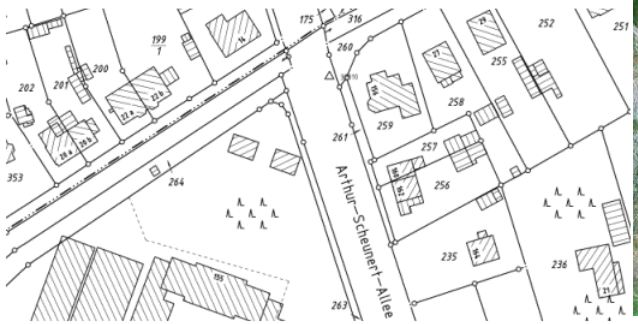
TRAINING WORKSHOP ON CONCEPTS AND METHODS FOR LAND ADMINISTRATION, INCLUDING CADASTRAL MAPPING, FOR LAND MANAGEMENT IN ETHIOPIA



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Gemarkung	129999	Potsdam
Gemeinde	12069999	Potsdam
Kreis/Stadt		Potsdam-Mittelmark
Finanzamt	3047	Potsdam/Land

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Entstehung 1939

Land Administration Domain Model

Heinz Brüggemann, Christian Timm
Hansa Luftbild

From Land Administration Guidelines and Cadastre 2014 to LADM

The Land Administration Guidelines

ECE/HBP/96
ECONOMIC COMMISSION FOR EUROPE
Geneva

LAND ADMINISTRATION GUIDELINES

With Special Reference to Countries in Transition

UNITED NATIONS
New York and Geneva, 1996

Land Administration Guidelines: Some principles (1)

- Aim: to out-line the benefit of having a relevant and reliable land information system in place
- based on the assumptions that
  - Access to food and shelter are fundamental human needs;
  - Security of tenure is essential for an effective housing policy;
  - Certainty in the legal status of land is essential for efficient agricultural production;
  - Investors in a market economy require a formal structure of land and property rights;
  - Sustainable development is dependent on the State having overall responsibility for managing information about the ownership, value and use of land, even though the private sector may be extensively involved; and
  - Both land and information about land are resources that must be husbanded in order to achieve economic growth.

Land Administration Guidelines: Some principles (2)

Article I of the First Protocol to the European Convention on Human Rights signed in Rome on 4 November 1950:

“Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law.”

The Guidelines identify the factors that should be taken into account in developing the legislation, organization, databases and maps, as well as the funding mechanisms, required to implement and maintain a solid land administration system, frequently referred to either as a cadastre or a land registration system.

Cadastre 2014

CADASTRE 2014

A VISION FOR A FUTURE CADASTRAL SYSTEM

Jürg Kaufmann • Daniel Steudler
with the Working Group 1 of FIG Commission 7

FIG

July 1998

Cadastre 2014 - Definition

- Cadastre 2014 is a methodically arranged public inventory of data concerning all legal land objects in a certain country or district, based on a survey of their boundaries.
- Such legal land objects are systematically identified by means of some separate designation.
- They are defined either by private or by public law.
- The outlines of the property, the identifier together with descriptive data, may show for each separate land object the nature, size, value and legal rights or restrictions associated with the land object.
- In addition to this descriptive information defining the land objects, Cadastre 2014 contains the official records of rights on the legal land objects.
- Cadastre 2014 can give the answers to the questions of where and how much and who and how.

Six Cadastre 2014 Statements

1. Cadastre 2014 will show the complete legal situation of land, including public rights and restrictions!
2. The separation between 'maps' and 'registers' will be abolished!
3. The Cadastral mapping will be dead! Long live modelling!
4. 'Paper and pencil - cadastre' will have gone!
5. Cadastre 2014 will be highly privatized! Public and private sector are working closely together!
6. Cadastre 2014 will be cost recovering!

