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**Construire une conceptualisation commune  
pour les données de la recherche  
en sciences humaines et sociales:**

**OntoME et le projet SDHSS**

—  
**ontome.net**

**ReUSE - réseau SHN  
Journée d'études**

**Nantes, 19 octobre 2021**

# LE LARHRA DANS LES HUMANITÉS NUMÉRIQUES

LIRE PLUS

## LE LABORATOIRE

Le Laboratoire de Recherche Historique Rhône-Alpes est spécialisé en histoire moderne et contemporaine. [Lire la suite](#)

## L'AGENDA DU MOIS

Toutes les manifestations à venir : colloques, séminaires, ateliers, journées d'étude, soutenances de thèses, etc... [Voir l'agenda](#)

## SEMINAIRES 2020-2021

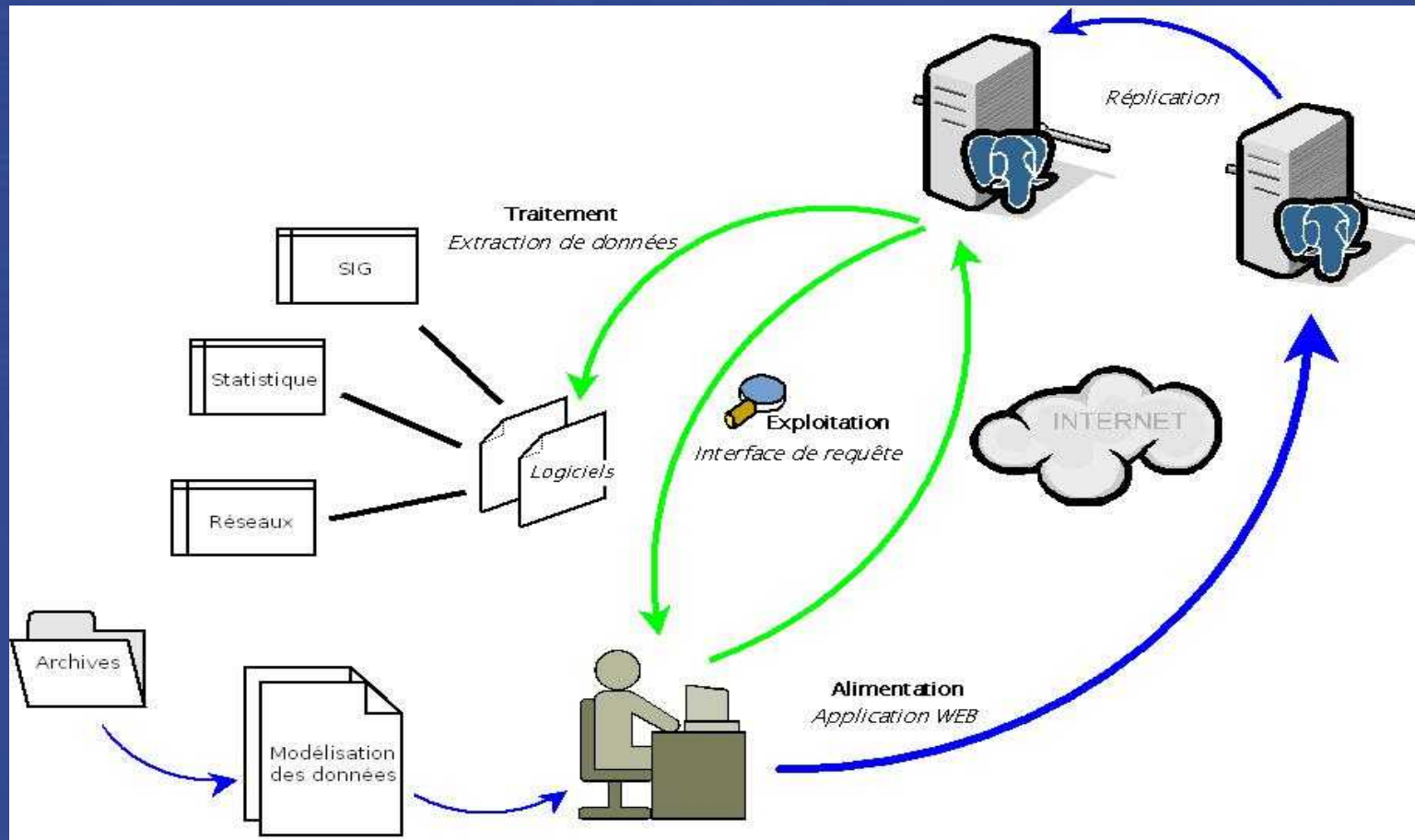
Les équipes du LARHRA organisent régulièrement des séminaires sur des sujets d'études très variés. [Lire la suite](#)

1.

La préhistoire :

le projet *symogih.org*

# The *symogih.org* virtual research environment



The « Système modulaire de gestion de l'information historique », *symogih.org* project was started in 2008.

About 50 scholars and students, and 15 national and international research projects used or are currently using the collaborative database to store and share historical information

# symogih.org project website : documentation of the common model and published (open) data



The screenshot shows the SYMOGIH website with a yellow header. The main navigation bar contains three tabs: 'Accueil', 'Documentation', and 'Membres'. On the left side, there are three vertical menu sections: 'Références' with links to 'Arborescence des classes de types d'unités de connaissances', 'Types d'informations', and 'Types de contenus'; 'Objets' with links to 'Acteurs', 'Acteurs collectifs', 'Objets abstraits', and 'Caractères sociaux'; and 'Sites propulsés par SyMoGIH' with a link to 'GEO-LARHRA'. The main content area features a title 'Système Modulaire de Gestion de l'Information Historique (SyMoGIH)', a sub-section 'Le projet', and two paragraphs of text. The first paragraph describes the project's goal of developing a generic model for historical data storage and selective publication, leading to a collaborative platform. The second paragraph details the platform's capabilities in storing primary data (social, economic, intellectual) in XML format, associated with spatial information, and mentions the role of a Geographic Information System (SIG). Below the text is a list of features, including progressive and evolutionary modeling of historical information. At the bottom, a large white box contains the website URL.

**SYMOGIH**  
Références

Accueil Documentation Membres

Références

- Arborescence des classes de types d'unités de connaissances
- Types d'informations
- Types de contenus

Objets

- Acteurs
- Acteurs collectifs
- Objets abstraits
- Caractères sociaux

Sites propulsés par SyMoGIH

- GEO-LARHRA

## Système Modulaire de Gestion de l'Information Historique (SyMoGIH)

### Le projet

Le projet SyMoGIH a développé un modèle générique de stockage des données historiques permettant leur interopérabilité et leur publication sélective. A partir de ce modèle, une **plateforme collaborative** pour la recherche en histoire a été mise en place, utilisée par plusieurs chercheurs et projets.

Cette plateforme permet le stockage de données primaires concernant toute activité humaine (sociale, économique, intellectuelle, ...), de textes codés en XML (traités selon le standard proposé par la **Texte Encoding Initiative**), d'images et de leur métadonnées, tout en permettant d'associer à ces différents objets leur 'empreinte spatiale'. La réalisation d'un **système d'information géographique** (SIG) joue un rôle essentiel dans le projet.

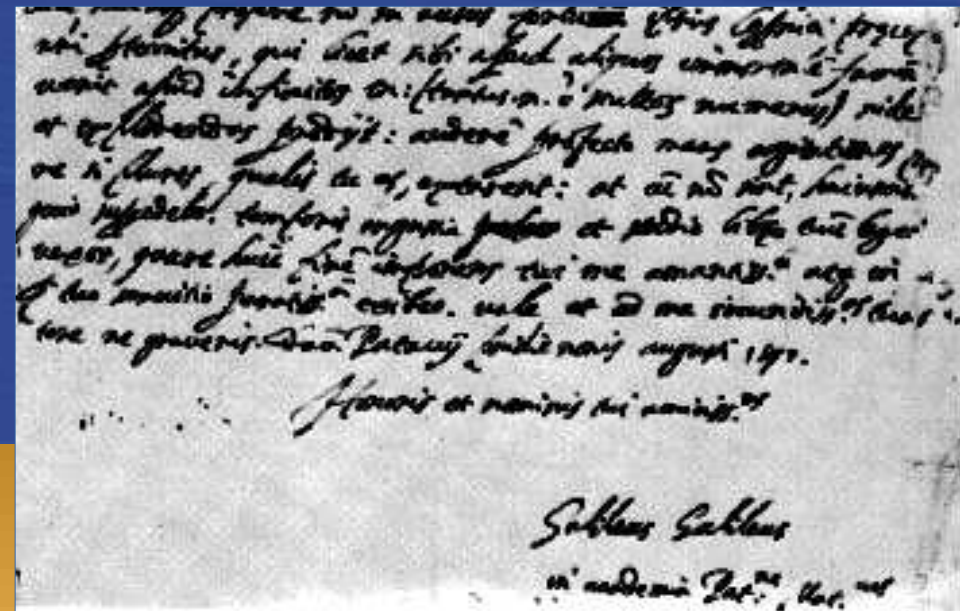
La plateforme permet :

- la modélisation progressive et évolutive de l'information historique grâce à un dictionnaire de **types d'unités de connaissance** ;

<http://symogih.org>

# Galileo Galilei, Letter to Johannes Kepler, Padua, 4. August 1597

(Image source: Wikimedia Commons, Public Domain)



## SYMOGIIH.ORG

Références

Accueil   Actualités   Documentation   Membres

[info\_label]

### Références

- Arborescence des classes de types d'unités de connaissances
- Types d'informations
- Types de contenus

### Objets

- Acteurs
- Acteurs collectifs
- Lieux
- Objets abstraits
- Caractères sociaux
- Formes concrètes

## Galilei, Galileo - Lettre adressée à Kepler, Johannes

Info3366

Type d'information: [Lettre - TyIn1](#)

Date: 1597-08-04

### Composantes de l'information

Rôles   Textes   Sources

Libellé de l'objet	Type de rôle	Clé du rôle
<a href="#">Galilei, Galileo</a>	auteur (être I')	<a href="#">InRo8646</a>
Lettre à Giovanni Kepler, 04/08/1597	création (être une)	<a href="#">InRo8647</a>
<a href="#">Kepler, Johannes</a>	destination (être la)	<a href="#">InRo9279</a>
<a href="#">Padova</a>	localiser	<a href="#">InRo55897</a>
<a href="#">Graz</a>	destination (être la)	<a href="#">InRo55898</a>

2.

