



# **INTERNATIONAL DATA SPACES** THROUGH DATA SHARING TO VALUE INTEGRATED ECOSYSTEMS

*Manufacturing Performance Days 2019, Tampere, 05/06/2019*

*Thorsten Huelsmann, CFO, International Data Spaces Association*



300 people  
contributing

19 countries



95+







I Agree

**#datasovereignty**



# LOVE AND DATA

BOTH GROW WHEN SHARED







# DATA TREASURES

ARE CREATED BY SHARING DATA

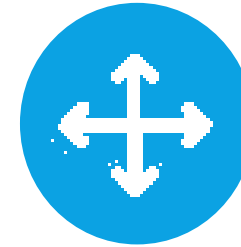
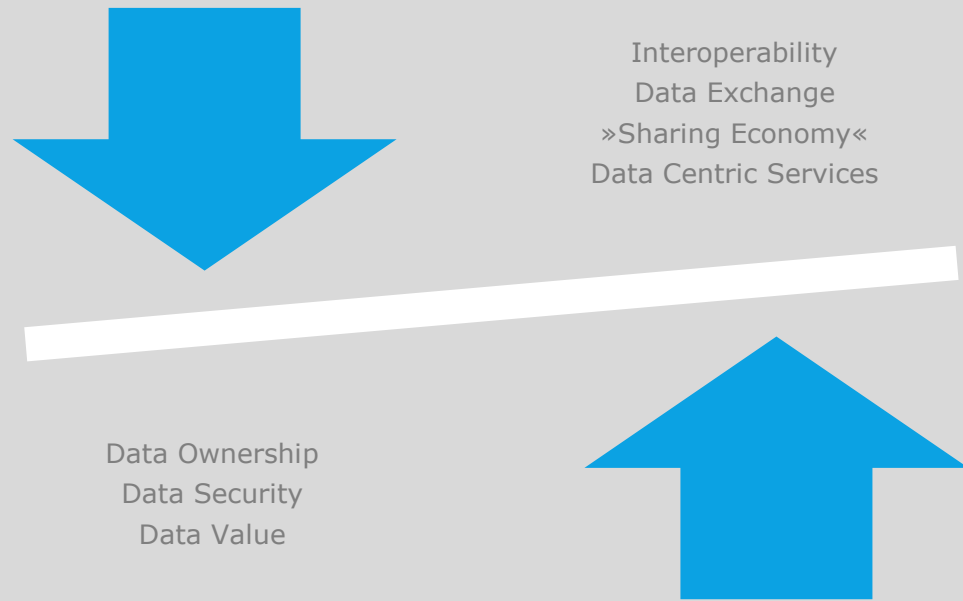
*Linking data is the new oil of the data driven economy*

*Companies want to share data without regret*

*Stay in control over the flow of your data*

# A KEY CAPABILITY

## IN DATA ECOSYSTEMS



## DATA SOVEREIGNTY

**is the ability of a natural or legal person to exclusively and sovereignly decide concerning the usage its data as an economic asset.**





