INDUSTRIAL DATA SPACE ASSOCIATION

INDUSTRIAL DATA SPACE

A STANDARD FOR SECURE DATA EXCHANGE BETWEEN ENTERPRISES

thyssenkrupp - Diversified Industrial Company

Leveraging synergies between the business areas creates huge benefits

Components Technology

Elevator Technology

Industrial Solutions

Materials Services

Steel Americas

Steel Europe

In the past the focus was on productivity only –
In future connecting value chains is a key success factor

thyssenkrupp will use the digital technologies available to create a competitive advantage

ING.

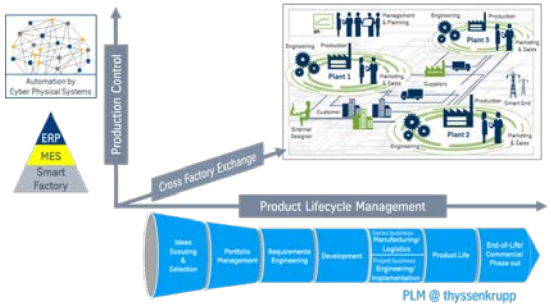
INGENIEURKUNST

ENGINEERING OR THE ABILITY TO CONNECT COMPETENCES

+

Industrie 4.0

The digital transformation of thyssenkrupp



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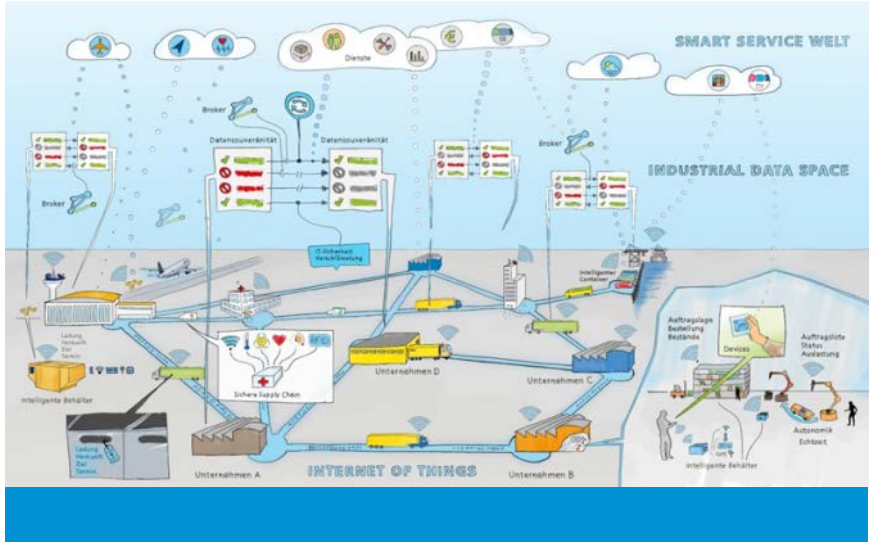
INDUSTRIAL DATA SPACE
POSITIONING IN THE DIGITAL ECONOMY

INTERNET OF THINGS AND SMART SERVICES



Industrial Data Space –

The basis to combine the **internet of things** and **smart services.**

CHALLENGES
IN THE AREA OF DIGITAL TRANSFORMATION

1. INNOVATIVE BUSINESS MODELS

2. DATA AS A PRODUCT

3. DATA SOVEREIGNTY

INDUSTRIAL DATA SPACE ASSOCIATION
MISSION STATEMENT

The Industrial Data Space defines an **international standard for a secure data exchange** between enterprises based on the principle that the generator of data remains the owner of the data and keeps sovereignty over their use.

