

Internet of Things

- an essential part of the
Future Internet

A Point of View from SAP Research

SYSTEMATIC THOUGHT LEADERSHIP FOR INNOVATIVE BUSINESS



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THE BEST-RUN BUSINESSES RUN SAP



Agenda & Goal of the Presentation

- The Internet of Things – one specific view on the Internet
 - Where we are? → State
 - Where do we want to go? → Potential and Business Value

- Digital Product Memory – an example
 - Introduction in current Research Projects
 - ADiWa – optimization of Business Processes

- Final Key Statement ...

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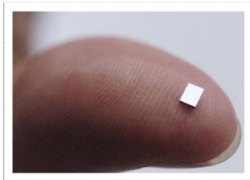
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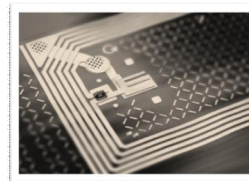
A definition: The Internet of Things is ...

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'A world where physical objects are **seamlessly integrated** into the information network, and where the physical objects can become **active participants** in business processes.'

Services are available to interact with these 'smart objects' over the Internet, query and change their **state and any information** associated with them, taking into account **security and privacy** issues.'



RFID, Sensor Networks etc. are just enabling technologies!

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Latest Solutions Go Far Beyond RFID

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COMPUTING

STORAGE

NETWORK

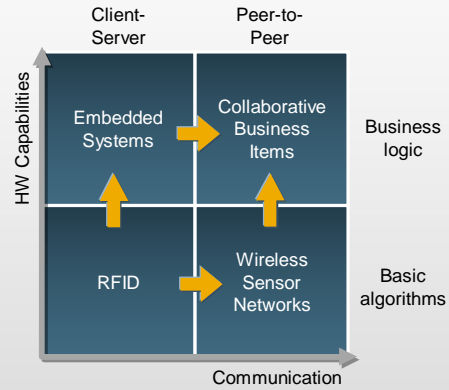
SOA

SAAS

WEB 2.0

Achieving a New Level of Real-World Awareness

- Increasing Sensing, Actuating, and Computing Capabilities - from passive to active, autonomous items
- From simple data acquisition to business logic on the item
- Increasing connectivity with environment & information systems - networked embedded devices
- Real world awareness: identity, location and sensory information



Discrete **everyday objects** in the real world become **smart items**

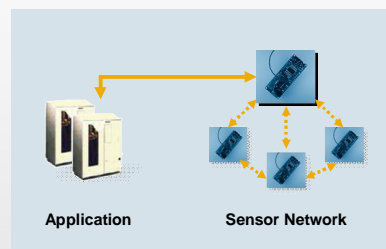
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Next Generation Business Applications Applications and Sensor Networks

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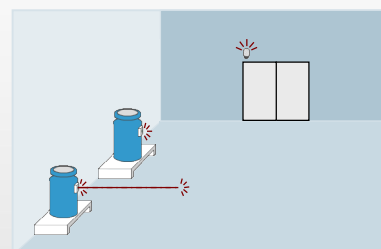
Convergence of Applications and Sensor Networks



Central and local business logic

- Central applications
- Local sensor networks
- Real-time data exchange

Example: Hazardous Goods Mgmt



Monitored safety rules

- Incompatible Goods
- Storage Limit
- Safe Storage Environment

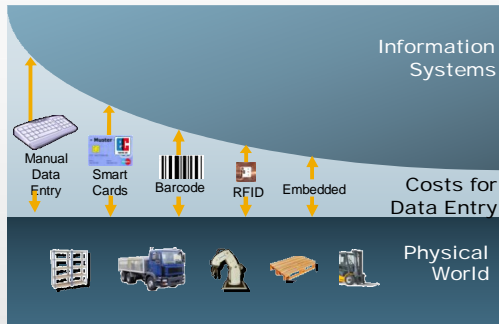
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Technical Evolution enables new business opportunities

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Bridging the Gap



- Leveraging the full potential of machine sensing
- Better Information for Better Processes ...

