

# Legal Aspects of 3D Property Rights, Restrictions and Responsibilities in Greece and Cyprus

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# Overview

- Introduction
- Legal systems
- RRRs and 3D Cadastre
- Cadastre 2014, STDM and LADM
- Data Model considerations
- Constraints and limitations
- Further research



# Approach

- Identify and evaluate **constraints** imposed by jurisdictions
- Study land law, legal documents and mechanisms relating to RRRs
- Legal aspects of 3D RRRs in Greece and Cyprus
- Reforms and adjustments required, for both systems

Evaluate solutions that match legal requirements in the most optimal way!!



# Basis

**1. Specific needs** of land owners and developers, requiring reforms and law adjustments that allow 3D registrations

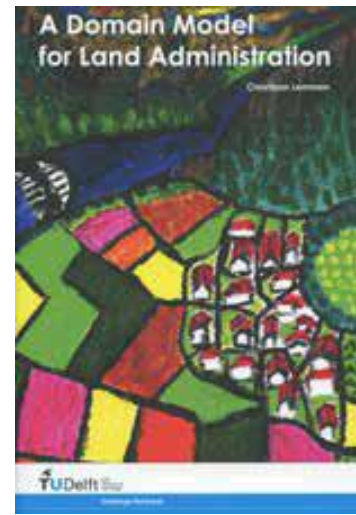
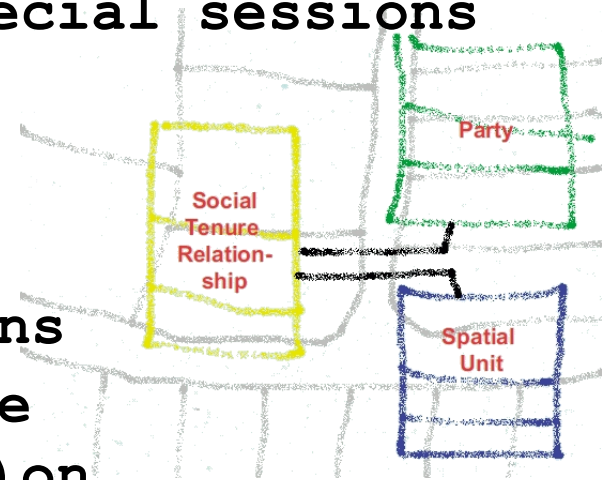
**2. New modeling** of the LA domain:  
National and international conceptual frameworks: INSPIRE, Cadastre 2014 and LADM

**3. Technological advances..**



# What has be done so far?

- ✓ International workshops on 3D Cadastres (Delft 2001 & 2011, Shenzhen 2012) and special sessions at FIG events
- ✓ Special working group activities (2010-14)
- ✓ Theses and scientific publications
- ✓ International workshops (Enschede 2003, Bamberg 2004, Rotterdam 2012) on LADM
- ✓ Questionnaire survey



# Legal issues

- Few countries have legal framework for 3D Cadastre
- Can 3D legal objects be translated into physical objects? Range of RRR attached to 3D parcels?
- How are legal spaces specified?
- Concerns are emphasized on the legal aspects of 3D RRRs in Greece and Cyprus
- Cases of integrating legally defined spaces to a 3D Cadastre based on the LADM

