LOINs using PDTs using bSDD
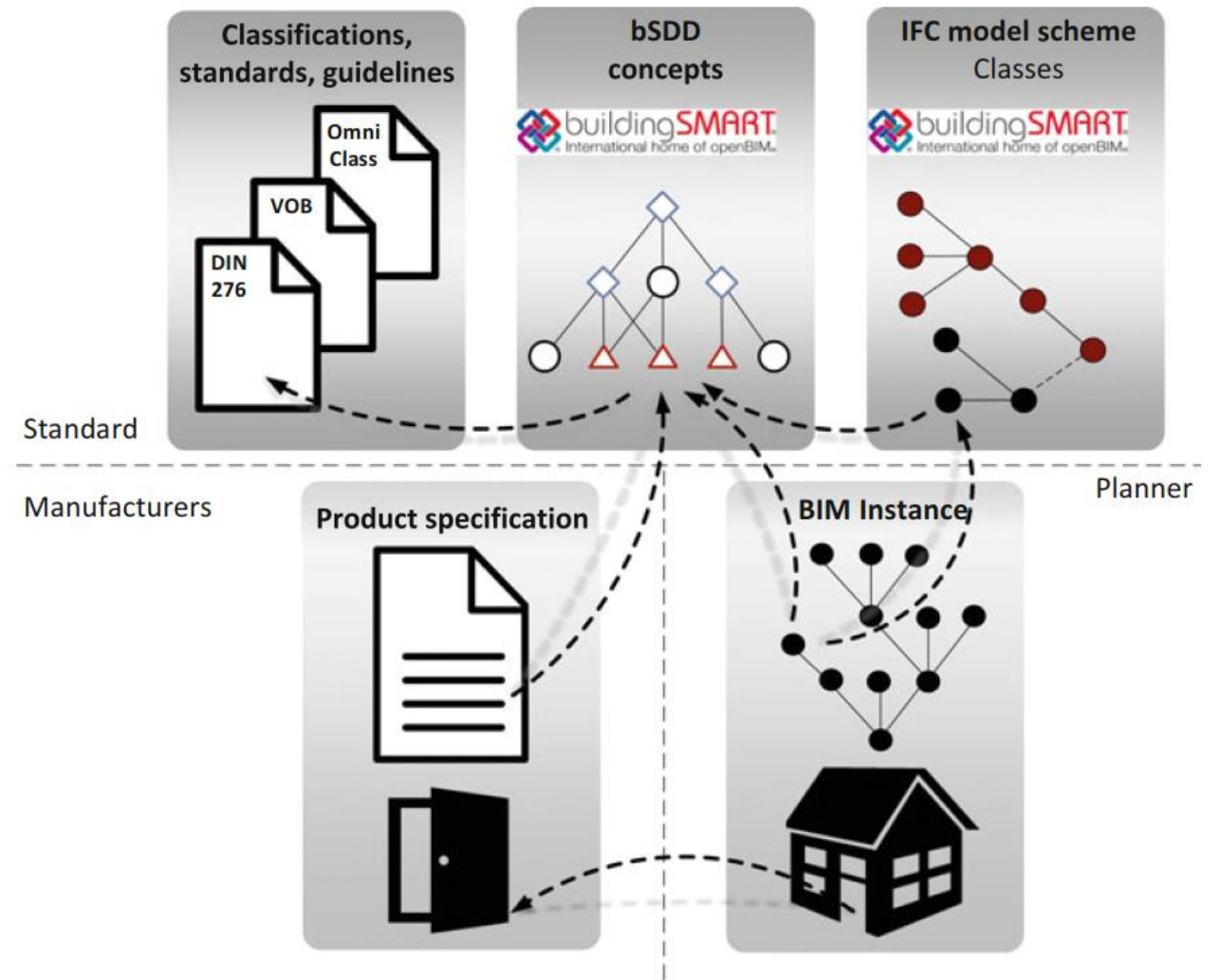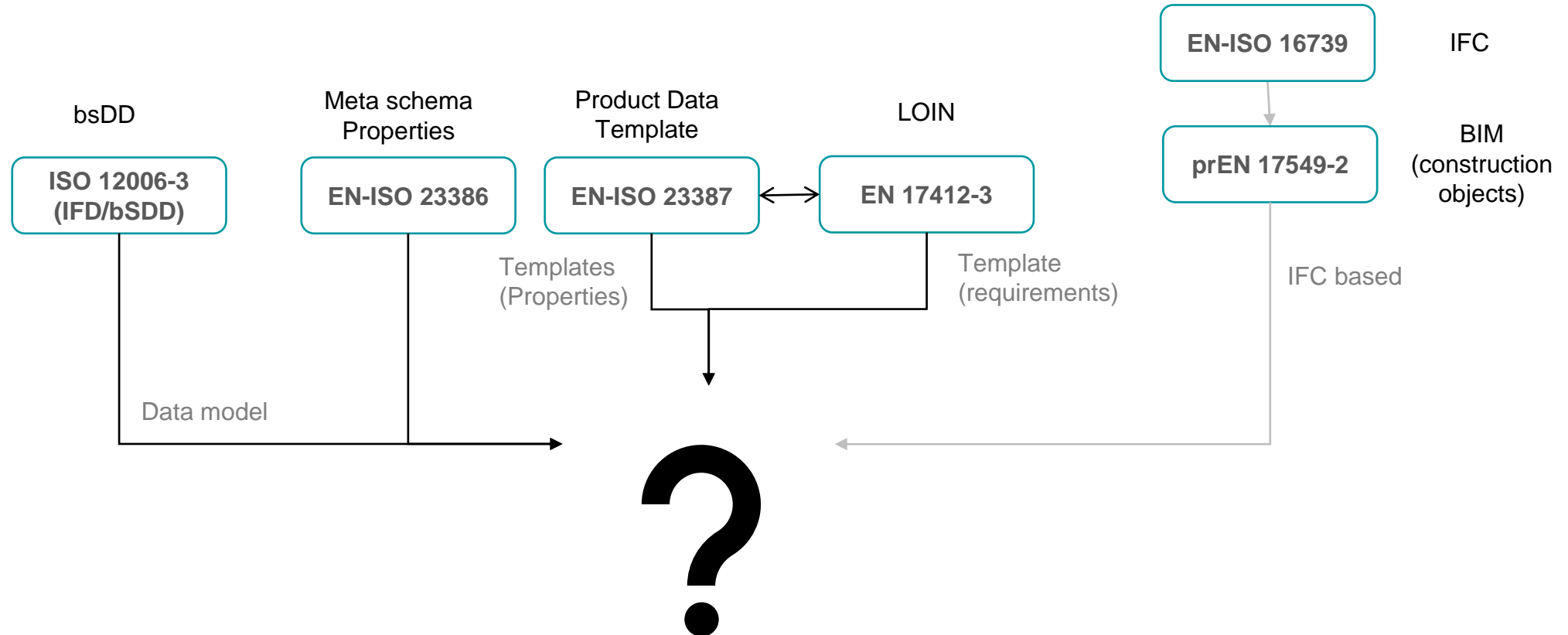
I don't have a solution, but let me sketch a picture of some of the problems