Les principes FAIR en action :

rendre interopérables et réutilisables  
les données de la recherche  
en sciences humaines et sociales

Findable

Accessible

Interoperable

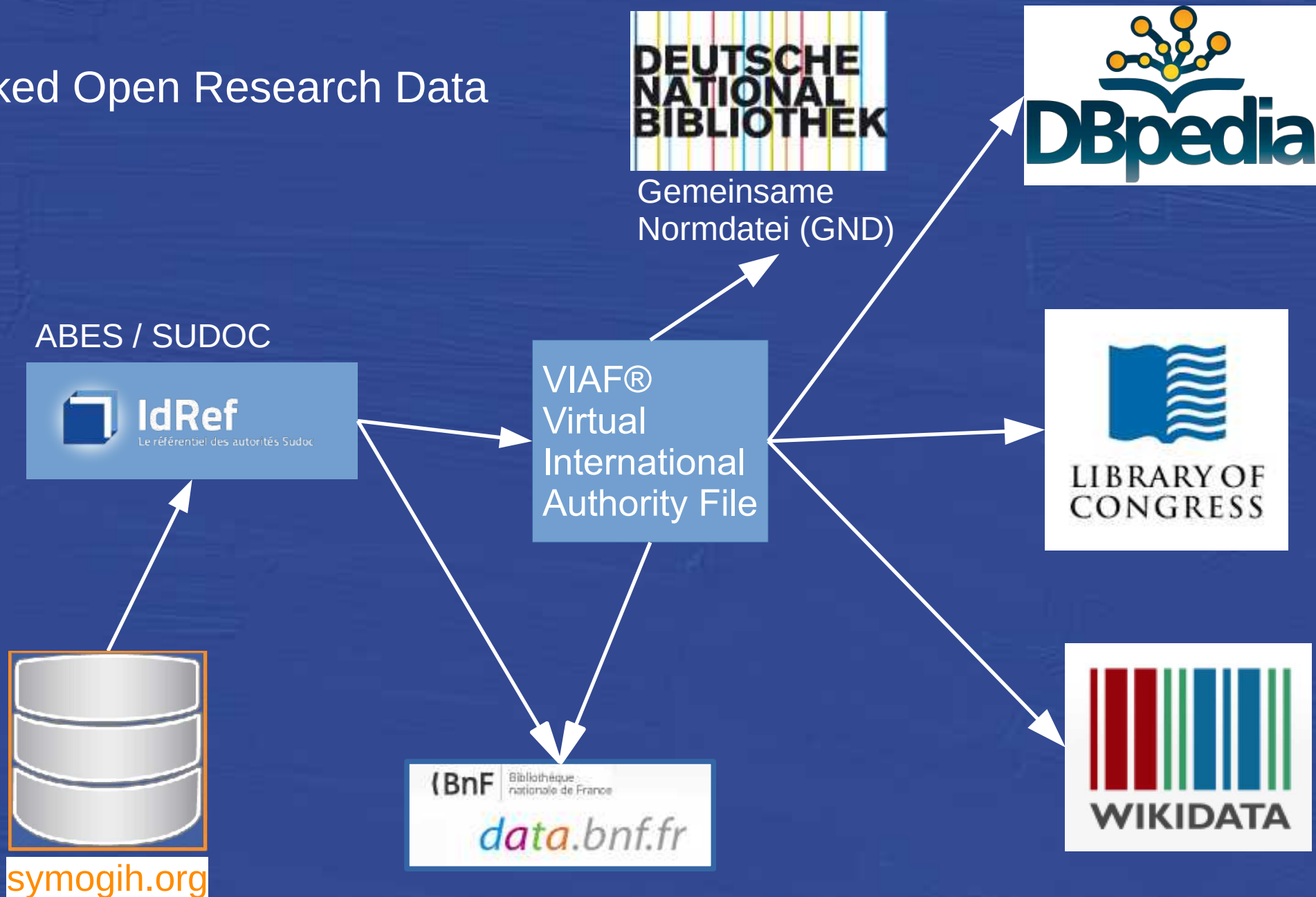
Re-usable

«There is an urgent need to improve the infrastructure supporting the **reuse** of scholarly data »

Wilkinson, Mark D., Michel Dumontier, Ijsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, et al. “*The FAIR Guiding Principles for Scientific Data Management and Stewardship.*” *Scientific Data* 3 (March 15, 2016): 160018.



# Linked Open Research Data



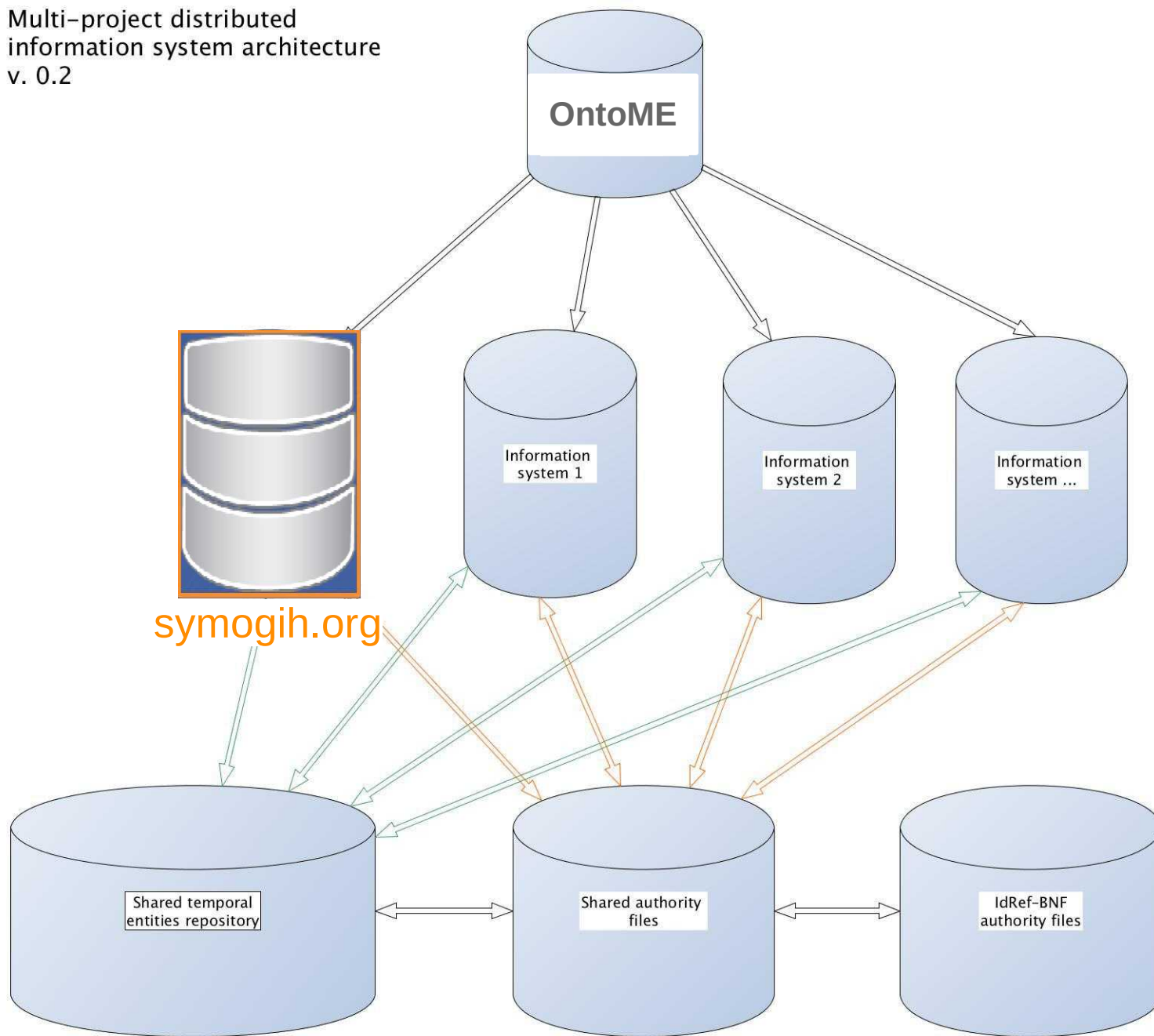


[symogih.org](http://symogih.org)

## Research agenda

Research specific data model

Research data



# The FAIR Data Principles

## To be Interoperable:

- I1. (meta)data use a *formal, accessible, shared, and broadly applicable language for knowledge representation*.
- I2. (meta)data use *vocabularies that follow FAIR principles*.
- I3. (meta)data include qualified references to other (meta)data.

## To be Re-usable:

- R1. meta(data) have a plurality of accurate and relevant attributes.
  - R1.1. (meta)data are released with a *clear and accessible data usage license*.
  - R1.2. (meta)data are associated with their *provenance*.
  - R1.3. (meta)data meet ***domain-relevant community standards***.

CIDOC CRM

DUL  
(DOLCE ULTRA LIGHT)

schema.org

?

### Research agenda

Research specific data model

Research data

# Foundational ontologies & modelling best practices

## Research agenda

Research specific data model

Research data

Foundational ontologies  
& modelling best practices



Generic, **domain related** core ontology

### Research agenda

Research specific data model

Research data

Foundational ontologies  
& modelling best practices



Generic, domain related core ontology



Domain related extensions



Research agenda

Research specific data model

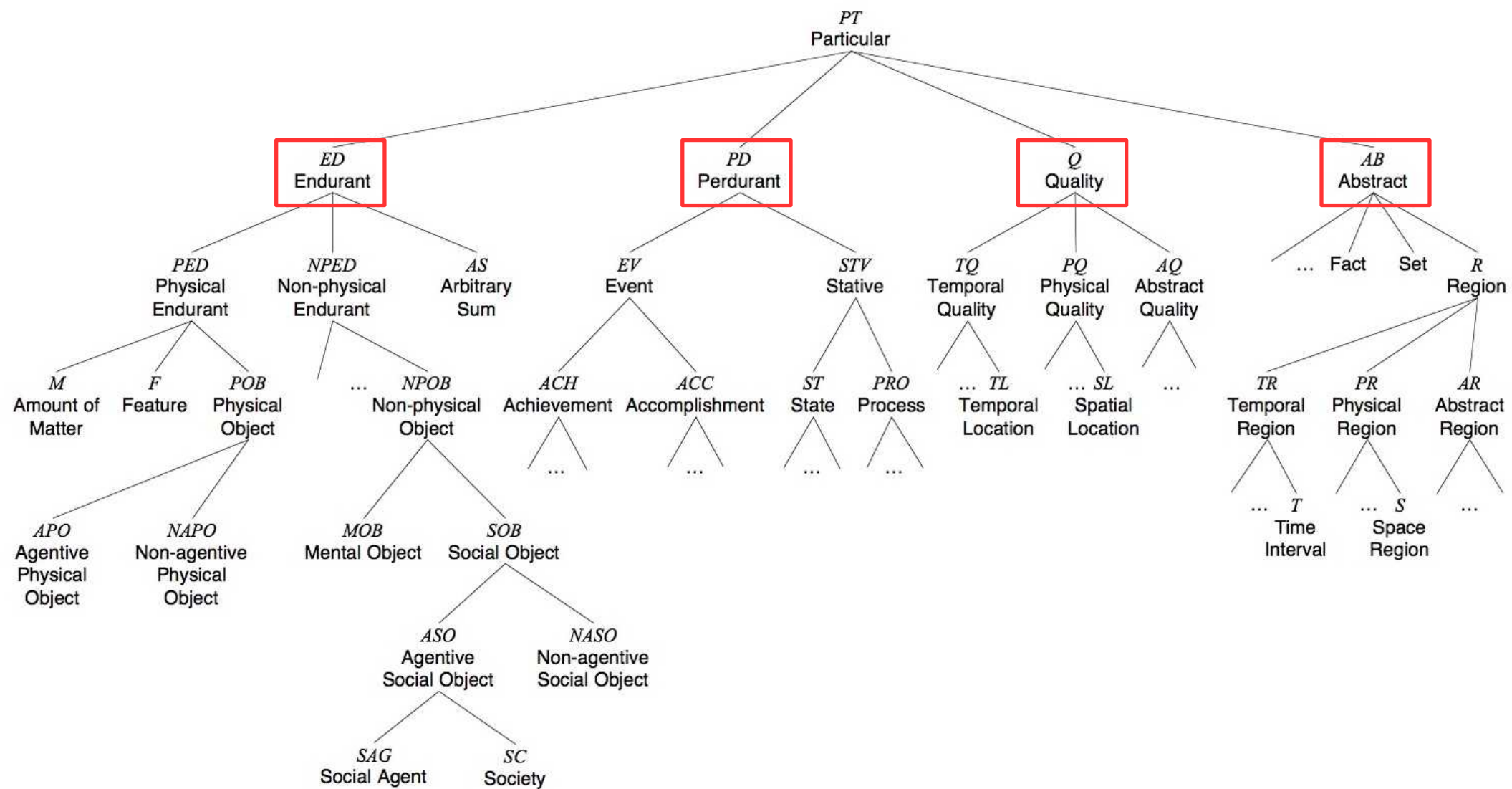
Research data



3.