*Governance for data sharing*

*Defining usage constraints*

*Trusted manipulation of data*

**DATA SPACES**

**CLEANROOMS FOR A PROSPERING DATA ECONOMY**





*Digital identities and certification*

*Usage Control and enforcement*

*Secure IoT gateways*

**TRUST BY DESIGN**

**SECURE INTERNET FOR THE ECONOMY**





*Innovation by AI requires ecosystems*

*Data ecosystems require data*

*Semantic interoperability between platforms and ecosystems*

**DATA SHARING**

**IS BETTER THAN PLAYING ALONE**





**DATA SHARING REQUIRES**

**A COMMUNITY OF TRUST**

*Trustworthy identities*

*Crystal clear governance for data sharing*

*Data sovereignty*







# THE IDSA DEFINES...

*1 Reference Architecture*

*2 Interfaces*

*3 Contractual Framework*

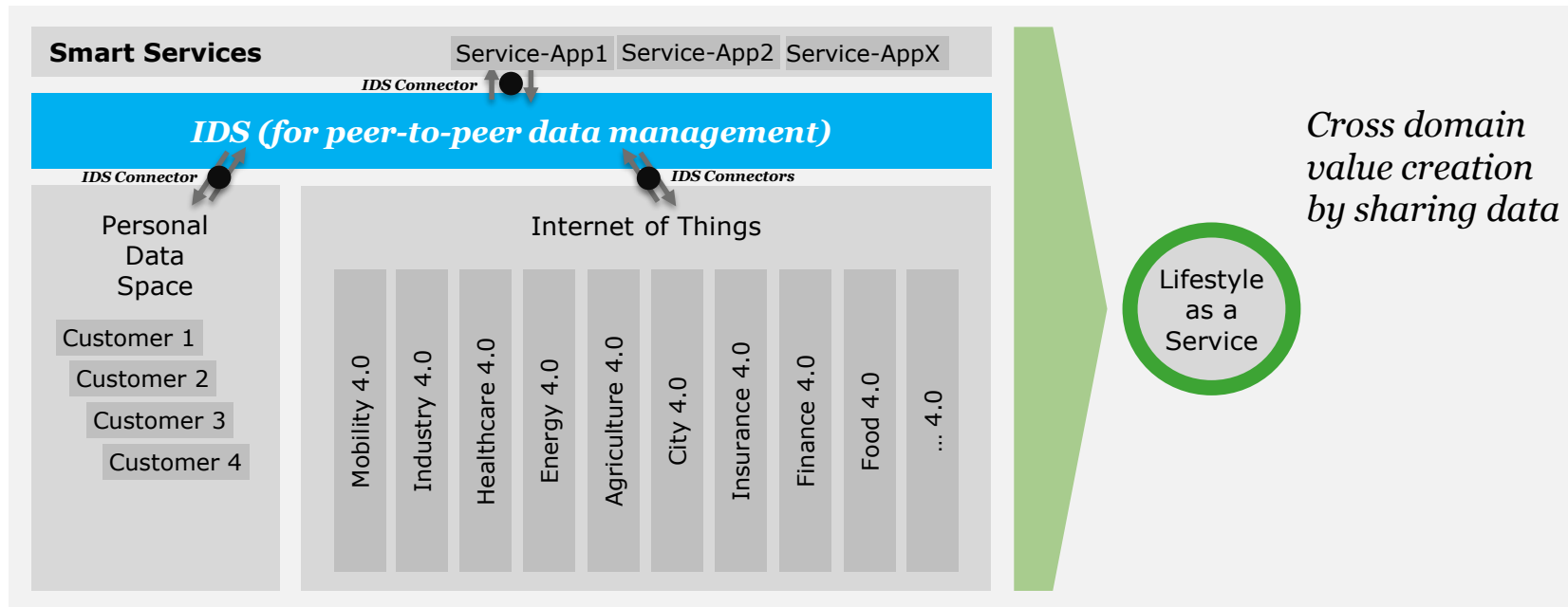
*4 Sample Code*

**...FOR AN OPEN DATA ECOSYSTEM.**





# THE MISSING LINK IN THE IOT IDS AS DATA MANAGEMENT LAYER

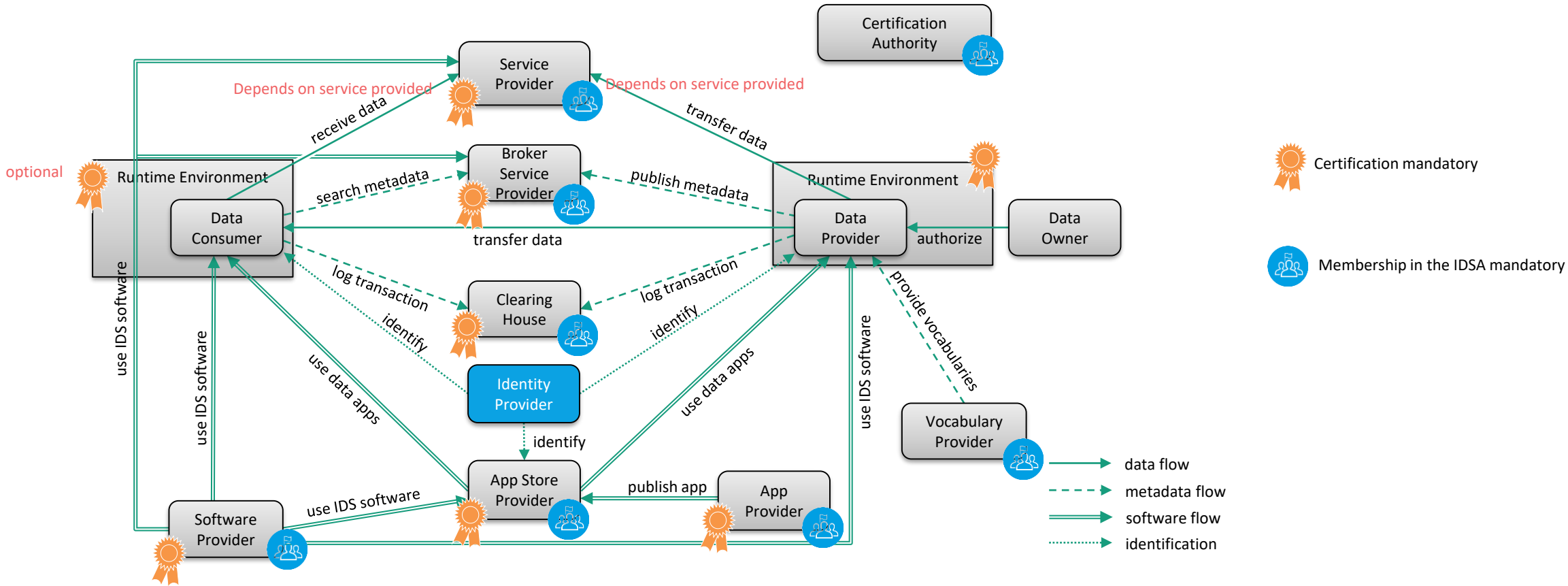


IDS is the enabler for any future data-driven ecosystem

(by making data be considered as an economic asset)



# DISTRIBUTED GOVERNANCE IN INTERNATIONAL DATA SPACES ECOSYSTEMS







# 4 SECURITY PROFILES

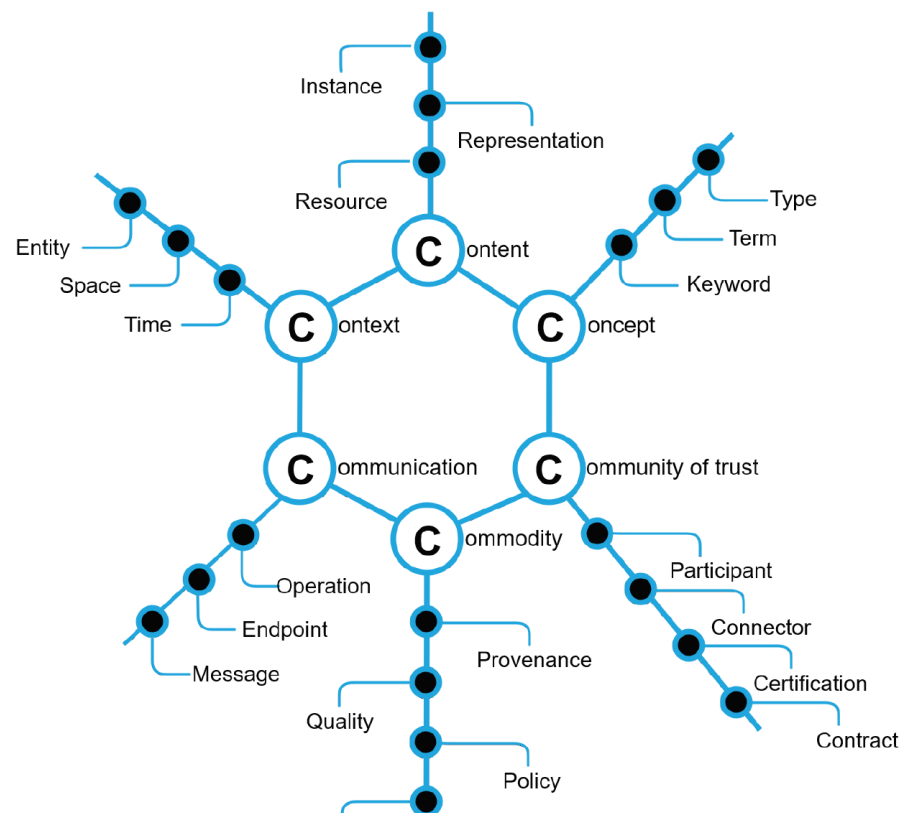
## YOU DECIDE DEPENDING ON THE USE SCENARIO

