Industrie 4.0 – Status Quo in Germany
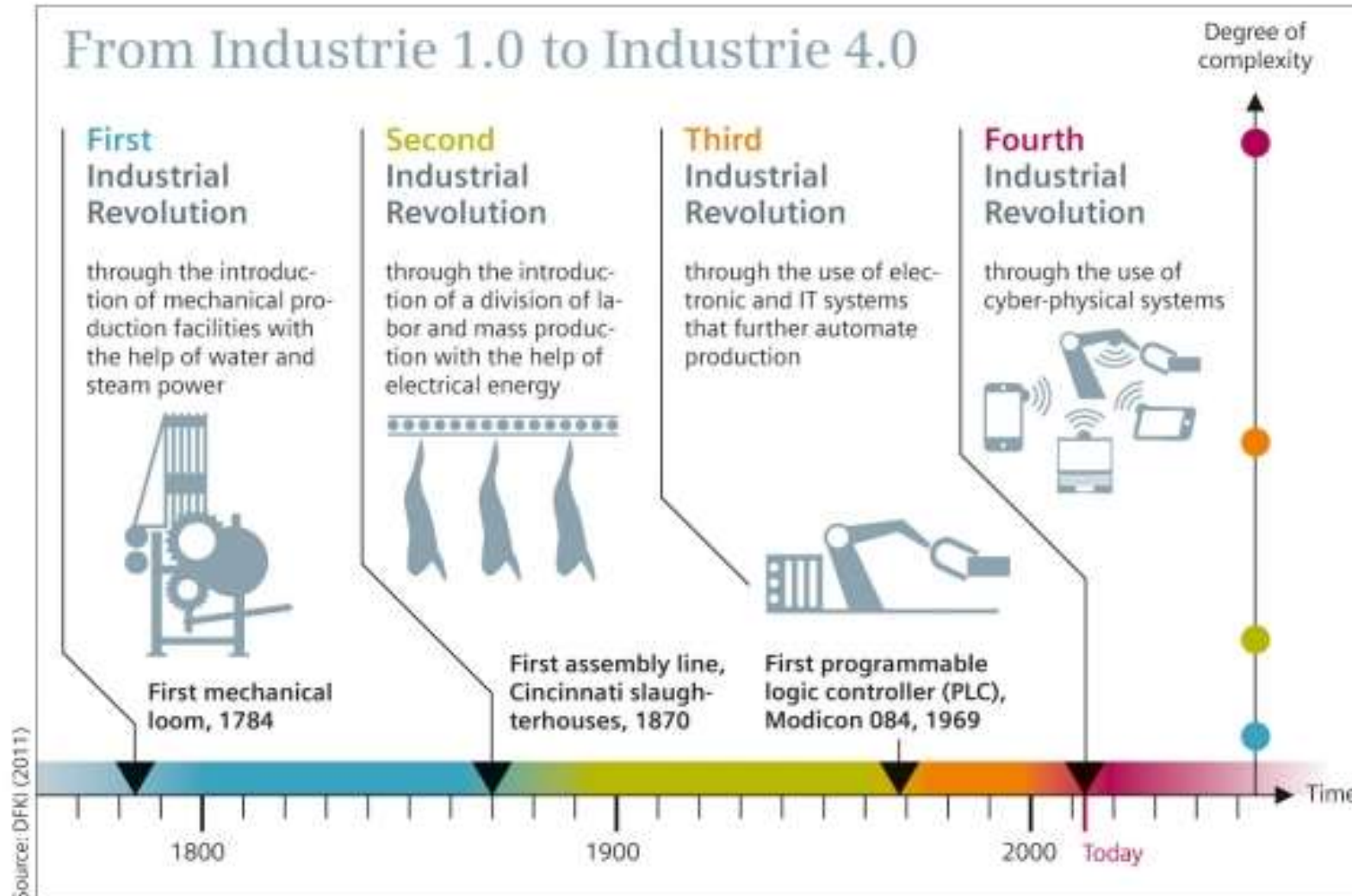
19 October 2016

BDI
Bundesverband der
Deutschen Industrie e.V.

