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*“Overview on topics that have been discussed:”*

- *Internet of service*
- *Not production, maintenance is important, during the life cycle of products most costs*
- ***What is the internet of things, definition and specification !!!***
- ***Change from centralized to decentralized systems → complete changes in product lifecycle management***
- *Problems of RFID accrues because most companies are not thinking over the borders of their own company, research programs should enable the work with RFID between companies or along the complete life cycle*
- *Needs of humans are changing over the day and the year, devices should enable the needed services*
- ***Technology platform and principles: universal numbering system → Japan UID, US and Europe EPC***
- *How can handle the middleware propagate events, event along the offline activity*
- ***Different data ownership along the lifecycle***
- *Service along the product lifecycle*
- *Additional benefits are very important for the technology to enter the companies*
- *Security in power plants*

*“List of prioritised societal, technological, economical aspects”*

- **Standards**
  - **reader, protocols, network, numbering systems**
- *Middleware*
- *Propagate systems*
- **Interoperability**
  - *Hardware and Software*
- **No large scale tries**
  - **pilots and prototypes**
- *Owner of data and items over the lifecycle*
- *Costs, security and complexity*
- **How can small and medium sized enterprises enter RFID?**

# Application fields

Workshop – “People/Technology/Process/Vision”



*“List of prioritised application fields”*

*IOT will impact on all application field:*

- *Logistics (especially open loop systems)*
- *Manufacturing/Production*
- *Industrial Automation*
- *Environment*
- *Transport*
- *Maintenance*
- *Anti-counterfeiting*
- *Health care*
- *Services*
- *Document management*

## “List of prioritised challenges/ roadblocks”

- *Energy*
- *Durability of tags for long-time use*
  - *Industry and research approach to overcome*
- **Standards and Interoperability**
  - *Approach: international authorities, research, industry*
- **Self-organization capability**
  - *Approach: international authorities, research, industry*
- *Adaptability*

# Challenges/ Roadblocks

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- “List of prioritised challenges/ roadblocks”
- **Security Hardware / Software**
  - approach: Academic and industry, national and international institutions
- Global services
- **Organization of data ownership**
  - approach: Industry driven best practises (i.e. Odette)
- **Governance of the internet of things**
  - approach: Political / technical
- Different data access models
  - Academic, national and international institutions
- Localisation and context awareness
  - Academic and industry
- Physical Robustness
  - Industry
- Regulatory challenges
  - National and international authorities

# SWOT Analysis

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## Positive aspects

## Negative / Challenging aspects

Europe

### Strengths

- a significant expertise and research base
- good companies developing services and products
- good availability of enabling technologies
- complementary infrastructure
- industrial sensors

### Weaknesses (roadblocks)

- little awareness of capability
- long decision process
- less living labs
- lack of consumer orientation
- high costs of communication
- no continues services in europe

General

### Opportunities (economical / societal benefits)

- enhance the manufacturing, anti-conterfeiting, transport, maintenance
- extention and enhancement of the market
- decreasing of bueaucracy and administration costs
- interconnectivity and information
- to invest in the growing market of services

### Threats (roadblocks)

- more aggressive competitors
- Japan povides personal service to customer
- risk of proprietary IOT platforms without europe

*“Particular European aspects and strategy recommendations”*

- *The development of the IOT will have an huge positive impact on European business and people*

- *Living labs for IOT*
- *providing enabling technologies*
- *invest in research IOT platforms*
- *Develop process foundations and models to exploit the emergent capabilities of IOT and the technology platforms for interfacing with the physical world*
- *object driven vision*
- *search for services that filter relevant information from existing data*
- *smart knowledge enhanced intelligent rfid*

**Thank you for  
your attention!**