



# Data Logistics for Logistics Data - DL4Ld

Logistics business integration by trustworthy data sharing





## THE DL4LD PROJECT

# MAIN GOALS OF THE PROJECT

Data Logistics for Logistics Data (DL4LD) is an innovation project that aligns with the ambitions of the 'Topsector Logistiek' and 'Commit2Data'.

The logistics companies will strive for an internationally leading position, amongst others as chain orchestrator, and will therefore have to share logistics data on a large scale.

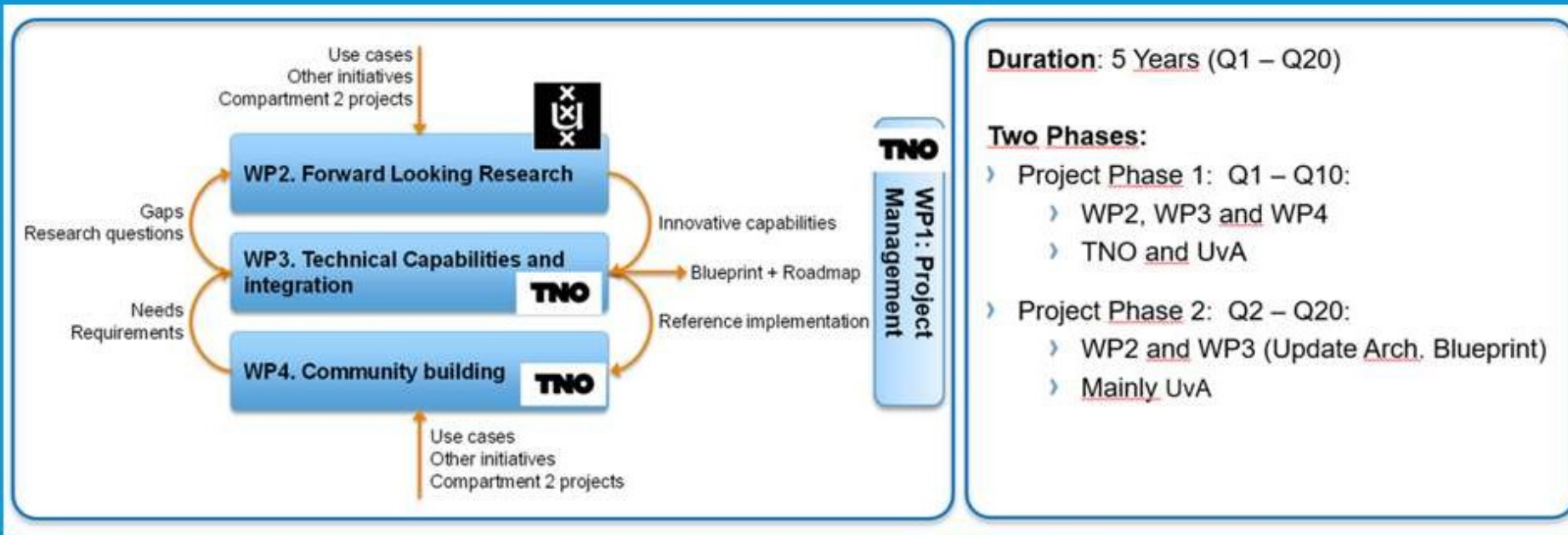
To support this, a data sharing infrastructure is required as basis for essential logistics information services. The data sharing infrastructure must be secure and trusted.





# THE DL4LD PROJECT


## PROJECT STRUCTURE: WORK PACKAGES AND ROLES





**Duration:** 5 Years (Q1 – Q20)

**Two Phases:**

- › Project Phase 1: Q1 – Q10:
  - › WP2, WP3 and WP4
  - › TNO and UvA
- › Project Phase 2: Q2 – Q20:
  - › WP2 and WP3 (Update Arch. Blueprint)
  - › Mainly UvA