Our 36 Member Associations

Working Community Industrial Group:

Vision Industrie 4.0

From Industrie 1.0 to Industrie 4.0

Degree of complexity

First Industrial Revolution through the introduction of mechanical production facilities with the help of water and steam power

Second Industrial Revolution through the introduction of a division of labor and mass production with the help of electrical energy

Third Industrial Revolution through the use of electronic and IT systems that further automate production

Fourth Industrial Revolution through the use of cyber-physical systems

First mechanical loom, 1784

First assembly line, Cincinnati slaughterhouses, 1870

First programmable logic controller (PLC), Modicon 084, 1969

Source: DFKI (2011)

1800   1900   2000   Today   Time

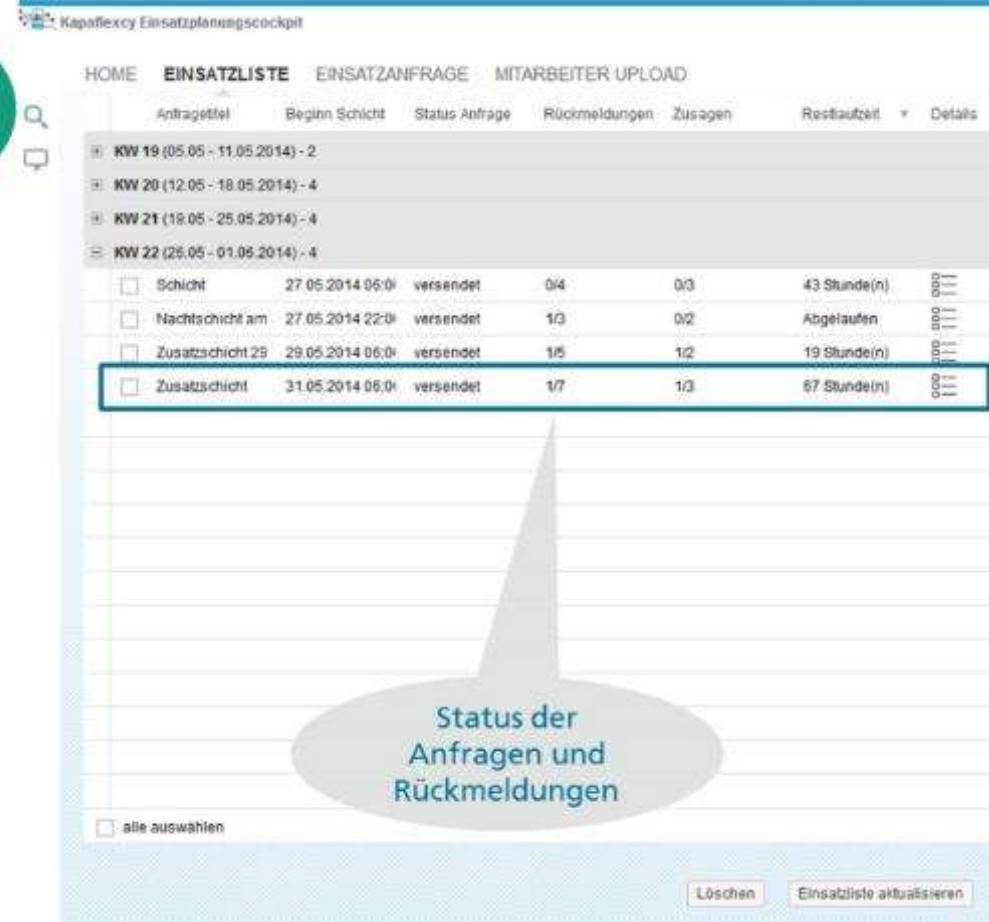# Example – ThyssenKrupp Camshaft Production

