# OVERVIEW OF THE INDUSTRIAL DATA SPACE

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.

October 2015




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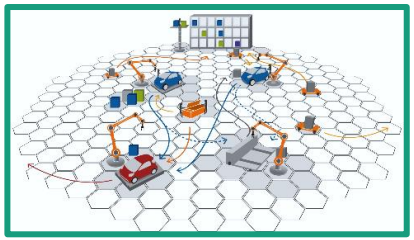
# CONTENTS

# Digitalization is both a driver and an enabler of innovative business models

| Pharma | Automotive | Trade | Manufacturing |
|---|---|---|---|
|  |  |  |  |
| Characteristics:<br>– Real-life evidence<br>– More effective & efficient treatment<br>– Personalized medicine | Characteristics:<br>– Traffic management 2.0<br>– Dynamic route calculation<br>– Connected drive services | Characteristics:<br>– Autonomous transparency in supply chains<br>– Consumer-centric supply chain | Characteristics:<br>– Smart concepts for small batch production<br>– Autonomous production |
| Product innovation | Service innovation | Process innovation | Organizational innovation |

Picture sources: Microsoft, BMW, Databirds, SmartFace.



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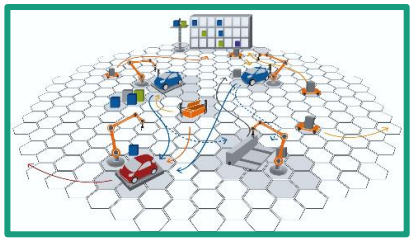
# A key component for business model innovation is the ability to combine data in an ecosystem

| Pharma | Automotive | Trade | Manufacturing |
|---|---|---|---|
|  |  |  |  |
| **Ecosystem:**<br>– Pharmaceutical industry<br>– Health care providers<br>– Doctors<br>– … | **Ecosystem:**<br>– Automotive manufacturer<br>– Traffic managment centers<br>– Municipalities<br>– … | **Ecosystem:**<br>– Retailers<br>– Consumer goods industry<br>– Logistics service providers<br>– … | **Ecosystem:**<br>– Automotive manufacturer<br>– Suppliers<br>– Logistics service providers |
| **Data:**<br>– Health data<br>– Therapy data<br>– … | **Data:**<br>– Location, destination<br>– Vehicle data<br>– Traffic data<br>– … | **Data:**<br>– EPCIS events<br>– Transport data<br>– Status data<br>– … | **Data:**<br>– Product data<br>– Planning data<br>– Status data<br>– … |

Picture sources: Microsoft, BMW, Databirds, SmartFace.
Legend: EPCIS - Electronic Product Code Information Services.



