

Report

Workshop on Standardization in the cadastral domain

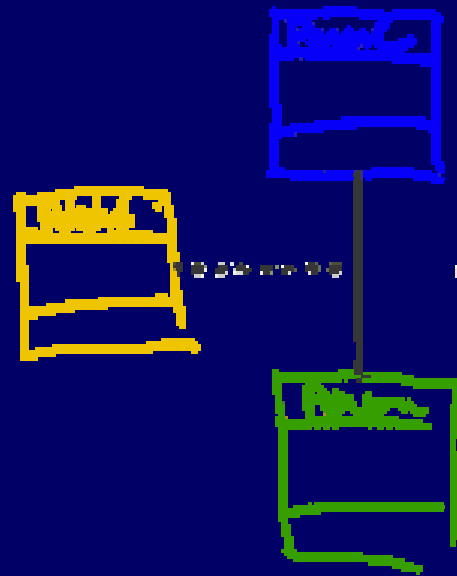
9-10 December 2004, Bamberg, Germany

Joint "COST Action G9" and "FIG Commission 7

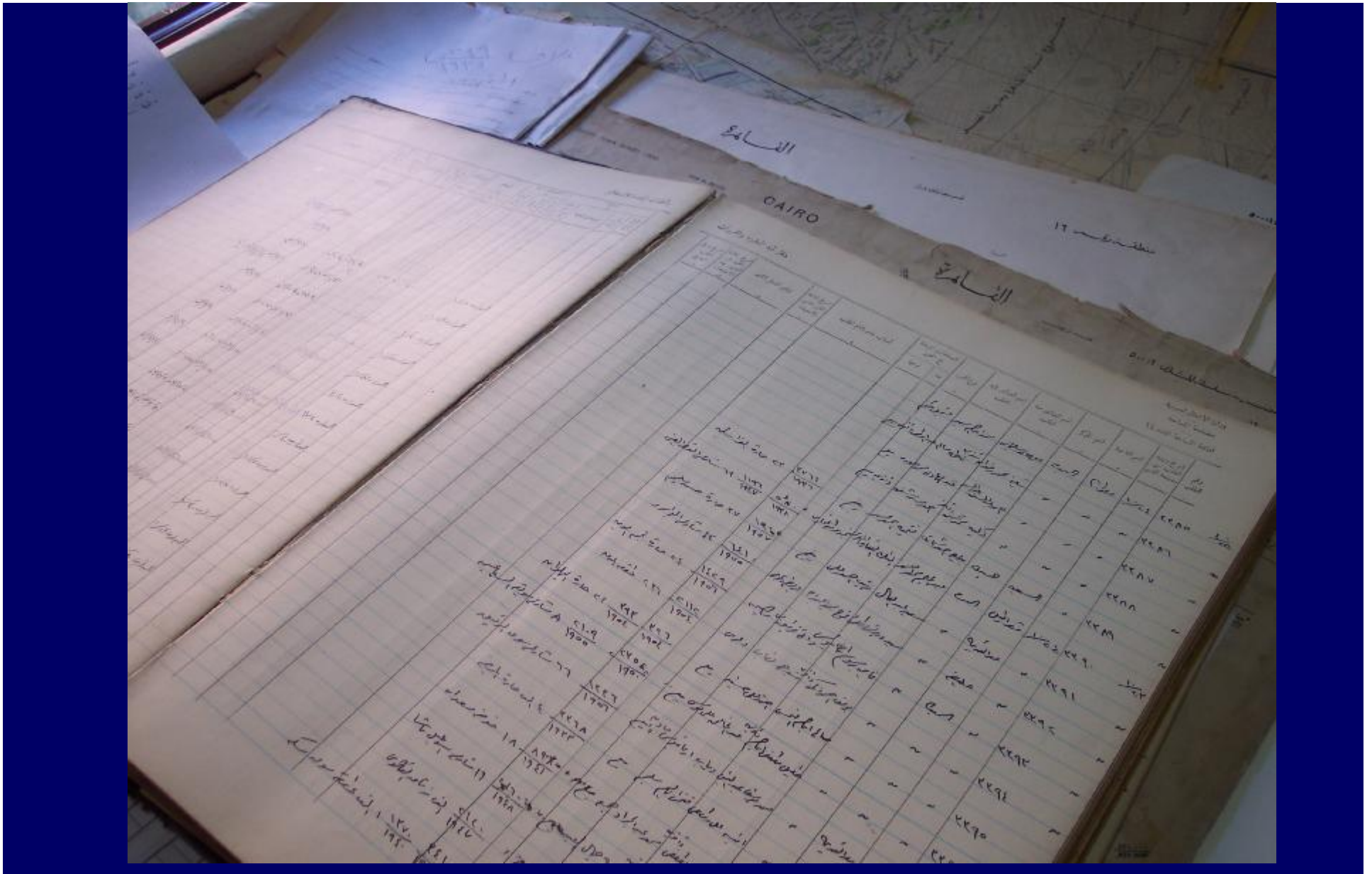
Madison, US, Annual Meeting Commission 7

