

The background of the slide is a complex, abstract visualization of a data network. It consists of numerous thin, glowing lines in various colors (green, yellow, blue, purple, orange) that connect different points, creating a dense, interconnected web. The lines are most concentrated in the center and right side of the image, with some brighter, more prominent nodes. The overall effect is that of a dynamic, multi-dimensional data space.

INTERNATIONAL DATA SPACES
A TRUSTWORTHY ARCHITECTURE FOR THE DATA ECONOMY

Antoine Garnier, Project Manager, International Data Spaces Association

300 people
contributing

18 countries



95+

INTERNATIONAL DATA
SPACES ASSOCIATION



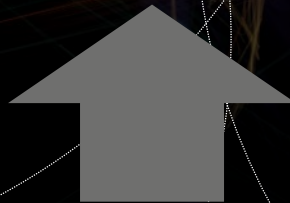
COMPANIES WANT TO LINK DATA WITHOUT REGRET



Interoperability
Data Exchange
»Sharing Economy«
Data Centric
Services



Data Ownership
Data Security
Data Value

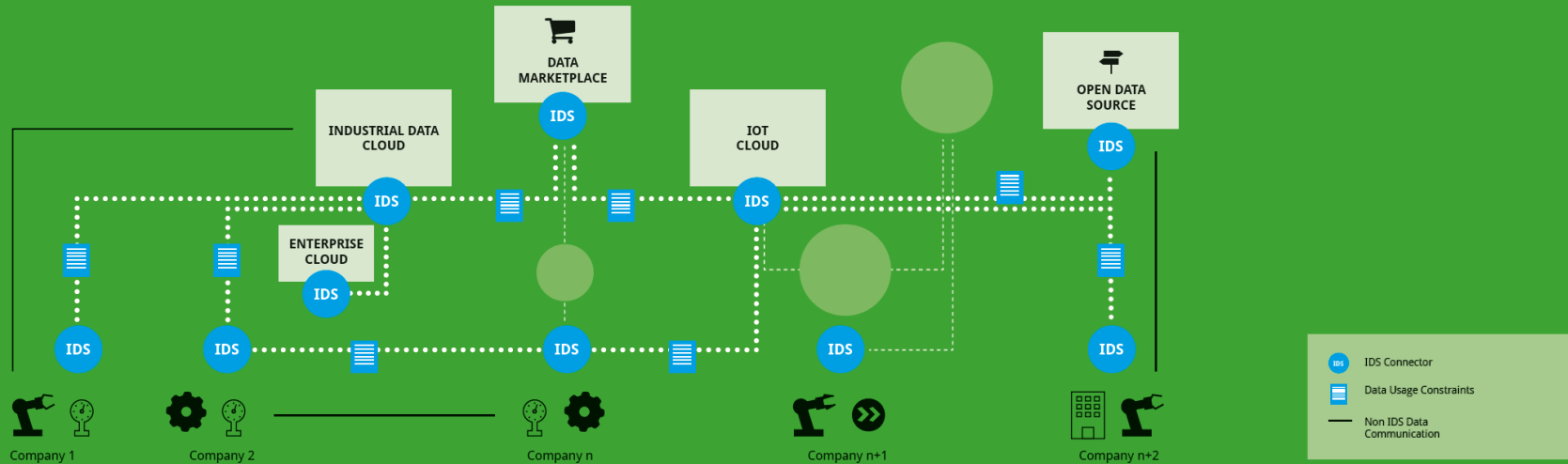


DATA SOVEREIGNTY

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

THE INTERNATIONAL DATA SPACES APPROACH CONNECTS ALL KINDS OF DATA ENDPOINTS

When broadening the perspective from an individual use case scenario to a platform landscape view, the INTERNATIONAL DATA SPACES positions itself as an architecture to link different cloud platforms through secure exchange and trusted sharing of data, short: **through data sovereignty.**