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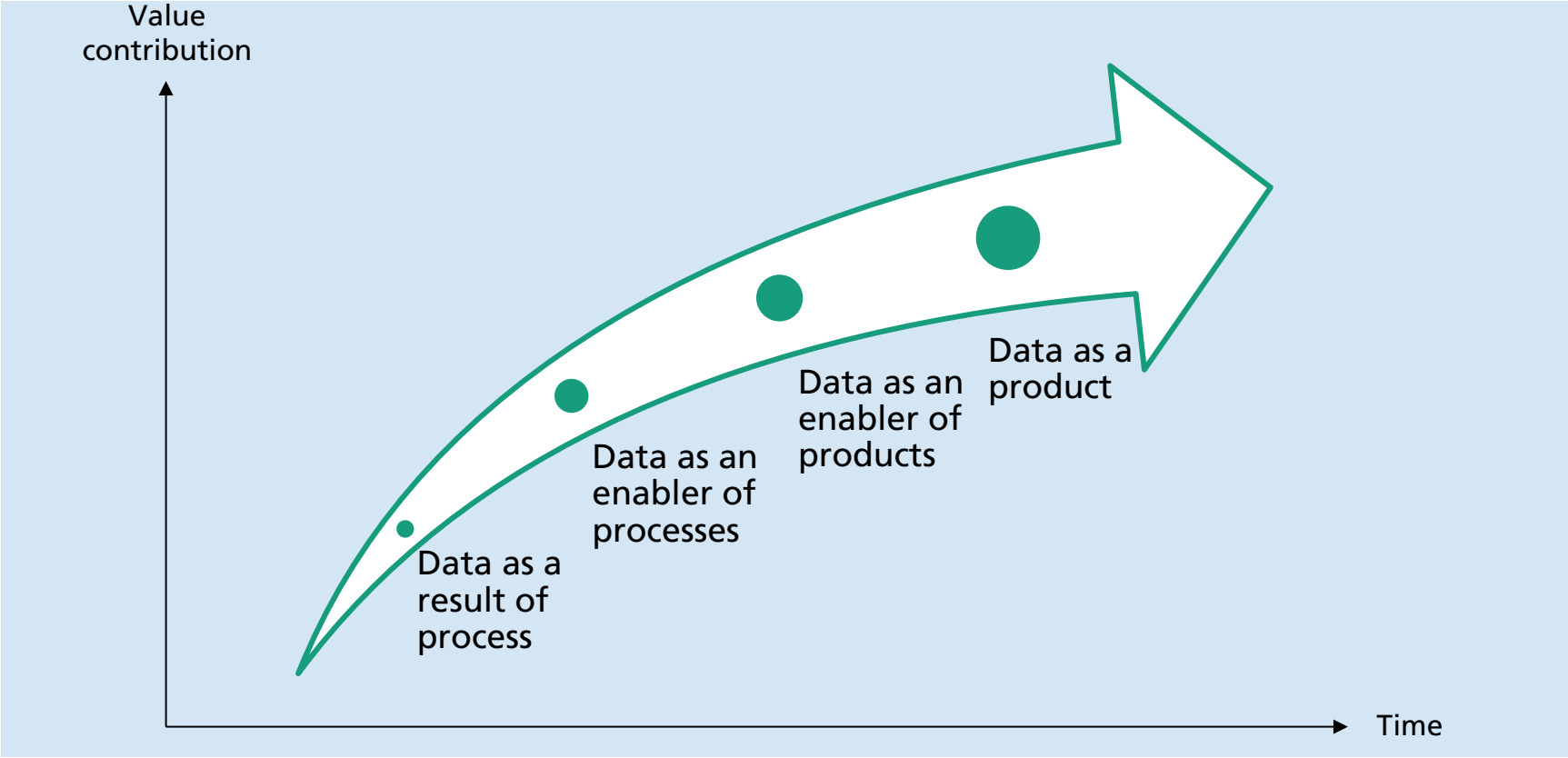
# Data becomes a strategic resource




