

DATA LOGISTICS 4 LOGISTICS DATA

THALES



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Amsterdam



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TNO innovation
for life



NWO kick-off event for Big Data Logistics
24/01/2018



TKI DINALOG
Dutch Institute for Advanced Logistics



- › The DL4LD project
 - › Goals
 - › Deliverables
 - › Project structure
 - › Integration and Long Term Research

- › Alignment demand and functional requirements
 - › With Logistics Stakeholders
 - › With Compartment 2 Projects

- › The DL4LD ‘Logistics Trusted Data Hub’
 - › Typologies => What?
 - › Architecture => How?
 - › Long Term Research / PhD’s => How?

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**.



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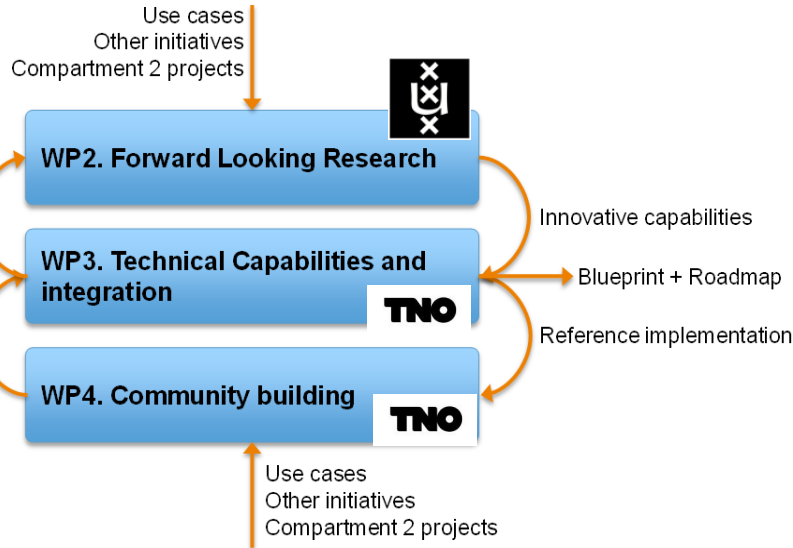


Formal deliverables as stated in the project proposal

- › A blueprint for data infrastructure for the logistics sector
- › A roadmap for implementation of a secure data infrastructure and facilities in the logistics sector
- › Open experimental facilities to support use cases and research projects
- › Increase the awareness of the value of smart ICT and big data for logistics

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

Interfacing with NWO



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



Prof. R.J. (Rob) Meijer (TNO, UvA)
Principal Investigator - Coordinating



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



Interfacing Compartment 2 Projects

Technical Capabilities & Integration

- Architectural framework for logistics data hub, cf:
 - Industrial Data Space
 - Smart City Hub
 - Smart Dairy Farming
 -

