



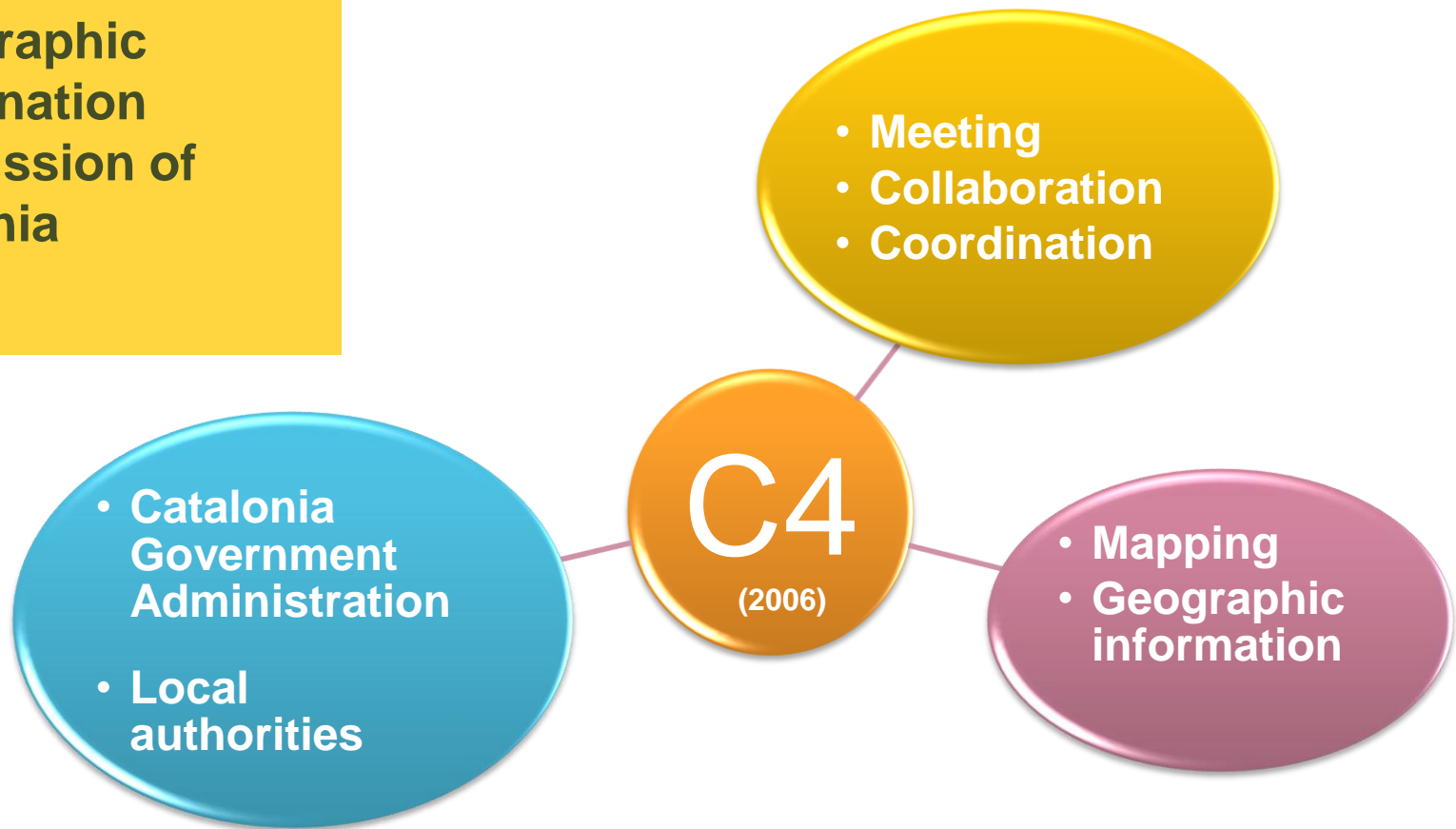
# Agenda

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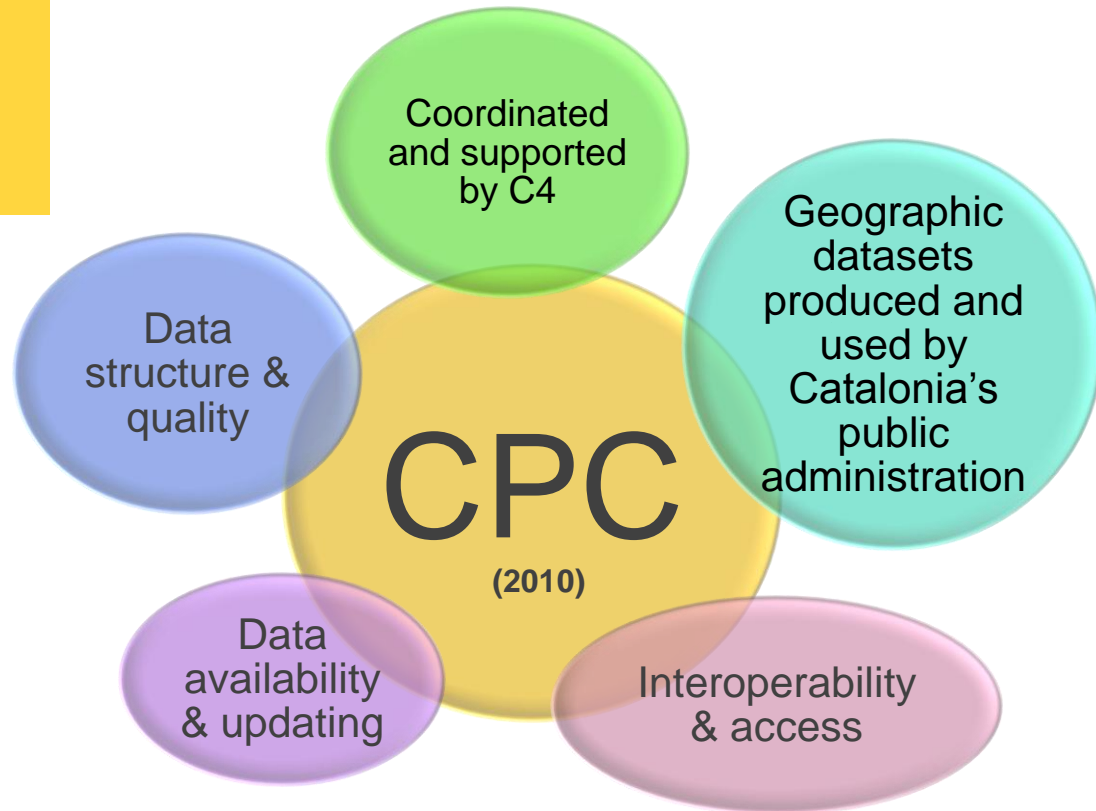
- Introduction
- Municipal Database of Addresses of Catalonia data specification
- Transformation to INSPIRE Addresses data specification
- Conclusions

# Introduction

## Cartographic Coordination Commission of Catalonia (C4)



## Cartographic Plan of Catalonia (CPC)



## C4

- One of C4 responsibilities is establishing rules and standards to be applied in the elaboration of CPC Datasets.
- C4 operates through thematic commissions and working groups.
- Working groups define and write CPC dataset specifications, if they don't exist.