LADM and Cadastre 2014

- LADM is based on the conceptual framework of ‘Cadastre 2014’

- Seven design principles derived from “Cadastre 2014”

The seven LADM design principles

1. Principle of spatial units
2. Principle of the documentation of private and public rights, restrictions and responsibilities
3. Principle of legal independence
4. Principle of linking objects by geometry
5. Principle of unified Cadastre and Land Registry
6. Principle of Land Administration Modelling
7. Principle of Information and Communication Technology (ICT) application

LADM goals

- to provide an extensible basis for the development and refinement of efficient and effective land administration systems, based on a Model Driven Architecture (MDA) and

- to enable involved parties, both within one country and between different countries, to communicate,based on the shared vocabulary (that is, an ontology) implied by the model.

LADM is ...

- International standard
- Conceptual framework
- Ontology
- Blueprint for static part of an IS and for interfaces

LADM is not …

- A data model
- An implementation
- A Blueprint for land administration laws and regulations
- A model for land administration processes

From LADM to implementation

- Implementation = Database
- LADM → Conceptual model → Implementation

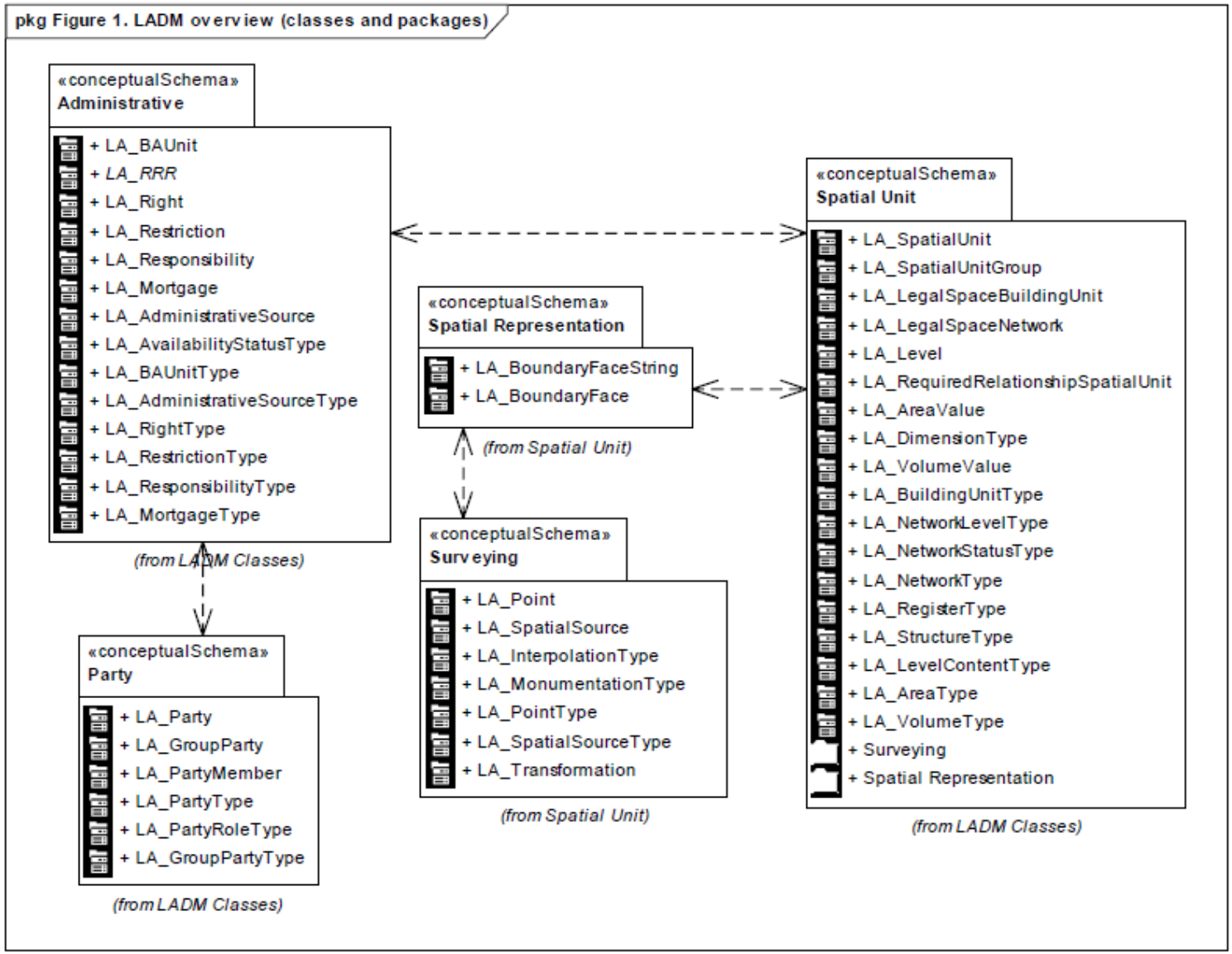
- Requirement Analyze to capture the needs
- Defining and implementing a organisational structure
- Tailoring of LADM to fit the needs
- System architecture which can host the model