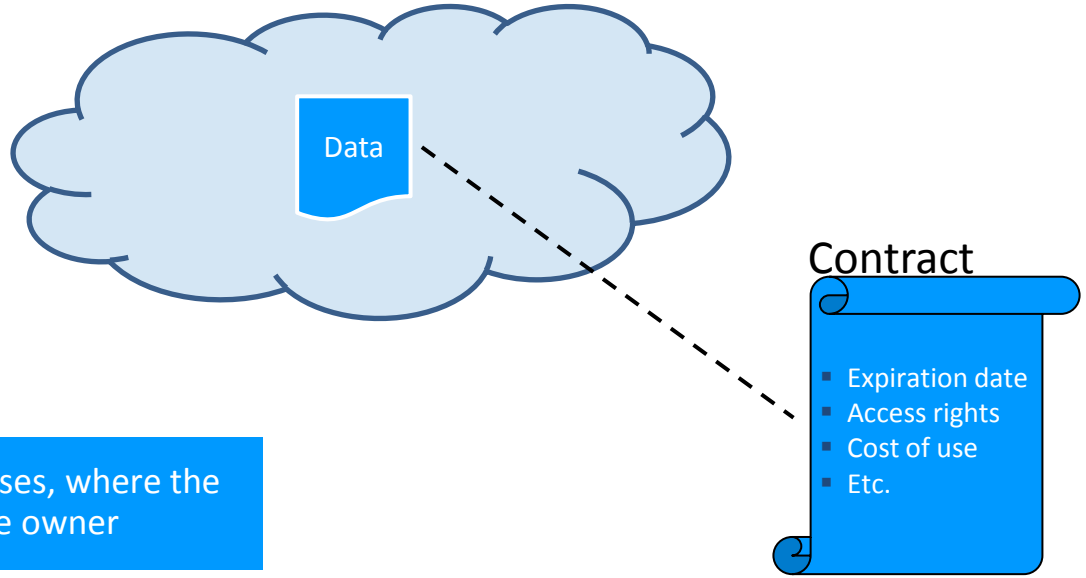
The Industrial Data Space Foundation defines **framework** and **governance** for the definition of **reference architecture and interfaces**.

Use-cases will be the basis for an agile development of the standard. The Industrial Data Space Association will as well support the development of **numerous certifiable software solutions** and **business models** based on that standard.

INDUSTRIAL DATA SPACE
NETWORK OF TRUSTED DATA

IMPLEMENTATION PRINCIPLE

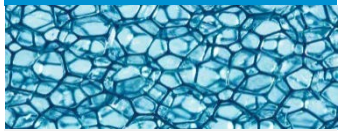
A SOFTWARE READABLE CONTRACT IS ATTACHED TO EACH PIECE OF DATA



Data Exchange between enterprises, where the generator of data stays the owner

USE CASES FOR INDUSTRIAL DATA SPACE

Material Sciences



Exchange of material and material properties over the entire life cycle from product creation through to scrapping

Energy Business

Common use of status data for the predictive maintenance of wind power stations

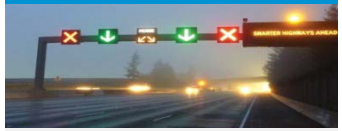
Life Sciences

Design of a jointly used data platform for the development of medical and pharmaceutical products

High Performance Supply Chains

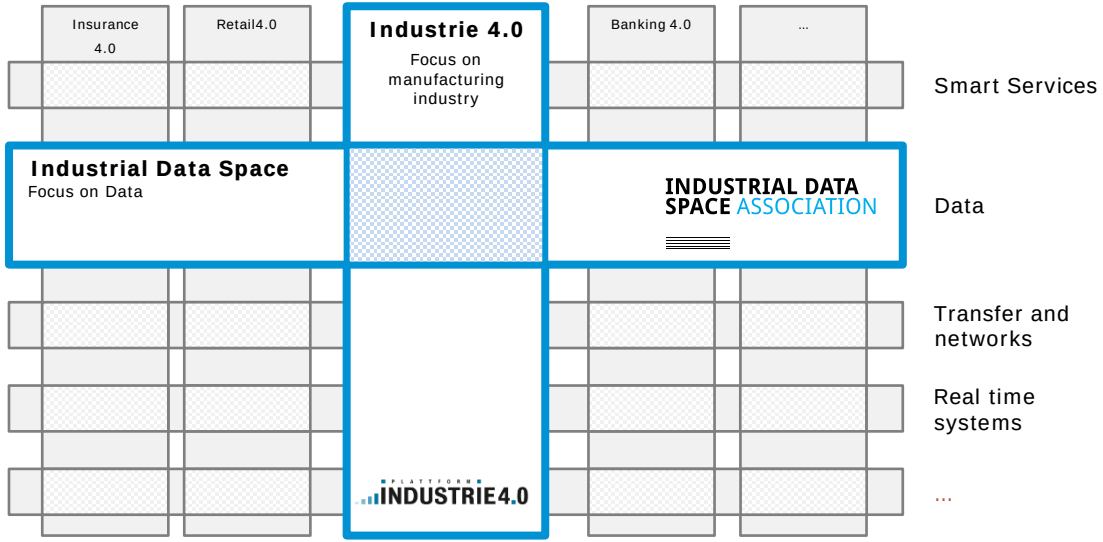
Exchange of status and quality data for transport goods along the entire supply chain