Sources



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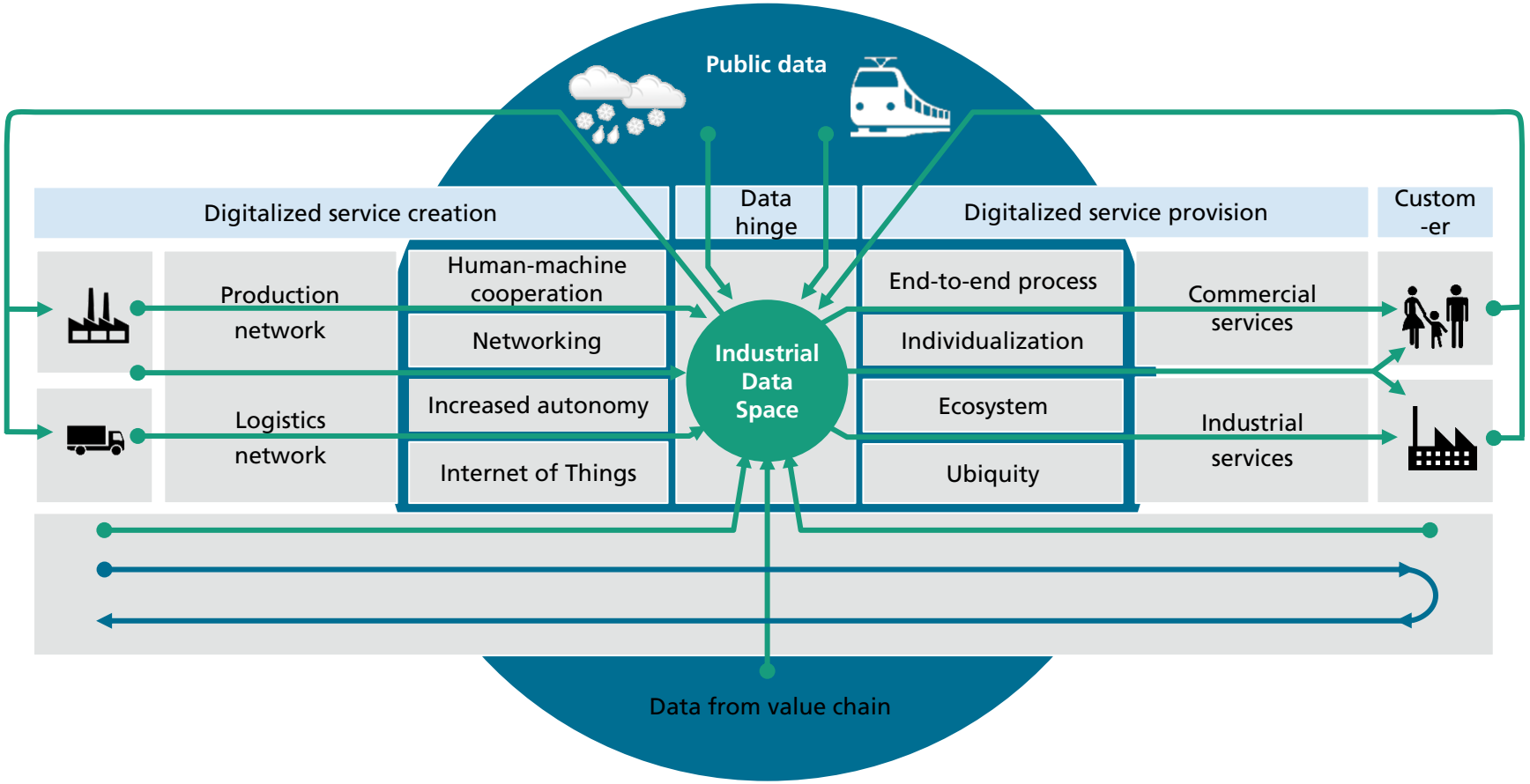
# Industrial Data Space can be a link between digital production/logistics and smart services