	Base Free	Base	Trust	(Managed)Trust+
Reference Development	Open Source	IDS Community	IDS Community	Bound to strong SLAs
Roles	Own infrastructure	All IDS Roles supported, Billing and Clearing optional	All IDS Roles supported	All IDS Roles supported
Communication Abilities	Only private IDS with self signed certificates	Full interoperable, reduced trust	Full interoperable, Free decision of communication	Full interoperable, Free decision of communication, Hardware anchor
Higher Security Classes	Standard Security Level required	Standard Security Level required	High Security Level	Higher Security Level





# INFORMATION MODEL DESCRIBING DATA ASSETS



- The essential agreement shared by the participants and components of data ecosystems, facilitating compatibility and interoperability
- Three formal levels of digital representation of the information model
  - Conceptual (generic description in UML)
  - Declarative (formal, machine-interpretable specification of IDS concept, semantic description)
  - Programmatic (IDS information model library in java)





# IDS CONNECTOR IMPLEMENTATIONS RUNNING ON DIFFERENT DEVICES



## Trusted Connector

- Connector running on sensor device
- Implementation by Sick AG



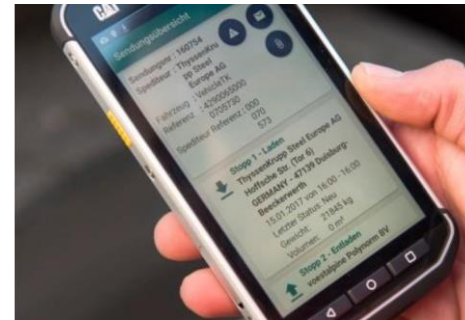
## Base Connector

- Connector running on Raspberry Pi
- Implementation by nicos AG



## Lightweight Sensor Connector

- Connector running on 32 bit microprocessor
- Implementation by Fraunhofer



## Mobile Connector

- Connector running on mobile device
- Implementation by thyssenkrupp AG, Fraunhofer and Logenios GmbH



