

# On RFID

Conference and Exhibition  
LAGOAS PARK, LISBON

on:RFID



## Combining the **INTERNET** of **THINGS** and the **INTERNET** of **SERVICES**

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Vice President SAP Research EMEA, SAP AG



THE BEST-RUN BUSINESSES RUN SAP



## Agenda



SAP

- 1 **The VISION**
- 2 **Technology and Market Trends - IoT**
- 3 **Internet of Services**
- 4 **Lighthouse project examples**
- 5 **Summary**

CONFERENCE & EXHIBITION

**on:RFID** The next step to  
THE INTERNET OF THINGS

Organized under the Portuguese Presidency  
with the support of the European Commission  
by Information Society and Media

# The Vision: A truly web-based Service Economy



**GOVERNMENT**



**BUSINESS/SCIENCE**



**CITIZEN/CONSUMER/  
EMPLOYEE**



**SECURE BROADBAND  
INFRASTRUCTURE**



**INTERNET  
of SERVICES**



**SERVICE-/USER-FRIENDLY  
IT**



**MULTIMEDIA  
CONTENT**

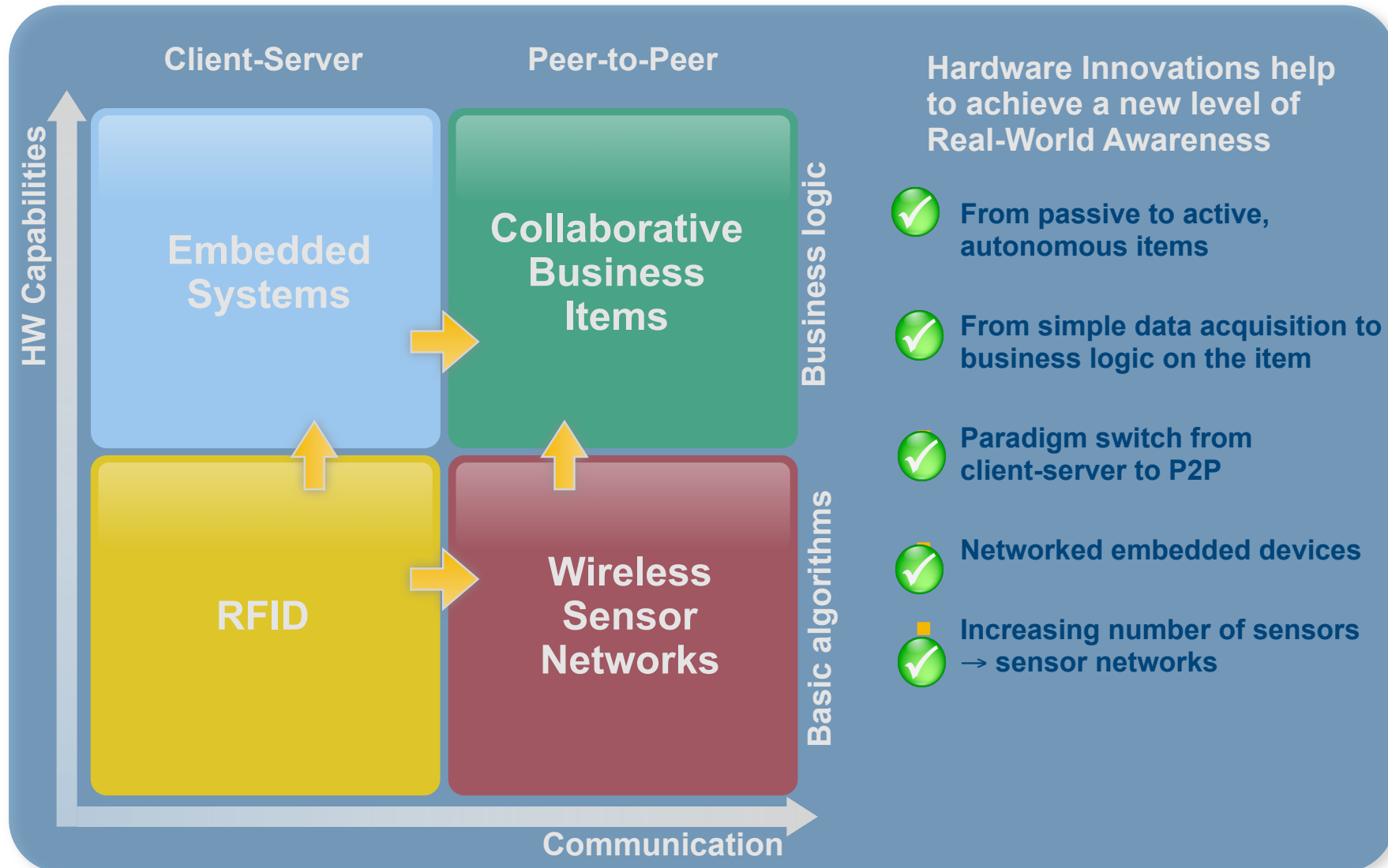


**INTERNET  
of THINGS**

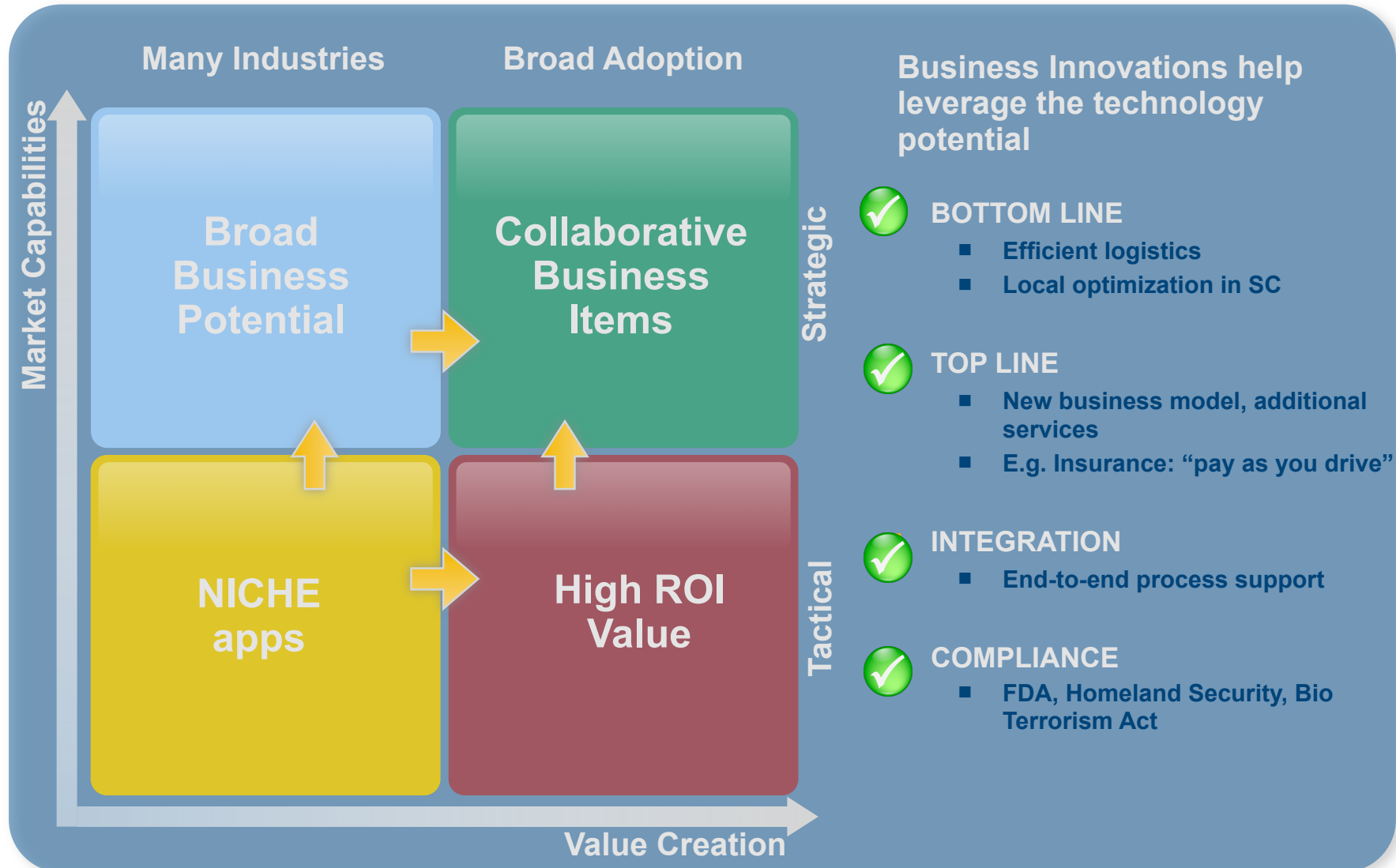


**SERVICE-ORIENTED SOFTWARE  
APPLICATIONS**

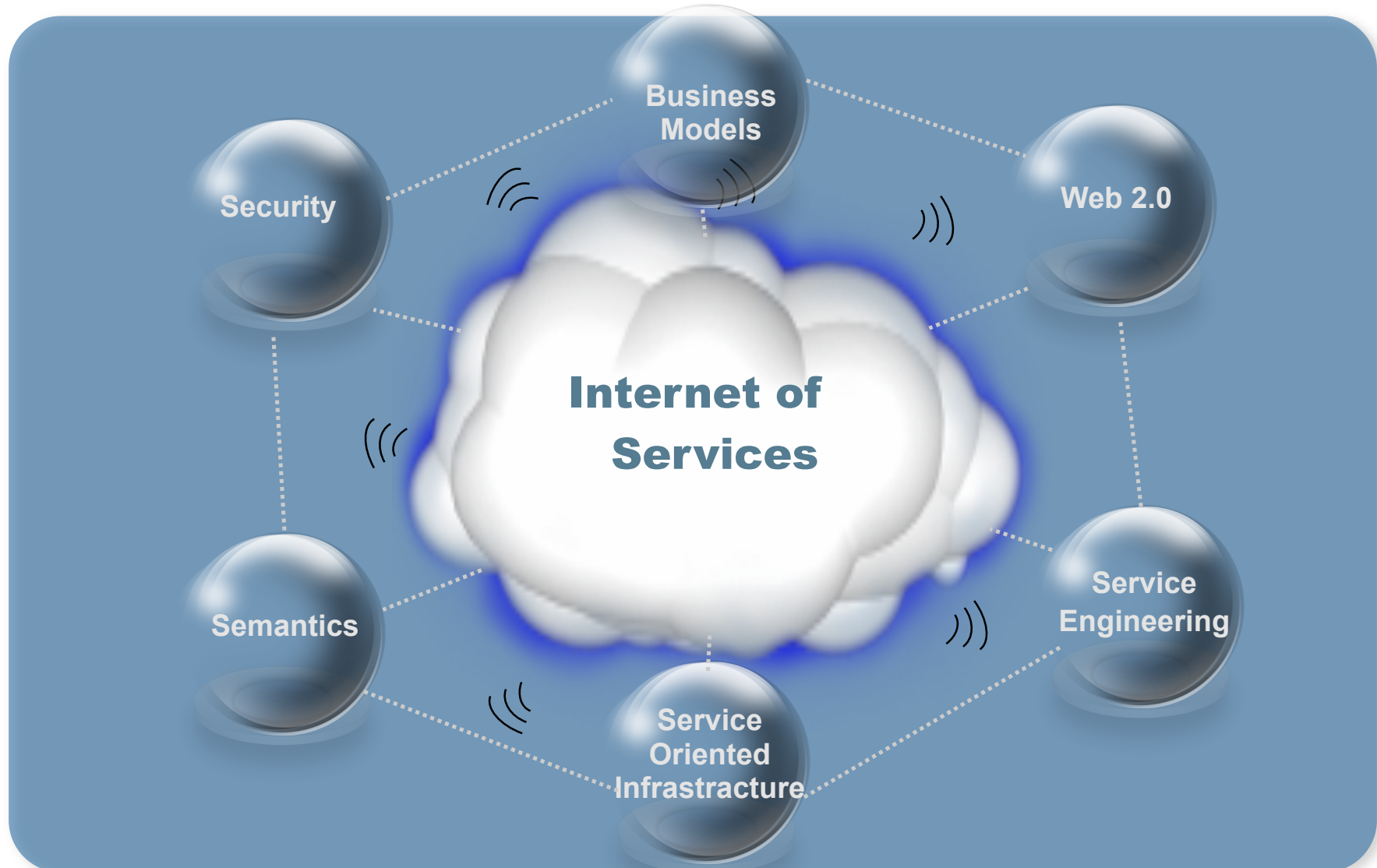
# Technology Trends: Increasing Capabilities for SMART ITEMS