Traffic Management



Use of traffic management data for innovative digital services inside the vehicle and for controlling traffic flow

COLLABORATION WITH „PLATFORM INDUSTRIE 4.0“
FOCUS ON DATA



The development and promotion of the **Industrial Data Space** are being conducted in close cooperation with **Platform Industrie 4.0** initiative.

INDUSTRIAL DATA SPACE ASSOCIATION

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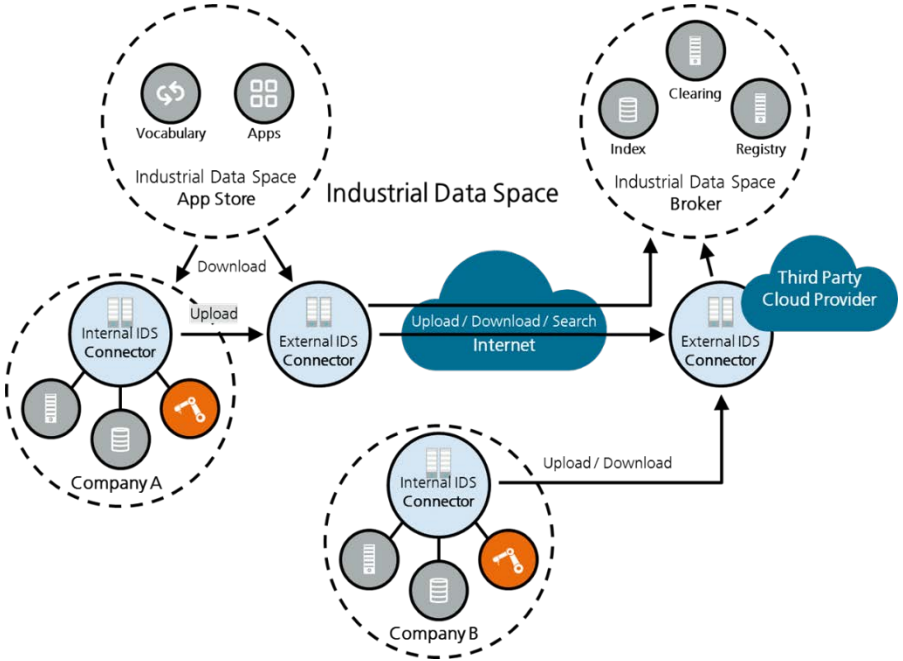
INDUSTRIAL DATA SPACE
ARCHITECTURE AND FUNCTION

REFERENCE ARCHITECTURE MODEL
BLUEPRINT FOR A DIGITAL ECOSYSTEM

- Software components enable all stakeholders (defined roles) to participate in IDS
- The quantity of all (external) IDS connectors defines Industrial Data Space
- Internal IDS connectors are used to link data sources in the company, to transform and to improve them.