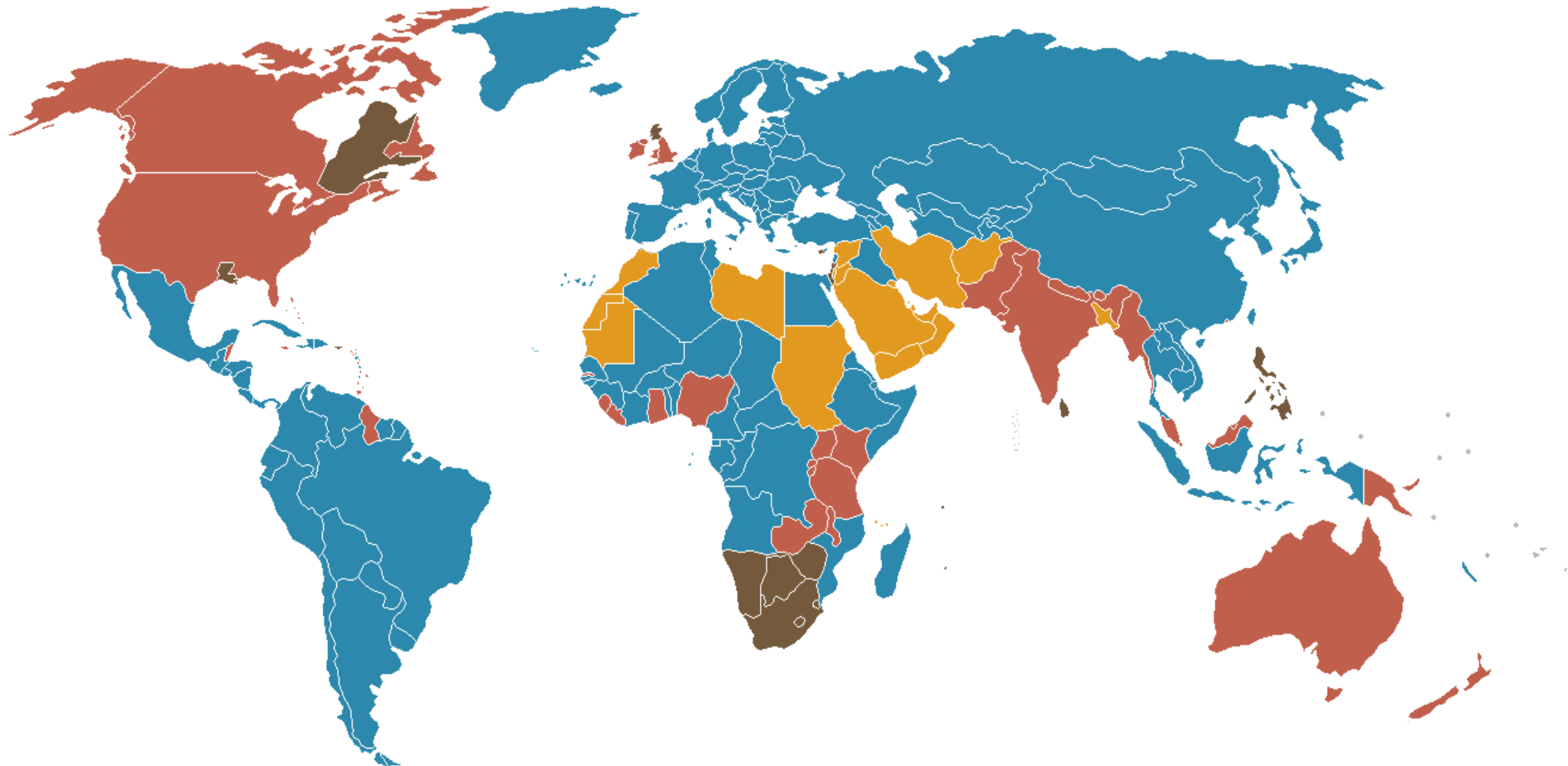


# Property rights well-defined!!

- Property rights are based on multiple legal frameworks!!
- Multiplicity and interaction between legal orders result in property law modifications and in tenure confusion and uncertainty
- ❖ **Well-defined RRRs** provide tenure security and efficient use
- ❖ Legal meaning of 3D properties, as derive by Land Law in the different legal systems



