FACTS & FIGURES
INDUSTRY 4.0: DIGITAL MANUFACTURING

KONICA MINOLTA

DEFINITION / IMPORTANCE

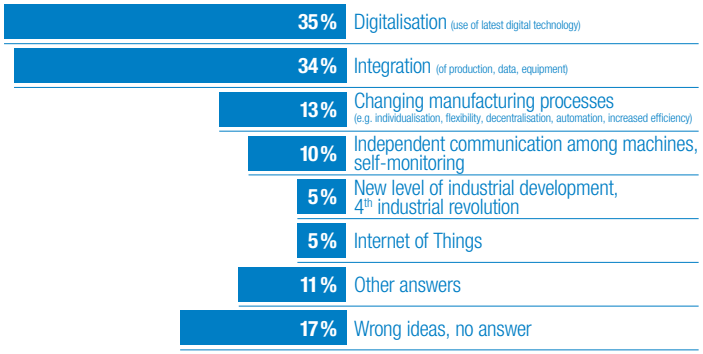
1st revolution	2nd revolution	3rd revolution	4th revolution
Water/Steam	Electricity	Automation	Cyberphysical systems

Replacement of equipment
Percent of installed base

100%	~10–20%	~80–90%	~40–50%
Replacement of complete loom necessary	Little replacement, as tooling equipment could be kept, only conveyor belt needed	High level of replacement as tooling equipment was replaced by machines	Existing machines are connected, only partial replacement of equipment

Industry 4.0 is the fourth industrial revolution, after the steam engine, the conveyor belt and computer technology = from integrated production to the smart factory.

"ACCORDING TO YOUR UNDERSTANDING, WHAT DOES THE TERM 'INDUSTRY 4.0' MEAN?"

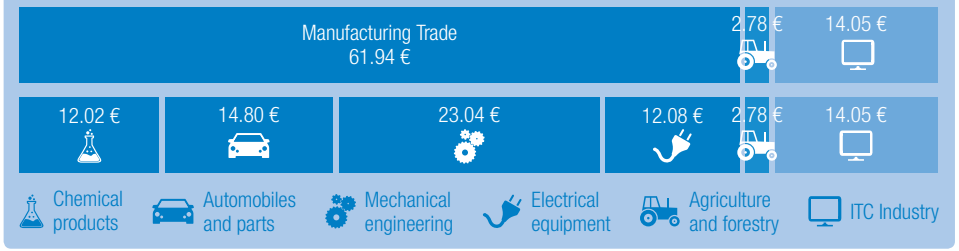


Allensbacher Archiv, IfD Survey 7231, 2015

53%
More than half of companies from the manufacturing trade consider Industry 4.0 as important for their own business.
Cyber Security Report, Telekom, 2015

MARKET POTENTIAL

Germany 2025
78.77 BILLION €



Statistisches Bundesamt; Deutsche Bundesbank; Prognos; Thomas Nipperdey; McKinsey
Industrie 4.0 Volkswirtschaftliches Potenzial für Deutschland, Bitkom, 2014

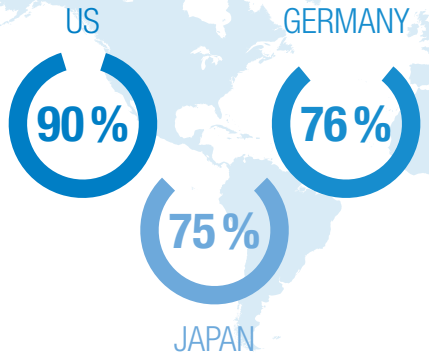
Additional turnover of
30 BILLION EUROS
annually in the German economy expected

By 2020,
80%
of German companies will have digitised their value chain

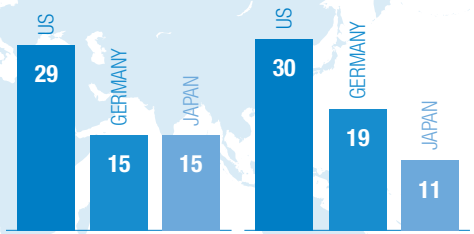
20%
better efficiency in companies through Industry 4.0 expected

PWC, 2015

RESPONDENTS EXPECTING INDUSTRY 4.0 TO IMPACT BUSINESS MODEL



INVESTMENT LEVELS IN INDUSTRY 4.0 VARY SIGNIFICANTLY BETWEEN COUNTRIES



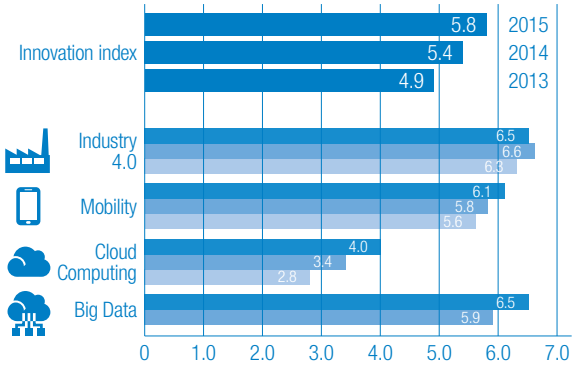
Share of R&D expenditure related to Industry 4.0

Share of revenue related to Industry 4.0

McKinsey Industry 4.0 Global Expert Survey, 2015

RELUCTANT IMPLEMENTATION

STATUS QUO OF PRODUCTION
IT INNOVATION READINESS INDEX 2015



Scale
0 = Deployment categorically rejected by all respondents
10 = Deployment by all respondents in all application areas

INDUSTRY 4.0 INDEX STAGNATES AT **6.5** IN 2015, COMPARED TO **6.6** IN 2014.

