Industry 4.0 – Smart supply chain

DOAG, June 2015
Research results promise tremendous benefits coming from the new digital revolution... but there is quite some uncertainty about the when and the what...

Core questions to be answered

- Is this all realistic?
- Which will be the first mass applications with the right level of maturity?
- Where are the robust business cases?
- How do we know what to do when?
- What is the competition doing?
- What happens with the employees when we are automating even more?
At the same time there is a massive technology development and the pace of customer adoption of new technologies increases.

"I think there is a world market for maybe five computers."  
*Thomas Watson, IBM Chairman*

Source: Kind B. (2011) Bank 2.0: How customer behaviour and technology will change the future of financial services.

*Mass market adoption is measured as 25 percent of the population for developed economies such as the US, the UK, France, Germany and Australia, or 100 million persons globally.*
Some companies are still hesitating to conduct a Digital Transformation although numbers indicate that it improves the profitability.

Handelsblatt 12.05.2015

Medium-sized companies are scared to digitalize

Stuttgarter Zeitung 21.05.2015

The one that still sleeps, has almost lost

Google Trends

# search on “Industry 4.0”


Industry 4.0

Technology enablers

M2M  Mobile  Community

Analytics  Cloud  3D-Printing

Robotics

Companies that have an overarching digital vision, an excellent governance across silos and digital initiatives gain a significant better market performance

26 % more profitable and 9 % better revenue generation efficiency compared to the average performance of all large firms in the same industry

Content

Capgemini group and Digital Transformation background

Industry 4.0 framework – Smart Supply Chain

Use cases in Smart Supply Chain
Capgemini is one of the world's leading consulting companies with revenues of EUR 10.6 bn. in 2014 and offices all around the world.

**COMPANY**
- Listed on the Paris stock exchange (CAC-40)\(^1\)
- EUR 10.6 bn. revenues (2014)
- Top 5 consultancy worldwide
- Two thirds of the world’s largest companies are our clients

**PEOPLE**
- 143,650 employees
- Offices in 44 countries

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1  Index of leading shares of the 40 biggest French incorporated companies at the Paris stock exchange
As of today, Capgemini Consulting has one of the strongest global footprints on Digital Transformation.

Dedicated: with 35-40% of consulting projects being focused on Digital Transformation.

Digital Maturity Assessment

Pillars of the Digital Transformation

Industry’s Digital Transformation framework

Research insights

Proprietary methodologies

Thought leadership

Cooperation with world renowned academic institutions
In cooperation with the MIT, Capgemini Consulting has conducted a wide range of reports to identify the strategies of Digital Leaders and empirical evidence of their resulting effects.
Parallel to the traditional challenges, Capgemini are analyzing the trends and new solutions that are vital for the SCM future.

The future of SCM is determined by the intelligent application of new technologies for the benefit of end users and to increase productivity.

3 out of 6 major trends are fully technology driven.

Source: Capgemini analysis based on the Gartner Hype Cycle model.
Content

- Capgemini group and Digital Transformation background
- Industry 4.0 framework – Smart Supply Chain
- Use cases in Smart Supply Chain
Today’s digital technologies can be applied to target fundamental business challenges and thereby trigger a new industrial revolution: Industry 4.0

Industry 4.0 is a term that spotlights the 4th industrial era and at the same time marks the fusion of the physical and the virtual world that leads to Digital Transformation of the manufacturing sector.
Our framework displays the key elements of transforming towards Industry 4.0 with future value drivers in its centre.
Smart Supply Chains are highly integrated and automated, enabled by the use of digital technologies and cyber-physical systems.

- **Smart Supply Chain** is leveraging the power of Data and Digital Technology to achieve world class performance in terms of costs, cash, and customer satisfaction, creating competitive advantage and seizing new business opportunities.

- **Smart Supply Chain** is connecting customers, companies and suppliers in order to create transparency, reliability and efficiency by intelligent use of information throughout the Value Chain from Demand to Supply.

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**What?**

- **Smart Supply Chain**
  - Agile collaboration network
  - Connected supply chain

**Why?**

**How?**

- Conduct Digital Maturity Assessment
- Identify Opportunities & Threats
- Derive Digital Vision & Agenda
- Prioritize Transformation Domains
- Derive Digital Roadmap
- Implement & Sustain the Change
- Define Digital Maturity Assessment
- Conduct Digital Maturity Assessment
Through Agile Collaboration Networks, manufacturing companies can truly leverage the opportunities arising from the globalized marketplace of skills and capacities.

