



Federal Ministry
for Economic Affairs
and Energy

Digital Transformation / Industrie 4.0 in Germany: status quo and way ahead

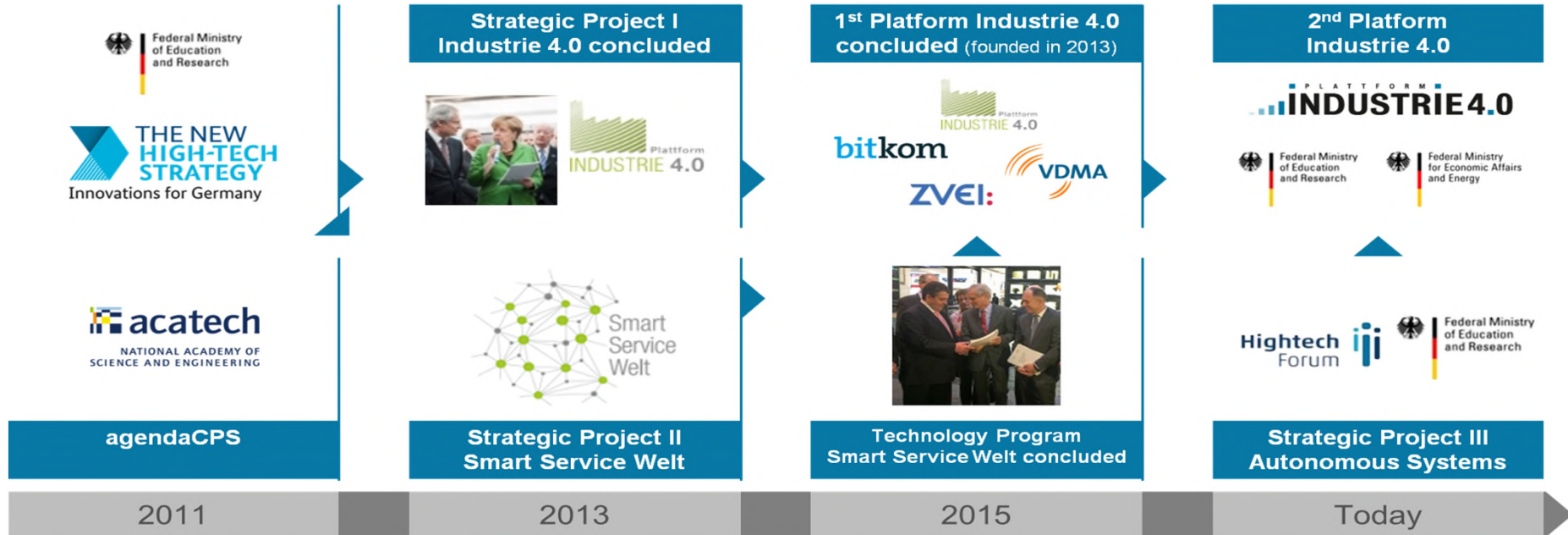
Markus Hess

Deputy Director-General for Industrial Policy
German Federal Ministry for Economic Affairs and Energy