REFERENZARCHITEKTURMODELL
BLUEPRINT FOR A DIGITAL ECOSYSTEM

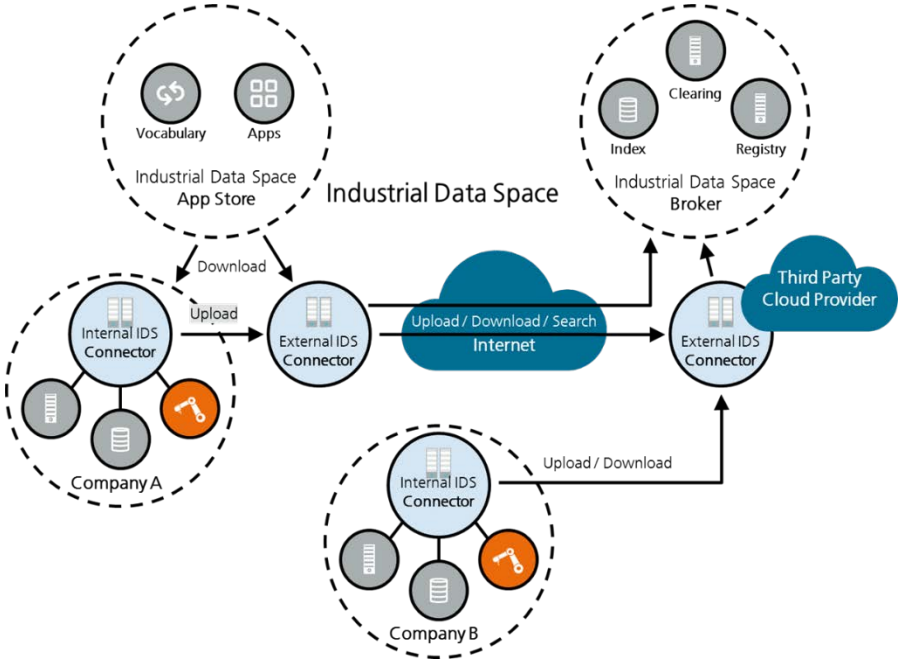
Business architecture

Data and service architecture

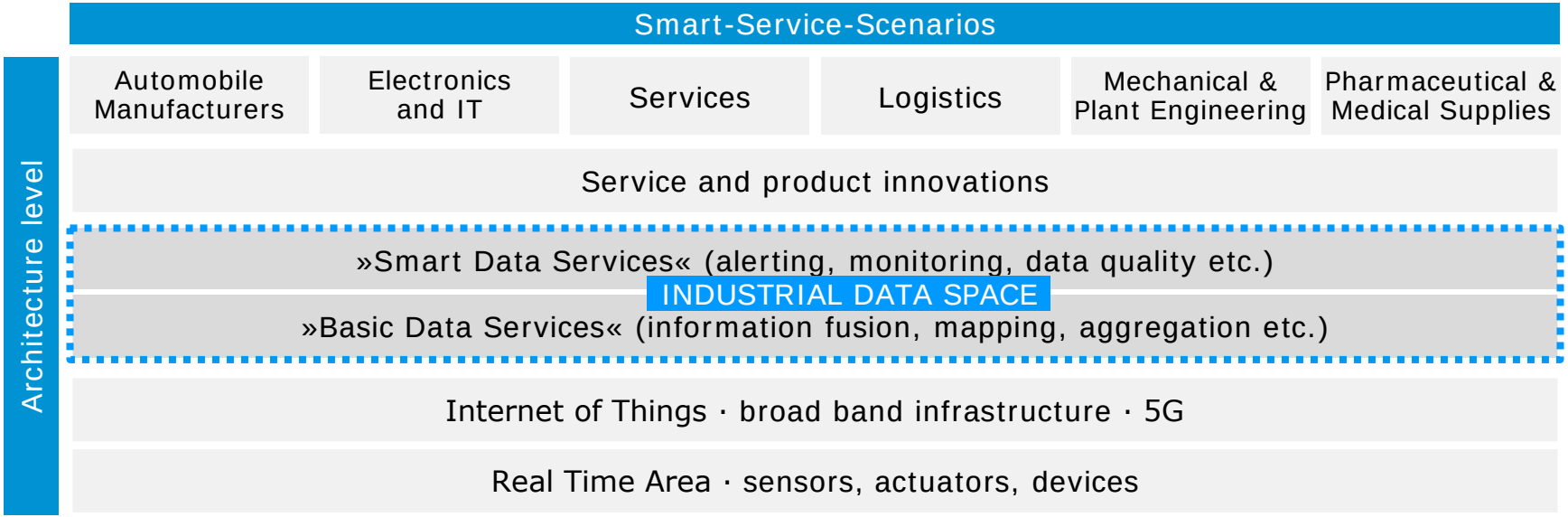
Reference Architecture Model

Software architecture

Security architecture



ARCHITECTURE FOR DATA AND DATA SERVICES
FOCUS ON BASIC AND ADDED VALUE SERVICES



USE CASES
INDUSTRIAL DATA SPACE IN ACTION

- Identify and bundle requirements
- Active design and validation of services and functionalities of Industrial Data Space by the users
- Demonstrate innovations based on Industrial Data Space
- Demonstrate and integrate existing standardisation plans
- Develop a prototype reference for the participating companies
- Potential core of an ecosystem by integrating further partners (also from different domains)