LADM to conceptual model

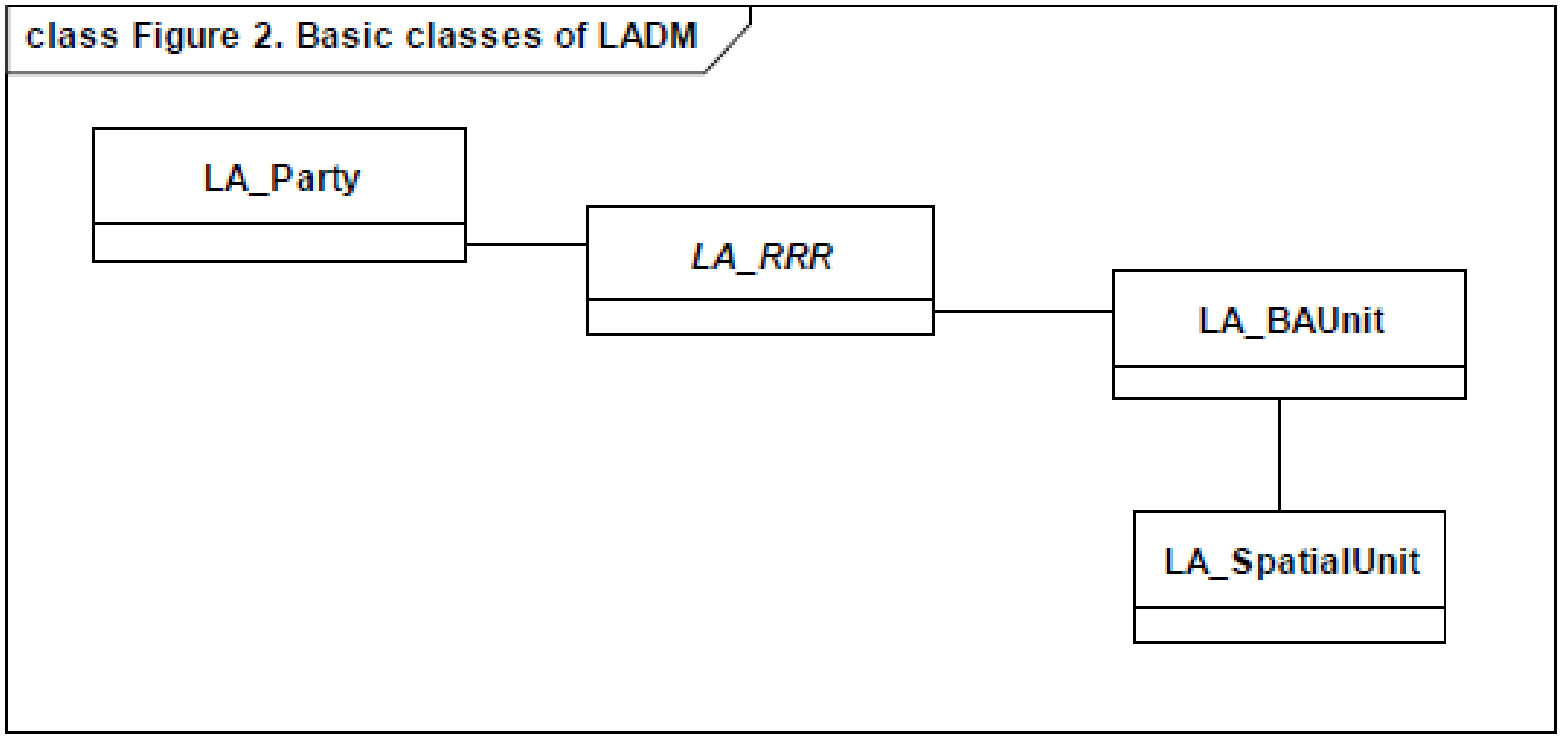
- General influence factors for the transition:
  - Rules and regulations
  - Existing data and processes
  - Future processes
- Overall principles of modelling
  - Flexibility concerning future requirements
  - Maintainability
  - As closed as possible to the standard
  - As easy as possible