Data Services / Store

Data Broker

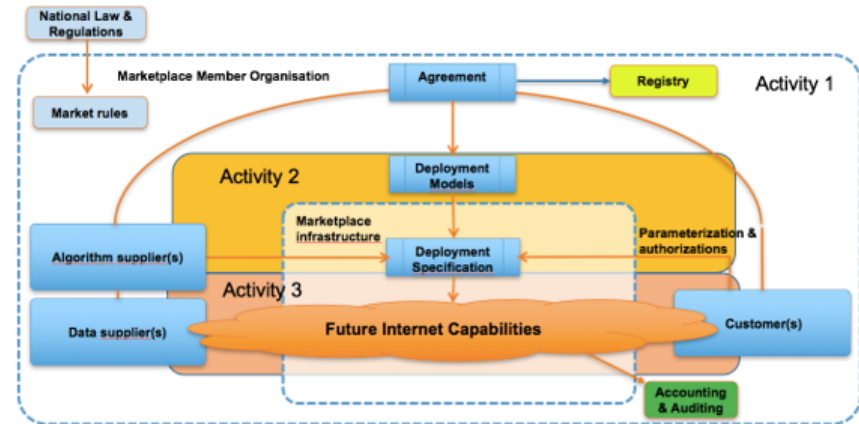
Data
Connector

Data
Connector



Long Term Research through PhD's

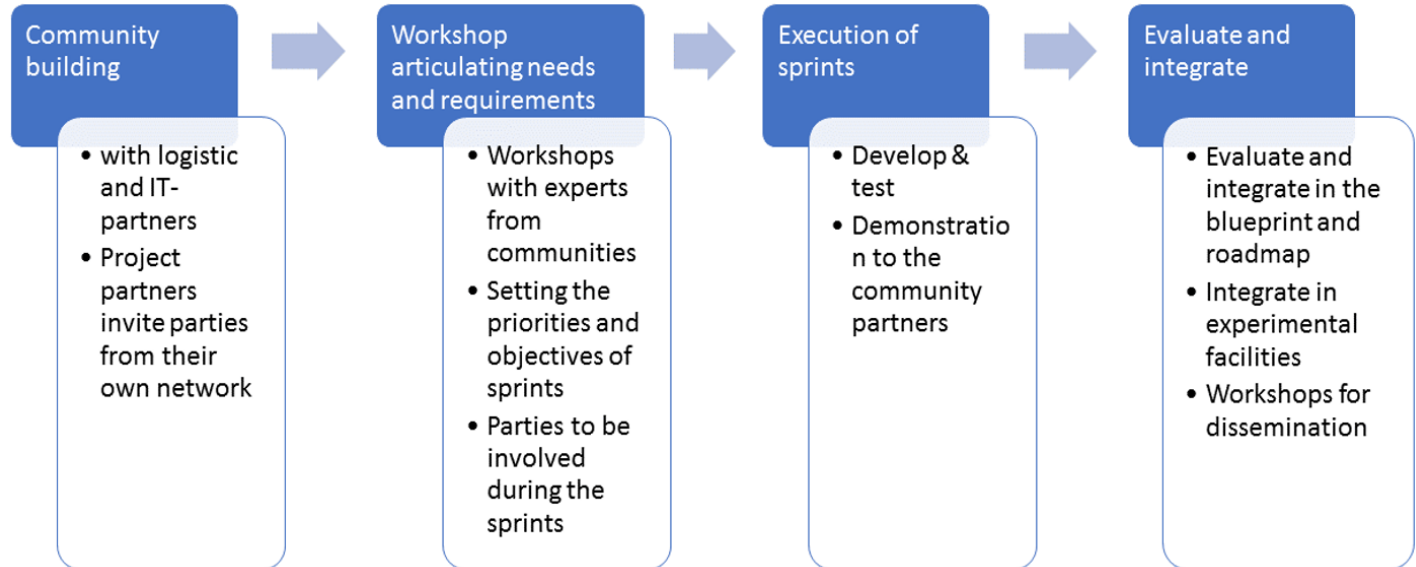
- Digital Market Place Automation
- Logistics Services Integration Methods
- Future Internet Generation



ALIGNMENT DEMAND AND FUNCTIONAL REQUIREMENTS WITH LOGISTICS STAKEHOLDERS

Four short term halfyear projects: Q3, Q5, Q7, Q9

1. Initial blueprint based on current smart logistics projects
2. Blueprint 2: Mainport Schiphol / KLM / Cargonaut
3. Blueprint 3: Port of Rotterdam & Amsterdam / Portbase
4. Blueprint 4: Greenport, agri-food sector. Truck transport (TLN)



ALIGNMENT DEMAND AND FUNCTIONAL REQUIREMENTS WITH COMPARTMENT 2 PROJECTS

To be discussed in the panel discussion

M.M.J. Stevens

Secure scalable policy-enforced
distributed data processing

C. de Laat
DL4LD

Data Logistics for Logistics Data

M. Snelder
ToGRIP

Grip on Freight Trips

P.J.M. Havinga
Datarel

Big Data for Resilient Logistics

G.J.J.A.N. van Houtum

Real-time Data Driven
Maintenance Logistics

T. Van Woensel

Data Driven Logistics Decision Making
Real-Time Data for Products to Move



For its functionality of the Logistics Data Hub, various typologies are distinguished:

› ***The inter-organizational governance typology***

To ensure that individuals behave in line with the collective goals, conflicts between individuals are prevented or resolved, the effective and fair use of collective resources within the inter-organizational collaboration and the corresponding trust levels are being managed.

Types: Market, Bazaar, Hierarchy, Network



› ***The data value typology***

The value of the data to be exchanged for the providing organizations.

Types: Private Data, Shared Data, Public Data



› ***The data exchange pattern typology***

The commonly-used and generic methods/structures for exchanging logistics data between organizations.

Types: Pub/Sub, Req/Resp, ...



