

# Data Spaces Symposium

Flanders Smart Data Space –  
*paving the road voor interoperable and linked  
data spaces in Flanders*

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Annelies De Craene  
*Digitaal Vlaanderen*





# Flanders Smart Data Space: *Building linked data ecosystems*





# Three reasons why data is not yet flowing smoothly...



## No sockets for data

Standardisation of data is necessary to make it flow smoothly.

1



## Fear of losing control of data

Citizens and companies are increasingly aware of the value of their data.

2



## Trust between players is lacking

Sharing data with companies and governments requires a great deal of trust.

3



# Different levels of interoperability to let data flow

## Standards

- Semantical standards (OSLO)
- technical standards (Linked data event streams- LDES) to publish and consume data across domains

## Technology

- Enabling linked data technology to combine real-time and context information
- Connectors and open source middle ware

## Ecosystems

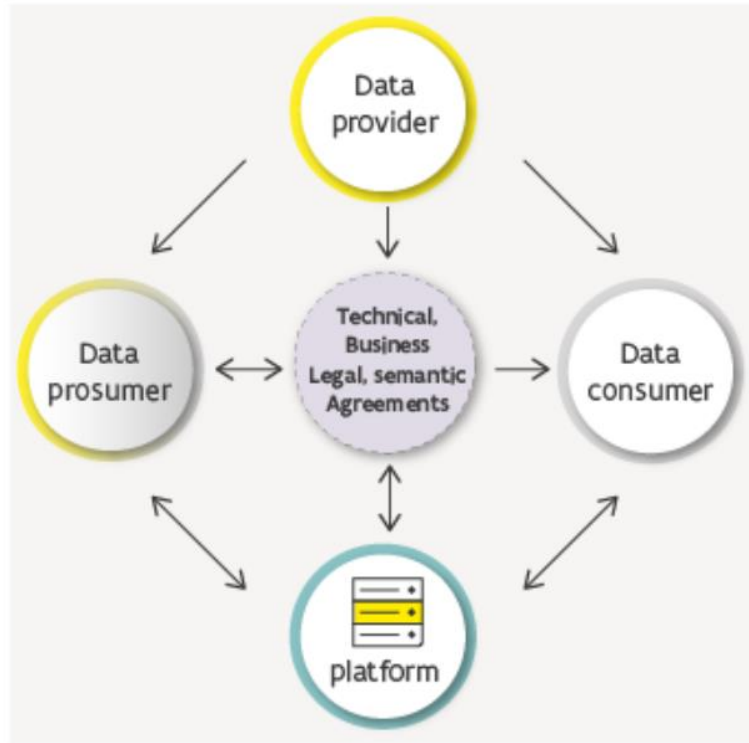
- Public sector - Private sector- Academia ecosystem body
- # domains – cross domains
- # service for business and technical community

## Governance

- Clear Governance and trust approach – level playing field in the Flanders Smart Data Space
- Installation of athumi ('Data Utility Company') for personal data sharing (solid)