**BDMAC**

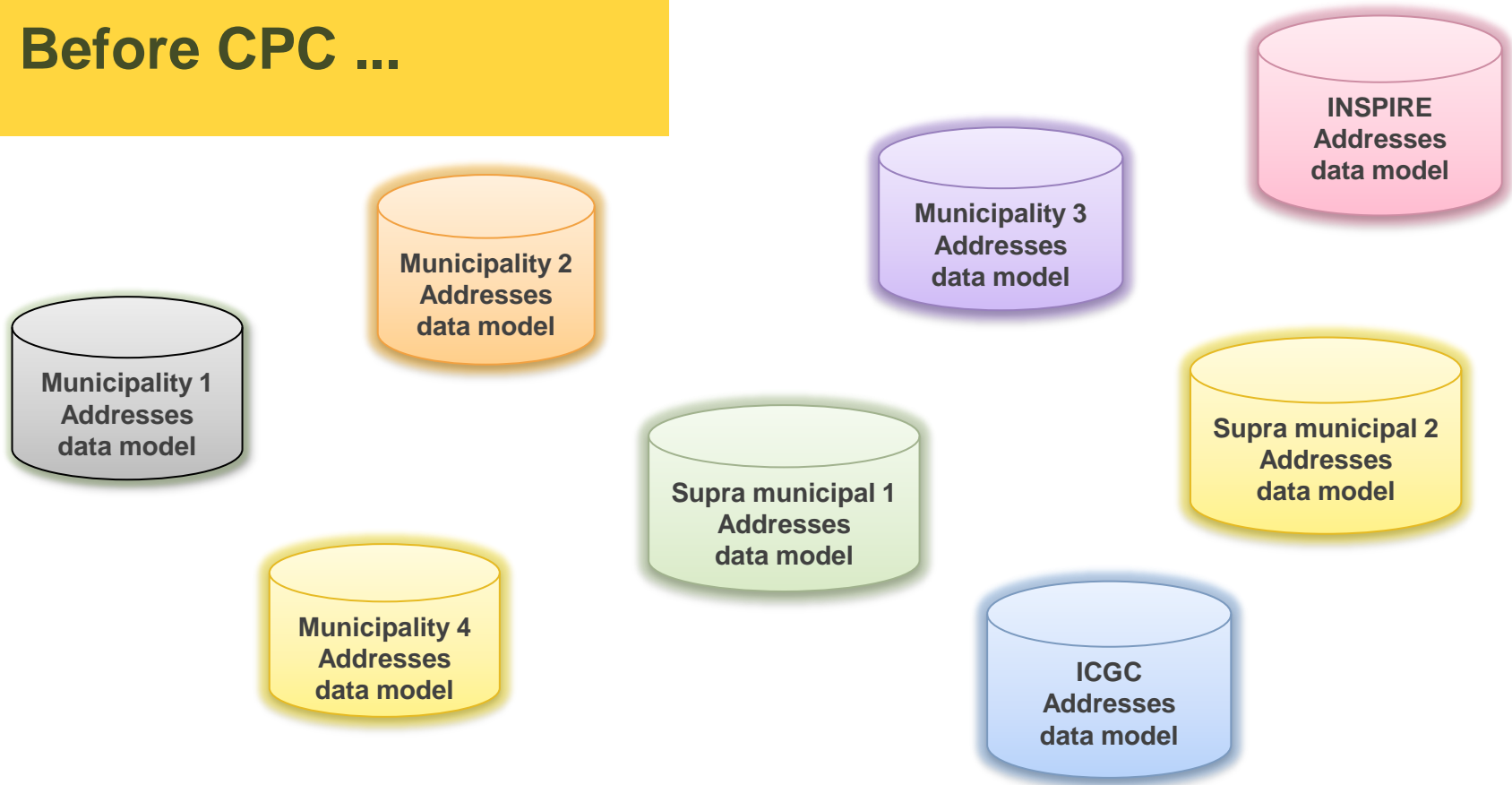
Municipal Database  
of Addresses of  
Catalonia



# Address information

- Address information is one of the datasets included in the CPC.
- According to CPC, its compilation and maintenance is responsibility of the municipalities.

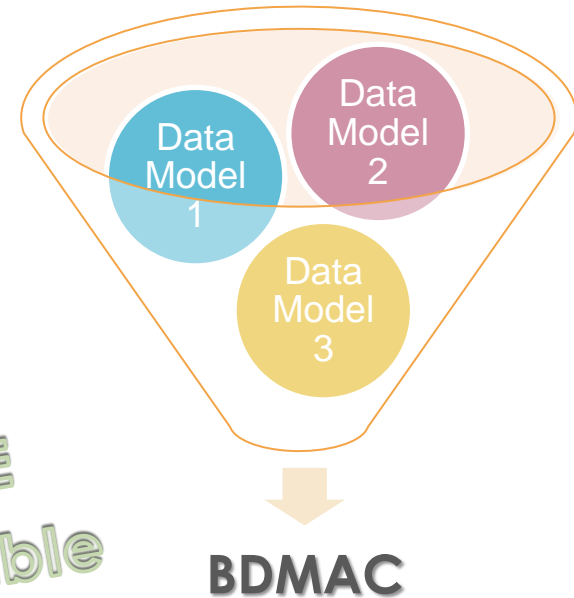
## Before CPC ...