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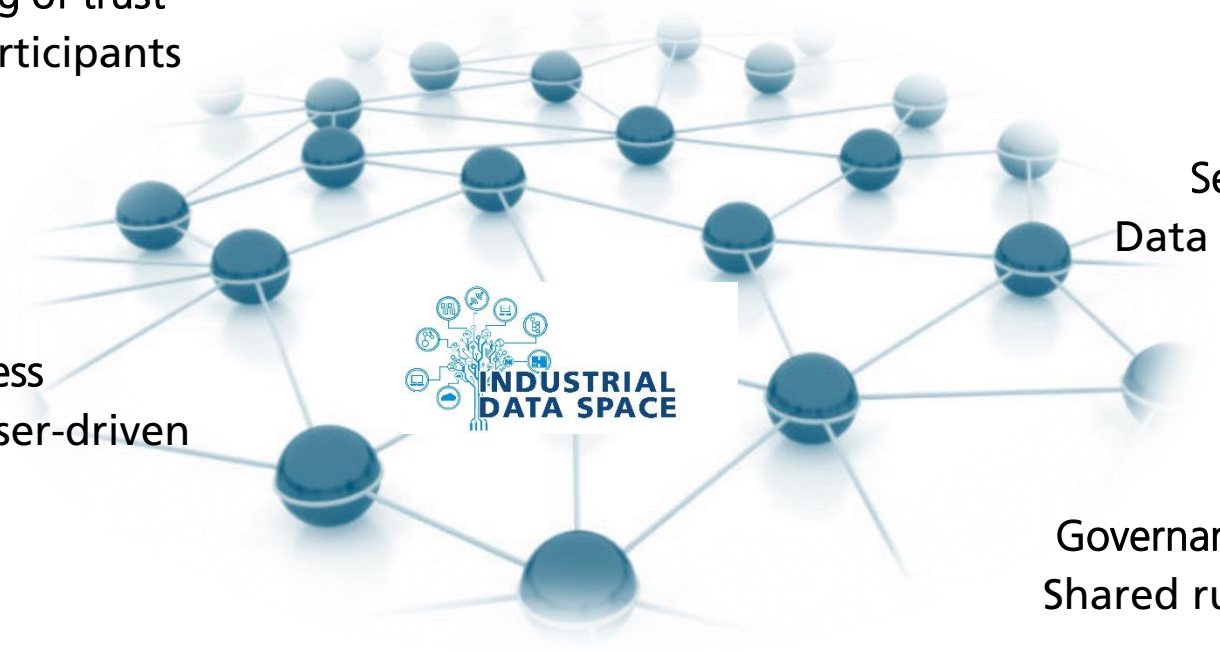
# Industrial Data Space facilitates a network of trusted data

Decentralized
Federal architecture

Sovereignty
over data and services

Safeguarding of trust
Certified participants




Security
Data exchange