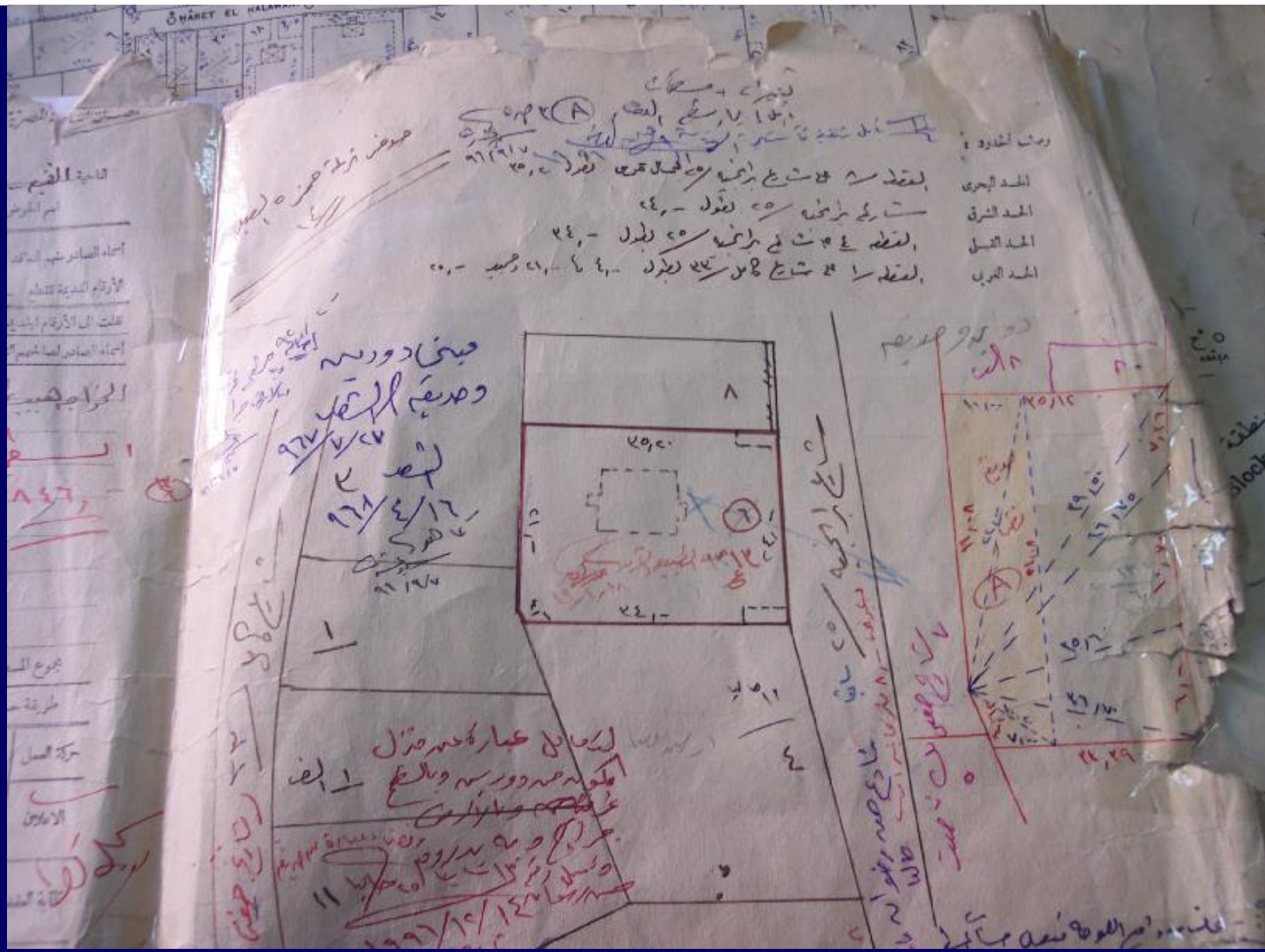
Christiaan Lemmen





Cadastral Model





ID	Status	Name	Date	1	2	3
A597491	093G	B. Akintayo	8/12/88	1	1	450
A590409	✓	A. Adegbamigbesoulo	✓	2	2	✓
A590293	✓	D. M. Obarinji	✓	3	3	✓
A260719	✓	E. O. Soremi	12/12/88	4	4	✓
A590437	✓	A. O. Akintogunde	✓	5	5	✓
A5098	✓	V. A. Awegbun (nee Ajinlaja)	14/2	6	6	✓
A380A	✓	S. Olaboyade	✓	7	7	✓
A5477	✓	E. O. Adegboye	✓	8	8	✓
A2604	✓	K. Adejumo	15/12	9	9	✓
A5540	✓	H. B. Olatun	15/12	9	9	✓
A5588	-	M. O. Ajayi	16-12-88	10	10	✓
A15415	-	L. O. Olorunfemi	19/12/88	11	11	✓
A15660	✓	B. & F. Isyola	21/12/88	12	12	✓
A5600	✓	E. A. Abimbola	✓	13	13	✓
A5578	✓	O. Okankiri	23/12/88	14	14	✓
A5608	✓	J. A. Alade	✓	15	15	✓
A5547	✓	I. O. Adalunro	28/12/88	16	16	✓
A5530	✓	G. O. Ojo	29/12/88	17	17	✓
A51914	✓					









Proposal (FIG Washington 2002)

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



1st Workshop on Cadastral Data Modelling, March 2003



2nd Workshop, Bamberg december 2005



Goals

The specific goals for this workshop were to bring together the different communities, publish the results and standardize the cadastral domain model, with emphasis on:

1. further developing the administrative/legal aspects of the model: rights of persons to lands, customary and so called 'informal rights', 3D aspects, legal and survey based source documents.
2. further formalizing the model (semantics ontology, knowledge engineering)
3. testing the current model in different countries (evaluation)
4. involving the geo-ICT industry and standardization institutes (support for implementations of the model).



Relevance

- Of great importance for the implementation of interoperable cadastral and land information data could be the Land Information Initiative of the [OpenGIS Consortium \(OGC\)](#), which includes plans for translation between LandXML and Geography Markup Language (GML) XML encodings of relevant object classes.