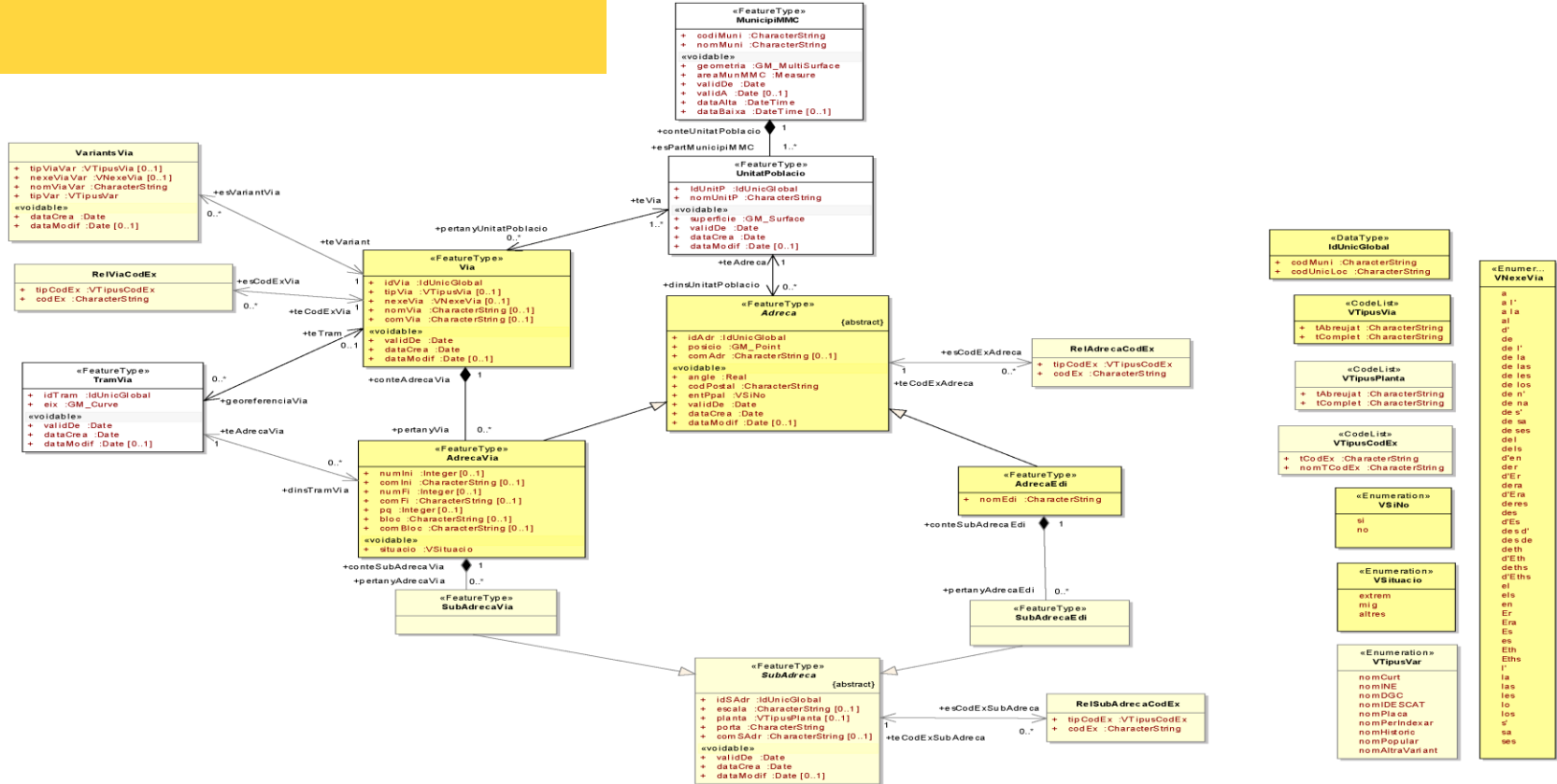
## With CPC...

- 2013: definition of a common specification in the C4 framework.
- Participation of the stakeholders:
  - Local administration (municipalities, supramunicipal organizations )
  - Catalonia Government Administration (ICGC, IDESCAT)
- **BDMAC: Municipal Database of Addresses of Catalonia**

INSPIRE  
Compatible



# BDMAC Data Model



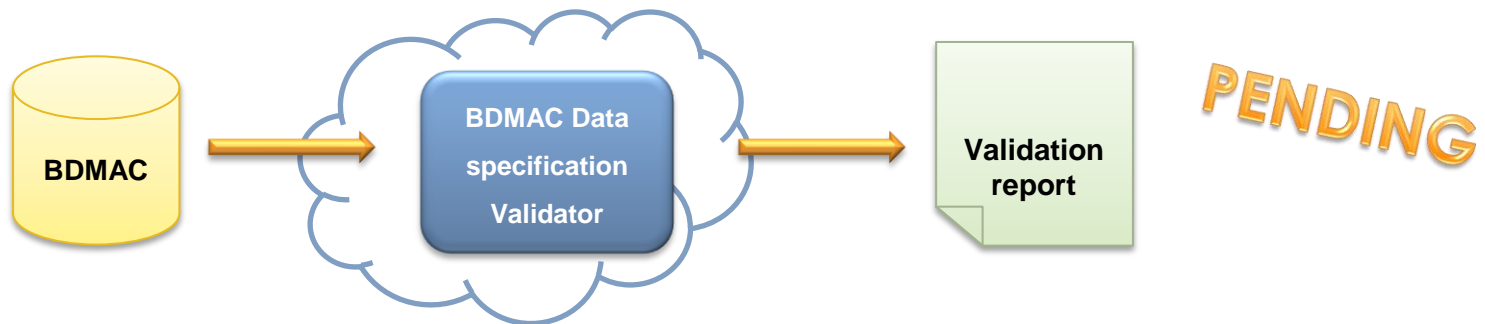
# BDMAC data specifications

- Provide:
  - Unified criteria for data collection.
  - Minimum agreed quality level.
  - A starting point for new address data bases implementation in the municipalities.
  - A common data model for data exchange and integration.
- Define several options for data exchange:
  - GML
  - Shapefile



## Current situation

- Municipalities, supramunicipal bodies and ICGC are starting to apply BDMAC specification for generating the official datasets.
- Within C4 activities, a web service to validate the compliance of the datasets with the specification will be put in place.



