ICEG Interoperability Training

MS Teams (120min)

4 december 2020

#beinterop

Agreements

- Audience is **muted** and webcam is **turned off**.
- Recording of the session?
- Questions, comments or suggestions can be shared via the **chat function** of MS Teams.
  - ➔ Interaction is encouraged!

    +1 of -1
- A yes/no question can be answered simply and quickly via chat: Agree= +1 Disagree= -1

What are your **expectations**?

(reply via chat)

Agenda

10:05 - 10:50 - *plenary*

Introduction by Seth van Hooland 10’

Plenary 40’

10:50 - 11:00

BREAK ‘10

11:00 - 11:45 - *break-out*

Case Saint Nicholas 45’

11:45 - 12:00 - *plenary*

Wrap-up

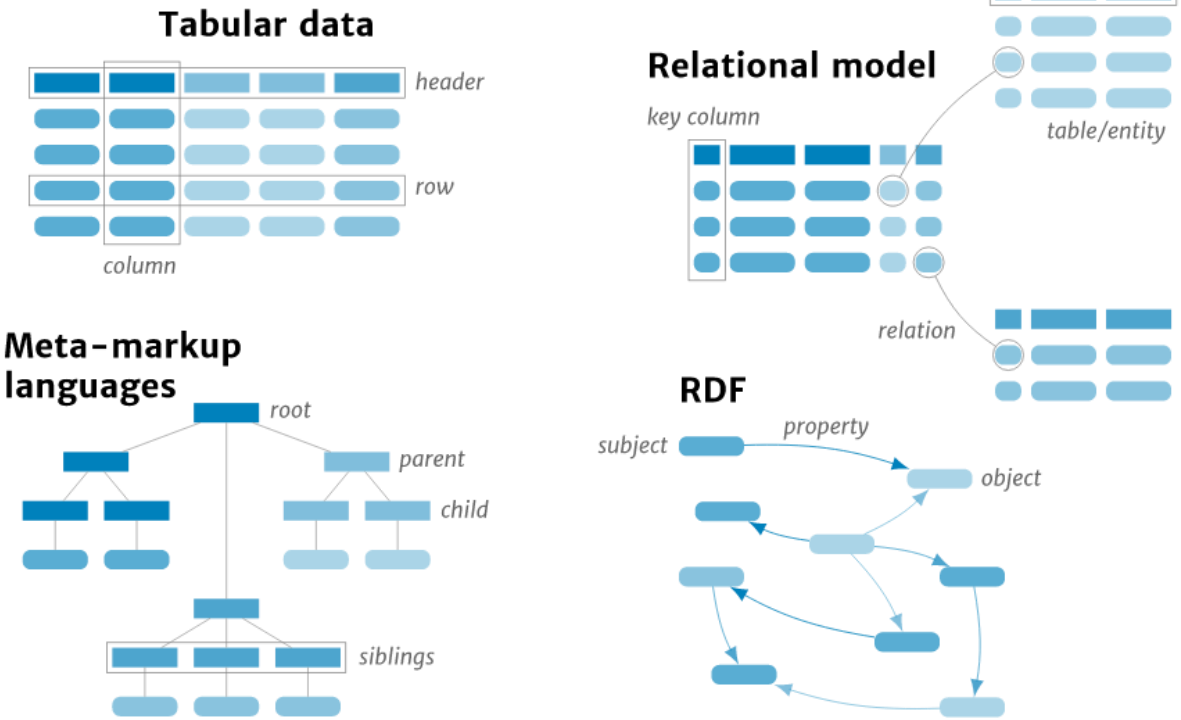
10:05 - 10:15 - Introduction

Introduction by Seth Van Hooland

Introduction ISA^2 EC (10')

- Context : why care about interoperability ?
- Core Vocabularies : role and dependencies
- Bigger perspective : SDGR + Data Spaces

Interoperability: Why care ?



Preparing for the SDG Regulation

The 21 procedures covered by the SDG Regulation

Annex II procedures, not listing the additional procedures of the 4 mentioned directives

BIRTH		
1	Requesting proof of registration of birth	
RESIDENCE		
2	Requesting proof of residence	
STUDYING		
3	Applying for a study grant	
4	Initial application for admission (ECDI)	
5	Academic recognition of procedures	
WORKING		
6	Request for determination of social security benefits (EESSI)	
7	Changes in circumstances relating to social security (EESSI)	
8	Application for European Health Insurance Card	
9	Submitting an income tax declaration	
MOVING		
10	Registering a change of address	
11	Registering a motor vehicle (EUCARIS)	
12	Obtaining stickers for the use of the national road infrastructure	
13	Obtaining emission stickers (EUCARIS)	
RETIRING		
14	Claiming pension and pre-retirement benefits (EESSI)	
15	Requesting information on the data related to pension (EESSI)	
STARTING, RUNNING AND CLOSING A BUSINESS		
16	Notification of business activity (BRIS)	
17	Registration of employer with compulsory pension and insurance schemes (EESSI)	
18	Registration of employee with compulsory pension and insurance schemes (EESSI)	
19	Submitting a corporate tax declaration	
20	Notification to the social security schemes of the end of contract (EESSI)	
21	Payment of social contributions for employees	

10:15 - 10:50 - Plenary

- Levels of interoperability
- Governance
- Semantic data
- API’s
- Tooling

Interoperability

The ability of **different autonomous organizations or systems** to **communicate and collaborate** with each other.

Interoperability: Why important?

Local government

> **1000** public services

> **250** information systems

> **1500** public administrations

Semantic interoperability

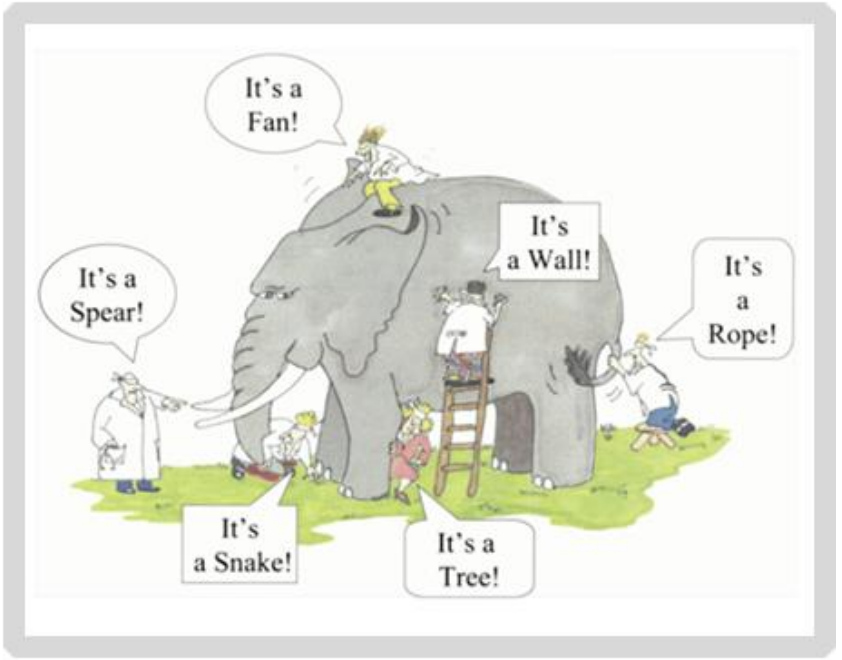
Applications look at the real world from different perspectives