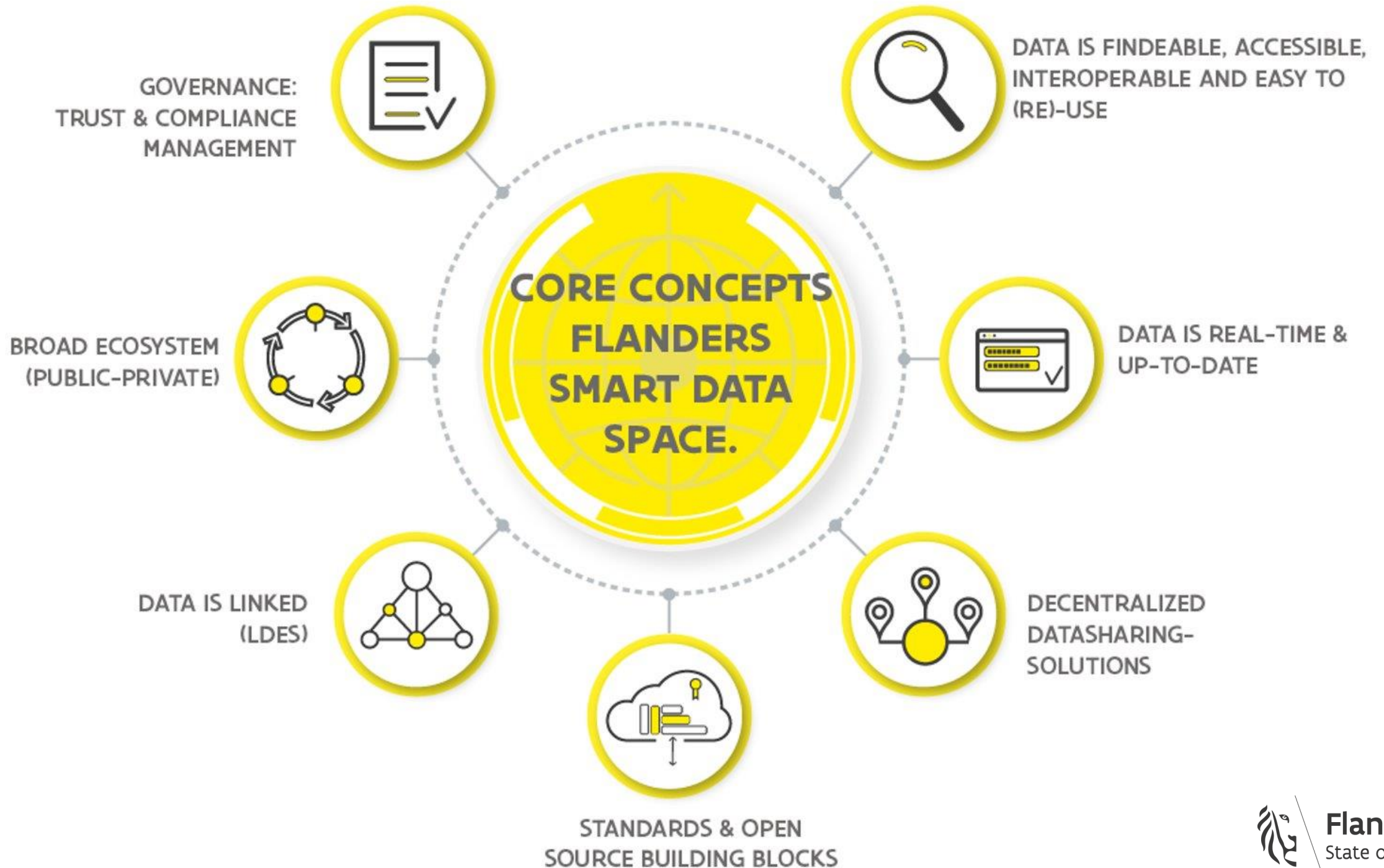
# DATA SHARING ACCORDING THE DATASPACE CONCEPT



**Dataspace**

## Why dataspaces?

- Decentral data sharing
- Centrally supported agreements  
(on technical, semantic, legal and organisational level)
- Scalable keeping in mind increase
- #participants, #datasources, #services, ...
- Interoperability between organisations, domains, systems ,...
- Equal access to the data playing field
- Redistribute costs and benefits in data sharing



# VLAAMSE SMART DATA SPACE



NEW BUSINESS MODELS – PUBLIC & PRIVATE PLAYERS



## INTEROPERABILITY

*The ability of different systems to interact and exchange data.*



## DECENTRAL

*We facilitate, responsibility stays with providers and consumers of the data.*



DATA CONSUMERS



## WORKBENCH

Re-usable and open source building blocks for publication and consumption of Linked data



DATA PROVIDER



STANDARDS

semantic (OSLO)  
technical (LDES)



ECOSYSTEM



GOVERNANCE

# VLAAMSE SMART DATA SPACE

## INTEROPERABILITY

The ability of different systems to interact and exchange data.

## DECENTRAL

We facilitate, responsibility stays with providers and consumers of the data.

