

# bSDD

## Workshop for domain owners

2021 May 19th



# Code of Conduct

## Competition Law

buildingSMART is committed to ensuring that participation in the development of standards is unrestricted and the process for their adoption is transparent and, standards that are developed do not favour any particular provider and are open, non-binding and accessible to all.

Members may not use buildingSMART's meetings or other activities as a forum for discussing or agreeing any matters that would breach competition laws.

buildingSMART is obliged to remind all participants of this Code of Conduct for compliance with competition laws.

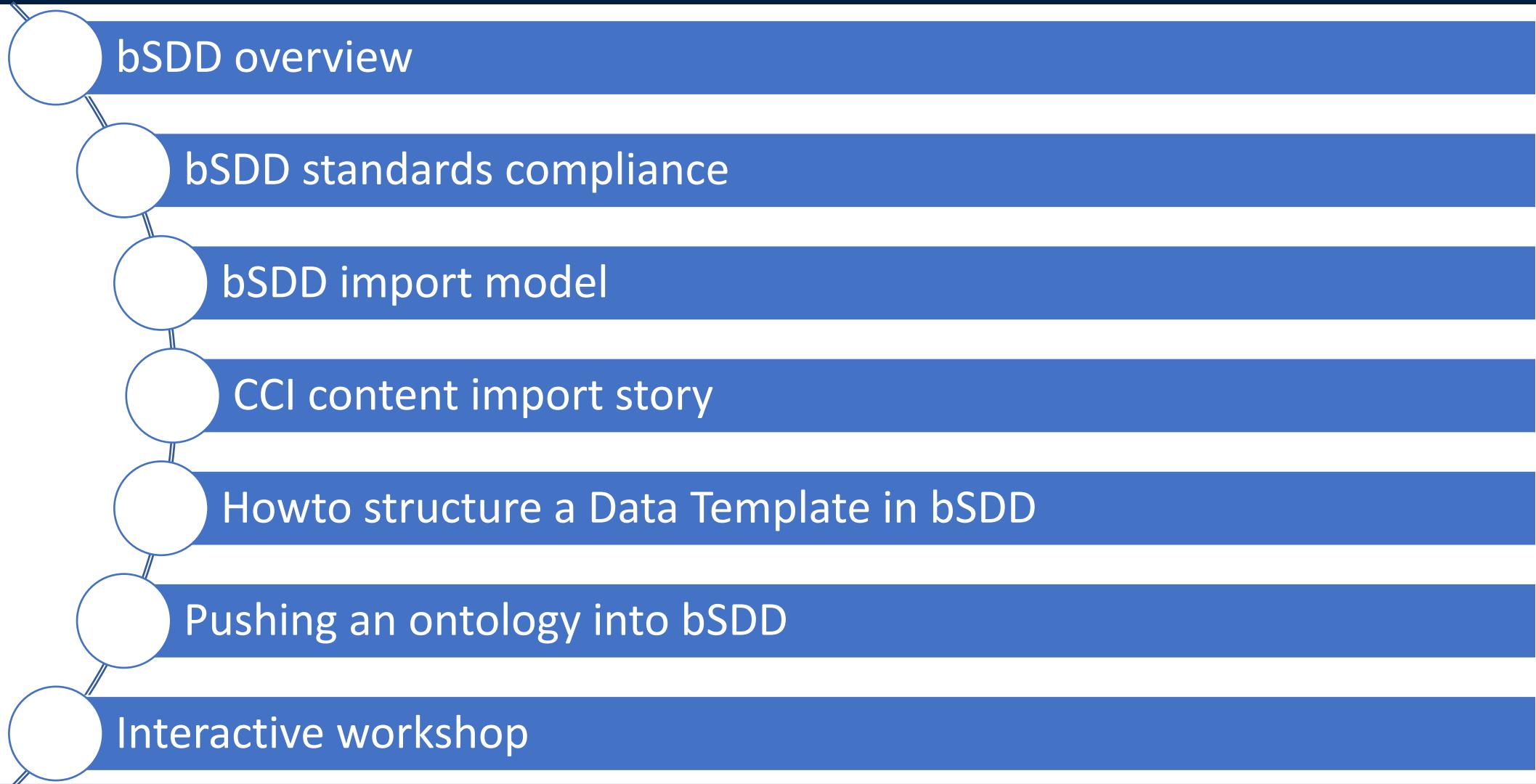
Please review the full document:

<https://www.buildingsmart.org/wp-content/uploads/2019/03/17-09-08-buildingSMART-International-Competition-Law-Code-of-Conduct.pdf>

[Full document](#)

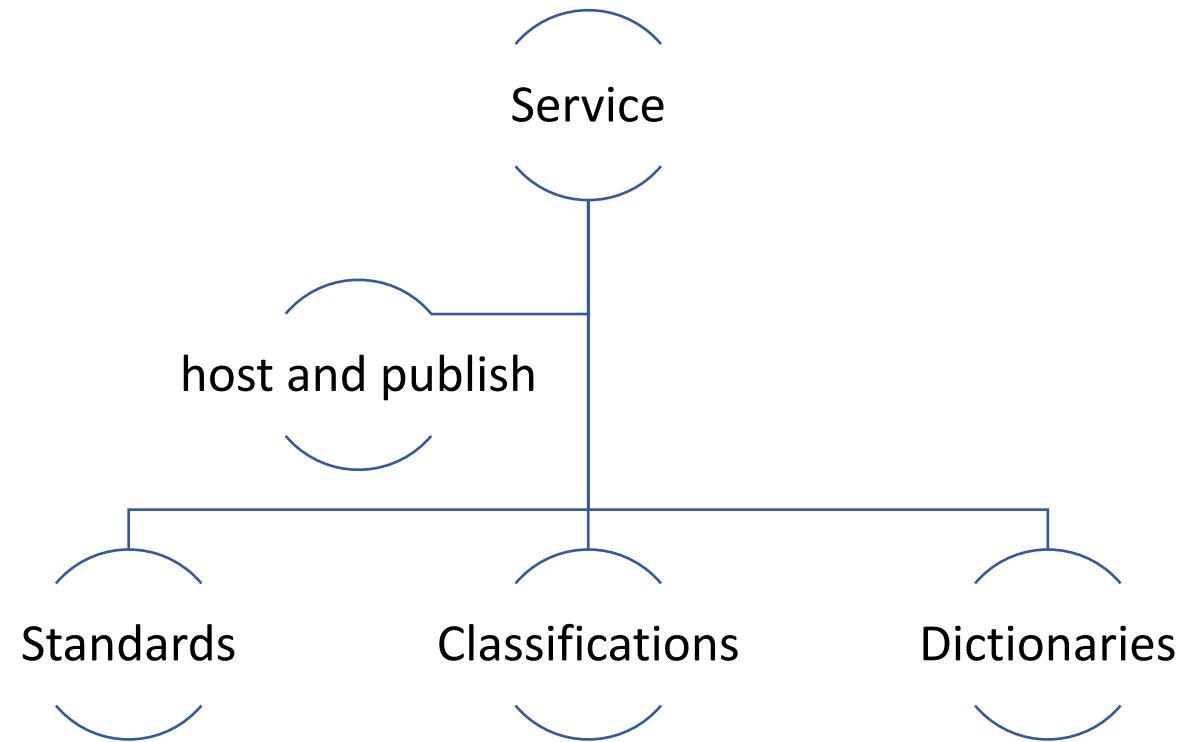


# AGENDA





# buildingSMART Data Dictionary



# buildingSMART Data Dictionary



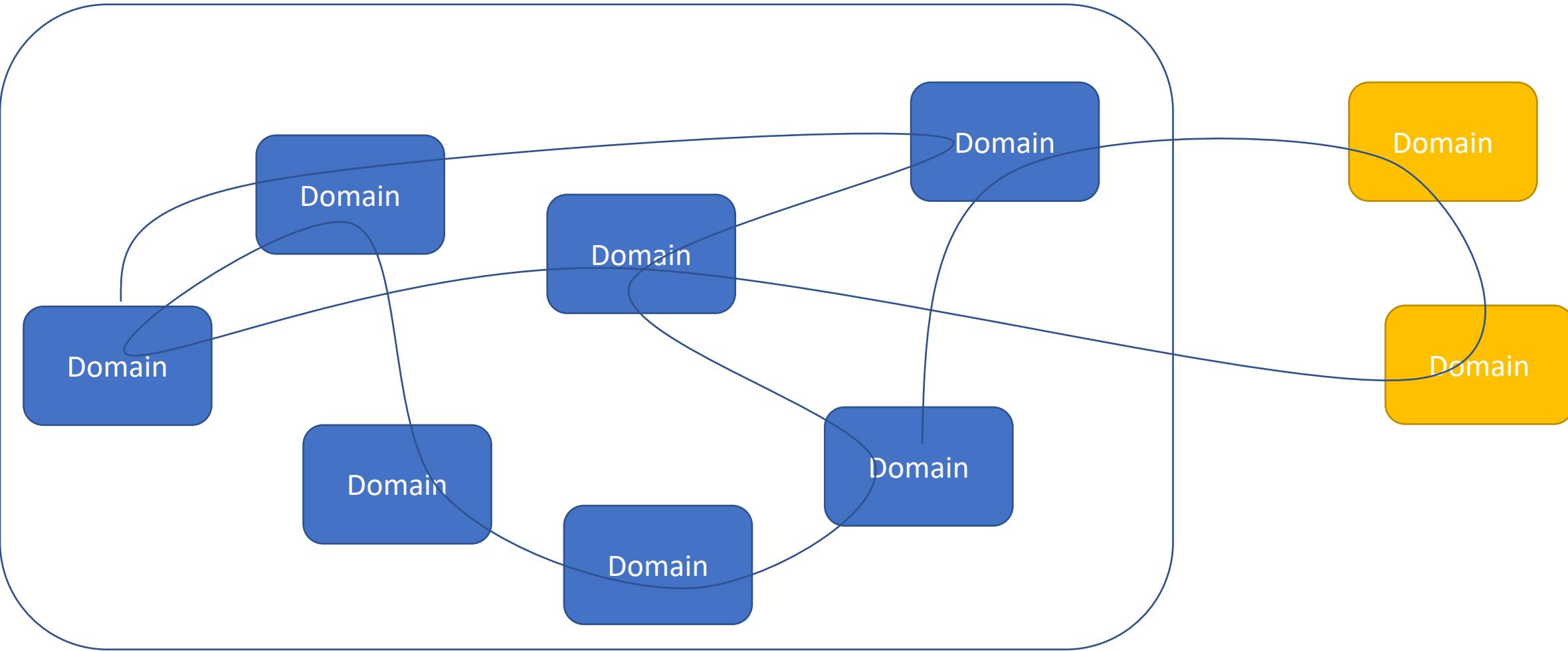
## Federation service

- Multiple standards/classifications/dictionaries hosted
- Connections between standards
- Connections to external entities via URIs
- Sharing of concepts between standards