process parameter update
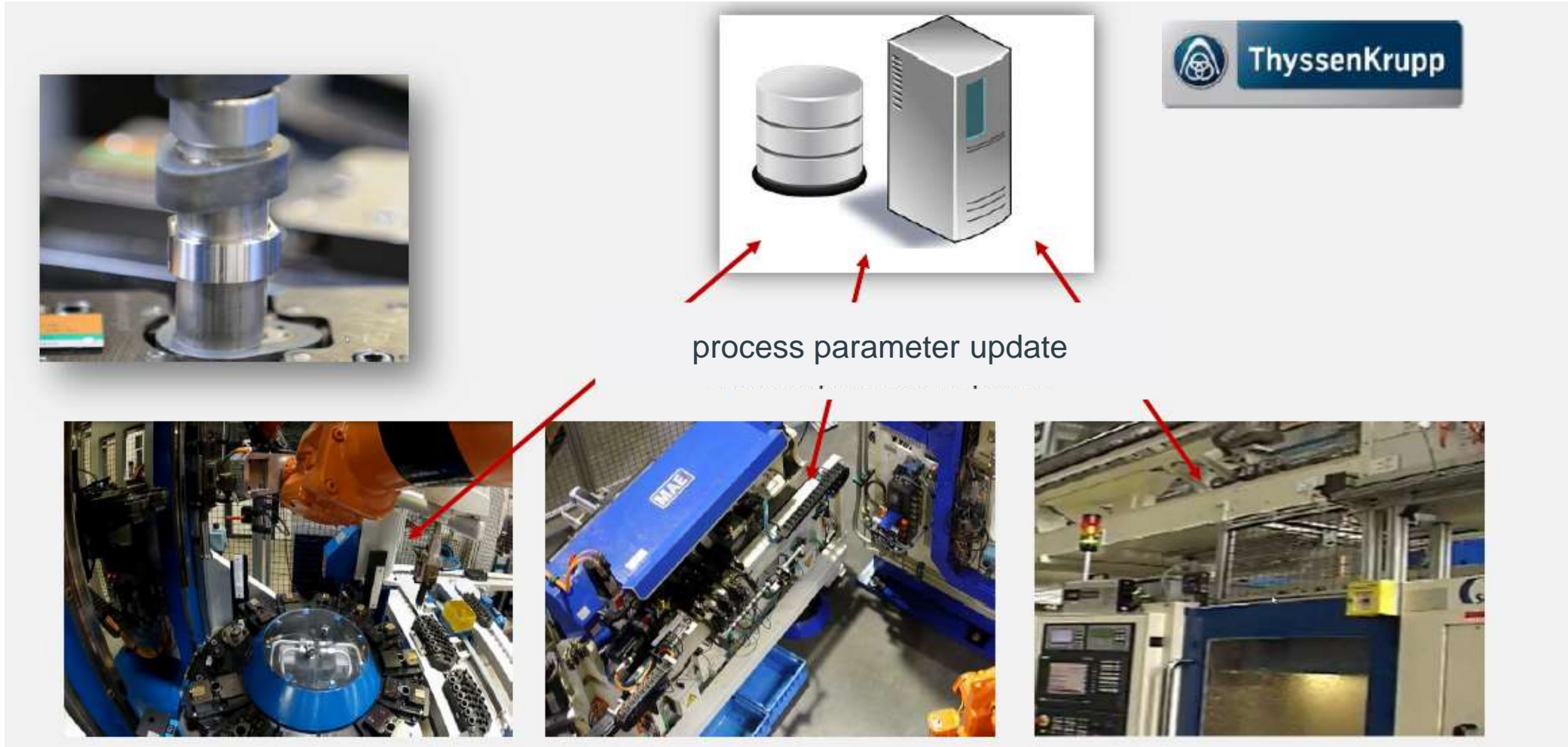
Quelle: ThyssenKrupp (2013)

Example – Workaround ProGlove

Source: Workaround (2016)

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Example – KapaflexCy

# Industrie 4.0 – Chances and Challenges for German Industry

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Our assets…

- High manufacturing share (23%)

- Market leadership in machinery and plant manufacturing

- IT competencies in the field of production software solutions

- Innovation leadership in embedded systems and automation engineering

- Highly skilled workforce
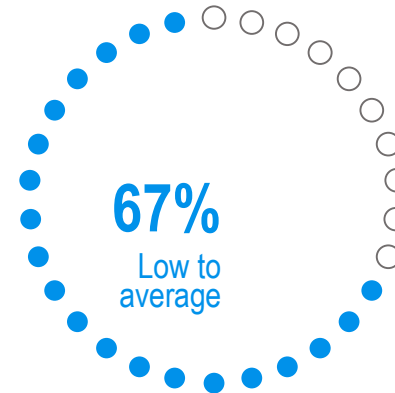
- Proximity to suppliers and users

Self-assessment of 300 German companies show: challenges are not recognized in a wide range