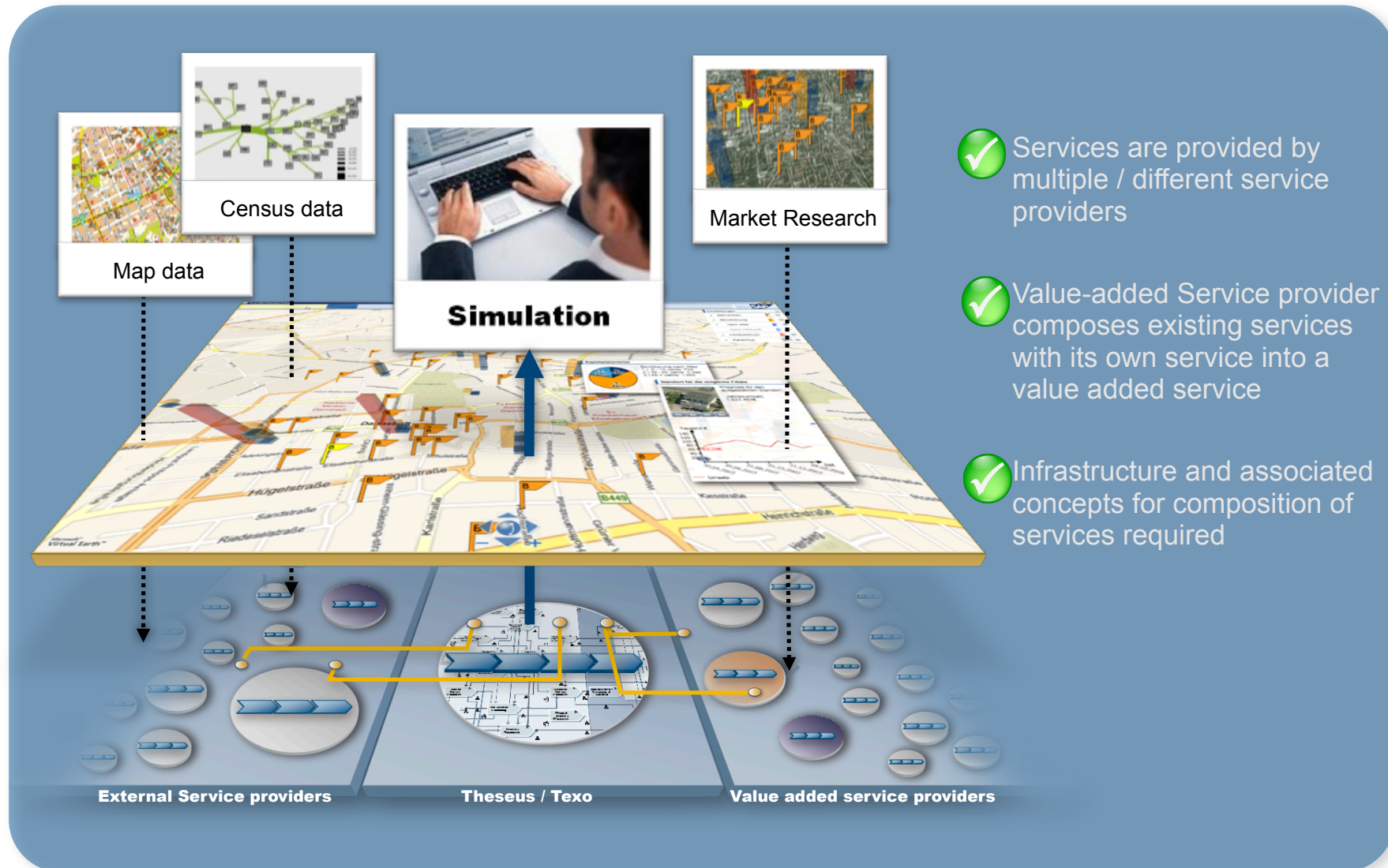
# Market Trends: Defined ROI for (early) adopters of SMART ITEMS

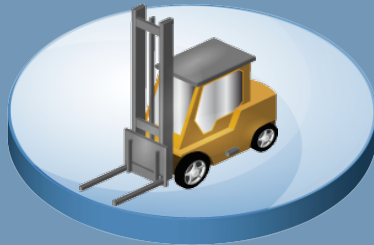


# Internet of Services (IoS) – Relevant research areas



# Value-added Services in the Internet of Services: Evaluation of a retail location





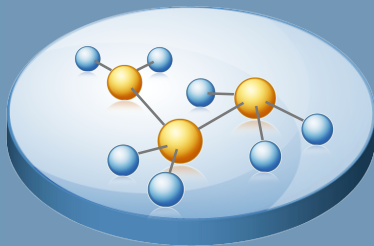
### RFID is currently used mainly for logistics and tracking in well-defined supply chains

- ePedigree and anti-counterfeiting become increasingly important
- Also interesting applications in manufacturing and retail



### While a lot of the industry is still technology-focused, the real issue is Real-World Awareness

- Not just the id and the location of objects is important, but also their state – sensory information and data-on-tag get increased visibility
- Collaborative use of heterogeneous technologies: RFID, Wireless Sensor Networks, Embedded Systems



### Edge processing and distribution of business logic are increasingly important

- Not just for scalability reasons, but also for responsiveness and network infrastructure independence