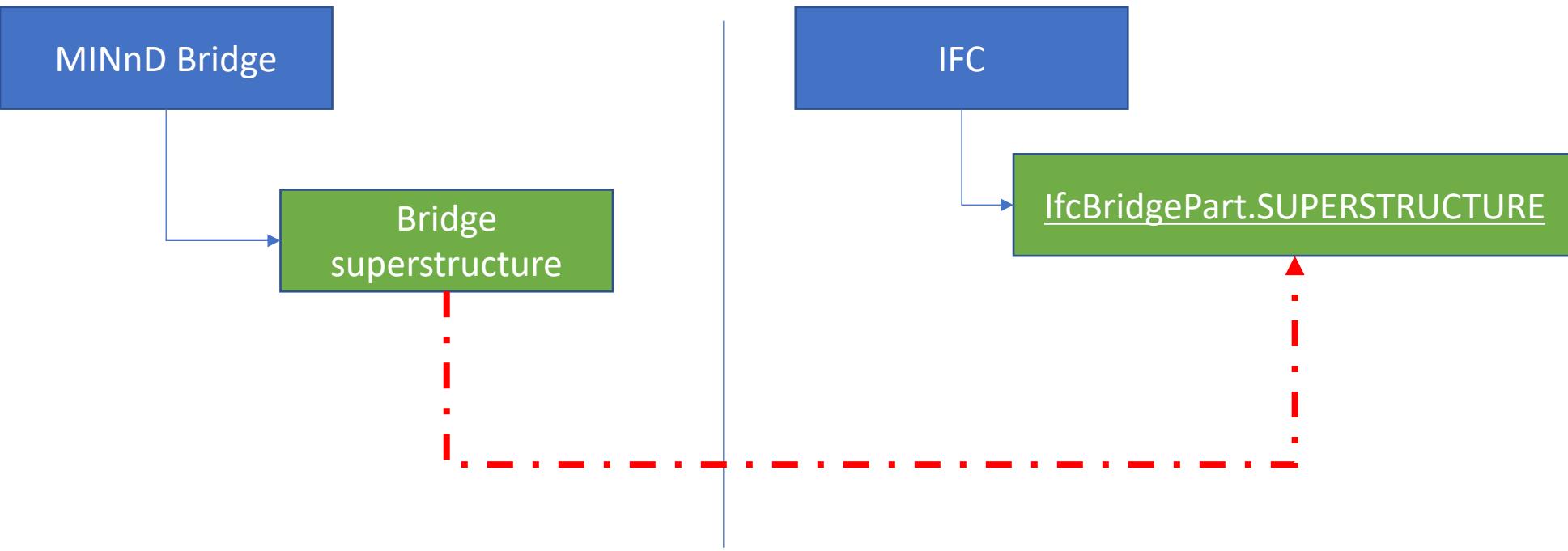


The content is stored by « domain ». The content provider owns the content of its domain

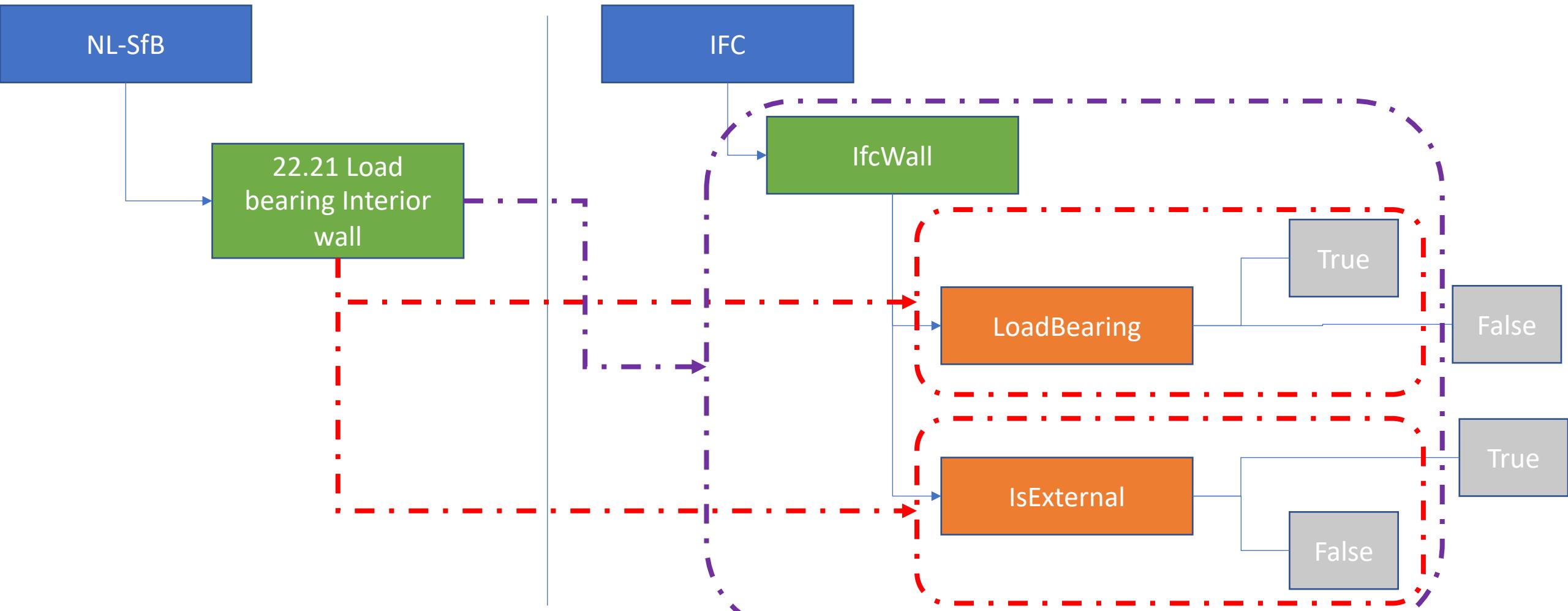
# buildingSMART Data Dictionary



# Connecting domains



# Advanced mapping between domains



# Live !



The screenshot illustrates the integration of the bSDD APIv5 with SketchUp. On the left, a floating window titled "bSDD APIv5 SketchUp connection" displays a 3D model of a building's exterior. Several components of the facade are highlighted with blue and purple outlines. To the right of the model, there are four main windows:

- bSDD Classifier**: Shows a toolbar with icons for search, classification, and other functions.
- bSDD classification**: A dialog box listing IFC classes and their properties. One item is highlighted in red: "(21.22) buitenwand(en) constructief, spouwwand(en)" with domain NL-SB 2005.
- Entity Info**: A panel showing details for the selected component: Layer: Layer0, Instance: IfcWall - binnenblad, Definition: za\_Afz260Ifc2z@IgSG, Volume: 1275.795329 mm³, Toggle: .
- Solid Component (1 in model)**: A list of IFC objects, each with a small icon and a long URL.

A large watermark for "DigiBase" is visible across the bottom of the interface.

**What it is:**

- SERVICE for distribution/publication of standards
- Multiple standards hosted in bSDD
- Ability to connect to each other and definitions outside of bSDD (using URIs)
- Ownership of standards is split in domains
- Ability to extend & reuse standards
- Also open for company/country specific standards

**What it is NOT:**

- Hosting actual project data
- Hosting manufacturer product data
- Made for maintaining standards
- A standard itself

- Publication/distribution of connected standards (including IFC): Classifications, Properties(sets), allowed values, attributes, units, etc.
- For BIM modellers: standardized way to access data to enrich BIM

- Publication/distribution of connected standards (including IFC): Classifications, Properties(sets), allowed values, attributes, units, etc.
- For BIM modellers: standardized way to access data to enrich BIM
- For advanced users: way to extend IFC, use multi-language search capabilities, find manufacturer products, filter compliancy (PDT attributes), Linked Data ontology publication/linking, tag products for tracking, create Exchange Requirements (IDS), etc. etc..

- Current data in the bSDD are all available without costs
- Data owners pay hosting fee to buildingSMART
- Data owners stay owner; publish under license of choice
- buildingSMART is (hosting)service provider

More info: <https://www.buildingsmart.org/users/services/buildingsmart-data-dictionary/>

- Current data in the bSDD are all available without costs
- Data owners pay hosting fee to buildingSMART
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More info: <https://www.buildingsmart.org/users/services/buildingsmart-data-dictionary/>

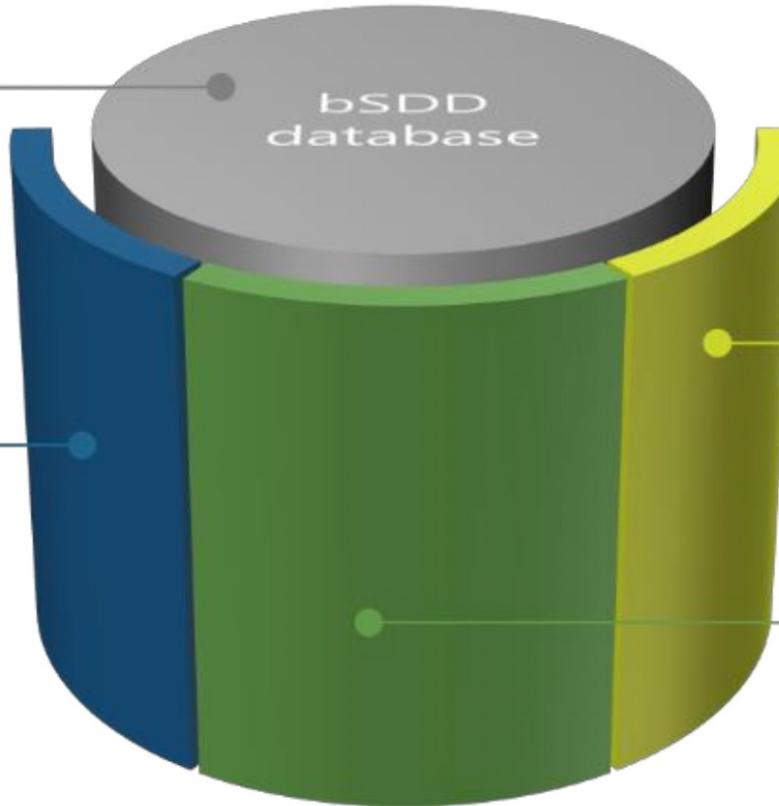
In future: not all data in bSDD will be free : end-user may have to pay a license fee to the domain owners

- Running on Azure
- “Prototype” → technical stable but organisation development needed
- Deployed: database and search GUI
- Data
  - ~ 15 domains (deployed or prototype)

# Howto Access the data



Canonical database;  
Every owner has  
their own domain



GraphQL



ISO 12006-3 (updated)



JSON API



# Help me !



Bsdd\_support@buildingsmart.org



[https://player.vimeo.com/video/446417661?app\\_id=122963](https://player.vimeo.com/video/446417661?app_id=122963)



bSDD API prototype v1 OAS3

</swagger/v1/swagger.json>

## Domain

Contains general information about the domain and

Field	DataType
OrganizationCode	Text
DomainCode	Text

<https://bs-dd-api-prototype.azurewebsites.net/swagger/index.html>

<https://github.com/buildingSMART/bSDD/blob/master/2020%20prototype/import-model/bSDD%20JSON%20import%20model.md>

