ID WORLD Conference

Retail @ ID WORLD

Dipl.-Kfm. Thomas Wiechert, EMBS

Senior Researcher

Auto-ID Labs Switzerland @ University of St. Gallen

# EU Project StoLPaN:

# The Integration of NFC into Stationary Retail

# M-Lab @ University of St. Gallen & ETH Zurich



## University of St. Gallen

- founded in 1898
- 30 institutes
- largest management faculty in D/A/CH
- 4000 undergraduate & 1000 graduate students



## ETH Zurich

- founded in 1855
- 380 professor in 17 departments
- 10000 undergraduate & 2800 graduate students



# M-Lab References



- Retail

MIGROS

- MNOs

swisscom mobile  Deutsche Telekom

- Industrial

The Gillette Company  NOVARTIS

HARTMANN  SIG

- Technology

SAP  Infineon

SAP SI  NOKIA Connecting People

- Financial / Insurance

UBS  Basler Versicherungen

Swiss Re  Die Mobiliar

# M-Lab Demonstrators and Prototypes





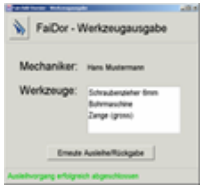

Smart Toolbox




Ubiquitous Payment Prototype



Product Authentication





Smart Tool Inventory



Soft Identification



Weight Sensitive Foam




Smart Surgical Kit



Digitally Augmented Reality




Smart Medicine Cabinet



Appliance Interaction Device



1D and 2D Barcode Scanning

# The Partner-Labs (Auto-ID Labs)





**Business Processes & Applications**
Envision and evaluate fundamentally new business processes and industries,
e.g. payment, leasing, insurance, quality management and anti-counterfeiting

**Software & Network**
Develop future architecture of the EPC Network

**Hardware**
Next-class tags which include memory, battery, sensors and actuators
Improving reading rate



# StoLPaN - Store Logistics and Payment with NFC



- 6FP IST EU-Project
  - Duration: 3 years (2006-2009)
  - Total budget: 9 million €
  - Funding from the EU: 4.9 million €

- Goal: Introduce NFC devices into the Customer Shopping Process to create an intelligent Retail Environment.

- Objectives
  - Technical model and business model for mobile NFC applications
    - From multi-platform single-application to single-platform multi-application
  - Development of HOST application
  - Porting of NFC applications
  - Elaboration of NFC based shopping process
  - Demonstration of new solutions
  - Contribution to standardization

# StoLPaN's Focus...

AUTO-ID LABS

## ...lies on Interoperability and Security related R&D.

The StoLPan phone application should be able to:

- run on phones manufactured by different manufacturers,
- hold various types of payment card profiles,
- hold various service profiles / loyalty cards,
- share loyalty card content to offer customized services, and
- to fulfill all security & privacy requirements.

# The StoLPaN Consortium















































# The StoLPaN Retail Track - General Idea



- Introduce NFC into the Customer Shopping Process to create an intelligent Retail Environment...
  - to improve the customer's shopping experience
  - to increase store capacity (faster check-out)

- The Check-Out and Payment Processes have priority...
  (Highest added value → speed, cost, convenience)
  - Payment
  - Loyalty
  - Coupons

- ... however, other NFC supported applications are in scope.
  - Product Information
  - Multimedia Advertising

- Integrated Architecture
  - Device software, shopping cart/PSA, back-office, security

# Near Field Communication (NFC)

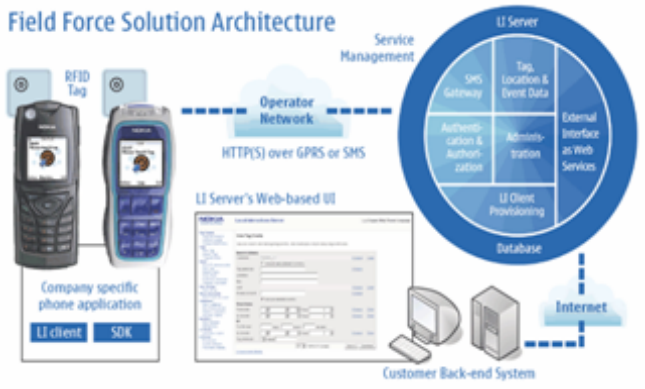




Payment



Connection Setup




Field Force Solutions



Ticketing



Access / ID



Read/Write

# State of the Art: Check-Out Solutions (2006)






Barcode based
Self Check Out (NCR)



Barcode based
Self Scanning
(Wincor-Nixdorf)