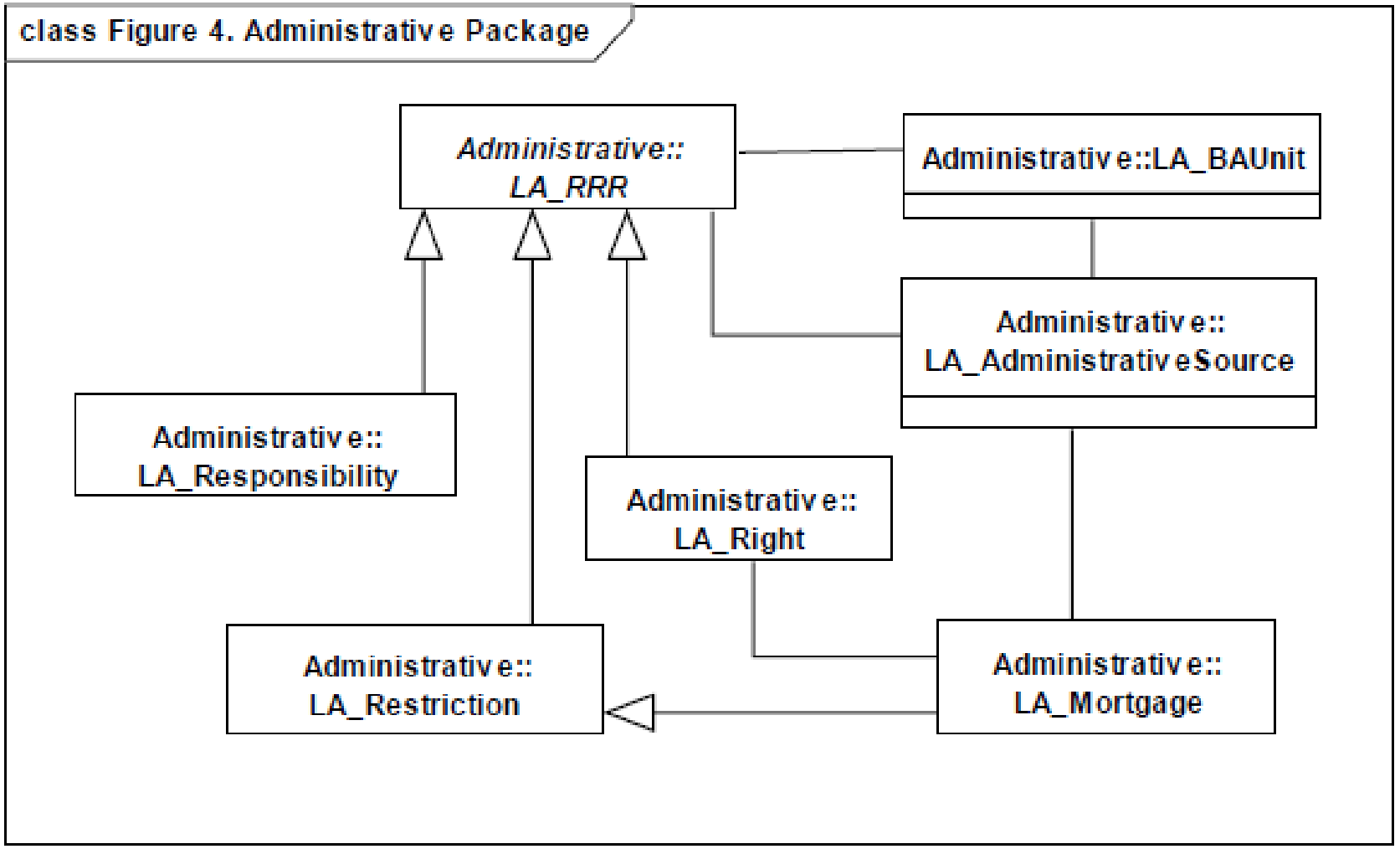
Content of LADM

- parties (people and organizations);
- basic administrative units, rights, responsibilities, and restrictions (ownership rights);
- spatial units (parcels, buildings and networks);
- spatial sources (surveying); and
- spatial representations (geometry and topology);