45%
Low to strong
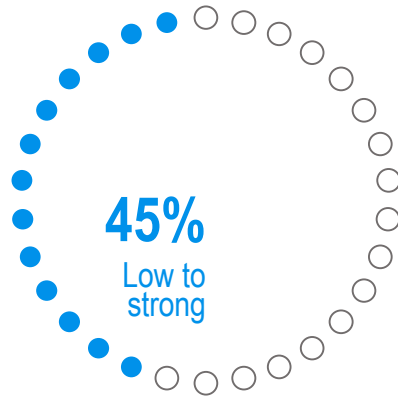
Missing the debate
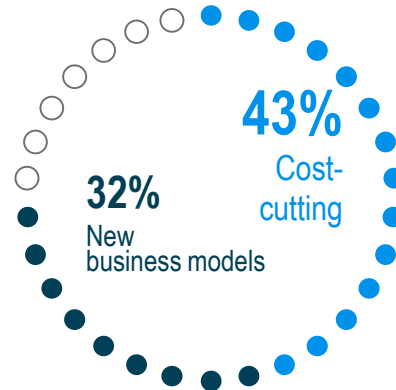
45 % have not examined the implications of digitalisation intensively.

Major companies debate this more intensively than SME

67%
Low to average

Two thirds of German companies rate their digital maturity as low to average.

Major companies rate their digital majority distinctively better

43%
Cost-cutting

32%
New business models
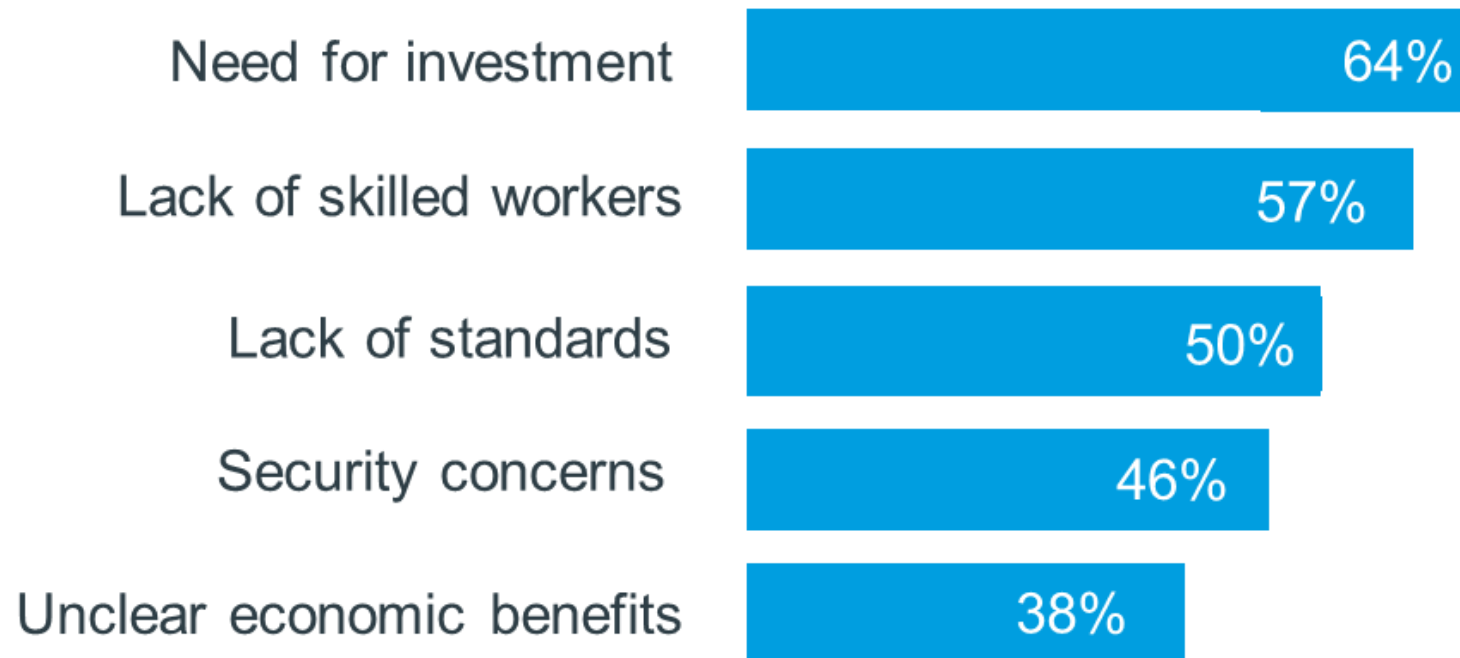
Main focus lies on efficiency

Effects of costs are mostly of central interest.

