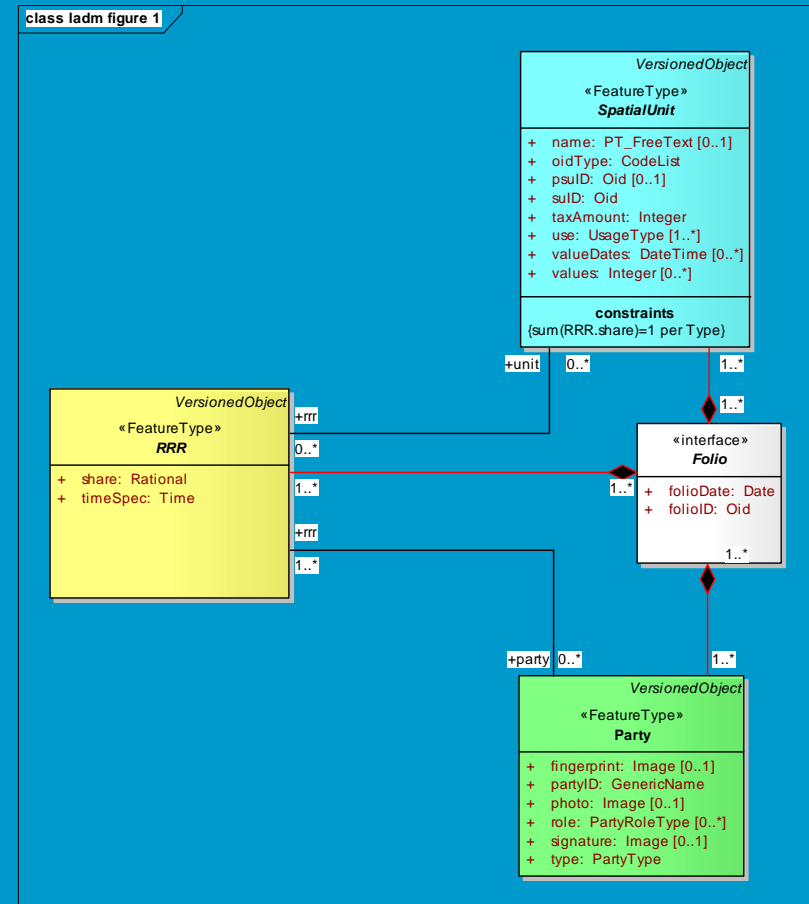# Standardisation of the Land Administration Domain Model and ISO

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**Verona, Italy**
September 12th 2008

Proposal (FIG, Washington 2002) by Lemmen/van Oosterom

- Develop standard Core Cadastral Domain Model (CCDM), including:
  - Spatial part (geometry, topology)
  - Extensible frame for legal/admin part
  - Based on core object-right-subject
- Object-orientation → express in UML
- Model Driven Architecture (MDA)
- Accepted by large community: FIG, OGC, ISO, user support, this means it can be adapted by the industry
- Maximize co-operation, minimize double effort

Input from users

- Workshops on Standardisation in the Cadastral Domain, Enschede, The Netherlands, March 2003 and in
- Bamberg, Germany, December 2004
- Reviews

FIG

Land Administration Domain Model

Standardization in the cadastral domain
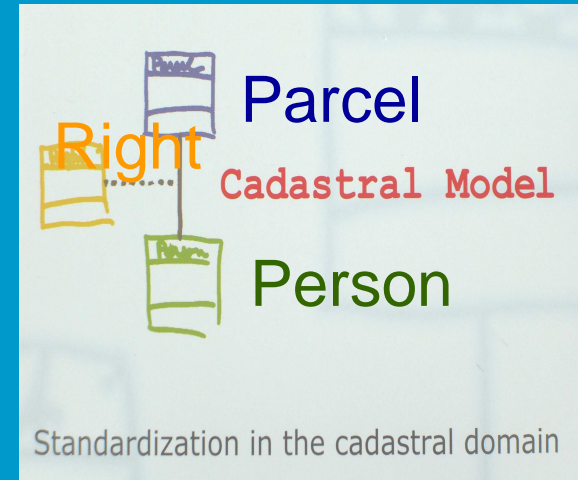
- Several Publications
- Many persons involved in this development
- Version 1.0 presented in Munich, Germany
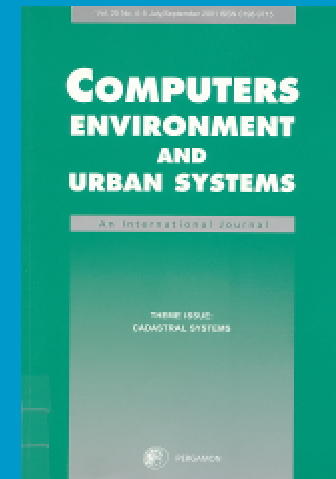
Status