**INTERNET  
of THINGS**

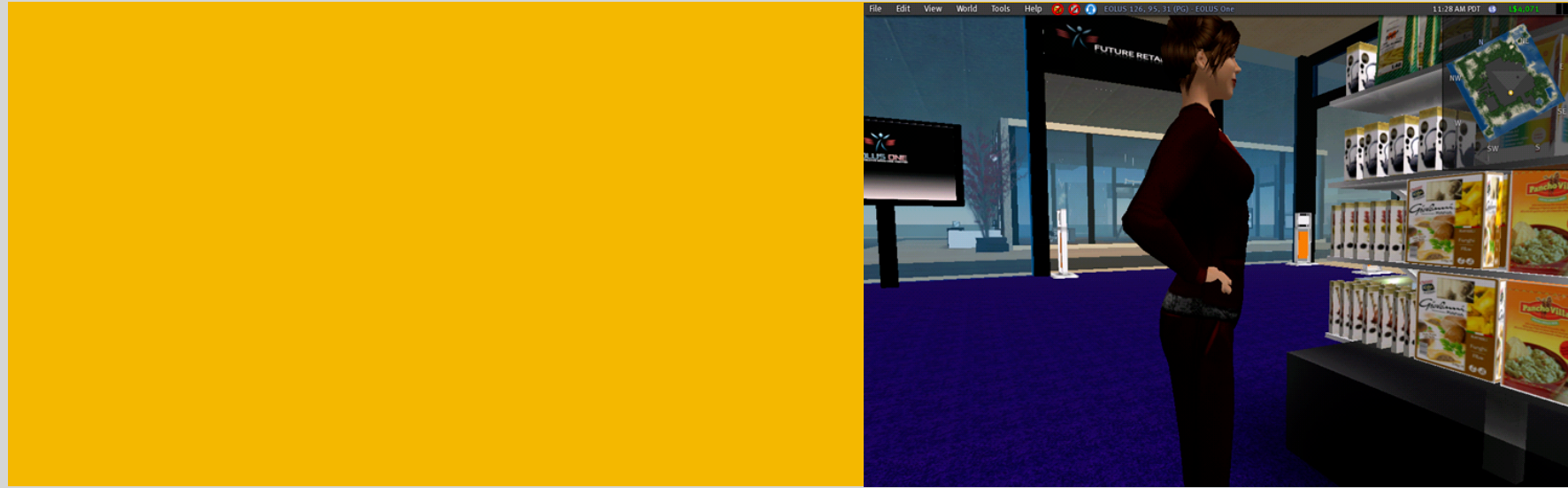
**... and ...**



**INTERNET  
of SERVICES**

**...belong together!**

- A **service-oriented architecture** is key to access and manage the objects as well as to building the applications to unlock the potential of the Internet of Things
- **New services and business models** enabled by the Internet of Things
- Example: Sensors in cars allow for customized service offerings: e.g. **pay-as-you-drive, predictive maintenance, and improved roadside assistance**



# Future Retail Center In Zürich and in Second Life

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# Living labs - SAP Future Retail Center: "Research for you to touch"



## Key Aspects

- ✓ Launch in August 2007
- ✓ SAP research results from Retail, Trade & Logistics with focus on RFID & mobile applications
- ✓ Demos aligned with end-to-end processes, integrated with SAP ERP, Retail, Auto-ID Infrastructure

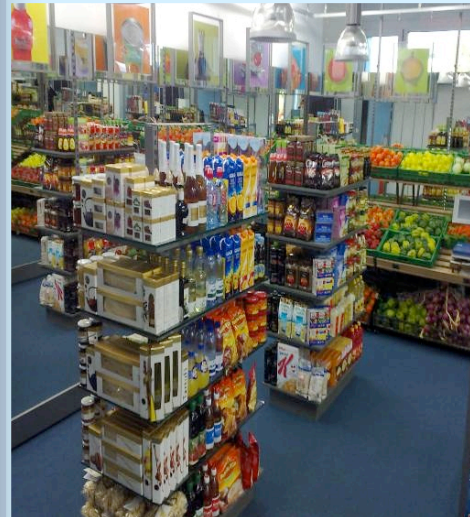
## Key Partners



## The Future Retail Center in...

connecting **Real Life** with  
the virtual world (**Second Life**)

...Regensdorf, Switzerland



...Second Life



# Clients und Partners can see 15 Demos in 3 Scenarios



## Retail Scenario (SAP Retail)

### 1)Fast-Track Shopper:

- 4 Mobile Retail (CEC Canada)\*
- 4 RFID Scanning (SAP Retail)
- 4 Mobile Payment (Siemens)\*

### 2)Weekend Shopper

- 4 RFID Shopping Cart (Siemens / SAP Retail)
- 4 Intelligent RFID Scale (Mettler-Toledo)
- 4 Point-of-interest advertising (SAP Retail)\*
- 4 Contactless Debit Card (SAP Retail)

## Logistics Scenario (SAP ERP)

### 1)RFID Labeling

- 4 RFID Labeling of trade units (PAGO)

### 2)Intelligent Picking

- 4 MICA (CEC Karlsruhe / Fraunhofer)\*

### 3)Pack and Ship & Good Receipt

- 4 RFID goods issue & goods receipt (SAP Retail, CEC Switzerland)\*

### 4)Anti-Counterfeiting

- 4 PROVE (Inspire)\*

## Retail Strategy Demos

### 1)Price Strategy (SAP Khimetrics/SimCorp)

- 4 SAP Price Zone Optimization (Inspire, SAP Demand Innovation)\*

### 2)Retail Location Evaluation

- 4 Theseus (Inspire)\*

### 3)Smart Vending (SAP ERP, XI, BW)

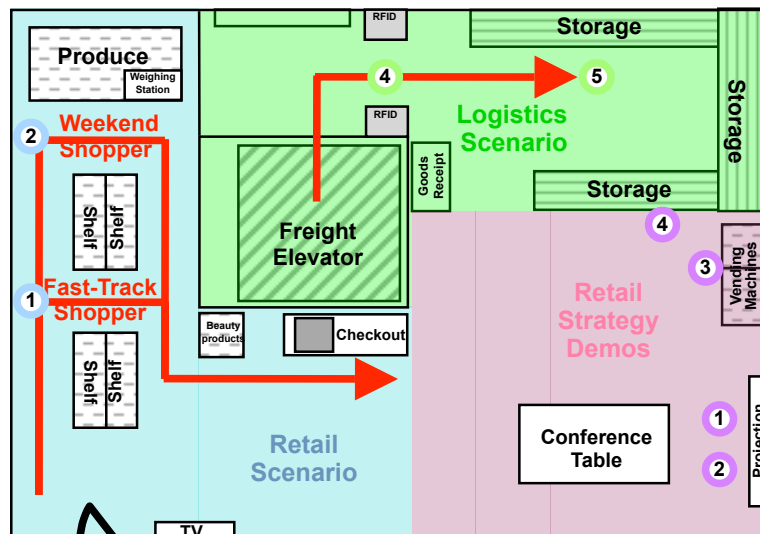
- 4 Optimizing vending machines ops & replenishment (CEC Karlsruhe / B2M)\*

### 4)Bottle Deposit Returning (Adaxys)

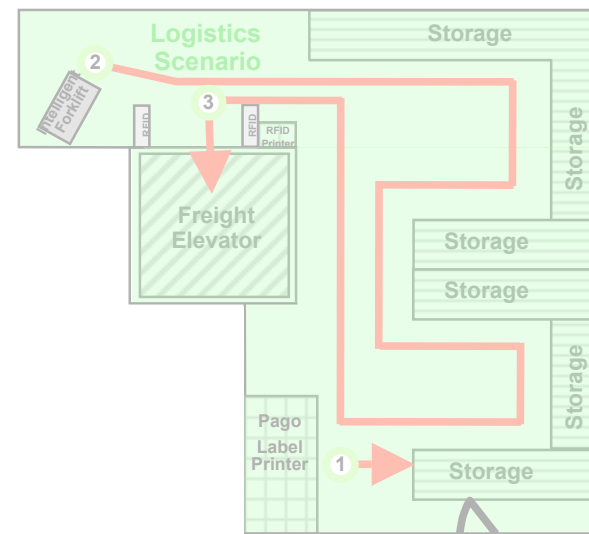
- 4 Autom. Bottle recognition (Implenia)\*