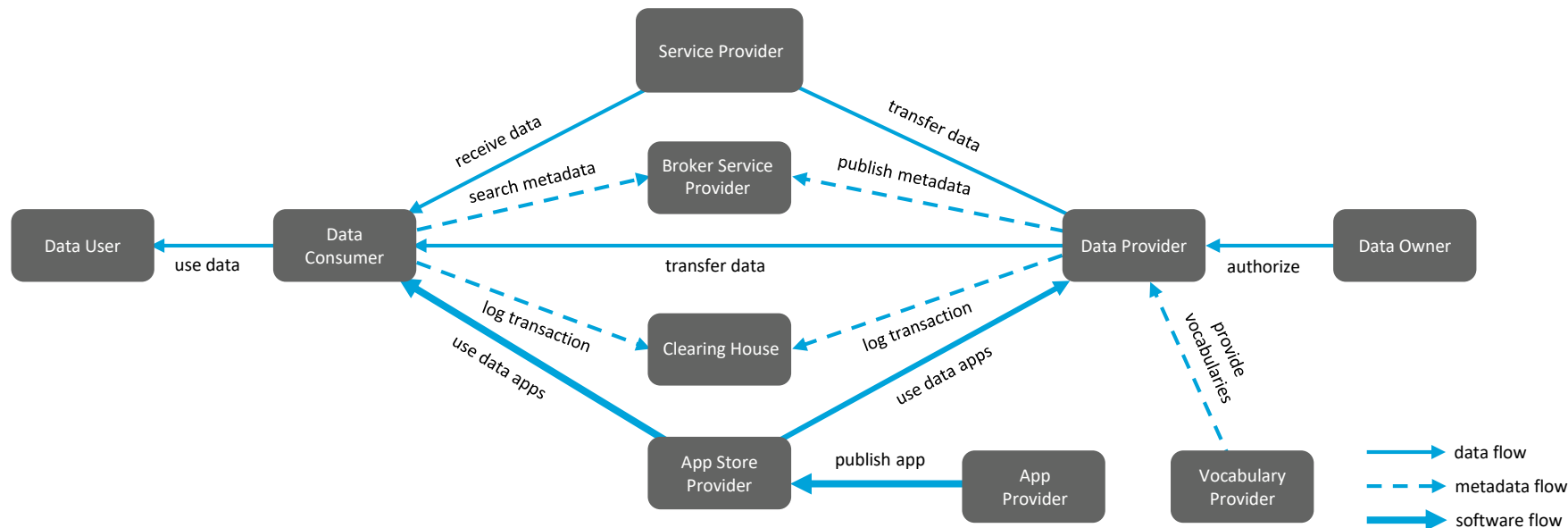


By proposing a specific software component, the INTERNATIONAL DATA SPACES Connector, industrial data clouds can be connected, as well as individual enterprise clouds and onpremise applications and individual connected devices.

IDS REFERENCE ARCHITECTURE MODEL

Roles and interactions in the Industrial Data Space

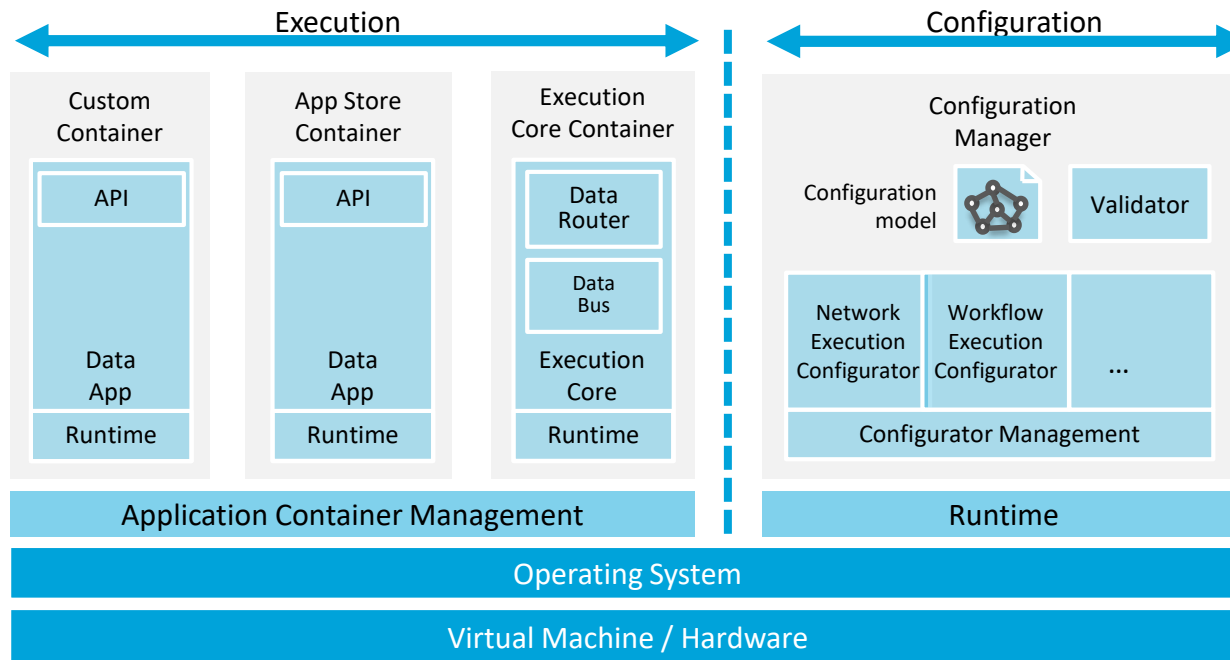
Industrial Data Space			
Layers	Perspectives		
Business	Security	Certification	Governance
Functional			
Process			
Information			
System			