Source: Auto-ID Lab St. Gallen

Event: EuroCIS 2006

# State of the Art: Payment Technologies



cash





cards




contactless

NFC



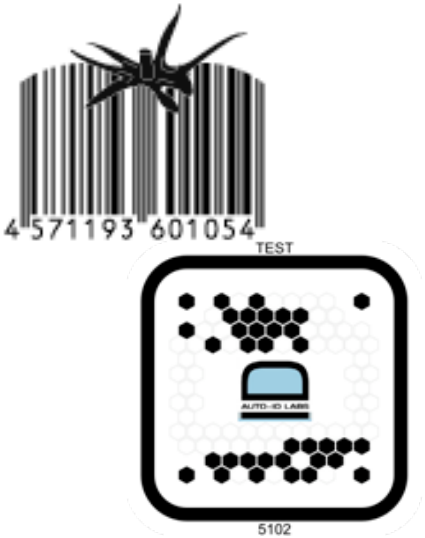
# Smart Tag based Product Information (1/2)

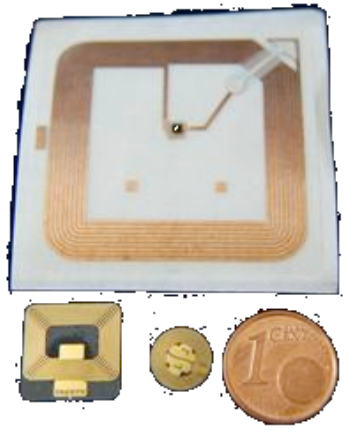


- Additional Product Information through
  - Kiosk based solutions
  - Mobile device based solutions

- Auto-ID Technologies
  - Barcodes
  - 2D Barcodes
  - Smart Tags







# Smart Tag based Product Information (2/2)



- Additional Product Information
  - Ingredients
  - Production Process
  - Pedigree
  - Availability
  - Recipes
  - Complementary Products
- Benefit
  - Emphasis on Quality
  - Increase Revenues
  - Strengthen Customer Relationship
- Direct Means of Communication between Producer and Consumer at the POS