# New ISO standards & bSDD



INTERNATIONAL  
STANDARD

ISO  
23386

First edition  
2020-03

Building information modelling  
and other digital processes used  
in construction — Methodology  
to describe, author and maintain  
properties in interconnected data  
dictionaries

Modélisation des informations de la construction et autres processus  
numériques utilisés en construction — Méthodologie de description,  
de création et de gestion des propriétés dans les dictionnaires de  
données interconnectées



Reference number  
ISO 23386:2020(E)

© ISO 2020

DRAFT INTERNATIONAL STANDARD  
ISO/DIS 23387

ISO/TC 59/SC 13

Secretariat: SN

Voting begins on:  
2019-03-20

Voting terminates on:  
2019-06-12

Building Information Modelling (BIM) — Data templates  
for construction objects used in the life cycle of any built  
asset — Concepts and principles

ICS: 35.240.67; 91.010.01

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ISO/CEN PARALLEL PROCESSING



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ISO/DIS 23387:2019(E)

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ISO 12006-3:2021(E)

ISO TC 59SC 13WG 6

E

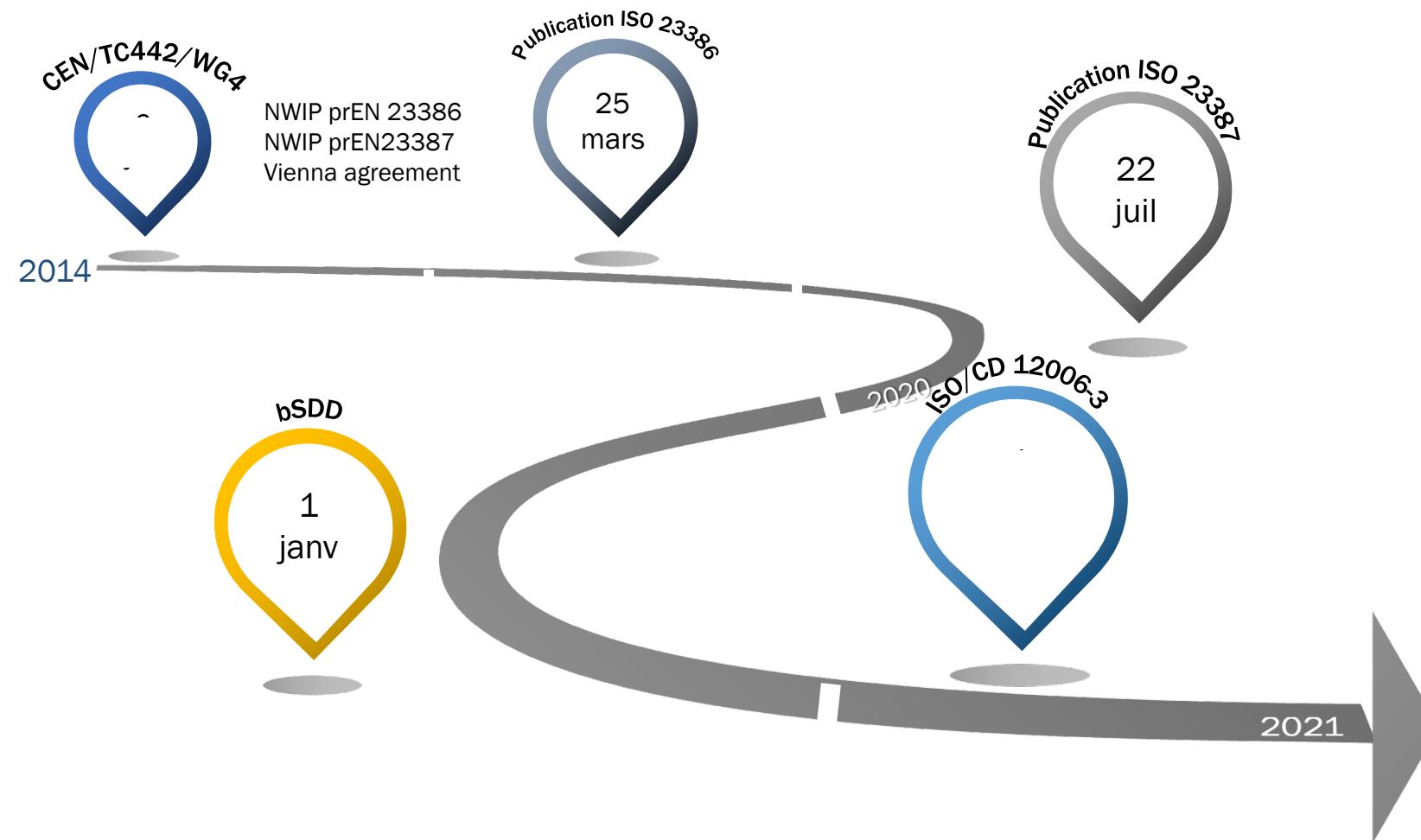
Secretariat: SN

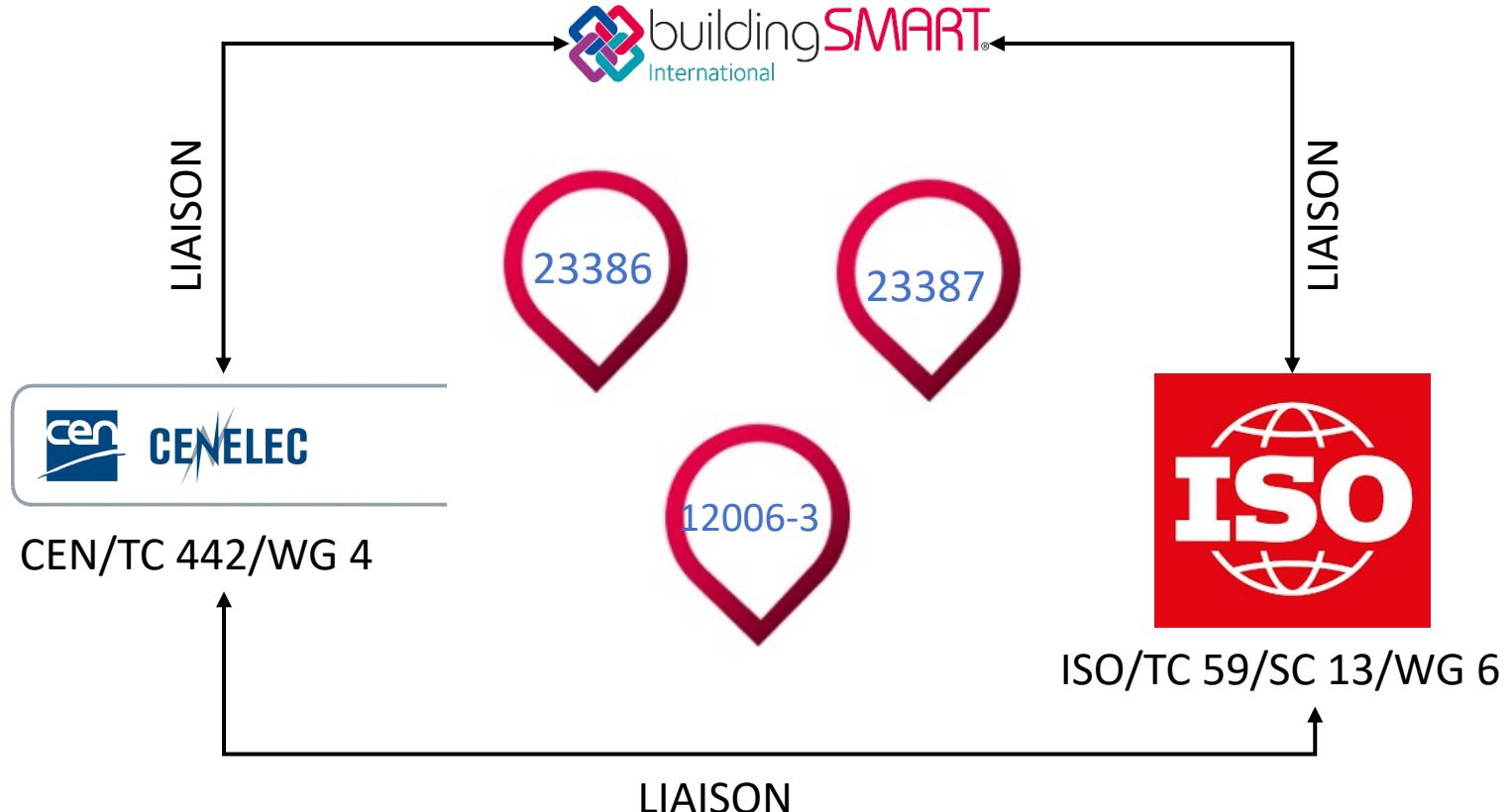
Building construction — Organization of information about  
construction works — Part 3: Framework for object-oriented  
information.

