Evonik

Digitalization to transform the creative power of specialty chemicals

20.09.17 | Dr. Elmar Rother, Evonik Digital Brussels

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What we don't do

CAR TIRES  TOWELS  MATTRESSES  NUTRITION  TABLETS
What we do
Living better with Evonik

more fuel saving  fluffier  more elastic  healthier  more effective

CAR TIRES  TOWELS  MATTRESSES  NUTRITION  TABLETS

Countless products gain their special attributes through our creative power.
Who we are
Evonik at a glance

~13 Billion Euro turnover in 2016
80% Of turnover gained from leading market positions
172 Sites

>35,000 Employees in over 100 countries
2.165 billion Euro EBITDA 2016
~500 R&D projects

20.09.2017 SPIRE workshop Brussels
So what could digitalization mean for a speciality chemicals producer ....and the chemical industry in general?
Digitalization means creating, communicating, delivering, exchanging offerings that have value for customers ...

... whereas we use “industry 4.0” pragmatically for digitalization on the shopfloor level.
Industry 4.0 is regarded as the future of manufacturing promising significant impacts on entire industrial sectors based on digital technologies.

- 10 - 40% reduction of maintenance cost
- Productivity increase by 3 - 5%
- 20 - 50% reduction in time to market
- 30 - 50% reduction of total machine downtime
- Forecasting accuracy increased to 85+
- Costs for inventory holding decreased by 20 - 50%
- Costs for quality reduced by 10 - 20%
- 45 - 55% increase of productivity in technical professions through automation of knowledge work

The segment Technology & Infrastructure has set up several digital programs to digitize production and supply chain of Evonik

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<td>New ways of working: Organization, qualification, and communication</td>
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The „digital plant“ will further increase safety and efficiency

Modular Engineering
- Flexible plant configuration
- Shorter „time to market“ to supply technical samples and individualized products
- Integrated, consistent plant documentation along the asset life cycle

Remote Assistance and Control
- Introduction of a 2nd surveillance layer in the plant surroundings
- Focus on further improvement occupational health and safety
- Adopt real-time remote plant control architectures to chemicals
- Connected devices and predictive data analytics as pre-condition
Evonik has secured access to an international technology partner network – the Industrial Internet Consortium

The Industrial Internet Consortium® at a glance

• Access to testbeds for technology development
• Working groups for IoT (Internet of Things) architecture and standards
• Exchange with international industry associations
• Cooperation agreement with "Plattform Industrie 4.0“ of German federal government
• Founding members

- at&t
- CISCO
- GE
- IBM
- Intel

• Evonik first member from the chemical industry
In Evonik’s relevant end-markets products, value creation and business models are changing

- Personalized offerings and interactions
- Increased availability and utilization of information
- Increasing connectivity and self-monitoring

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End-consumer and products

- Personalized offerings and interactions
- Increased availability and utilization of information
- Increasing connectivity and self-monitoring

Competitors and business models

- Market entry of technology companies
- Increasing consolidation tendencies
- Approaches for business development and R&D
# Digital thinking and acting is a twofold challenge

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<th>Challenge</th>
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<th>Starting points</th>
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<td>Management of customer touch points</td>
<td>Adapting existing business and processes to digital environment</td>
<td>„Ensure Digital Connectivity“</td>
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<td>Management of internal value creation</td>
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### Internal focus

### External focus

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<tr>
<th>Business model innovation</th>
<th>Exploring disruptive business opportunities</th>
<th>„Business Prototyping“</th>
<th>e-Commerce Platforms</th>
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<td>Artificial Intelligence</td>
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In essence a business model is defined by assumptions about what a company gets paid for.

Using the Design Thinking Method potential business models are continuously questioned from customer’s POV

- Is there a real customer need? "Do they want it?"
- Is it (economically) viable? "Should we do it?"
- Is it feasible? "Can we do it"
Evonik Digital is the link between the businesses & methods to foster the development of data driven business ideas

- "Shelter" for the incubation of digital businesses
  - User centricity through design thinking
  - Minimal viable product approaches (MVP) and iterative processes
  - Testing of new platforms without integration into Evonik SAP systems
  - "Speed before bureaucracy"
  - Opening up to third-party business

- Coordinated setup and expansion of partner network

- Systematic bundling of competencies

- Business concept from service provider to “BuildOwnOperate(Transfer)"

- Focal areas e-commerce, sensor technology & virtualization
## Approaches to digital thinking and acting affect the entire company

