Industrie 4.0 - Business im Internet der Dinge

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Forschung
Fokus Enterprise Collaboration Systems, zum Beispiel im Hinblick auf Adoption, Gamification, Social Analytics

Lehre
Unterrichtsmaterial für Vorlesung und Übung als Unternehmensplanspiel

UniConnect
Gehostete Collaboration-Plattform für Lehreinrichtungen, basierend auf IBM Connections mit Blogs, Wikis, Activities, etc.

Mitglieder
Community bestehend aus Lehrenden und Studierenden

University Competence Center for Collaboration Technologies

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New era of computing: defined by three shifts

**SHIFT 1**
Data is becoming the world’s new natural resource, transforming industries and professions.

**SHIFT 2**
The emergence of cloud is transforming IT and business processes into digital services.

**SHIFT 3**
Mobile and social are transforming individual engagement – creating expectations of security, trust and value in return for personal information.

**OUR POINT OF VIEW**
Data is the new basis of competitive advantage.

**OUR POINT OF VIEW**
Cloud is the path to new business models.

**OUR POINT OF VIEW**
A systematic approach to engagement is now required.
Leaders need to move beyond today’s discrete and disparate innovation

AND THE CIO ROLE IS EVOLVING RAPIDLY

80% of IT initiatives will be decided by line of business by 2016. (IDC)

61% of IT spend is funded by line of business. (IDC)

40% of IT hires are recruited primarily for business skills. (IDC)
Enterprise innovation will be realized through the integration of new era technologies with core systems.
Challenge for the European economy?

Linear PPP forecast without IoT effects

- Key industrial countries will decline without innovation
- Countries with natural resources will keep or grow their positions
- IoT / Industrie 4.0 is a matter of survival for the European industry!
Industrial Internet Consortium (IIC),
Industrie 4.0 and IoT now focusing similar goals

Source: IIC, Dr. Datta: The next Tsunami
Individuality drives customer demand

20th century: the mass era

21st century: era of the “new individual”(*)

(*) “… a new awareness that I call psychological self-determination…”

Shoshana Zuboff, Charles Edward Wilson Professor of Business Administration, Harvard Business School
Trends supporting Industrie 4.0
lotsize 1 to volume production and v.v

**Consumer**

spreadshirt.de
- Buy self-designed T-Shirt
- Offer motives and make money

**Business**

Dillinger Hütte:
- pure order related production
- many unique customer specifications
- extremely complex production sequence
- a function of specified product properties.
- Lot size 1
Why should we be interested?

1% savings from efficient Industrial Internet solutions could save billions in operational costs

$30B  
fuel cost saving in aviation industry

$66B  
fuel cost saving in gas powered fleets

$63B  
productivity improvement in healthcare

$90B  
reduction in Cap X in oil & gas exploration and development

$27B  
productivity improvement in rail industry

*Projected savings are based on 1% efficiencies/savings

Source: Industrial Internet: Pushing the Boundaries (2012, Evans & Annuzziata)
Which are the megatrends in context of IoT?

**IT Trends**
1. Virtualization
2. Cloud Computing
3. Internet of Things
4. Big Data
5. PMQ Analytics
6. Mobile & Social Business
7. Security

**Business Trends**
8. 3D Printing
9. Collaborative Robotics
10. Open Source Electronics

Source: IBM PoV 2014 for Power & Automation Equipment Industry and IBM Research

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The underlying trends

From a world of...

- Products
- Outputs
- Transactions
- Suppliers
- Elements

... to a world including

- Solutions
- Outcomes
- Relationships
- Network partners
- Ecosystems

The shift to services requires business model innovation

Source: Prof. A. Neely, University of Cambridge
Industrie 4.0 supported by IBM Smarter Planet Strategy

**Smarter Planet**

- INTELLIGENT
- INTERCONNECTED
- INSTRUMENTED

**Smarter Manufacturing**

The digital advantage:
- 9% Revenue
- 26% GP
- 8% Corporate Value

Source: MIT Sloan Study

- Big Data & Analytics
- Verticale Integration
- Internet of Things and M2M
Industrie 4.0: new business, innovative and disruptive

Collaboration

Cloud

Horizontal Integration and B2B

Security

Big Data & Analytics

(vertical Integration

Internet of Things and M2M

(embedded) Development

Rules, Events, mathematical Optimization

Mobile

INTELLIGENT

INTERCONNECTED

INSTRUMENTED

IBM

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IIB Manufacturing Pack – IBM Industrie 4.0 product

"Keyless vehicle access in real-time via the app" "next Generation Car Sharing"

MQTT - Reliable Open Standard message based communication with a Quality of Service
Real-time communication with cars for a seamless user experience
THE BUSINESS NEED

Enable online shoppers to create personalized gifts.