IDS REFERENCE ARCHITECTURE MODEL

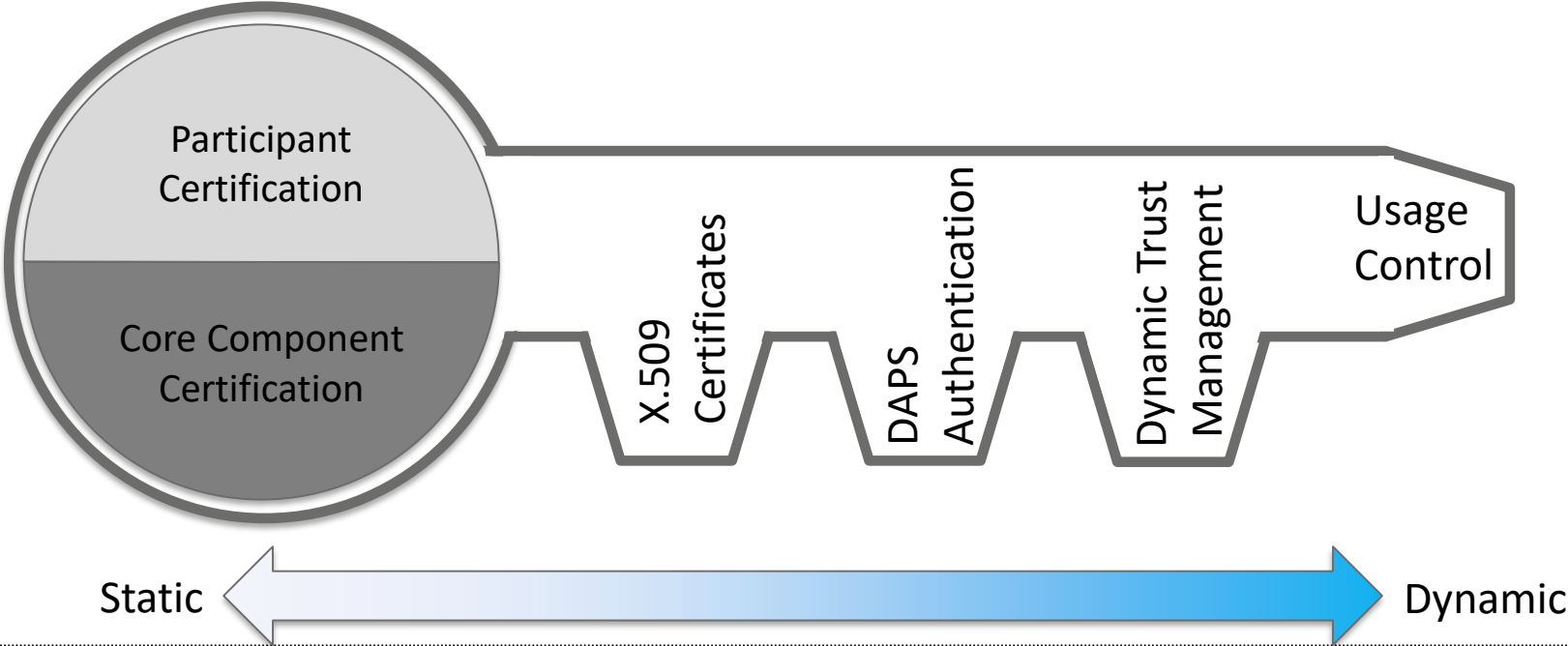
Reference Architecture of Connector

Industrial Data Space			
Layers	Perspectives		
Business	Security	Certification	Governance
Functional			
Process			
Information			
System			