# Transformation services

BDMAC to  
INSPIRE  
Addresses

# Goal

- Institutional coordination and collaboration beyond data:
  - In addition to sharing data
    - ✓ exchanging
    - ✓ publishing
  - Sharing processes to support data generation and dissemination
    - ✓ validation and quality control web services
    - ✓ transformation web services



# Transformation service

- BDMAC datasets hold information included in INSPIRE Addresses datasets.
- BDMAC data model is compatible with INSPIRE Addresses data model
- Within C4 activities, a web transformation service from BDMAC to INSPIRE Addresses is being put in place.



# BDMAC to INSPIRE

## Matching table

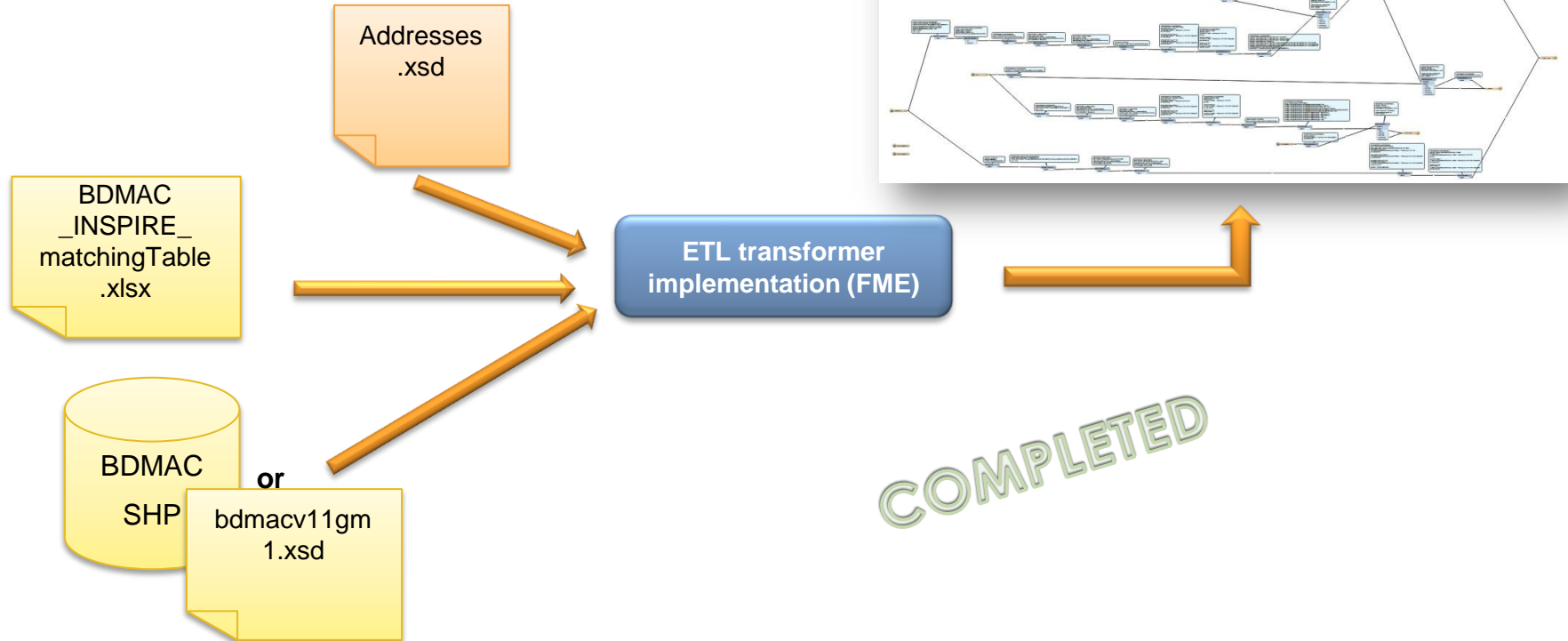
### Target data model: INSPIRE Addresses