Lindt was looking for a platform and vendors that would grow with them. The chocolate business moves very quickly between holidays, so they must respond with seasonal promotions just as rapidly—and deliver a premium experience.

Lindt sought a solution that would make it very easy to manage promotions, scale capacity and personalize interactions.

https://www.lindt-shop.de/schokoladen-shop/individuelle-produkte.html

THE SOLUTION

IBM’s WebSphere Commerce Platform with CrossView’s Aurora Plus Commerce cloud were deployed.

Flexibility associated with the IBM WebSphere Commerce platform now enables Lindt to quickly build and execute highly personalized seasonal promotions around holidays for which chocolate is the go-to gift—think Valentine’s Day to Christmas and everything in between.

Through microsites, Lindt can launch holiday-based promotions and campaigns that sell highly targeted offerings.

Moreover, because the solution is cloud-based, Lindt can quickly scale capacity up and down as demand increases for each holiday.

THE BENEFIT

Doubled conversion rates and tripled mobile revenues.

In addition to personalized promotions, Lindt can now use its web store to offer a custom range of products. Shoppers can mix and match products to build personalized gifts—choosing quantity, type of chocolate, packaging and messaging.

The site allows Lindt to engage with customers in meaningful, thoughtful ways, and to understand their behavior.
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THE BUSINESS NEED

Adopt a new approach to mobile security.

The bank needs to protect the organization's existing mobile banking application by adding device risk analysis.

The solution needs to enable the bank to detect high-risk access from compromised or vulnerable devices.

The bank also wants to generate a persistent mobile device ID for unique device identification.

THE SOLUTION

Antifraud solutions from Trusteer, an IBM company, help secure mobile transactions.

Using crowdsourced intelligence from 100M+ endpoints, Trusteer monitors bank customer activity for evidence of fraud.

Browser attacks and account take-over attempts can be detected, and the bank and the customer are notified.

Trusteer can disrupt the attack chain using advanced analytics to identify behavior anomalies across millions of users.

THE BENEFIT

The bank stopped $1M in attempted fraudulent transactions in the first week.

The bank prevented $60M in fraudulent activity the first year of deployment.

The bank’s customers’ transactions are secure, protecting the bank’s reputation and relationships with customers.
**The Business Need**

**Pervasive Security Intelligence**

**International Energy Company**

**The Business Need**

**Protect critical assets from diverse global threats; help detect advanced threats.**

The IT security team needs a global view of the enterprise security posture.

The enterprise must respond to and meet critical infrastructure regulatory mandates.

The organization needs to identify and prioritize vulnerabilities across its IT infrastructure.

**The Solution**

**IBM Security QRadar provides integrated intelligence in a single security console.**

Combine analysis of historical data with real-time alerts to gain a “big picture” view of the security landscape, providing visibility and situational awareness.

Automatically uncover patterns of unusual activity that humans miss and immediately block suspected traffic.

Automate security operations while improving visibility.

**The Benefit**

The company analyzes 2 billion logs and events per day to find 20–25 potential offenses to investigate, a 99.999999% data reduction. Automated compliance operations for PCI (6 million daily transactions) and NERC (SCADA system monitoring).

The company’s security investment is protected through integration and real-time correlation of data from hundreds of security partners.
“.. performance improvements designed to make your messaging experience even better. To do this without killing battery life, we used a protocol called MQTT ... designed to use bandwidth and batteries sparingly... phone-to-phone in hundreds of milliseconds, rather than multiple seconds.”

- Lucy Zhang, Facebook Engineer

www.facebook.com/lucyz