Prof. C. (Cees) de Laat (UvA)   
Principal Investigator – Scientific

Prof. L.L. (Lydia) Meijer (UvA, TNO)   
Principal Investigator – Coordinating

Dr. H.J.M. (Harrie) Bastiaansen (TNO)   
Project Leader





Harrie.Bastiaansen@tno.nl



NWO, COMMIT<sub>2</sub>DATA AND TKI DINALOG STIMULATE THE REALIZATION OF AN

# OPEN INFRASTRUCTURE FOR TRUSTED, MULTI-LATERAL DATA SHARING

WITH THE PROJECT

DATA LOGISTICS FOR LOGISTICS DATA (DL<sub>4</sub>LD)

Sharing Sensitive Data

Enforcing Data Sharing Agreements

Application of Law

Dispute Settling







# THE DL4LD PROJECT ADDRESSES THE NEED FOR IMPROVED DATA SHARING IN THE SUPPLY CHAIN

## Market Dynamics are changing

- This requires sharing trustworthy data in the supply chain.

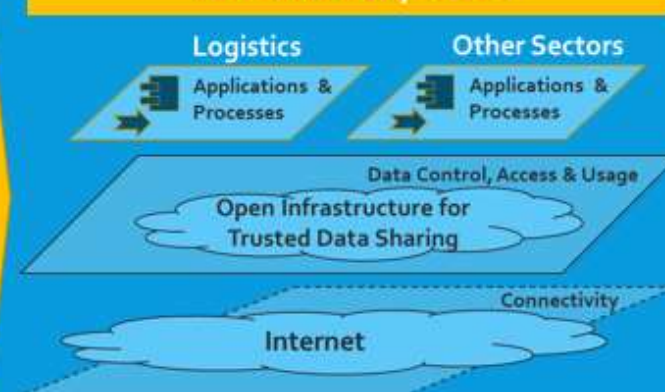
Digital business ecosystems and supply chains with logistics