INSPIRE model							
Feature Type	Element	ComplexType	Attribut Lien Constraint	Type		Voidable	
Address [via]	inspireId	Identifier	localId namespace versionId	CharacterString CharacterString CharacterString			
	gml_id					yes	
	position	GeographicPosition [1..*]	geometry default specification method	GM_Point Boolean GeometrySpecificationValue GeometryMethodValue		yes yes	
	locator	AddressLocator [1..*]{ordered}	designator	LocatorDesignator [0..*]{ordered}	designator [0] type [0] designator [1] CharacterString LocatorDesignatorTypeValue type [1] designator [2] CharacterString LocatorDesignatorTypeValue type [2] designator [3] CharacterString LocatorDesignatorTypeValue type [3] designator [4] CharacterString LocatorDesignatorTypeValue type [4]		
				name	LocatorName [0..*]{ordered}	name [0] type [0] name [1] GeographicalName [1..*] type [1] name [2] GeographicalName [1..*] type [2]	
				level	LocatorLevelValue		
	alternativeIdentifier status	CharacterString [0..1] StatusValue [0..1]					yes yes
	validFrom	DateTime					yes
	validTo	DateTime [0..1]					yes
	beginLifespanVersion	DateTime					yes
	endLifespanVersion	DateTime [0..1]					yes
	component	relationships [1..*]			UnitatPoblacio MunicipIMMC falta falta		
	Address [edi]	inspireId	Identifier	localId namespace versionId	CharacterString CharacterString CharacterString		
		gml_id					yes
position		GeographicPosition [1..*]	geometry	GM_Point			