Search for earnings potentials stemming from new business models are only relevant for major companies

Source: Roland Berger

Source: Roland Berger (2015)

Do we observe structural impediments?

Need for investment — 64%
Lack of skilled workers — 57%
Lack of standards — 50%
Security concerns — 46%
Unclear economic benefits — 38%

Source: Bitkom Research (2015)

Plattform Industrie 4.0

BDI

Plattform Industrie 4.0

Industrie 4.0…

▸ … is a project of and for society as a whole…

▸ … , which requires a close alliance amongst the private sector, academia, politics, trade unions and associations …

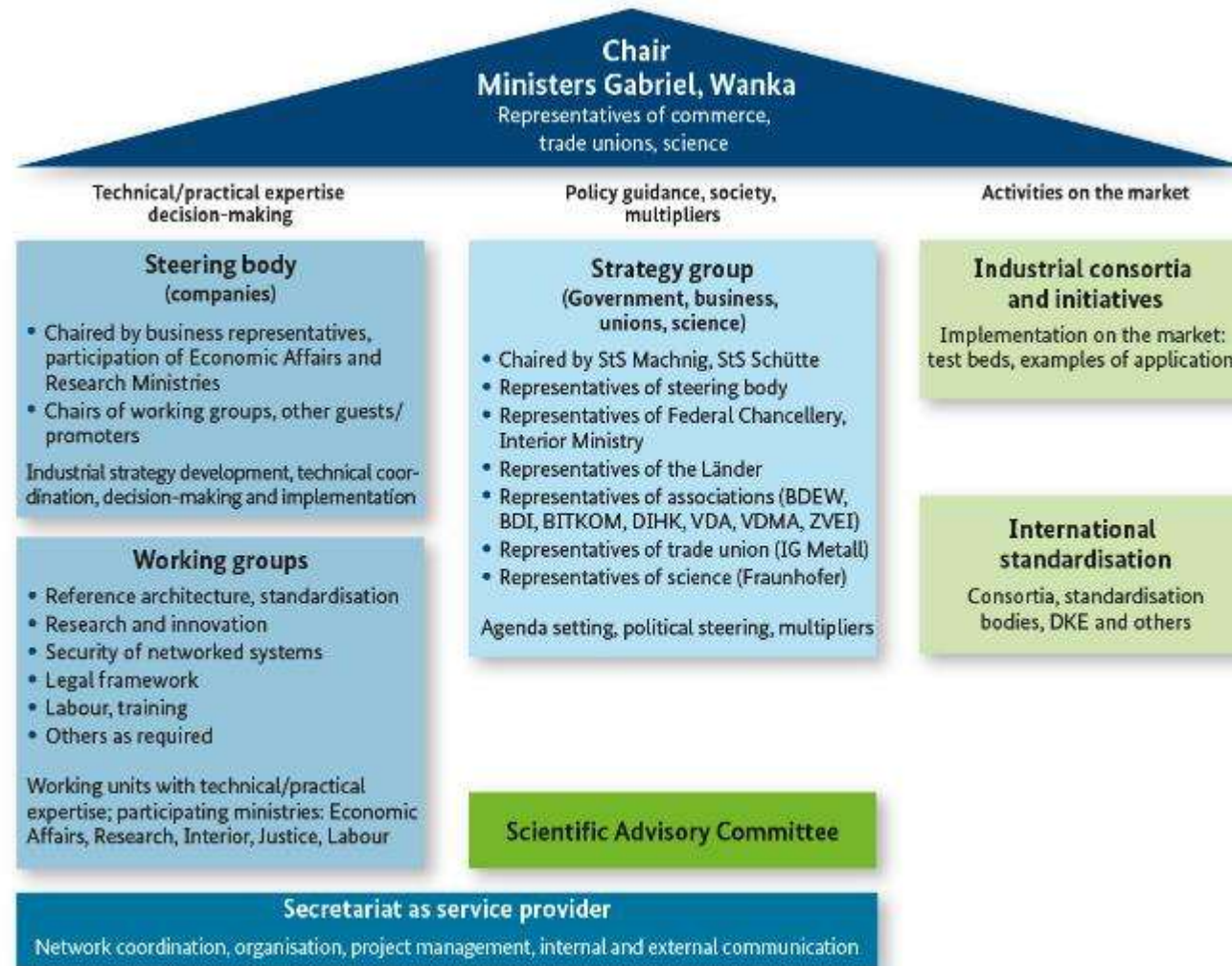▸ … and needs to be translated into practice and be implemented now.
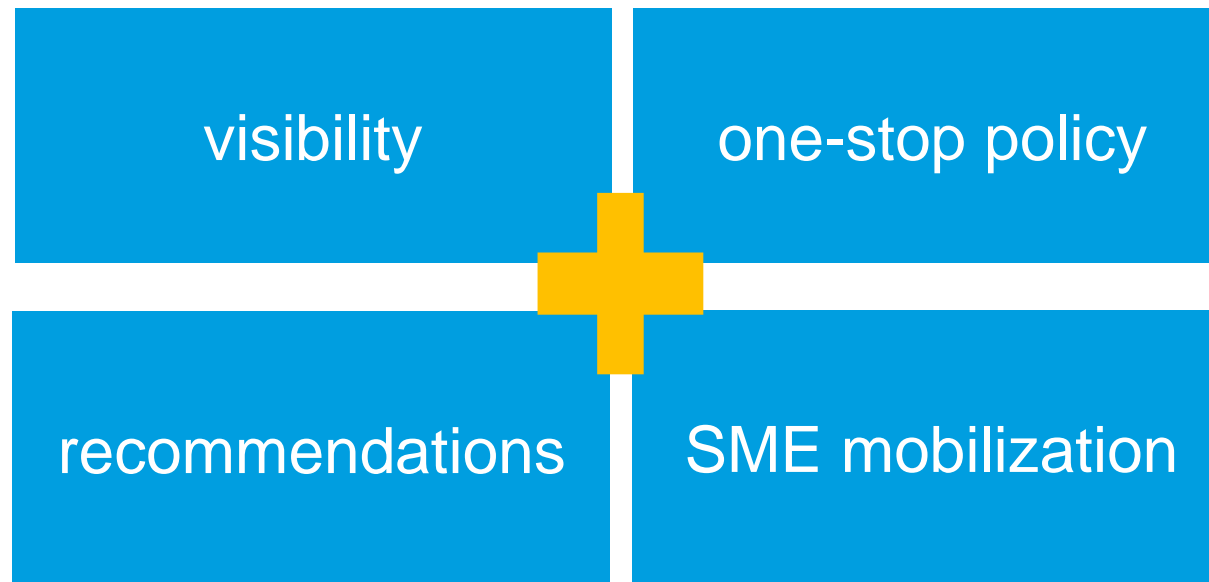