\* new Demo

## Ground Floor (117m<sup>2</sup>)



## Keller I (89m<sup>2</sup>)



## Keller II (76m<sup>2</sup>)

Next:  
Warehouse  
Management  
& Production

# Living labs - SAP Future Retail Center: "Research for you to touch"



Regensdorf



Second Life



# Living labs - SAP Future Retail Center: "Research for you to touch"



Regensdorf



Second Life



# Living labs - SAP Future Retail Center: "Research for you to touch"



Regensdorf



Second Life



# Living labs - SAP Future Retail Center: "Research for you to touch"



Regensdorf



Second Life

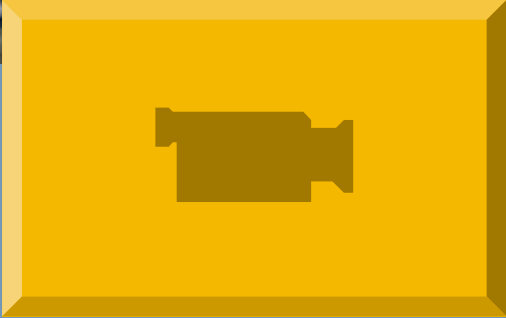




# Future Retail Center



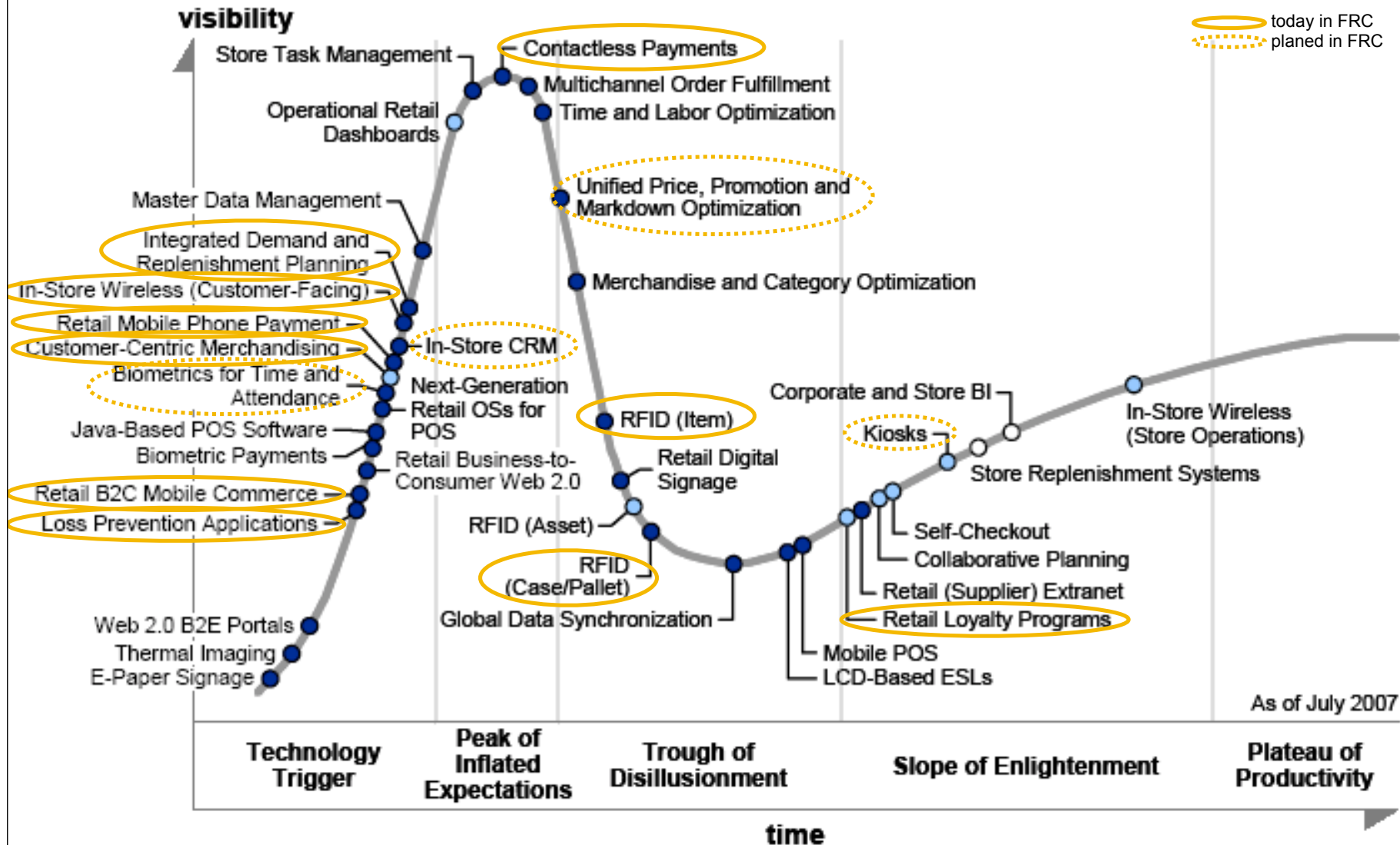
**Future Retail Center**



# Gartner Retail Hype Cycle vs. Future Retail



today in FRC  
 planned in FRC

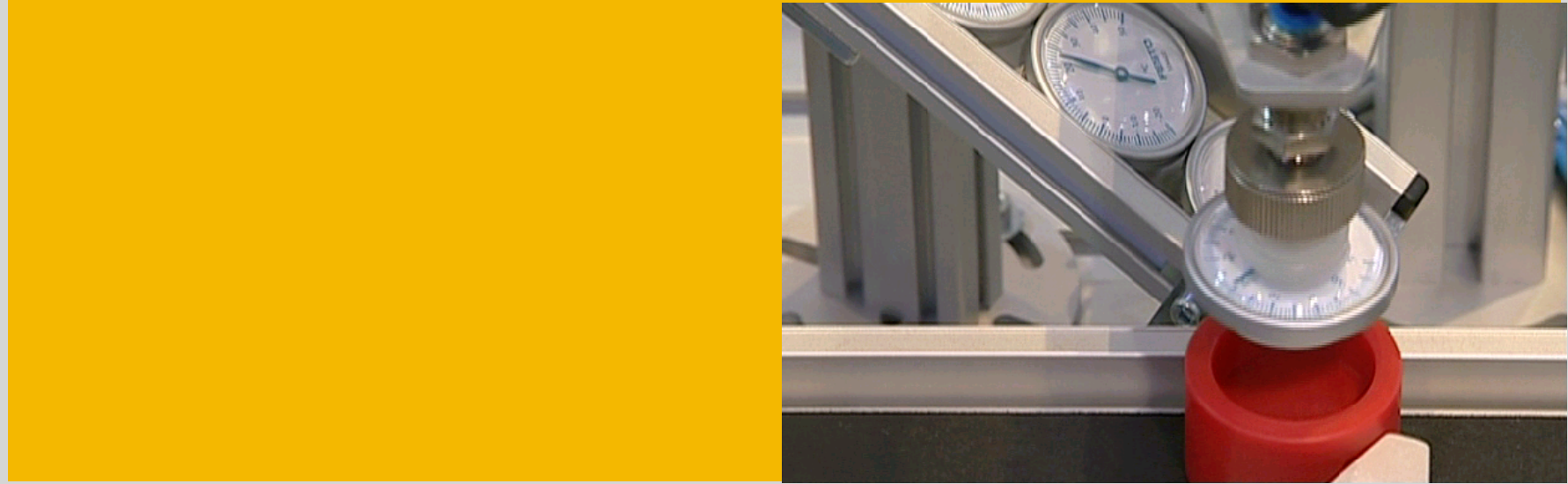


As of July 2007

Years to mainstream adoption:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

Source: Gartner (July 2007)



# SAP Future Factory Initiative

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# SAP Future Factory Initiative Overview



## Living Lab

Set of demos  
Real-world integrated business processes in manufacturing domain  
Covering whole product value chain  
Presented at CeBIT 2007 and DKOM 2007  
Official launch of physical lab in Dresden in 2008



## Real-World Testbed

Deployment and use of leading-edge software and hardware in real-world environment  
Distributed production scenario



## Center of Excellence

Exchange of information and experiences  
Define and work on joint projects