To support and encourage the use of the LDES-standard, we developed open source building blocks

We believe LDES is the most future proof standard towards dataspaces, but it is not the mandatory condition to participate

## WORKBENCH

Re-usable and open source building blocks for publication and consumption of Linked data



DATA PROVIDER

STANDARDS

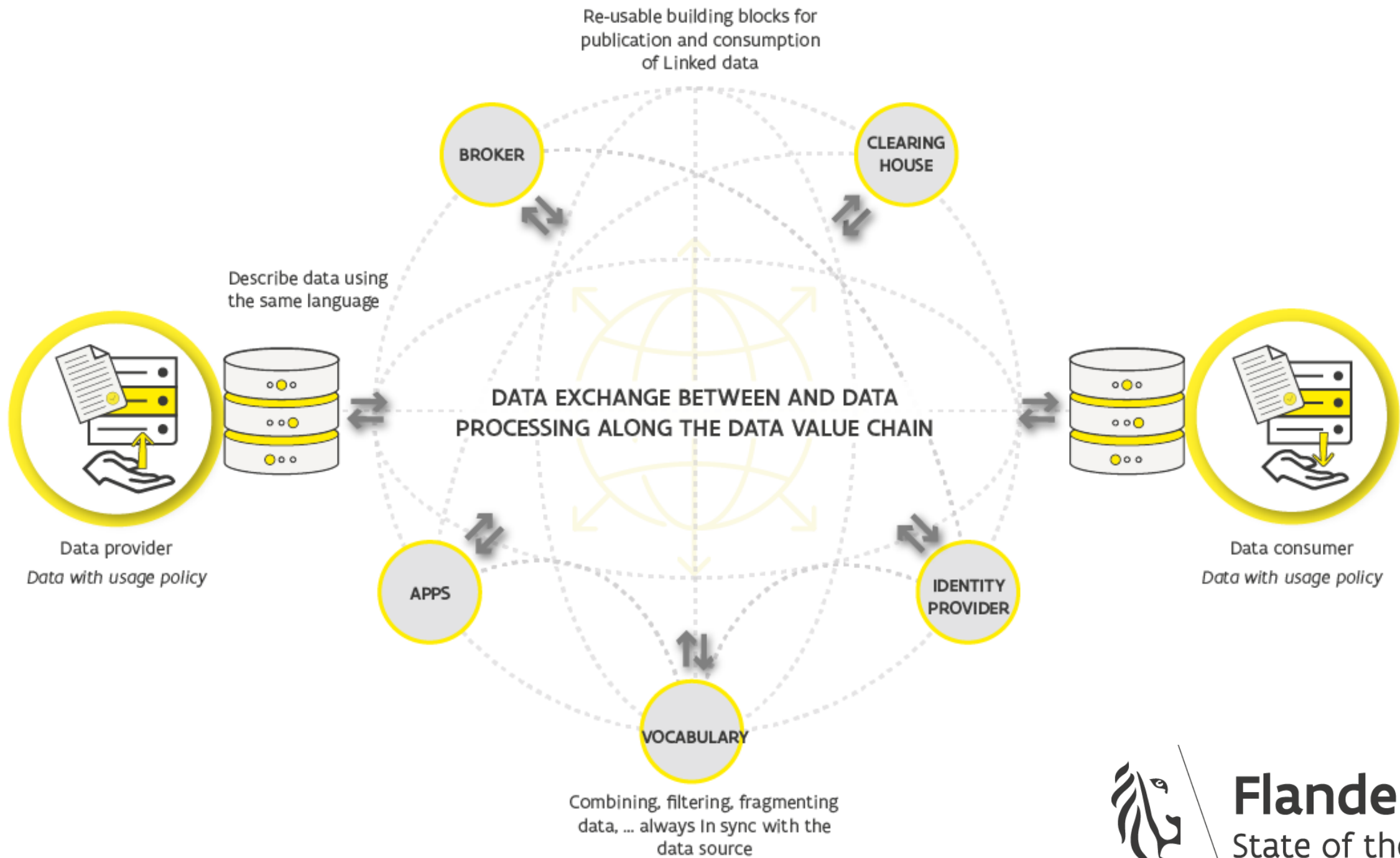
semantic (OSLO)  
technical (LDES)