Information is structured/ modeled from 1 perspective

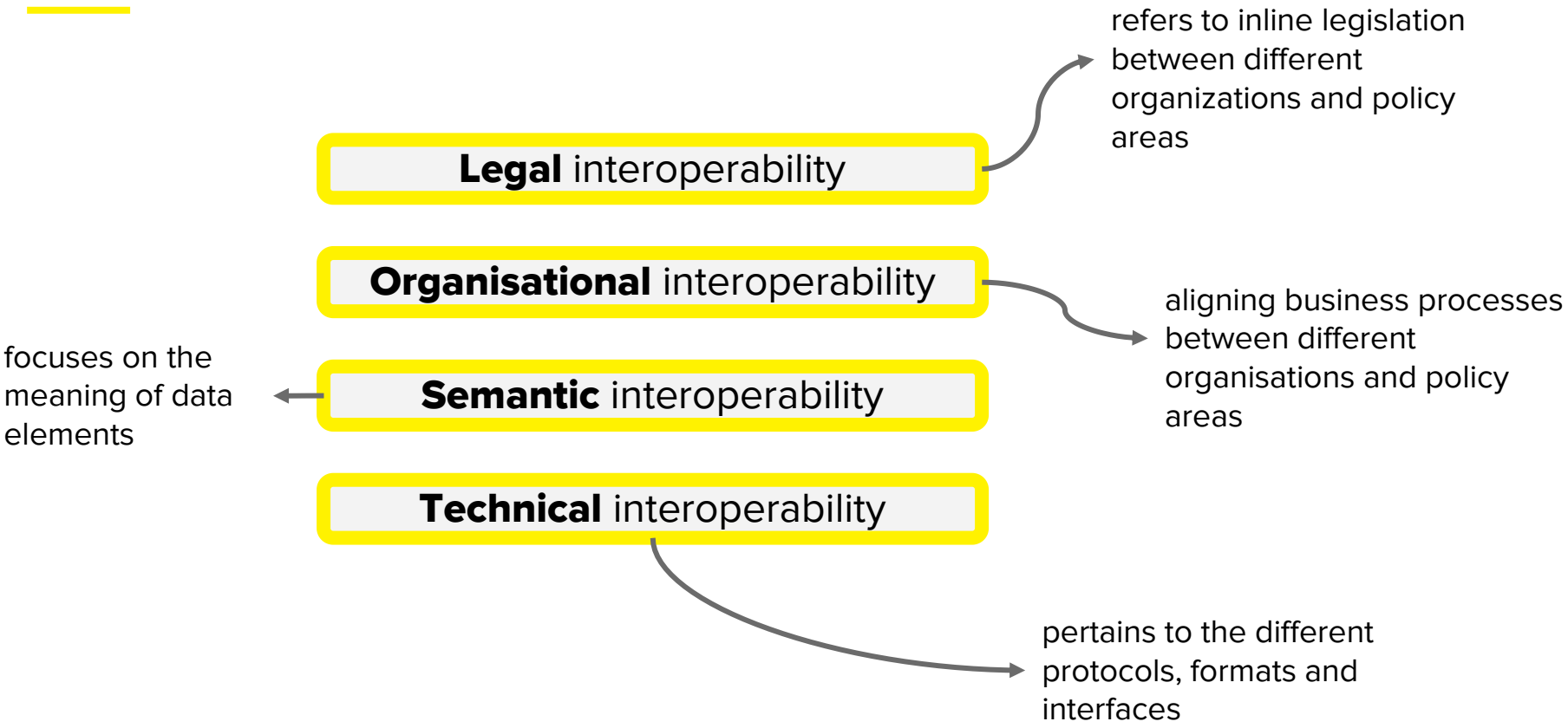
Authentic sources exist as silos

Multiple costs to linked information

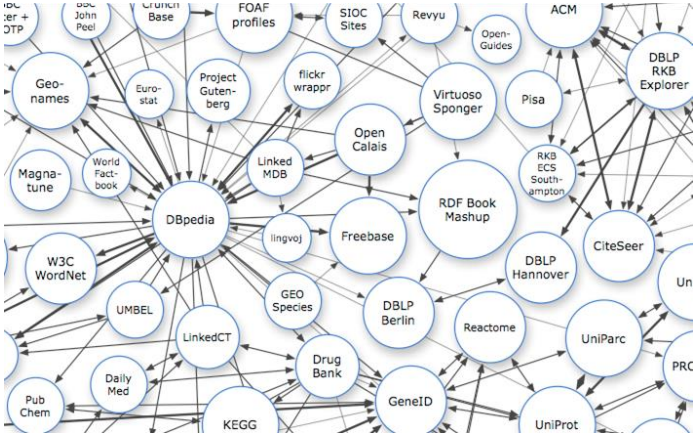
Impact on quality and efficiency of service



4 levels of interoperability



Technical interoperability: The web as a blueprint



- Persistent Identifiers: URIs
- Dereferencable HTTP URIs
- Standardised Information (RDF)
- Links to other information

Technical interoperability: The web as a blueprint

Persistent Identifiers: URIs

http://data.vlaanderen.be/id/adres/3706808

Dereferencable HTTP URIs

Standardised Information (RDF)

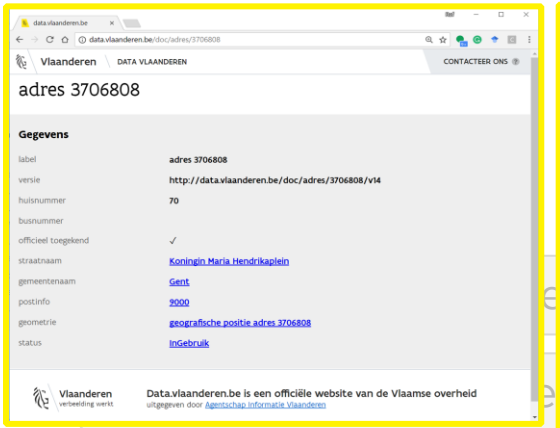
Links to other information

Technical interoperability: The web as a blueprint

Persistent Identifiers: URIs

Dereferencable HTTP URIs

http://data.vlaanderen.be/id/adres/3706808



Mensleesbaar

Computerleesbaar

Technical interoperability: The web as a blueprint

Persistent Identifiers: URIs

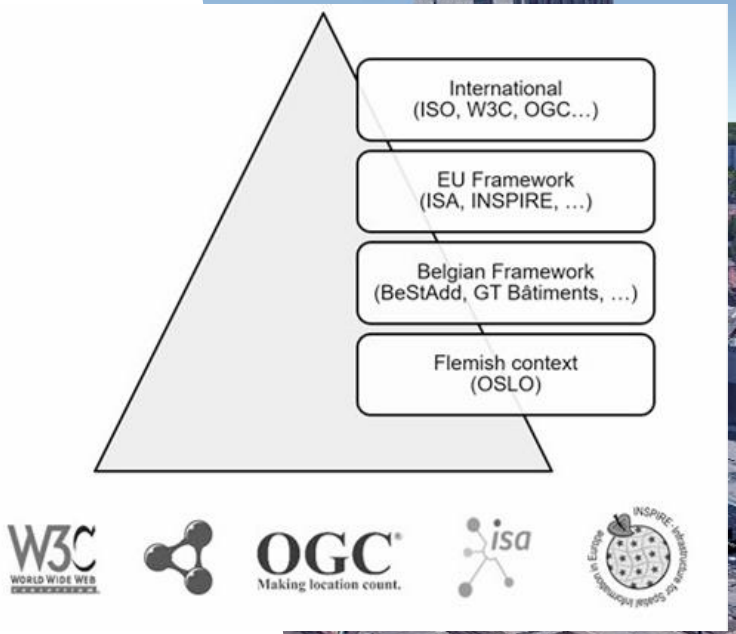
Dereferencable HTTP URIs

Standardised Information (RDF)

http://data.vlaanderen.be/ns/adres

https://www.w3.org/ns/locn#adminUnitL2

Links to other information



Technical interoperability: The web as a blueprint

Persistent Identifiers: URIs

Dereferencable HTTP URIs

Standardised Information (RDF)

Links to other information

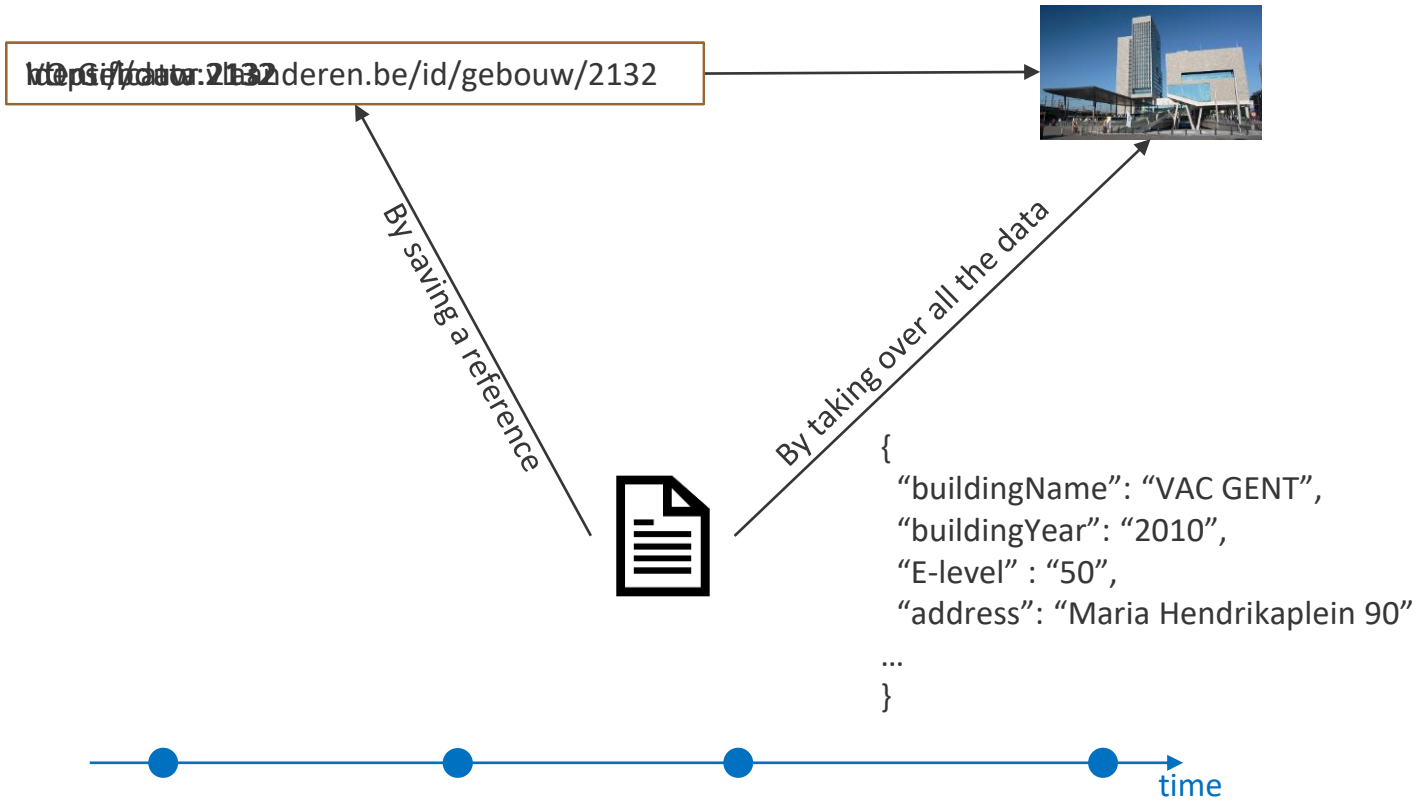
data.vlaanderen.be/id/organisatie/OVO002949