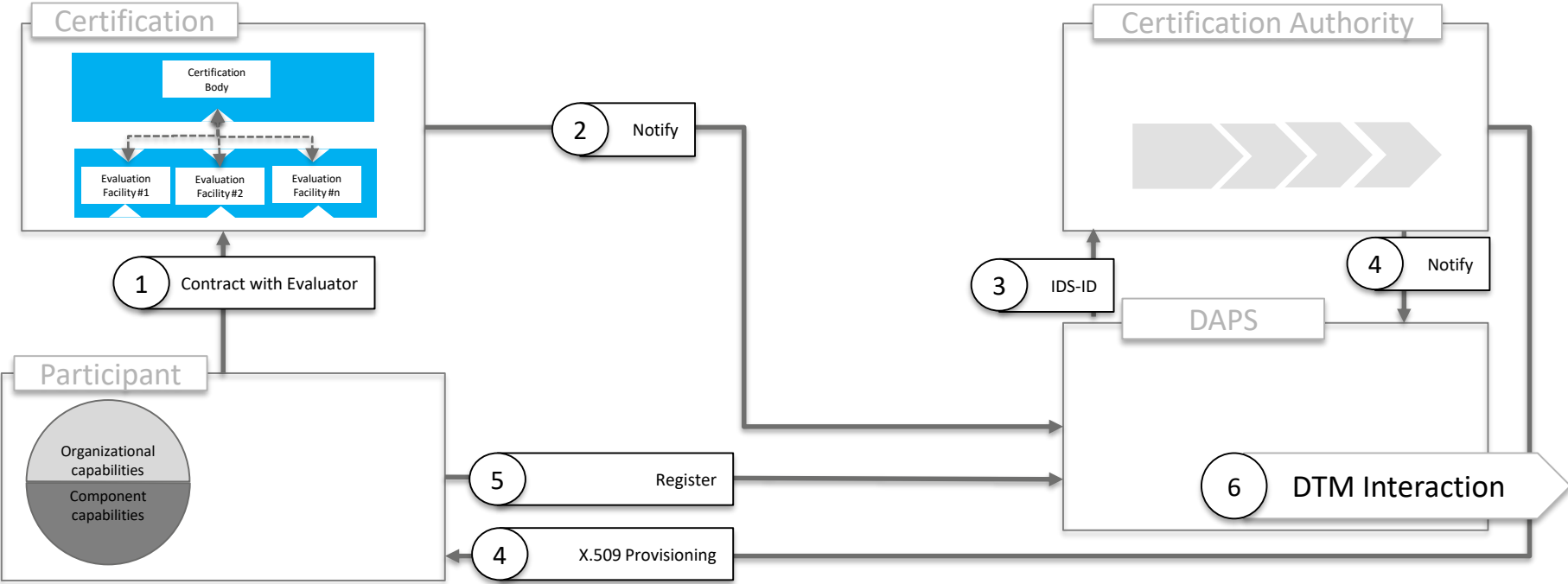
IDS DIGITAL IDENTITIES STRUCTURE AND COMPONENTS