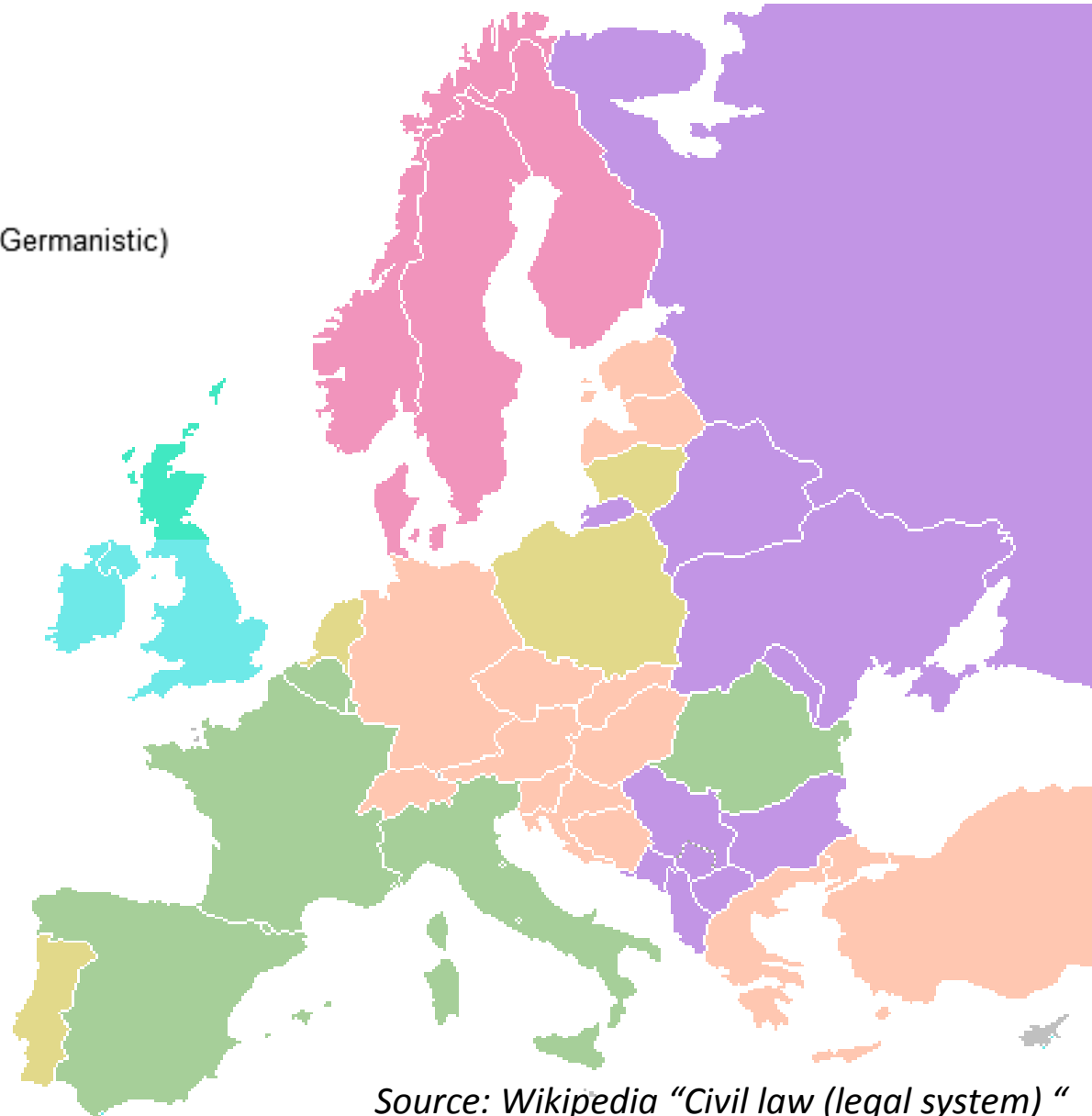
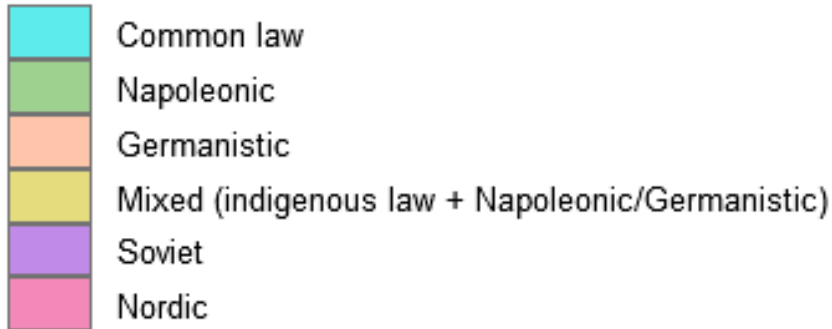
# Main Legal Systems of the World



Source: Wikipedia "Civil law (legal system) "



# Sub-Systems of Europe



Source: Wikipedia "Civil law (legal system) "

# Property Division

- Apartment ownership (condominium or strata division or horizontal division)
- Other Rights:
  - Airspace rights,
  - “Building-within-a-building”
  - Mines and minerals
  - Littoral and riparian water rights
  - Special constructions (bridges, tunnels)
  - Telecommunication and electric conduits and utilities
  - Zoning and planning regulations
- Customary Rights



# Legal framework in Greece and Cyprus (1)

- ✓ Both countries are based on **2D registers**, lacking of proper legislation regarding 3D property
- ✓ Ambiguities and contradictions are contained in land law, resulting in a rather confusing definition of the 3<sup>rd</sup> dimension
- ✓ Buildings' partition into spatial units is **descriptively** provided, also depicted on floor plans that do not contain the exact height or coordinates of the spaces created



## Legal framework in Greece and Cyprus (2)

✓ Extent of private ownership of land: not distinct, limited to the surface, the substance of the earth and to the space above the surface, reasonably necessary for the enjoyment thereof

➤ “Reasonably necessary” enjoyment of RRRs  
(?) more specific, to clearly define RRRs