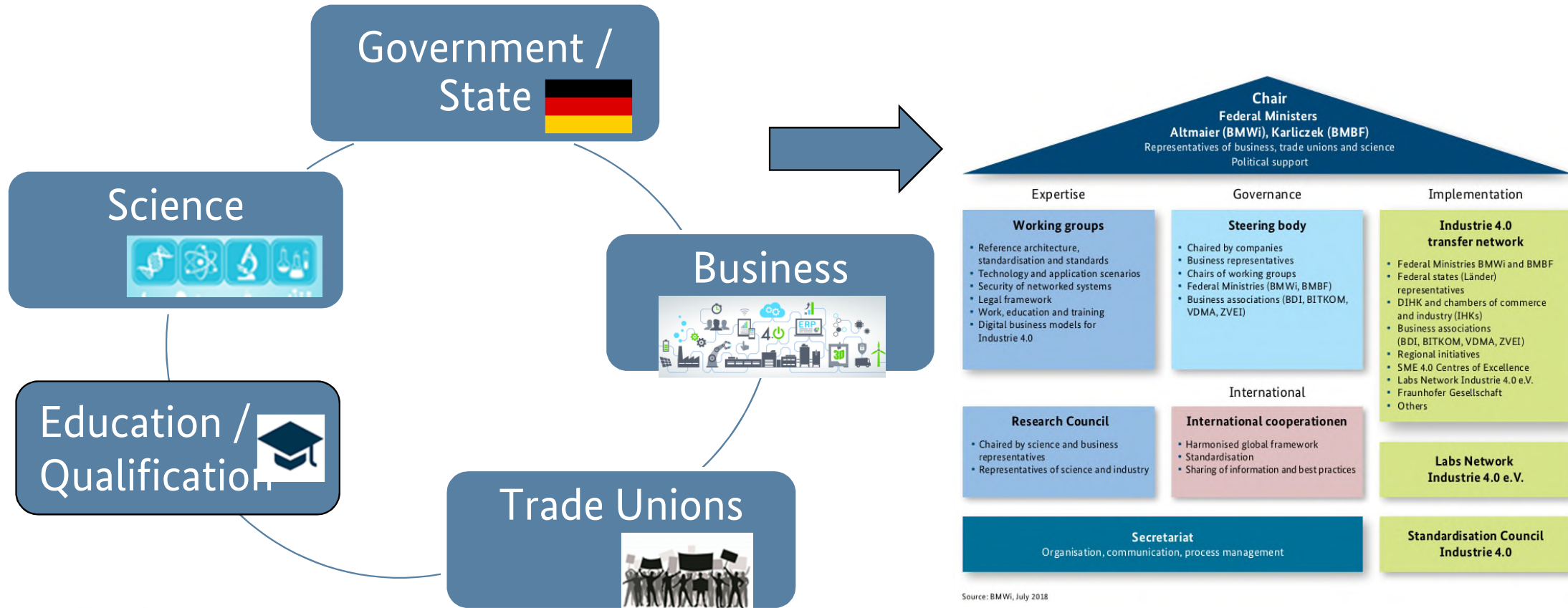
4th International RRI Symposium on October 19th, 2018, Tokyo