Use Case	Company
Broker-based design of supply chains	Atos
Inbound and outbound logistics with control of parameters	Bayer AG
Industrial Site Navigation	Bayer AG
Data Space for Clinical Data	Boehringer-Ingelheim
Data Space for HCP/HCO Data	Boehringer-Ingelheim
TraQ: Tracking quality with sensors	Robert Bosch GmbH
Product Data Exchange	Robert Bosch GmbH
Digital networking of a production line	Schaeffler
Coaster	SICK
Smart Sensor Intelligence	SICK
Logistics optimization	thyssenkrupp AG
Upstream Supply Chain	Volkswagen
Transparency in Outbound	Volkswagen
Downstream Supply Chain	Volkswagen
Platform integration of a production facility	Festo
Localisation of containers and alerts	Wacker Chemie

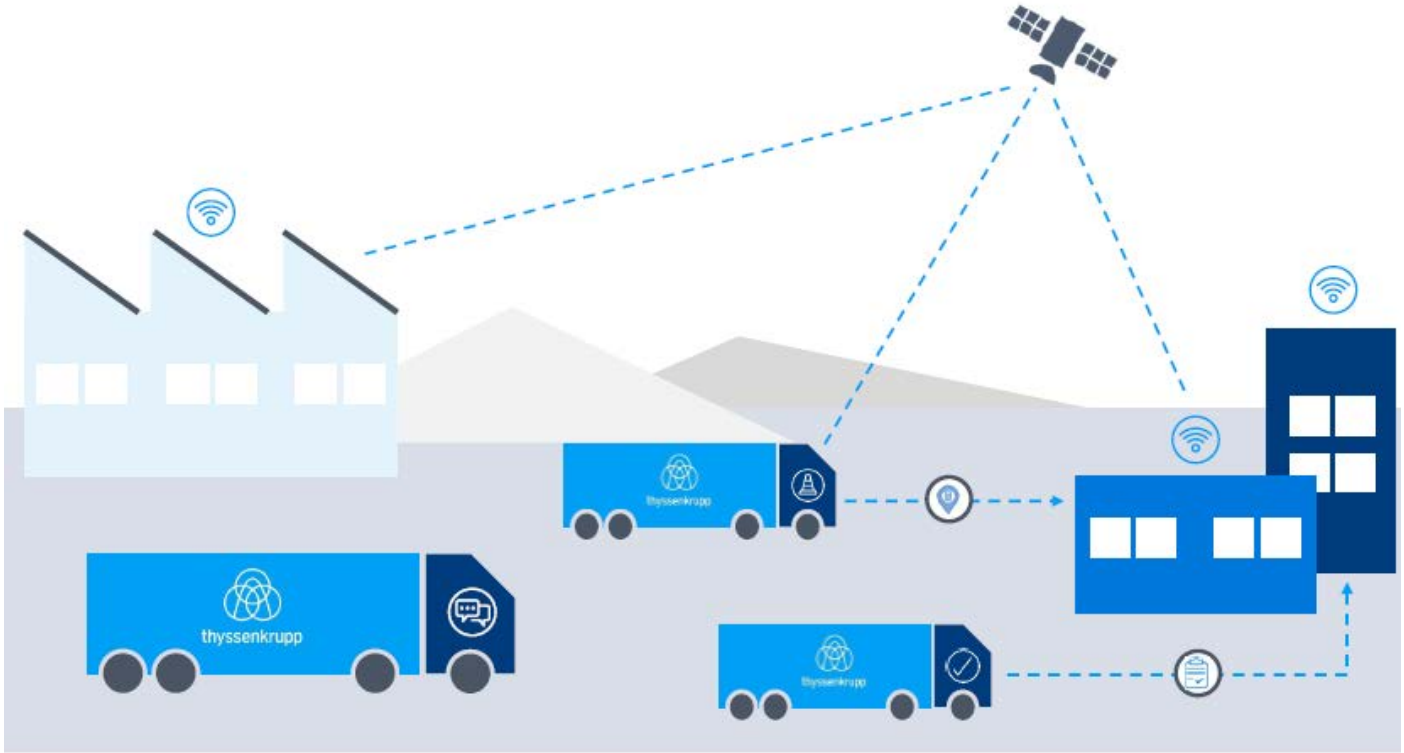
USE CASES
CHARACTERISTICS OF IDEAL USE CASES