ISO 17412-3 meeting Feb 23

The challenge
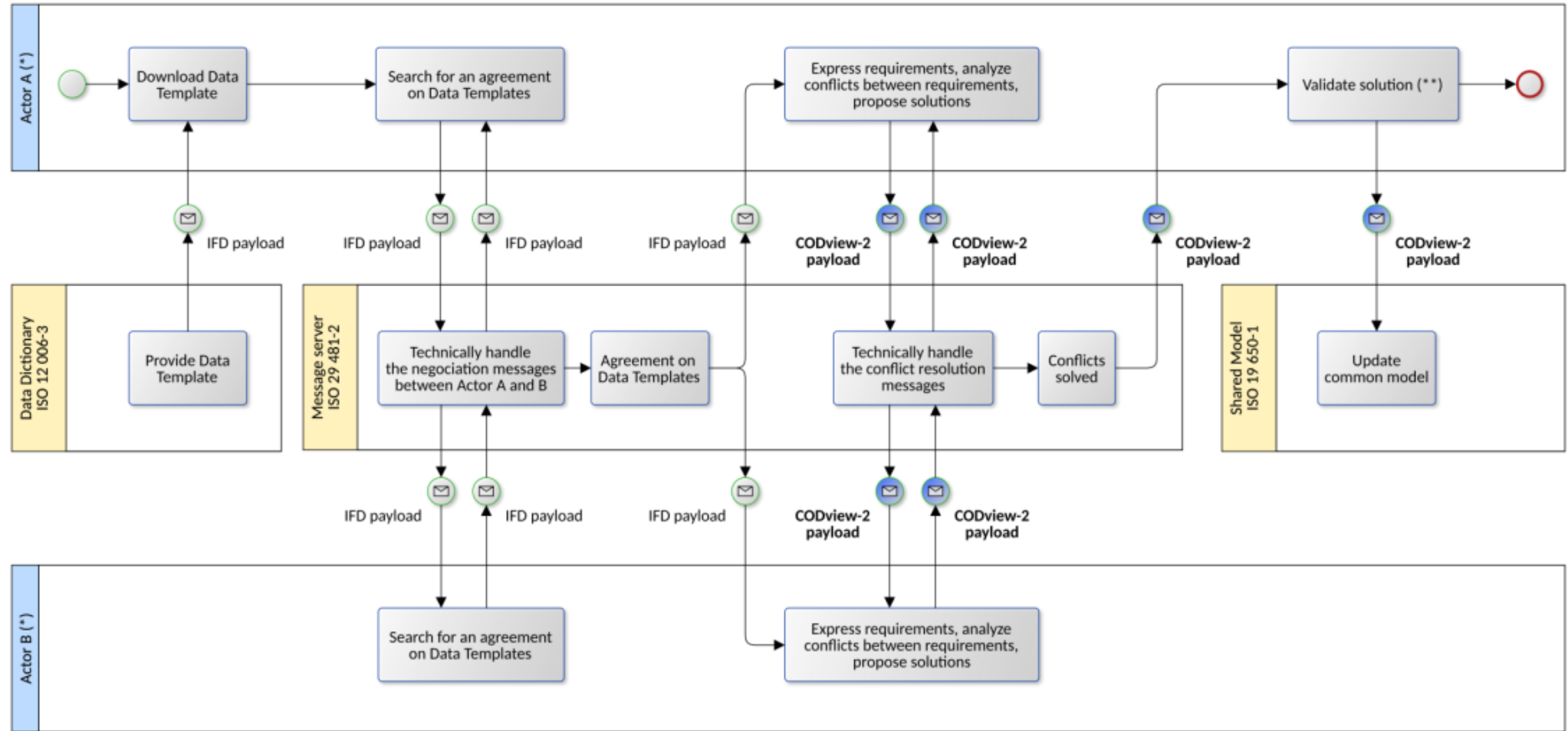
The challenge: ~~Islands of Automation~~ Islands of Standardization