Agentschap Informatie Vlaanderen

http://data.vlaanderen.be/id/adres/3706808

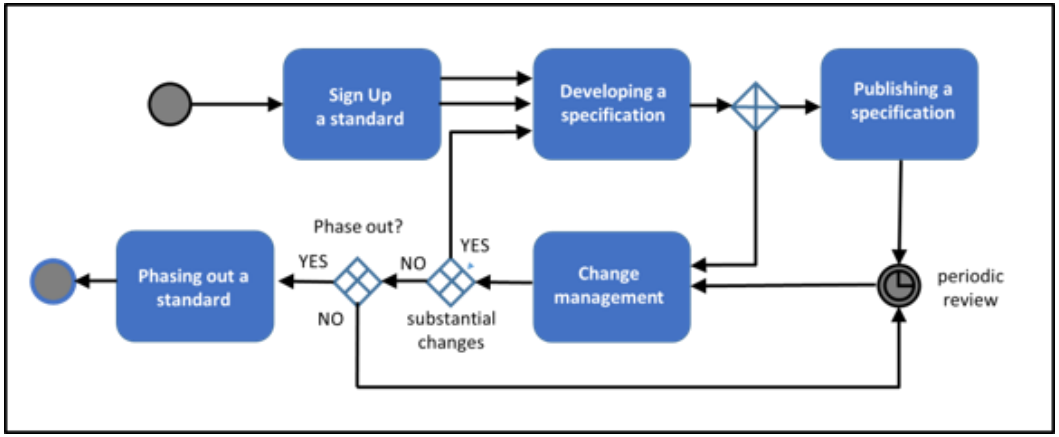
Koningin Maria Hendrikaplein 70
9000 Gent

Technical interoperability: URI's



Governance: ICEG process and method

Scalable process for registering, developing, changing and phasing out data standards.



Abstract: French, Dutch

Full paper: English

W3C, IEEE, IETF, IAB en ISA, Open Stand, OSLO

Governance: ICEG mission statement and roles

The **ICEG* review group 'open standards**' has a permanent character and is responsible for the central coordination and follow-up of the work related to the standardisation of information.

Mission aligned to the **existing ICEG collaboration agreement** between the federal, regional and community authorities (dd. 2013-08-26).

The work is part of the standardisation of:

- meaning of the information (semantic),
- syntax (grammar) and technical standards for the exchange of the information
- metadata for discoverability ('data on data').

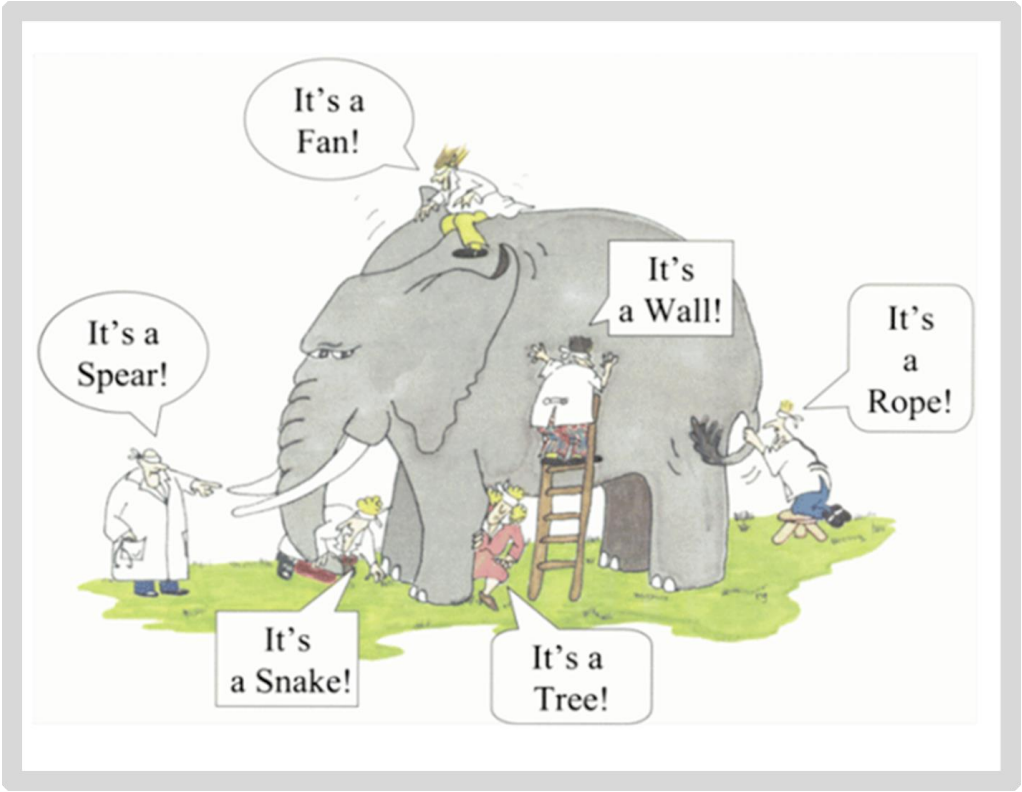
In addition, the working group monitors

- mutual consistency of standards,
- international standards that impact governments in Belgium
- generic development and the change process.

The working group on data standards gathers on a regular basis.

(*) ICEG = Interfederal Collaboration on e-Government

It’s all about the context



I want to exchange data

JSON

```
{
   “Fietsteller-Zuid” : {
       “type” :
“BicycleCounter”,
       “city” : “Ghent”,
       “today” : “100”
   }
}
```

But how do we understand each other?

JSON

```
{
   “Fietsteller-Zuid” : {
       “type” :
“BicycleCounter”,
       “city” : “Ghent”,
       “today” : “100”
   }
}
```

Table / CSV / Spreadsheet

name	type	location	number
F7 Gent-Kortrijk	BikePassageCounter	Waregem	250

We know, but machines don’t

Triples!

<Fietsteller-Zuid> <type> <**BicycleCounter**>
<Fietsteller-F7> <type> <**BikePassageCounter**>
<Fietsteller-Zuid> <**today**> <100>
<Fietsteller-F7> <**number**> <250>

- *BicycleCounter* is the same as a *BikePassageCounter*
- *Number* basically means the same as *today* in this context

Solved by using URIs

<Fietsteller-Zuid> <type> <**BicycleCounter**>
<Fietsteller-F7> <type> <**BikePassageCounter**>
<Fietsteller-Zuid> <**today**> <100>
<Fietsteller-F7> <**number**> <250>

https://wikipedia.org/BikeCounter

But machines only get a human readable description (HTML)

***URI** = **U**niform **R**esource **I**dentifier*

We use URIs that provide both a human and machine readable description

<Fietsteller-Zuid> <type> <**BicycleCounter**>
<Fietsteller-F7> <type> <**BikePassageCounter**>
<Fietsteller-Zuid> <**today**> <100>
<Fietsteller-F7> <**number**> <250>

https://data.vlaanderen.be/ns/example#BikeCounter

Klasse *Omleiding*

Type	Klasse
URI	https://data.vlaanderen.be/ns/mobiliteit#Omleiding
Specialisatie van	https://data.vlaanderen.be/ns/mobiliteit#Verkeersmaatregel
Definitie	Tijdelijke route die aanbevolen wordt te volgen door de betreffende weggebruiker.