Openness
Neutral and user-driven

Governance
Shared rules

Scaling
Network effects

Network
Platforms and services



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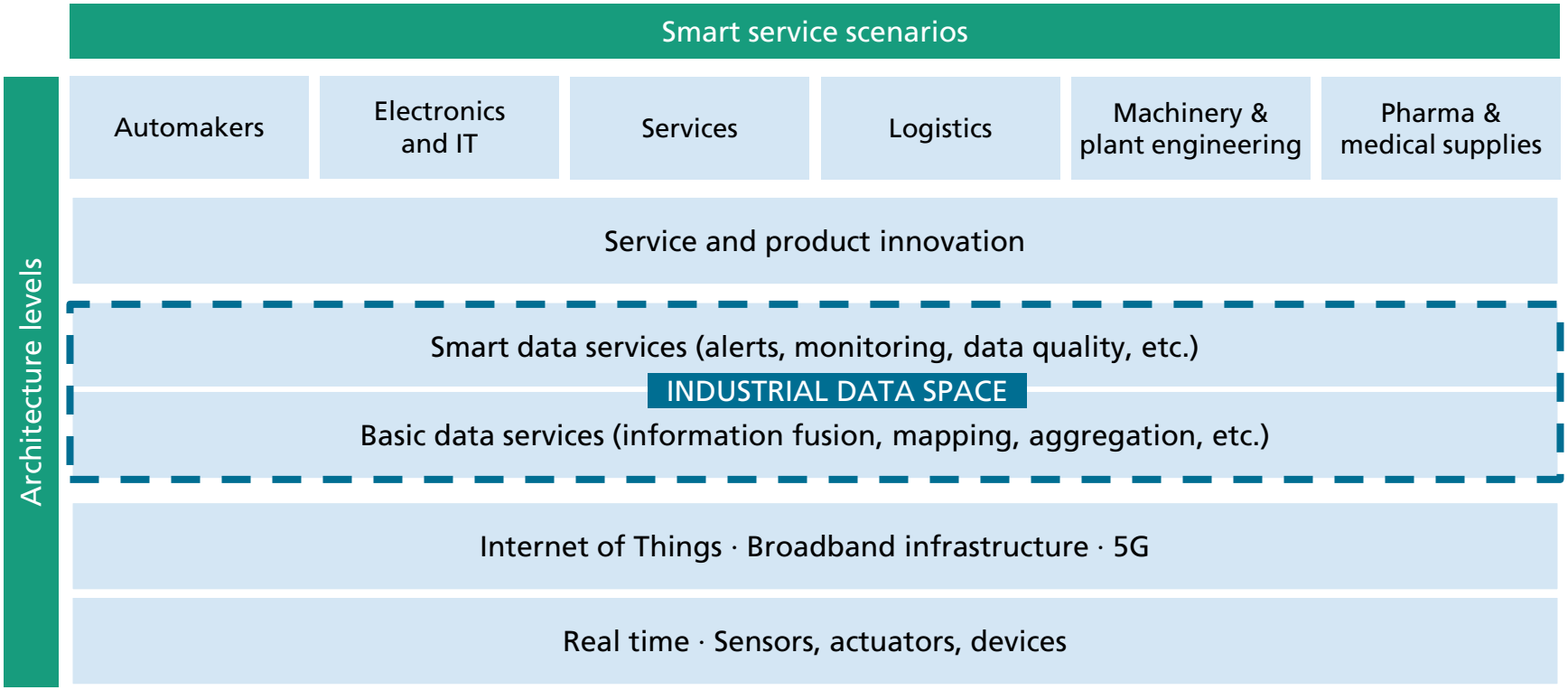
# Industrial Data Space focuses on the architecture of data and data services