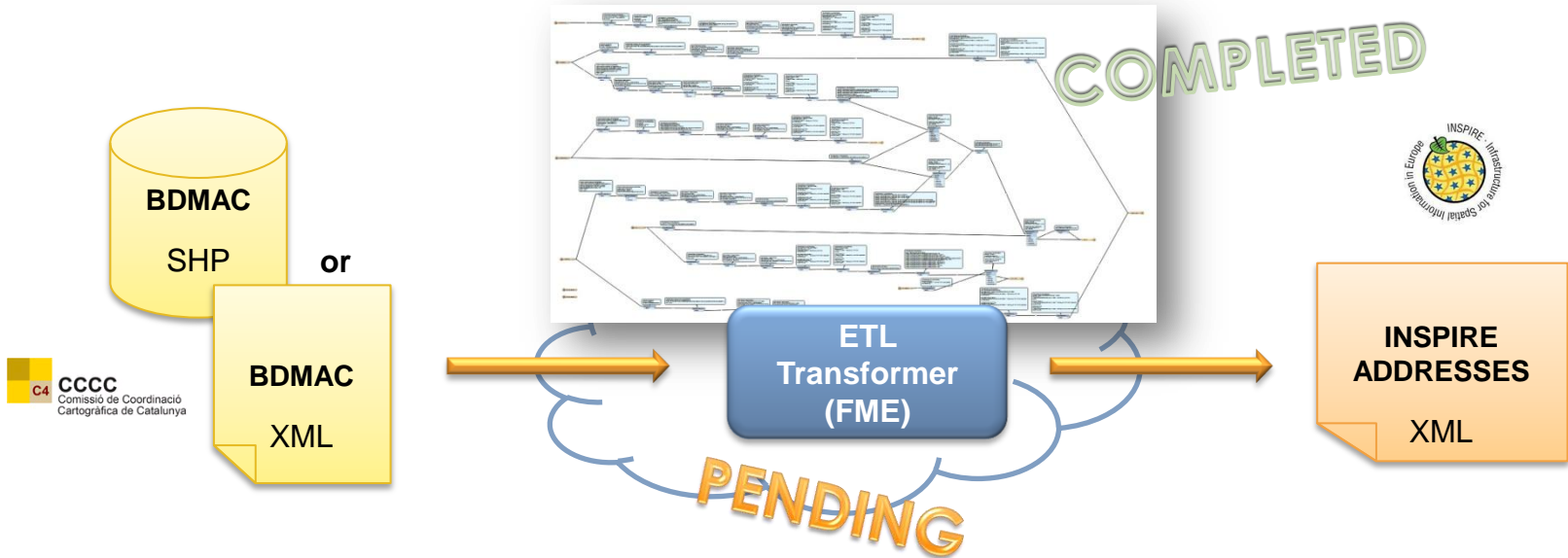
### Source data model: BDMAC

BDMAC (Source Model)				
Table name	Attribut	Type	Voidable	Observations
AdrecaVia	"ES_ICGC.BDMAC.AD"			fixed value
	"AdrecaVia".CODADRVIA			
	"inspireId.Identifier.localId"			
	POSICIO		GM_Point	
	"true"			fixed value
	"unpopulated"		codeValue	fixed value
	"unpopulated"		codeValue	fixed value
	NUMINI		integer [0..1]	
	"addressNumber"		codeValue	fixed value
	COMINI		CharacterString [0..1]	
	"addressNumberExtension"		codeValue	fixed value
	NUMFI		integer [0..1]	
	"addressNumber"		codeValue	fixed value
	COMFI		CharacterString [0..1]	
	"addressNumberExtension"		codeValue	fixed value
	PQ		integer [0..1]	
	"kilometrePoint"		codeValue	fixed value
BLOC				
{'buildingName','siteName'}		codeValue	conditional value	
COMBLOC				
{'void','buildingName'}		codeValue	conditional value	
COMADR				
"siteName"		codeValue	fixed value	
"accessLevel"		codeValue	fixed value	
"RelAdrecaCodEx".TIPCODEX			fixed value	
"current"		codeValue	fixed value	
VALIDDE				
DATAMODIF				
_dinsUnitatPoblacio	#AddressAreaName.@Value(CODUNITP)			
_esPartMunicipiIMMC	#AdminUnitName.@Value(CODMUNI)			
_teCodiPostal	#PostalDescriptor.@Value(CODPOSTAL)			
_partanyVia	#ThoroughfareName.@Value(CODVIA)			
AdrecaEdi	"ES_ICGC.BDMAC.AD"			fixed value
	"AdrecaEdi".CODADREDI			
	"inspireId.Identifier.localId"			
POSICIO		GM_Point		

# BDMAC to INSPIRE Transformer



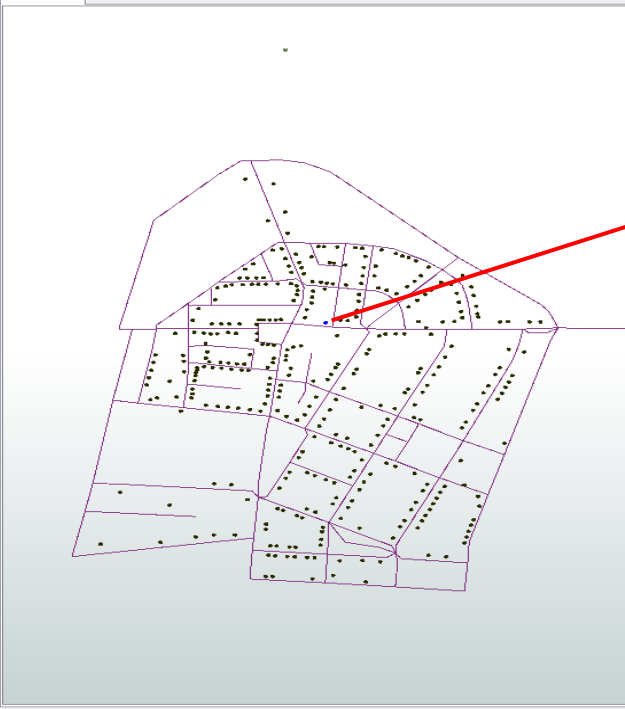
# BDMAC to INSPIRE transformation



# BDMAC Source data

Display Control View 1 (986)

- bdmacv10gm0\_260124\_2014...
- AdrecaEdi (3)
- AdrecaVia (572)
- Municipi (1)