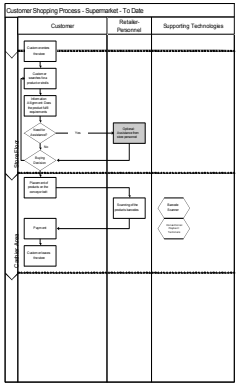


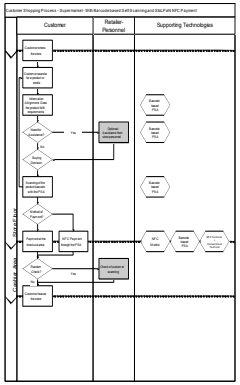


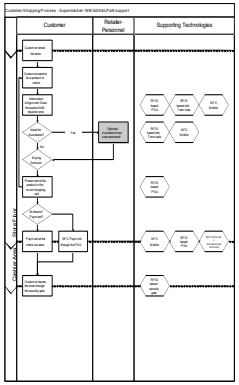
Quelle: http://picturesofspain.info

# Shopping Processes: Status Quo and the Future

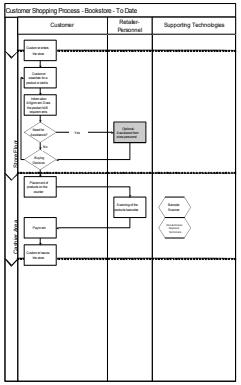


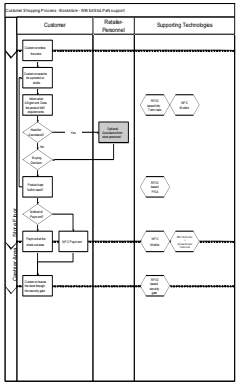




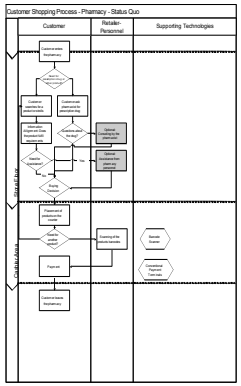


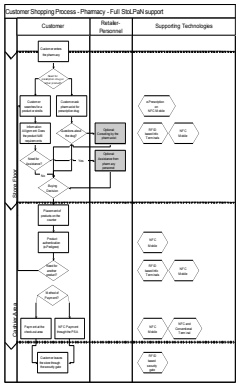
## Supermarket



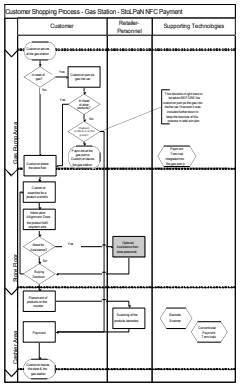


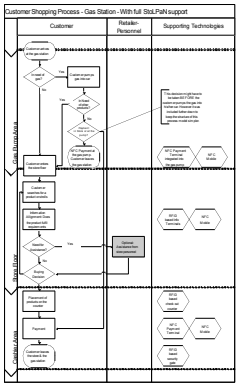
## Book Store



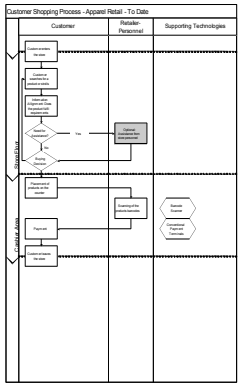


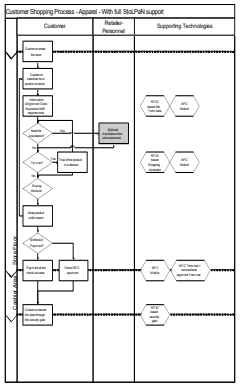
## Pharmacy





## Gas Station





## Apparel

# Interviews with European Retailers (1/2)



## General Feedback concerning the Project

- Retailers are interested in the reduction of infrastructure cost enabled though the leveraging of features on their customers' mobile phones
- Retailers welcome the idea of a modular implementation approach

## Feedback on NFC

- Supermarkets and drugstores see the biggest potentials of NFC in improving the check-out and payment processes
- Apparel retailers are more focused on the potentials for product related services to increase their customers' shopping experience

## Feedback on Item Level Tagging

- Supermarkets and drugstores plan to use barcode identification for customer services in the short to mid term
- In contrast to that, the apparel and book retailers plan much shorter delays for the introduction of item level RFID

# Interviews with European Retailers (2/2)



## Process Improvement: The Shop Floor

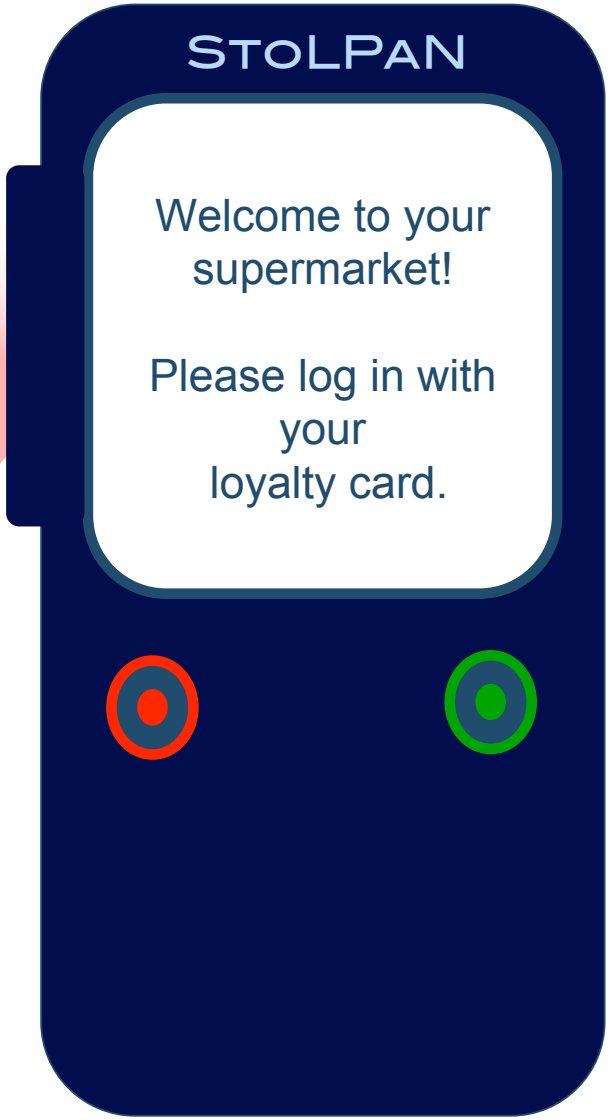
- The smart poster application is of interest to retailers so as to provide them with new possibilities for product advertisement
- To ensure the customers' privacy, smart kiosk applications have to be separated from the loyalty card services.
- Dynamic pricing based on product status and the customers' loyalty card profile could become an important mean to establish closer relationships with customers

## Process Improvement: Check Out & Payment

- Improving the check-out process is the main focus for supermarkets and drug-stores
- To create an optimized check-out process flow the separation of check-out and payment is planned by several retailers
- Retailers are looking for RFID enabled check-out solutions in the long term

# Upcoming Demonstrator: StoLPaN PSA






- Personal Shopping Assistant (PSA)
  - Self Scanning
    - Barcode
    - RFID-Tags
  - Loyalty Card Log-In
    - Barcode
    - Smart Card & NFC
  - Shopping List Function
    - Internet
    - NFC P2P function
  - e-Coupon Function
    - Barcode
    - NFC P2P function
  - NFC-Payment
- Low target price of 50€
- Prototype late 2007 early 2008

# Thank You!



Thomas Wiechert
Auto-ID Lab Switzerland
University of St. Gallen
Phone: +41 71 224 7256
e-Mail: thomas.wiechert@unisg.ch

For further information please contact:

András Vilmos
Safepay Systems
Phone: +36 1 212 4321
e-Mail: vilmos@safepaysys.com

or visit: www.stolpan.com