DOLCE Lite Plus, CIDOC CRM, SDHSS

Les ontologies fondationnelles au service  
de l'interopérabilité des données  
des sciences humaines et sociales



Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE) – a foundational ontology designed in 2002 in the context of the WonderWeb EU project, developed by Nicola Guarino and his associates at the Laboratory for Applied Ontology (LOA) – WonderWeb Deliverable D18, p.14

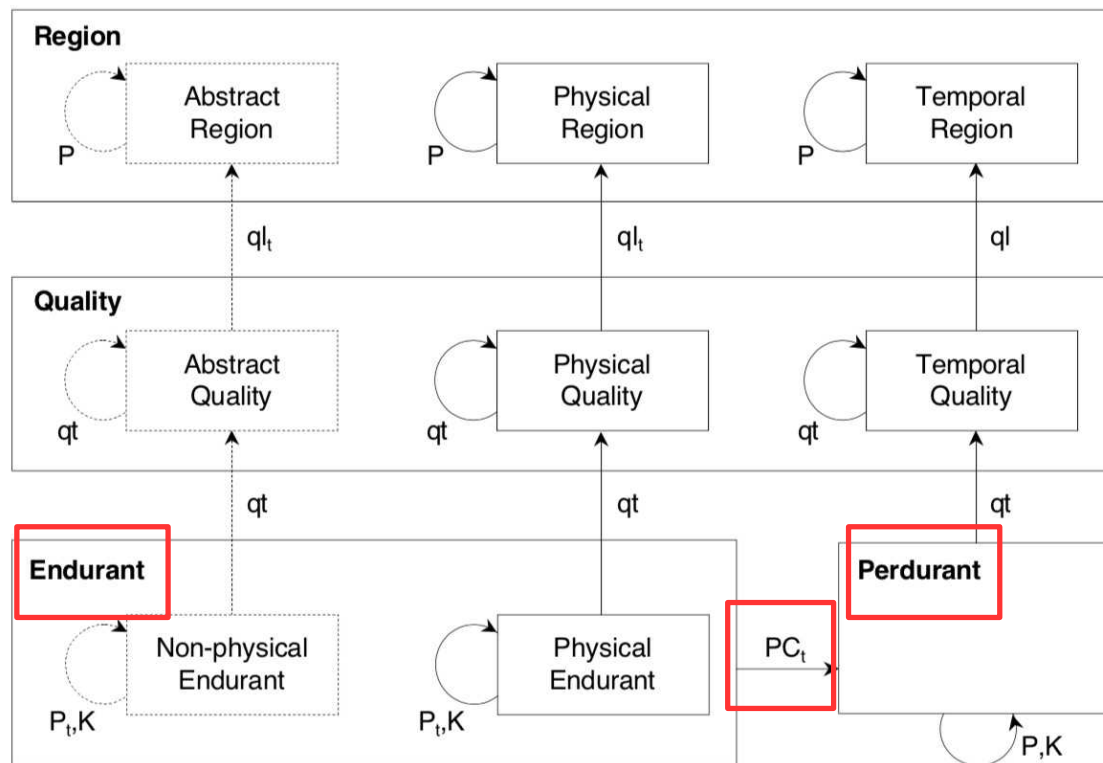


Figure 4: Primitive relations between basic categories (the dotted lines to the left indicate that we are less confident with what concerns non-physical endurants).

#### 4.2.7 Participation

$$(Dd63) \quad PC_C(x, y) \triangleq \exists t (PRE(y, t)) \wedge \forall t (PRE(y, t) \rightarrow PC(x, y, t)) \quad (\text{Const. Participation})$$

$$(Dd64) \quad PC_T(x, y, t) \triangleq PD(y) \wedge \forall z ((P(z, y) \wedge PRE(z, t)) \rightarrow PC(x, z, t)) \\ (\text{Temporary Total Participation})$$

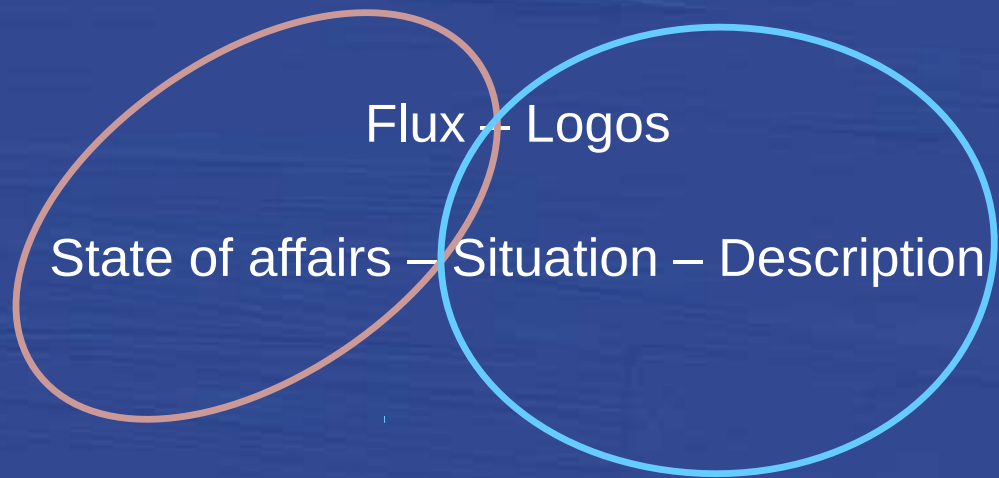
$$(Dd65) \quad PC_T(x, y) \triangleq \exists t (ql_T(t, y) \wedge PC_T(x, y, t)) \quad (\text{Total Participation})$$

$$(Dd66) \quad mpc(x, y) \triangleq x = \sigma_z (PC_T(z, y)) \quad (\text{Maximal Participant})$$

$$(Dd67) \quad mppc(x, y) \triangleq x = \sigma_z (PC_T(z, y) \wedge PED(z)) \quad (\text{Maximal Physical Participant})$$

$$(Dd68) \quad lf(x, y) \triangleq x = \sigma_z (PC_T(y, z)) \quad (\text{Life})$$