High Resolution Management



New dimension of insight

- High frequency of data collection
- High density of data points
- Near real-time data, extended bandwidth
- Low cost

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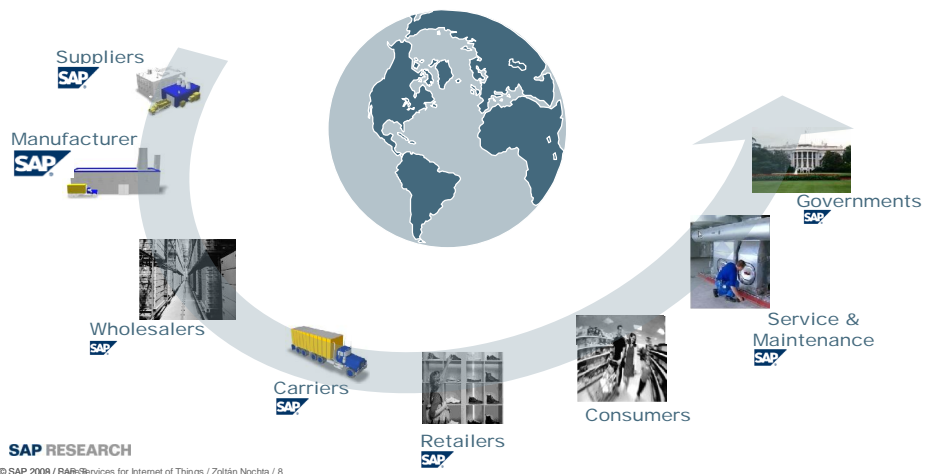
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Today's Internet of Things - Disconnected 'Local Area Networks of Things'

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Enterprises have been deploying their own Intranet of Things

- Focus on isolated scenarios, no real global scenarios in operation that use serialized item information (stored in RFID tags, barcode, etc.)



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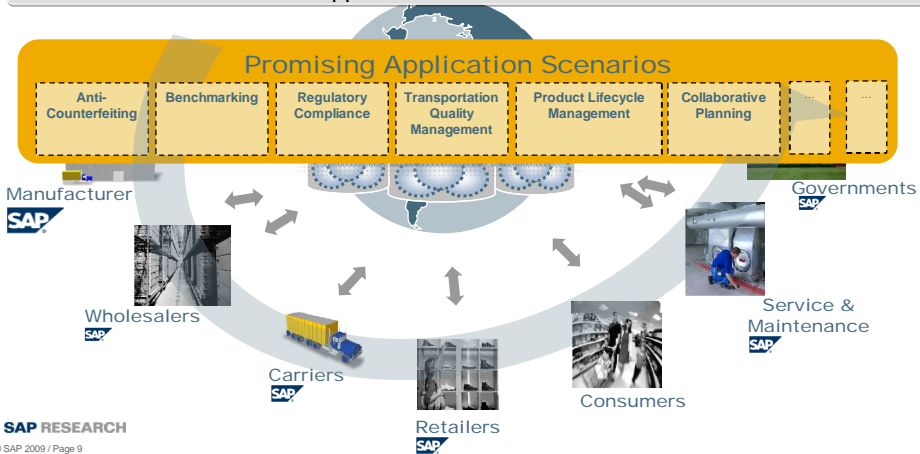
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Tomorrow's Internet of Things - Collaborative Application Scenarios

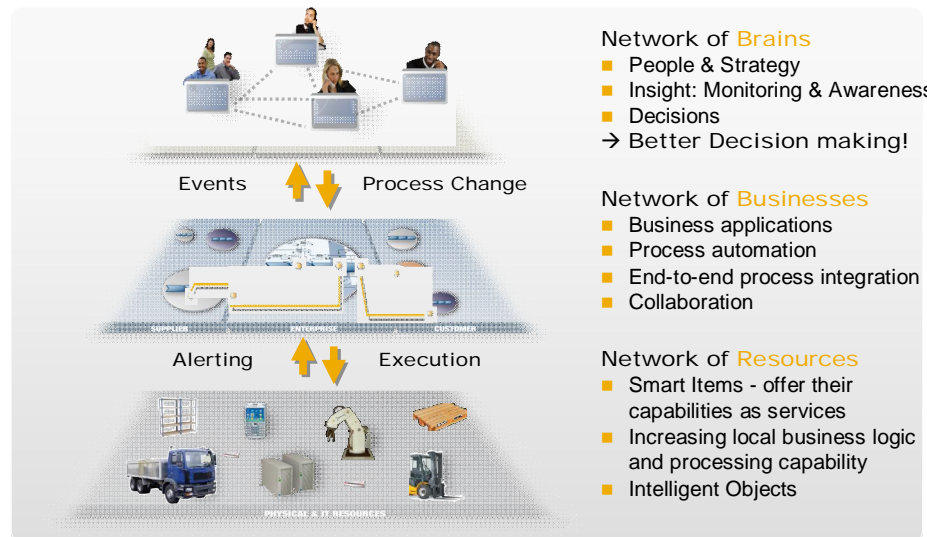


Connecting different parties along the logistics chain and using their respective data has enormous potential