Ideal use cases:

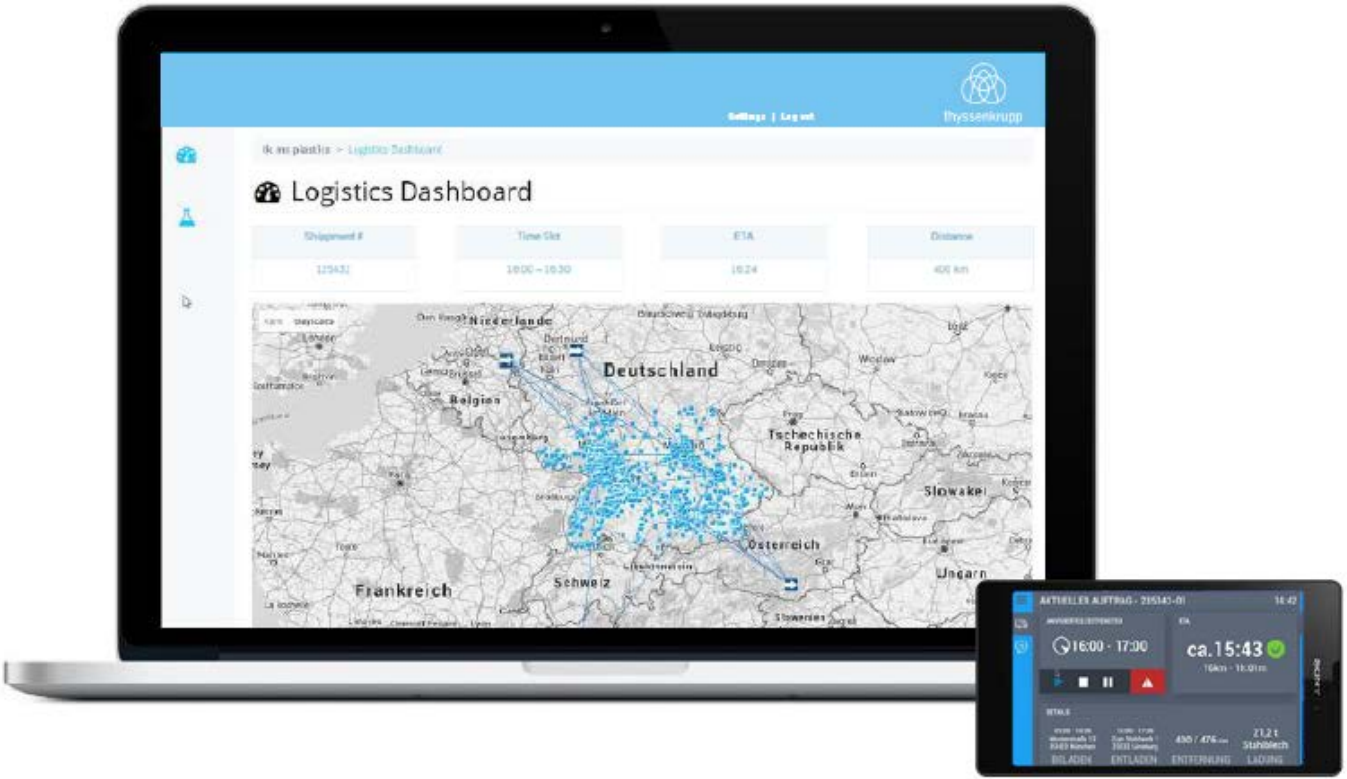
- Link data from several data sources
- Integrate various kinds of data
  (for example master data and status data in manufacturing)
- Combine various data goods
  (private and public data, »club goods«)
- Involve at least two companies
- Integrate more than two company architecture levels
  (for example »shop floor« and »office floor«)
- Basis for offering »smart services«
- Develop core components/basic services