Digital Transformation

Germany's Digital Journey

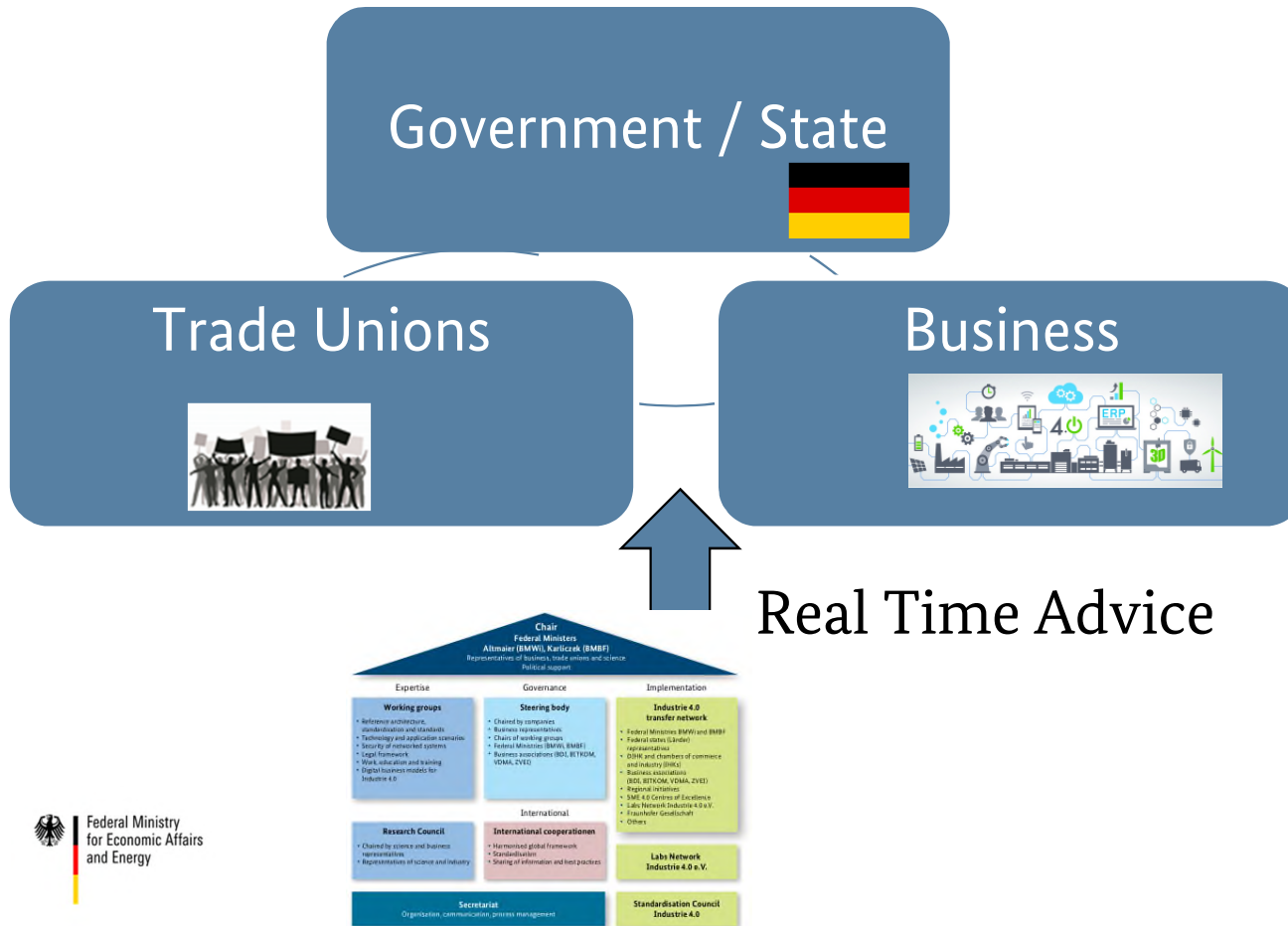


German Paradigm: Social Partnership and Strong Networks as Success Factor in Digitization



Source: BMWi, July 2018

1. Example EDUCATION: Reform of Dual Vocational Training



BMWi

- 303 Training Regulations
- Together with Business and Trade Unions
- Reform: usually 10 yrs
- **New Agile System:** Recent Reform 1.5 yrs
- 11 Training Regulations
- Input from PI4.0

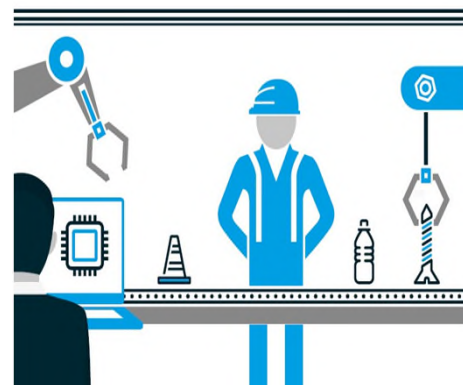
Timeline until implementation of new regulation