# Differences in Legal framework (1)

## Cyprus

- ✓ Registration of title system
- ✓ All parcels, including state land, appear on register and on cadastral plans
- ✓ Upon completion of a building or construction work, a certificate is issued for cadastral registration

## Greece

- ✓ Moving from a register of deeds to a cadastral system
- ✓ All parcels appear on cadastral maps but not the buildings, although this information was initially collected
- ✓ Such a linking procedure is not legally required (only upon declaration)



# Differences in Legal framework (2)

## Cyprus

- ✓ "The Immovable Property (Tenure, Registration and Valuation) – Cap.224" Law
  - a. Land
  - b. Buildings/structures
  - c. Trees
  - d. Springs and water rights
  - e. Privileges
  - f. Individual share
  - g. strata division

## Greece

- ✓ Civil Code (C.C.) and various contradictory laws
- ✓ Description of legal spaces and floor plans (notary)
- ✓ Building permits (Urban Planning Agency)
- ✓ Entire buildings are declared/ not maintained

**Reforms and adjustments to repeal laws, redefine to comprise the description of 3D objects!**



# Correct Registration of RRRs

- Rights and Restrictions relate Parties (people) and Property Units (parcels)
- The quality of a LAS relies on the correct registration of the RR-relationship
- Correct registration of RR-relationship: **a complex process !!**
- Application of a standardized model (LADM) to reduce complexity
- Clear and undoubted determination an registration of Parties, Property Units and RRs ...



# Determination of Parties

A clear determination of the parties is not an easy task:

1. The assignment of a unique **id** for every owner is a complex task
2. Difficulties in determining **non-natural persons**
3. Different existing "**Party Registers**"
4. The inclusion of the **State/Government** as a party involved, applies for other authorities having a legal status
5. Clear determination of parties requires clear determination of **property units** as well; there are property units that have rights/or restrictions..





# Determination of Property Units

## Property unit:

- defined by the law of each country/jurisdiction
- can consist of one or more spatial units

LADM supports various ways of creating property units and their "3D volume" representations:

- √ improve the functionality of a cadastral system with new applications
- √ support the basic cadastral operation and functionality and services offered to users



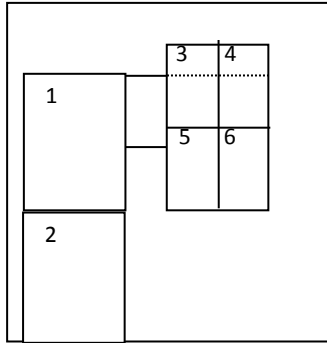
# Determination of RRs

RRs vary from country to country and can be generally categorized as follows:

1. ownership rights
2. usage rights/restrictions (such as lease, management, custody, residence, and usufruct) ,
3. passage/channeling rights/restrictions and
4. Mortgage

Clear determination of the RRs associating parties and property units, places the foundation for the operation of a LAS !!