Human readable

```
<https://data.vlaanderen.be/ns/mobiliteit#Artikel.heeftMobiliteitsmaatregel> a owl:ObjectProperty ;
    rdfs:label "heeft mobiliteitsmaatregel"@nl ;
    rdfs:comment "Mobiliteitsmaatregel die beschreven staat in het artikel."@nl ;
    rdfs:domain besluit:Artikel ;
    rdfs:isDefinedBy <https://data.vlaanderen.be/ns/mobiliteit> ;
    rdfs:range <https://data.vlaanderen.be/ns/mobiliteit#Mobiliteitsmaatregel> .

<https://data.vlaanderen.be/ns/mobiliteit#Bevestiging.bevestigtAan> a owl:ObjectProperty ;
    rdfs:label "bevestigt aan"@nl ;
    rdfs:comment "Draagconstructie waaraan de bevestiging is bevestigd."@nl ;
    rdfs:domain <https://data.vlaanderen.be/ns/mobiliteit#Bevestiging> ;
    rdfs:isDefinedBy <https://data.vlaanderen.be/ns/mobiliteit> ;
    rdfs:range <https://data.vlaanderen.be/ns/mobiliteit#DraagconstructieVerkeersborden> .
```

Machine readable

Applying context and URI's to our example, creating JSON-LD

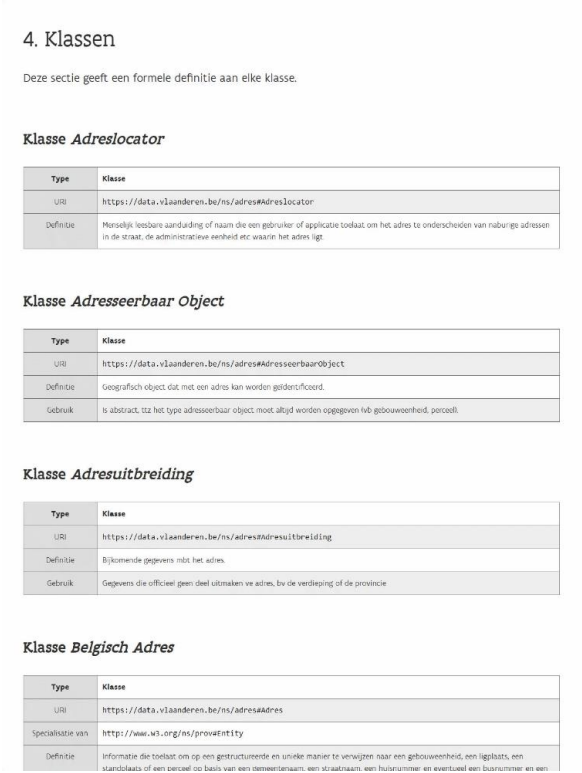
```
{
  "@context" : {
    "BicycleCounter" : "https://data.vlaanderen.be/ns/example#BikeCounter"
    "today" : "https://data.vlaanderen.be/ns/example#totalNumberOfBicycles"
  },
  "@id" : "https://example.org/id/Fietsteller-Zuid",
  "@type" : "BicycleCounter",
  "today" : 100
}
```

```
{
  "@context" : {
    "BikePassageCounter" : "https://data.vlaanderen.be/ns/example#BikeCounter"
    "number" : "https://data.vlaanderen.be/ns/example#totalNumberOfBicycles"
  },
  "@id" : "https://example.org/id/Fietsteller-F7",
  "@type" : "BikePassageCounter",
  "number" : 250
}
```

Vocabularies & Application Profiles

Vocabularies contain a list of terms per domain

➜ *For example: address, organization, person, …*



4. Klassen

Deze sectie geeft een formele definitie aan elke klasse.

Klasse *Adreslocator*

Type	Klasse
URI	https://data.vlaanderen.be/ns/adres#Adreslocator
Definitie	Menselijk leesbare aanduiding of naam die een gebruiker of applicatie toelaat om het adres te onderscheiden van naburige adressen in de straat, de administratieve eenheid etc waarin het adres ligt.

Klasse *Adresseerbaar Object*

Type	Klasse
URI	https://data.vlaanderen.be/ns/adres#AdresseerbaarObject
Definitie	Geografisch object dat met een adres kan worden geïdentificeerd.
Gebruik	Is abstract, tlz het type adresseerbaar object moet altijd worden opgegeven (vb gebouweenheid, perceel).

Klasse *Adresuitbreiding*

Type	Klasse
URI	https://data.vlaanderen.be/ns/adres#Adresuitbreiding
Definitie	Bijkomende gegevens mbt het adres
Gebruik	Gegevens die officieel geen deel uitmaken ve adres, bv de verdieping of de provincie

Klasse *Belgisch Adres*

Type	Klasse
URI	https://data.vlaanderen.be/ns/adres#Adres
Specialisatie van	http://www.w3.org/ns/prov#Entity
Definitie	Informatie die toelaat om op een gestructureerde en unieke manier te verwijzen naar een gebouweenheid, een ligplaats, een standplaats of een perceel op basis van een gemeentenaam, een straatnaam, een huisnummer en eventueel een busnummer en een

Vocabularies & **Application Profiles**

Application profiles determine which data must be exchanged

➔ *For example: a street name*

Straatnaam

Beschrijving
Adrescomponent met de naam die officieel werd toegekend aan een straat (baan, doorgang, plein) of aan een gehucht en waaraan adressen kunnen zijn gekoppeld.

Eigenschappen
Voor deze entiteit zijn de volgende eigenschappen gedefinieerd: homoniem toevoeging, is toegekend door, status, straatnaam.

Eigenschap	Verwacht Type	Kardinaliteit	Beschrijving	Gebruik	Codelijst
homoniem toevoeging	String	0..1	Toevoeging om dubbele straatnamen (straatnamen met dezelfde naam maar andere ligging in de gemeente en eigen adressen) van elkaar te onderscheiden.		
is toegekend door	Gemeente	1	Agent die de straatnaam heeft toegekend.	In België is dit de gemeente.	
status	Statuswaarde	1	Actuele toestand van de straatnaam.		Link
straatnaam	GeografischeNaam	1..*	Naam vd straat.		

I have an API that publishes semantic data

Is my data in line with these standards? (compliance)

➔ Technical contracts as SHACL* ensure this.

- A document with a set of conditions

```
dienst:PublicServiceShape
    a sh:NodeShape ;
    sh:targetClass <http://purl.org/vocab/cpsv#PublicService> ;
    sh:property [
        sh:name "naam" ;
        sh:description "Officiële naam van de publieke dienstverlening." ;
        sh:datatype <http://www.w3.org/1999/02/22-rdf-syntax-ns#langString> ;
        sh:minCount 1 ;
        sh:maxCount 1 ;
        sh:path <http://purl.org/dc/terms/title> ;
    ] ;
    sh:property [
        sh:name "heeftVerantwoordelijke" ;
        sh:description "Publieke organisatie die verantwoordelijk is voor
            het aanbieden en beheren van de publieke dienstverlening." ;
        sh:class <http://data.europa.eu/m8g/PublicOrganisation> ;
        sh:minCount 1 ;
        sh:maxCount 1 ;
        sh:path <http://data.europa.eu/m8g/hasCompetentAuthority> ;
```

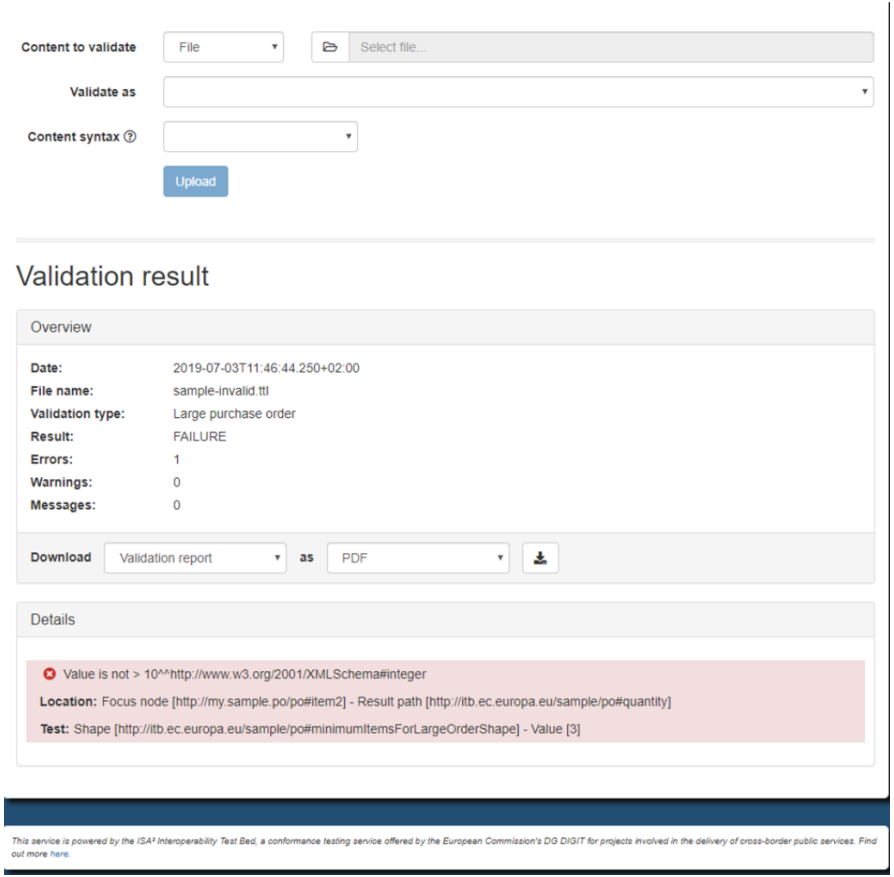
***SHACL** = **Sha**pes **C**onstraints **L**anguage*

Tooling: SHACL-validator

Europe provides tools to do this automatically: RDF validator

- Frontend
- **REST API**
- SOAP API

Flanders built its own frontend on top of the EU backend



Case “Saint Nicholas”

Exercise

- In groups (NL, FR, ENG) we will go through the exercise of making our own implementation model.
- The purpose is to get familiar with building implementation models.

