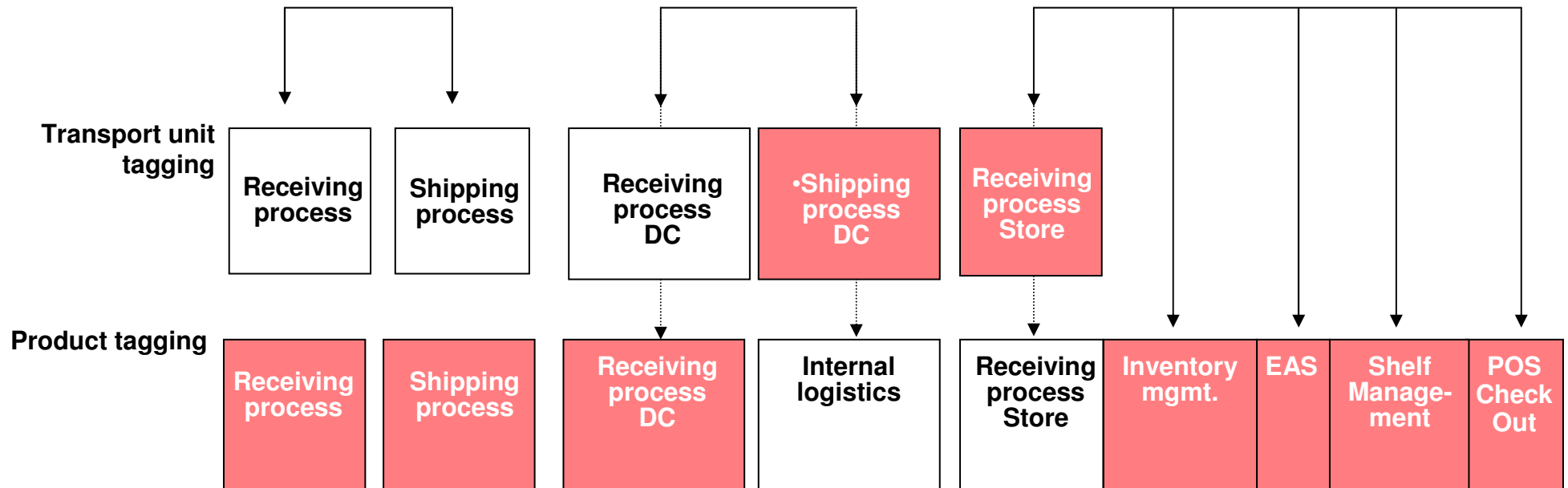
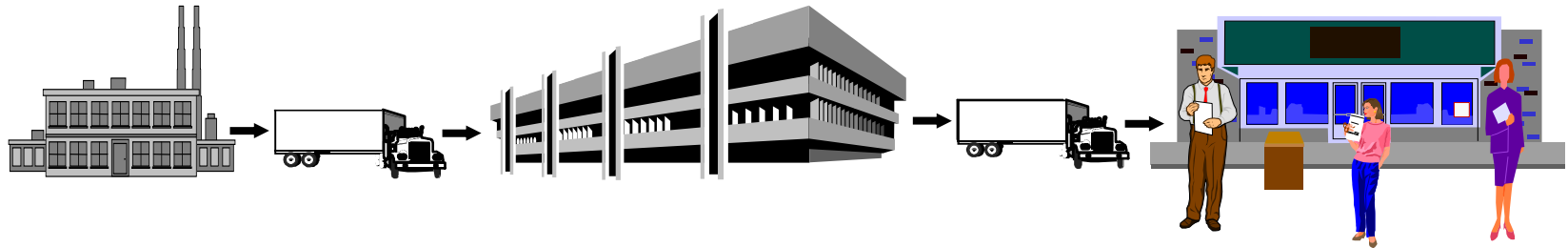


Gerry Weber is tagging transport units ...

Gerry Weber

Kaufhof-DC

Kaufhof-Store



Source: Uwe Quiede, "METRO Group Future Store Initiative: Projekt Kaufhof - Gerry Weber", Presentation, January 9, 2004

... and garments.