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<th>Customer Centricity</th>
<th>Speed &amp; Agility</th>
<th>Ecosystem</th>
<th>Competence</th>
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<tr>
<td>“Think from customer's perspective and get feedback”</td>
<td>“Build – measure – learn fast, get things done”</td>
<td>“Leverage external ecosystem to drive and accelerate digital”</td>
<td>“Gain new internal digital competencies”</td>
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<tr>
<td>Use data to better understand customer needs</td>
<td>Deploy iterative approaches for tailored solutions (e.g. “Minimum Viable Product”)</td>
<td>Access an ecosystem of digital players (e.g. start-ups, prototyping firms)</td>
<td>Leverage existing digital competencies</td>
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<tr>
<td>Engage customers in co-creation of digital solutions</td>
<td>Use agile, standard solutions</td>
<td>Leverage the ecosystem and “crowd” to develop digital innovations</td>
<td>Gain new digital skills for existing roles</td>
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<tr>
<td>Put customer experience in focus</td>
<td>Decide, kick-start and execute fast</td>
<td></td>
<td>Attract talent to build digital competence – where it counts</td>
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### Culture

“Flexible, cross-functional, start fast, fail fast attitude”

- Cultivate multi-disciplinary teams
- Encourage experiments, accept failure
- Foster self-learning and iteration
- Establish open, transparent collaboration
Working Out Loud methodology is introduced to improve networking skills through the digital connection of employees

**Objective**

- Establish Working Out Loud (WOL) as informal learning method based on transparent and open collaboration in a network

**Approach**

- Organize voluntary self-learning groups based on a structured, guided approach to help employees in becoming more effective, collaborative and engaged by using digital tools
- Institutionalize Working Out Loud in HR processes, e.g. employee onboarding
ChemEasy evolves into a customer centric e-commerce industry platform offering complementary non-contract commodity chemicals from 3rd parties

Objective

• Build on ChemEasy e-commerce sales channel functionality, by putting the customer at the center of the business model. Whatever the customer needs to buy they can buy it “ChemEasy”

Approach

• Using agile project framework and sprint methodology (SCRUM), rapidly develop and implement a prototype for an industry platform

• Empowering customers to make spot purchases of complementary chemicals used within the production process. Bringing suppliers and Buyers together

SCRUM = Framework for managing software development, designed for teams of three to nine developers who break their work into one-week to maximum four-week cycles, called “sprints”, and deliver workable software at the end of every sprint
PLEXIGLAS® webshop UK is first pilot to test B2B e-commerce as a direct sales channel

Objective

• Build up and test a B2B e-commerce webshop in UK; gain experiences in establishing and operating a B2B e-commerce PLEXIGLAS® solution for a possible rollout in other EU countries

Approach

• First step: Building up a webshop, find a logistic solution for UK and gain market insights
• Second step: Test phase with 12 customers, further development of the shop solution
• Third step: Public launch for the UK B2B market
Digital twins and cognitive systems are key game changers paving the way of the digital future of various industries

• Digital car models
• Digital health models
• Digital plant models

• Intelligent cars
• Digital healthcare assistance
• Smart manufacturing
Strategic partnerships like the one on IBM’s Watson technology are crucial for our mission.

The partnership with IBM will see Evonik benefit from the latest technologies and innovative projects IBM is spearheading, encompassing technologies such as cognitive and cloud based technologies such as blockchain, Internet of Things, and Industry 4.0 amongst others.

The partnership also allows Evonik to tap into IBM’s R&D technological breakthroughs such as quantum computing.
Evonik WATSON Knowledge Corpus is customized to create new advisory products and services for animal nutrition

Objective

• Cognitive knowledge analysis to identify relationships within unstructured data to support generating new hypotheses; insights to be used to create new advisory services for animal nutrition by 2020

Approach

• Enriching and training WATSON by “feeding” with public data and expert knowledge; focus on broilers disease and methionine supplementation in animal nutrition

• Validation of workshops results with experts and IBM after each session. Insights from WATSON to be integrated in the advisory services (SAP HANA based platform)
Sometimes it is better to not just draft a digitalization strategy, but first of all decide on priorities

Could digital technologies …

… improve the way you generate value?

… change how you target the customer?

…. affect the value proposition?

… enhance the enterprise capabilities?

… help to differentiate from the competition?
Some take home messages

- Neither single companies nor the society as a whole can afford to neglect the digital change - it needs to be actively shaped.

- The innovation model of the digital economy - speed, agility, flexibility - will gain importance also in traditional process industries → cultural change & competency development needed.

- We need a good IT infrastructure (broad band, >4G) also outside metropolitan areas in Europe.

- Digital to be introduced in education on all levels and professions; creativity & „entrepreneurial spirit“ more important than detailed IT knowledge for everybody.

- Leverage Europe’s strength in e.g. academic networks, B2B business, Supply chain, data security issues.

- Global view on digitalization necessary (interoperability).

- Finally, digitalization is in short about perceived customer value and trust - and that will decide about the progress.

Recommended reading:

Thesen zur Industrie 4.0 in der chemisch-pharmazeutischen Industrie: Realitäten, Perspektiven und Anforderungen

https://www.vci.de/langfassungen/langfassungen-pdf/2016-02-22-vci-kernbotschaften-industrie-4-0.pdf