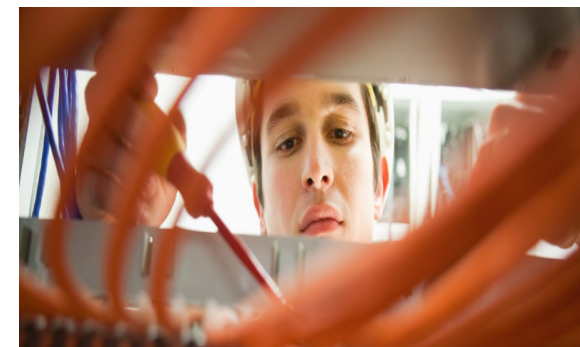
Source: BMBF, July 2018



Examples
Recommendations



Reform of 11 I4.0 relevant
Training Regulations



1st August 2018

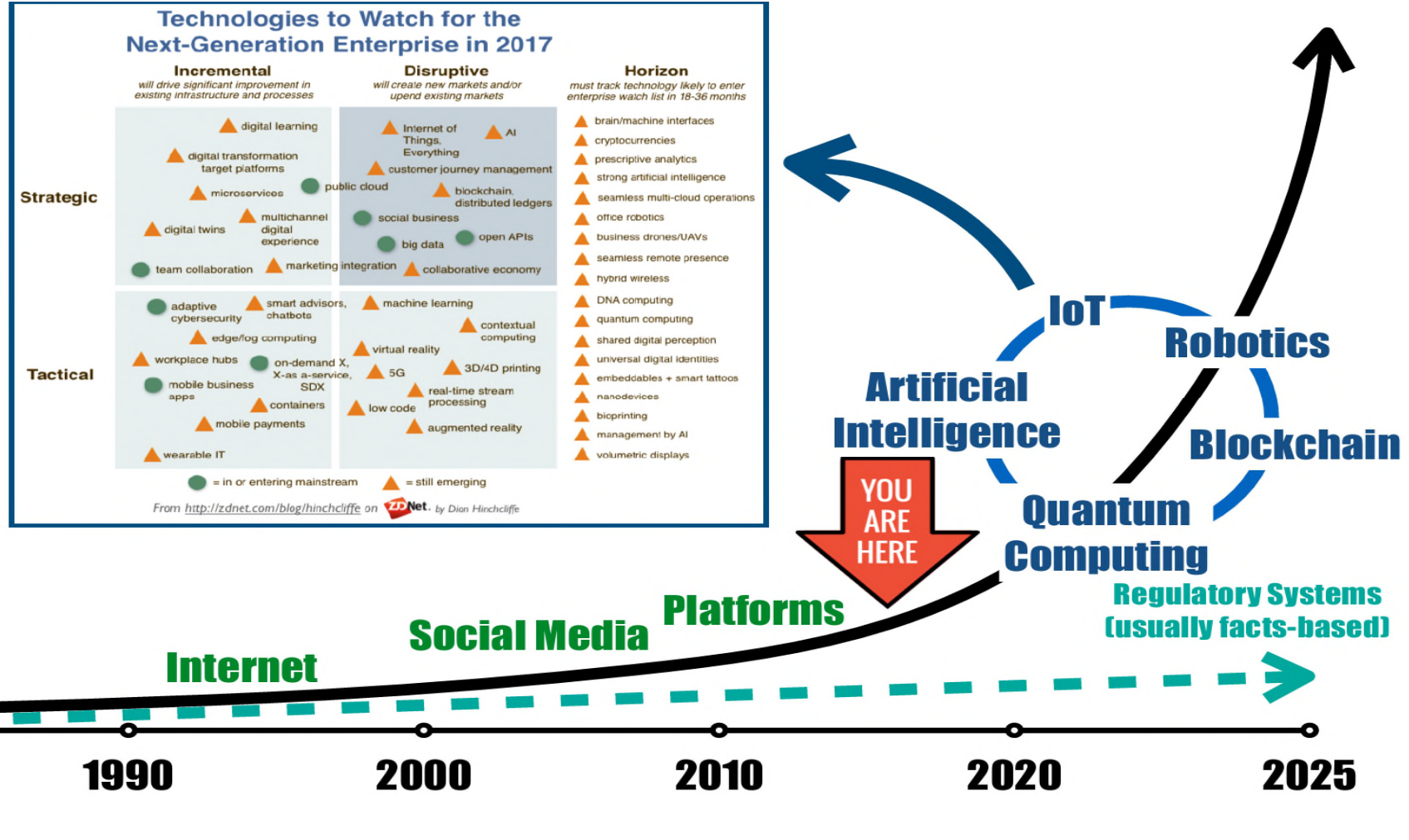
2015

2016

2017

2018

2. Example: Regulatory Reform



Source: Vermeulen, 2017.

Approaches to regulatory reform



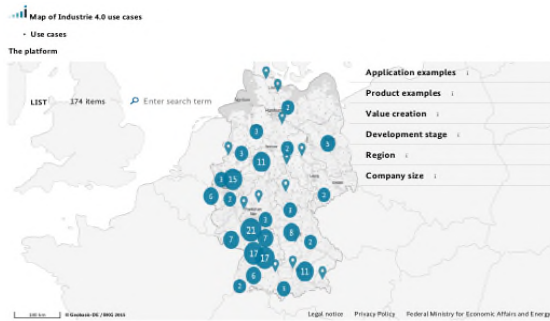
GDPR, E-Privacy – Basic Regulations



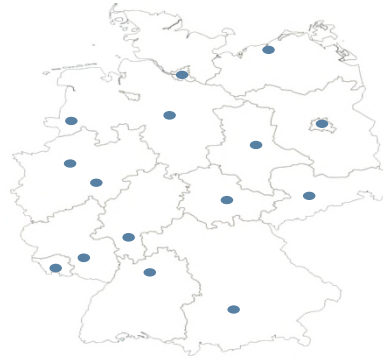
NEW: Regulatory Testbeds – Trial and Error (incl. I4.0)