Basic classes of LADM





Conceptual model for Addis Ababa to implemetation

- Target: Oracle (Spatial)
- De facto standard for GIS databases
- Open GIS complaint
- Well proven and widely used
- Requires the mapping of the object oriented conceptual model to the relation data model
- Versioning of objects
- Object identification

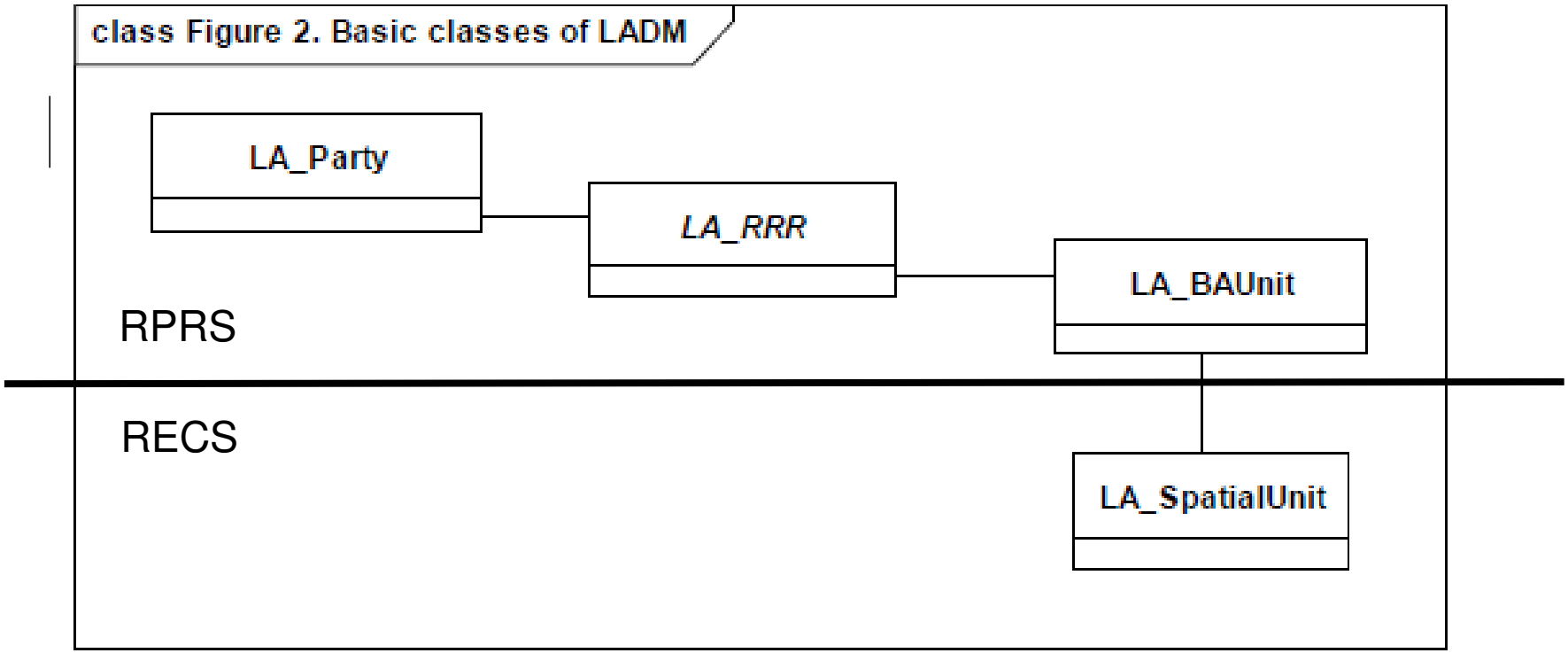
Separation of property and cadastre

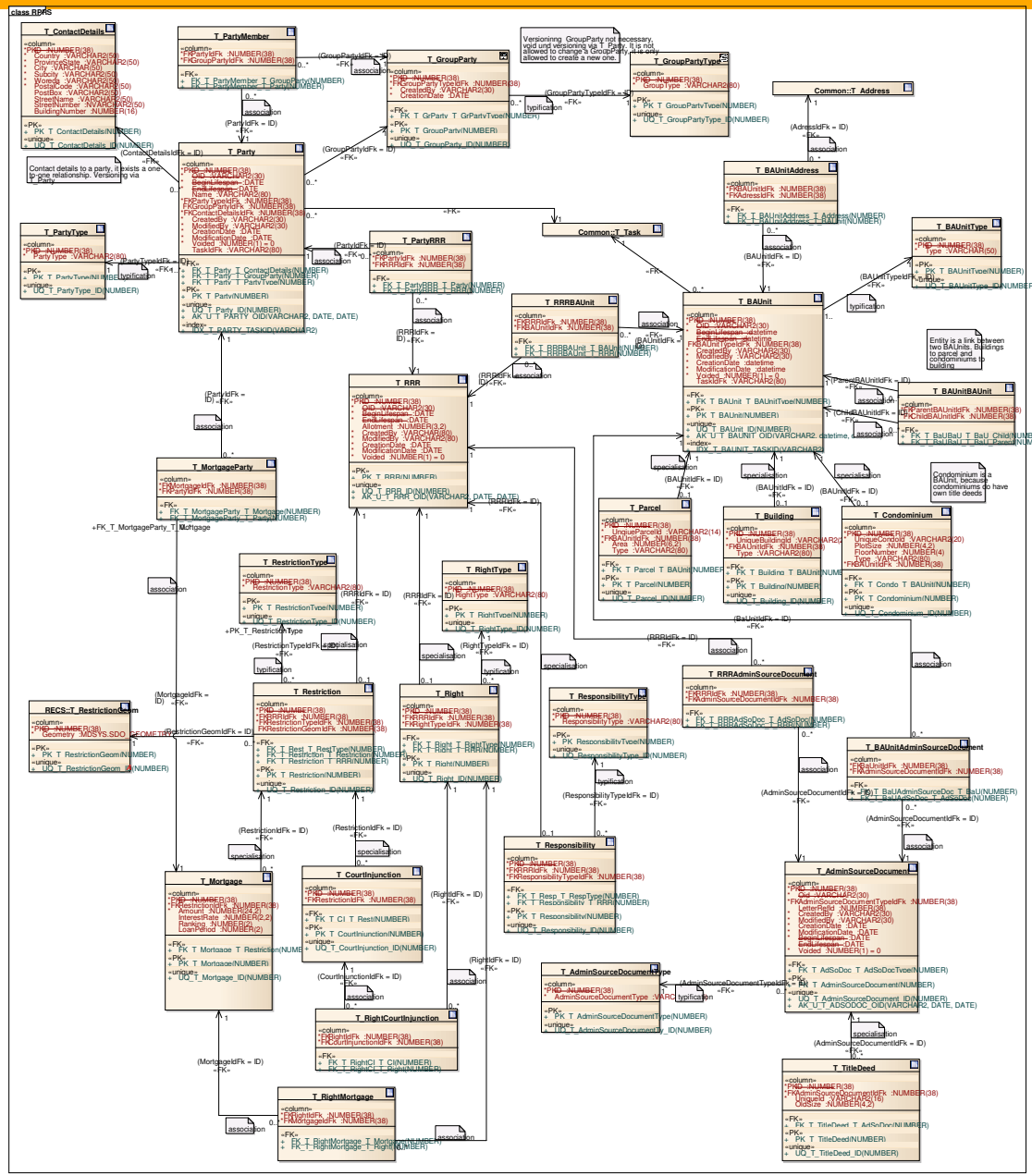
- Property and cadastre are two separate implementation
- Allows a more flexible organizational structure
- Both parts can be handled separately
- If they are connected, the integration is very close