IT Innovation Readiness Index, Freudenberg, 2015

Pace of change will be slower compared to the consumer Internet due to large downside risks in case of failure:

28 MILLION € **Production downtime risk:** Costs in the automotive industry per day – weigh risks of introduction of new technology against process reliability

50 BILLION € **Cybersecurity risk:** Annual damage to the German manufacturing industry caused by cyberattacks

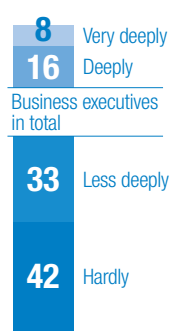
60 MILLION **Quality loss risk:** Number of cars that were recalled in 2014 throughout the US

Industry 4.0, How to navigate digitization of the manufacturing sector, McKinsey, 2015

ONLY 25%
have seriously looked into Industry 4.0:

"How deeply have you looked into the topic of Industry 4.0 so far?"

Allensbacher Archiv, IfD Survey 7231, 2015



DIGITAL MANUFACTURING BY KONICA MINOLTA

Data collection and analysis / sharing process automation
workplacehub

Quality management
- Automatic visual surface inspection
- Colour and gloss inspection of car interior and exterior
- Non-desctructive inspection

Logistics: Receiving and shipping
- Car number authentication via camera
- Improved safety and reduced errors through RFID

Picking and assembly
- Using wearable devices
- Collaboration with robots

RFID

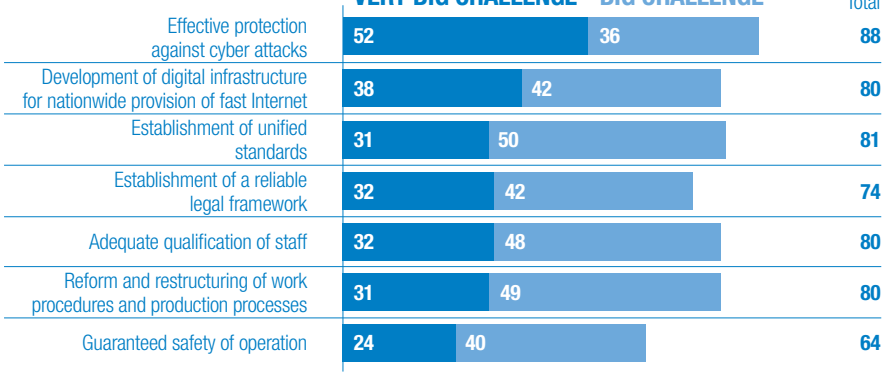
Process management
- Improvement of line safety and operation rate via status monitoring

Quality management
- Automatic visual surface inspection
- Colour and gloss inspection of car interior and exterior
- Non-desctructive inspection

Supplier — Assembly company

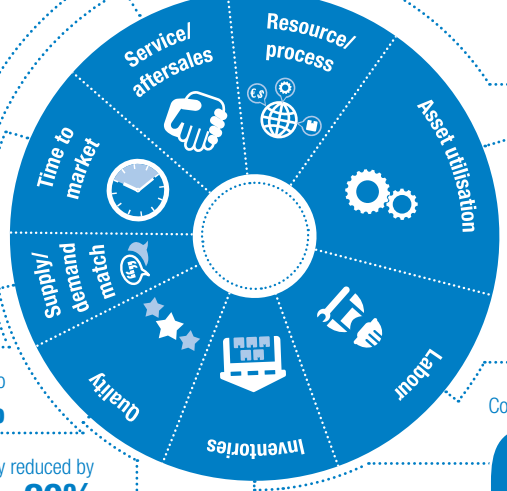
CHALLENGES

"WHAT ARE THE BIGGEST OBSTACLES RESP. CHALLENGES IN THE IMPLEMENTATION OF INDUSTRY 4.0?" (IN %)



Allensbacher Archiv, IfD Survey 7231, 2015

VALUE DRIVERS



10 – 40% Reduction of maintenance costs

20 – 50% Reduction in time to market

Forecasting accuracy increased to **85+%**

Costs for quality reduced by **10 – 20%**

Productivity increase by **3 – 5%**

30 – 50% Reduction of total machine downtime

45 – 55% Increase of productivity in technical professions through automation of knowledge work

Costs for inventory holding decreased by **20 – 50%**

PREDICTIVE MAINTENANCE SOFTWARE CAN **REDUCE SERVICE TIMES BY 25 – 30% AND DOWNTIMES** RESULTING FROM REPAIRS BY **70 – 75%**

US Dept. of Energy, 2015

"Industry 4.0 enables a more flexible and more modular production through flexible production equipment and automation technology. This will allow manufacturing companies to react faster to changed demand, covering both production volumes and a variety of products."

Dr. Jan Stefan Michels,
Head of Standardisation and Technology Development at Weidmüller

Industry 4.0, How to navigate digitization of the manufacturing sector, McKinsey, 2015