Discover your digital potential
Our Digital Factory

Our Digital Factory provides an innovative environment, bringing together the old and the new world of supply chain and manufacturing operations.

- The Deloitte Digital Factory is the perfect place to accelerate your digital journey
- Different use cases along the value chain inspire and activate our clients to kickstart their digital transformation
- Finding the right technology mix and using it to build your strategy will make solutions fully scalable
- We support you all the way from definition of the digital strategy to transformation into a digital business model
- We deliver individual solutions comprising product development, procurement, quality, production, supply chain and logistics as well as integrated approaches
- We help clients define the right business model for their digital transformation
Our Digital Maturity Assessment

Our survey results show that digitalization can make businesses more profitable.

Key improvement areas on the road to digital maturity will only succeed if they are both improved in equal measure.
According to participants, the positive impact on EBIT resulted from digital investments in ...

- New Business Models & Services: <30%<20%
- Products, Services & Platforms: <20%<15%
- Value Chains & Digital Capabilities: <15%<10%

The Champion’s DNA

- Extensive collaboration with partners
- Improved knowledge management
- Improved governance
- Technology-enhanced product portfolio
- Efficiency vs. flexibility tradeoffs
- Integrated central IT system
- Clear scorecard
- Ambitious roadmap
- Extensive data analytics
- End-to-end digital supply chain
We provide evidence that digitalization reduces waste and redefines the value-add

Integrating disruptive technologies to enable industry 4.0 values.

• To demonstrate digital lean production, we simulate the production line of a Lego digger
• There are 4 stations along the manufacturing line – from incoming orders to the production of the axles and other components through to the final assembly and quality check
• Thanks to digitalization, we can reduce supply chain errors and increase efficiency. The digitized data allows us to define precise guidelines and improve automated planning as a result
• Full integration of the technical use cases in a Manufacturing Execution System (MES) gives the system its backbone and ensures flexibility, high transparency, traceability and simple control
From showcase to business case

Our survey results show that profitability is higher in digitalized business cases than in analog operations.

Biggest potential in decreasing production time by reducing waste

Waste: Searching for and reading the right instructions
Solution: The correct instructions automatically appear on the worker’s AR glasses

Waste: Quality Inspection
Solution: Visual Quality Inspection powered by Google Machine Learning will automatically do the necessary quality checks in the future
“The combination of the Digital Factory experience and the results of our new Digital Maturity Assessment enable us to generate a comprehensive set of best practices. We can show in detail why some companies are more successful on their digital journey than others.”

Harald Proff, Operations Lead
## We believe in integration

We have developed and integrated 11 use cases on our production line to demonstrate the potential. Here are the results:

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Logistics</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WIP</td>
<td>Picking time</td>
</tr>
<tr>
<td>3D printing (production)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AR-enabled pick-by-vision</td>
<td>-</td>
<td>-10%</td>
</tr>
<tr>
<td>RFID tracking</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MES / plant connectivity</td>
<td>high</td>
<td>-</td>
</tr>
<tr>
<td>Augmented work instructions</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Collaborative bots (Cobots) execution support</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Visual, real-time process monitoring and KPI measurement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3D printing critical machine/ factory parts</td>
<td>-</td>
<td>high</td>
</tr>
<tr>
<td>Visual remote guidance</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Video training on quality issues</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Customer integration</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend: high, middle, low
### Operational KPIs (only direct effect) with impact on OPEX

**Direct financial**
- Labor
- Assets
- Material

**Indirect financial**

**OPEX**

<table>
<thead>
<tr>
<th>COPQ</th>
<th>FTT</th>
<th>Time</th>
<th>Productivity</th>
<th>OEE</th>
<th>Safety / Ergonomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2%</td>
<td>+2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-3%</td>
<td>+3%</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-6%</td>
<td>+9%</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>-6%</td>
<td>+7%</td>
<td></td>
<td></td>
<td></td>
<td>low, low</td>
</tr>
<tr>
<td>-4%</td>
<td>+2%</td>
<td></td>
<td></td>
<td></td>
<td>high, high</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mid</td>
<td></td>
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</tr>
<tr>
<td></td>
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<td>mid</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>mid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Use Case**
- WIP
- Picking
- Picking time
- Picking accuracy
- Internal rejects
- Rework/scrap costs
- Customer rejects
- Warranty costs
- COPQ
- FTT
- Order lead time
- Production lead time
- Delivery performance
- Assembly prod.
- Prod. steering efficiency
- Asset utilization
- Asset performance
- Safety
- Ergonomics

**Impact**
- Low
- Mid
- High

**Examples**
- 3D printing (production): low
- AR-enabled pick-by-vision: -10% +12%
- RFID tracking: -9% +12%
- MES / plant connectivity: high, mid
- Augmented work instructions: -6% +7%
- Collaborative bots (Cobots) execution support: low
- Visual, real-time process monitoring and KPI measurement: high
- 3D printing critical machine/factory parts: low
- Visual remote guidance: low
- Video training on quality issues: mid
- Customer integration: mid

**Impact**
- Low
- Mid
- High

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11
How do we choose the right technology mix?

We provide our customers a broad portfolio of software and hardware technologies to suit their particular needs.

**Software**

- SAP ME / MII
- SAP S/4HANA
- SAP EWM
- Simplifier / Low Code Platform
- Siemens Teamcenter (installed)
- Reporting Platform
- PTC ThingWorx

**Hardware**

- RFID
- Cobot
- Siemens S-7 Simatic (=SPS)
- AGV / Automated Warehouse
- AR Glasses
- Worker Tablets
- Siemens HMI (Touchscreen EWM Case)
- Ultimaker 3D Printer
Our technology – Deloitte Digital Platform

D²P is the perfect symbiosis of IoT, Distributed Ledger and Cloud Computing.