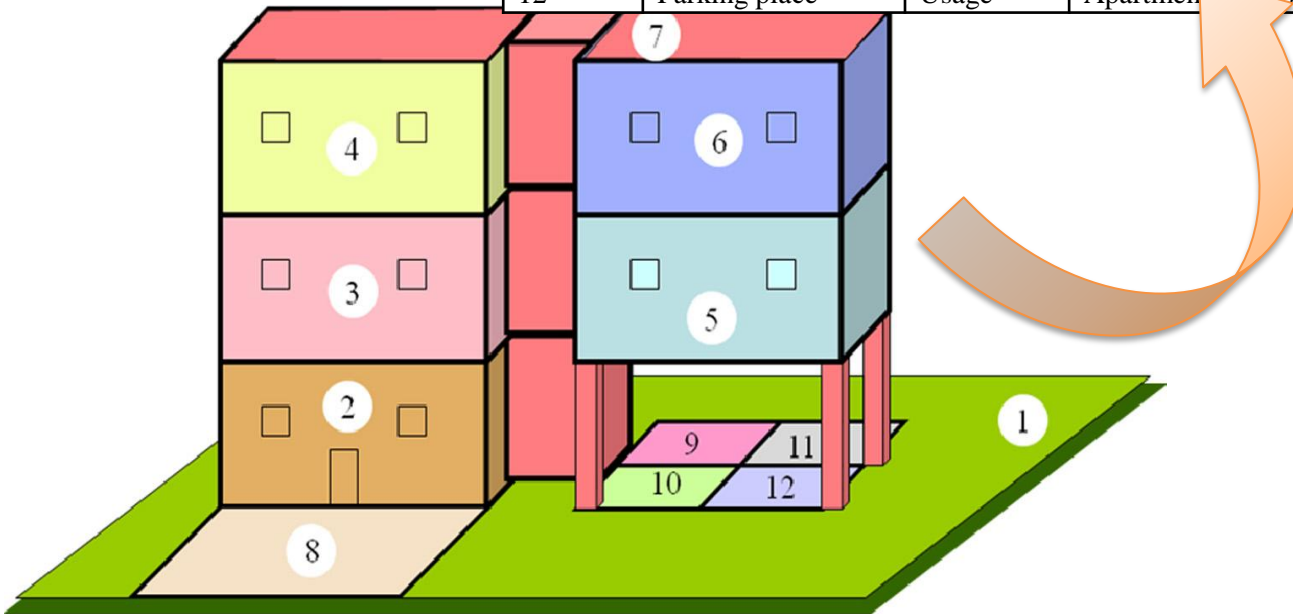




Ground floor

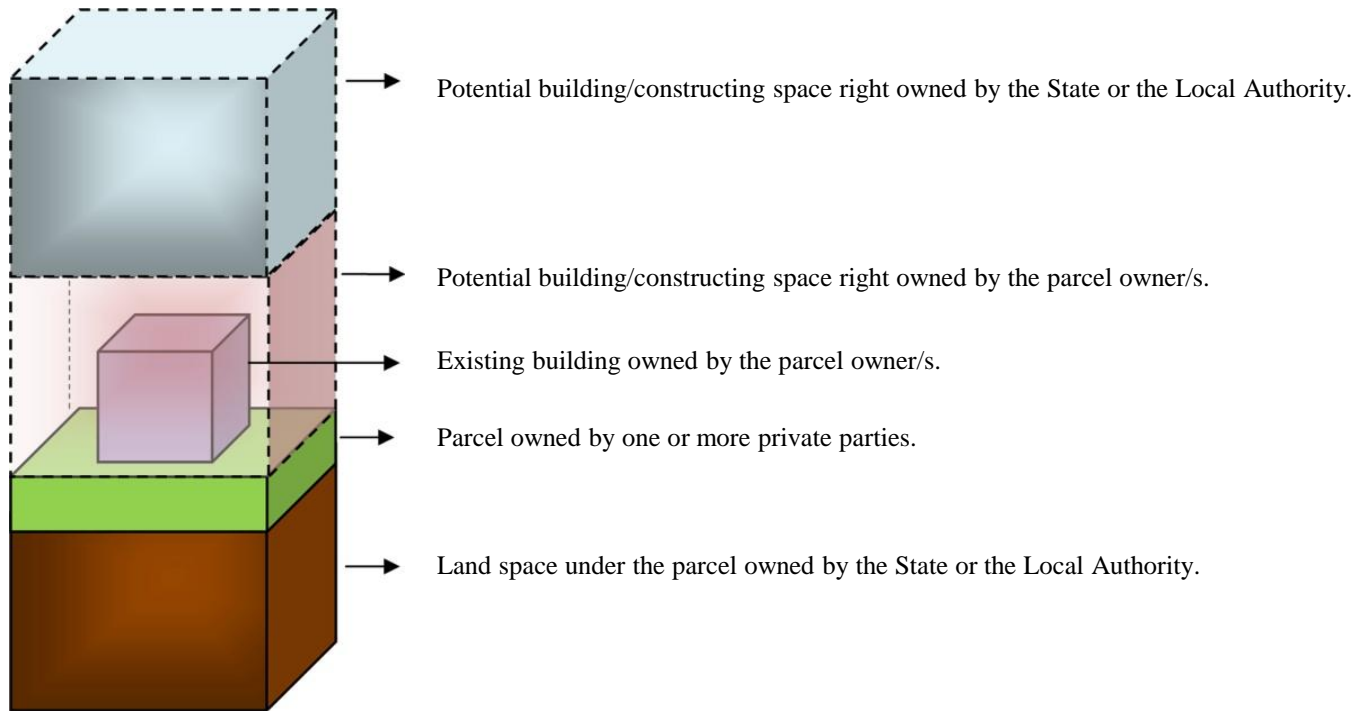
**Existing special p**

Property unit	Property type	Right	Party (Share)
1	Parcel	Ownership	John (1/5), Peter (1/5), Mary (1/10), George (1/10), Kostas (1/5), Andrea (1/5)
2	Apartment	Ownership	John (1/1)
2	Apartment	Residence	John's mother (1/1)
3	Apartment	Ownership	Peter (1/1)
4	Apartment	Ownership	Mary (1/2) George (1/2)
5	Apartment	Ownership	Kostas (1/2)
6	Apartment	Ownership	Andrea (1/1)
7	Building staircase & terrace	Ownership	John (1/5), Peter (1/5), Mary (1/10), George (1/10), Kostas (1/5), Andrea (1/5)