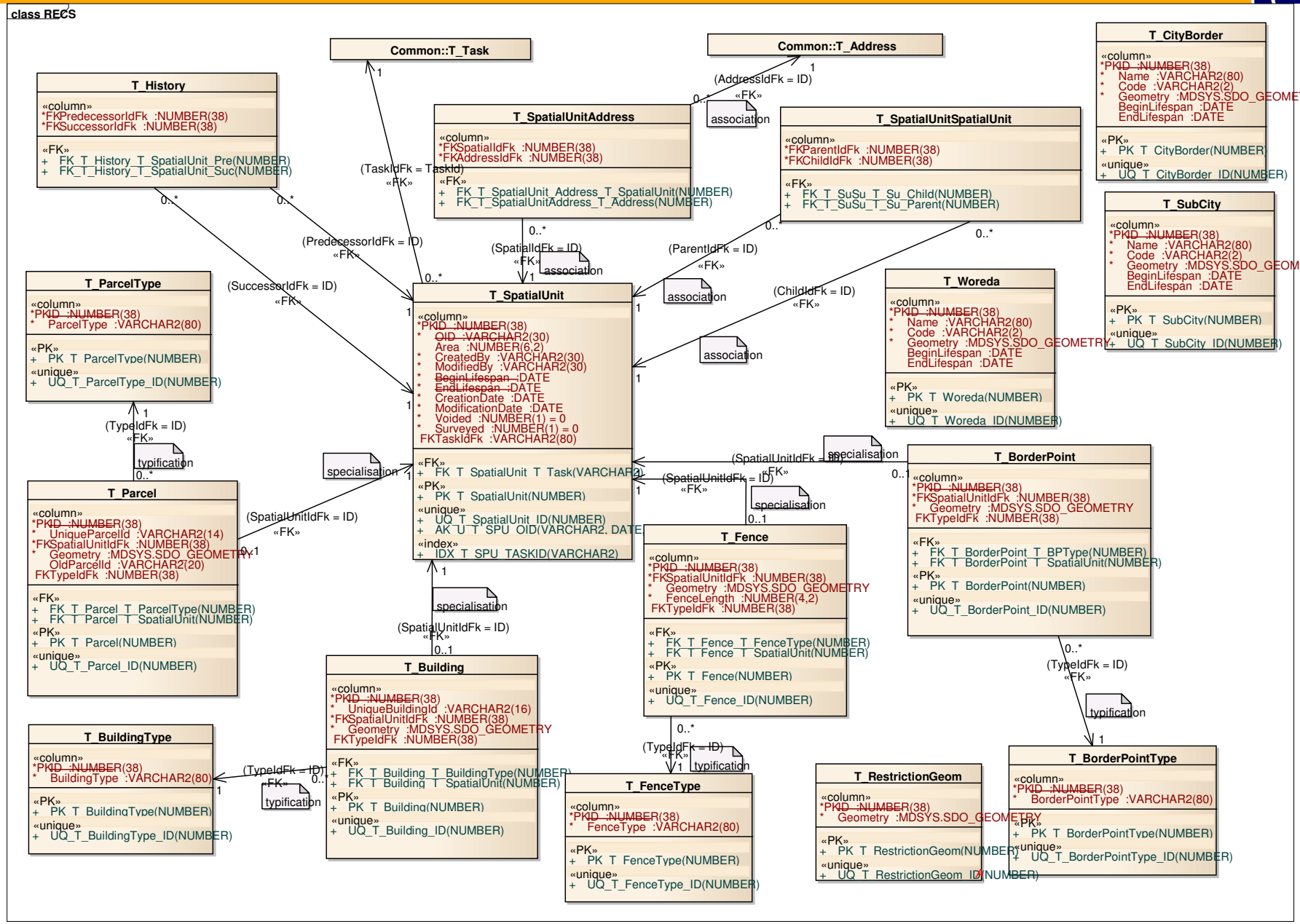
- In Addis linked together to one database:

Common Cadastral DataBase CCDB

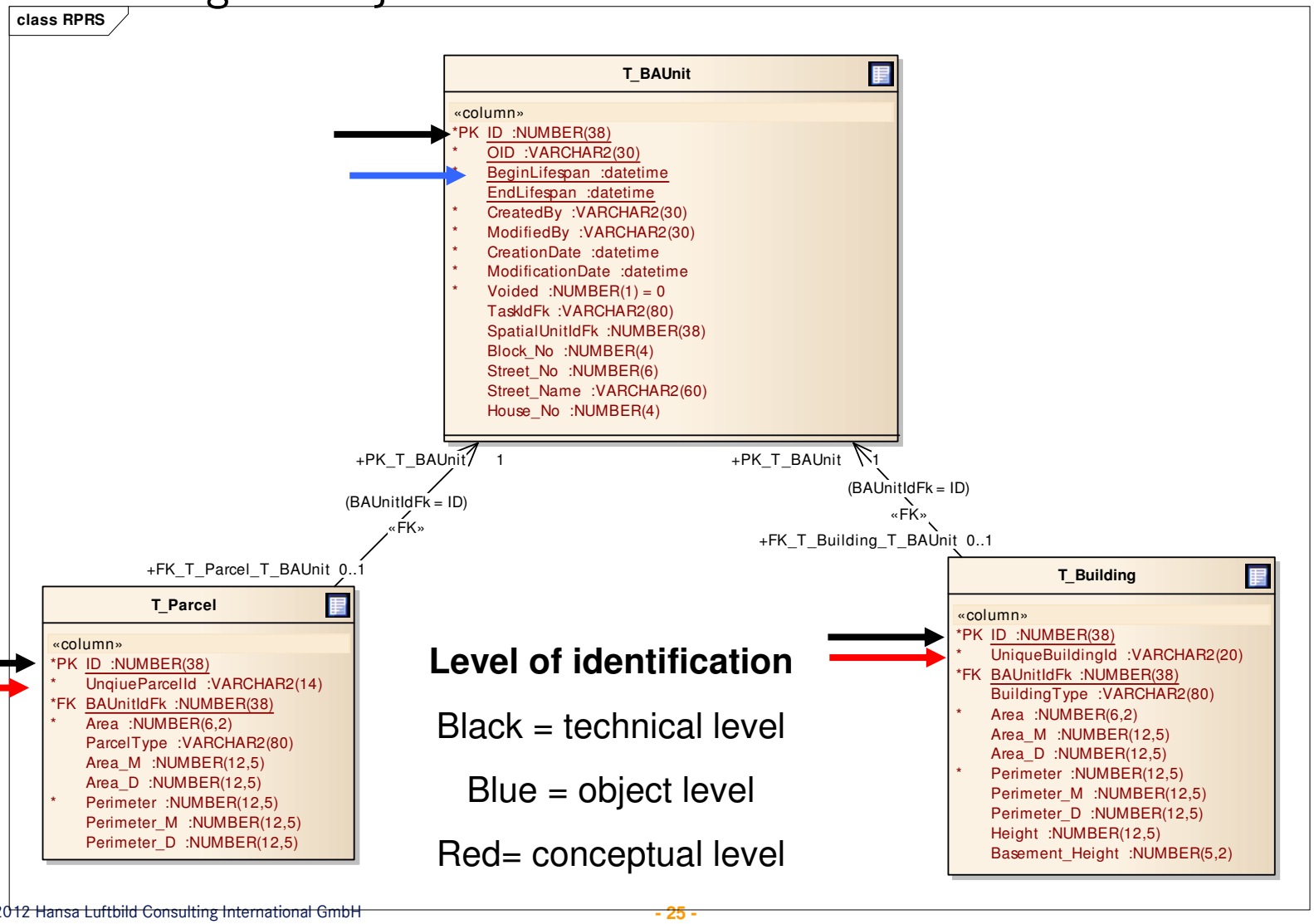
Core of the implementation







Versioning and object identification



Conceptual model for Addis Ababa to implemetation

- Database first approach
- Implementation is not restricted to a specific client
- Optimized for data capturing and data maintenance
- Consistency over performance
- ANSI / SPARC architecture
- Derived models for retrieval

Thank you for your attention

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