- New Working Item Proposal submitted to ISO on behalf of FIG, January 2008
- First meeting in Copenhagen, Denmark in May 2008
- Project Team: Australia, Canada, Denmark, Germany, Finland, Hungary, Malaysia, Netherlands, Norway, SouthAfrica, Sweden, Spain, Thailand, UK, USA
- Second version of Working Draft end July
- Comments 15th of September
- Second meeting in Delft, The Netherlands, September 2008

Report on ISO 19152
Land Administration Domain Model

26-27 May 2008 Copenhagen, Denmark

FIG

Overview

- Successful meeting

- Approx 20 people present

- Reviewed comments on NWIP and resolved most of them

- Came out with a clear idea of how the document should develop

FIG

Key conclusions (1)

- Proceed to IS (rather than TS or TR)
- Amend the scope
    - Reference model
    - Basis for national/ regional systems
    - Basis for sharing between systems
    - Explicitly does not override national laws

FIG

Scope

This International Standard defines a Land Administration Domain Model (LADM) covering all information-related components of land administration. This International Standard provides a conceptual schema with five basic packages related to 'parties', 'immovable objects', 'rights/responsibilities/restrictions', 'surveying' and 'geometry/topology'.

The LADM is a terminology for land administration based on various national and international systems, and is as simple as possible in order to be useful in practice. This helps in combining and understanding Land Administration information from different sources in a coherent way. The terminology allows a shared description of different practices and procedures in various jurisdictions, but is not meant to have any legal implications and interference with (national) land administration laws.

The LADM is a reference model that can be used for the sharing of land administration information between bodies.

This International Standard is organised into packages to support its objectives.

FIG

Key conclusions (2)

- Remove narrative and add normative text
- Simplify the model
  - And support with examples
- 'Test cases' in Annexes (STDM, another)
- Vote on new scope at CD vote stage – and also CEN NWIP vote (to CD)
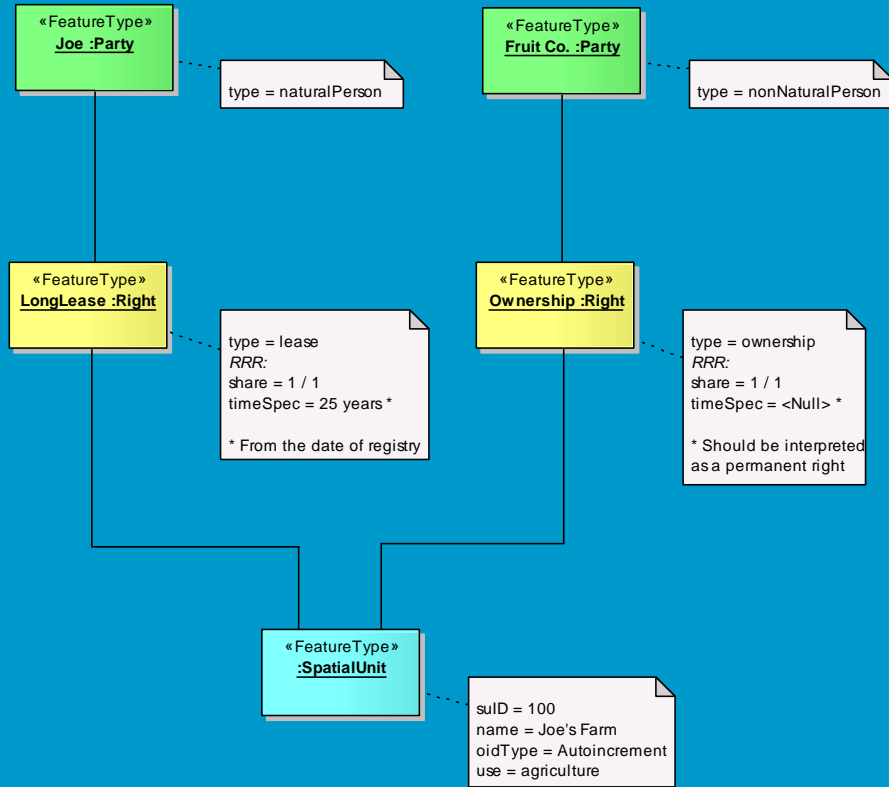
FIG