[FR] - Thierry	[FR] - Olivier-Pascal	[ENG] - Raf/Eveline	[NL] - Dwight	[NL] - Liesbet
Raphaelle Claude (Archives de l'Etat en Belgique)	Patrick Legrand (SPF Finance)	Pieter Huybrechts (Agentschap Plantentuin Meise)	Wouter Claes (Koninklijke Musea voor Kunst en Geschiedenis)	Ann Van Camp (KBR, Koninklijke Bibliotheek van België)
Maxime Doyen (BCSS)	Stefano Tarallo (SPF Finances)	~~Eric Laureys~~ (Belspo)	Kris Neyts (NBB)	Tom Bultynck (FOD BOSA)
Eric Danon (Belspo)	Olesya Lee (SPF Finances)	Levi Boey (Buza)	Valerie Vrancken (Rijksarchief)	~~Rudy Staelens~~ (FOD BOSA)
Javier Sawchik (Federal agency for medicines and health products)	Antoine Bouxom (SPF Finances)	Gaetan Muyldermans (Sciensano)	Ann Pannecoucke (Regie der Gebouwen)	Goedele Hubrechts (FOD Economie)
~~Lidwine Do Huu~~ (Fednot)	Sobrie Laurent (SPF Justice)	Roxanne Wyns (KuLeuven)	Nico Smets (Regie der Gebouwen)	Isabelle Arickx (FOD BOSA)
Sébastien Burick (La Régie des Bâtiments)	Régine Kiasuwa Mbengi (Sciensano)	Sharma Subhalakshmi (Sciensano)	Lieven De Tant (Regie der Gebouwen)	Johan Van der Eycken (Rijksarchief)
Alexandre Aude (Musées royaux des Beaux-Arts de Belgique)	Odile Keromnes (Musées royaux des Beaux-Arts de Belgique)	Brecht Devleesshauwer (Sciensano)	Rink W. Kruk (Nationaal Geografisch Instituut)	Patricia Mergen (Agentschap Plantentuin Meise)
Miguel Discart (SPF Economie)	Yolande Lenga (Sciensano)	Wim Bonneux (FOD Financiën)	Mieke Van Mulders (Sciensano)	Lieven Jacobs (FOD Mobiliteit en Vervoer)
~~Christophe Avonture~~ (SPF BOSA)	Veronique Adam (Smals)	Chris De Loof (Belspo)	Kim Van Roey (Sciensano)	Johan Steylaerts (Car-Pass vzw)
Geraldine Boseret (Sciensano)	Joël Frankson (SPF BOSA)	Roel Heijlen (Sciensano)	Niki Van Strydocnk (FOD BOSA)	Hilde Blondeel (FOD Financien)
Isabel Sastre Cantano (Smals)		Yves Lorphelin (BOSA DG-R&O)	Bart De Buck (FOD Economie)	Nacha Van Steen (KMKG)
			Melissa Van Bossuyt (Sciensano)	Zeb Luts (FOD Financien)

5 break out rooms in MS Teams

- Group 1 [FR]: Thierry https://bit.ly/group1iceg
- Group 2 [FR]: Pascal https://bit.ly/group2iceg
- Group 3 [ENG]: Raf
  https://bit.ly/group3iceg
- Group 4 [NL]: Dwight https://bit.ly/group4iceg
- Group 5 [NL]: Liesbet https://bit.ly/group5iceg

1. Define use case

2. List and inventarize relevant concepts

3. Study and look for existing vocabularies and AP’s

4. Map your concepts on the existing vocabularies and AP’s

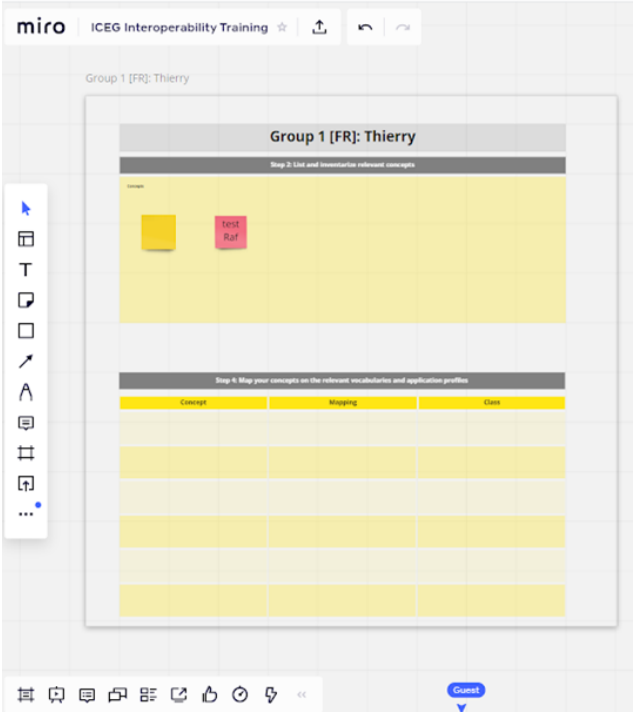
5. Find a solution for unmapped concepts

6. Establish an implementation model

How to connect to Miro?

https://bit.ly/whiteboardiceg

1. Follow the link to the Miro Whiteboard.
2. Explore the board.




10:00

11:00 - 11:45 - Case “Saint Nicholas”

Illustration of the case

5 break-out rooms

1. Define use case

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Step 1: Define use case

Several stakeholders with different requirements:

- Purchase management
- Budget management

- Logistic planning so that all gifts are delivered on time

- Pass on wish list
- Receive a gift

Step 1: Define use case

Use case:

Child receives gift on “pakjesavond” from the Sint and his colleagues

- Child only receives a gift when he/she has been good.
- The address where the gift should be brought should have a chimney.
- The gift should be bought from a supplier.

1. Define use case

2. List and inventarize relevant concepts

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Step 2: List and inventarize relevant concepts

Exercise: List the information-elements needed to implement the use case.

Concept
Location
Concept 2
Concept 3
Concept 4
Concept 5
…

Our use case:

Child receives gift on “pakjesavond” from the Sint and his colleagues

- Child only receives a gift when he/she has been good.
- The address where the gift should be brought should have a chimney.
- The gift should be bought from a supplier.

An example

Use case: I want to build an application where the nearest toilet will be displayed.

Concepts or information-elements needed:

- *Location (of the user, the toilets)*
- ..

Step 2: List and inventarize relevant concepts

Concepts
Sint
Piet
Kind
Gift
Pakjesavond
Address
Supplier
…

Solution

Child receives gift on “pakjesavond” from the “Sint” and his “pieten”

- Child only receives a gift when he/she has been good.
- The address where the gift should be brought should have a chimney.
- The gift should be bought from a supplier and has a certain price.

1. Define use case

2. List and inventarize relevant concepts

3. Study and look for existing vocabularies and AP’s

4. Map your concepts on the existing vocabularies and AP’s

5. Find a solution for unmapped concepts

6. Establish an implementation model

Step 3: Look for existing vocabularies and AP's

- Browse to data.vlaanderen.be/ns, where you can view the existing OSLO vocabularies and application profiles.
- Explore the AP's and see what you find interesting, eg: "Persoon Basis", "Organisatie", "Dienstencataloog", ..
- Click on the classes to jump to the vocabulary.
- Write down the classes (eg. "Adres", "Persoon", "Organisatie") that are relevant and reusable for this case.

Step 3: Look for existing vocabularies and AP's

We can re-use the following existing (OSLO) classes:

- OSLO klasse 1: Persoon
- OSLO klasse 2: Adres
- OSLO klasse 3: Geregistreerde organisatie
- OSLO klasse 4: Publieke dienstverlening

1. Define use case

2. List and inventarize relevant concepts

3. Study and look for existing vocabularies and AP’s

4. Map your concepts on the existing vocabularies and AP’s

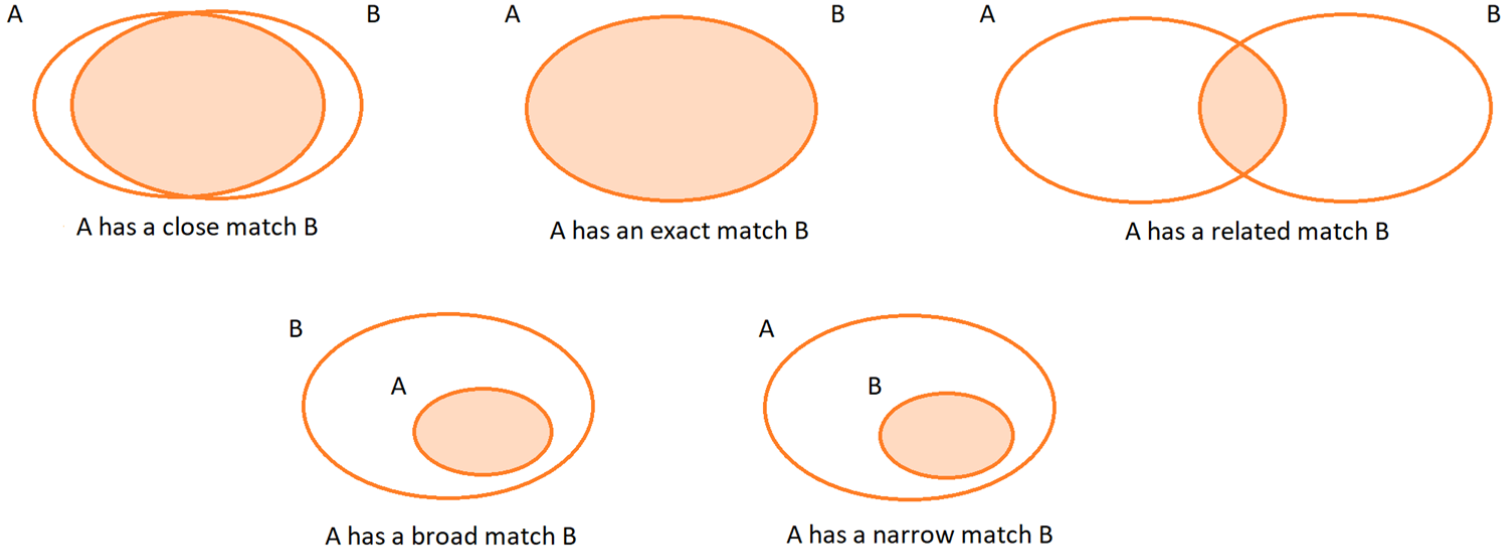
5. Find a solution for unmapped concepts