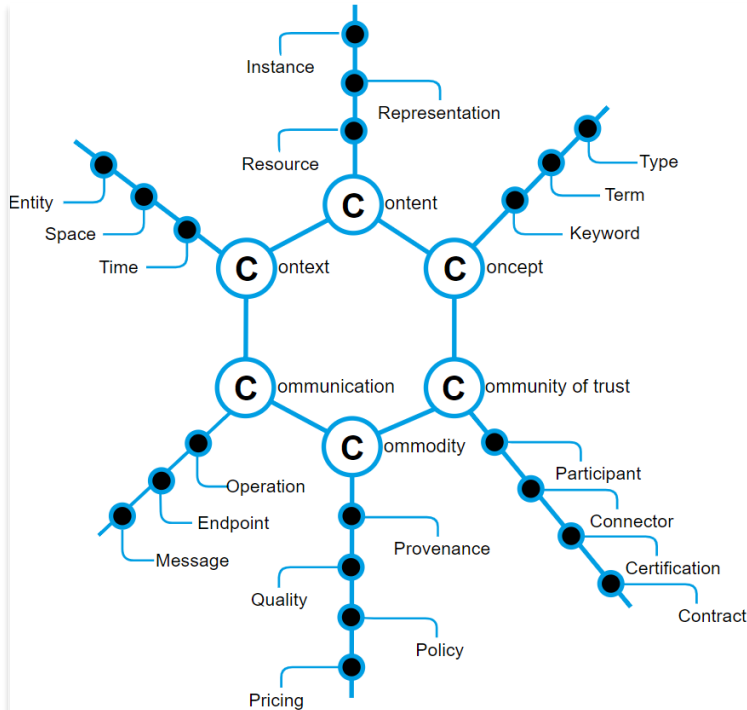
OPERATING CONCEPT

ARCHITECTURAL PERSPECTIVE





CONCERNS IN THE IDS INFORMATION LAYER



The IDS Information Layer separates the 6 concerns

Community of Trust

Commodity

Communication

Context

Content Concept



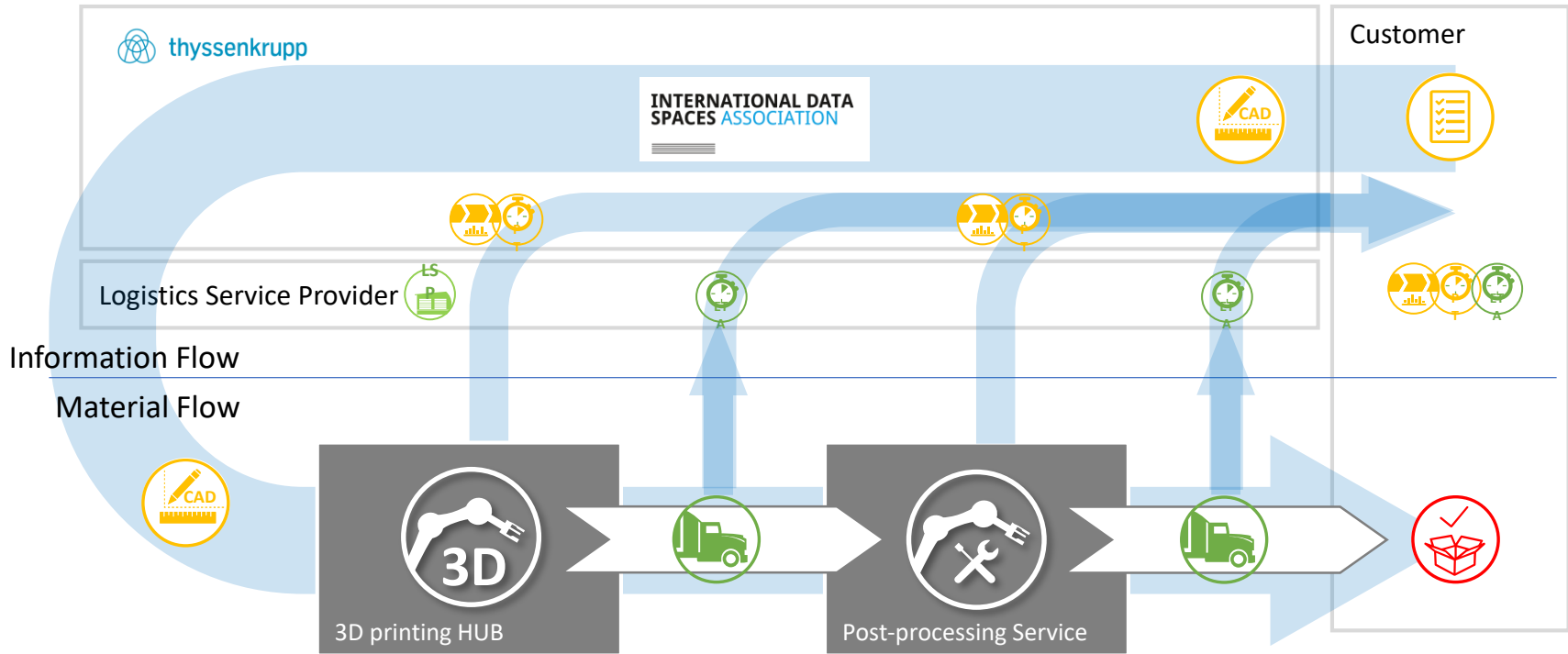
USAGE POLICIES

14 CLASSES OF USAGE RESTRICTIONS IDENTIFIED SO FAR



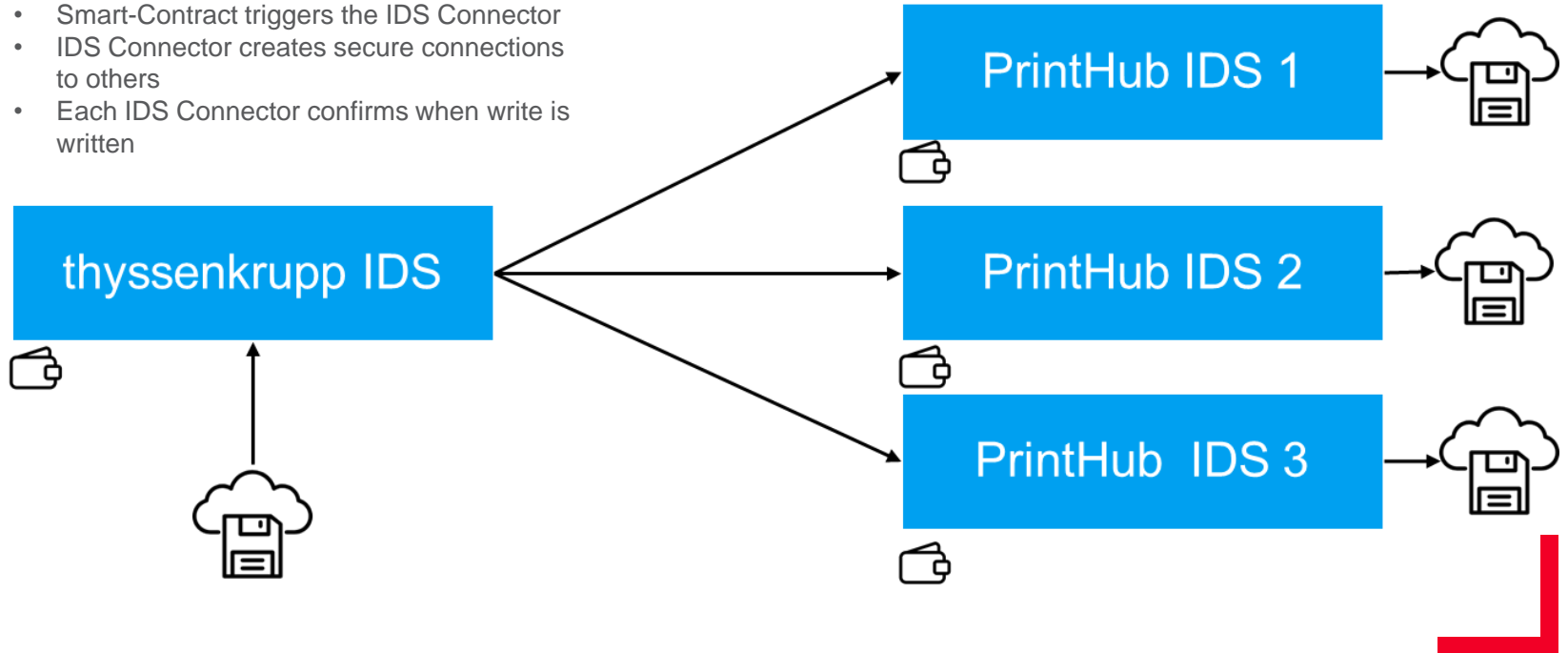
- 1.Allow access to data
- 2.Inhibit access to data
- 3.Restrict data access for specific system/group of users
- 4.Restrict data access for specific purposes
- 5.Restrict data access when specific event has occurred
- 6.Delete data after X days/months
- 7.Modify data (in transit)
- 8.Modify data (in rest)
- 9.Use data not more than N times
- 10.Use data in a specific time interval
- 11.Log data access information
- 12.Notify specific group of users
- 13.Share data only if it is encrypted
- 14.Control printing shared data