Examples, instance level UML (annex C, currently 29 cases)

- 1 natural person is leaseholder another non-natural person is owner, ownership and lease hold based on civil code for one country
- 2 persons hold a share in a right (e.g. one person a share 1/2 and the other person a share 1/2 , or 2/3 and 1/3)
- A serving parcel provides access to 4 parcels, and the serving parcel is not public
- A group person holds property right on a spaghetti parcel
- A legal space building contains individual units (apartments) and a shared unit, with one common threshold on 1 ground parcel
- A timeshare ownership for the month of February
- A restriction not to change a building because of its monumental status
- Mortgage on ownership, bank included as person
- Mortgage on usufruct on ownership, money provider included as person
- 20 others…

object AnnexC Case...

Object Diagram, Case 01 - Lease on a Parcel (Formal Rights)

Description:
A natural person is a leaseholder; another non-natural person is a owner, ownership and lease hold based on civil code for one country.

«FeatureType»
Joe :Party

type = naturalPerson

«FeatureType»
Fruit Co. :Party

type = nonNaturalPerson

«FeatureType»
LongLease :Right

type = lease
RRR:
share = 1 / 1
timeSpec = 25 years *

* From the date of registry

«FeatureType»
Ownership :Right

type = ownership
RRR:
share = 1 / 1
timeSpec = <Null> *

* Should be interpreted as a permanent right

«FeatureType»
:SpatialUnit

suID = 100
name = Joe's Farm
oidType = Autoincrement
use = agriculture

Name: AnnexC Case01
Author: jdafonseca
Version: 1.1
Created: 4-9-2008 13:17:20
Updated: 4-9-2008 17:44:10

FIG

Timetable

- 22-23 Sept – meeting (Delft)
- End October – draft 3 < can be later, to be discussed
- Mid November – comments < can be later, to be discussed
- End November – CD candidate version < can be later, to be discussed

Thank You

LADM: Legal-administrative

- RRR (Right Restriction Responsibility) has associations with Party (Person) and SpatialUnit (RegisterObject)
- Mortgage and RRRs are based on legal documents or decisions
- Parties can be natural or non natural (private, gov, groups, etc.)
- Surveyor, farmer, notary, money provider are included, role types of the Party class
- A RRR can be temporal