Virtualization of the reality

• All entities involved in the process are paired with a Digital Twin

• This unfalsifiable virtualization of reality can be controlled from anywhere – compliance becomes digital

The integration platform

• The platform links all software and hardware required for the selected business process

• High scalability

• Kubernetes prevents vendor lock-in

Compliance by immutability

• Man or machine – everyone owns a digital identity

• Every movement and every data change is stored irrevocably and can be traced

• Access for independent third-party audit
Business apps on the Deloitte Digital Platform

$D^2P$ is an integration platform designed for high compatibility.

- **Business Apps**
  - End-user App 1
  - End-user App 2
  - End-user App 3
  - ...
  - End-user App n

- **$D^2P$**
  - Access Authorization
  - Roles & Permissions
  - Digital Identities

- **ETC**
  - Digital Twins (Datalake)
  - Workflow Engine
  - Compliance Protector

- **Legacy**
  - (ERP, CRM, Data Warehouse etc.)

- **Kubernetes**

- **Blockchain**

- **IoT**
The process designer collects the initial compliance requirements. Business apps are individualized for each new use case, but available for reuse in the D2P Marketplace.

The platform acts as a link between physical and digital reality and offers all of the necessary Microservices. This includes the Digital Twins, a workflow engine as well as a process monitoring tool (Compliance Protector).

ETC manages the digital identities and takes over the horizontal integration: connection of new participants as well as role and access management.

The Microservices are deployed on Kubernetes, which ensures high scalability.

The world’s most robust blockchain is used to store and verify the Digital Identities.

Connection of IoT Edge Devices (e.g. sensors) via standardized interfaces (MQTT, CoAP, OPC-UA, HTTPS).
Our Offerings

We offer different types of workshops for our client target groups.

Spend One Day in the Factory
and we will provide you with a uniquely tangible and compelling experience. You will experience first-hand how digital applications can help to optimize processes while also minimizing sources of error at the same time.

Our Factory is the perfect place to identify your digital key value drivers and work with our experts to develop a digital strategy.

Digital leaders are critical to the successful implementation of a digital transformation and to the establishment of new capabilities at every level of the organization.

Being able to link and correctly use the selected technologies is a key factor in the digitalization decision.
## Contents

- Kickoff Digital Strategy
- Digital Maturity Assessment
- Digital Quantified
- Teardown
- Functional Academy
- Trainings on Function-specific use cases
- Technology Bootcamps

## Target group

- CXOs
- Digital Decision Makers
- Functional leads (e.g. CPOs, plant managers) and departments
- IT & related business functions
One Day in the Factory

Sample Agenda

Morning
- 09:00  Welcome & Introduction
- 09:15  Gain insights, your situation
- 09:45  Deloitte Digital Factory Tour
- 10:15  Deloitte Digital Factory Input Session
  - 10:15 – 10:45  Manufacturing 4.0
  - Coffee Break
  - 11:00 – 11:30  Robotics
  - 11:30 – 12:00  Procurement
  - 12:00 – 12:30  Digital SCM
  - 12:30 – 13:00  Teardown

Afternoon
- 13:00  Lunch
- 13:30  How to choose, scale and rollout Industry 4.0 topics
- 15:00  Discussion
- 15:45  Wrap up
- 16:00  Goodbye
“A key issue for decision-makers considering an Industry 4.0 transformation is finding a clear business case for each innovation. As most of the initiatives are technology-driven, this isn’t always a given. The workshop in the Digital Factory helped us focus more on the economic benefit and less on the sheer volume of technology options.”

CFO, 1st Tier Automotive Supplier
The Deloitte Factory Network

We are setting up experiences across the globe.

Advanced Manufacturing Research Center
(Sheffield, UK)

Smart Factory Garage
(Wichita, Kansas, USA)

Center for Energy & Industrial Solutions
(Houston, Texas, USA)

North West Europa
(Düsseldorf, DE)

Digital Factory
(Munich, DE)

Asia Pacific
(In development)

United States
Our Partners

Technology is an enabler – working together with our partners in the Digital Factory, we build the right technology mix for every enterprise.

Our Technology Partners

Siemens  ABB  Disti
Intel  Epson  Apple
Simplifier  Ariba  Toshiba

“The combined digital transformation capabilities of Deloitte & Siemens enable our joint customers to truly realize their business goals by leveraging the latest technologies & best practices.”

Paul Kaeley
Head of Global Eco System, Siemens
Value generation with IoT solutions requires use cases that exactly meet the challenges of the customer. The Deloitte Digital Factory offers a fantastic environment to discuss IoT based on concrete examples and to jointly develop individual solutions.

Aron Precht
Vice President, Industry Segment Sales DACH & Russia, Hewlett Packard Enterprise
Our Academic Partners

Together with our partners, we inspire and activate our clients to start their own digital transformation and put next-generation technologies to practical use.

Our Academic Partners

Digitalization not only enables process, product and service innovations, but also new digital business models for new ecosystems. Companies need dynamic capabilities to keep pace with these rapid changes. We support the Deloitte Digital Factory by analyzing and shaping digital activities and capabilities.

Chair of General Business Administration & International Automotive Management at the University of Duisburg-Essen
Our Team

Are you ready to start your digital transformation?

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To learn more, just visit the Digital Factory or contact us to book a workshop on your own and start your digital journey.
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Issue 08/2019