3D Property Research – a survey of legal topics in publications

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2nd International Workshop on 3D Cadastres
16-18 November 2011, Delft, The Netherlands
Outline

- Background, problem description, etc.
- 3D property terminology
- Theory - Legal aspects of 3D property
- Survey - selected publications, classification, results
- Conclusions
- Future research
Background

- Several publications on technical/data registration issues
- Few publications on legal issues
- However, the interest in legal issues seems to be increasing
Problem description

- The legal interest seem to be only slightly increasing,
- Lack of a clear, main terminology for 3D property
- Difficult to describe what is meant by “3D Cadastre”
Aim

- To investigate the field of 3D property in research, as evidenced by conference papers and other publications
- Not a final study, but a study to show trends within the field of 3D property research
Hypothesis

"Non-legal aspects are more researched than legal aspects"
Method and delimitation

- Literature survey
- Last 10 years (2001 – 2011)
- Only English language publications
- No master theses (due to difficulties obtaining them)
3D Property Terminology

Inconsistent terminology, e.g.

- 3D cadastre
- 3D property
- Multi-functional
- Space, volume
- Horizontal subdivision
- Stratum, strata title
- Three-dimensional property unit

- Apartment/flat ownership, condominium, ownership of storeys, sectional ownership, unit ownership
- Division of houses according to storeys and apartments, community of houses divided by storeys
Legal Aspects of 3D Property

- Internationally different types of 3D property
- Broad range, developing with time
- Structure and principles similar, practical problems more specific
- Key factors related to legal issues
- Comparative studies demand consideration of legal and non-legal context
## Forms of 3D Property Rights

| (1) Independent 3D property | (a) Air-space parcel  
(b) 3D Construction property |
|-----------------------------|-------------------------|
| (2) Condominium             | (a) Condominium ownership  
(b) Condominium user right  
(c) Condominium leasehold |
| (3) Indirect ownership      | (a) Tenant-ownership     
(b) Limited company          
(c) Housing cooperative      |
| (4) Granted rights          | (a) Leasehold            
(b) Servitude                
(c) Other rights             |

(Paulsson, 2007)
Example of 3D Property

(Boverket, 2004)
Example of Condominium

(Based on Prop. 2008/09:91)
# Key Factors

<table>
<thead>
<tr>
<th>Key factor</th>
<th>Possible problems</th>
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| Boundaries                              | Location of boundary: centre/surface  
                                        | Private/joint responsibility for structural parts                                 |
| Common property                         | Unclear definitions – what is included                                          |
| Co-operation between property units     | Choice of co-operation form: easement/joint facility  
                                        | Areas included/parties involved                                                  |
| Management                              | Unclear responsibilities  
                                        | Insufficient and unclear regulations  
                                        | Large, complex developments – need for professional managers                     |
| Settlement of disputes                  | Choice of resolution method: court procedure is expensive,  
                                        | time-consuming                                                                  |
| Insurance                               | What should be included  
                                        | Responsibility: private/joint                                                    |

(Paulsson, 2007)
Selected publications

Papers presented at 18 international conferences:
- FIG Working Weeks or International FIG Congresses in 2001-2011;
- the 3D Nordic Conference in Stockholm, Sweden, 2010;
- 5th International 3D Geoinfo. conference in Berlin, Germany, 2010;
- 4th International 3D GeoInfo. Workshop in Ghent, Belgium, 2009;
- Conference on Cadastral Infrastructure, Bogota, Columbia, 2005;
- 3rd int. workshop 'Towards a Cadastral Core Domain Model', Delft, NL, 2002;
- UDMS 2002, 23rd Urban Data Management Symposium, Prague, Czech Republic, 2002;
- International Workshop on 3D Cadastres, Delft, the Netherlands, 2001

and

Journal articles, PhD-theses and other publications

**In total 105 publications**
Classification

- **Legal**
  Real property rights, restrictions, responsibilities, real property, superficies solo credit, security of tenure, legislation, subdivision, spatial planning, legal objects and legal framework, LADM (the parts describing legal aspects)

- **Technical**
  database, spatial data infrastructure, data model, GIS, visualisation/geometrical representation, LADM (the parts not describing legal aspects), cadastral surveying, geometry, topology, exchange formats, distribution and delivery as well as data management

- **Registration**
  Spatial and temporal dimensions, data integration and height representation

- **Organisational**
  Institutional, management and capacity building
Results

Surveyed 3D conference papers, articles and other publications 2001-2011, before the 3D-Cadastre Delft conference
( ) = secondary subjects

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Surveyed 3D conference papers, articles and other publications 2001-2011
Results (latest news...)

2nd international Workshop on 3D Cadastres

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Results (latest news...)

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Analysis

- Legal aspects rather small portion of current research
- Publications covering several areas - difficult to classify
- Few publications on terminology or definitions
- Legal aspects foundation for 3D property
- Hypothesis verified
Conclusions

- Important research since last workshop in Delft
- Non-legal aspects more researched
- Difficult establishing domain specific key words
- More fundamental research and attention to legal aspects of 3D property is needed
- More consistent and standardised terminology is needed
Future Research

- Establishing foundation for legal system and terminology
- FIG Working group on 3D cadastre started
- Individual research in different countries needed

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