Spatiotemporal objects

- Temporal/dynamic aspect relevant:
    - Long lease (or ownership for limited time)
    - Nomadic behavious
    - Time-sharing (mon-fri:X, sat-sun:Y)
   - Fishing/hunting rights during certain season
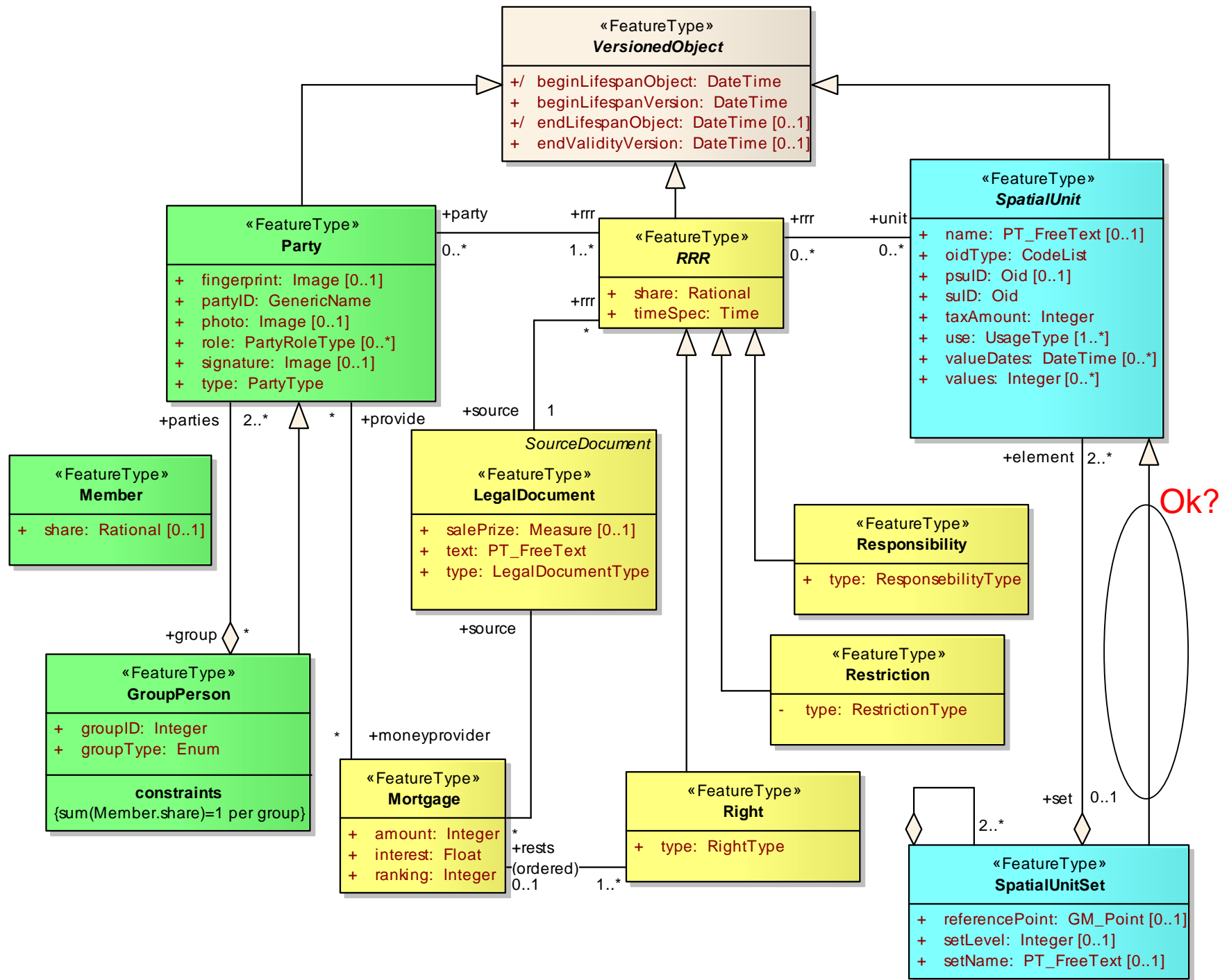
LADM: Geometry