Source: Plattform Industrie 4.0
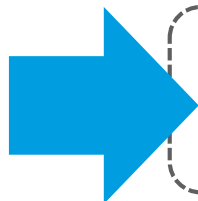
➡ The **Platform Industrie 4.0** provides support for the coordinated and organised transition into the digital economy in Germany

Plattform Industrie 4.0 - Structure

Chair
Ministers Gabriel, Wanka
Representatives of commerce,
trade unions, science

Technical/practical expertise
decision-making

Policy guidance, society,
multipliers

Activities on the market

Steering body
(companies)

- Chaired by business representatives, participation of Economic Affairs and Research Ministries
- Chairs of working groups, other guests/ promoters

Industrial strategy development, technical coordination, decision-making and implementation

Working groups

- Reference architecture, standardisation
- Research and innovation
- Security of networked systems
- Legal framework
- Labour, training
- Others as required

Working units with technical/practical expertise; participating ministries: Economic Affairs, Research, Interior, Justice, Labour

Strategy group
(Government, business, unions, science)

- Chaired by StS Machnig, StS Schütte
- Representatives of steering body
- Representatives of Federal Chancellery, Interior Ministry
- Representatives of the Länder
- Representatives of associations (BDEW, BDI, BITKOM, DIHK, VDA, VDMA, ZVEI)
- Representatives of trade union (IG Metall)
- Representatives of science (Fraunhofer)

Agenda setting, political steering, multipliers

Industrial consortia and initiatives

Implementation on the market: test beds, examples of applications

International standardisation

Consortia, standardisation bodies, DKE and others

Scientific Advisory Committee

Secretariat as service provider

Network coordination, organisation, project management, internal and external communication