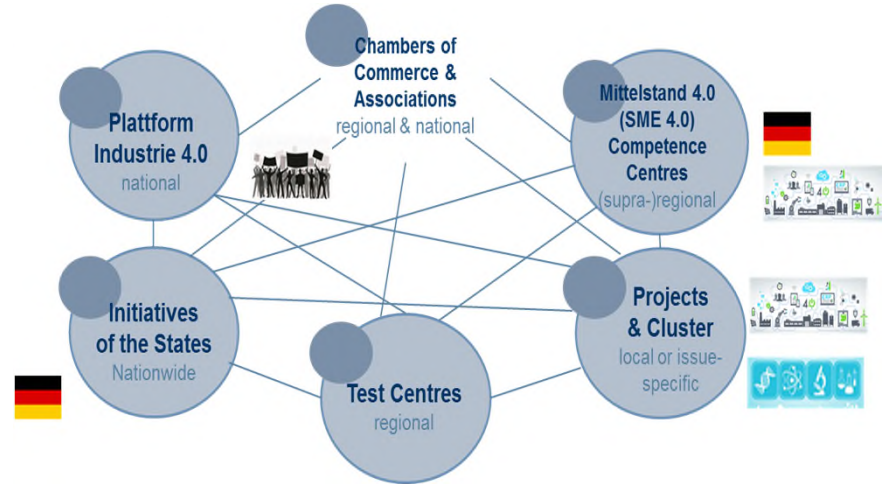
3. Supporting SME's



Online Map



Competence-Centers



Transfer-Network

2015

2016

2017

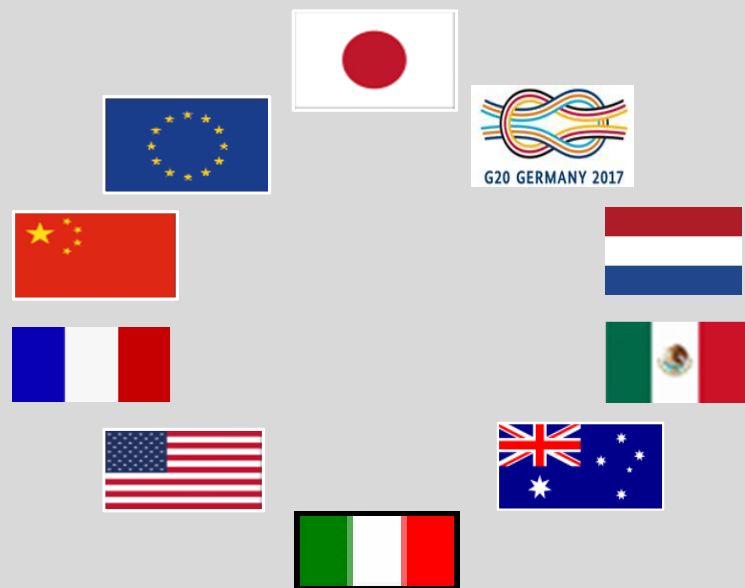
2018



4 Steps from National to International Solutions



Bilateral and multilateral cooperation



2015

2020

Example „lingua franca“ for Industrie 4.0 (1): RAMI 4.0

Recommendation

Proof of concept

Common understanding /
use case scenario

International standard

Further development & Standardization
in: ISO/IEC, PI40, SCI

International Prenorm
by SCI

Use case scenario
especially with JAP, CHN

RAMI4.0 DIN-
Norm

Demonstrator

global Standard for
IoT/Industrie 4.0
by ISO/IEC

2015

2016

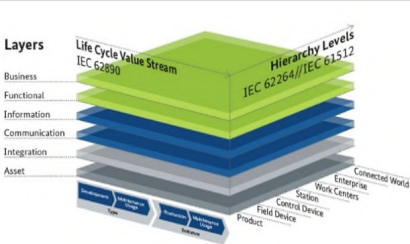
2017

2018

2019

2020

bi- and multilateral Discussion
with FRA, ITA, CHN, USA, JAP



STANDARDIZATION
COUNCIL
INDUSTRIE 4.0



Federal Ministry
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Example „lingua franca“ for Industrie 4.0 (2): Administration Shell