CD/ stage

Warning for WDs and CDs

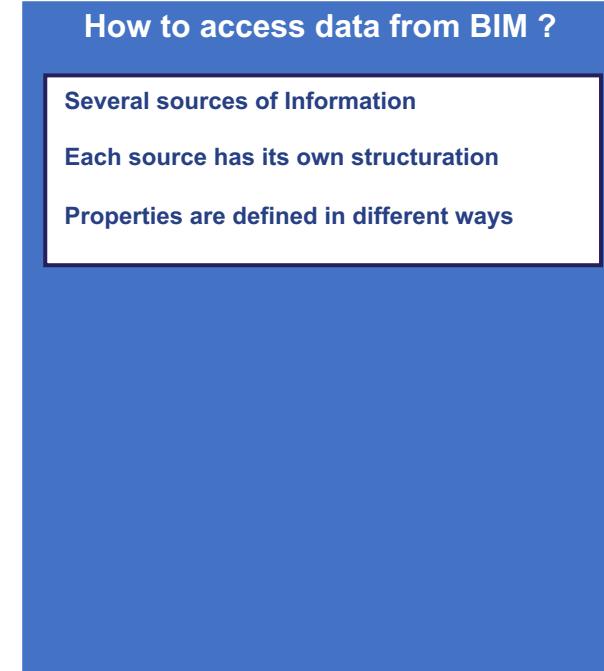
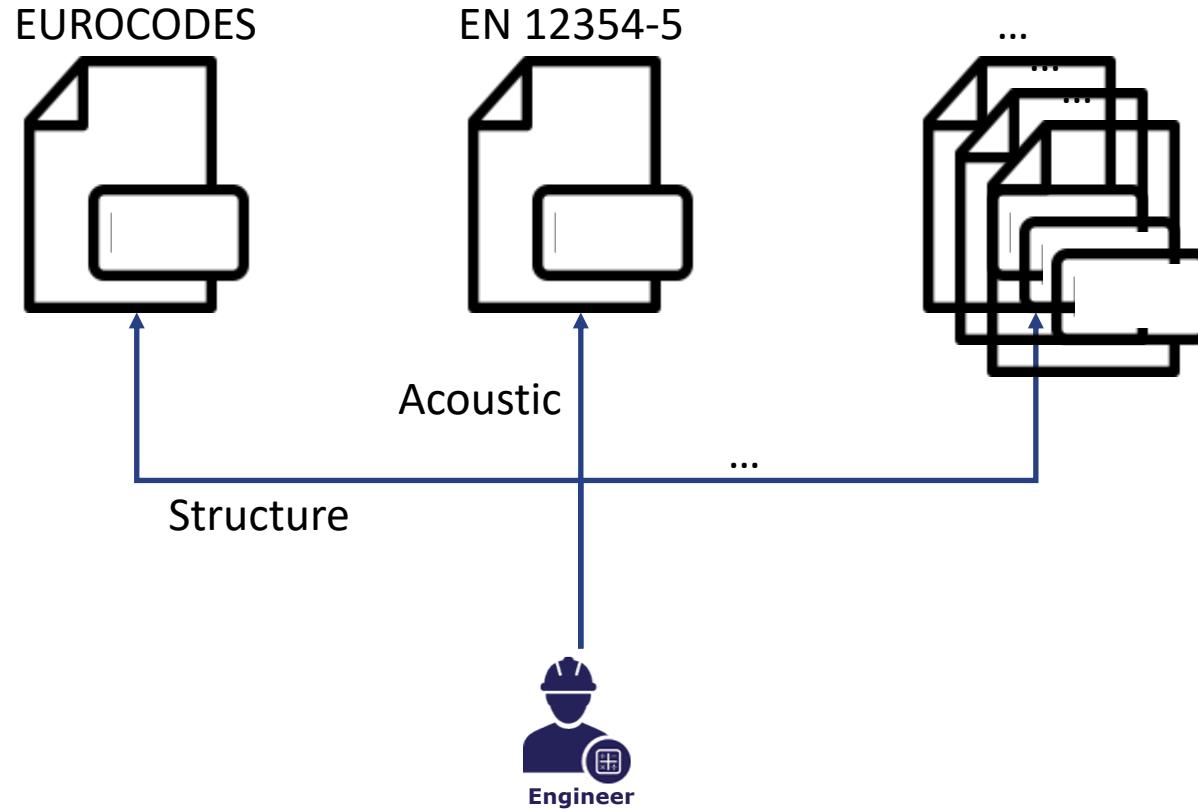
This document is not an ISO International Standard. It is distributed for review and comment. It is subject to change without notice and may not be referred to as an International Standard.  
Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.





# ISO 23386:2020

# An issue to solve



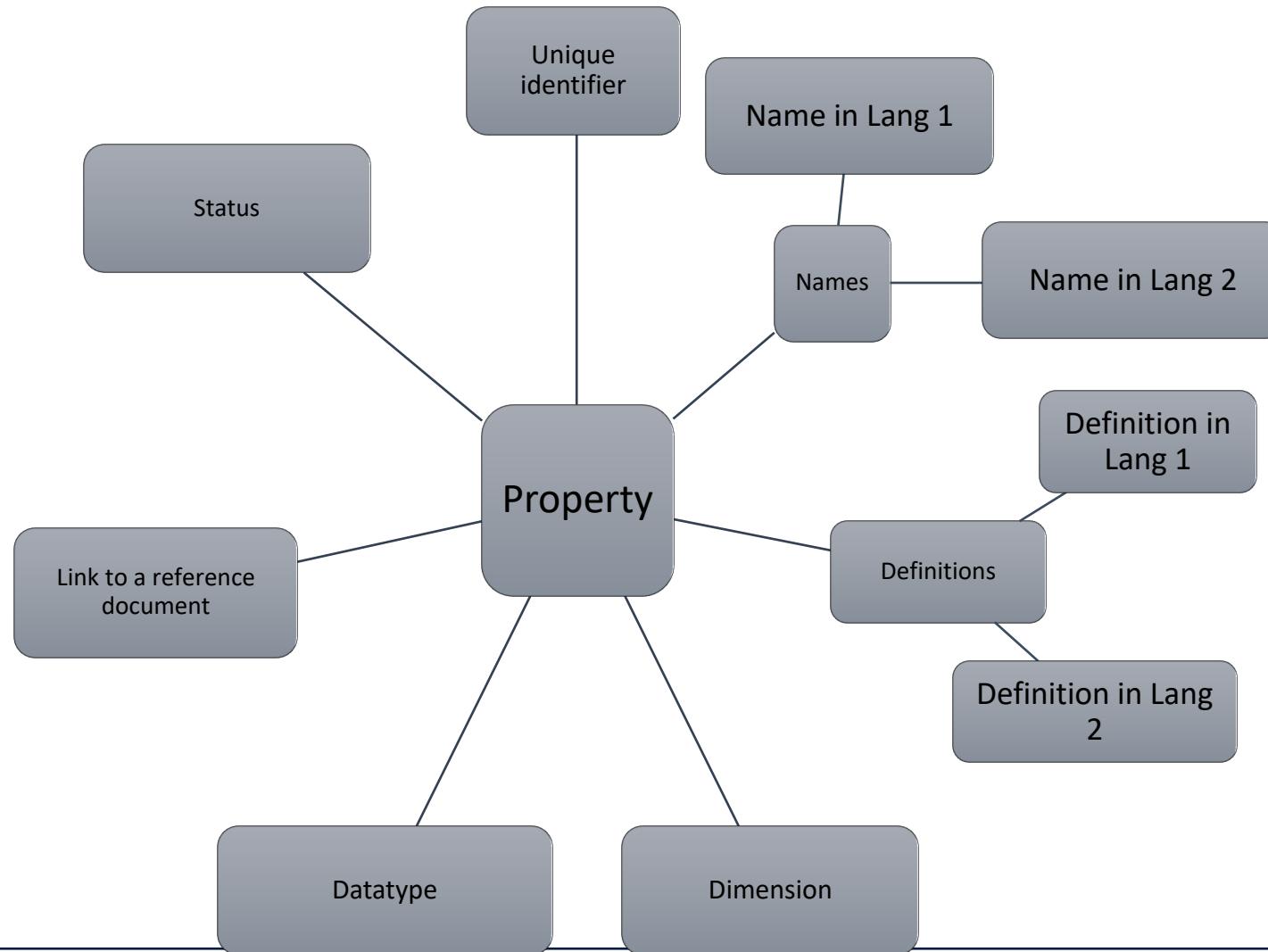
- ❖ **Trusted definitions** are needed (link to standards)
- ❖ A **definition** can not just be a **name + a text description**
- ❖ A **standardized way of defining concepts** is needed
- ❖ A dictionary can be handled with 2 kinds of concepts: **properties and groups of properties**
- ❖ A dictionary to rule them all will probably never exists: a solution to **interconnect dictionaries** is needed.

# 1 standard – 3 parts

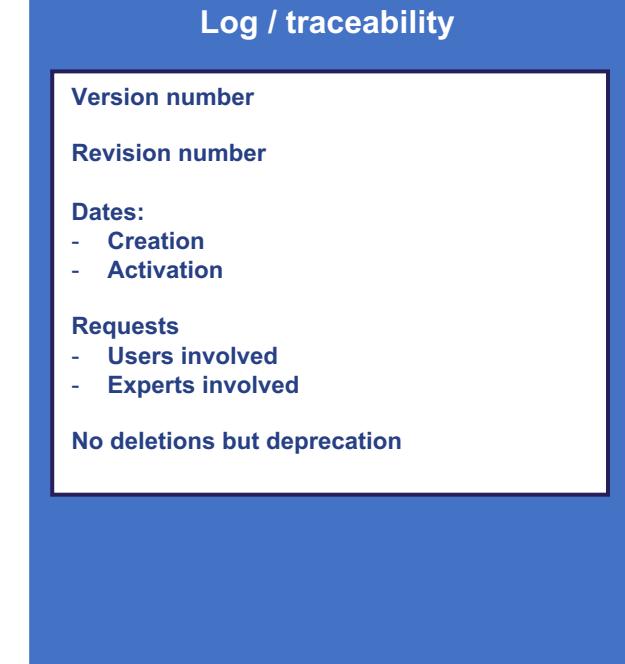


- ❖ How to define properties and groups of properties with a set of attributes.
- ❖ Workflows to author and maintain a dictionary
- ❖ How to interconnect dictionaries

# Definition of properties / groups of properties



**Definition is not « text name + text description »**



Code	Name	Description	Example	Interconnected data	Request
PA001	globally unique identifier	globally unique identifier	936DA01F-9ABD-4D9D-80C7-	Mandatory, calculated	Not relevant
PA002	Status	Status of the property during its life cycle	Active	Mandatory	Not relevant
PA003	Date of creation	Date of validation of the property	2014-04-30T10:39:53Z	Mandatory	Not relevant
PA004	Date of activation	Date after which the property can be	2014-04-30T10:39:53Z	Mandatory if the property	Not relevant
PA005	Date of last change	Date of validation of the last change	2014-04-30T10:39:53Z	Mandatory if the property	Not relevant
PA006	Date of revision	Date of the revision	2014-04-30T10:39:53Z	Mandatory	Not relevant
PA007	Date of version	Date of the version	2014-04-30T10:39:53Z	Mandatory	Not relevant
PA008	Date of deactivation	Date as of which the property becomes	2014-04-30T10:39:53Z	Mandatory if the property	Not relevant
PA009	Version number	This version number allows tracking of	2	Mandatory	Mandatory
PA010	Revision number	This revision number allows tracking of	3	Mandatory	Mandatory
PA011	List of replaced properties	Globally unique identifier (attribute)	946DA01F-9ABD-4D9D-80C7-	Mandatory if the property	Mandatory if the
PA012	List of replacing properties	Globally unique identifier (attribute)	935DA01F-9ABD-4D9D-80C7-	Mandatory if the property	Mandatory if the
PA013	Deprecation explanation	Sentence explaining the reason of the		Mandatory if the property	Mandatory if the
PA014	Relation of the property identifiers in	List of pairs (property internal identifier, <a href="#">(internalGUID1, back/buildingPart.grp)</a> )		Optional, Mandatory if the	Optional,
PA015	Creator's language	Language of the creator of the property	en-EN	Mandatory	Mandatory
PA016	Names in language N	List of pairs (name of the property and <a href="#">(PropertyName en-EN)</a> )		Mandatory	Mandatory
PA017	Definitions in language N	List of pairs (definition of the property)		Mandatory	Mandatory
PA018	Descriptions in language N	List of pairs (description of the property)		Optional	Optional
PA019	Examples in language N.	List of pairs (example values, language)		Optional	Optional
PA020	Connected properties	List of the globally unique identifier of the	936DA01F-9ABD-4D9D-80C7-	Optional	Optional
PA021	Group of properties	List of globally unique identifiers of	945DA01F-9BBD-4D9D-80C7-	Mandatory	Mandatory
PA022	Symbols of the property in a given	Pair (symbol of the property, globally	(A   936DA01F-9ABD-4B6D-80C7-	Optional	Optional
PA023	Visual representation	Visual representation of the property		Optional	Optional
PA024	Country of use	Country in which the property is used	FR	Mandatory	Mandatory
PA025	Subdivision of use	Documented geographical region of use	USMT	Optional	Optional
PA026	Country of origin	Country from where the requirement for	FR	Optional	optional
PA027	Physical quantity	List of pairs (physical quantity)	(Mass en-EN),	Mandatory	Mandatory
PA028	Dimension	In case of a physical quantity, dimension	For acceleration (L-T-2) the value to	Mandatory if not non-	Mandatory if not
PA029	Method of measurement	evaluation of construction products to	Type[CY7] [FG8] of specimen according	Optional	Optional
PA030	Data Type	Format for expressing the value of the	(numerical, numerical)	Mandatory, derived from	Mandatory
PA031	Dynamic property	If this is a dynamic property, the value is	Yes	Mandatory	Mandatory
PA032	Parameters of the dynamic property	List of GUIDs of properties which are		Optional, mandatory if	Optional,
PA033	Units	A unit to represent a scale that enables a	m2, mm , m, kg	Optional, consistent with	Optional,
PA034	Name of the defining values	In case of an array, this attribute	In case of array (3, 2)	Optional, mandatory if	Optional,
PA035	Defining Values	In case of an array, this attribute	In case of array (3,2)	Optional	Optional
PA036	Tolerance	For numerical values; the total amount that a specific unit is permitted to vary; it is the difference between the maximum and the minimum limits for the unit		Optional	Optional
PA037	Digital format	Pair for digital text type (precision, unit of measure) Precision is the number of significant digits	(1E-2, W/m2K)	Optional, derived from "Unit of measure"	Optional, derived from "Unit of measure"
PA038	Text format	Pair for text type (encoding, number of characters) <a href="#">The encoding is set according to "Name of encoding standard" of IANA, RFC2978[CY12]</a>	(UTF-8, 32)	Optional	Optional, mandatory if data type is a string
PA039	List of possible values in language N. Values can be string or numbers.	List of pairs (possible value for the property and language).	(Yes   en-EN), (No  en-EN) (Not Applicable   en-EN)	Optional	Optional
PA040	Boundary values	Pair (list of boundary intervals of possible values for the property, unit)	(([-15,-10],(-5,15]), °C)	Optional	Optional