bsDD
ISO 12006-3
(IFD/bSDD)

Meta schema
Properties
EN-ISO 23386

Product Data
Template
EN-ISO 23387

LOIN
EN 17412-3

EN-ISO 16739   IFC

prEN 17549-2   BIM
(construction
objects)

Templates
(Properties)

Template
(requirements)

Data model

IFC based

?

Not in the picture: IDS, idmXML, EN ISO 16757 (VDI 3805)

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ISO 17549

The challenge

ISO 17549

Information structure based on EN ISO 16739-1 to exchanging data templates and data sheets for construction objects – Part 2: Configurable construction objects and requirements; English version prEN 17549-2:2021
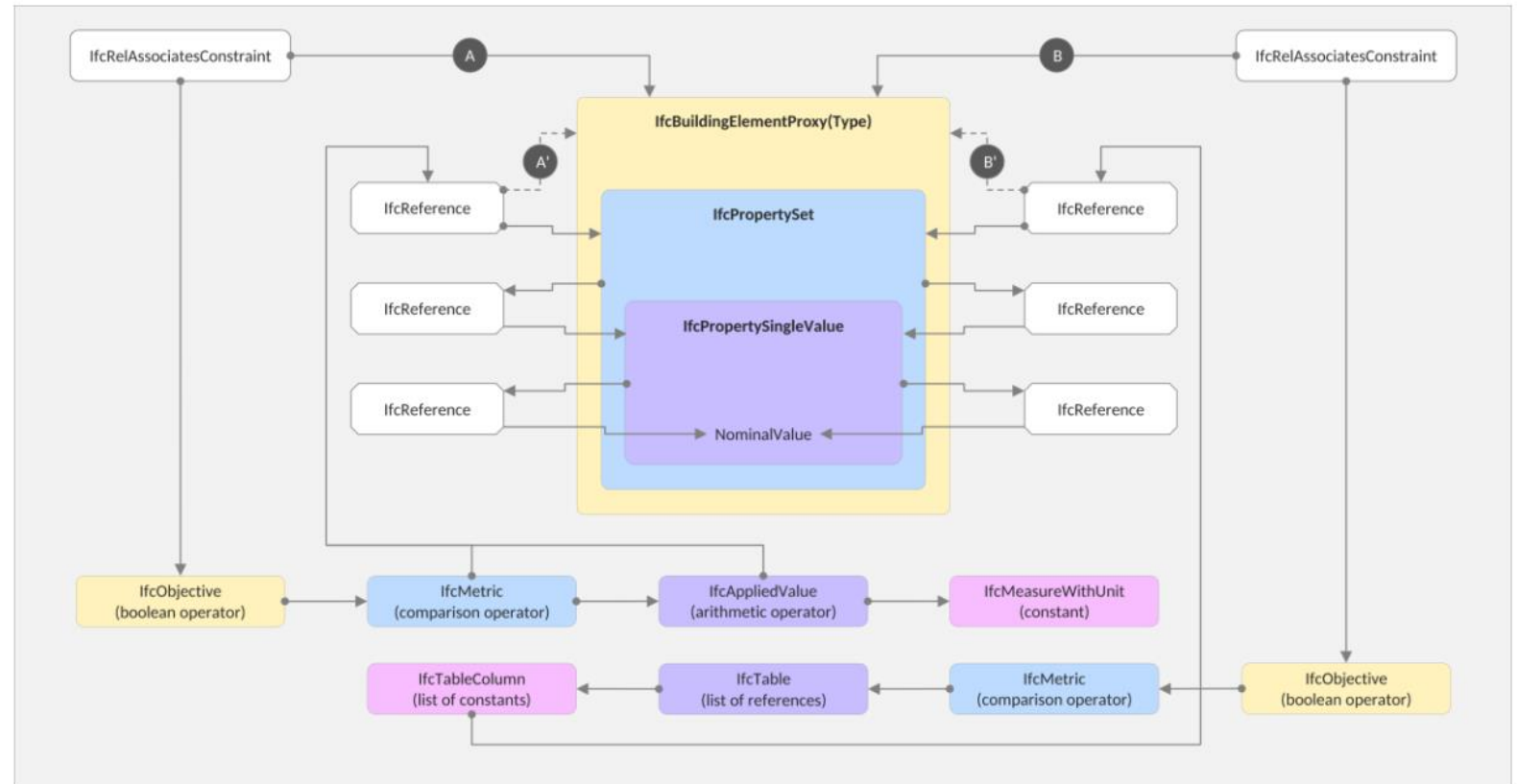