ECOSYSTEM

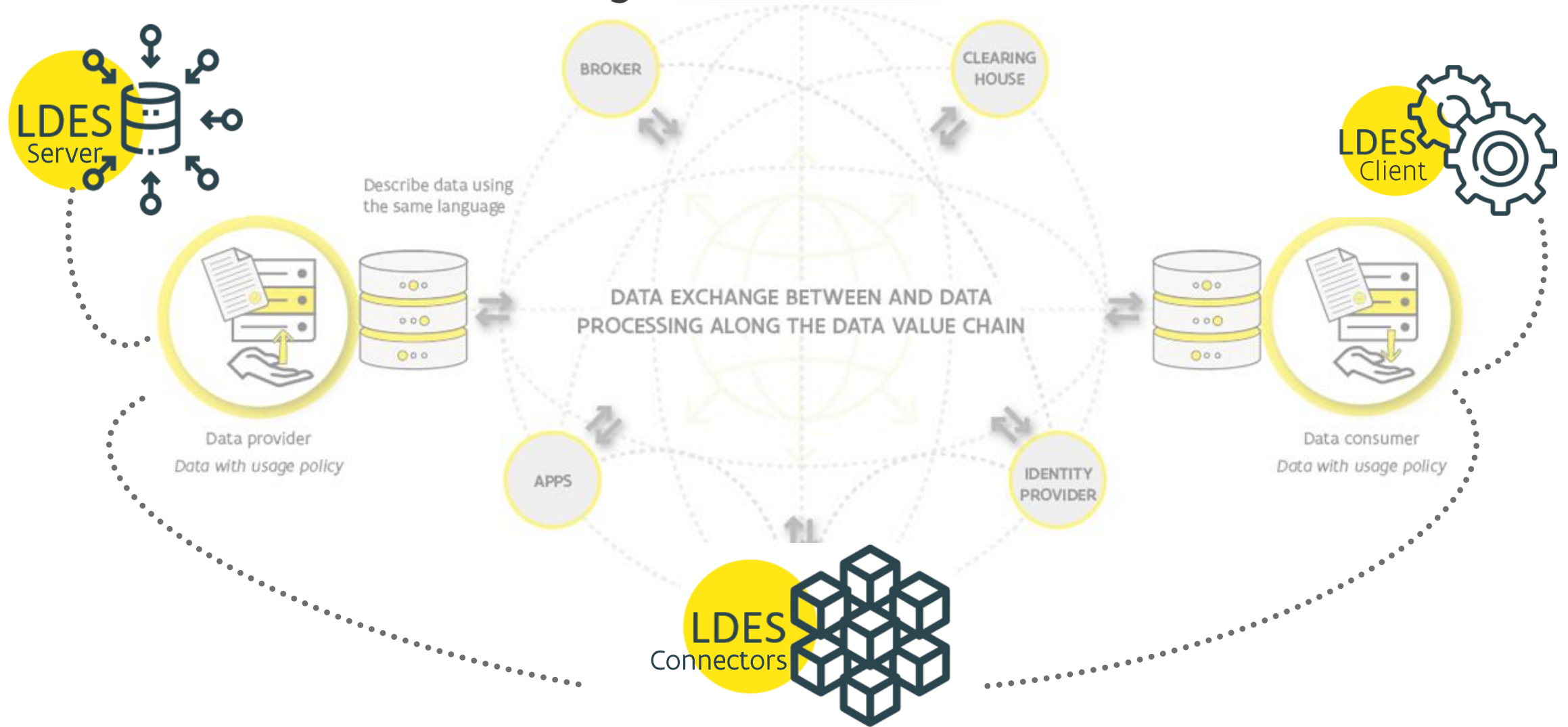
GOVERNANCE







# The Flanders Smart Data Space is creating middleware to stimulate the ecosystem to use LDES



From Theory to practice

What's already 'out there'?



**Flanders**  
State of the Art



**The Flanders Smart Data Space in action:**

**Mobility Data Space  
traffic measurements**



**Flanders**  
State of the Art

# - Traffic Measurement value chain -

If you need traffic measurements, you need to buy them

Sensor producent

Import / reseller

Installation /  
service

Data platform

Data application

Data analysis

=> linear closed value chain

Can we change this and re-use traffic data?



**Flanders**  
State of the Art

# - Traffic Measurement Data Space -

What do we need to do?

- Understandable => 1 STANDARDS
- Exchangable => 2 TECHNOLOGY
- Re-usable => 3 ECOSYSTEMS
- Future Proof => 4 GOVERNANCE





# Collaboration in co-creation



# Creating a data standard using the process and methodology of OSLO (Open Standards for Linked Organisations)



## Governance

**Vlaamse Regering**  
De Vlaamse Regering kan voorzien in bindende afspraken.

**Stuurorgaan Vlaams Informatie- en ICT-beleid**  
Bekrachtigt de standaarden na beoordeling van het gevolgde proces en bewaakt de strategie en prioriteiten.