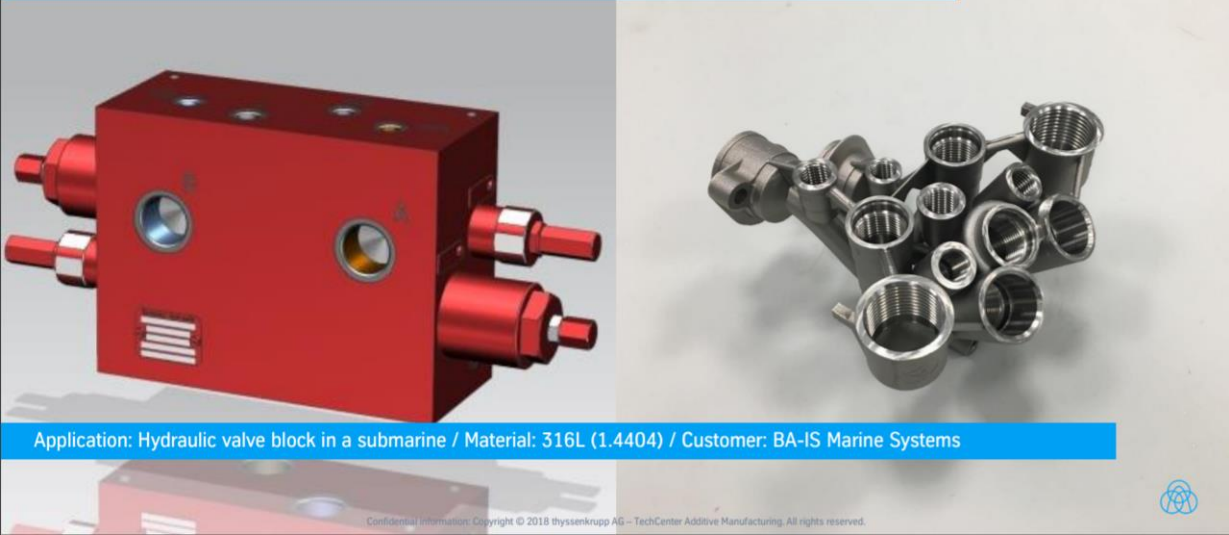




UseCase example: topology optimization



Improved function and weight reduction of app. 83%



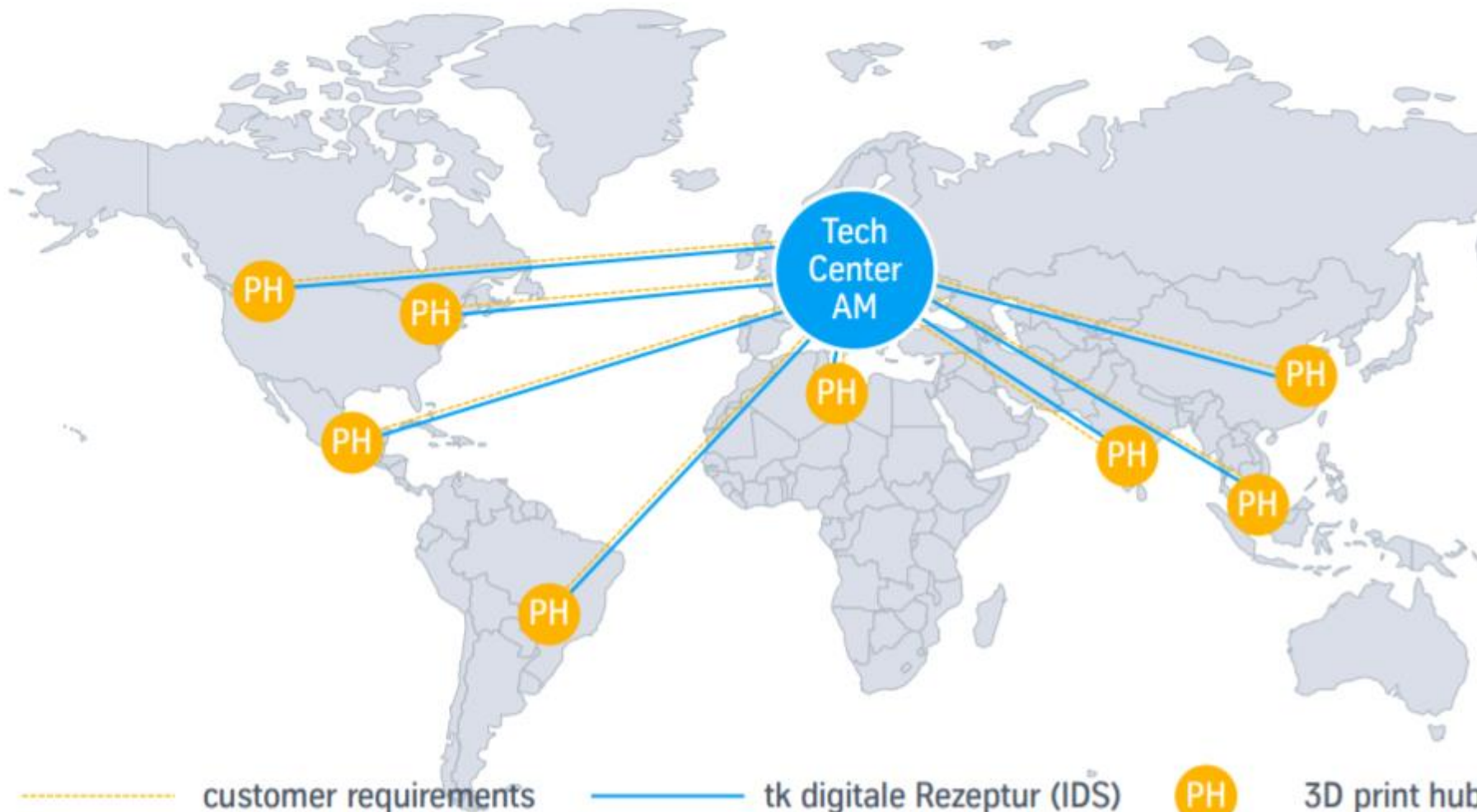
Application: Hydraulic valve block in a submarine / Material: 316L (1.4404) / Customer: BA-IS Marine Systems

Confidential information: Copyright © 2018 thyssenkrupp AG – TechCenter Additive Manufacturing. All rights reserved.