Scientific Program Committee

Peter Bartak (Intergraph, Europe), Jaap Besemer (Netherlands Cadastre), Styli Camateros (Bentley, USA), Peter Dale (UK), Kevin Daugherty (ESRI, USA), Wim Devos (JRC, Italy), Yerach Doytsher (Technion-Israel Institute of Technology, Israel), Stig Enemark (Aalborg University Denmark), Joseph Forrai (Survey of Israel), Andrew Frank (TU Vienna, Austria), Stefan Gustafsson (EULIS representatieve, Lantmäteriet, Sweden), Winfried Hawerk (Hamburg, Geoinformation and Surveying Agency, Germany, FIG Commission 7, vice-chair), Jerry Johnson (ESRI, USA), Jistke de Jong (TU Delft, the Netherlands), Gili Kirschner (legal advisor of the Survey of Israel), Christiaan Lemmen (Kadaster/ITC, FIG Commission 7, the Netherlands), Hans Mattsson (Royal Institute of Technology, Sweden), John McLaughlin (University of New Brunswick, Canada), Paul van der Molen (Kadaster, the Netherlands, FIG Commission. 7, chair), Gerhard Muggenhuber (BEV, Austria, FIG Commission 3, chair), Helge Onsrud (Statetens kartverk, Oslo, Norway), Peter van Oosterom (TU Delft, the Netherlands), chair, Günther Plicher (OpenGIS Consortium Europe, München office, Germany), Siva Ravada (Oracle, USA), Bengt Rystedt (Lantmäteriet, Sweden), Jes Ryttersgaard (National Survey and Cadastre Denmark), Christoph Schlieder (Bamberg University, Germany), Guus Schreiber (W3C, semantic web), Erik Stubkjaer (Aalborg University, Denmark), Heiner Stuckenschmidt (VU Amsterdam, the Netherlands), Michael Sutherland (University of New Brunswick, Canada), Mika Toerhoenen (FAO), Christoph Twaroch (Austrian Ministry in charge of cadastre), Ian Williamson (University of Melbourne, Australia), Jaap Zevenbergen (TU Delft, NL)



- The workshop brought together 61 experts from different communities and disciplines from 19 countries and involved in the cadastral domain



Conclusions

- Common steps in workflows have to be identified
- A single standard model might not be possible but a core model based on common concepts should be achievable
- The Core Cadastral Domain Model is the least common denominator
- Further activities have to be identified in international context, together with ICT industry, academia, COST, EULIS, professionals and with a strong focus to and involvement of users



Conclusions

- The Core Cadastral Domain Model might be part of a big machinery with interfaces, data exchange and interoperability
- The Geo-ICT industry will be driven by the market; if needed the models will be developed
- Semantic aspects require further attention