- Appropriate technologies and some rethinking needed
- New business models arise
- Next Generation Business Applications



The Big Picture: Everything is Part of The Network



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Business Value for the 'Digital Enterprise': Become "Clear" to Drive Success

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- 
- Transparent and accountable
 - Lean, agile and adaptive
 - Collaborative & customer-centric

How to achieve ‚Clear‘: Innovation Cluster Digital Product Memory

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ADiWa



Access to Product Memory (Manag. of Business Processes)

- ADiWa = Alliance Digital Product Flow („Digitaler Warenfluss“)
- Dynamic & adaptive management of business processes
- Convergence of Internet of Things, Internet of Services and SaaS

Aletheia



Long-term Memory (Product Classes – Holistic view)

- Semantic federation and harmonization of product information from heterogenous sources
- Extraction of information out of unstructured documents
- Context awareness, long-term reusability of product information

SemProM



Short-term Memory (Product Instances – intelligent Objects)

- SemProM = Semantic Product Memory
- Detailed, short-term information out of the product life cycle
- Equipment of real objects with product memories (history)



Real World – Physical Entities



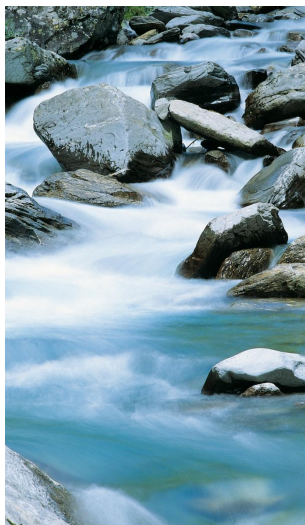
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What's ADiWa? (www.adiwa.net)

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From ‚Internet of Things‘ (IoT) to intelligent Business Processes

In the context of a BMBF (German Federal Ministry of Education & Research) funded research project, the main german companies offering business software – together with partners from science and industry - want to drive the usage of ‚Internet of Things‘ in intelligent business processes.

Goal is to model, optimize and control dynamic business processes with direct information of the physical world, supported by ‚Real-World Awareness‘ technologies and ‚Digital Product Memory‘. This is a major building block for the ‚Digital Enterprise‘.

Vision of ADiWa:

- Usage of all process relevant information out of the ‚IoT‘
- Flexible composition and dynamic & variable adaption of business processes in enterprises
- Generating Business value & new Business Models

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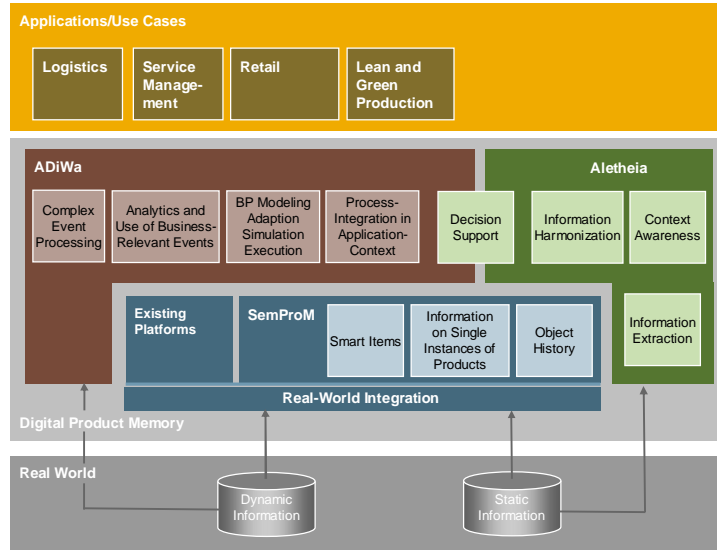
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ADiWa. | ALLIANZ
DIGITALER
WARENFLUSS

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Alliance Digital Product Flow - ADiWa Structure & Aspects, Relation Diagram



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The Future Internet: An Integral Part of the Future Internet!



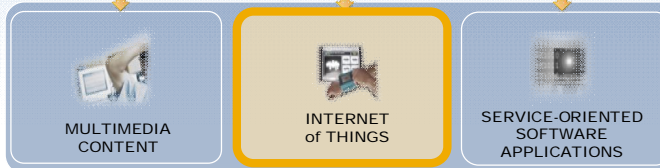
NETWORK PARTICIPANTS



OPEN PLATFORM FOR NETWORKS



NETWORK ENABLER AND FOUNDATION



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Thank you for your attention!

QUESTIONS - SUGGESTIONS - DISCUSSION



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