Source: Uwe Quede, "METRO Group Future Store Initiative: Projekt Kaufhof - Gerry Weber", Presentation, January 9, 2004

Better security measurements: From ePassport to eTickets and secure banking applications

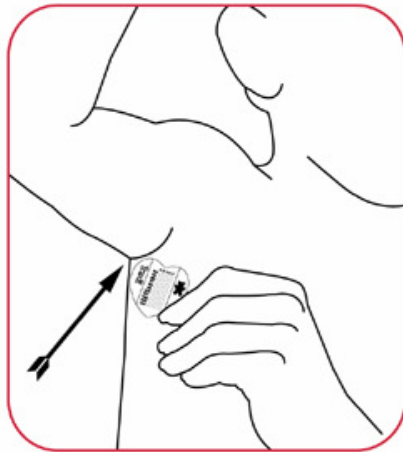
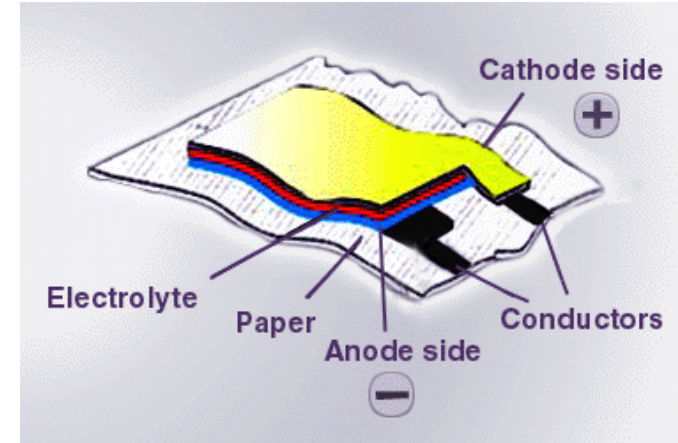


Smart Products: Guns and bikes link functionality to the proximity of jackets.



Pads check themselves and temperature plasters monitor patients.