Activity details: Defining participants, processes and IDS components



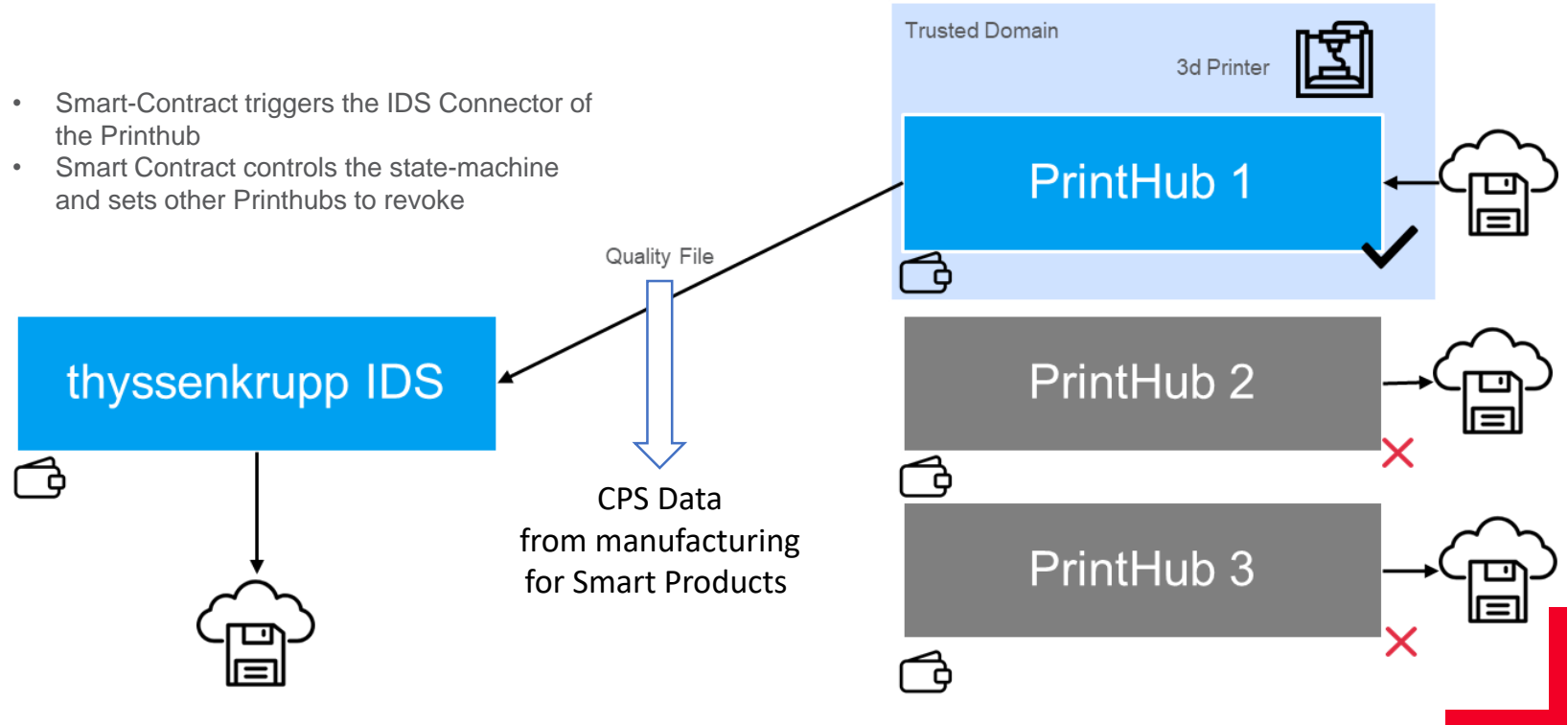
Application of the Additive Manufacturing Platform

- Smart-Contract triggers the IDS Connector
- IDS Connector creates secure connections to others
- Each IDS Connector confirms when write is written



Application of the Additive Manufacturing Platform

- Smart-Contract triggers the IDS Connector of the Printhead
- Smart Contract controls the state-machine and sets other Printheads to revoke



thysenkupp engineering. tomorrow. together. Additive Manufacturing

Home Dashboard Logout

Inquiry Status #2837232

View all details on your inquiry and get in touch with us.

Inquiry **Offer Process** Enrichment Printing Delivery

Please add all relevant information you are able to provide or are requested by our ThyssenKrupp AM Experts.

Address

First Name *

E-Mail

Helpline

Projects to big for your keyboard? Feel free to call us anytime about your project or idea to get qualified feedback

0800 1234567

Our conversation so far

So about this part, will it experience very high or very low temperatures?
If so we need to talk about our approach regarding material.
Please confirm and lets align

We don't estimate a huge impact.
Could you offer any advise on reasonable limits we would need to look at?

thysenkupp engineering. tomorrow. together. Additive Manufacturing

Home Dashboard Logout

Order Status #2837232

View all details on your inquiry and get in touch with us.

Inquiry Offer Process Enrichment Printing Delivery

Printhead Selection

> Printhead Select

Status: Reply received from 2 of 5 print hubs
Next Step: Select print hubs until quota is reached

Helpline

Projects to big for your keyboard? Feel free to call us anytime about your project or idea to get qualified feedback

0800 1234567

Our conversation so far

So about this part, will it experience very high or very low temperatures?
If so we need to talk about our approach regarding material.
Please confirm and lets align

We don't estimate a huge impact.
Could you offer any advise on reasonable limits we would need to look at?

PO

City

Product

CAD Files

There have been changes to all linked fields

Send Reply

Accept Offer

View full log

Blockchain Security - Your Data in the Chain

Immutable data through a peerless peer network. Verify your data integrity at any time.