## Key Partners





# ANTI-COUNTERFEITING

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# Counterfeiting and Illicit Trading

## Problem Size and Relevance



Worldwide illicit market size is about 6% of licit market size



Illicit market has been growing faster ...

Negative impact on



revenue, return on R&D investment, brand value

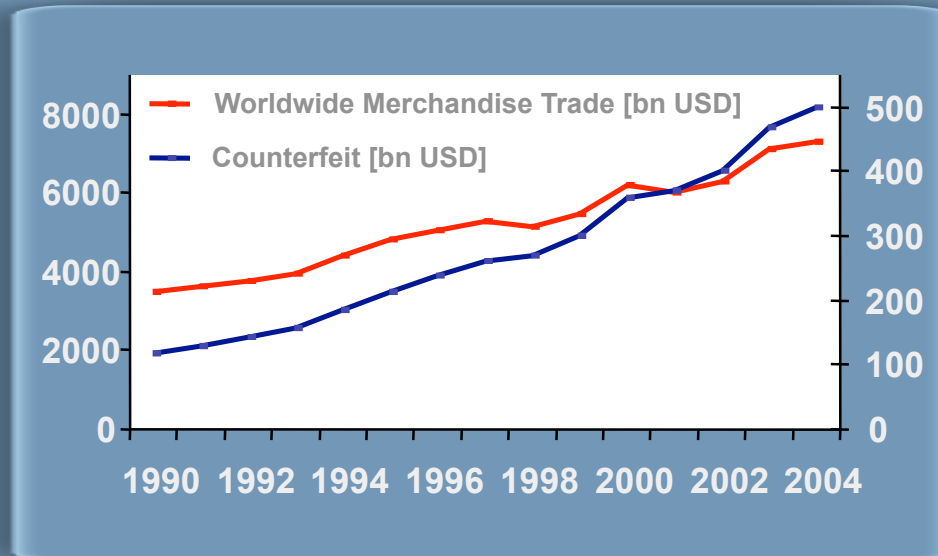


public health and safety, tax losses, employment

Big companies and SMBs in multiple industries affected



life sciences, consumer products, automotive, A&D, ...



# RFID: an Enabling Technology to Protect Business Integrity



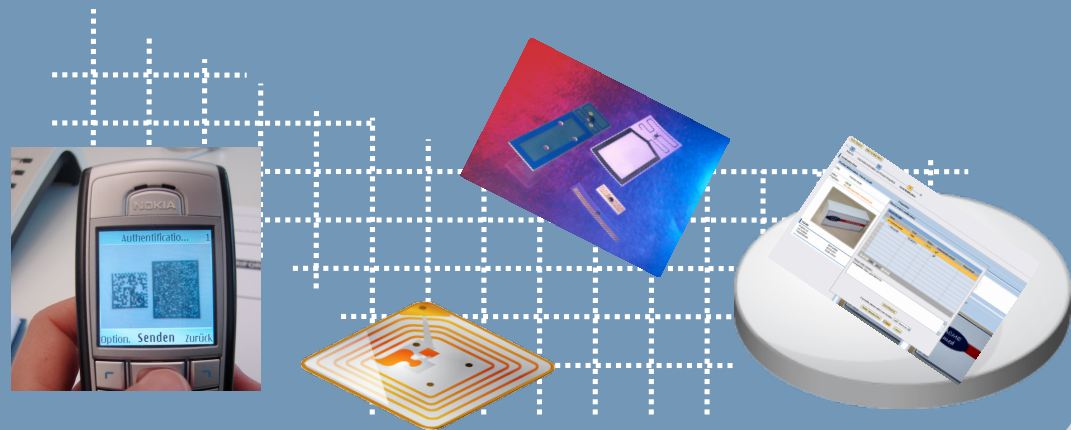
In combination with other technologies RFID can help implement

Secure product authentication

- ✓ to find and remove counterfeits from the value chain

Anomaly detection based on Track & Trace data

- ✓ to detect diversions, illegal trading activities while enabling multiple users in various situations to conduct checks



## EU Projects for Product Authentication and Anti-Counterfeiting



### SToP



- General solutions against counterfeiting and illicit trading
- Based on RFID and security feature combination, item-level event evaluation
- Practical application trials in **pharma, aviation, and luxury goods** in 2008
- SAP, Novartis, Richemont, Airbus, Spacecode, Bundesdruckerei, ORIA, Univ. St. Gallen

### BRIDGE



- Anti-Counterfeiting Business Application
- Enable track and trace based applications using **EPC technology**
- Anti-counterfeiting and recall prototype and evaluation in 2008
- SAP, ETHZ