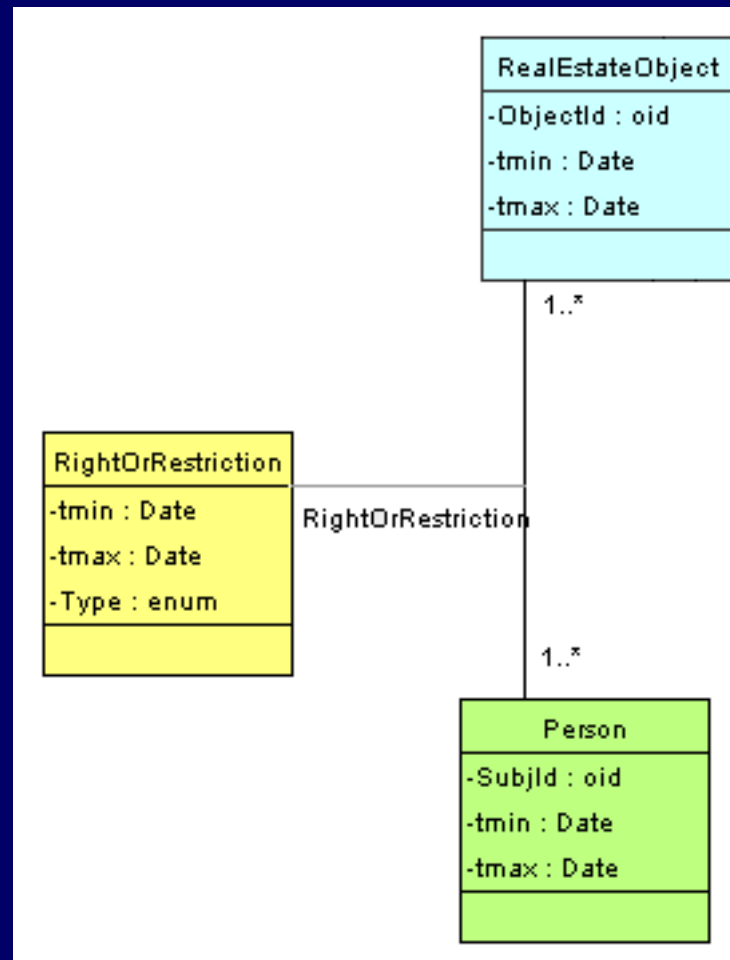


Recommendations

- Search for an authority that will drive development of Core Cadastral Domain model further, e.g. the FIG with its network
- A co-ordinating group is needed who can further identify the driving force
- The 'model boundaries' (what should not be included, what should be included) require further investigations; rights, restrictions, responsibilities related to land should be included and an extension of fiscal rights and responsibilities
- It is of utmost importance to better communicate the Core Cadastral Domain Model