- SpatialUnit with specialisations, e.g. LandParcel (text, point, line, topology), VolumeSpatialUnit, Building(Unit), and Other (Network).
- Agregations like SpatialUnitSet, Building
- Link to surveying and survey documentation
- Link to ISO/OGC standard (both geometry and topology parts)
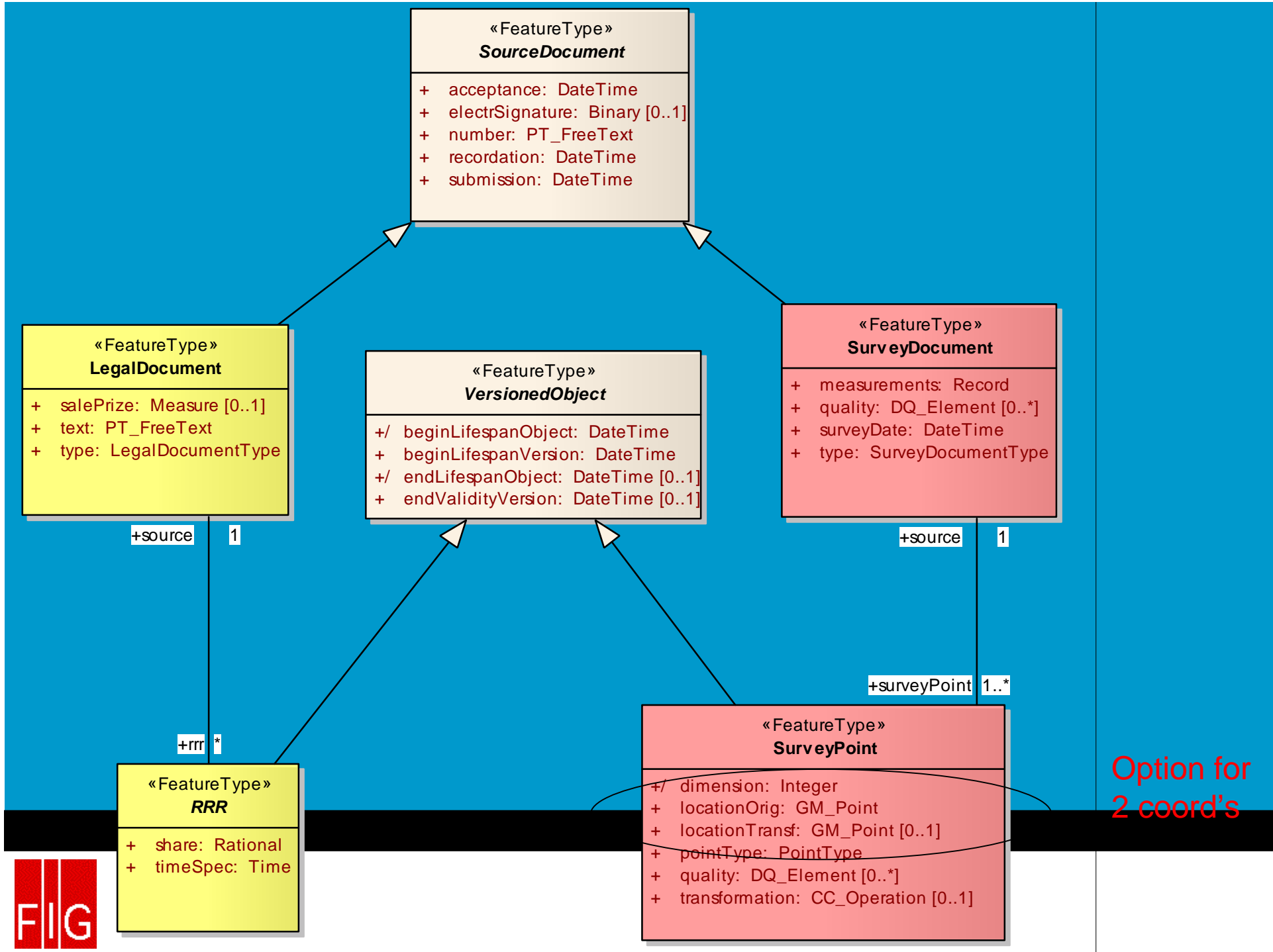
LandParcels...Spatial Units