Source: Plattform Industrie 4.0

Plattform Industrie 4.0 Guarantees Impact and Visibility

visibility

one-stop policy

➕

recommendations

SME mobilization

Source: Plattform Industrie 4.0

Plattform Industrie 4.0 – Working Groups

Reference architectures, standards and norms

Chair:
Dr. Peter Adolphs,
Pepperl + Fuchs

Research and innovation

Chair:
Johannes Diemer,
Hewlett Packard Enterprise

Security of networked systems

Chair:
Michael Jochem,
Robert Bosch GmbH

Legal Framework

Chair:
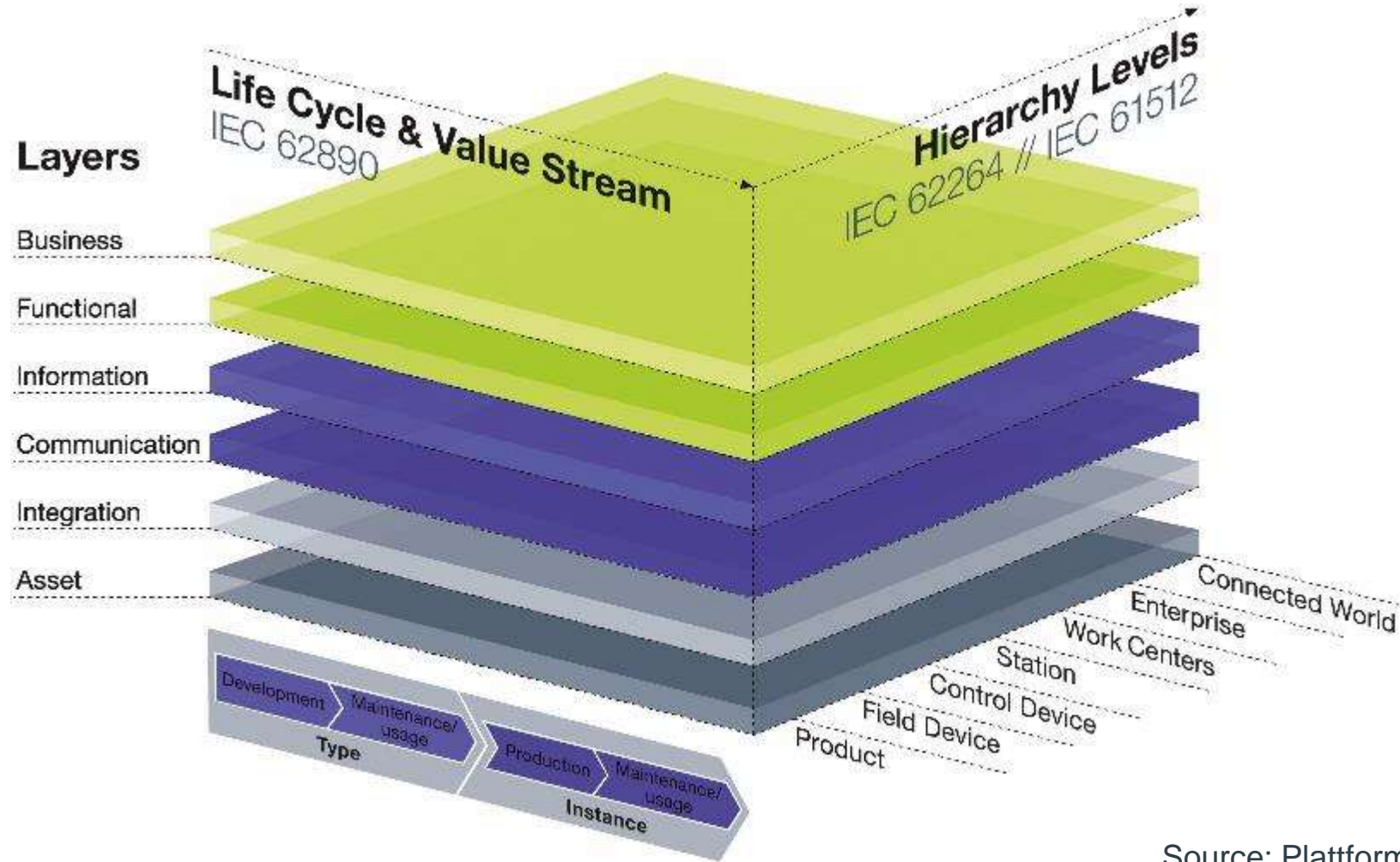Dr. Hans-Jürgen Schlinkert,
ThyssenKrupp