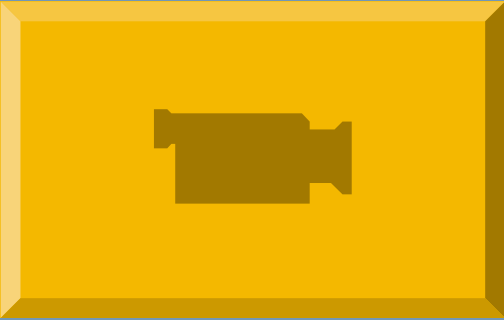
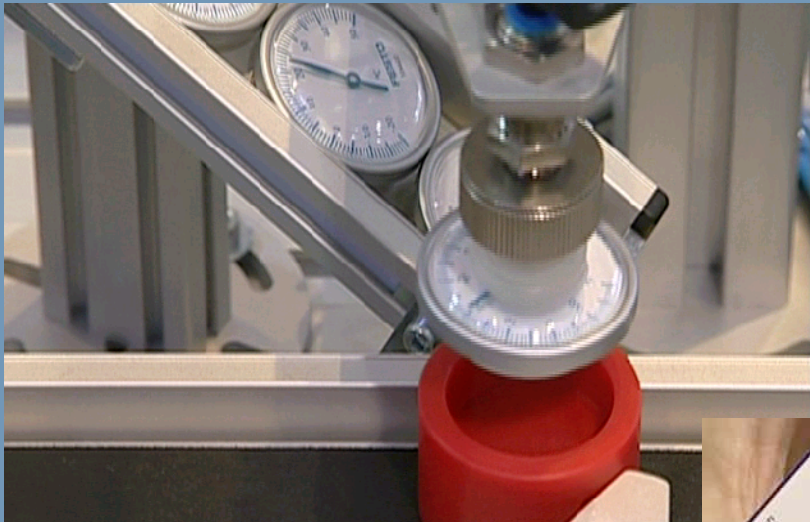