Sharing of data between (potentially) distrusting parties



Open infrastructure for sharing trustworthy data





## DL4LD ENABLES THE

# TRUSTWORTHY SHARING OF SENSITIVE DATA ACROSS ORGANIZATIONS AND SECTORS



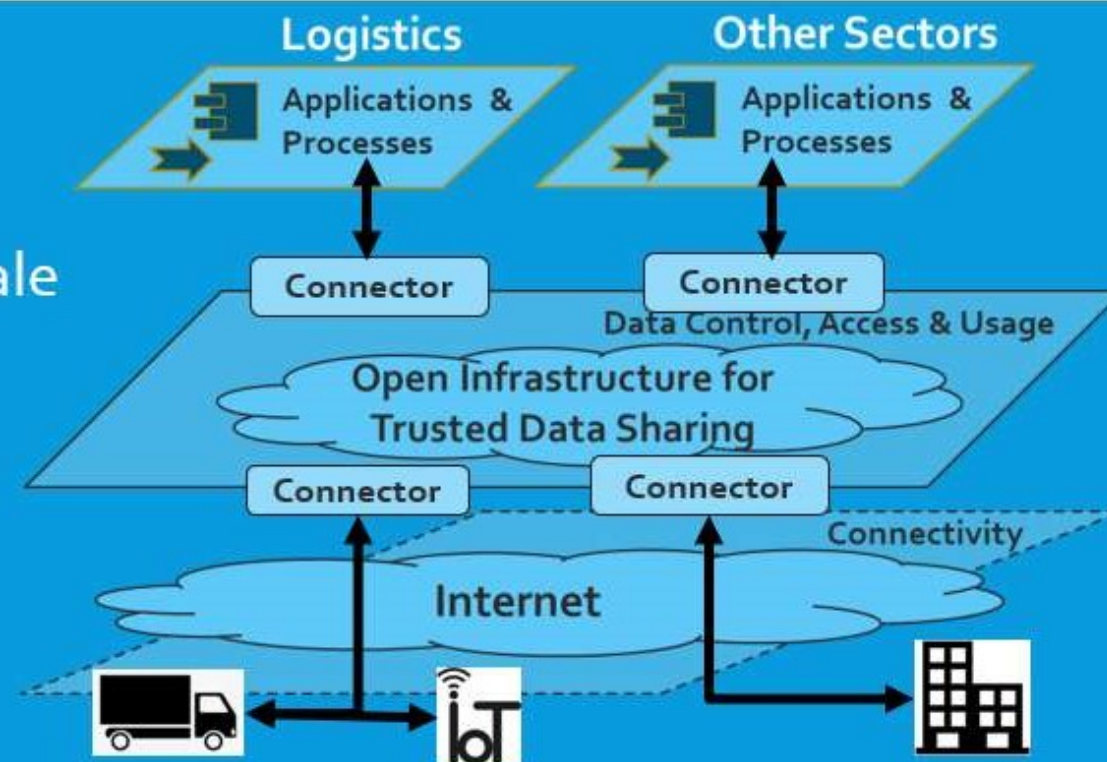
## THE DL4LD PROJECT

### Reference architecture:

- To share (logistics) data on a large scale
- That supports trust and is secure

### Forward looking research aimed at:

- Enforcement of laws
- Rapid construction







# DL<sub>4</sub>LD ENABLES THE TRUSTWORTHY SHARING OF SENSITIVE DATA ACROSS ORGANIZATIONS AND SECTORS

## Security

### Non-functional design aspect:

The implementation of an IT-system must comply to its security level requirements as defined at system design and protect against malicious or unintentional security breaches.

- Confidentiality, Integrity, Availability (CIA), ...
- All ICT-systems must be secure



## Trust Enablers

### Functional design aspect:

- Data sovereignty
- Data sharing agreements
- Shared trust domain
- Enforcement of data sharing agreements
  - *legal enforceability,*
  - *implementation enforceability*
- Transparency
- System integrity monitoring





# THE DL4LD PROJECT DEMONSTRATES THE CONCEPTS FOR TRUSTED DATA SHARING IN AN OPEN INFRASTRUCTURE

## Towards a reference architecture for sharing trustworthy data

- Trust enabling functions are implemented on an open infrastructure

Must have trust enabling functions

Terms of Use, Legal and Commercial Conditions

Access & Usage Policies

Clearing, Settlement & Billing

Monitoring, Logging, Auditing

Realized by

An open infrastructure for trustworthy data sharing

Enforced Data Sharing Agreements

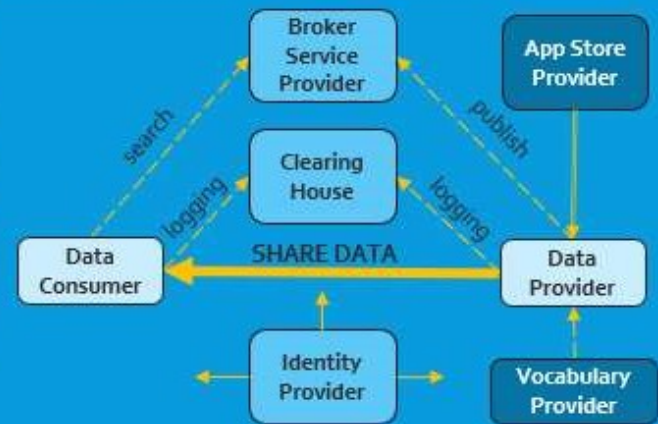
Data and Processing at the Source

Open through Standardization of Connectors

Certification and Attestation

Defined in

Ecosystem, open to participate and supported by (trusted) roles







# THE REALIZATION WILL BE BASED UPON THE INTERNATIONAL DATASPACE INITIATIVE (IDS)



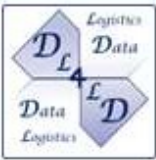
## The DL4LD project builds upon IDS concepts:

- It demonstrates how the IDS trust enabling concepts support an open infrastructure for trustworthy data sharing.
- It assesses its applicability and interoperability across sectors and organizations.
- Supported by TKI Dinalog, the Dutch Institute for Advanced Logistics.