# Definition of a group of properties

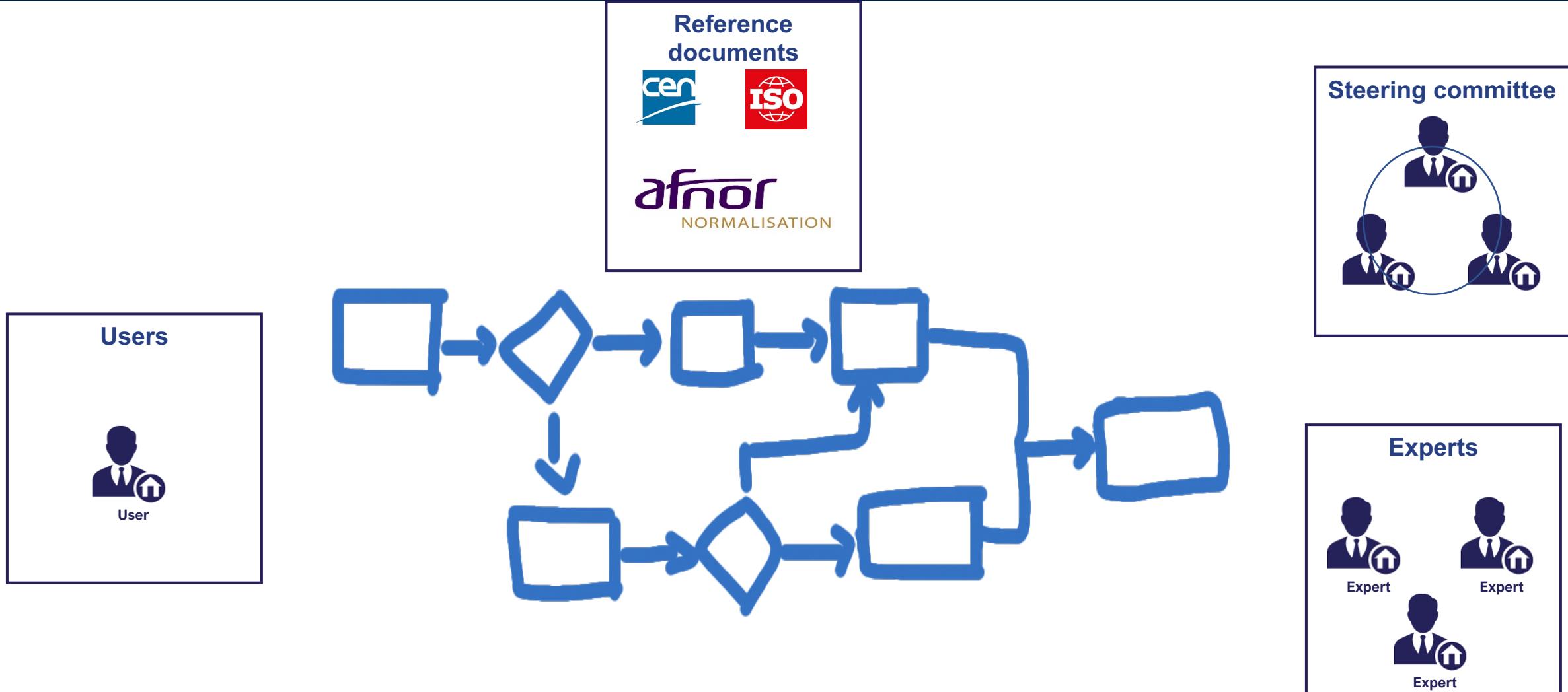


Code	Name	Description	Example	Interconnected reference	Request form
GA001	globally unique identifier	Globally unique identifier	930DA01F-9ABD-4D9D-80C7-	Mandatory	Not needed
GA002	Status	Status of the property during its life cycle.		Mandatory	Not needed
GA003	Date of creation	Date of validation of the group of properties creation request	2014-04-30T10:30:53Z	Mandatory	Not needed
GA004	Date of activation	Date after when the group of properties can be used	2014-04-30T10:30:53Z	Mandatory if the group of	Not needed
GA005	Date of last change	Date of validation of the last change request by experts	2014-04-30T10:30:53Z	Mandatory	Not needed
GA006	Date of revision	Date of the revision	2014-04-30T10:30:53Z	Mandatory	Not needed
GA007	Date of version	Date of the version	2014-04-30T10:30:53Z	Mandatory	Not needed
GA008	Date of deactivation	Date as of which the group of properties becomes obsolete;	2014-04-30T10:30:53Z	Mandatory if the group of	Not needed
GA009	Version number	This version number allows tracking of major changes. It is the	2	Mandatory	Mandatory
GA010	Revision number	This revision number allows tracking of minor changes e.g.	3	Mandatory	Mandatory
GA011	List of replaced groups	Identifier of the replaced group of properties		Mandatory if the group of	Optional
GA012	List of replacing groups	Identifier of the replacing group of properties		Mandatory if the group of	Mandatory if the group
GA013	Relation of the group of	List of pairs (group of properties internal identifier,	<a href="#">InternalG UID1</a> ,	Optional, Mandatory if the	Optional, Mandatory if
GA014	Deprecation explanation	Sentence explaining the reason of the deprecation, which can		Mandatory if the group of	Mandatory if the group
GA015	Creator's language	Language of the creator of the group of properties	en-EN	Mandatory	Mandatory
GA016	Names in language	List of pairs (name of the group of properties and language)	((GroupName   en-EN),	Mandatory	Mandatory
GA017	Definitions in language	List of pairs (definition of the group of properties , language)		Mandatory	Mandatory
GA018	Visual representation	Visual representation of the group of properties through		Optional	Optional
GA019	Country of use	Country in which the group of properties is used	(FR, US)	Mandatory	Mandatory
GA020	Subdivision of use	Documented geographical region of use of the group of	(US-MT)	Optional	Optional
GA021	Country of origin	Country from where the requirement for this group of	FR	Optional	Optional
GA022	Category of group of	Indicates the category of the group of properties created		Mandatory	Mandatory
GA023	parent group of	Enables a sub-group to be linked to a parent group via their		Optional	Optional

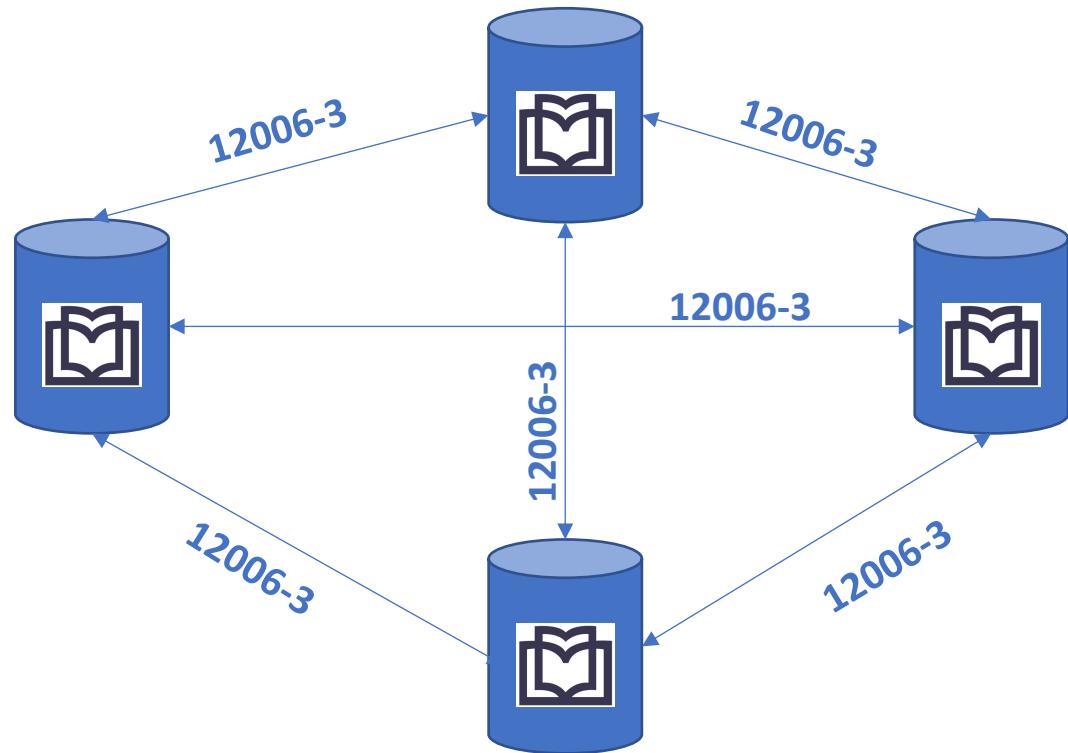
# Definition of a request

Code	Name	Definition	Example	Management rule	Type
RA.001	Globally unique identifier of the property (or properties)	Globally unique identifier	936DA01F-9ABD-4D9D-80C7	Mandatory	Multiple values
RA.002	Comment	Detailed expression of the request		Mandatory	String
RA.003	Applicant	All the necessary information to contact the applicant (person or entity)		Mandatory	
RA.004	Language code	Language code of the creator	FR	Mandatory	List
RA.005	External status	Status of the request which indicates its stage of progress in the process between the creator and the recipient		Mandatory	List
RA.006	Internal status	Status of the request for each expert which indicates its stage of progress in the experts' process; the status is defined by the expert		Mandatory	List
RA.007	Date of submission	Date of submission of the request	2014-04-30T10:39:53Z	Mandatory	Date
RA.008	Nature	Characterises the request with respect to the existence of a property		Mandatory	List