- RelAdrecaCodEx (8)
- RelSubAdrecaCodEx (25)
- RelViaCodEx (46)
- SubAdrecaEdi (3)
- SubAdrecaVia (19)
- TramVia (227)
- UnitatPoblacio (6)
- VariantsVia (12)
- Via (64)



Feature Information

Features Selected: 1 of 1

Property	Value
Feature Type	AdrecaVia
Coordinate System	<a href="#">EPSG:25831</a>
Dimension	2D
Number of Vertices	1
Min Extents	282674.3322, 4614480.8528000005
Max Extents	282674.3322, 4614480.8528000005
<b>Attributes (27)</b>	
angle (encoded: utf-16)	0
bloc (encoded: utf-16)	
codPostal (encoded: utf-16)	25112
comAdr (encoded: utf-16)	
comBloc (encoded: utf-16)	
comFi (encoded: utf-16)	
comIni (encoded: utf-16)	
dataCrea (encoded: utf-16)	
dataModif (encoded: utf-16)	20131128
dinsTramVia.owns (encoded: utf-16)	false
dinsTramVia.xlink_href (encoded: utf-16)	#TramVia.287220
dinsUnitatPoblacio.owns (encoded: utf-16)	false
dinsUnitatPoblacio.xlink_href (encoded: utf-16)	#UnitatPoblacio.0001701
entPpal (encoded: utf-16)	
fme_geometry (string)	fme_point
fme_type (string)	fme_point
gml_id (encoded: utf-16)	AdrecaVia.av1894140
gml_original_coordinate_system (encoded: utf-16)	EPSG:25831
idAdrIdUnicGlobal.codMuni (encoded: utf-16)	259123
idAdrIdUnicGlobal.codUnicLoc (encoded: utf-16)	av1894140
numFi (encoded: utf-16)	0
numIni (encoded: utf-16)	5
pertanyVia.owns (encoded: utf-16)	false
pertanyVia.xlink_href (encoded: utf-16)	#Via.25912300051
situacio (encoded: utf-16)	
validDe (encoded: utf-16)	
xml_type (string)	xml_point
<b>IFMEPoint</b>	282674.3322, 4614480.8528000005
Name (encoded: utf-16)	posicio
<b>Geometry Traits (1)</b>	
gml_id (encoded: utf-16)	AdrecaVia.av1894140-0