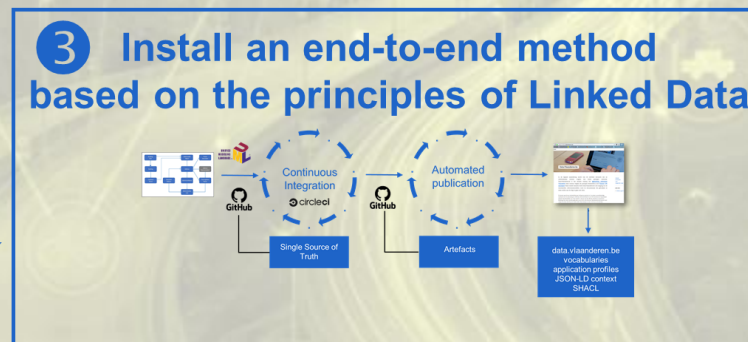
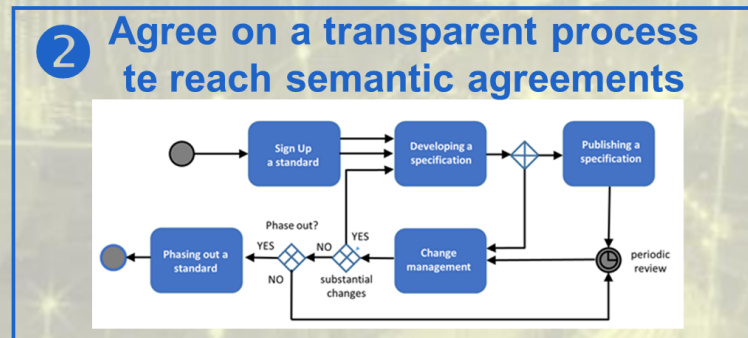
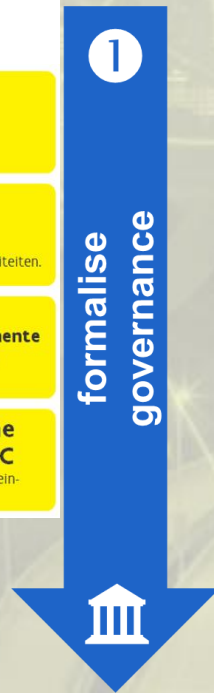
**Permanente werkgroep Datastandaarden 'OSLO'**  
Centrale coördinatie en opvolging.

**+ 7 andere permanente werkgroepen**

**Thematische werkgroep A**  
Verzameling van domein-experten

**Thematische werkgroep B**  
Verzameling van domein-experten

**Thematische werkgroep C**  
Verzameling van domein-experten



Vlaanderen DATA VLAANDEREN

## OSLO STANDAARDENREGISTER

131 Erkende standaarden

33 Kandidaat standaarden

26 Standaarden in ontwikkeling

472 mensen helpen mee

210 organisaties waren vertegenwoordigd

Vocabularia

- Generiek: Een algemeen ondersteunend vocabularium.
- Adres: Het Adres vocabularium legt termen en definities vast voor het beschrijven van een Belgisch adres.
- Organisatie: Het Organisatie vocabularium legt termen en definities vast voor het beschrijven van...