Quelle: Fraunhofer IPA

Example: thyssenkrupp use case
Optimizing our supply chain through Industrial Data Space



Example: thyssenkrupp use case - User interface

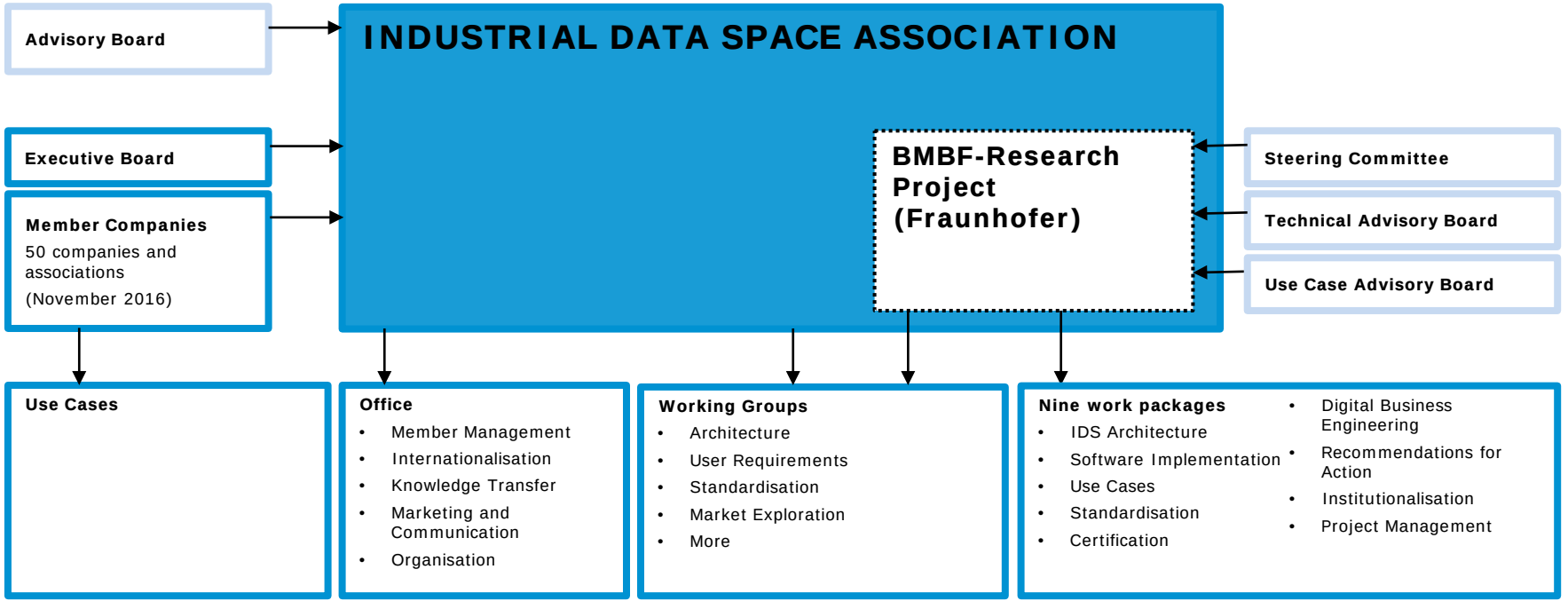


INDUSTRIAL DATA SPACE
THE USER ASSOCIATION

INDUSTRIAL DATA SPACE ASSOCIATION
TASKS AND MEMBERS

- Exchanging experience between business and science
- Developing new business models
- Standardisation and certification
- Implementing application-oriented, cross-industry projects
- Pooling user requirements and use cases
- Representing interests at an international level

ORGANISATION



THE BOARD

At the founding of Industrial Data Space e.V. in Berlin: (from left to right) Markus Vehlow, PwC; Dr. Ralf-Peter Simon, KOMSA AG; Dr. Robert Bauer, SICK; Heike Niederau-Buck, Salzgitter; Dr. Ralf Brunken, Volkswagen; Prof. Dr. Boris Otto, Fraunhofer IML; Prof. Dr. Reimund Neugebauer, Fraunhofer-Gesellschaft; Dr. Reinhold Achatz, thyssenkrupp; Ulrich Ahle, ATOS. © Photo: Matthias Heyde/Fraunhofer

Chairman of the Board:
Dr. Reinhold Achatz, thyssenkrupp AG

Deputy Chairman of the Board:
Dr. Ralf Brunken, Volkswagen AG
Prof. Dr. Boris Otto, Fraunhofer IML

Treasurer:
Dr. Ralf-Peter Simon, KOMSA AG

Members of the Board:
Markus Vehlow, PwC AG
Ulrich Ahle, Atos GmbH
Dr. Robert Bauer, SICK AG
Prof. Dr. Stefan Wrobel, Fraunhofer IAIS
Heike Niederau-Buck, Salzgitter AG

ACTIVITIES IN 2016

CeBIT 2016: Hand over of Whitepaper to Bundesministerin Prof. Dr. Johanna Wanka