Management of surgery tools

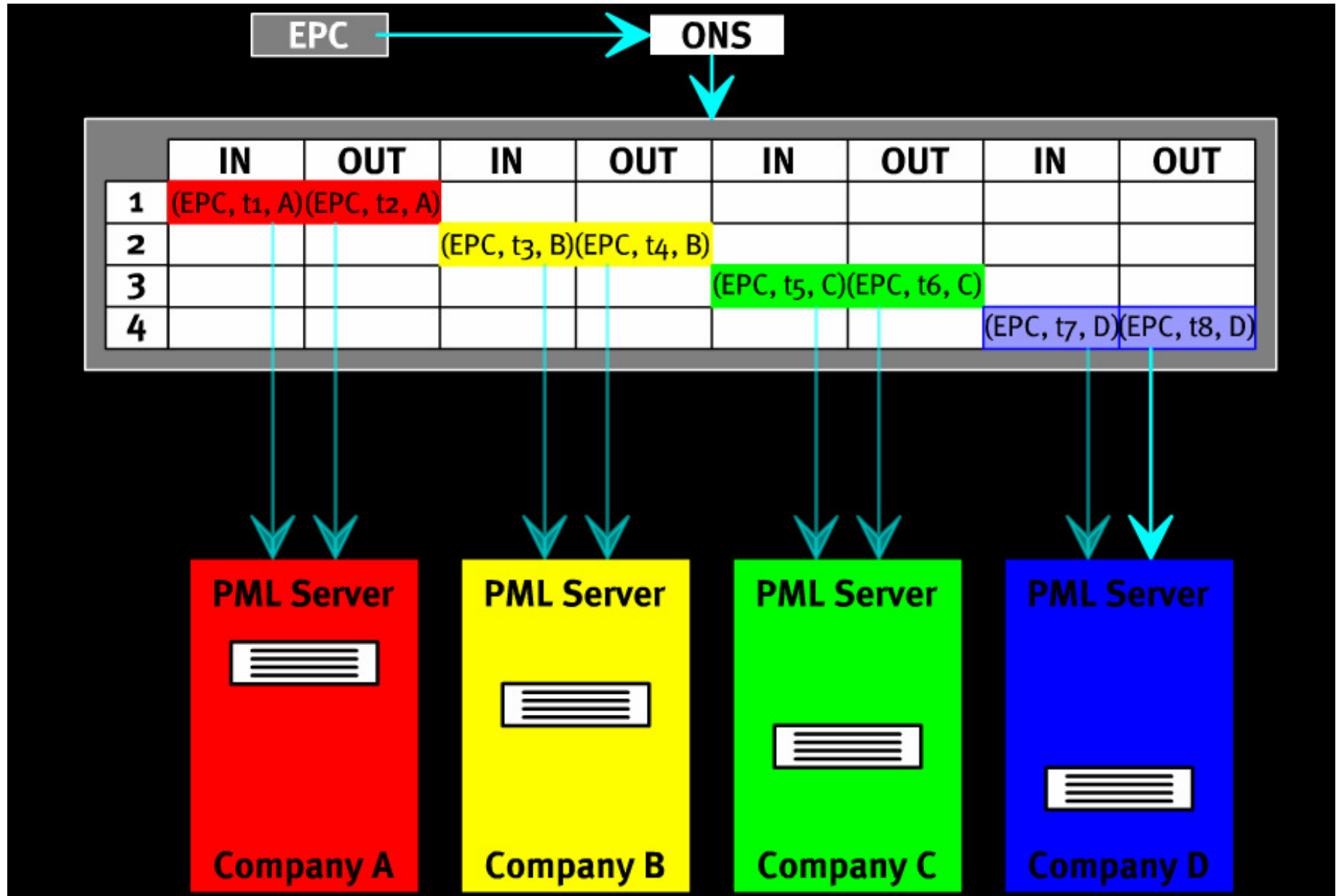


<http://www.medicalindicators.com>



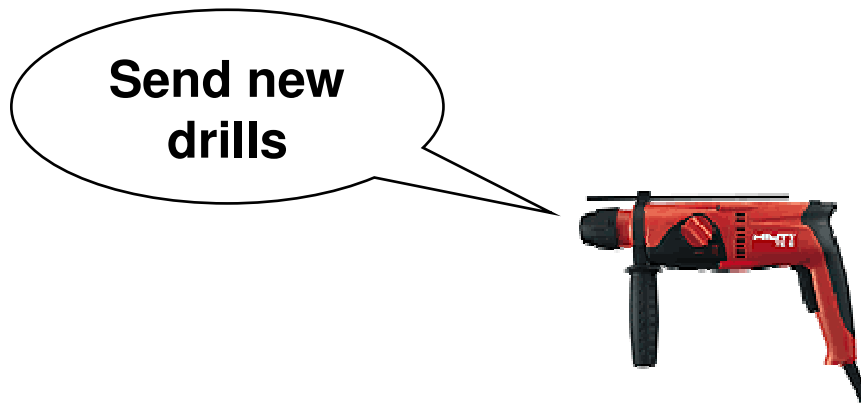
<http://www.powerpaper.com>

Smart services: RFID enables many new services, from track & trace ...