4282282738237 Submitter

4282282738237 Submitter

4282282738237 Submitter

4282282738237 Submitter



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





IDS CONNECTOR IMPLEMENTATIONS RUNNING ON DIFFERENT DEVICES



Trusted Connector

- Connector running on sensor device
- Implementation by Sick AG



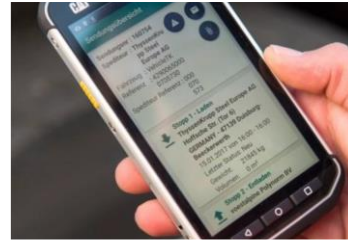
Base Connector

- Connector running on Raspberry Pi
- Implementation by nicos AG



Lightweight Sensor Connector

- Connector running on 32 bit microprocessor
- Implementation by Fraunhofer



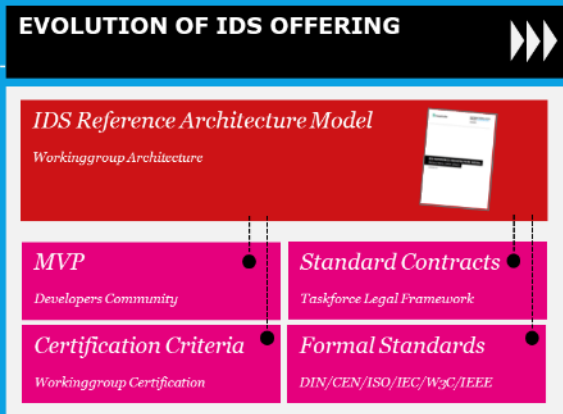
Mobile Connector

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

MAKING IDS A GLOBAL STANDARD



Start of IDS as global, user driven initiative

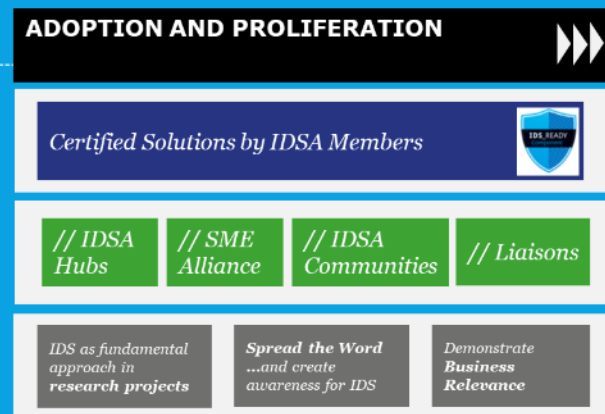


Continuous integration of new technologies and requirements



New technologies

New requirements



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



INDUSTRIE4.0

IV Industrial Value Chain Initiative



Data Trading Alliance



Interweaving our
architecture with other
leading global initiatives

JOINTLY PAVING THE WAY FOR A DATA DRIVEN DIGITISATION OF EUROPEAN INDUSTRY

DATA + USAGE = VALUE

Data Economy

Tomorrow

Internet of Everything

Today

DATA PROVISIONING

- Interoperability
- Asset Digitisation
- Networks
- Processing

INDUSTRIE 4.0 | Industry 4.0 Consortium | IOTA | IV | International Industrial Value

DATA USAGE

- Free Flow of Data
- Data Sovereignty
- Usage Policies
- Trust

INTERNATIONAL DATA SPACES ASSOCIATION

Building Frameworks
Frameworks of building blocks to assemble smart solutions

Commercial Solutions

Open Source Building Blocks

FIWARE FOUNDATION

INTERNATIONAL DATA SPACES ASSOCIATION

JOINTLY PAVING THE WAY FOR A DATA DRIVEN DIGITISATION OF EUROPEAN INDUSTRY

INTERWEAVING IDS AS A REFERENCE ARCHITECTURE FOR THE DATA ECONOMY WITH RELEVANT INITIATIVES

Position Paper | Version 1.0 | October 2018

Position Paper of members of the IDS Association
Position Paper of leaders of the IDS Association
Position Paper of the IDS Association
White Paper of the IDS Association

**INTERNATIONAL DATA
SPACES ASSOCIATION**



2nd IDSA Winterdays in Paris

December 3rd to 5th, 2019

Venue:

**ATOS Global Head Office
80 quai Voltaire
95877 Bezons, France**

***Hosted by: ATOS & ANRT
Co-hosted by: Institut
Mines-Télécom***

For registration:

idsa-winterdays.idento.one