Figure B.1 — Implementation mechanism of constraints
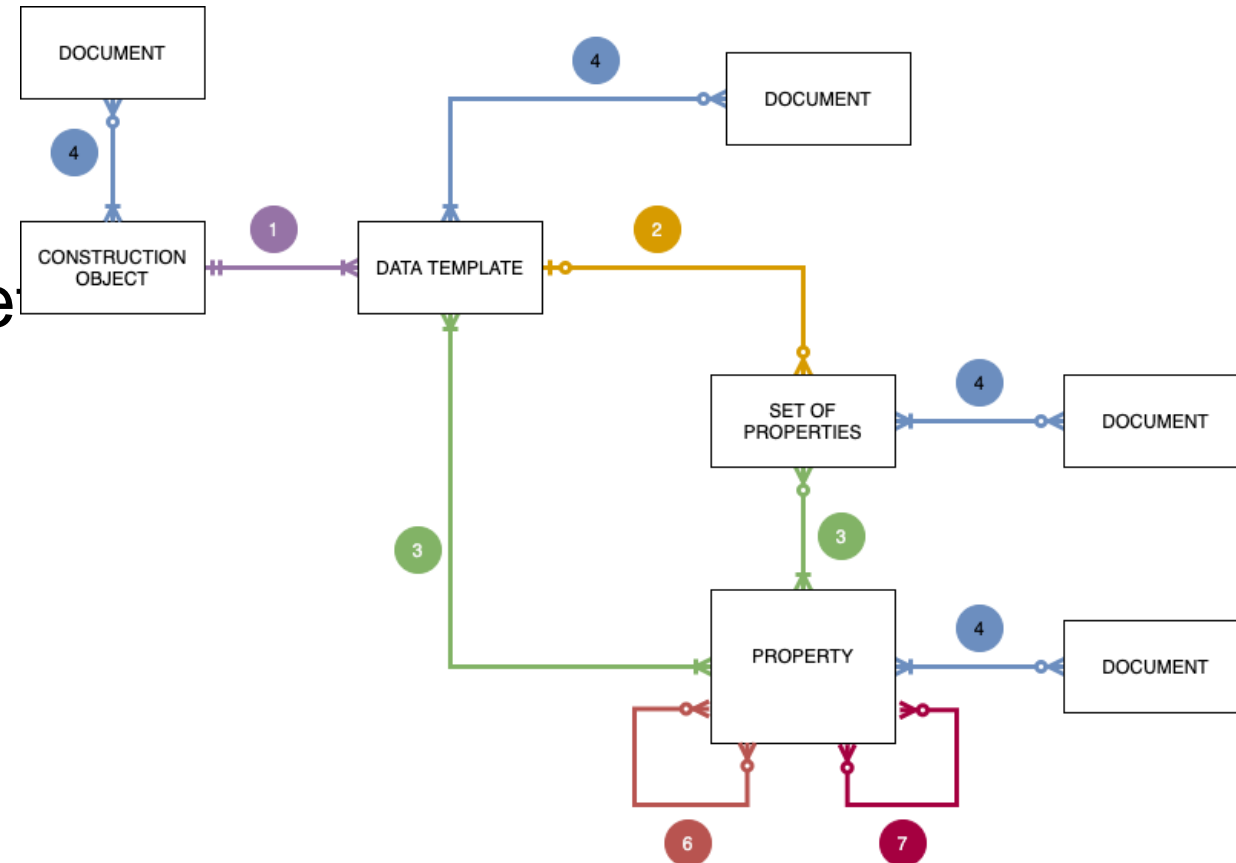
Harmonization with ISO EN 23387 (PDT)