Multiple Coordinate Systems | X: 282971.1661 Y: 4613888.1043

# INSPIRE Addresses transformed data

The screenshot displays a GIS interface with three main components:

- Display Control (Left):** Shows a tree view for 'View 1 (648)' containing 'Rialp\_INSPIRE [INSPIRE] (648)'. Underneath, several layers are listed with checkboxes: 'Address (575)', 'AddressAreaName (6)', 'AdminUnitName (1)', 'PostalDescriptor (2)', and 'ThoroughfareName (64)'. All are checked.
- Map (Center):** Displays a map with numerous small black dots representing transformed address data. A red arrow points from a specific dot on the map to the corresponding entry in the Feature Information table.
- Feature Information (Right):** A table showing the metadata and attributes for the selected feature. The 'Property' column lists various technical details, and the 'Value' column shows the corresponding data. A red arrow points from the 'IFMEPoint' entry in the table back to the map.

Property	Value
Feature Type	Address
Coordinate System	<a href="#">EPSG:3043</a>
Dimension	2D
Number of Vertices	1
Min Extents	4614354.1600000001, 282851.29999999999
Max Extents	4614354.1600000001, 282851.29999999999
<b>Attributes (32)</b>	
beginLifespanVersion (encoded: utf-16)	2013-11-28T00:00:00
component(0).owns (encoded: utf-16)	false
component(0).xlink_href (encoded: utf-16)	#AddressAreaName.2591230001701
component(1).owns (encoded: utf-16)	false
component(1).xlink_href (encoded: utf-16)	#AdminUnitName.259123
component(2).owns (encoded: utf-16)	false
component(2).xlink_href (encoded: utf-16)	#PostalDescriptor.25912325112
component(3).owns (encoded: utf-16)	false
component(3).xlink_href (encoded: utf-16)	#ThoroughfareName.2591232500001
endLifespanVersion (encoded: utf-16)	<null>
endLifespanVersion.nilReason (encoded: utf-16)	Unknown
endLifespanVersion.xsi_nil (encoded: utf-16)	true
fme_geometry (string)	fme_point
fme_type (string)	fme_point
gml_id (encoded: utf-16)	259123av1893802
gml_original_coordinate_system (encoded: utf-16)	urn:ogc:def:crs:EPSG::3043
inspireId.Identifier.localId (encoded: utf-16)	259123av1893802
inspireId.Identifier.namespace (encoded: utf-16)	ES:ICGC.BDMAC.AD
locator(0).AddressLocator.designator(0).LocatorDesignator.desig...	12
locator(0).AddressLocator.designator(0).LocatorDesignator.type (...)	addressNumber
locator(0).AddressLocator.level (encoded: utf-16)	accessLevel
position(0).GeographicPosition.default (encoded: utf-16)	true
position(0).GeographicPosition.method (encoded: utf-16)	byOtherParty
position(0).GeographicPosition.specification (encoded: utf-16)	entrance
status (encoded: utf-16)	current
validFrom (encoded: utf-16)	<null>
validFrom.nilReason (encoded: utf-16)	Unpopulated
validFrom.xsi_nil (encoded: utf-16)	true
validTo (encoded: utf-16)	<null>
validTo.nilReason (encoded: utf-16)	Unpopulated
validTo.xsi_nil (encoded: utf-16)	true
xml_type (string)	xml_point
<b>IFMEPoint</b>	4614354.1600000001, 282851.29999999999
Name (encoded: utf-16)	position(0).GeographicPosition.geometry
Geometry Traits (1)	
gml_id (encoded: utf-16)	259123av1893802-0

# CONCLUSIONS

- The definition of a common specification with the participation of the data providers that specify:
  - criteria for data collection
  - a minimum agreed quality level

ensures greater homogeneity of the data, facilitating its integration and exploitation as a whole.

- Allows the development of validation and transformation web services to be used by the community of users, with the consequent saving of resources.



Thanks for your attention

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