6. Establish an implementation model

Step 4: Map your concepts on existing vocabularies and AP's

- Put the necessary concepts (identified in step 2) next to the existing (OSLO) classes (step 3) to identify the differences and similarities.
- Provide a mapping value (SKOS) to the overlap (see next slide):
  - Exact match
  - Related match
  - Broad match
  - Narrow match
  - No match

Step 4: SKOS mapping



source and more information via: https://bit.ly/userhandbookisa (p.22-23)

Step 4: Map on existing voc's and AP's

Exercise: Make a mapping with our concepts (see step 2) and relevant classes from existing vocabularies and application profiles.

Concept	Mapping	Class
Sint		
Piet		
Kind		
Cadeau		
Pakjesavond		
Adres		
Leverancier		
…		

Step 4: Map on existing voc's and AP's

Exercise: Make a mapping with our concepts (see step 2) and relevant classes from existing vocabularies and application profiles.

Concept	Mapping	Class
Sint	Exact match	OSLO-Persoon::Persoon
Piet	Exact match	OSLO-Persoon::Persoon
Kind	Exact match	OSLO-Persoon::Persoon
Cadeau	??	??
Pakjesavond	Exact match	OSLO-PubliekeDienstverlening::Dienst
Adres	Narrow match	OSLO-Adres::Adres
Leverancier	Exact match	OSLO-Organisatie::GeregistreerdeOrganisatie
...	..	

1. Define use case

2. List and inventarize relevant concepts

3. Study and look for existing vocabularies and AP’s

4. Map your concepts on the existing vocabularies and AP’s

5. Find a solution for unmapped concepts

6. Establish an implementation model

Step 5: Find a solution for unmapped concepts

- Look at international standards and vocabularies.
  tip: https://lov.linkeddata.es/
  - DC terms
  - schema.org
  - dbpedia.org
- Legislation and other official documents at Flemish, Belgian and European level.
- Models that are already in use by other public administrations in Flanders, Belgium or Europe. An example is the INSPIRE data models.

Step 5: Some guidelines

- Check whether there are already international data standards that define the necessary.
- Only in last instance define something completely yourself.
- For these new entities:
  - Check whether these are also relevant in a different context, for other parties, in the context of information exchange and whether an alignment process should be started around this.
- For things that don’t seem to match completely:
  - See if your information model cannot be adjusted.
  - If not: OSLO and other data standards can be changed. Feel free to send a comment!
  - If alignment is not possible in one of these 2 ways, please rename it.

Step 5: Find a solution for unmapped concepts

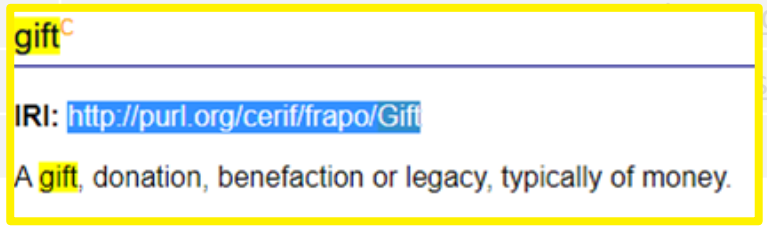
Exercise: Find a solution for unmapped concepts by looking at international standards.

Concept	Mapping	Class
Sint	Exact match	OSLO-Persoon::Persoon
Piet	Exact match	OSLO-Persoon::Persoon
Kind	Exact match	OSLO-Persoon::Persoon
Cadeau		
Pakjesavond	Exact match	OSLO-PubliekeDienstverlening::Dienst
Adres	Narrow match	OSLO-Adres::Adres
Leverancier	Exact match	OSLO-Organisatie::GeregistreerdeOrganisatie
...		

Step 5: Find a solution for unmapped concepts

Exercise: Find a solution for unmapped concepts by looking at international standards.

Concept	Mapping	Class
Sint	Exact match	OSLO-Persoon::Persoon
Piet	Exact match	OSLO-Persoon::Persoon
Kind	Exact match	OSLO-Persoon::Persoon
Cadeau	**Related match**	**http://purl.org/cerif/frapo/Gift**
Pakjesavond	Exact match	OSLO-PubliekeDienstverlening::Dienst
Adres	Narrow match	dres
Leverancier	Exact match	atie
...		



solution

1. Define use case

2. List and inventarize relevant concepts

3. Study and look for existing vocabularies and AP’s

4. Map your concepts on the existing vocabularies and AP’s

5. Find a solution for unmapped concepts

6. Establish an implementation model

Step 6: Establish an implementation model

A few guidelines for establishing an implementation model:

- Start from the **entities** we have listed.
  - An entity= concepts/information elements that make up the information model
- Add **attributes** to the model
  - An attribute= a property of a particular entity
- Add **relationships** to the model:
  - A relationship= the relationships between the entities
- Add **cardinalities** to the model.
  - Showing how many times a relationship can occur (see example next slide)
- (Make definitions more concrete).

Step 6: Establish an implementation model

Cardinalities explained with an example:

<Wishbone chair>

has serial number → 78034

1 **1**

has designer →

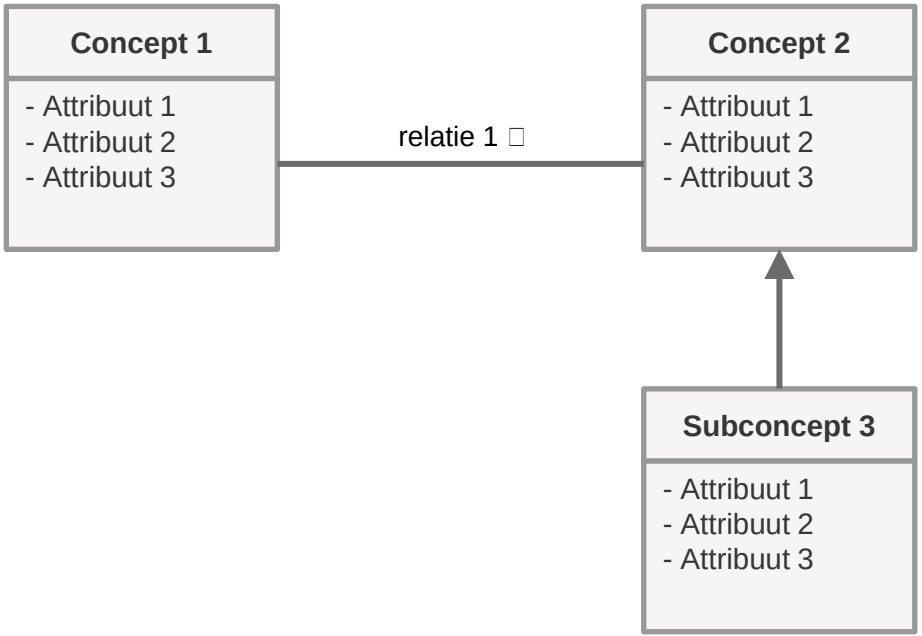
0..* **1**

is made of → <oak> <papercord>

0..* **0..***

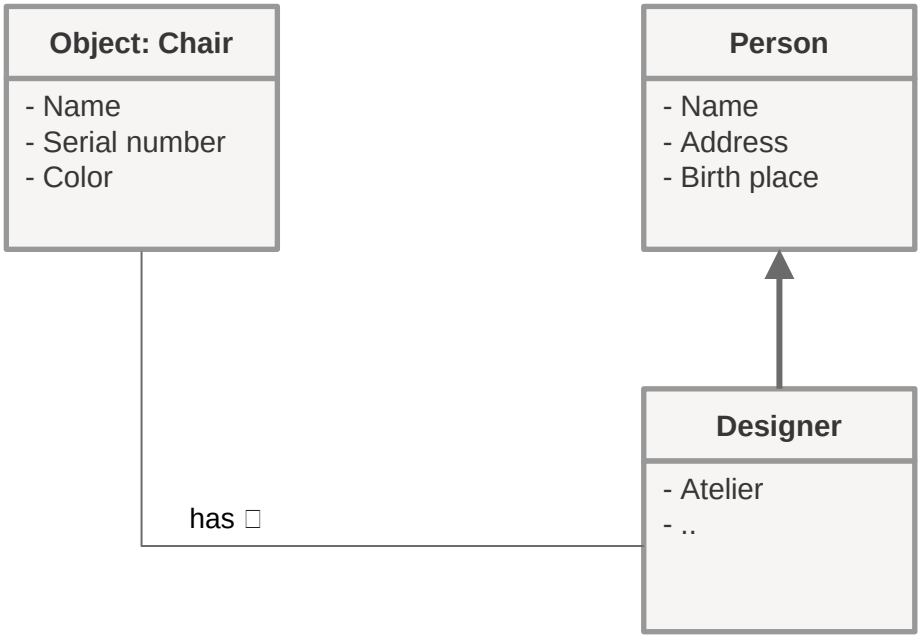
<Hans J. Wegner>

Step 6: Establish an implementation model

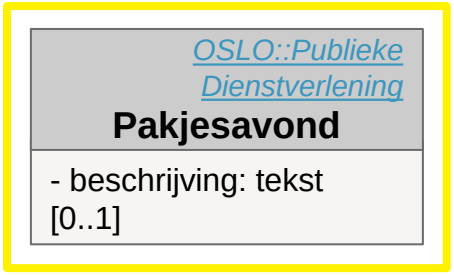


Step 6: Establish an implementation model

An example:

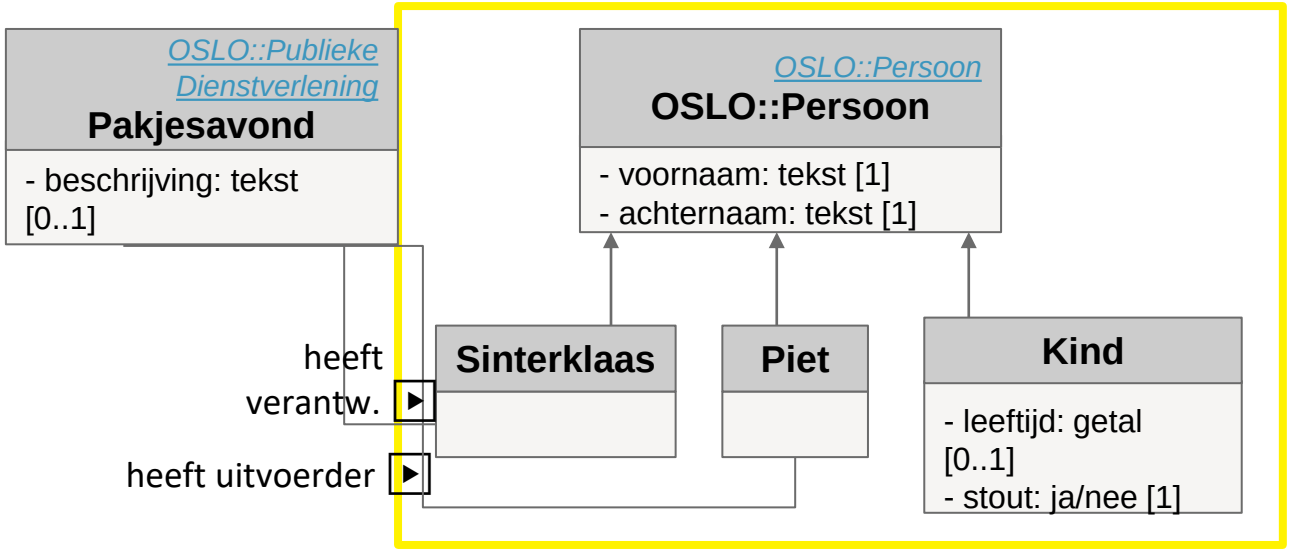


Step 6: Establish an implementation model



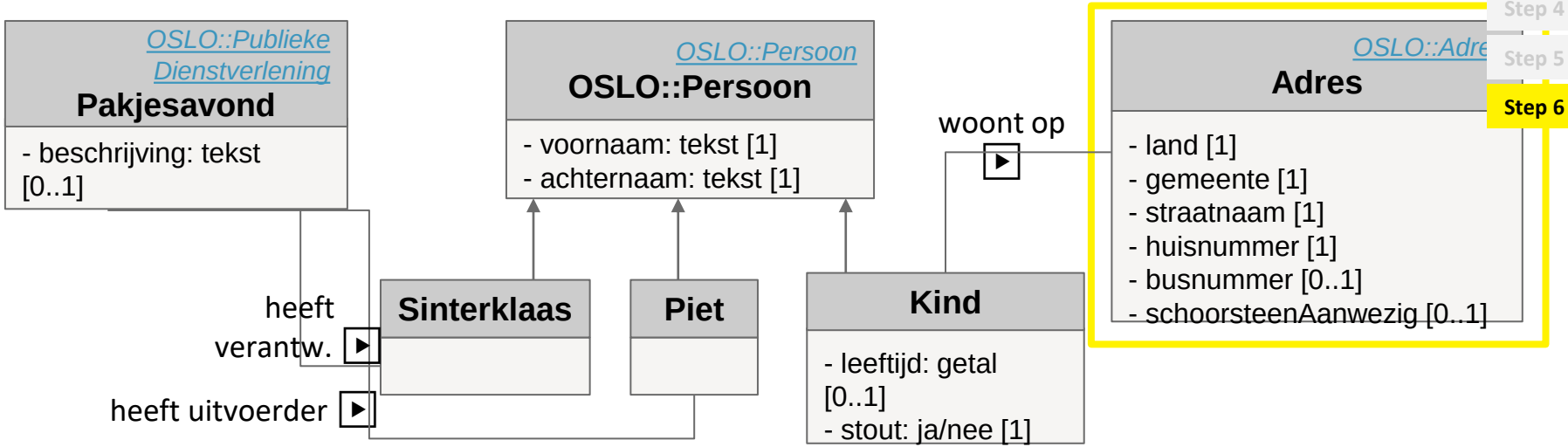
solution

Step 6: Establish an implementation model



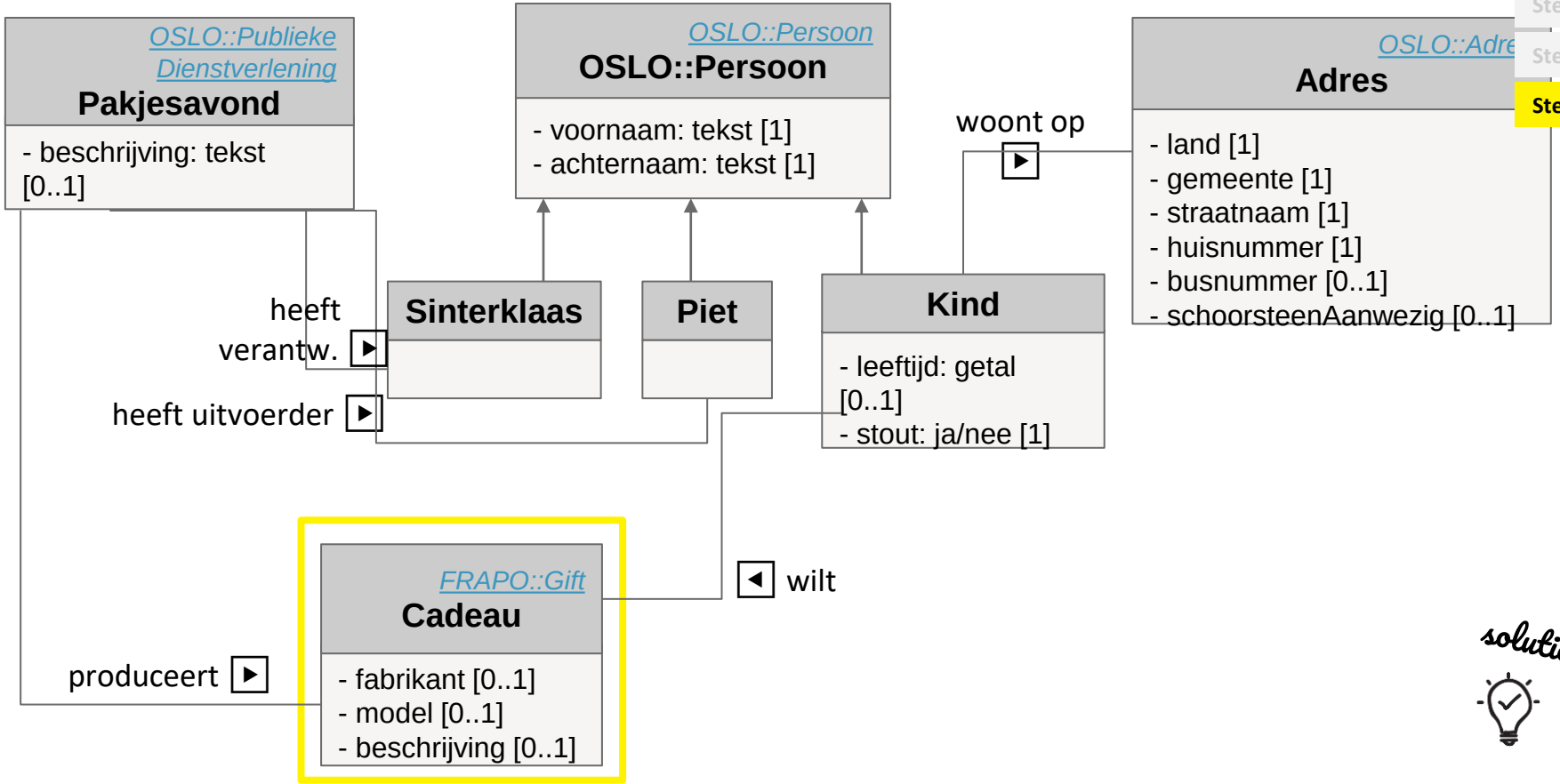
solution

Step 6: Establish an implementation model



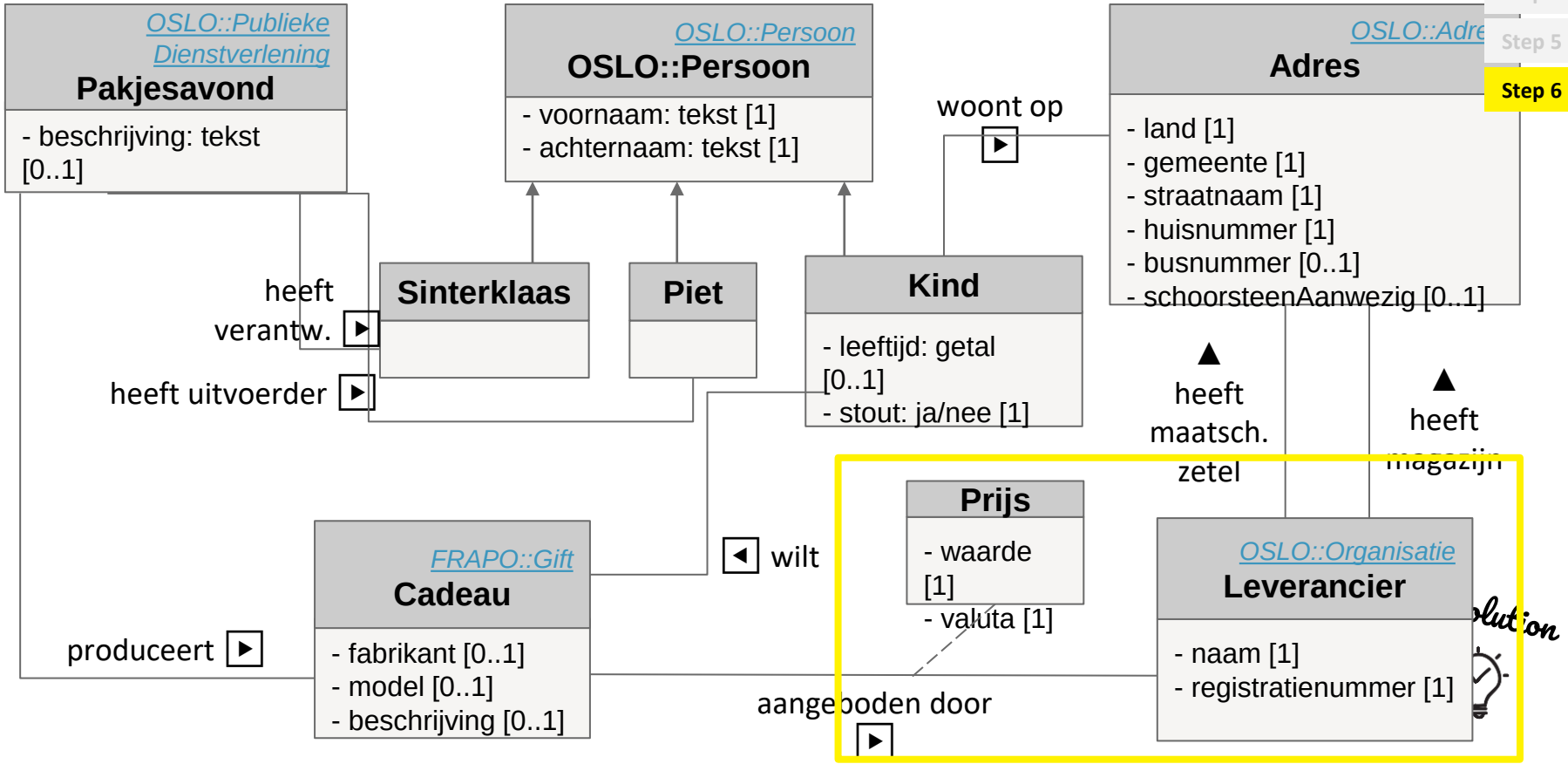
solution

Step 6: Establish an implementation model

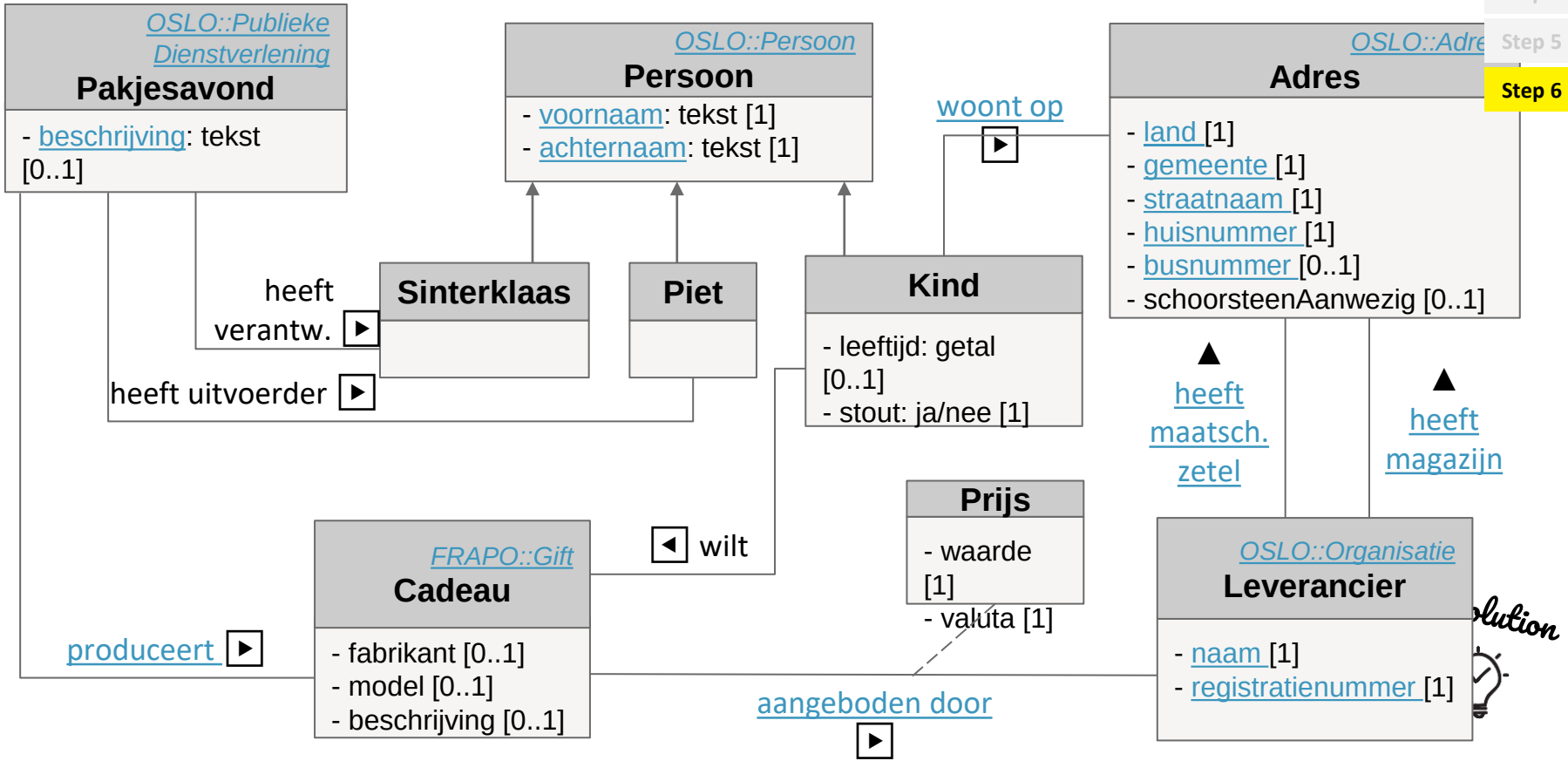


solution

Step 6: Establish an implementation model



Step 6: Establish an implementation model



Back to the plenary meeting

https://bit.ly/plenaryiceg

11:45 - 12:00 - Wrap-up

- Future trainings for C-level and for developers
- Other upcoming initiatives
- Feedback - Did we meet the expectations? Please give feedback in the chat.

FÉDÉRATION WALLONIE-BRUXELLES

BOSA DG Digitale Transformatie FOD Beleid en Ondersteuning
DG Transformation digitale SPF Stratégie et Appui

INFORMATIE VLAANDEREN

Thank you!