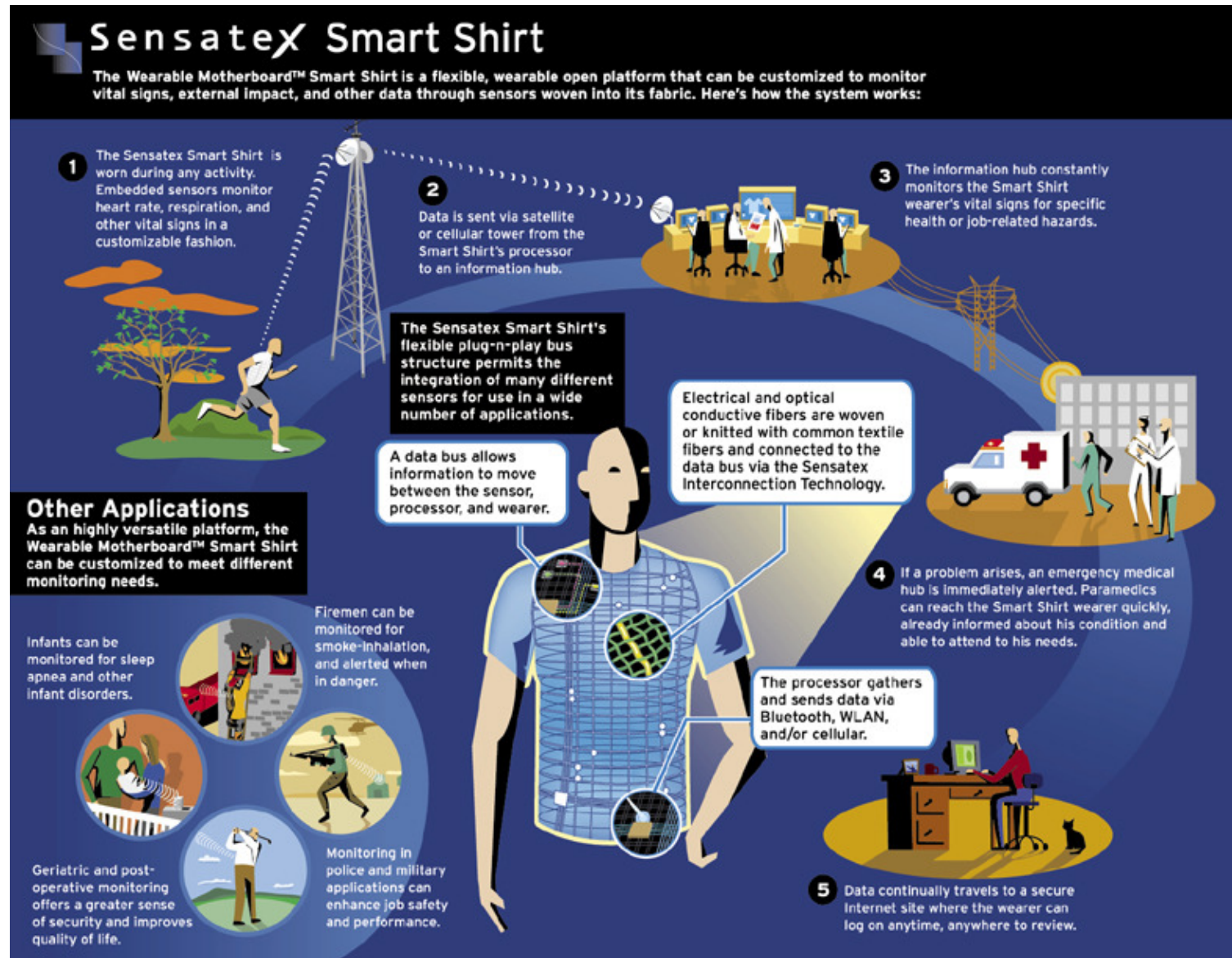


Source: Auto-ID Lab Health Care Initiative

... to proof of origin, counterfeit protection,
maintenance, fleet management, configuration,
reordering ...



... and life signal monitoring.



<http://www.sensatex.com>

RFID has the potential to change control tasks.

Impact area of higher control quality

Benefit of higher control quality

Automatic process control

Supply Chain Management

- Goods issued / receipt
- Quality check
- Track and trace
- Production control
- Shrinkage prevention
- Goods damaged prev.
- Counterfeit prevention

Product-Life-Cycle Management

- Product pedigree management
- Call backs
- Maintenance
- Repair
- Recycling

Customer Relationship Management

- Payment process
- Market research
- Usage behavior
- Merchandising

- Cost reduction (inventory, labor, process error)
- Speed (real time)
- Process quality and process reliability

Smart products

- Features based on product proximity
- Features based on product affinity
- Features based on product history
- Emotional products
- Product-service-bundling