See: [www.internationaldataspaces.org](http://www.internationaldataspaces.org)

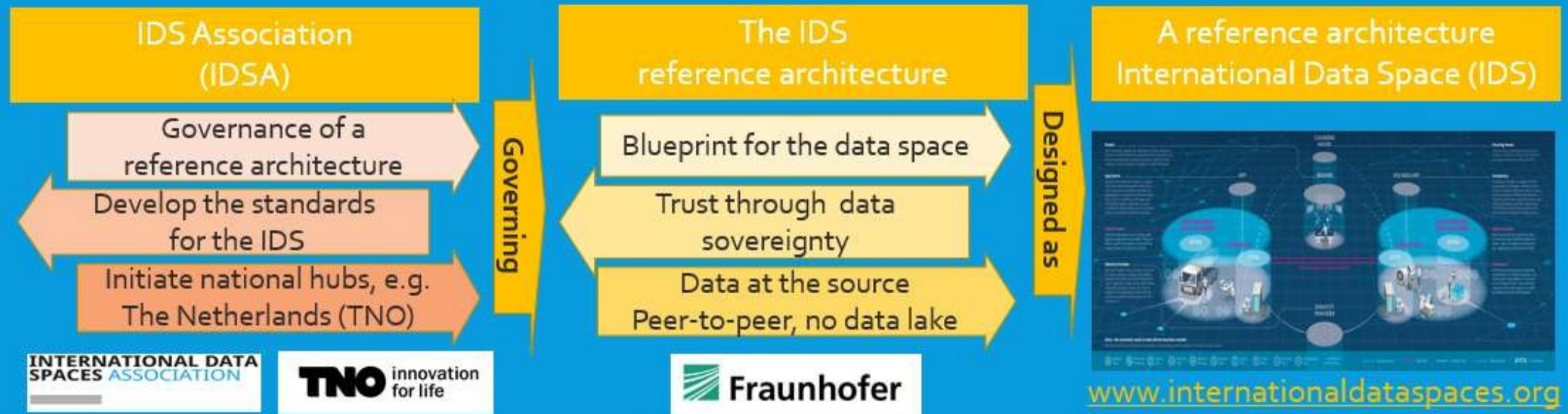




# IDS CONSISTS OF A REFERENCE ARCHITECTURE AND IMPLEMENTATION SUPPORTED BY A STRONG COMMUNITY

DL4LD co-operates with organizations that develop, promote and deploy IDS

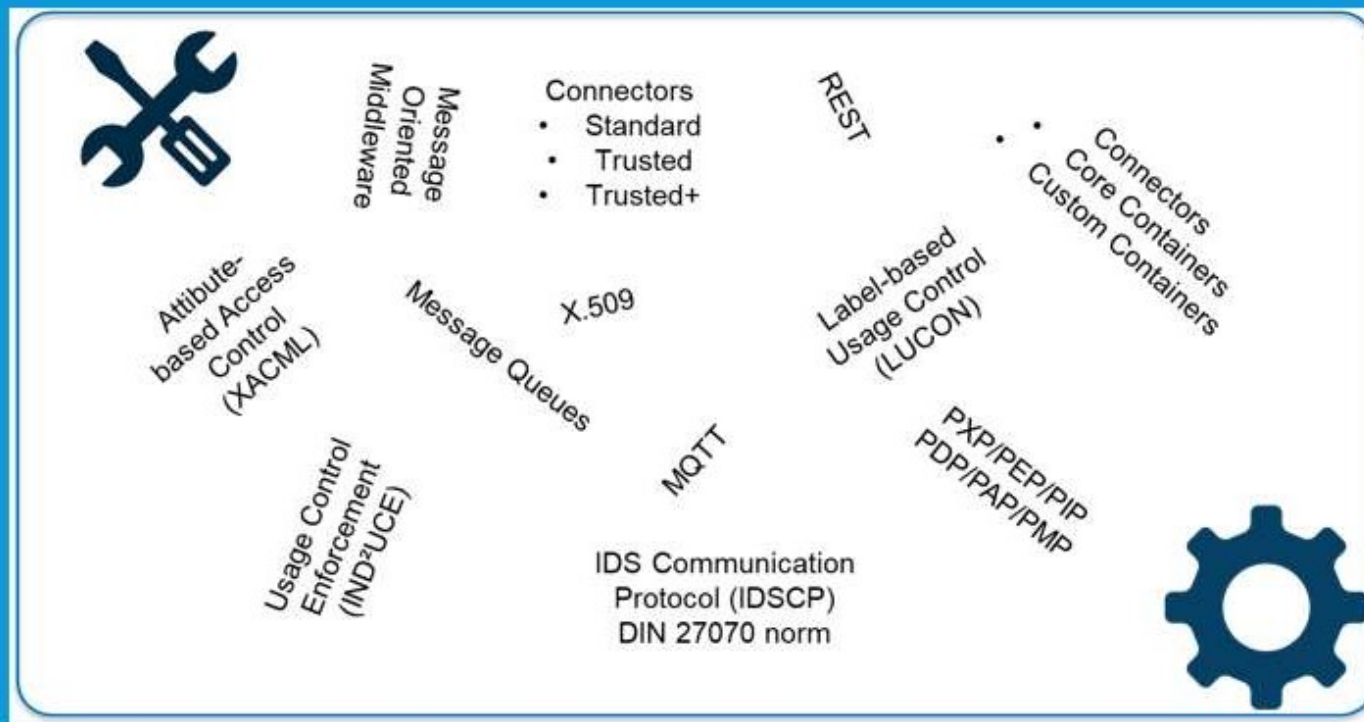
- DL4LD disseminates the IDS data-sharing concepts to logistic business ecosystems