8	Yard with parking	Usage	Apartment 2 (1/1)
9	Parking place	Usage	Apartment 3 (1/1)
10	Parking place	Usage	Apartment 4 (1/1)
11	Parking place	Usage	Apartment 5 (1/1)
12	Parking place	Usage	Apartment 6 (1/1)



**Proposed 3d representation of the strata division**

# 3D Legal & Spatial RR Clarification



# Common Conceptual Framework (1)

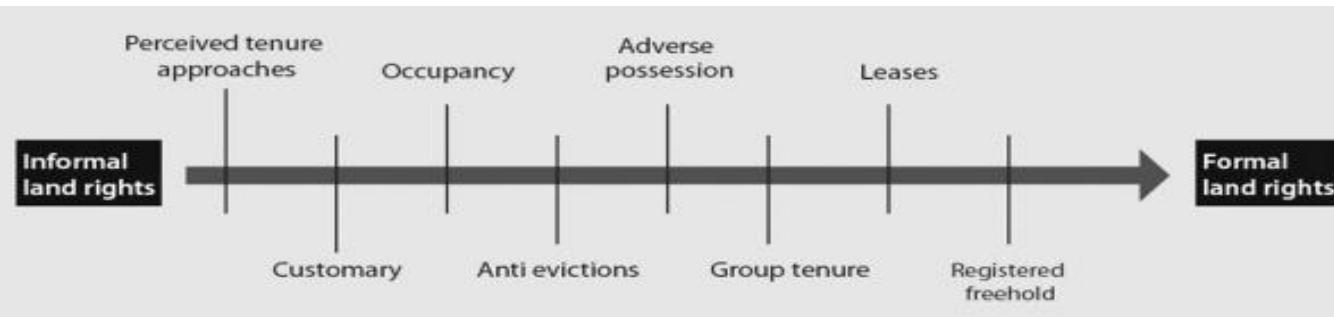
## *Modeling approaches:*

1. 'Cadastre 2014', a complete documentation of public and private RRs for land owners and land users (*Kaufmann and Steudler, 1998*)

**CADASTRE 2014**

Globally, over 70% of the land is generally outside any land registry!!