Goal:
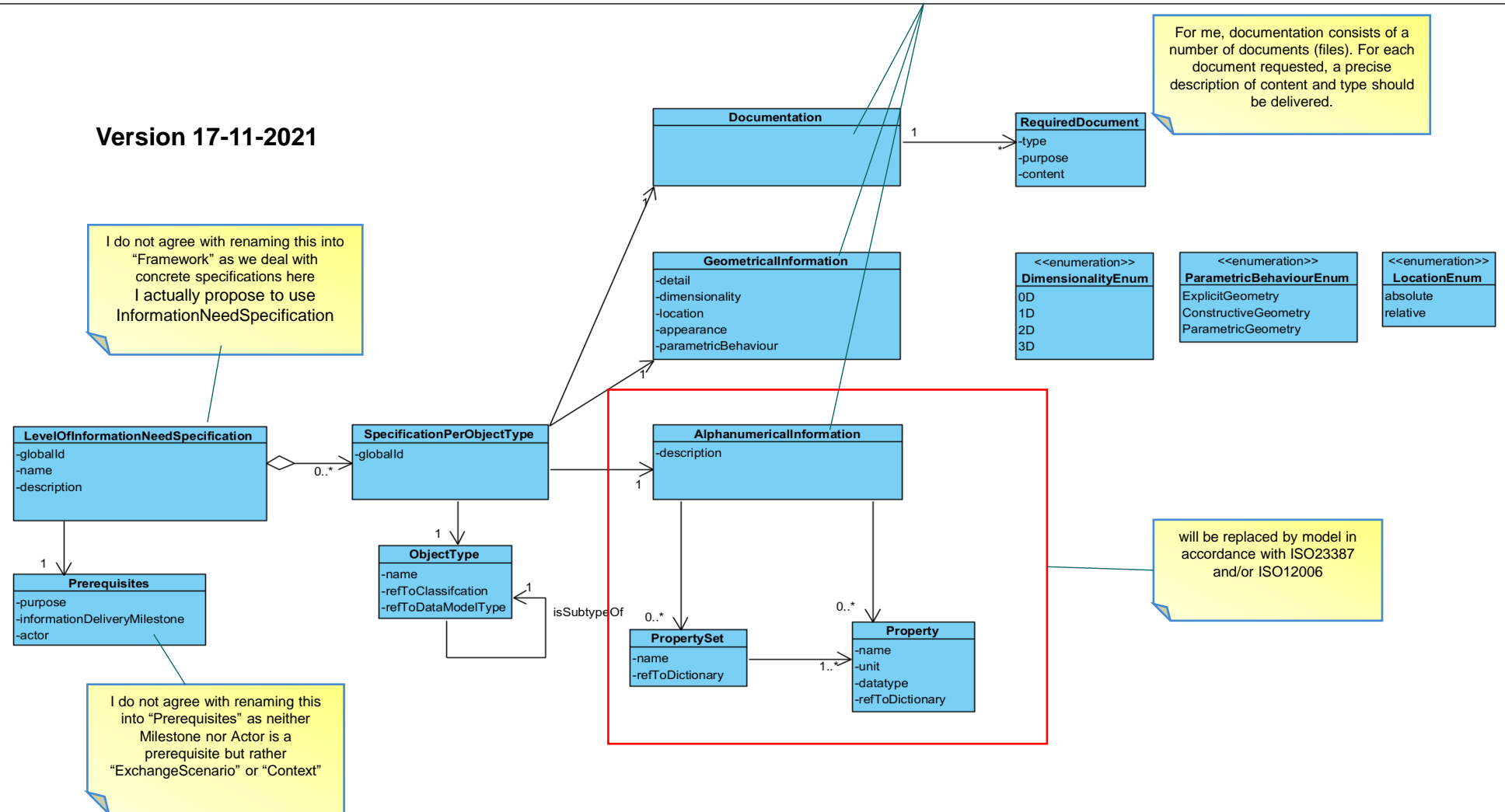Have a common way of describing Objects, Properties and PropertySets