Picture Source: www.defensenews.com

# We digitize and make supply chains more flexible



- Agile, bundled engineering competence
- Consistent digital requirement
- Safe digital print file exchange & protected usage via IDS
- Local hubs worldwide spread
- Reduced downtime through optimized supply chains via e.g. decentralized smart print hubs

----- customer requirements

———— tk digitale Rezeptur (IDS)



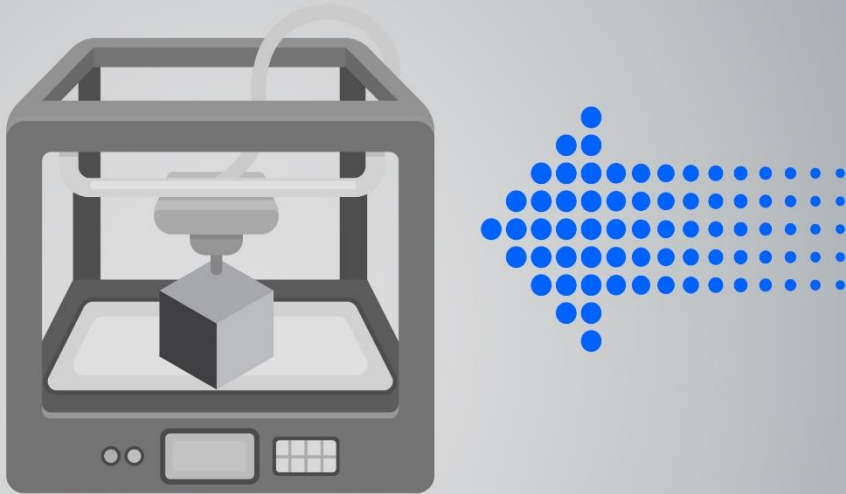
3D print hub (tk or partner)







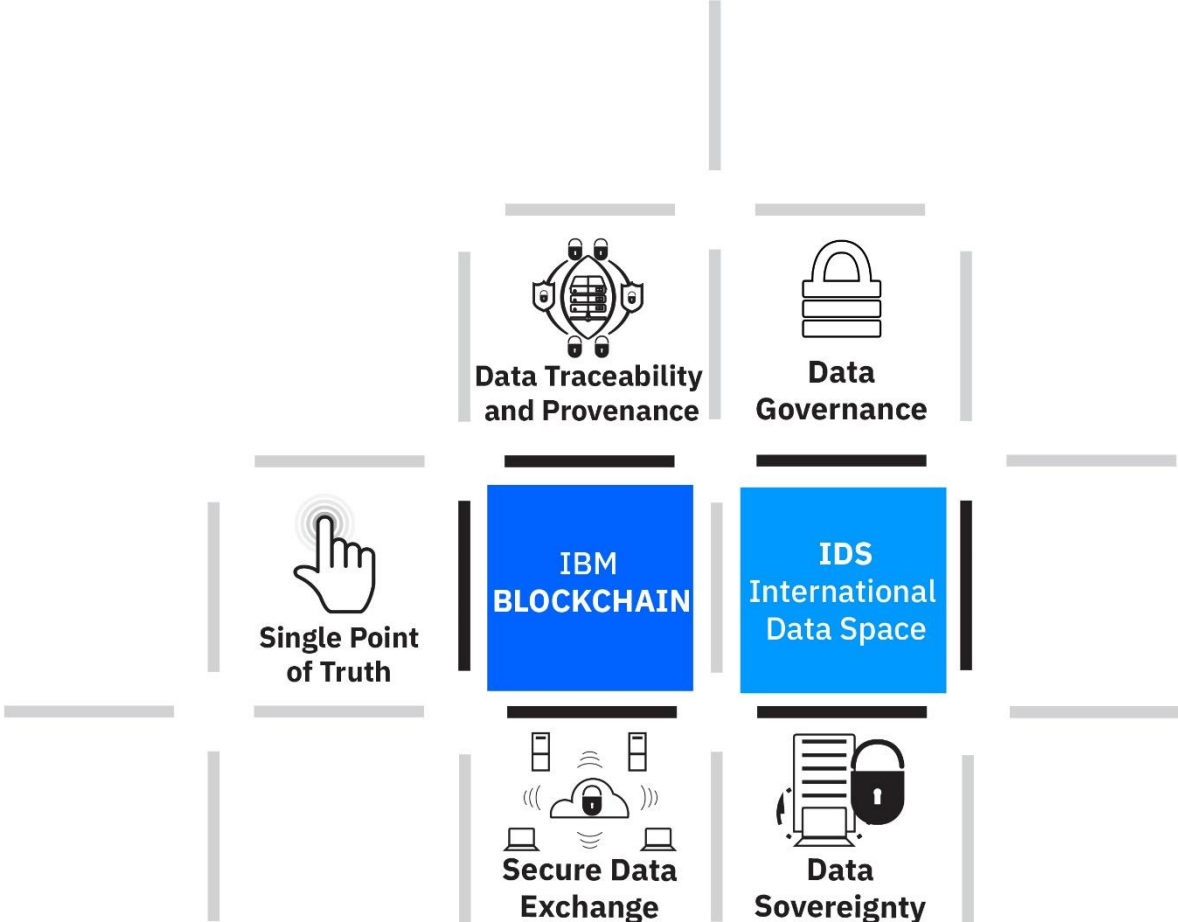
# Stimulate digital interactions between partners in an industrial production network