2. Social Tenure Domain Model (STDM), new forms of spatial units

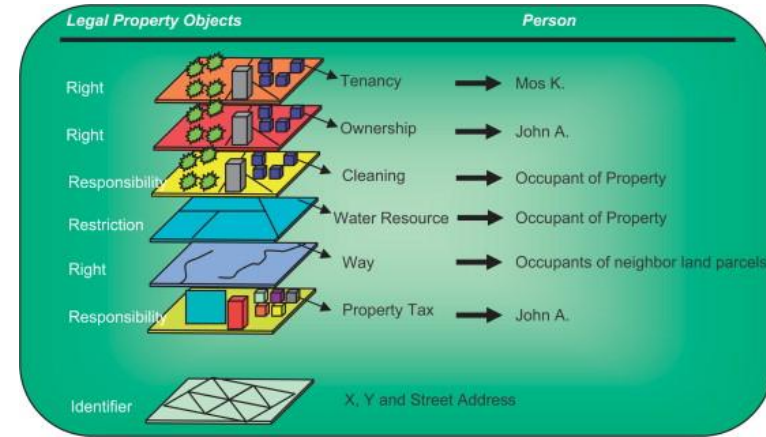


*Continuum of land rights*

*(UN-HABITAT: 2008)*

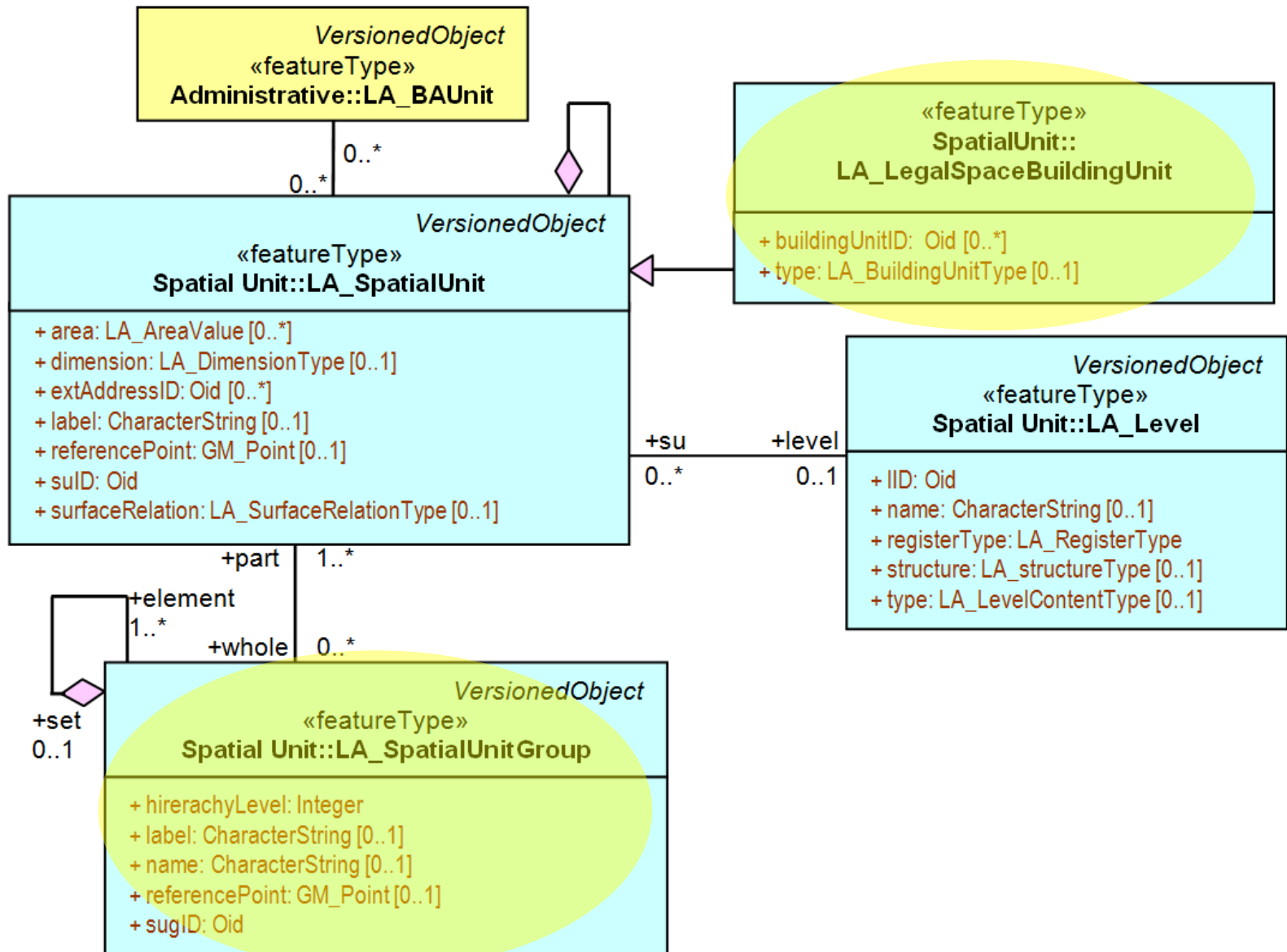
# Common Conceptual Framework (2)