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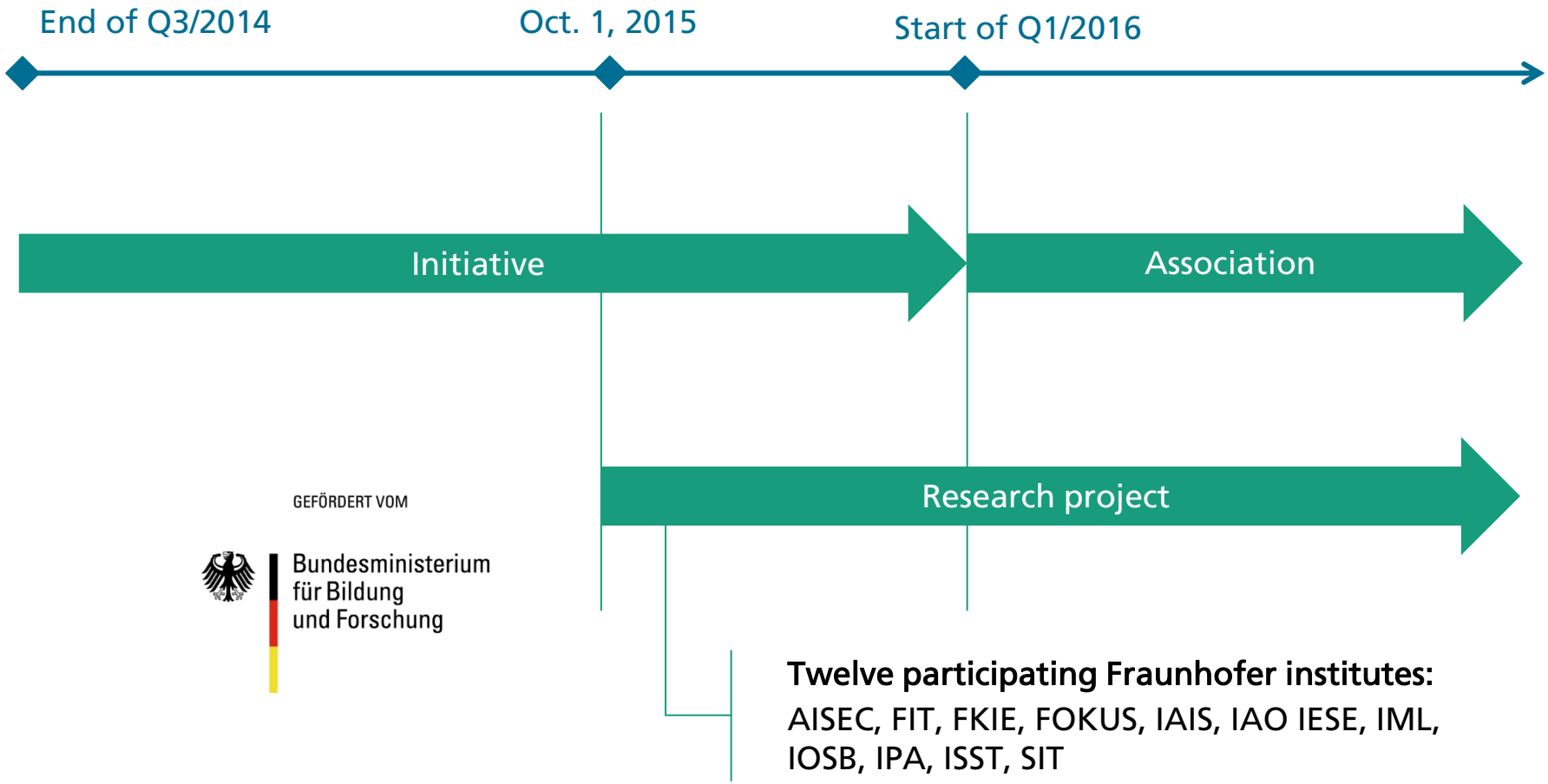
# Key characteristics of the Industrial Data Space