thyssenkrupp Additive Manufacturing Services

powered by **IBM Blockchain + International Data Space**

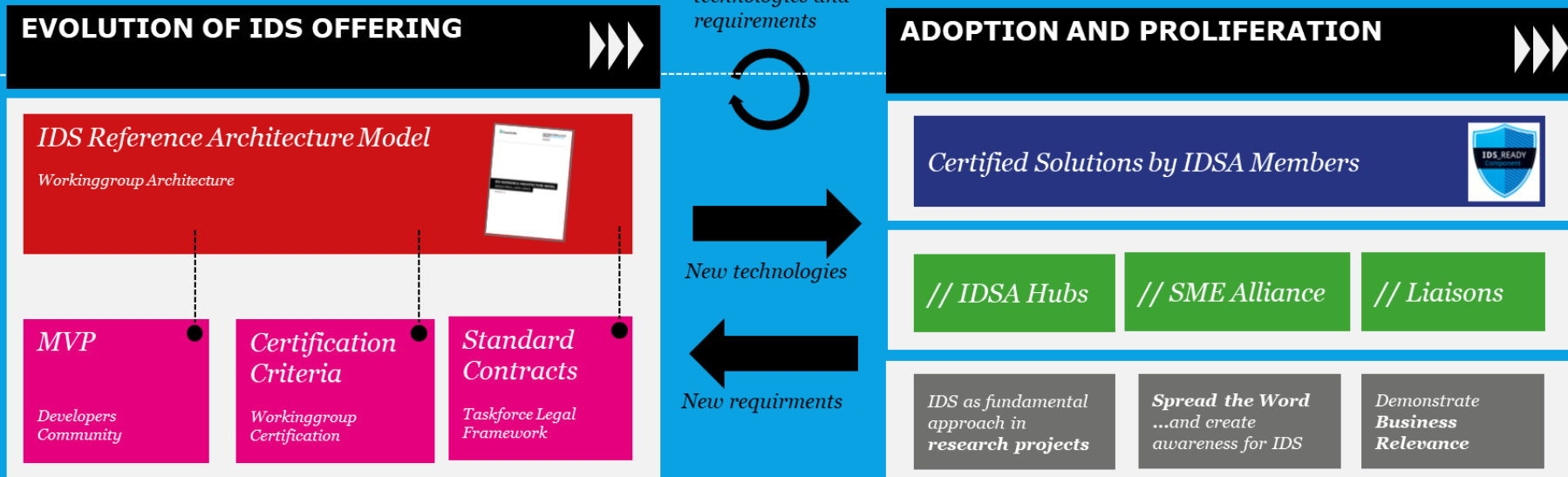
Lead innovation - Join the platform





# MAKING IDS A GLOBAL STANDARD

▶ Start of IDSA as global, user driven initiative



IDS is a standard for the semantics of data exchange!  
and for data sovereignty.