Basis:
XML and PPTX delivered in June

Version 18-10-2022
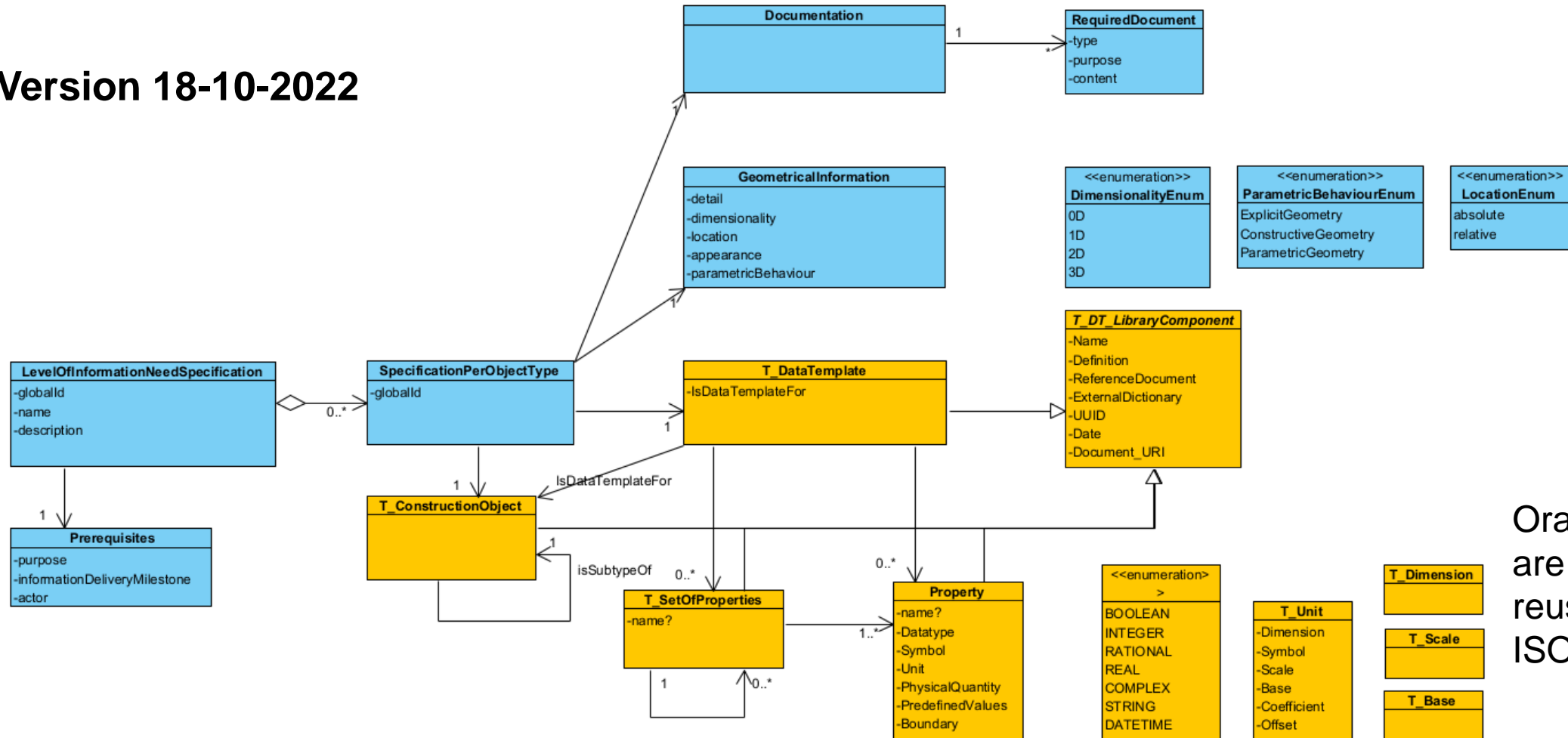
Orange classes are directly reused from ISO23387

Linking needs revisited: Xlink, redneck RDF with ductape
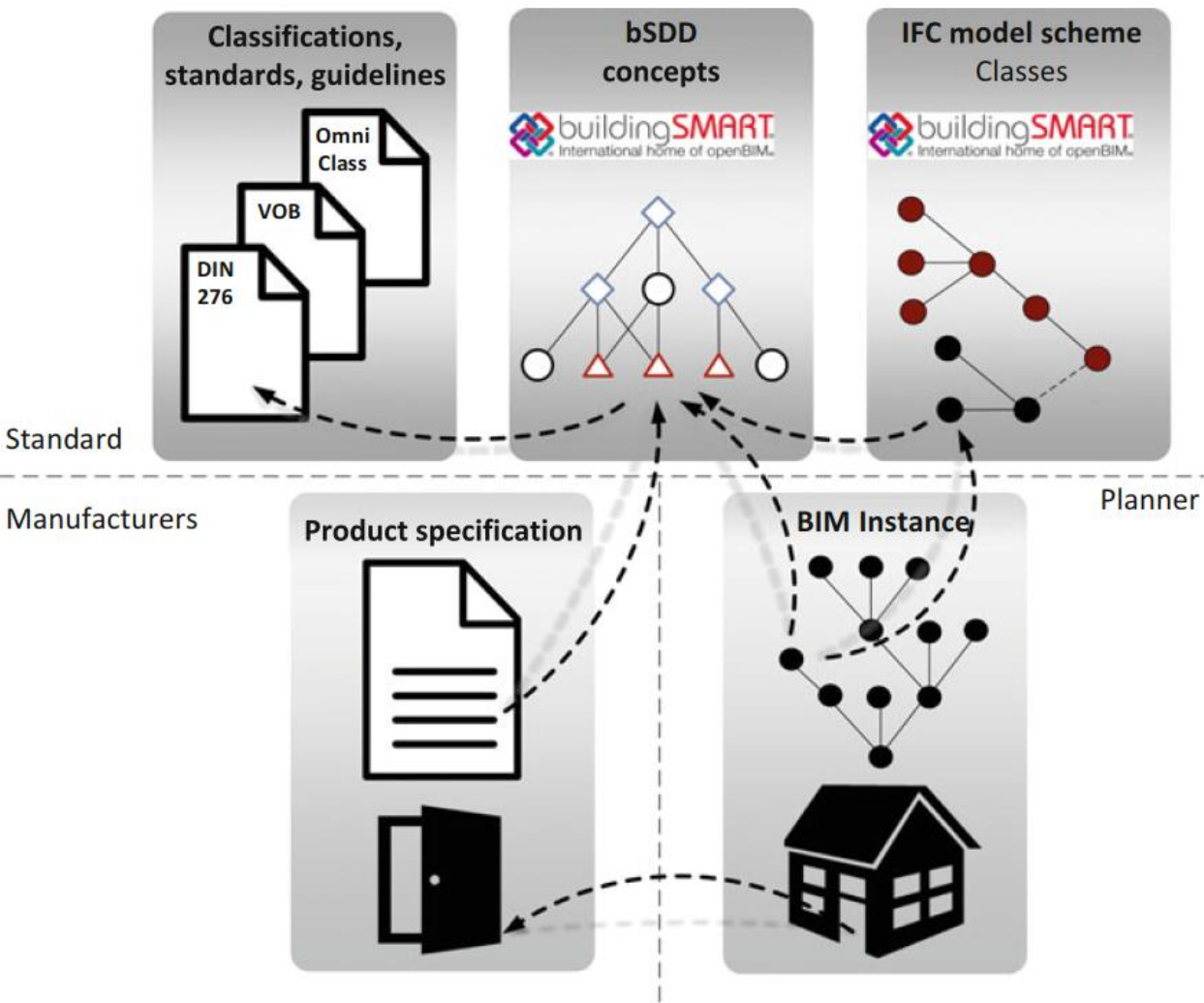
XLink Attribute Reference (table source: W3schools.com)