# Quality insurance



# Interconnection



# bSDD & ISO 23386 Compliance

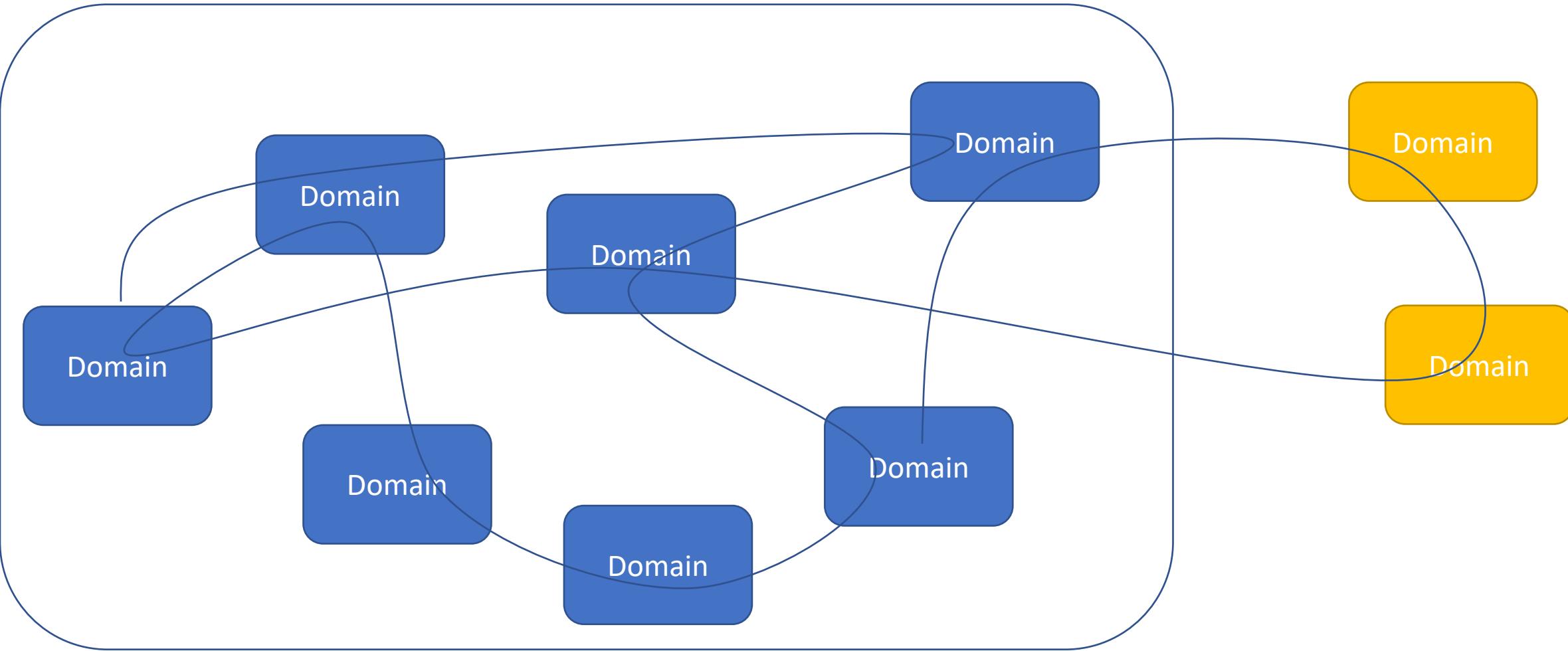


ISO 23386:2020	bSDD
Dictionary	Domain
Property	Property
Group of properties	Classification

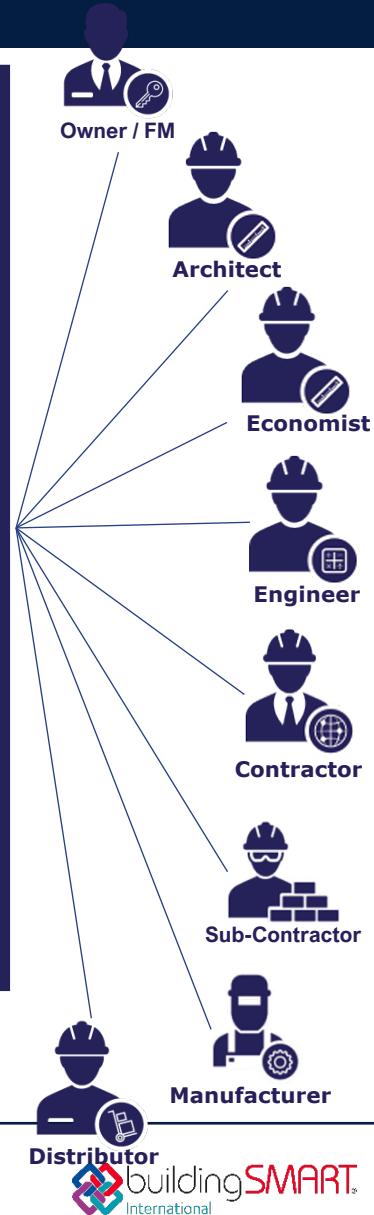
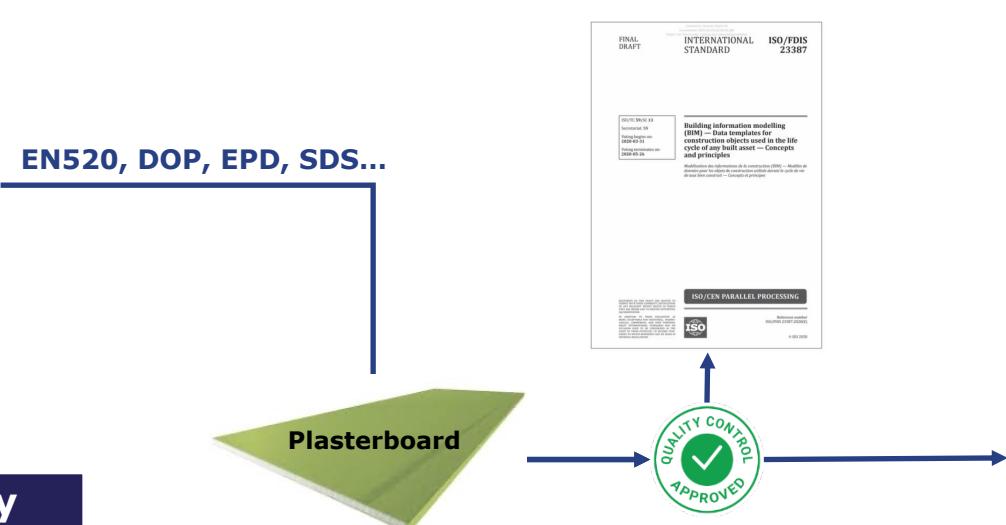
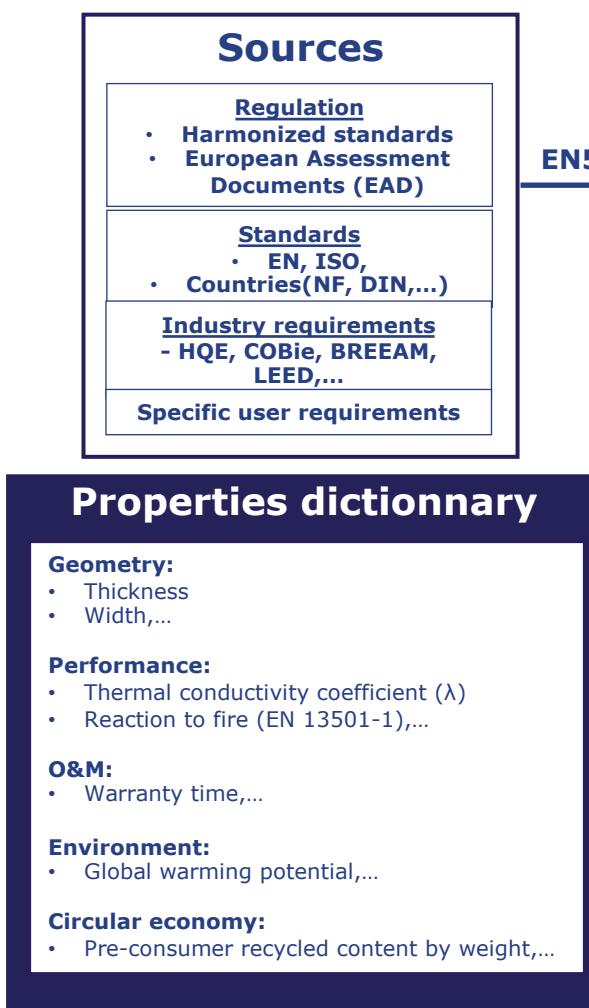
<b>PA002</b>	Status
<b>PA003</b>	Date of creation
<b>PA004</b>	Date of activation
<b>PA005</b>	Date of last change
<b>PA006</b>	Date of revision
<b>PA007</b>	Date of version
<b>PA008</b>	Date of deactivation
<b>PA009</b>	Version number
<b>PA010</b>	Revision number
<b>PA011</b>	List of replaced properties
<b>PA012</b>	List of replacing properties
<b>PA013</b>	Deprecation explanation

Status
ActivationDateUtc
RevisionDateUtc
VersionDateUtc
DeactivationDateUtc
VersionNumber
RevisionNumber
ReplacedObjectCodes
ReplacingObjectCodes
DeprecationExplanation