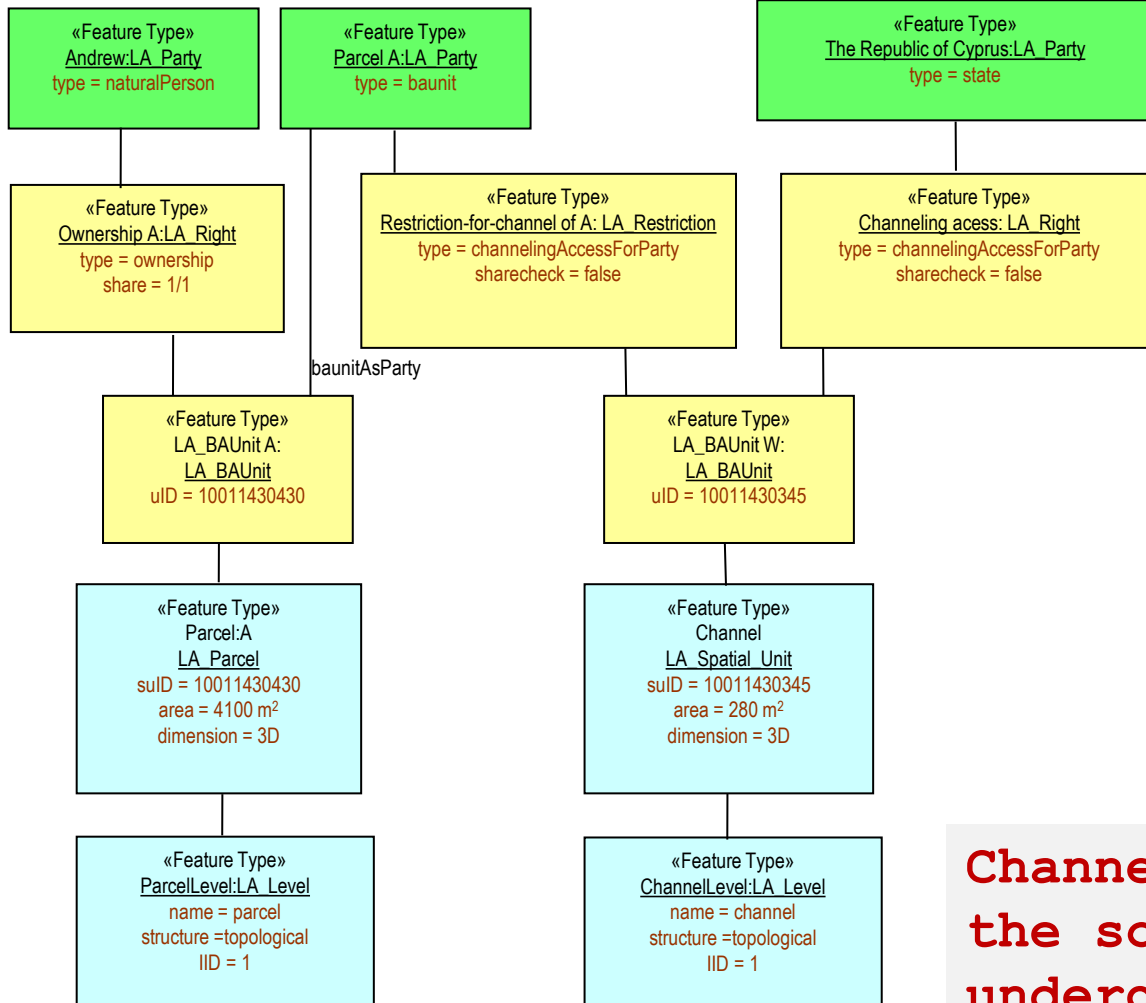
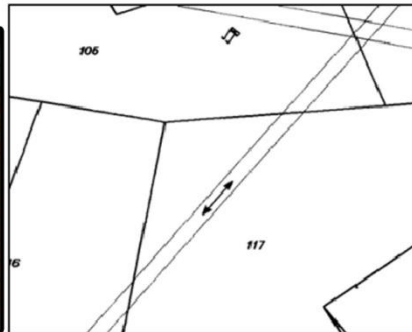
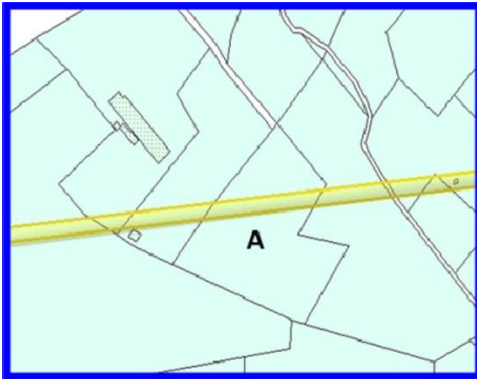
3. The physical land parcel, replaced by a spatially referenced data model, based on the legal property object. RRRs are defined in legislation (Kalantari et al , 2008).



4. LADM (ISO 19152), includes RRRs related to components of land administration, as well as agreements on data about administrative and spatial units and source documents (Lemmen, 2012).

# The spatial unit class in the proposed Cyprus Land Information System data model, based on LADM





**Channeling access right of the south irrigation underground water pipe**



# Conclusions

- Legal constraints prohibit the development of 3D Cadastres. They are not flexible to adjust!
- Parties, RRRs and spatial units vary between different national land law
- Terms, definition and physical extent of land parcels, as well as of interests in land, significantly differ under diverse legislations
- Greek and Cyprus legal framework has limitations to spatially define 3D properties
- Based on 2D registration, which do not facilitate the 3D modeling of the modern complex multilayer reality
- Further research in legislative frameworks, incorporating 3D methodologies, needs to be internationally promulgated!!



**Thank you for your  
attention !!**