# Descriptions and Situations (DnS)



# Descriptions and Situations (DnS)



Descriptions  
and  
Situations –  
DnS

social phenomena

Person

is citizen of

Country

has  
social role

Role

physical or biological phenomena

DOLCE

Person

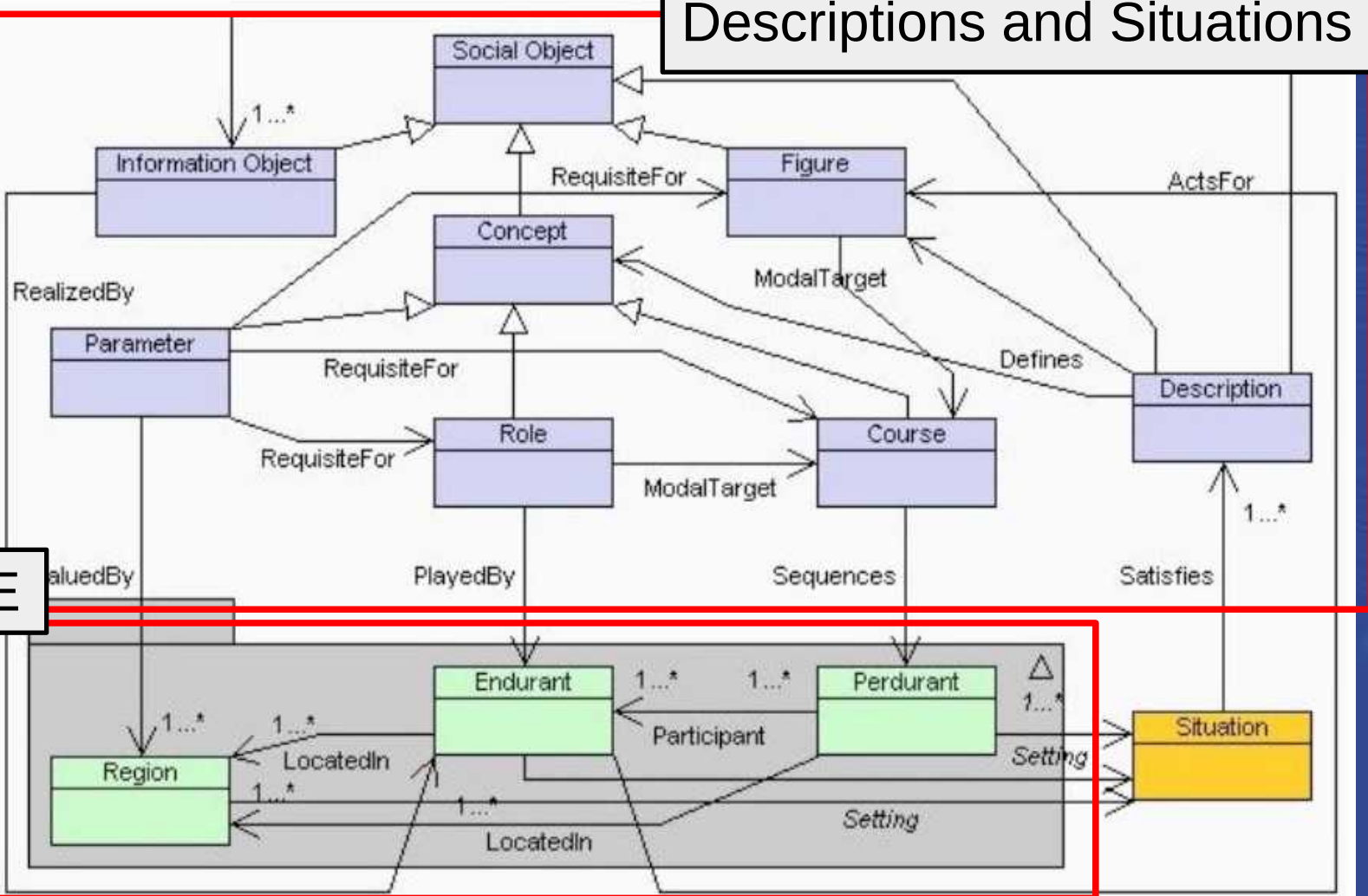
is born in

Town

Dog

is born in

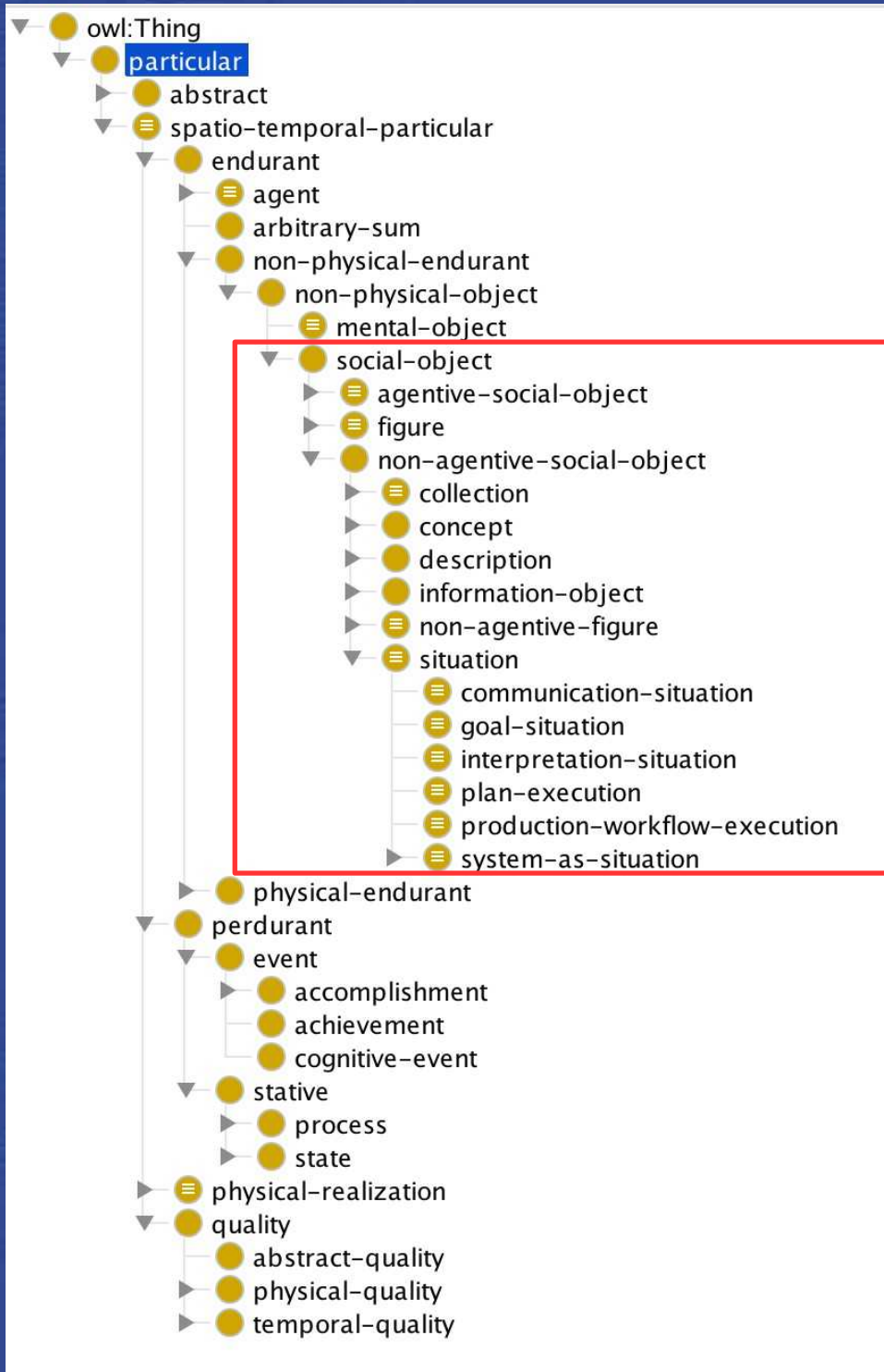
Village



DOLCE

Fig. 2. A UML class diagram for D&S. The lower part of the pattern (within the grey package) is called the *ground ontology*, the higher is called the *descriptive ontology*; a situation satisfies a description if the two parts match according to the axioms specified for the concepts defined by the description.

Bottazzi E., Catenacci C., Gangemi A., Lehmann J.(2006) (from pre-print, not in published version)



DOLCE + DnS

=

DOLCE Lite PLUS



# Descriptions and Situations (DnS)

Flux – Logos  
State of affairs – Situation – Description



Social ontology

Social representations



Foundational ontologies  
& modelling best practices

DOLCE + Descriptions and Situations  
& object-oriented modelling principles



Generic, domain related core ontology



Domain related extensions



Research specific data model

Research data

Foundational ontologies  
& modelling best practices

DOLCE + Descriptions and Situations  
& object-oriented modelling principles

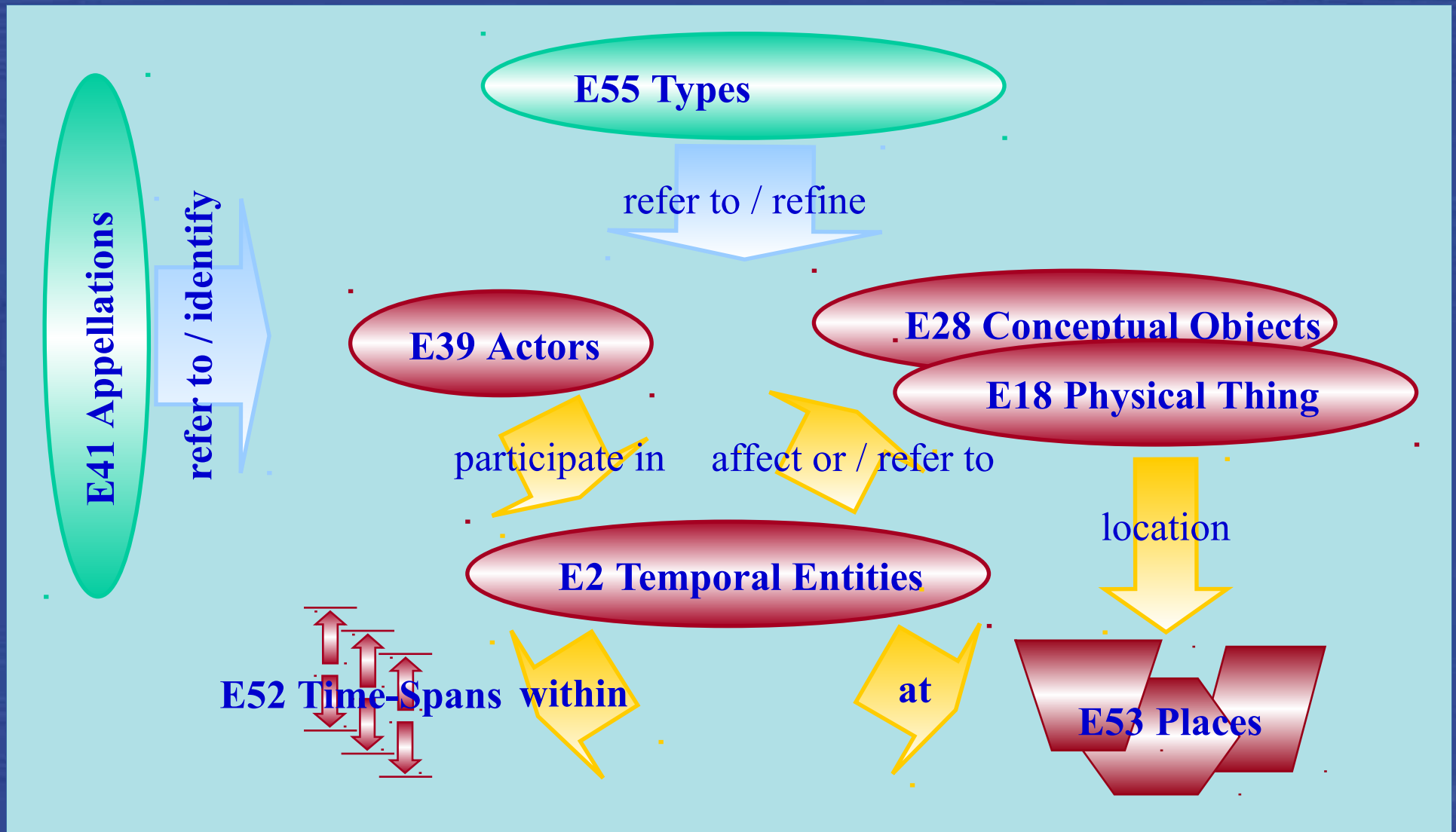


Generic, **domain related** core ontology

Research specific data model

Research data

The CIDOC CRM ( ISO21127:2006 )  
A semantic framework that provides *interoperability*  
between different sources of **cultural heritage information**



Stephen Stead (2008)