Work, education and training

Chair:
Dr. Constanze Kurz
IG Metall

Source: Plattform Industrie 4.0

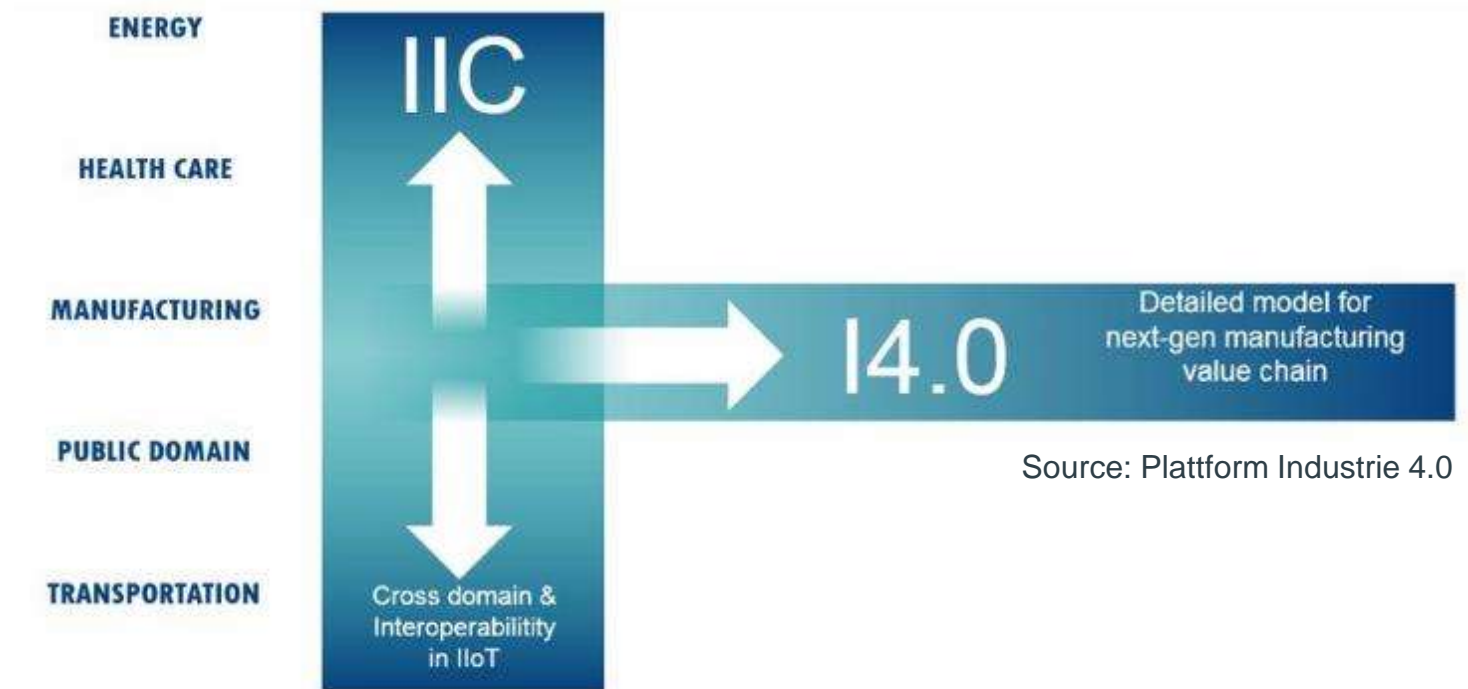# Referenzarchitekturmodell Industrie 4.0 (RAMI 4.0)

Source: Plattform Industrie 4.0 (2015)

Cooperation includes

- IIC Testbeds and I4.0 Test Facility Infrastructures
- standardization, architectures
- business outcomes

Source: Plattform Industrie 4.0

Virtual Map Industrie 4.0

http://www.plattform-i40.de/I40/Landkarte

Quelle: Plattform Industrie 4.0

Labs Network Industrie 4.0

The plattform offers …

Erproben **Vernetzen** **Gestalten**

LNI4.0 LABS NETWORK INDUSTRIE 4.0

…an overview of existing test-beds in Germany and provides information on further support structures to use those test-beds

Quelle: Plattform Industrie 4.0

Thank You

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