THE DL4LD 'LOGISTICS TRUSTED DATA HUB'

ARCHITECTURE: CONTEXT FOR THE DATA HUB

› Cross- Sector: National Big Data Hub initiatives

- › Smart Industry Data Hub
- › Smart City Data Hub
- › Smart Dairy Farming Data Hub



› Within multiple logistics data sharing initiatives

- › Community Service Initiatives (Port / Airport, ...)
- › NLIP iShare
- › Multiple (private) logistics data sharing initiatives



iSHARE

› Across the 'Data Sharing Life-Cycle'

- › Registration and Configuration
- › Usage and Data Control
- › Monitoring and Accountability

› Multiple data sharing typologies

- › Inter-organizational governance typology
- › Data value typology
- › Data exchange pattern typology

› NWO Call Big Data Real-time ICT for Logistics:

- › Compartment 1
- › Compartment 2



Architectural principles:

› *Service Enabling*



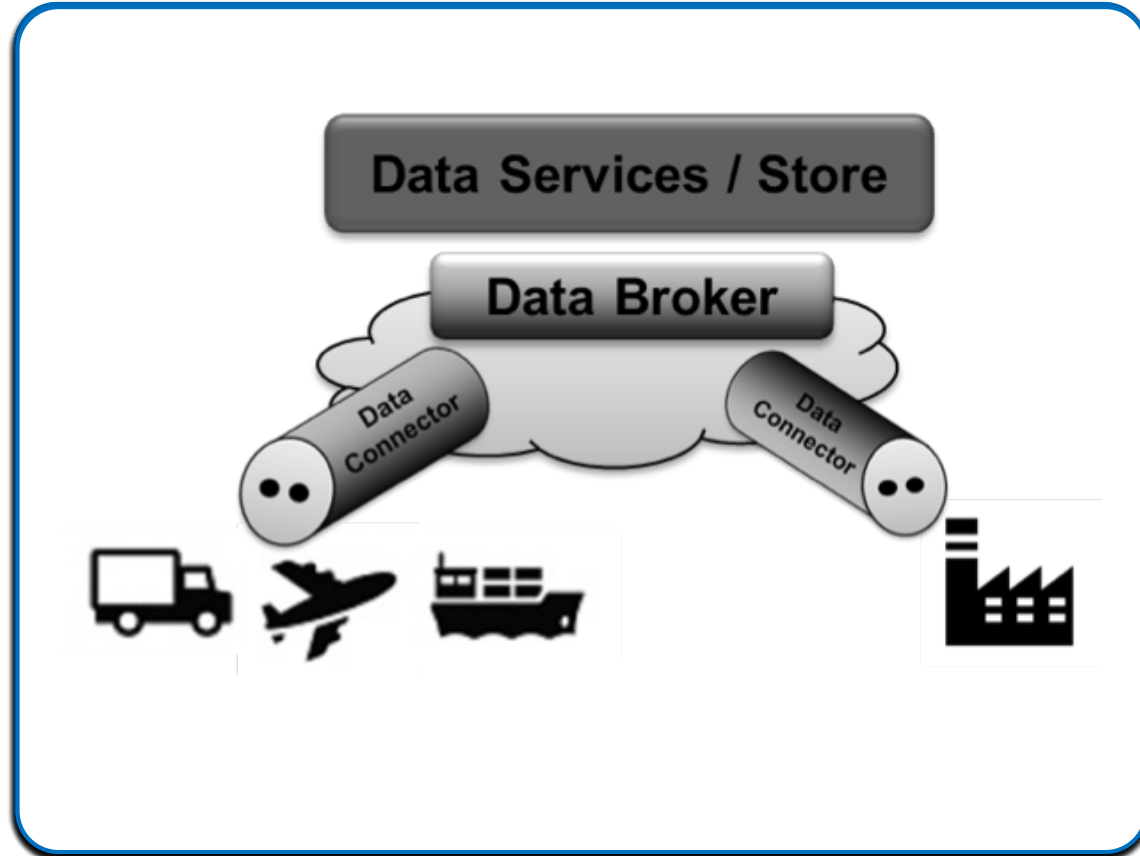
› *Data Sovereignty*



› *Federation*



› *Managed and Controlled*



Data Services / Store

Basic Data
Services
Provisioning

Data Services
Management and
Use

Vocabulary
Management

Software Curation

Data Broker

Data Source
Management

Data Exchange
Agreement

Data Source
Search

Data Exchange
Monitoring

Data Connector

Data Exchange Execution

Data Preprocessing
Software Injection

Remote
Software Execution

THE DL4LD 'LOGISTICS TRUSTED DATA HUB'

LONG TERM RESEARCH: 3 PHD'S

Rob and Cees



THANK YOU FOR YOUR ATTENTION

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