Foundational ontologies  
& modelling best practices



Generic, domain related core ontology



Domain related extensions



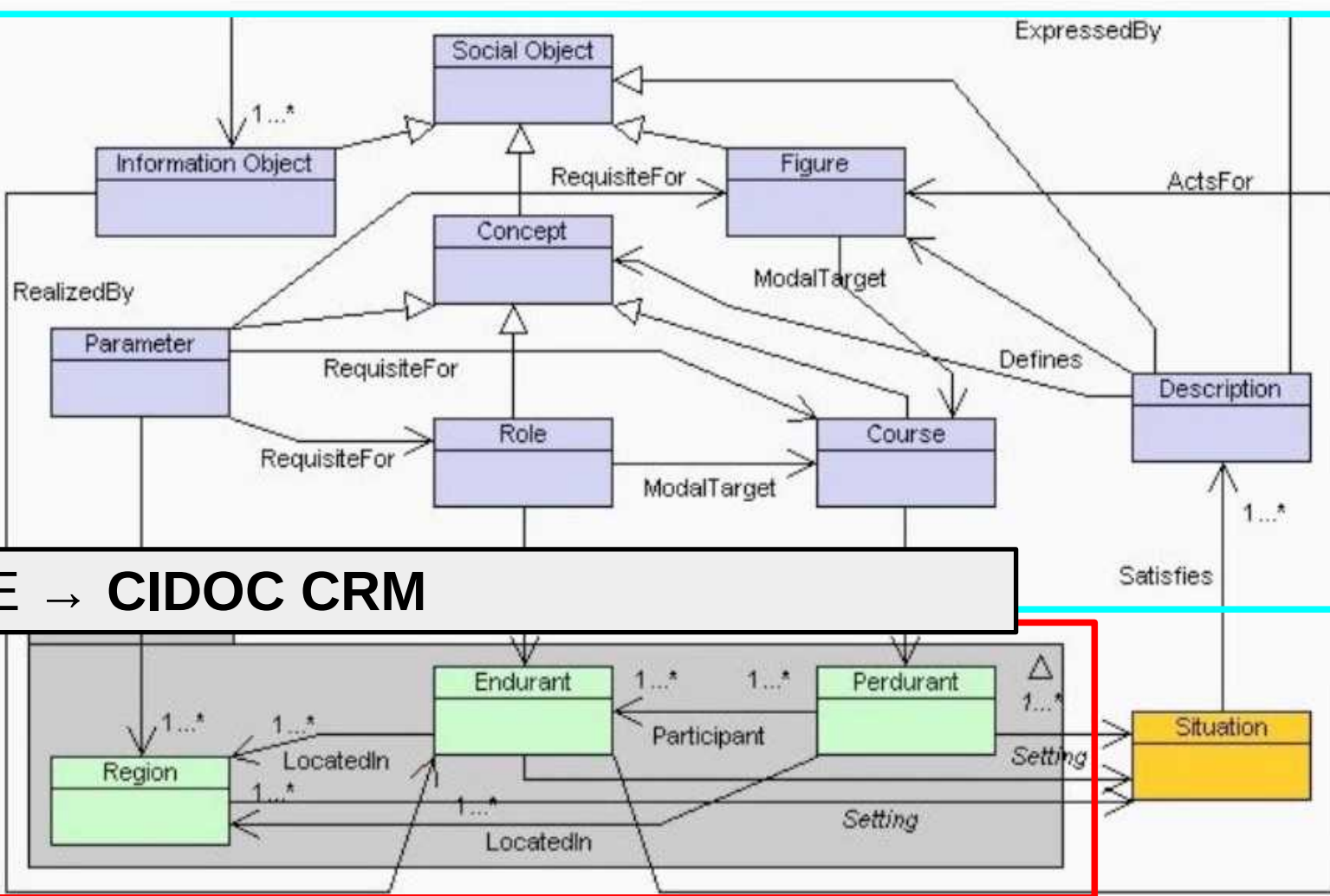
Research specific data model

Research data

DOLCE + Descriptions and Situations  
& object-oriented modelling principles



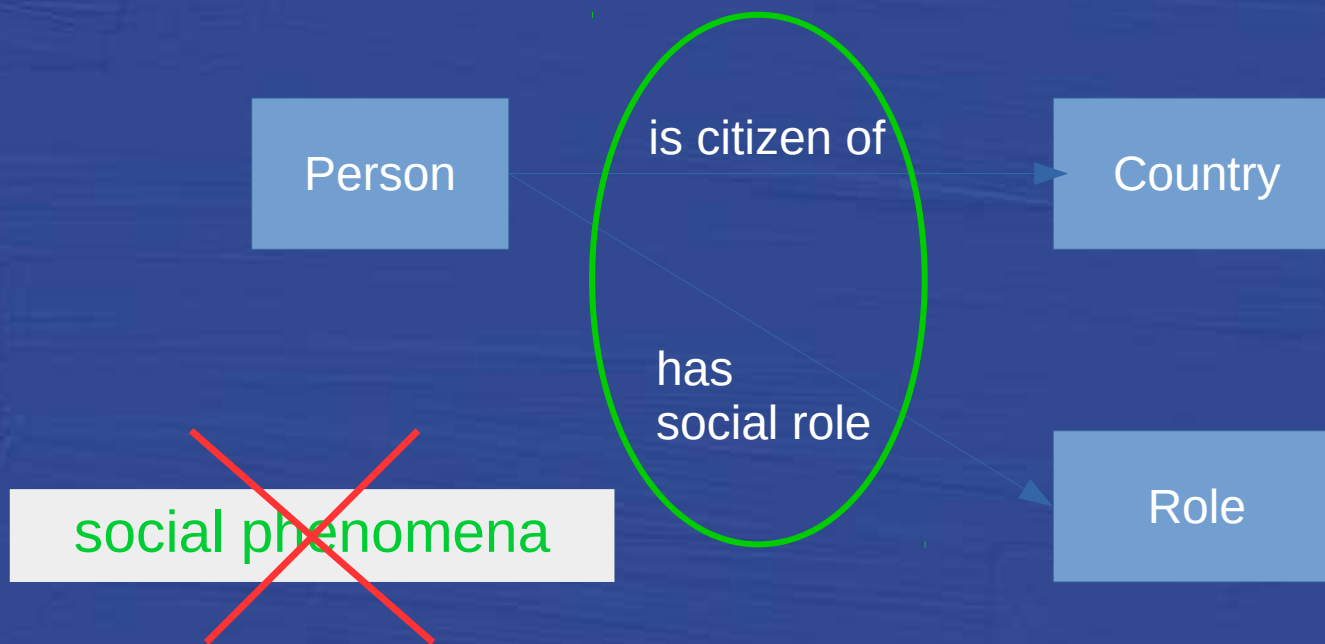
CIDOC CRM



**DOLCE → CIDOC CRM**

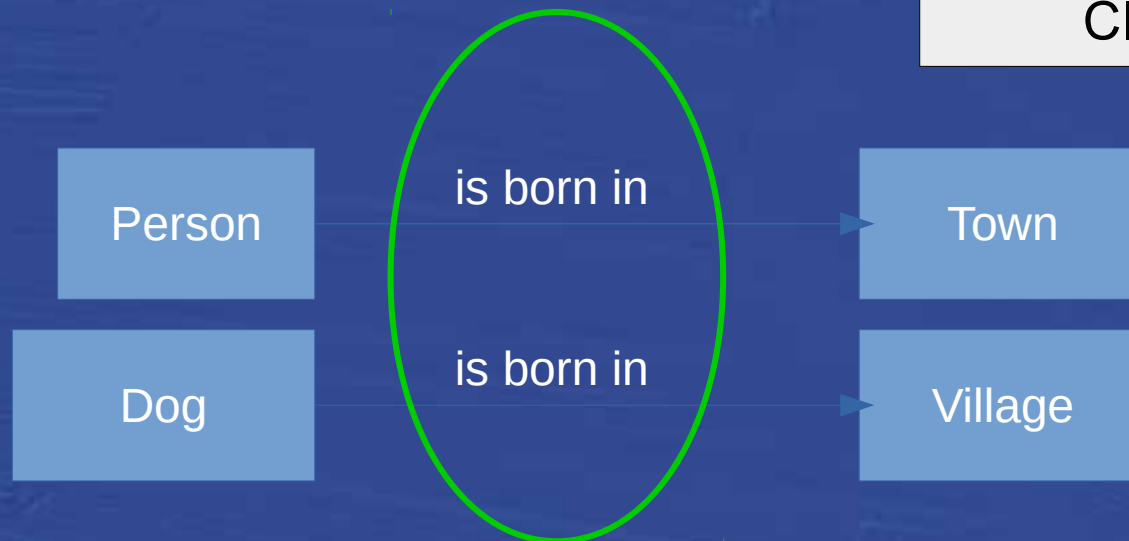
**Fig. 2. A UML class diagram for D&S. The lower part of the pattern (within the grey package) is called the *ground ontology*, the higher is called the *descriptive ontology*; a situation satisfies a description if the two parts match according to the axioms specified for the concepts defined by the description.**

Bottazzi E., Catenacci C., Gangemi A., Lehmann J.(2006) (from pre-print, not in published version)



physical or biological phenomena

CIDOC CRM



# Semantic Data for Humanities and Social Sciences (SDHSS) CIDOC CRM Top-Level Extension

## Semantic Data for Humanities and Social Sciences (SDHSS) CIDOC CRM Top-Level Extension

Description:

Published by Francesco Beretta (CNRS/Université de Lyon), 7 December 2020. Last revised on March 30 2021. ([CC BY-SA 4.0](#))

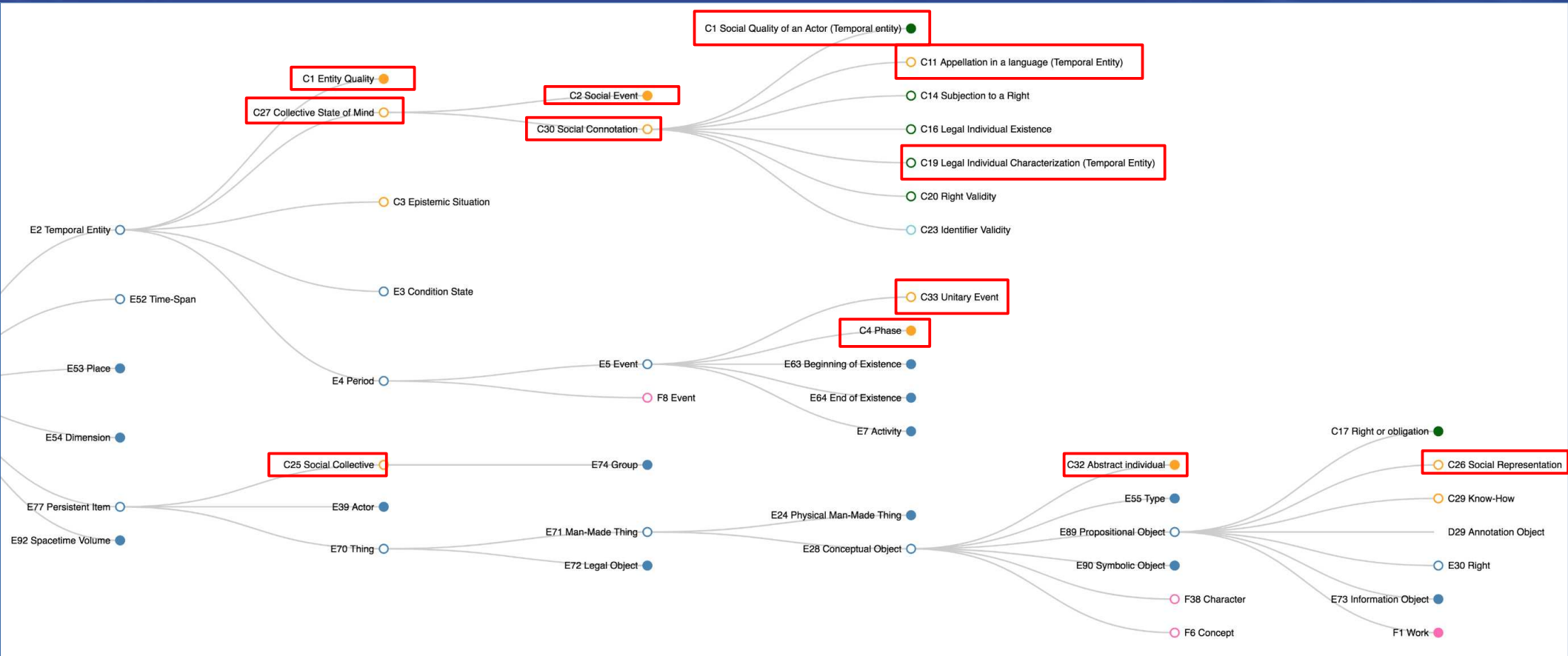
The extension of CIDOC CRM for semantic data for humanities and social sciences (SDHSS) stems from the need to conceptualise the reality in the world, and more specifically factual information, from the point of view of historical research. The [ontological commitment](#) is therefore related to the domain of discourse of history but insofar as history, as a discipline that studies the life of humans and societies in the past, is interested in all the different aspects of social, economic, political, religious, literary and cultural life, the scope of this extension could be defined as the whole of social and human life, apprehended from the descriptive point of view, and global approach to reality, that characterises historical research.