Attribute	Value	Description
xlink:actuate	onLoad onRequest other none	•Defines when the linked resource is read and shown: onLoad - the resource should be loaded and shown when the document loads •onRequest - the resource is not read or shown before the link is clicked
xlink:href	URL	Specifies the URL to link to
xlink:show	embed new replace other none	Specifies where to open the link. Default is "replace"
xlink:type	simple extended locator arc resource title none	Specifies the type of link

URI and URL

– **Uniform Resource Identifier**
– Uniform Resource **Locator**

```
URI =
scheme:[//authority]path[?query][#fragment]
```

– Provide an address for a document
  https://dc.rwth-aachen.de/en/lehre.html

- send queries
- **https://duckduckgo.com/?q=dc+rwth**
  - start queries with **?**
  - key / value pairs delimted by **=**
  - multiple key/value pairs by **&**

```
              userinfo        host        port
https://john.doe@www.example.com:123/forum/questions/?tag=networking&order=newest#top
scheme              authority                  path              query        fragment

ldap://[2001:db8::7]/c=GB?objectClass?one
scheme    authority   path      query

mailto:John.Doe@example.com
scheme        path

news:comp.infosystems.www.servers.unix
scheme              path

tel:+1-816-555-1212
scheme      path

telnet://192.0.2.16:80/
scheme      authority  path

urn:oasis:names:specification:docbook:dtd:xml:4.1.2
scheme                    path
```

Source: Wikimedia Commons

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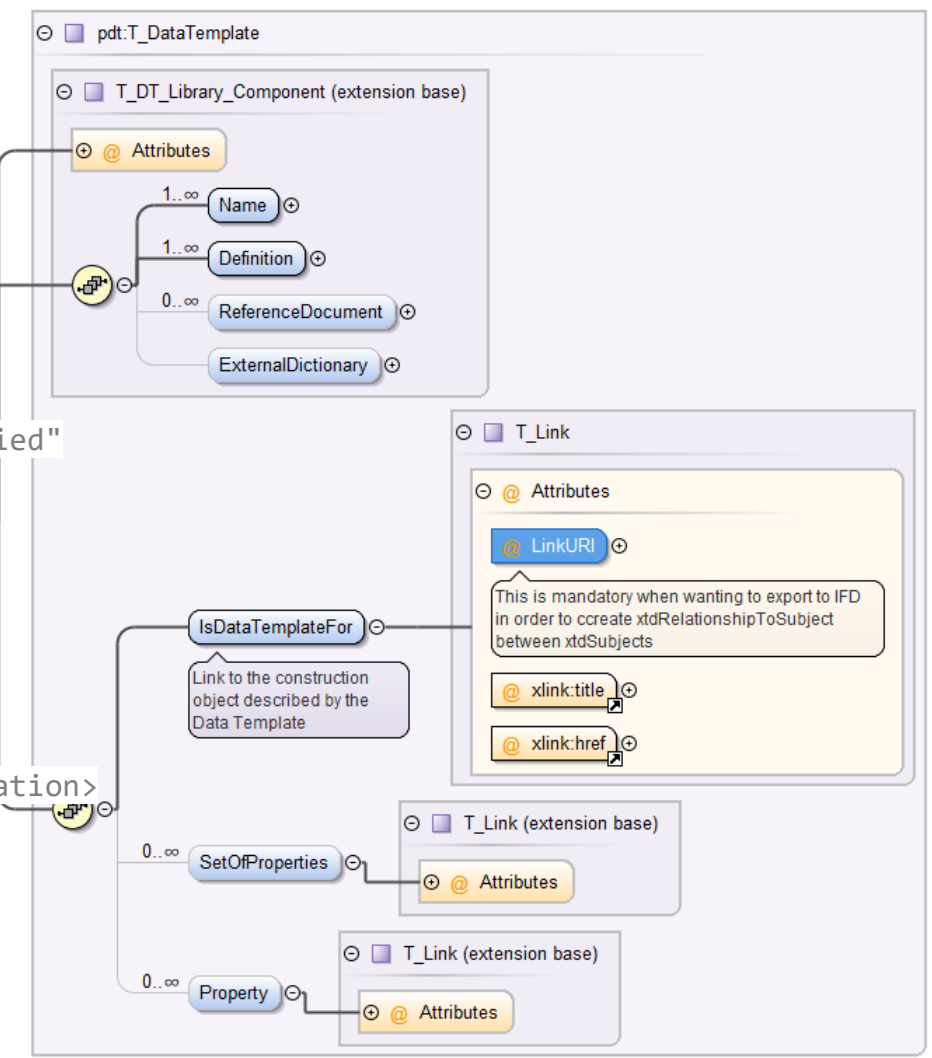# Include PDT schema right into LOIN