# IDS-ready

Compliance to IDS reference architecture  
for components & organizations



Evaluators for IDS-Component



Evaluators for IDS-Organization



## THE 2 PHASES

### IDS-ready Review (available)

The review is carried out by members of the WG certification; the IDSA Head Office is responsible for issuing the IDS-ready statements.

### IDS Certification (starting mid 2019)

The evaluation is carried out by evaluation facilities approved by the IDS Certification Body; the IDS Certification Body is responsible for issuing the IDS certificates.



# IDSAs Hubs

International Data Spaces Association's first six hubs in Europe.



TECHNICAL RESEARCH  
CENTRE  
OF FINLAND  
-Espoo, Tampere, Oulu,  
Helsinki, Finland



Czech Technical University  
in Prague  
-Prague, Czech Republic



Technological Centre  
-Bilbao, Spain



Higher Education and  
Research Institution  
-Paris, France



Digital Innovation Centre  
-Milan, Italy



Organization for Applied  
Scientific Research  
-The Hague, Netherlands

# *IDS*A Hub Finland

International Data Spaces Association's representative in  
Finland



TECHNICAL RESEARCH CENTRE OF  
FINLAND

Data driven solutions

Markus Taumberger  
Project Manager  
Intelligent Industry

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Phone +358 50 465 2474





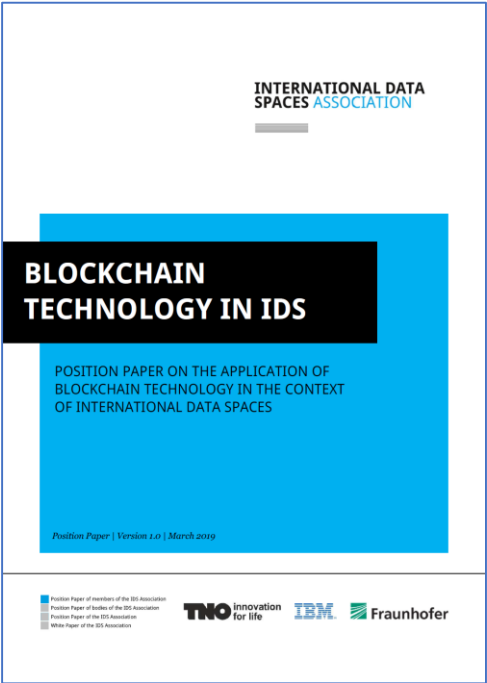
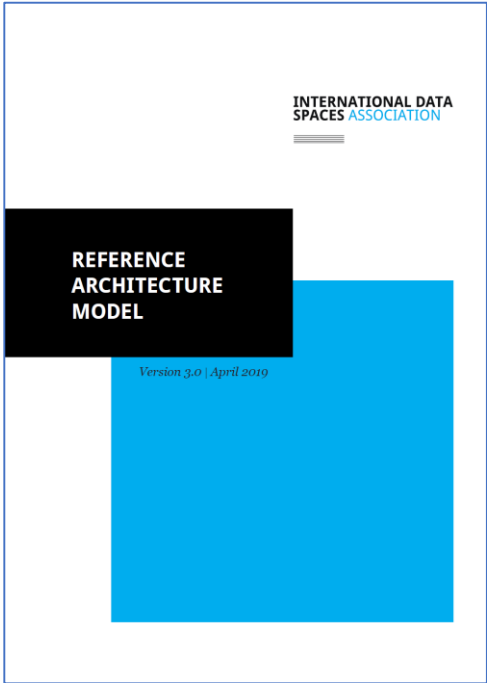
PLATFORM  
**INDUSTRIE4.0**



# Interweaving IDSA architecture with other leading global initiatives



# NEW!





# 2<sup>nd</sup> IDSA Summit

June 25 to 26, 2019

Deutsche Telekom Campus

Bonn | Germany

INTERNATIONAL DATA  
SPACES ASSOCIATION



## *Be part of it:*

- ▶ Learn about: Secure data exchange, data ecosystems & data sovereignty
- ▶ What's new: IDS\_ready, IDS-RAM 3.0 & more
- ▶ Get involved: Communities, workshops & presentations
- ▶ Drive the global IDS standard forward!

Online registration will open soon, stay tuned.





**THORSTEN HUELSMANN**

CFO  
INTERNATIONAL DATA SPACES ASSOCIATION

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