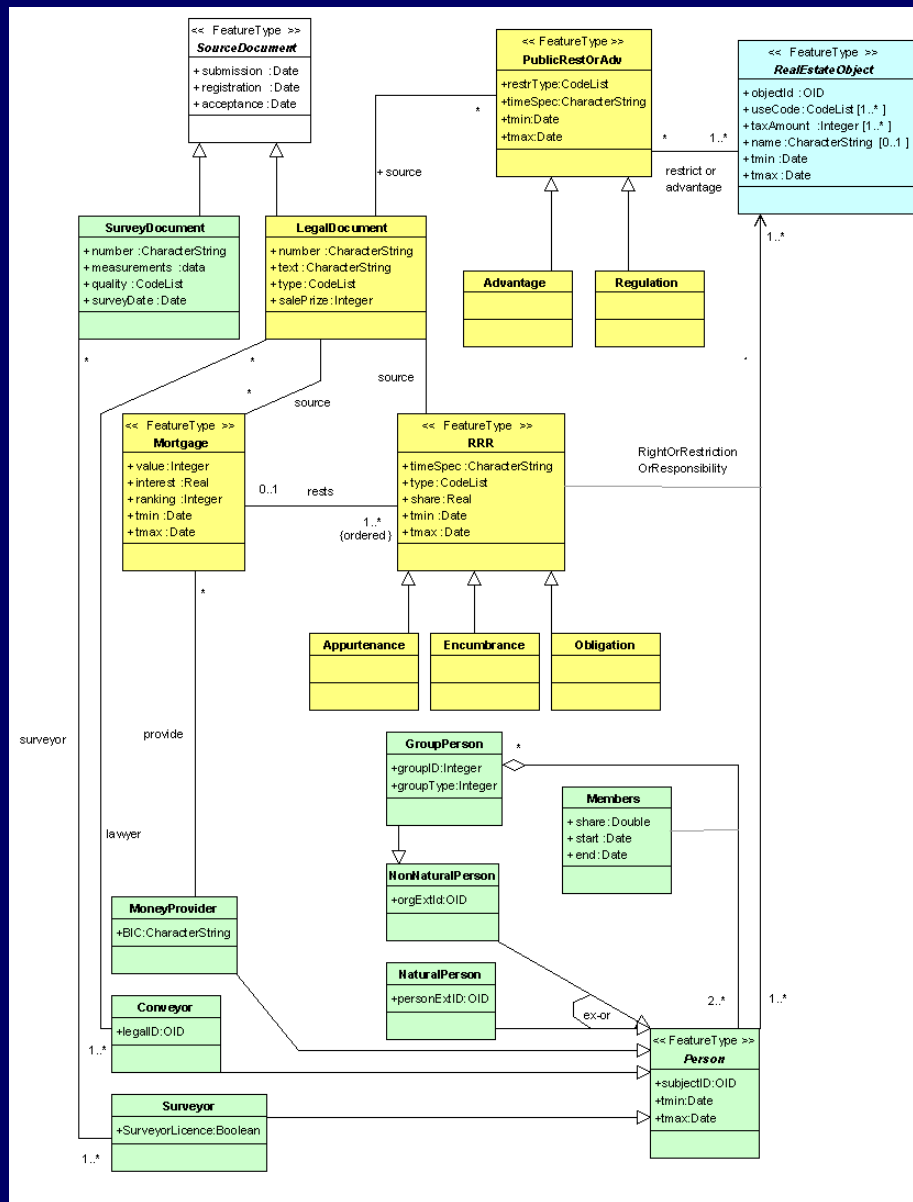
Model basis: Object-Right-Subject



Core Cadastral Domain Model: Geometry

- Real estate object with specialisations, e.g. parcel, parcel-complex, volume property, restriction area, point parcel, apartment unit
- Agregations like parcels set, parcel complex, apartment complex
- Link to surveying and survey documentation
- Link to OGC standards (Nodes, Edges and Faces)