- Secure data supply chain
- Flexible usage scenarios for software components
  - Company IT environment
  - Cloud
  - Hardware device (e.g. machine tools, industrial trucks, etc.)
- Lightweight semantics
- Simple combination of various data categories (public, private, club goods, etc.)
- Domain-specific governance models and data evaluation concepts
- Configurable reference architecture model
- Standardized collaboration processes for data
- Open, participative development process

# The Industrial Data Space initiative is becoming institutionalized as a research project and non-profit association



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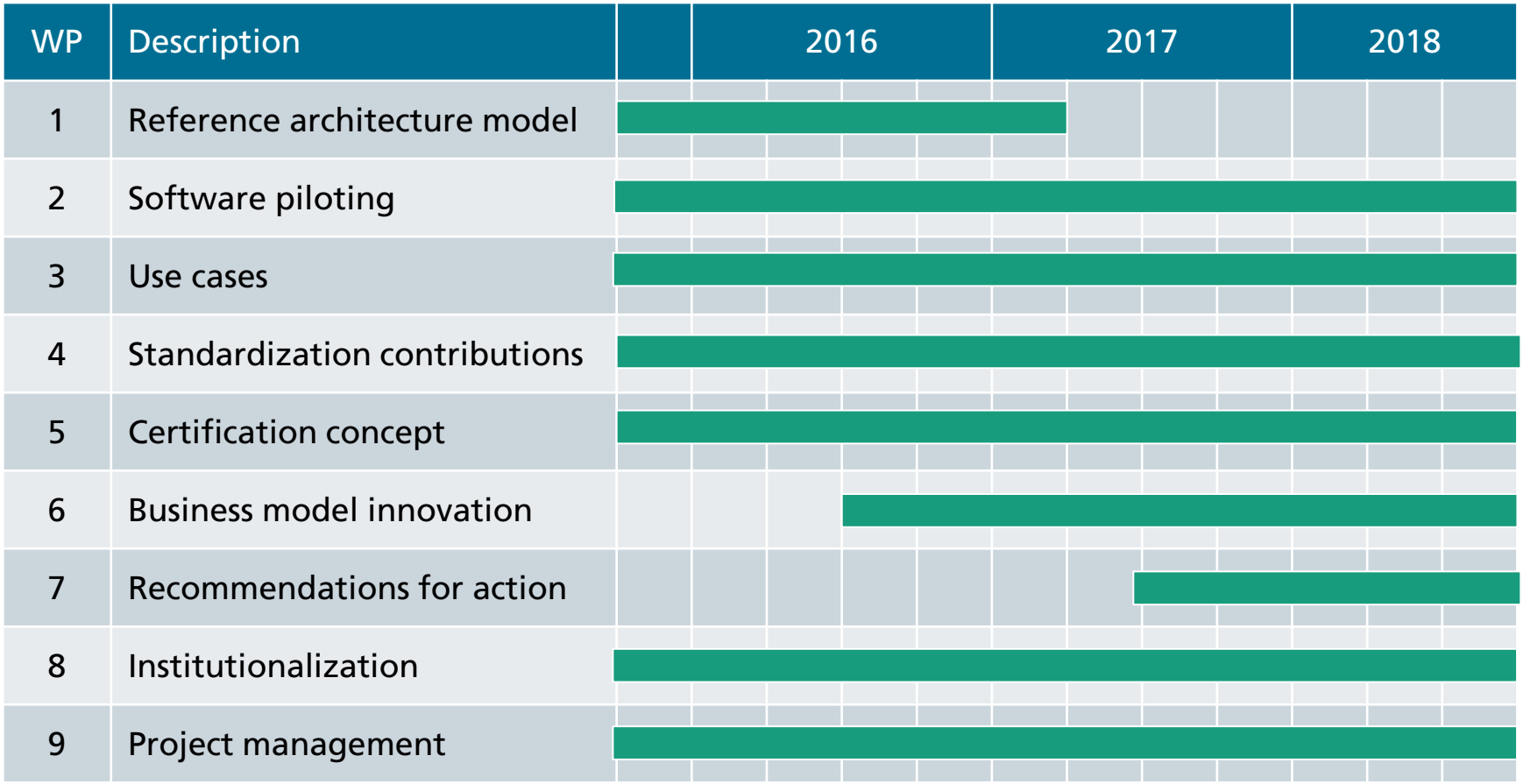
# The funding project was launched on October 1, 2015, and has two main objectives