# AND OF COURSE TECHNOLOGY





# IN ADDITION, DL4LD'S FORWARD LOOKING RESEARCH EXPLORES: EFFECTIVE DEPLOYMENT OF DIGITAL BUSINESS ECOSYSTEMS



## Simplified creation of business ecosystem via governed Digital Market Places

- Data sharing agreements with the market place instead of with every member
- Enforcing legal compliance

Governed business ecosystems



Require

Governance imposed by automatic enforcing of digital contracts



Resulting in

Trusted organizations and governance

to settle disputes

to ensure legality of transactions

to determine trustworthiness of organization

to allow access to digital ecosystem



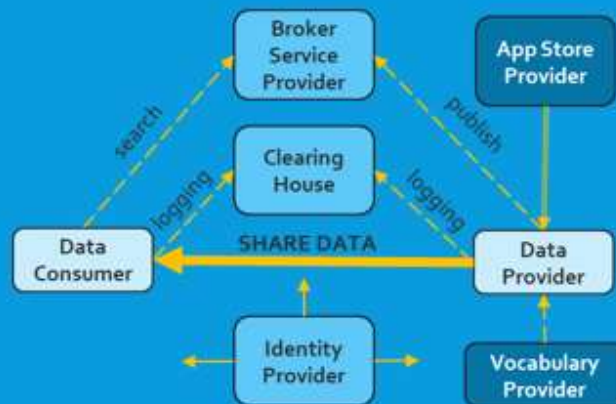


# THE DL4LD REFERENCE ARCHITECTURE (WP3)

## STATUS AND NEXT STEPS

### Status:

- DL4LD Reference Architecture based on IDS
- Basic and trusted (IDS) connectors:
  - Initial implementations available
  - Interoperability tests have been done



### Next steps:

- Develop Intermediary Roles
  - Providing Trust Enabling Functions
  - Interfacing in Federated Architecture
- Service Architecture for Large Scale deployment
- Commit2Data;
  - Informing data hubs
  - Presentation at ICT-Open



Harrie.Bastiaansen@tno.nl



# THANKS FOR YOUR ATTENTION

TO RECEIVE AN ELECTRONIC COPY OF THE PRESENTATION

OR

FOR MORE INFORMATION

Please Leave Your Business Card

or

Contact Us

**Dr H.J.M. (Harrie) Bastiaansen**  
 Business Consultant  
 Information, Communication Technology  
 Monitoring & Control Services

**TNO** innovation for life

Eemsgoijen 3  
 NL-9727 DW Groningen  
 PO Box 1438  
 NL-9701 BK Groningen  
 The Netherlands

T +31 88 866 77 92  
 M +31 6 512 955 27  
 E harrie.bastiaansen@tno.nl