This definition of the scope or domain modelled is based on the conviction that in a [constructivist approach of scientific knowledge](#), a conceptualisation and data model can only be developed from the point of view of a specific discipline because *scientific objects* do not exist in the absolute but depend on the method and research agenda. They depend on the perspective or epistemic context researchers adopt in considering states of affairs: *scientific objects*, and [semantic models modelling them](#), are not declared to be the only appropriate and exclusive representation of *things* in the pre-Kantian sense but defined as *intentional objects* constructed from the point of view of a discipline and methodological approach in relation to things in the world. Scientific objects are not the things in the world themselves, even if they must necessarily refer to them by way of observation or experimentation, if a scientific and therefore realistic approach is to be maintained. This corresponds to the notion of inter-objectivity in social sciences relying on the distinction between things in themselves and things as perceived, experienced and discussed by human subjects, in their [shared intentionality](#) and in relation to their social practices and context.

[ontome.net/namespace/11](https://ontome.net/namespace/11)



# SDHSS and extension for social life



[ontome.net/namespace/11](http://ontome.net/namespace/11)



Foundational ontologies  
& modelling best practices



Generic, domain related core ontology



Domain related extensions



Research specific data model

Research data

DOLCE + Descriptions and Situations  
& object-oriented modelling principles



CIDOC CRM

SDHSS



Foundational ontologies  
& modelling best practices

DOLCE + Descriptions and Situations  
& object-oriented modelling principles



Generic, domain related core ontology

CIDOC CRM

SDHSS



Domain related extensions

CRM  
Archaeo

FRBRoo

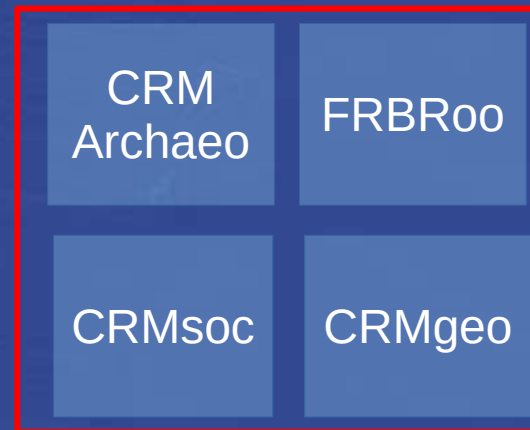


CRMsoc

CRMgeo

Research specific data model

Research data



Foundational ontologies  
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Generic, domain related core ontology

CIDOC CRM

SDHSS



Domain related extensions

CRM  
Archaeo

FRBRoo

Society  
& Law  
(SDHSS)

Literary life  
(SDHSS)



CRMsoc

CRMgeo

Education &  
Universities  
(SDHSS)

Ships &  
navigation  
(SDHSS)

Research specific data model

Research data

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Generic, domain related core ontology

CIDOC CRM

SDHSS



Domain related extensions

CRM  
Archaeo

FRBRoo

Society  
& Law  
(SDHSS)

Literary life  
(SDHSS)



CRMsoc

CRMgeo

Education &  
Universities  
(SDHSS)

Ships &  
navigation  
(SDHSS)

Research specific data model

Projects' research specific extensions

Research data

Foundational ontologies & modelling best practices

DOLCE + Descriptions and Situations & object-oriented modelling principles



Generic, domain related core ontology

CIDOC CRM

SDHSS



Research agenda



Domain related extensions

CRM Archaeology

FRBRoo

Society & Law (SDHSS)

Literary life (SDHSS)



Research agenda

CRMsoc

CRMgeo

Education & Universities (SDHSS)

Ships & navigation (SDHSS)

Research specific data model

Projects' research specific extensions

Application profiles



Research data

Foundational ontologies & modelling best practices

DOLCE + Descriptions and Situations & object-oriented modelling principles

Generic, domain related core ontology

CIDOC CRM

SDHSS

Domain related extensions

Research agenda

CRM Archaeology

FRBRoo

Society & Law (SDHSS)

Literary life (SDHSS)

Research agenda

CRMsoc

CRMgeo

Education & Universities (SDHSS)

Ships & navigation (SDHSS)

Research specific data model

Projects' research specific extensions

Application profiles

Research data

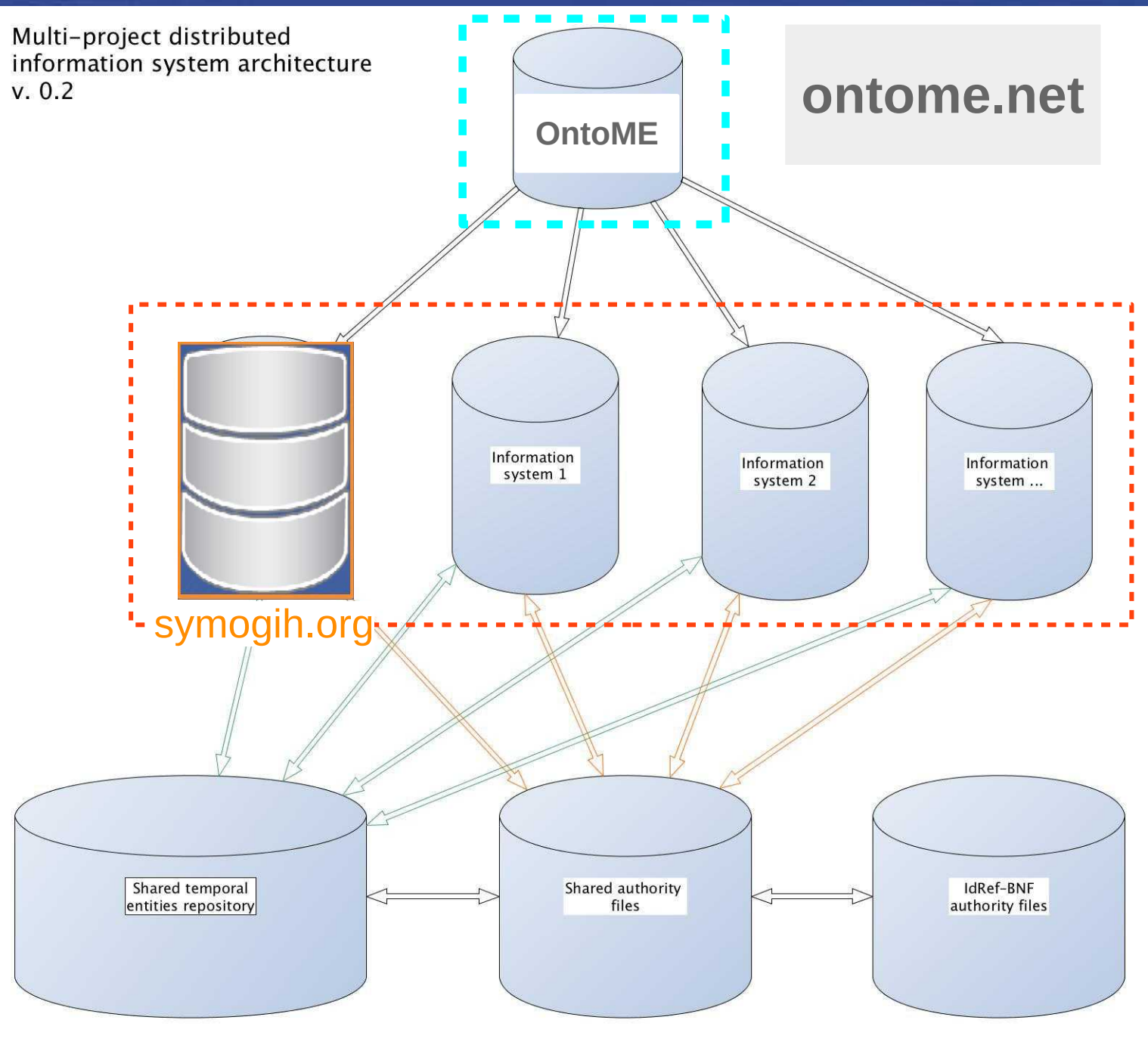
Interoperable research data



4.

Un environnement virtuel pour la gestion  
des profils applicatifs et des extensions de sous-domaine :