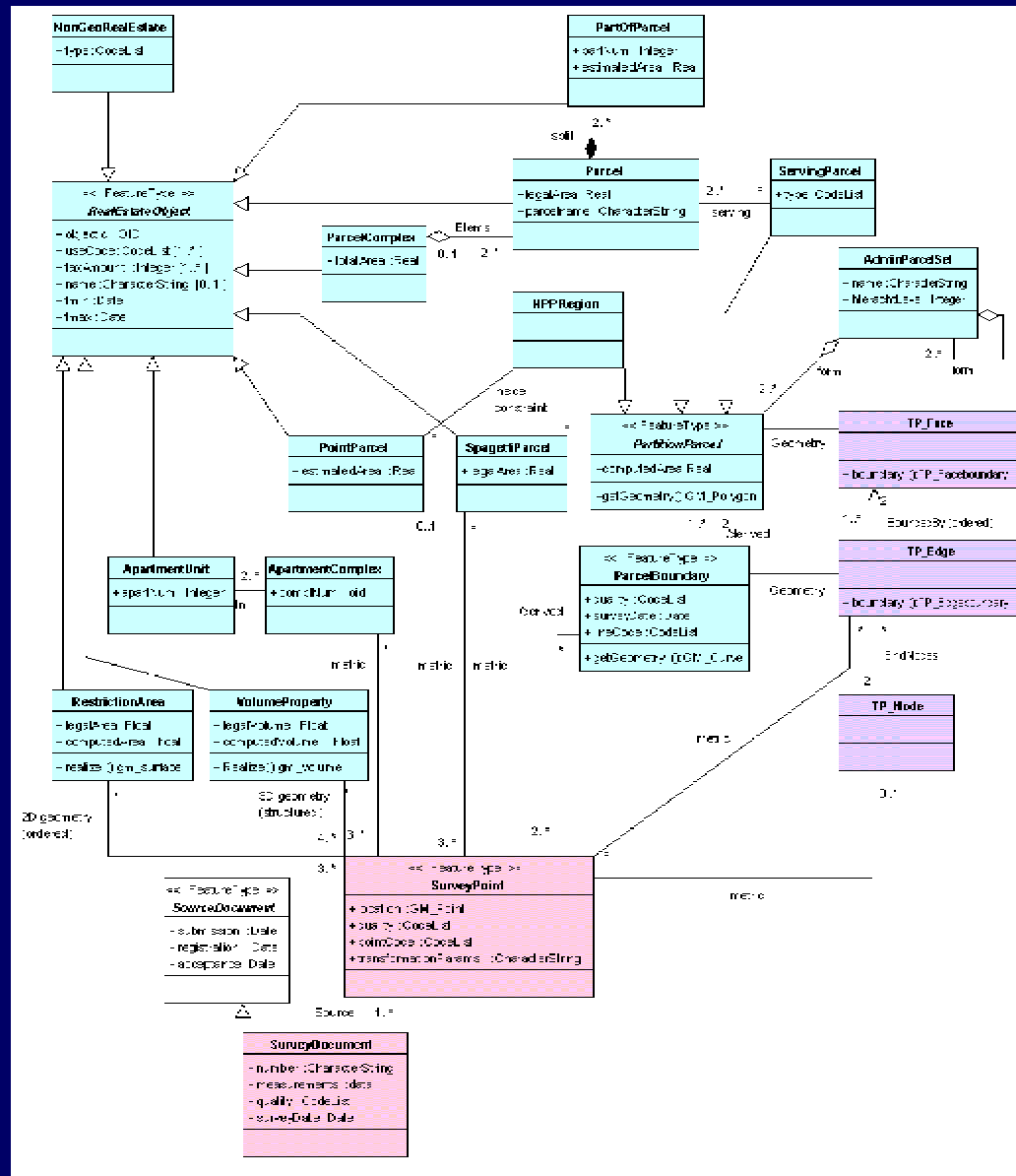




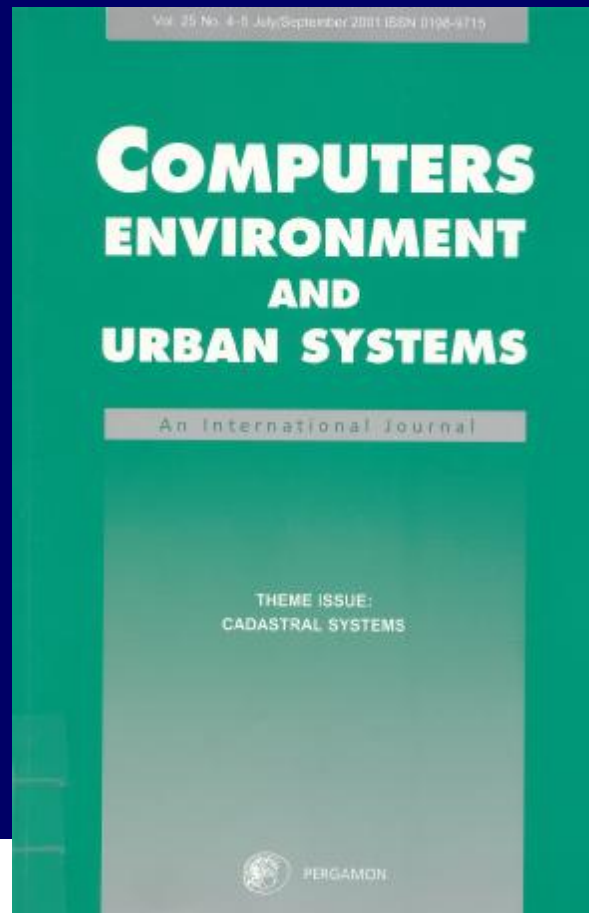
Core Cadastral Domain Model: Legal-administrative

- RRR is an association class between Person and RealEstateObject
- Mortgage, restriction and RRR are based on legal documents or decisions
- Person are specialised as natural or non natural
- Surveyor, conveyor and money provider are included, specialisations of the Persons class
- A RRR can be temporal





Special Issues Computers, Environment and Urban Systems



Cadastral 2014 approach is integrated

- 2014 is a generic, abstract set of guidelines
- CCDM is refined into a more specific model, for implementation



Further Appraoch

- Ghana Regional Meeting
- CEUS
- Booklet Muenich
- OGC
- Working Plan 7.3



Thank you

