INTERNATIONAL DATA SPACES ASSOCIATION

A TRUSTWORTHY ARCHITECTURE
FOR THE DATA ECONOMY

The IDS provides self-determined control between all imaginable data endpoints

INTERNATIONAL DATA SPACES
APPROACH

Endless Connectivity
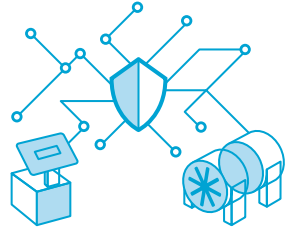Standard for data flows between all kinds of data endpoints

Trust between different security domains
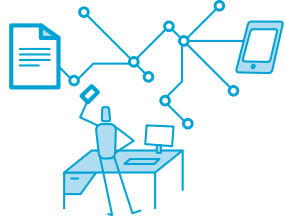Comprehensive and audit-proof security functions providing a maximum level of trust

Governance for the data economy
Usage control and enforcement for data flows and assignments of data

MISSION STATEMENT

Secure Data Exchange
It forms the basis for a variety of certifiable software solutions, smart services …

International Standards
IDSA defines the basic conditions and governance for a reference architecture and interfaces

Business Models
Data Owners remain sovereign owners of their data at any time

Use Cases
This standard is actively developed and updated on the basis of use cases
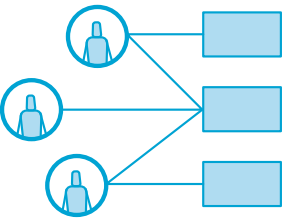
DIGITAL IDENTITIES

A network of trusted entities in the data economy requires a mechanism for digital entities, that can reliably identify a participant and can provide more information on transaction partners. Additional information must be updated regularly and be provided in a trusted manner.

Broker
IDS Connectors register the description of their data endpoints at an IDS Broker. Thus, potential Data Consumers can look up available data sources and data in terms of their content, structure quality, actuality and other attributes.

App Stores
App Stores provide Data Apps, i.e. applications that can be deployed in IDS Connectors to execute tasks like transformation, aggregation or analytics on the data. Data Apps may be certified by IDS-approved certification bodies. App Stores can be provided by IDS members and must, themselves, be certified under IDS standards.

Data Provider
Data Providers give access to data under specific usage and price models. They are able to control the access to data and the usage of data at the Data Consumer.

Identity Provider
Identity Providers offer a range of services to create, maintain, manage and validate identity information of and for IDS participants, regardless under which of the above roles they consider to take part. Proven identity of all participants in the IDS represent an essential imperative to the IDS architecture.

Clearing House
Intermediary providing clearing and settlement services for all financial and data exchange transactions within the IDS.
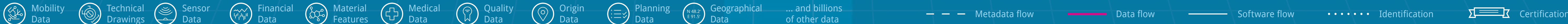
Vocabulary
Vocabulary Providers manage and offer vocabularies (ontologies, reference data models, metadata elements) which can be used to annotate and describe datasets. Vocabulary Providers provide (domain specific) vocabularies and their reference to the IDS Information Model, which is the basis for the description of data sources.

Data Consumer
Data Consumers can search for data and use the data of different data providers. Data Consumers are bound to the usage policy of the Data Provider.

Connector
IDS Connectors provide standardized connectivity in the IDS Ecosystem. Connectors are responsible for connectivity and Usage Control. They allow the execution of trusted apps in an isolated Identity Provider environment.

CLEARING HOUSE

APP

BROKER

VOCABULARY

DATA PROVIDER/ DATA CONSUMER

CONNECTOR

DATA PROVIDER/ DATA CONSUMER

CONNECTOR

Data exchange or Software injection

IDENTITY PROVIDER

Data - the economic asset in data driven business models
The key focus for any data-driven economy is on exploiting and sharing data from various data sources.

Mobility Data · Technical Drawings · Sensor Data · Financial Data · Material Features · Medical Data · Quality Data · Origin Data · Planning Data · Geographical Data · … and billions of other data

- - - Metadata flow ── Data flow ── Software flow ····· Identification ⊟ Certification

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USE CASES

Services and functionalities of the IDS are specified and validated in use cases.
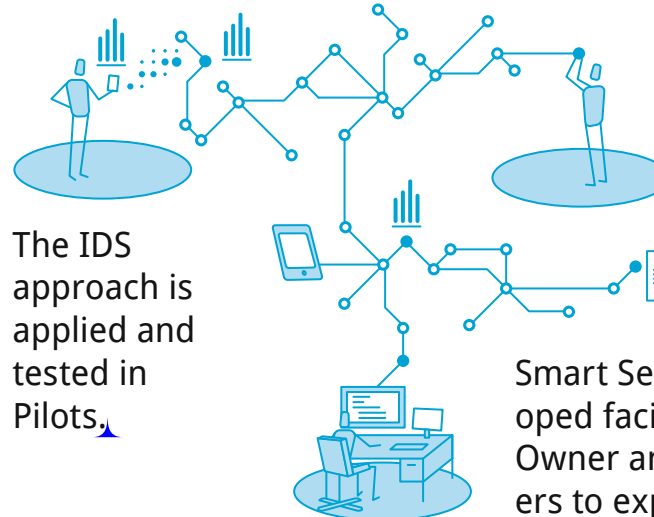
Additional requirements are fed into the architecture development.

The IDS approach is applied and tested in Pilots.

Smart Services are developed facilitating the Data Owner and Data Consumers to exploit the IDS.

COMMUNITIES

Interest and user groups of same or similar domains with common challenges validate and proliferate the IDS approach, technology and eco-system. Based on their practical experience the IDS reference architecture and the eco-system around it are continuously developed. Thus, specific application scenarios for verticals are set up, implemented and systematically pushed forward, allowing participants to enhance existing or to launch new services.

Medical Health · *Banking/ Insurances* · *Smart Cities* · *Energy* · *Farm & Food* · *Materials* · *Industrial* · *Logistics*

10 THINGS TO KNOW ABOUT

Containerization, e.g. Docker
Webservices, e.g. https, MQTT, REST, Multi Part Messages
Enterprise Integration Patterns
Message Oriented Middleware
Software Engineering, e.g. tools like Maven, git
Digital Identities and Digital Certificates, e.g. X509
Semantic Data Descriptions, e.g. Ressource Description Framework
Data Ecosystems
Certification, e.g. IEC 62443, ISO 27001
Requirements Engineering, Processes and tools, e.g. UML and BPMN

CERTIFICATION
APPROACH

The IDS Certification Body is appointed by the IDSA and regularly aligns with the IDSA to manage the certification process, defines the standardized evaluation procedures and supervises the actions of the Evaluation Facilities. An Evaluation Facility is contracted by an Applicant and is responsible for carrying out the detailed technical and organizational evaluation work during a certification.

Participant Certification · Digital Certificate · Technical Certification

CALL TO ACTION

Become a member in the International Data Spaces Association: