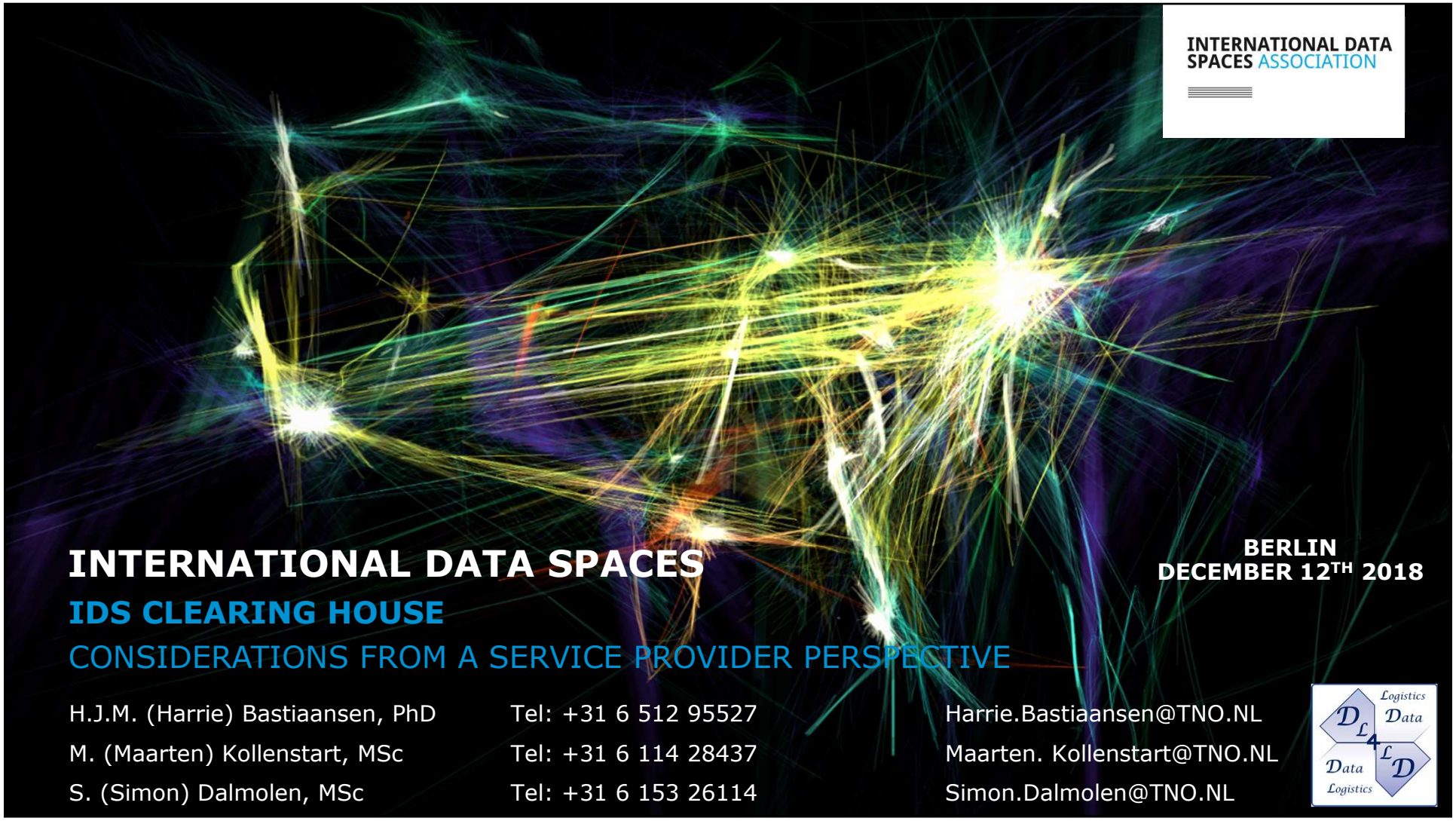


INTERNATIONAL DATA SPACES ASSOCIATION

INTERNATIONAL DATA SPACES

IDS CLEARING HOUSE

CONSIDERATIONS FROM A SERVICE PROVIDER PERSPECTIVE

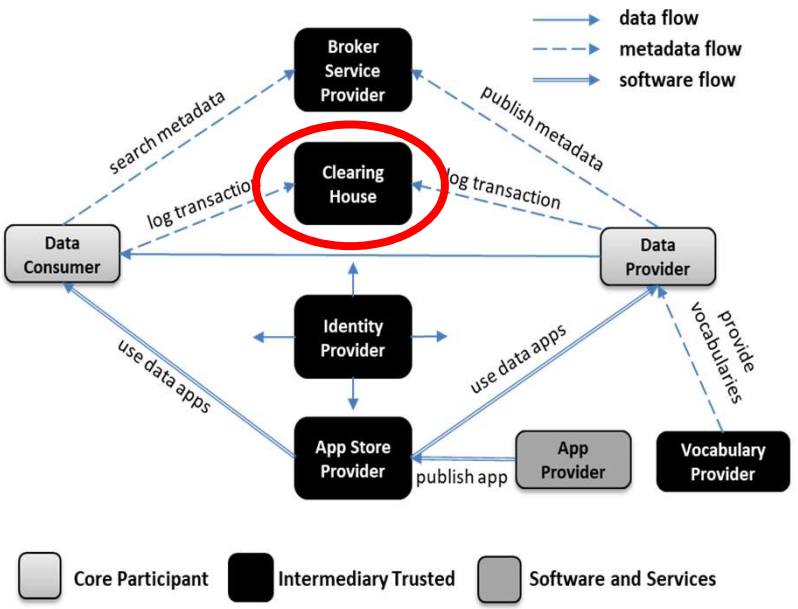
BERLIN
DECEMBER 12TH 2018

H.J.M. (Harrie) Bastiaansen, PhD — Tel: +31 6 512 95527 — Harrie.Bastiaansen@TNO.NL
M. (Maarten) Kollenstart, MSc — Tel: +31 6 114 28437 — Maarten. Kollenstart@TNO.NL
S. (Simon) Dalmolen, MSc — Tel: +31 6 153 26114 — Simon.Dalmolen@TNO.NL

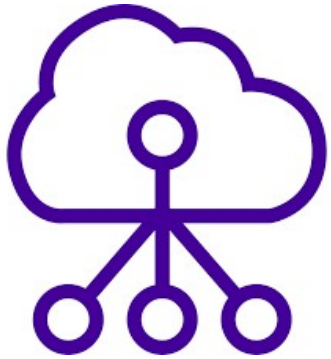
BACKGROUND

ENABLING THE IDS SERVICE ECOSYSTEM

INTERNATIONAL DATA SPACES ASSOCIATION



Major Service Provider Ltd



IDS, sounds good

- **Are my services IDS compliant?**
- **What do I have to do?**

CONTENTS

INTERNATIONAL DATA SPACES ASSOCIATION

- The Challenge
- The Scope
- The Issues
- The way forward?

THE CHALLENGE

ENFORCEABLE DATA SHARING CONTRACTS

INTERNATIONAL DATA SPACES ASSOCIATION

- **Legal Enforceability**

  Ensuring that digital data sharing agreements which have been generated by means of automation are juridically correct and acceptable in legal procedures.

- **Technical Enforceability**

  Giving the data owner the means that the agreed-upon data sharing agreements are (securely) implemented in the data sharing environment.

DATA SHARING AGREEMENTS

INTERNATIONAL DATA SPACES ASSOCIATION

COMBINATION OF CONTRACTUAL CONDITIONS AND TERMS-OF-USE

- **Contractual conditions**

  Including the juridical statements, pricing conditions, service levels, governing law, IPR-conditions.

- **Terms-of-use**

  Combining both the data providers internal (business) data sharing policies and the external (regulatory) policies.

ENFORCING DATA SHARING AGREEMENTS

INTERNATIONAL DATA SPACES ASSOCIATION

ENABLING (TRUST) CAPABILITIES (1)

- **Terms-of-Use Enforcement**

  Taking care that data is verifiably shared under agreed upon conditions. This encompasses the functions for defining the conditions under which the data is provided, mutual agreement on these conditions and managing the actual sharing of data under these conditions.

- **Logging, Provenance and Reporting**

  This includes: keeping a record trail of the performed data sharing transactions (logging), accounting for the origin, ownership, custody or location of the data (provenance) and the reporting thereof to the various data sharing participants.

  The ledger of record trails of data sharing transactions may e.g. be used for billing, conflict resolution, etc..

ENFORCING DATA SHARING AGREEMENTS

INTERNATIONAL DATA SPACES ASSOCIATION

ENABLING (TRUST) CAPABILITIES (2)

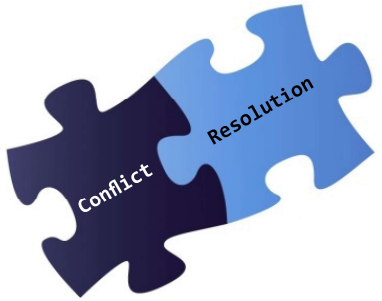
- **Financial Clearing, Settlement and Billing**

  Taking care that data is verifiably shared under agreed upon financial conditions.

  This encompasses the functions for defining the financial conditions under which the data is provided, mutual agreement on these financial conditions and managing its associated processes.

- **Conflict Resolution and Auditing**

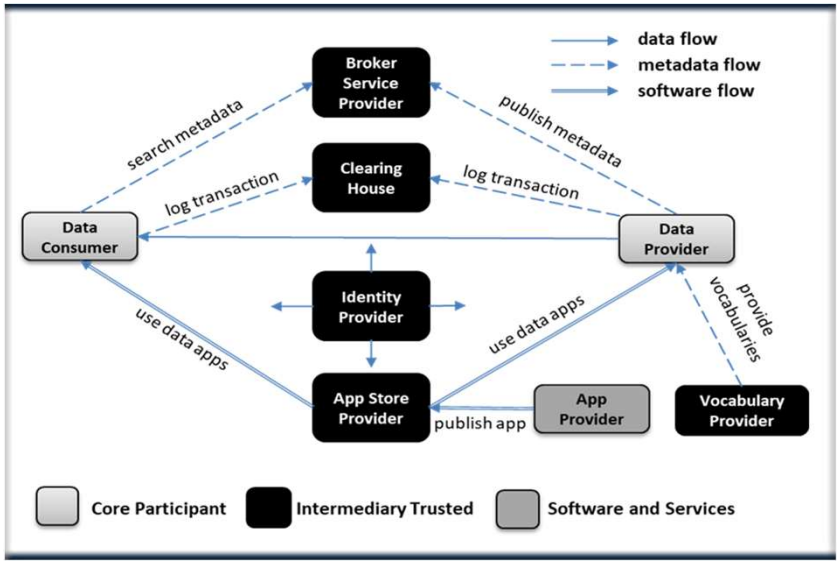
  Conflicts can be resolved based on the information that has been logged in the ledger of data sharing transactions. This may for instance occur when it needs to be clarified / confirmed that a specific data transaction has occurred and that the data has been received by a data consumer or for auditing goals.

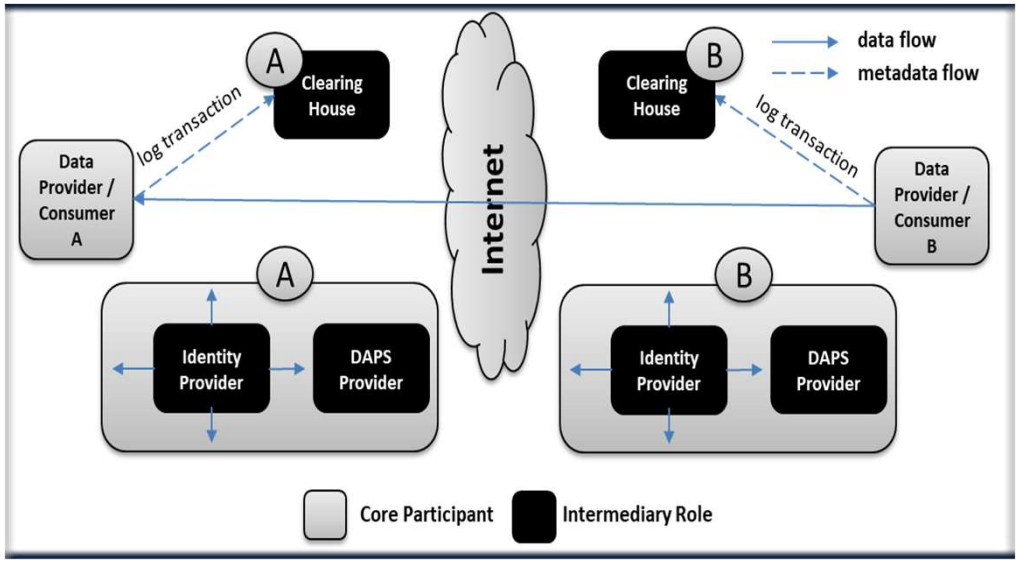


THE IDS ECOSYSTEM

MULTITUDE OF TRUSTED, INTEROPERABLE, INTERMEDIARY ROLES

INTERNATIONAL DATA SPACES ASSOCIATION





ISSUES

INTERNATIONAL DATA SPACES ASSOCIATION

- **Functional architecture, e.g. on:**
  - Non-repudiation: Is it required and what is the role of the clearing house in it (PKI-solution)
  - Storing only meta data or also (hashes of) actual data shared in the CH
  - Linking individual data sharing transactions to applicable data sharing agreements
    - Access and usage control policies linked to data sharing agreements
    - Role of clearing house i.r.t. data broker on registering agreements
  - Relationship with blockchain technology: See also IDS Blockchain WG: Issues on: interoperability, security/certification, management, …

- **Technical architecture**
  - **Interoperability**

    Between clearing house of data provider and data consumer

    Between clearing house and data broker (e.g. on agreements / contracts)

ISSUES

INTERNATIONAL DATA SPACES ASSOCIATION

- **Business / organizational architecture**
  - **Business model**

    Is the clearing house a commercially viable role? Can (sufficient) money be made for this role?
  - **Relation to IDS reference architecture**
    - What is in scope of the IDS reference architecture and what is internal implementation?
    - Will the (interfacing with the) clearing house be part of the IDS reference architecture? If so, how (API, Messages specification / standard)?

WAY FORWARD

INTERNATIONAL DATA SPACES ASSOCIATION

- **Where (in which WG) will these issues be addressed**
  - Relation to usage control WG / data provenance
  - Goal and outcome of the work w.r.t. IDS specifications / standards
  - Where (in time) on the IDS Development Roadmap

Discussion

Dr H.J.M. (Harrie) Bastiaansen
Business Consultant
Information, Communication Technology
Monitoring & Control Services
TNO innovation for life
T +31 88 866 77 92
M +31 6 512 955 27
E harrie.bastiaansen@tno.nl
Eemsgolaan 3
NL-9727 DW Groningen
PO Box 1416
NL-9701 BK Groningen
The Netherlands

THANK YOU FOR YOUR ATTENTION

INTERNATIONAL DATA SPACES ASSOCIATION

INTERNATIONAL DATA SPACES

IDS CLEARING HOUSE

CONSIDERATIONS FROM A SERVICE PROVIDER PERSPECTIVE

Logistics Data Data Logistics

TKI DINALOG Dutch Institute for Advanced Logistics
NWO
Commit 2 Data
THALES
BiZZdesign
ciena
evofenedex
Gemeente Amsterdam
AIRFRANCE KLM
TRANSFIDES
ORACLE
Universiteit van Amsterdam
TNO innovation for life