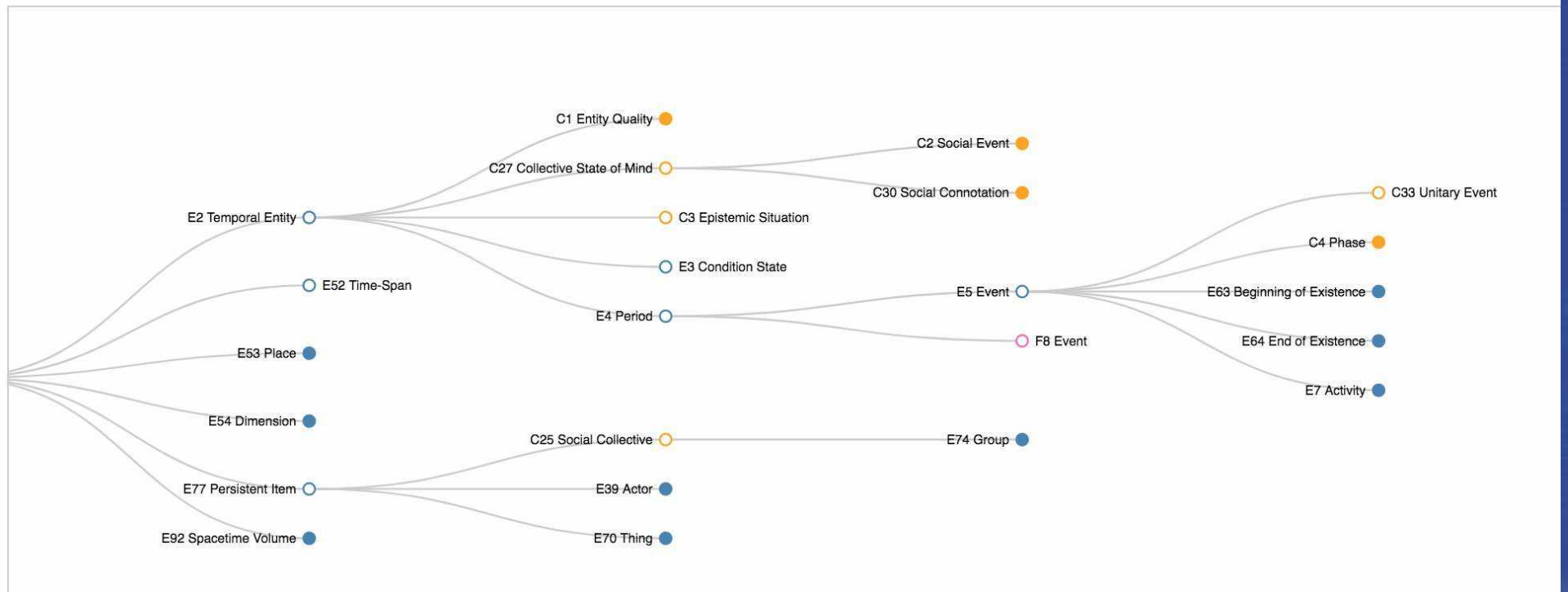
**ontome.net**

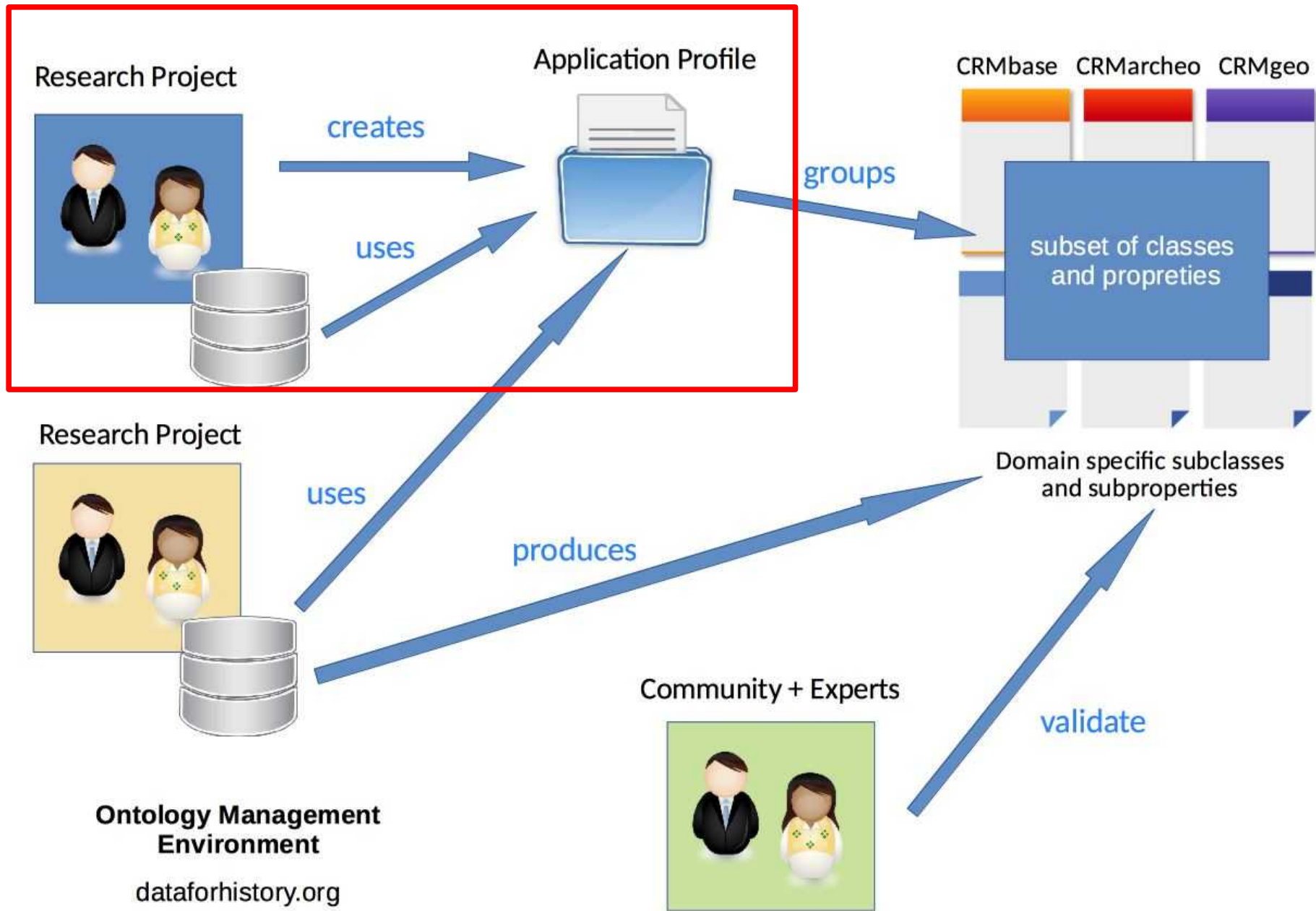


## Classes tree

C2 Study (#424) ▾

Reset

 Use mouse wheel



# Retrieve your project's application profiles from an API

<https://ontome.net/api/classes-profile.json?lang=en&available-in-profile=8>

```
5:
  pk_class: 61
  identifier_in_namespace: "E67"
  class_standard_label: "Birth"
  fk_system_type: 9
  type_label: "Temporal Entity"
  root_namespace: "CIDOC CRM"
  profile_association_type: "selected"
  pk_profile: 1
  profile_label: "BHP new data model v. 0.1"
  pk_project: 1
  project_label: "BHP - symogih.org"

6:
  pk_class: 340
  identifier_in_namespace: "histC7"
  class_standard_label: "Human being existence"
  fk_system_type: 9
  type_label: "Temporal Entity"
  root_namespace: "Data for history"
  profile_association_type: "selected"
  pk_profile: 1
  profile_label: "BHP new data model v. 0.1"
  pk_project: 1
  project_label: "BHP - symogih.org"
```

Geovistory

geovistory.com/projects/84760/edit

Home / Your Projects / Maritime history

All ship voyages

Date: Apr 2, 1595 AD

Activated Place: Jakarta ID (Geographical Place)

Value of Place at Date: 0 show details

geovistory.com

CESIUM Ion Data attribution

30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0

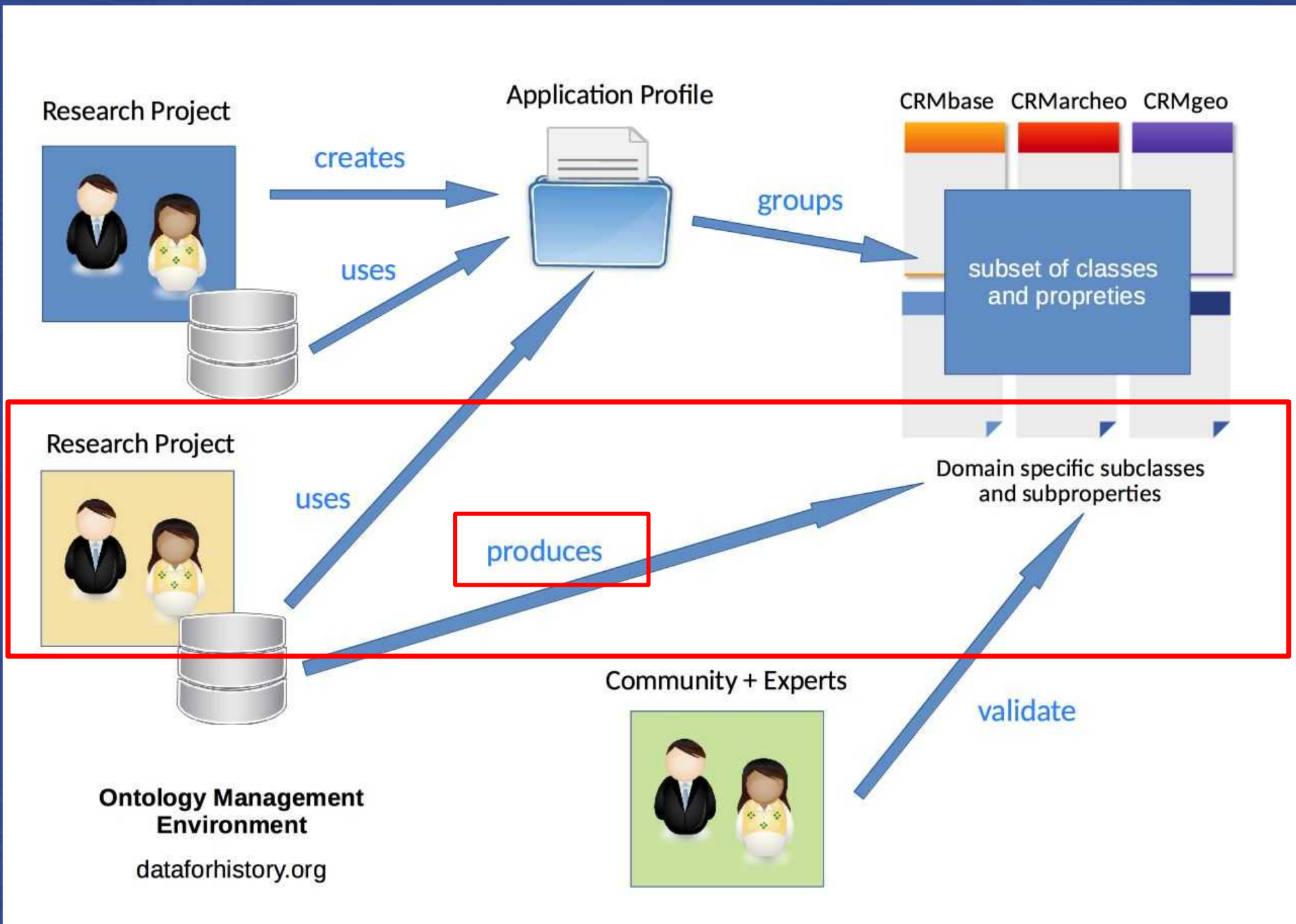
1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750

Settings

Active: Jakarta ID

feedback

Geovistory : a new VRE for the symogih.org project  
developed by *kleiolab.ch* (Basel)



**ontome.net**

Foundational ontologies  
& modelling best practices



Generic, domain related core ontology



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Maritime History:  
<https://ontome.net/namespace/66>

## Man-Made Object – E22

## Ship – C2

### C2 Ship

Subclass of: [E22 Man-Made Object](#)