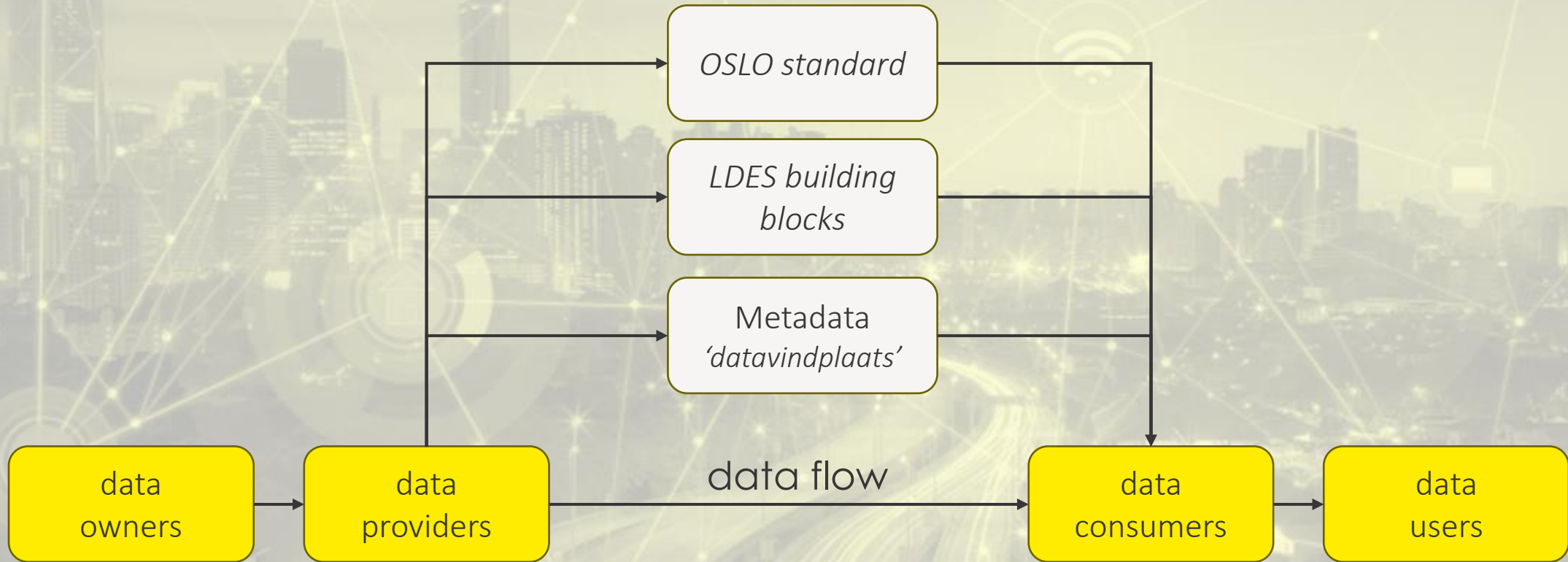
Applicatieprofielen

- Applicatieprofiel Generiek Basis: Dit applicatieprofiel definieert een specificatie voor de uitwisseling van algemeen concepten als contactinformatie, geometrieën en herkomstinformatie.
- Applicatieprofiel Adresregister: Dit applicatieprofiel definieert een specificatie voor de uitwisseling van adresgegevens in de context van een adresregister (CRAB).
- Applicatieprofiel Persoon Basis: Dit applicatieprofiel definieert een specificatie voor de uitwisseling van persoonsgegevens in de context van een personenregister of bij het uitvoeren van publieke dienstverlening.
- Applicatieprofiel Dienstencatoloog: Dit applicatieprofiel definieert een specificatie voor de uitwisseling van gegevens met betrekking tot publieke dienstverlening in de context van een dienstencatoloog.





# Next step: publishing an interoperable dataset LDES



## Status:

- 2 live
- 4 in pre-release
- 2 in preparation





From Theory to practice

What's already 'out there'?



**Flanders**  
State of the Art



MOBILITY



WATER



PUBLIC  
ADMINISTRATION



ENERGY



AGRICULTURE



HEALTH



SKILLS



INDUSTRIAL &  
MANUFACTURING



FINANCIAL



SUPPORTS

### FLANDERS SMART DATA SUPPORT CENTRE

- Define standards
- Monitoring interoperability
- Develop building blocks
- Onboarding support
- Communication and publicity
- Training
- Maintenance ecosystem
- International anchoring



DIRECTS

### STEERING GROUP DIGITAL FLANDERS



ADVISES

### BUSINESS ADVISORY BOARD

Representing domain data spaces + identifying potential use cases



ADVISES

### TECHNICAL ADVISORY BOARD

Technical advise on development of the building blocks



INITIATES

### TECHNICAL INFRASTRUCTURE

BUILDING BLOCKS  
*(Middleware)*

DIGITAL TWIN

EDGE, CLOUD,  
COMPUTING

ARTIFICIAL  
INTELLIGENCE,

...





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**Flanders**  
State of<sup>2</sup>the Art





THANK YOU!  
WE'RE OPEN FOR  
COLLABORATION.