# bSDD links and maps content



# ISO 23387:2020



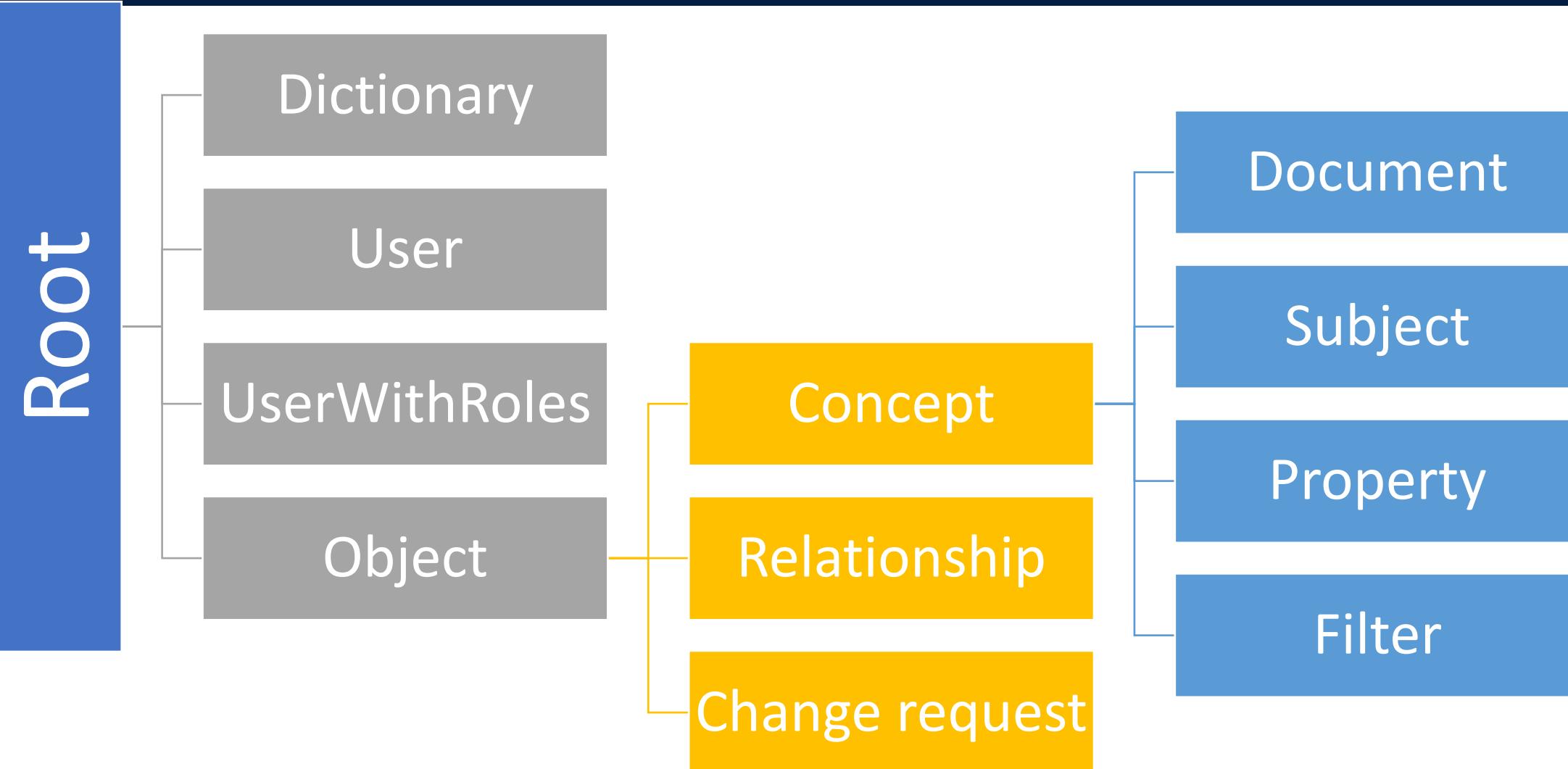
# ISO 12006-3

# To be revised or not to be?

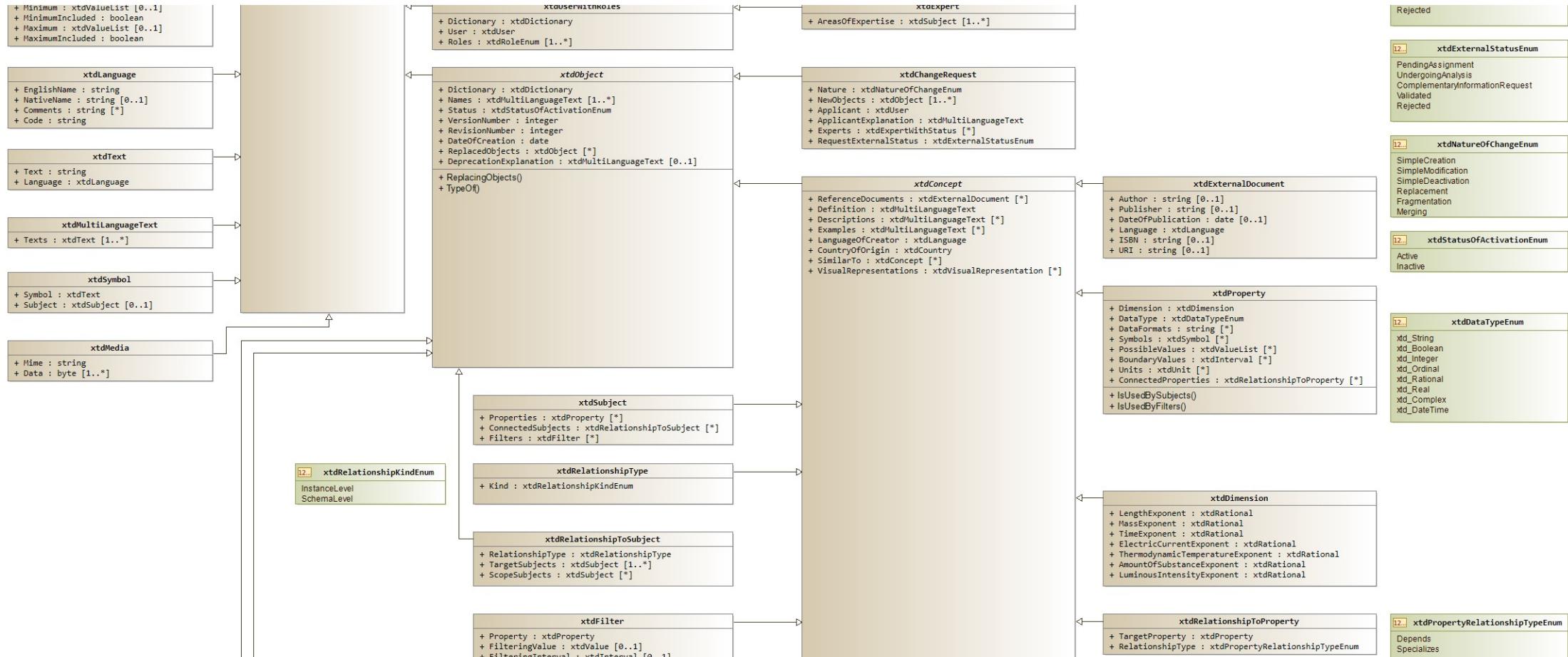


- ❖ To address ISO 23386 needs
- ❖ To address ISO 23387 (data templates) needs
- ❖ To be able to manage classifications
- ❖ To be multi-dictionaries (domains) compliant
- ❖ To standardize read-access API
- ❖ ...