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<xs:schema version="1.0" xmlns:xs="http://www.w3.org/2001/XMLSchema"
  targetNamespace="https://iso.org/2022/LOIN" xmlns="https://iso.org/2022/LOIN"
  xmlns:pdt="https://iso.org/2022/ProductDataTemplates"
  xmlns:vc="http://www.w3.org/2007/XMLSchema-versioning" elementFormDefault="unqualified"
  attributeFormDefault="unqualified" vc:minVersion="1.1">

<xs:import namespace="https://iso.org/2022/ProductDataTemplates"
schemaLocation="EN_ISO_23387.xsd"
  id="pdt"/>

<xs:element name="LevelOfInformationNeed">
  <xs:annotation>
    <xs:documentation>Level of Information Need as defined by EN 17412</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="Specification"/>
    </xs:complexContent>
  </xs:complexType>
</xs:element>
```

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But what about PDT itself? A simple property in the current example

```xml
<!--
    ###########################################################################################################
    #  Property : Width
    ###########################################################################################################
    -->

<Property UUID="bc175904-b312-4caa-8b8a-5b130c239673" Date="2022-05-02T09:21:20+01:00">
    <Name UUID="db66846b-3746-4fe0-bfe9-bc6028180a52" LanguageCode="en">Width</Name>
    <Definition UUID="3b5b75bb-78fe-4d85-b32f-f42df5090007" LanguageCode="en">Width according to ISO XXX-YYY</Definition>
    <Datatype>REAL</Datatype>
    <Unit LinkUUID="3e633b70-3f35-453f-844a-dc7ff8555123" TargetName="cm" TargetUUID="576c3391-b3a7-4c33-a4e3-2b503726f441"/>
    <PhysicalQuantity TargetName="Length" TargetUUID="a0b4e8cc-452a-4c47-9043-d90ec5f4bfc3"/>
    <Boundary BoundaryLimit="MIN" Inclusive="false" BoundaryValue="0"/>
</Property>
```

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But what about PDT itself? A simple property using URI with urn:uuid

```xml
<!--
    ###########################################################################################################
    #   Property : Width
    ###########################################################################################################
    -->

<Property xlink:href="urn:uuid:bc175904-b312-4caa-8b8a-5b130c239673" Date="2022-05-02T09:21:20+01:00">
    <Name URI=" urn:uuid:db66846b-3746-4fe0-bfe9-bc6028180a52" LanguageCode="en">Width</Name>
    <Definition URI=" urn:uuid:3b5b75bb-78fe-4d85-b32f-f42df5090007" LanguageCode="en">Width according to ISO XXX-YYY</Definition>
    <Datatype>REAL</Datatype>
    <Unit URI="urn:uuid:3e633b70-3f35-453f-844a-dc7ff8555123" TargetName="cm" TargetUUID="576c3391-b3a7-4c33-a4e3-2b503726f441"/>
    <PhysicalQuantity TargetName="Length" TargetUUID="a0b4e8cc-452a-4c47-9043-d90ec5f4bfc3"/>
    <Boundary BoundaryLimit="MIN" Inclusive="false" BoundaryValue="0"/>
</Property>
```

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But what about PDT itself? A simple property using resolvable URL

```xml
<!--
   ###################################################################################################
   #  Property : Width
   ###################################################################################################
   -->

<Property xlink:href="https://identifier.buildingsmart.org/uri/buildingsmart/ifc-4.3/prop/Width"/>
```

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But what about PDT itself? A simple property using resolvable URL

```
<!--
    ###########################################################################################################
    #   Property : Width
    ###########################################################################################################
    -->

<Property xlink:href="https://identifier.buildingsmart.org/uri/buildingsmart/ifc-4.3/prop/Width"/>
```

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