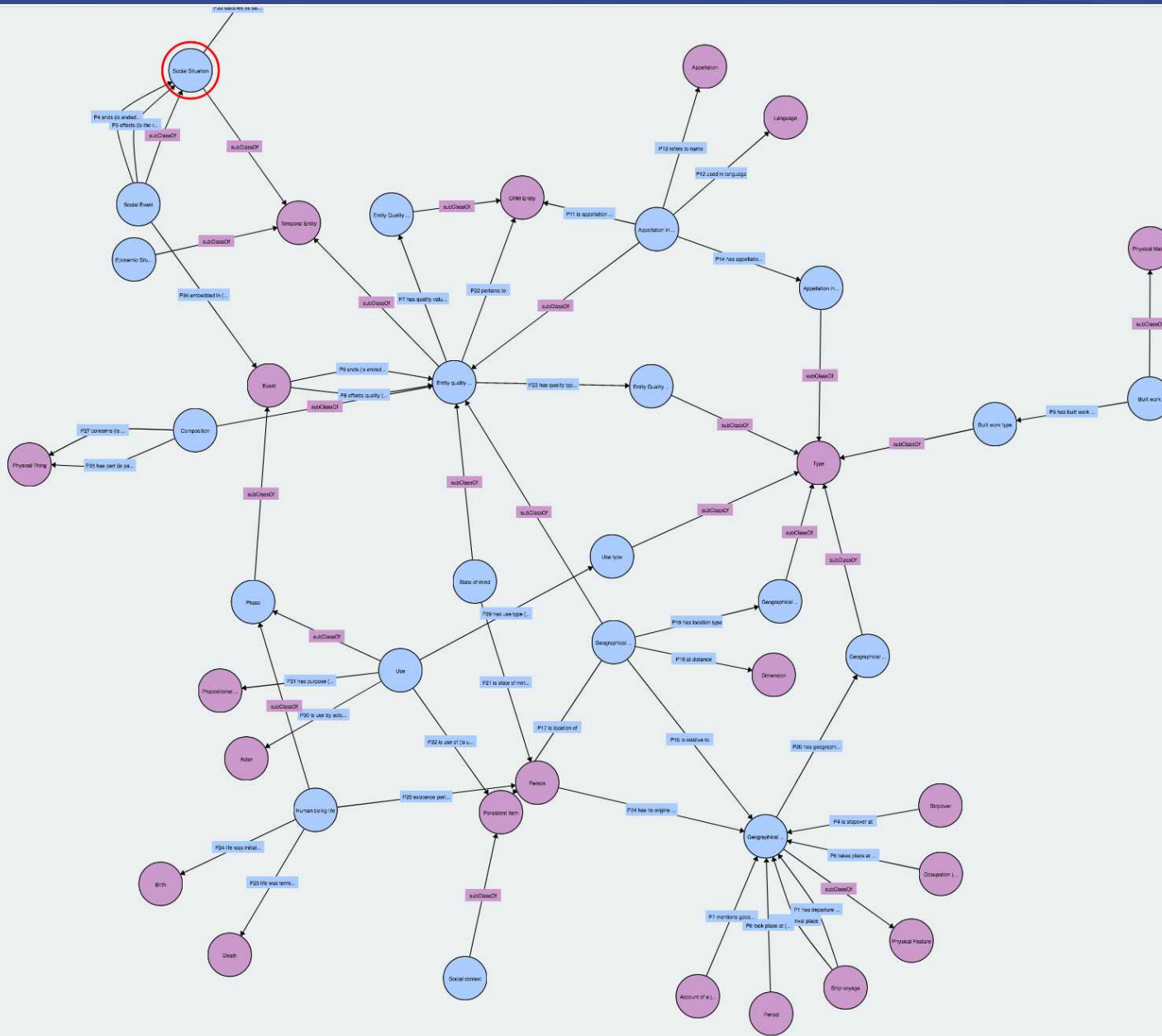
Scope note: Used to denote a watercraft that travels the world's oceans and other sufficiently deep waterways, carrying passengers or goods, or in support of specialized missions, such as defense, research and fishing.

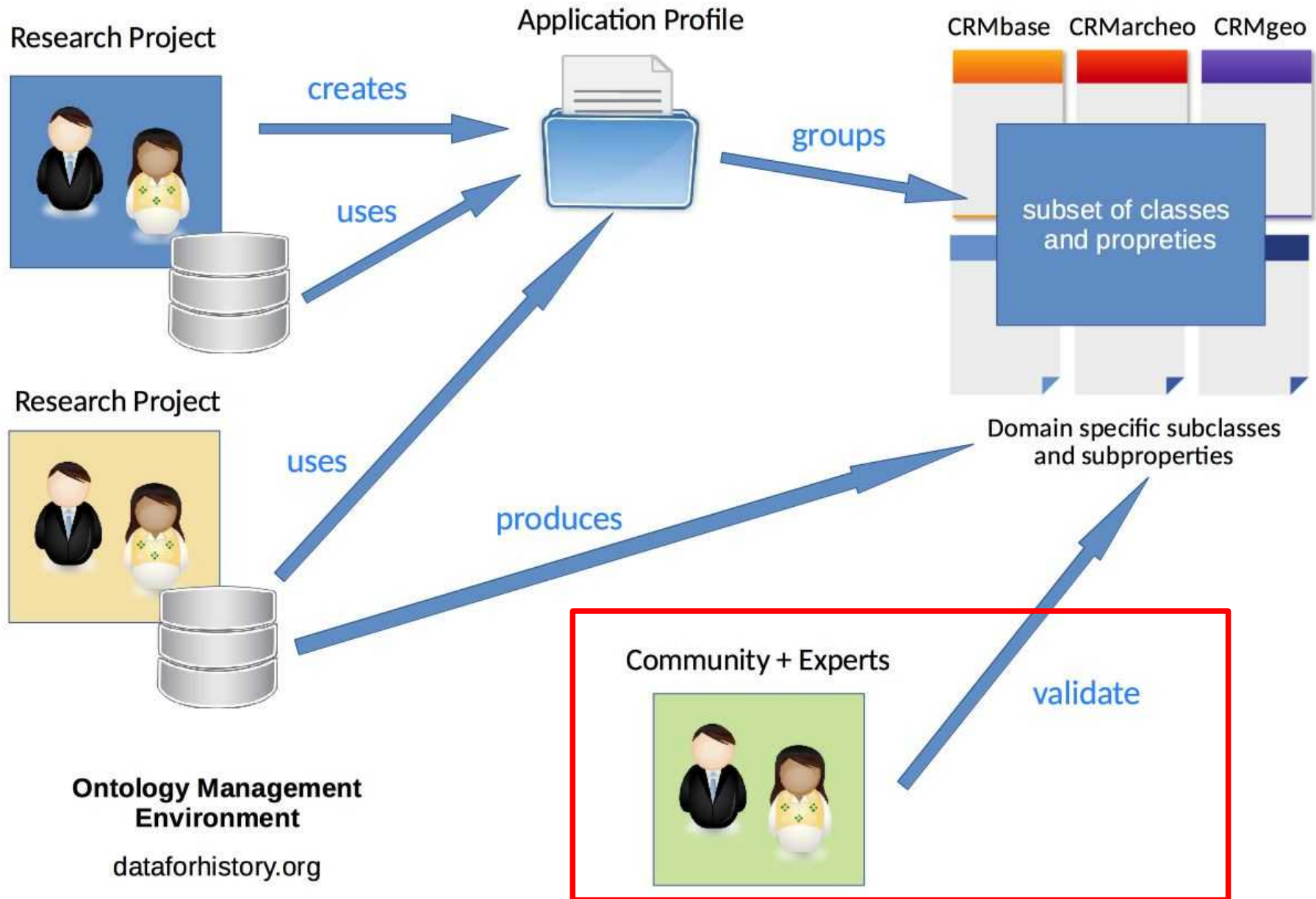
Examples: tba

In First Order Logic:  $C2(x) \supset E22(x)$

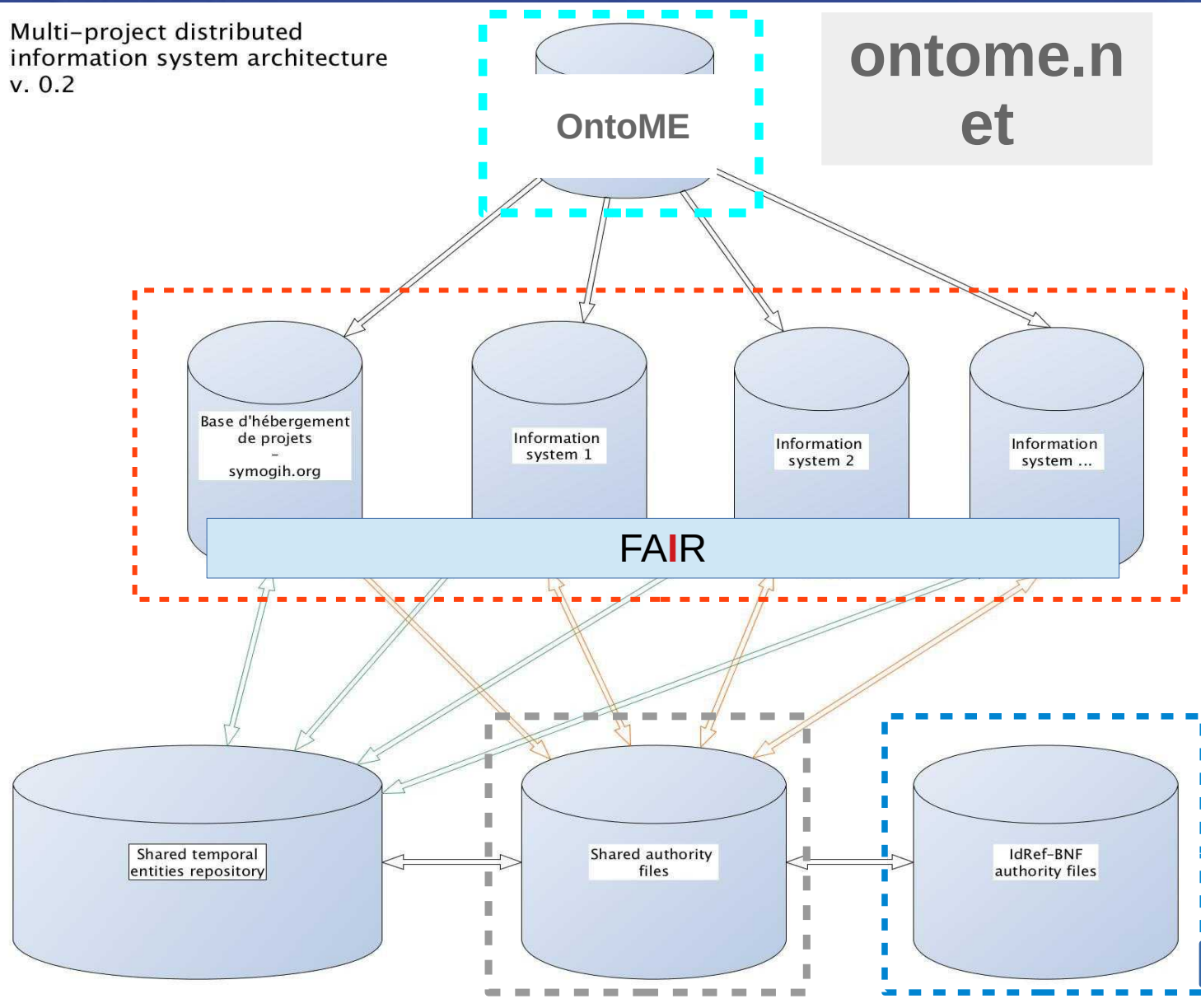
Outgoing properties: [P6 has ship type](#) → [C3 Ship type](#)

Incoming properties: [C1 Ship voyage](#) → [P3 carried out by](#)  
[C12 Shipbuilding](#) → [P7 has built](#)





ontome.net



[dataforhistory.org](http://dataforhistory.org) – [dataforhumanities.org](http://dataforhumanities.org)

# ontome.net – what we offer

- Contact us on :
  - <https://colibris.link/ontome>
  - [contact@ontome.net](mailto:contact@ontome.net)
- OntoME trainings
- Semantic engineering workshops :  
align your research data models with the  
community driven CIDOC CRM – SDHSS  
extensions
- Join the OntoME project and developers community

[dataforhistory.org](http://dataforhistory.org) – [dataforhumanities.org](http://dataforhumanities.org)