1. **Reference architecture model**
   - Governance architecture
   - Business functional software architecture for data services
   - Security architecture
   - Technical architecture for piloting
2. **Piloting in use cases**
   - Logistics and supply chain management
   - Automobility
   - Production

# The tasks in the funding project have been divided up into nine work packages and will run for three years



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# The association actively recognizes the interests of Industrial Data Space users

## Purpose of the association

- Organizing activities
- Pooling user interests
- Handling communication and PR
- Collaborating and sharing information with similar initiatives
- Liaising with the funding project

## Founding members[1]

- Atos IT Solutions and Services GmbH
- Bayer HealthCare AG
- Boehringer Ingelheim Pharma GmbH & Co.KG
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- KOMSA Kommunikation Sachsen AG
- PricewaterhouseCoopers AG
- REWE Systems GmbH
- Robert Bosch GmbH
- Salzgitter AG
- SICK AG
- ThyssenKrupp AG
- TÜV Nord AG
- Volkswagen AG
- German Electrical and Electronic Manufacturers' Association (ZVEI)

1) As of Oct. 31, 2015; to be officially founded in January 2016.



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# Currently[1] there are over 65 use case candidates from a variety of sectors

## Purpose of use cases

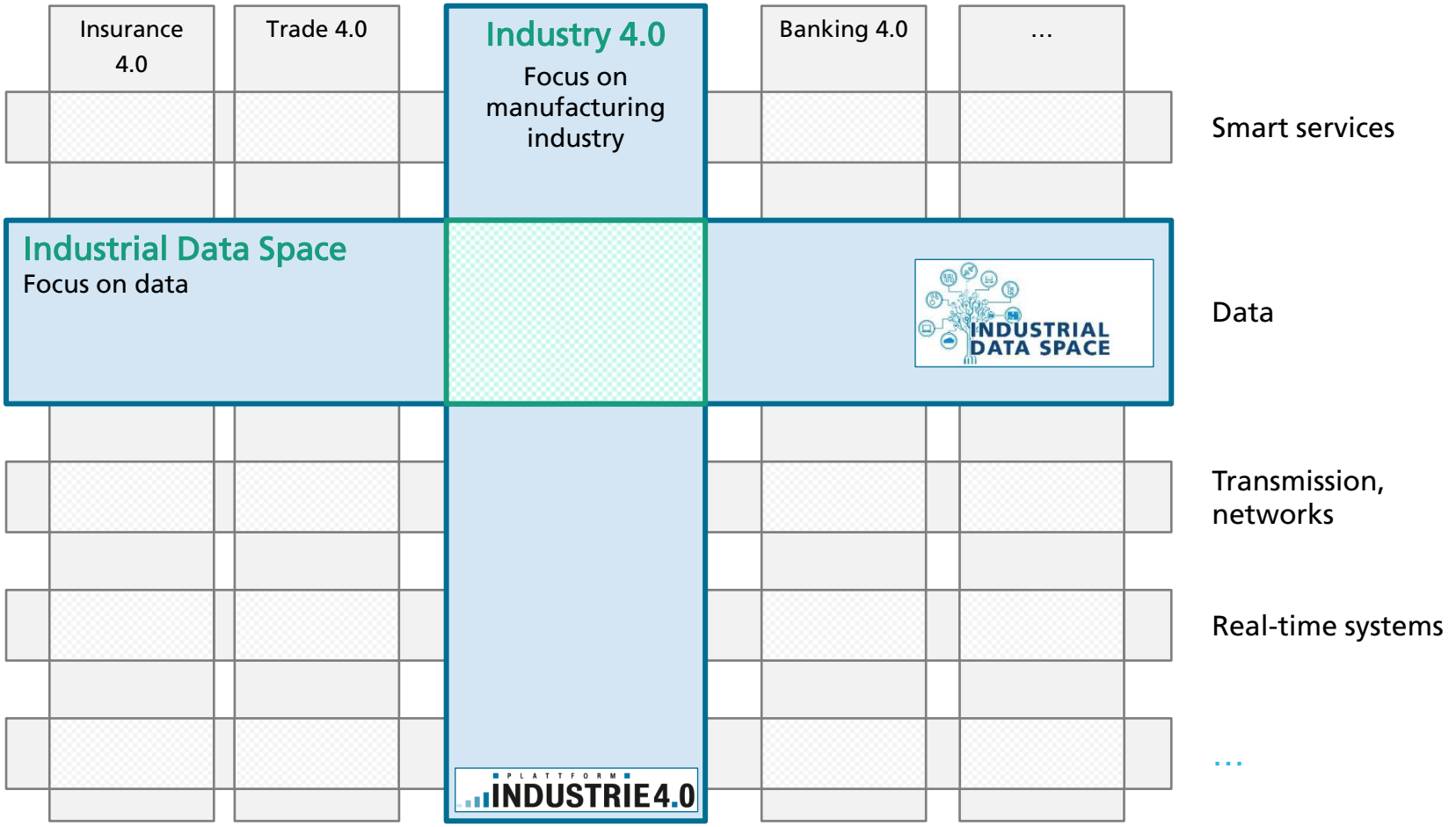
- Identifying and pooling user **requirements**
- **"Trialing"** reference architecture model by users
- **Demonstrating** innovations based on Industrial Data Space
- Demonstrating and integrating existing **standardization projects**
- Developing a **prototype reference** for the participating companies
- Forming the potential **core of an ecosystem** by integrating further partners (including from other domains)

## Use case characteristics

- Linking of data from **several data sources**
- Integration of **various data types** (e.g. master data and status data from manufacturing)
- Combination of **various data categories** (private data, public data, club goods)
- Participation of **at least two companies**
- Integration of **more than two company architecture levels** (e.g. shop floor and office floor)
- Basis for the provision of **smart services**

1) As of Oct. 31, 2015.

# The work on Industrial Data Space complements that of Plattform Industrie 4.0



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# Your contact partner will be happy to answer any questions you may have


Prof. Boris Otto

Fraunhofer IML
Boris.Otto@iml.fraunhofer.de


https://de.linkedin.com/pub/boris-otto/1/1b5/570

https://twitter.com/drborisotto

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