© Foto: Kurt Fuchs/Fraunhofer

HMI 2016: MoU with OPC Foundation signed
© Foto: Industrial Data Space e. V.

Kick-off of working groups
© Foto: Industrial Data Space e. V.

HOW YOU CAN GET INVOLVED

Use Cases

- Piloting, applying and testing Industrial Data Space
- Implementing requirements in the development of the architecture
- Development of Smart Services

Workings groups

- Participation in working groups
- Regular exchange with all member companies
- Dealing jointly with problems concerning data exchange

Exchange of information

- Transferring the content of the research project
- Common events Networking events
- Organisation of marketing activities/fairs

Processing

- Development of business models in the IDS
- Innovation camp
- Development of common user models

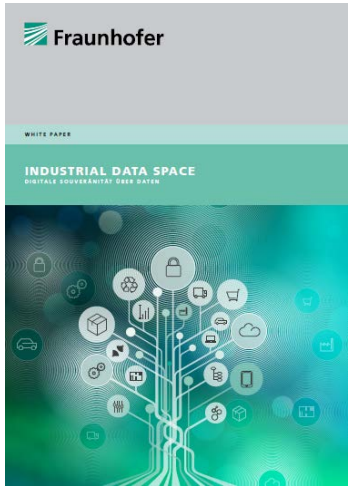
Architecture

- Support to help design the reference architecture
- Contribution of company-specific know-how

Standardisation/ Certification

- Defining and implementing standards
- Designing certification measures

INDUSTRIAL DATA SPACE
WHITEPAPER



Whitepaper

http://s.fhg.de/white-paper-industrial-data-space

This white paper gives an overview on objectives and architecture of the Industrial Data Space.
Additionally, some use case and the Industrial Data Space User Association are introduced.

INDUSTRIAL DATA SPACE ASSOCIATION

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