**Visit us at the exhibition and enjoy a  
demo on product authentication**

**Booths no. 18 & 19**



# Future Factory and Anti-Counterfeiting



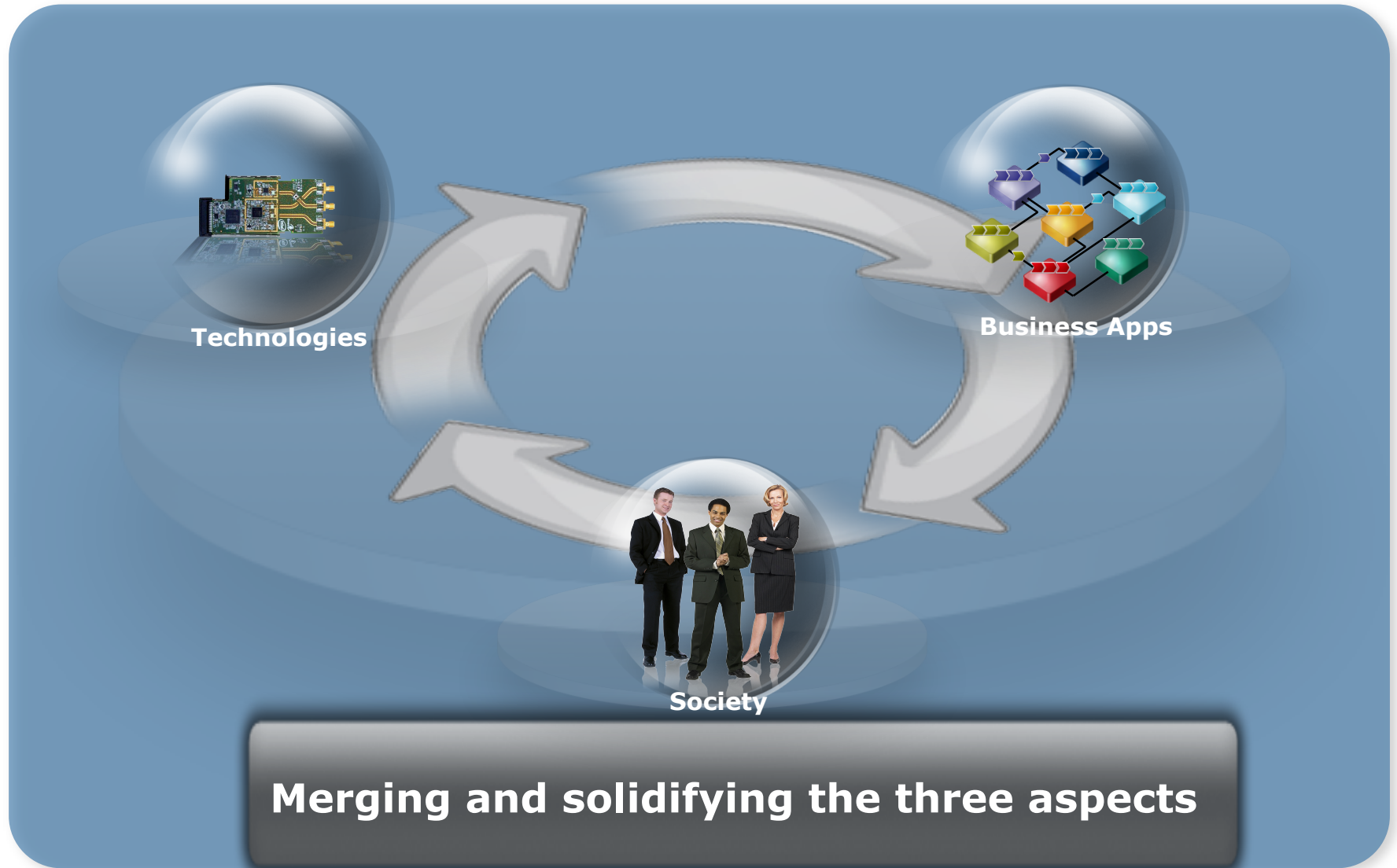


# Summary

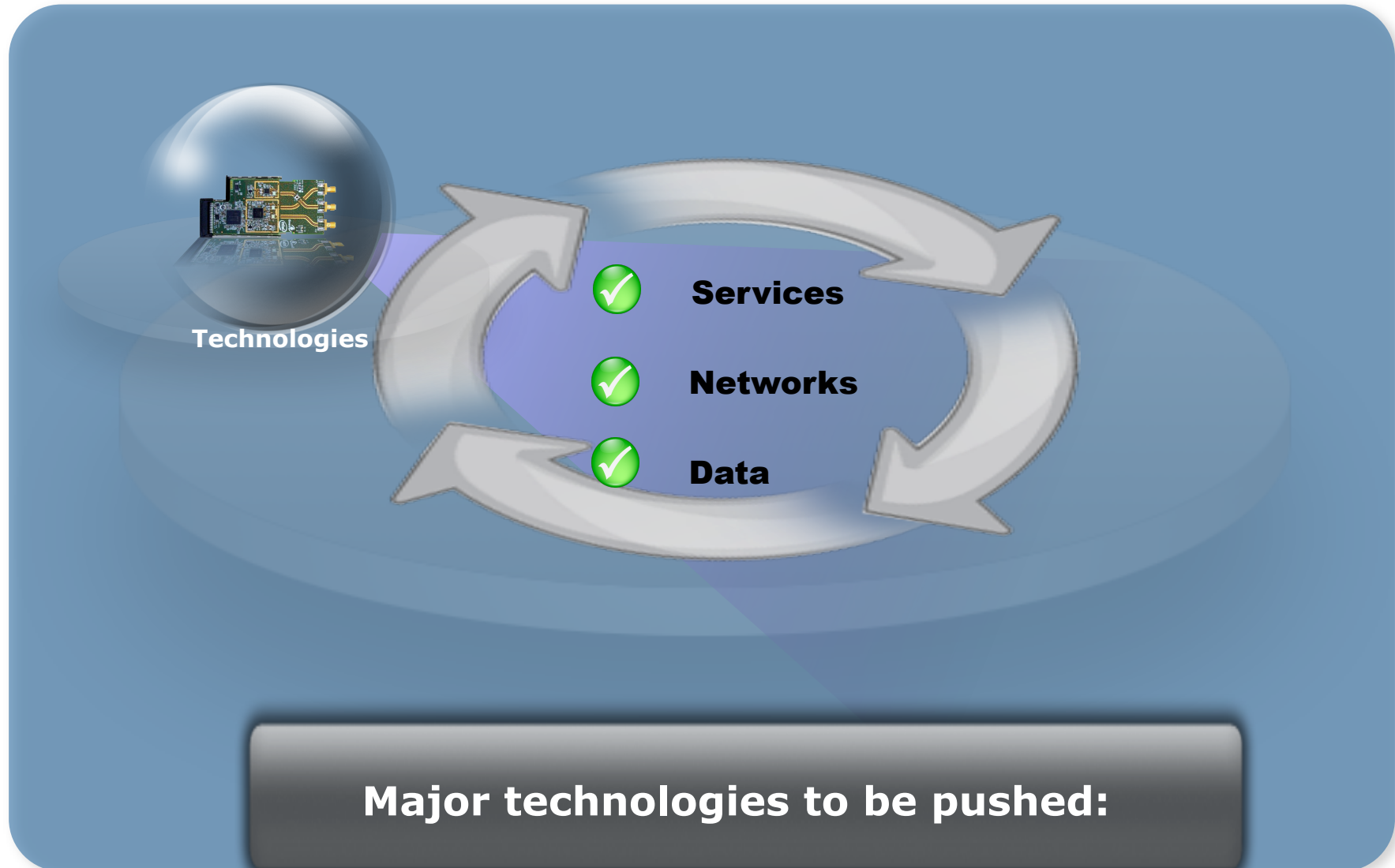
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# Where should Research focus on?

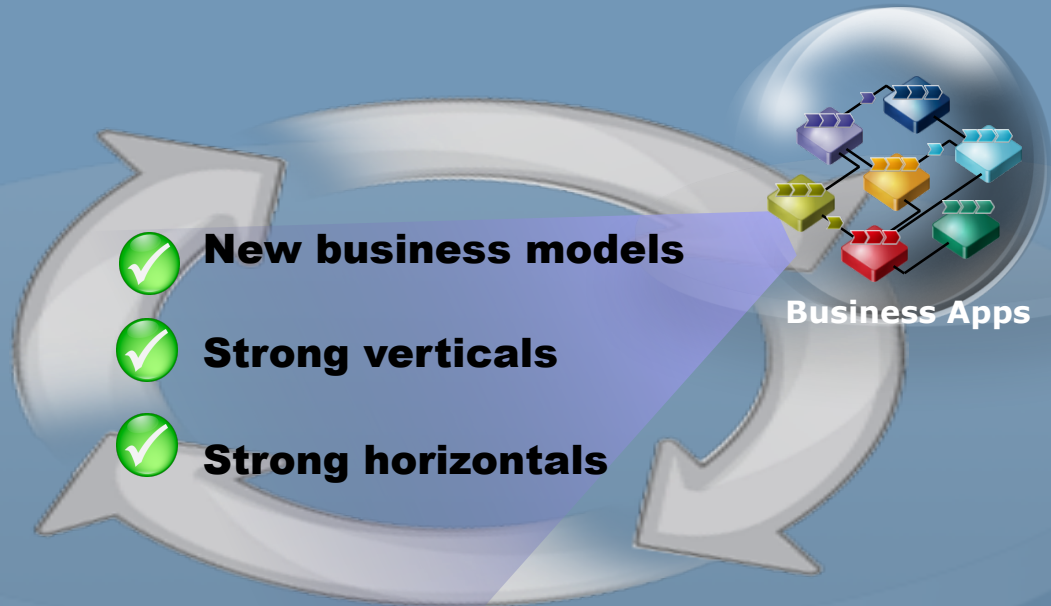


# Where should Research focus on? ...technologies



**Major technologies to be pushed:**

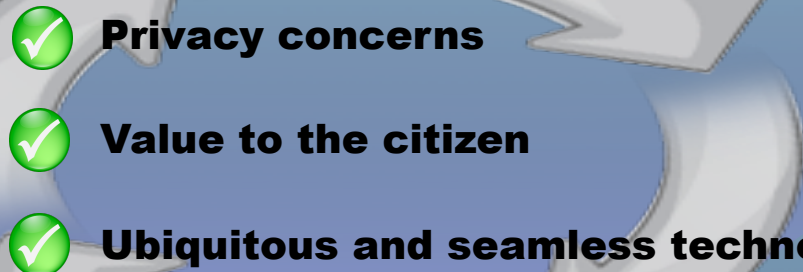
# Where should Research focus on? ...Business Apps



**..identify early adopters**

# Where should Research focus on? ...Society



- 
- A diagram of three large, grey, curved arrows forming a circle, pointing clockwise. In the center of the circle, there is a smaller, glowing blue sphere containing an image of three business professionals (two men and one woman) in business attire. Below the sphere, the word 'Society' is written in white.
- ✓ **Privacy concerns**
  - ✓ **Value to the citizen**
  - ✓ **Ubiquitous and seamless technology**

Society

**..communicate the values**

**Thank you  
for your attention**



**SAP**

**Meet the team at the booth !**



**SAP**