# New structure - main entities



# UML Diagram (CD)



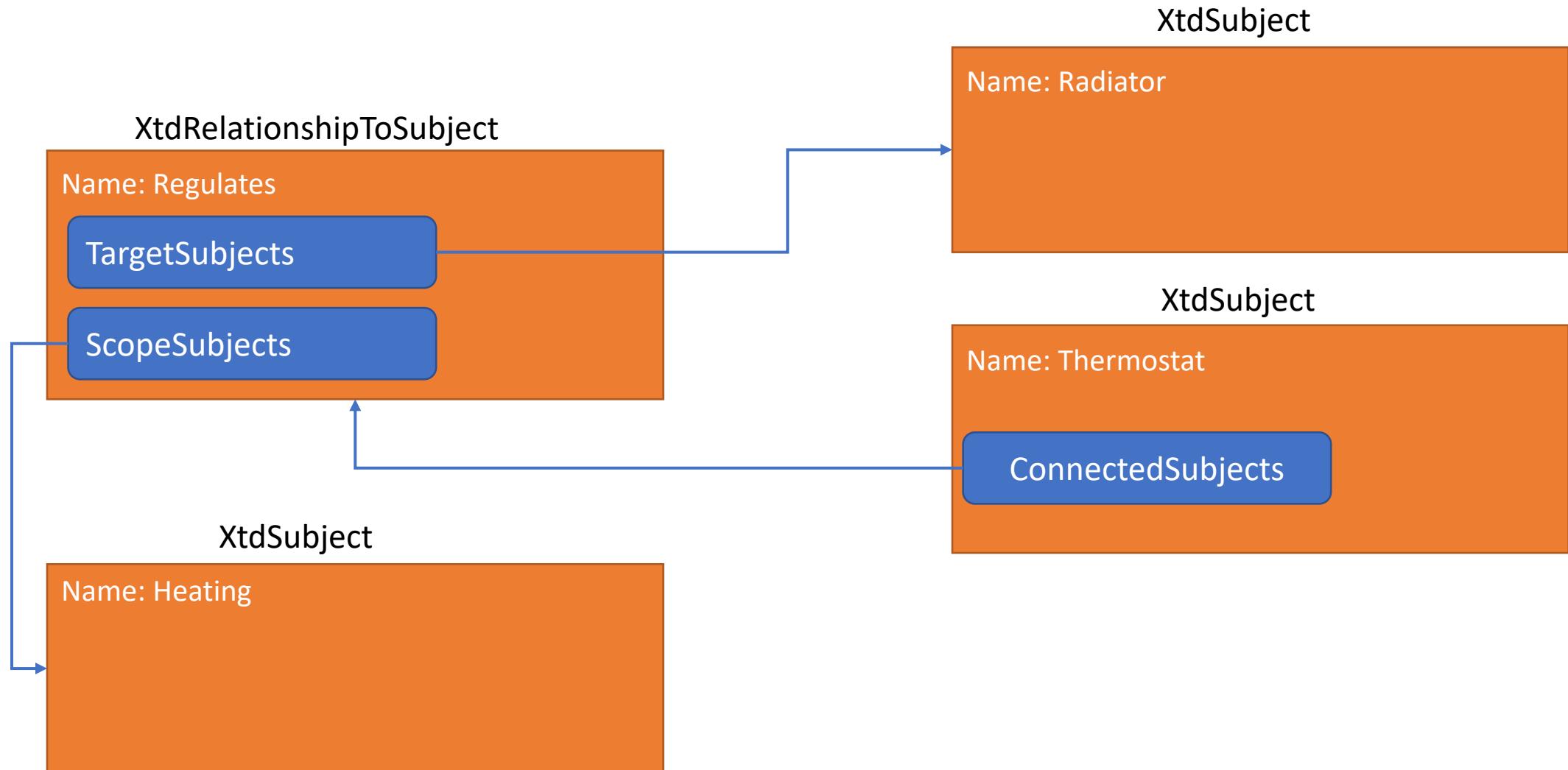
# Subject



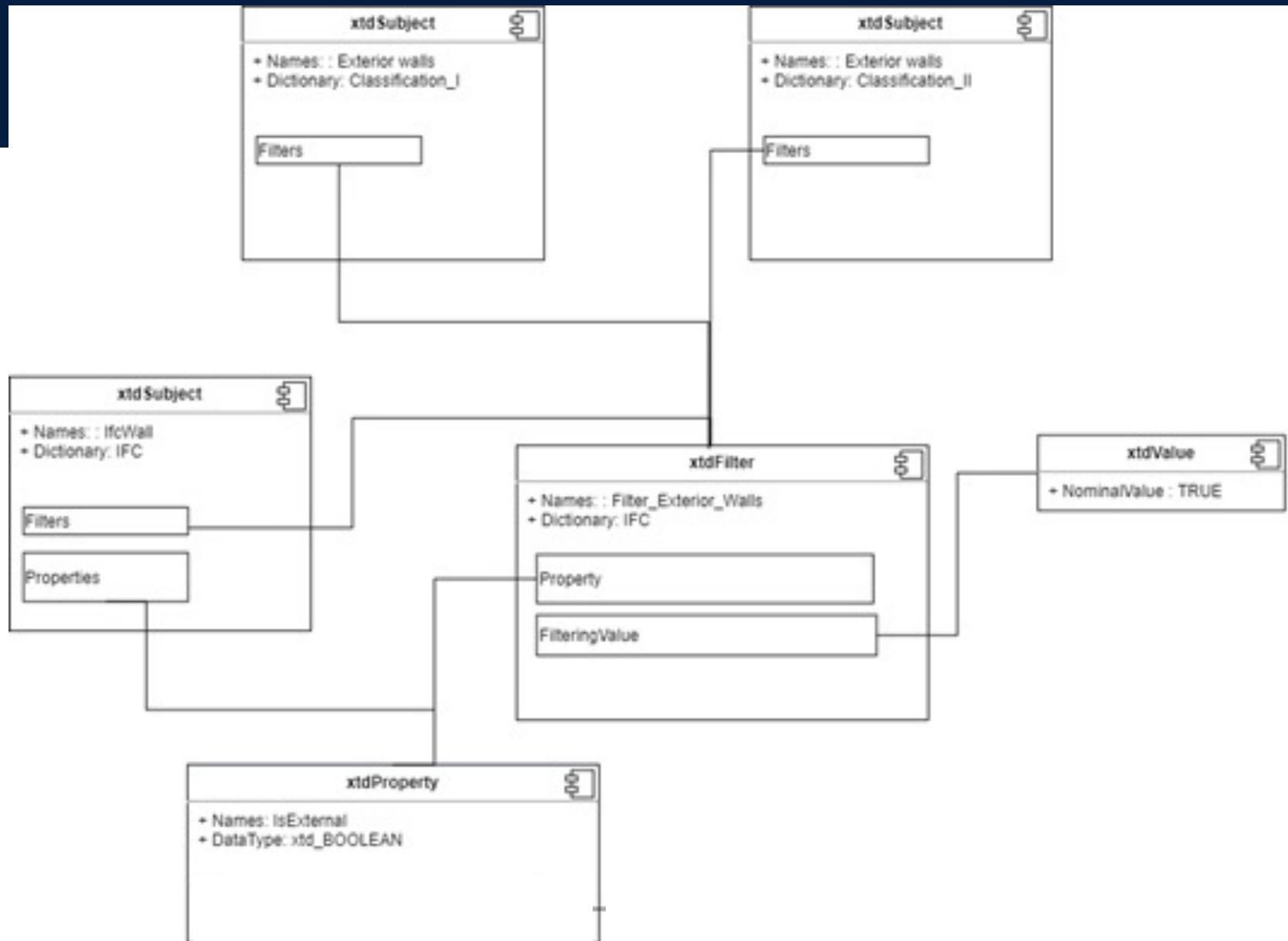
# Property



# Relationship



# Filters

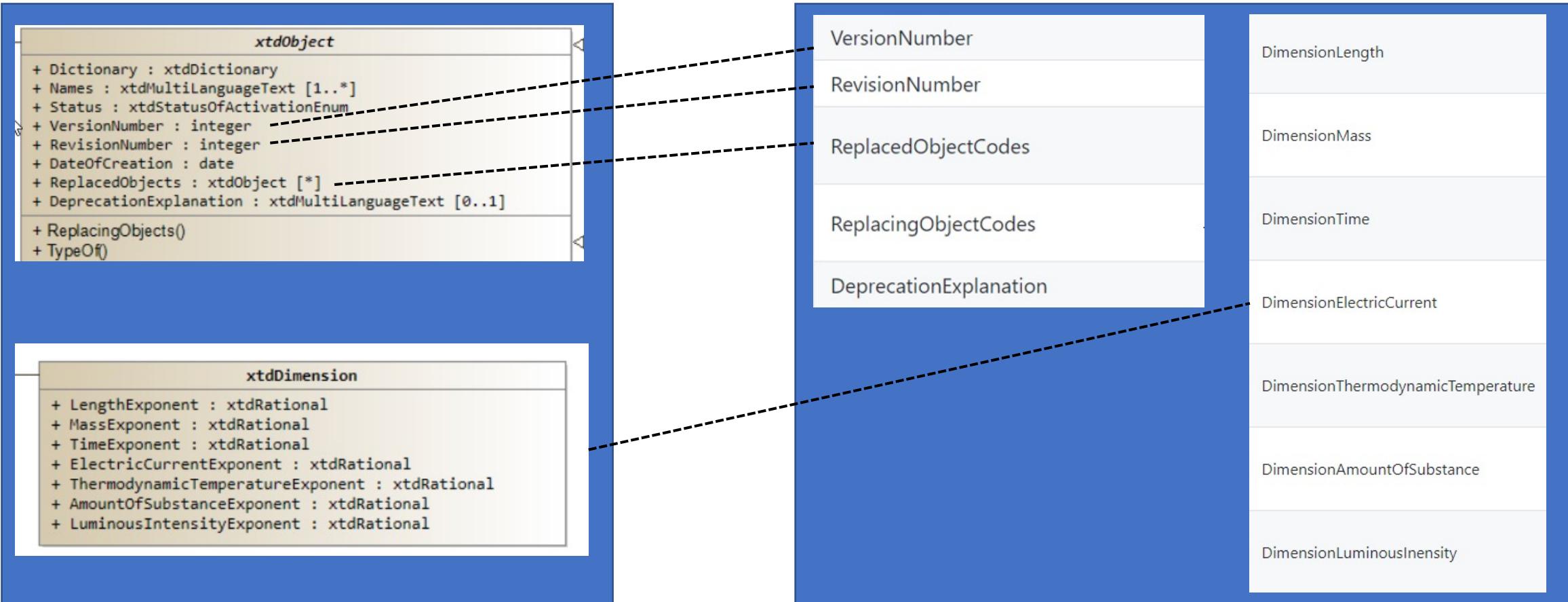


# 12006-3 rev. Vs bSDD



ISO 12006-3 rev	bSDD
xtdDictionary	Domain
xtdProperty	Property
xtdSubject	Classification
xtdExternalDocument	DocumentReference

# 12006-3 rev. Vs bSDD



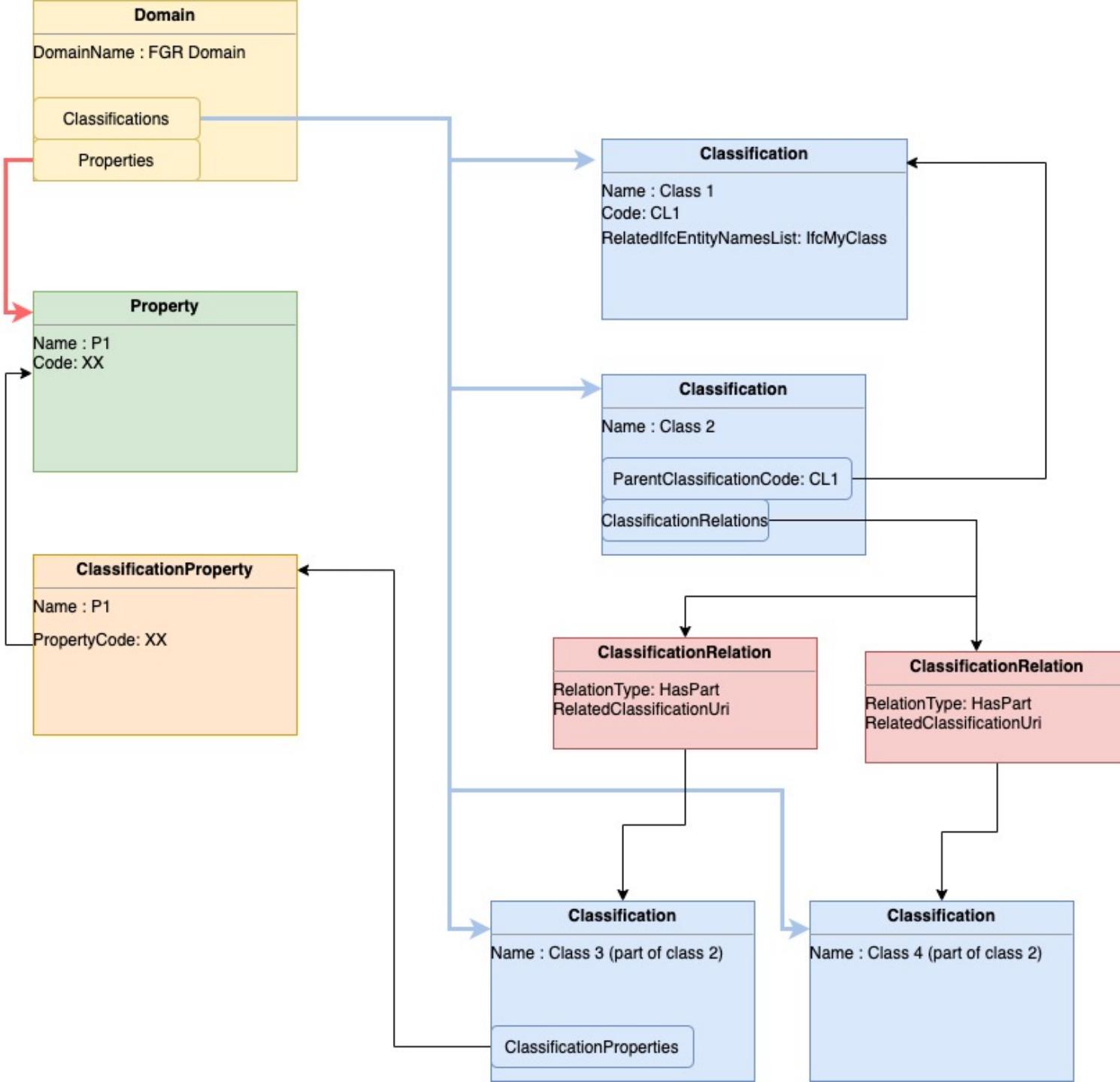
## 12006-3

standardizes a read only API

provides XSD Schema

**bSDD will be able to provide the content following 12006-3 requirements when published**

# bSDD import



# Database model