Recommendation

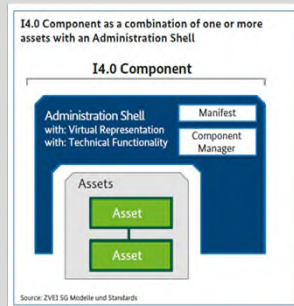
Proof of concept

Common understanding /
use case scenario

International standard

bi- and multilateral Discussion

e.g. common recommendatio with CHN / FRA /ITA



Further Development

by Plattform Industrie 4.0, ZVEI and others

Pilot Implementation

by different Consortia

Reference Implementation

2015

2016

2017

2018

2019

2020



Example IT-Security for Industrie 4.0

Recommendation

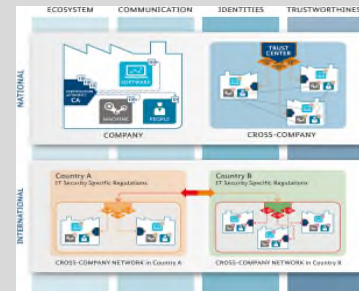
Proof of concept

Common understanding /
use case scenario

International standard

Develop requirements and
recommendations for a secure
company organization in the context
of Industrie 4.0

**Demonstrator
with USA**



**bi- and multilateral Position Papers and Use Cases
with JAP USA**

2015

2016

2017

2018

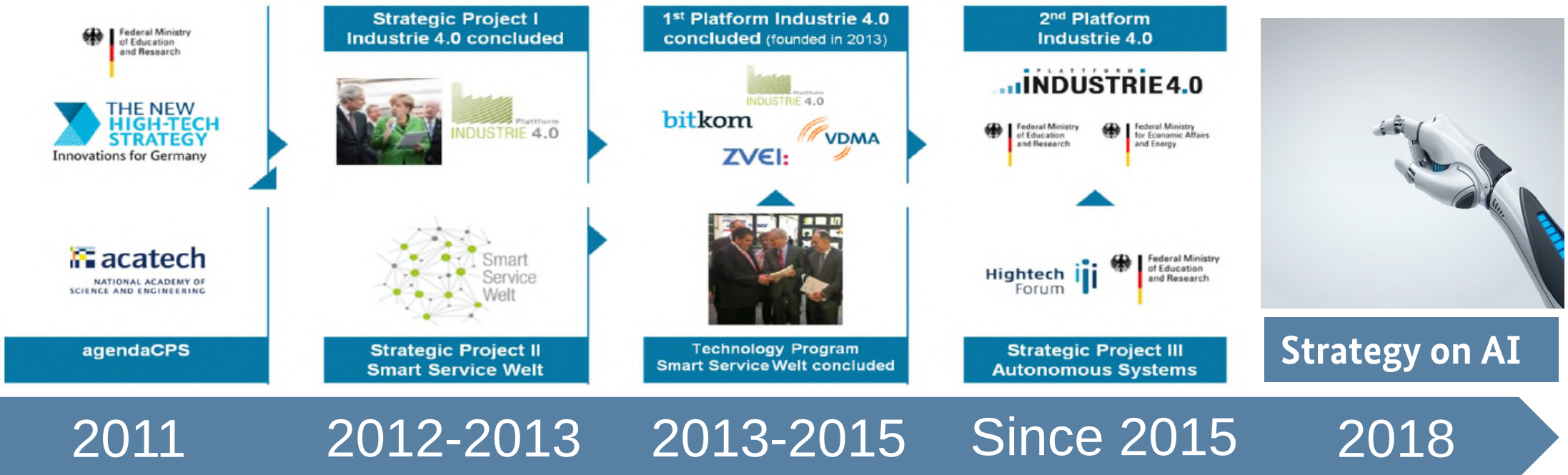
2019

2020

Standardized recommendation for
e.g. Vocational Training

Input to national standardization
Roadmap

Germany's Digital Journey: What's next?





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Thank you for your attention !