Smart services

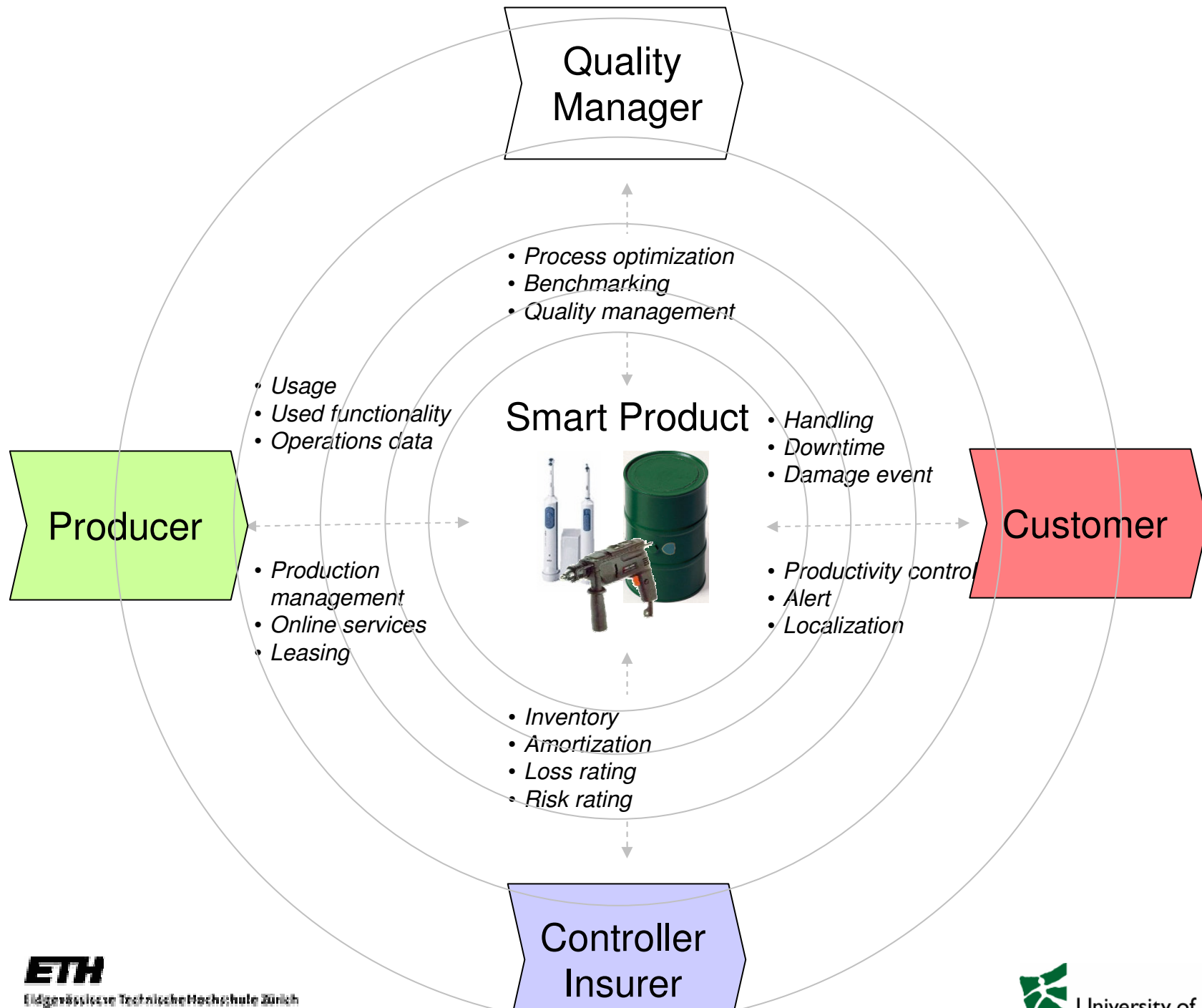
- Product-service-bundling
- Control services
- Use-based billing
- Risk-based billing
- Instant information services
- Complex services

- Revenue increase (Quality, innovation, value adding service)