- Not always available in the format of a planar partition
- Sometimes just one references point available or 'unconnected' polygon (or spaghetti) → these solutions may be sufficient (and cost effective)
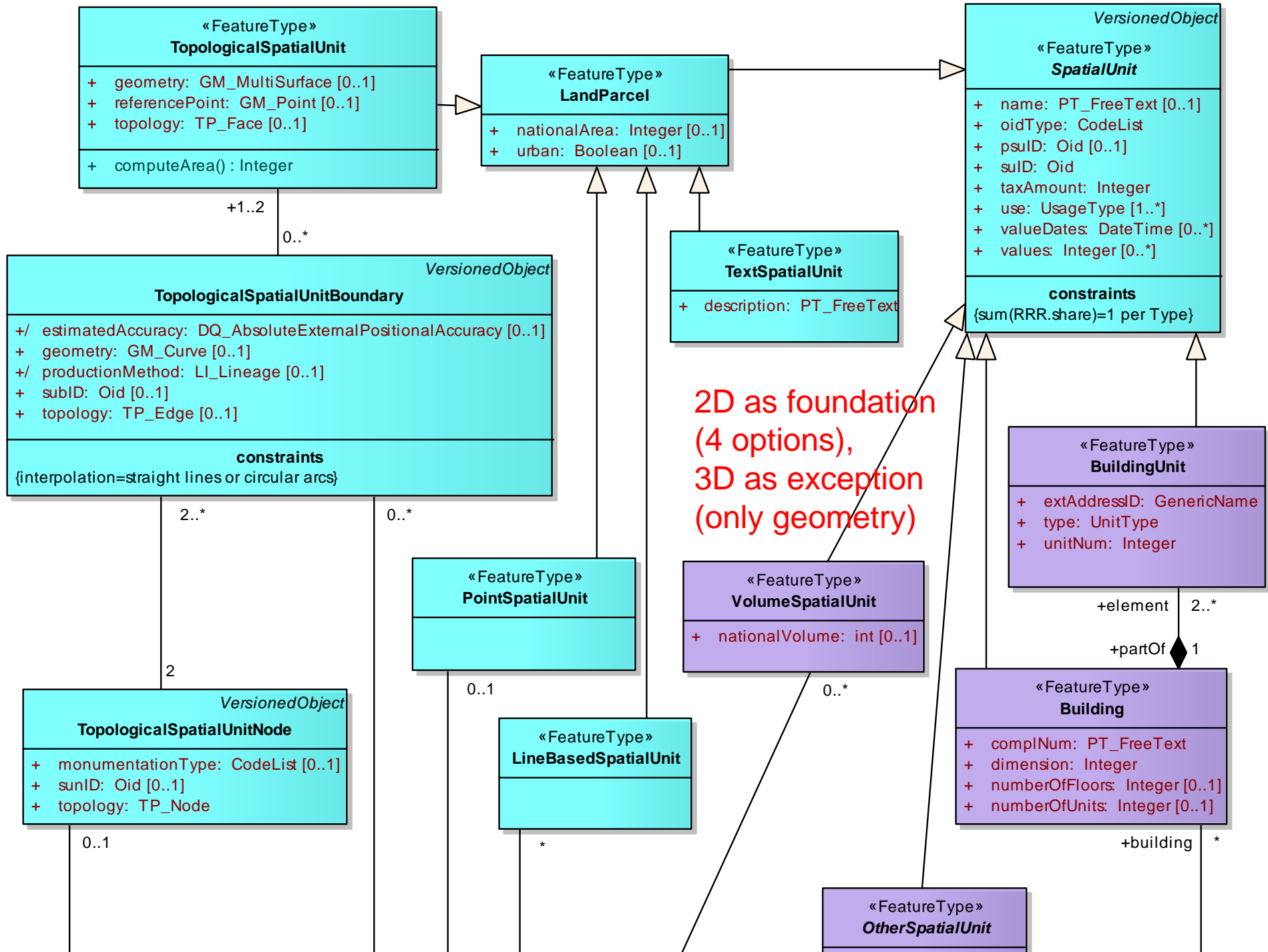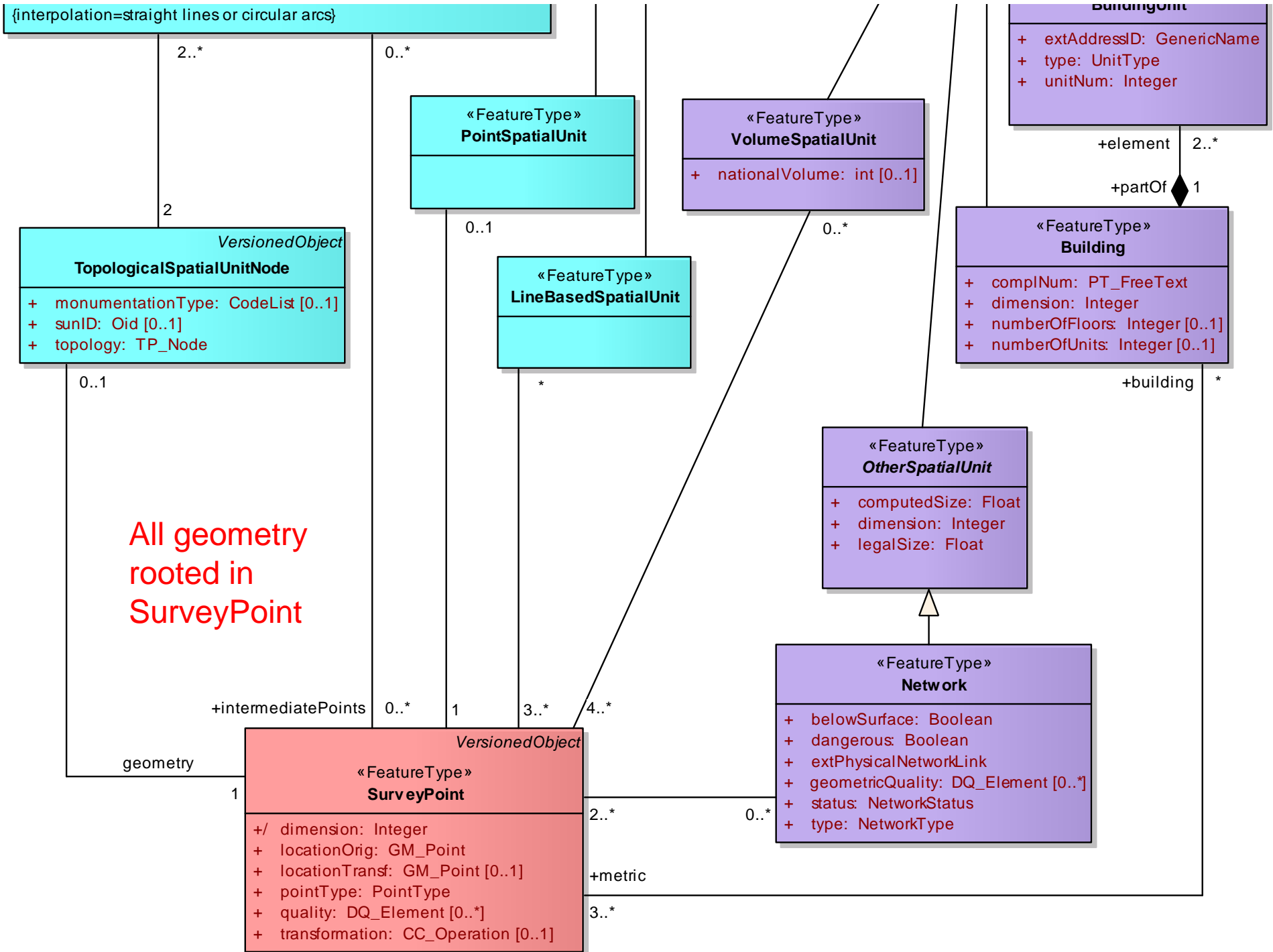
Documents

- Source documents: legal of survey
- Survey or spatial data capture:
  - Different accuracy in different area's
  - It should be more easy to combine different data acquisition methods with available data sources
  - Lidar, Ikonos, Quickbird, GPS, Galileo, Cyclomedia, Tape measurements, Total stations, Ortho Photo's, Aerial Photographs

FIG