**Agile Collaboration Network**

- **Shared CAD-platforms, enhanced visualization technologies, social media**
- **Collaborative Technologies**
- **Globally distributed expert resources & business partners**
- **Skills & Resources**
- **Production resources flexibly shared within the supply network**
- **Capacities**
- **Online bidding portals, marketplaces for knowledge resources or productive capacity**
- **Portals & Marketplaces**

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In order to flexibly develop comprehensive solutions solving unique customer needs, manufacturers must leverage the opportunities arising from the global marketplace of skills and capacities.

- **Focus on core competencies**
- **Increased cost efficiency**
- **Increased agility**
- **Enhanced solution portfolio**
By linking data and physical material flows, the Connected Supply Chain enables an end-to-end vertically integrated and transparent process chain.

The Connected Supply Chain will be a centerpiece for operational excellence of any Industry 4.0 strategy.
Holistic electronic traceability, cost reduction and optimization of workforce productivity are only some benefits of Connected Supply Chain

Benefits of Connected Supply Chain

- Provides the **holistic electronic traceability** of the clients product at any time and **visibility of supply network movements**

- The **real-time status information** of the product allows to **operate and schedule connected processes precisely** and therefore **minimizes costs** (optimal timing, volumes & routing) and process deficiencies (e.g. delays)

- **Inefficiencies and risks can be recognized and resolved at the source**, which increases the robustness and responsiveness of the supply network to perturbations

Benefits and opportunities for manufacturing companies that arise from the transformation towards Industry 4.0 are manifold, extensive and lasting.
As initial step for a Digital Transformation a company needs to understand its current situation and thereafter explore its opportunities.

**Approach to initiating Digital Transformation**

- **Conduct Digital Maturity Assessment**: A deep understanding of the current status of digitization in the organization.
- **Identify Opportunities & Threats**: Explore opportunities, look into altering customer demands, competition dynamics and digital best practices across all business domains.
- **Define Digital Vision & Agenda**: Top-down definition and communication of a digital vision incl. short- and long-term objectives.
- **Prioritize Transformation Domains**: Prioritize the transformation domains based on the perceived business benefits and ease of implementation.
- **Derive Digital Roadmap**: Create a common roadmap that outlines the transformation journey in a phase-wise approach.
- **Implement & Sustain the Change**: Implement and sustain the change process across the defined transformation domains.

Transforming towards Industry 4.0
Content

- Capgemini group and Digital Transformation background
- Industry 4.0 framework – Smart Supply Chain
- Use cases in Smart Supply Chain
By implementing various Oracle tools Schneider Trucks is now able to track each load and measure truck and driver performance

Oracle and Schneider National use case

**Challenges**

- Drivers, customers and business partners had no convenient access to information and services
- People and asset inefficiency weighed on profits and growth, while also increasing costs

**Solution**

- Standardize, simplify and transform the core information system
- Implement a next generation IT platform to manage quote-to-cash process across the company’s business units
- Implement Oracle’s Siebel CRM applications, Oracle Transportation Management and Oracle E-Business Suite
- Use of custom and third-party applications and standardized integrations with customers and suppliers

**Benefits**

- Truck and driver performance can be measured
- Complete tracking of each load give customers visibility into their shipments
- Near-real-time information sharing between office associates, back-office systems and driver fleet

Warehouses can improve time, speed and efficiency while reducing picking mistakes by using a hands-free augmented reality solution and smart glasses.

**SAP & Vuzix use case**

- **Integration of smart glasses and connectivity with SAP Mobile Platform (or other gateway software)**
- **QR-code and bar-code scanning with smart glasses**
- **Picking process guidance with step-by-step audio and visual prompts**
- **Voice-recognition functionality for menu navigation and commands**

**Challenges**

- Every second is valuable in a warehouse picking process.
- Currently much time is spend when operators interact with handheld scanners and devices.

**Solution**

- Faster and more accurate picking process when workers receive hands-free guidance.
- Warehouse efficiency gains that help the bottom line.
- Rapid time to value with fast implementation and quick adoption of intuitive software.

**Benefits**

Introducing a control tower into a silo-focused supply chain will result in an increased visibility on end-to-end flows and decreased operating costs.
In all industries have companies started with a Digital Transformation adopting Industry 4.0

Excerpt of Industry 4.0 use cases

- Predictive quality
- Connected chassis platform

- Smart street lighting
- Predictive maintenance

- 3D-printing cloud for spare parts
- Smart Service
If there are any questions, do not hesitate to ask!

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