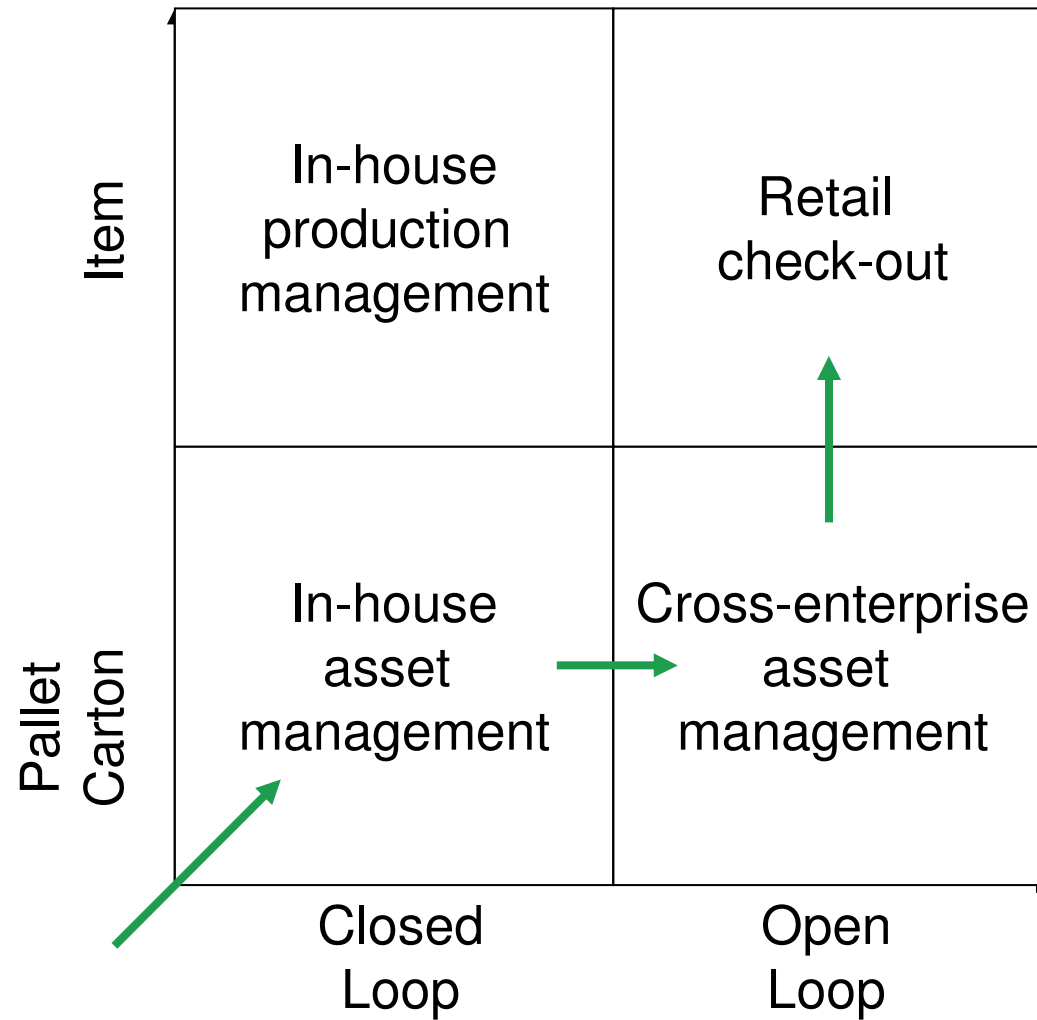
Agenda

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Guideline: Good products want to communicate.



Start in-house with assets.



Manage the privilege of privacy.



Start with processes, then go to products and services.

- RFID
 - is a logical next step in enterprise computing
 - is not new
 - is not a plug&play-technology yet
 - standards are currently being established
 - is not primarily a replacement of the barcode
 - can create competitive advantage
 - asks for an infrastructure decision
- Don't install complexity
- Still be careful when discussing time frames
- Start building RFID business intelligence

Progress has no alternative.

For questions please contact:

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