Standards and new IT developments in Hungarian Cadastre

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History

- Started from Kaiser Joseph II. (end of 18th century), through the 19th and 20th century until 1972, Cadastral mapping and „Grundbuch" were separated. (see the former KUK countries)
- From 1972 the two activities (land registry and cadastral mapping) belong to the same administrative body (to the land office network) (unified land registry)
- Land Office network contains:
  - 19 County + 1 Capital Land Offices (+FÖMI) (Regional – Countrywide management)
  - 116 District Land Offices (daily management)
- The Land Office network is under the supervision of Department of Lands, and Mapping at the Ministry of Agriculture and Rural Developments.

Legal Frame I.

- After the political changes in 1990, in accordance with the new economy, two acts have been created, which mainly influences cadastral activity:
    - Act on Surveying and Mapping Activities (Act LXXVI., 1996.)
    - Act on Real Property Registry (Act CXLI., 1997.)
- Act on Surveying defines:
    - Cadastral maps registered and managed at the land offices
    - Defines state base data and base data
        - State base data: are the data whose production and maintenance financed by the central budget
        - Base data: are the data whose production and maintenance financed by other funds.
- Act on Real Property Registry defines:
    - Real property registry is the task of the land office network
    - Cadastral maps are the part of the real property registry, and their define the geometric characteristics of a land parcel (boundary, area etc.)

Legal Frame II.

- Principles of real property registry:
  - Inscription (any right in the real property registry arises from the registration of it on the property sheet),
  - Publicity (anyone has access to view, to copy or to note any data from real property registry),
  - Authenticity (any rights and facts in real property registry are authentic),
  - Bond of application (any modification in real property registry must be based on an application)
  - Ordering (the order of any registration based on the time of application registration),
  - Principle of deed (any registration of rights or important facts must be based on a deed)

IT developments in the Hungarian Cadastre

- From paper-based to digital real property registry (KDIR), completed in 1996.
- TAKAROS, the Cadastral Information System of District Land Offices (completed in 2000, only the real property registry part)
- TAKARNET, network of Land Administration, with public access to any real property registry data for registered users, completed in 2000.
- META, Information System for the County Land Offices, completed in 2003.
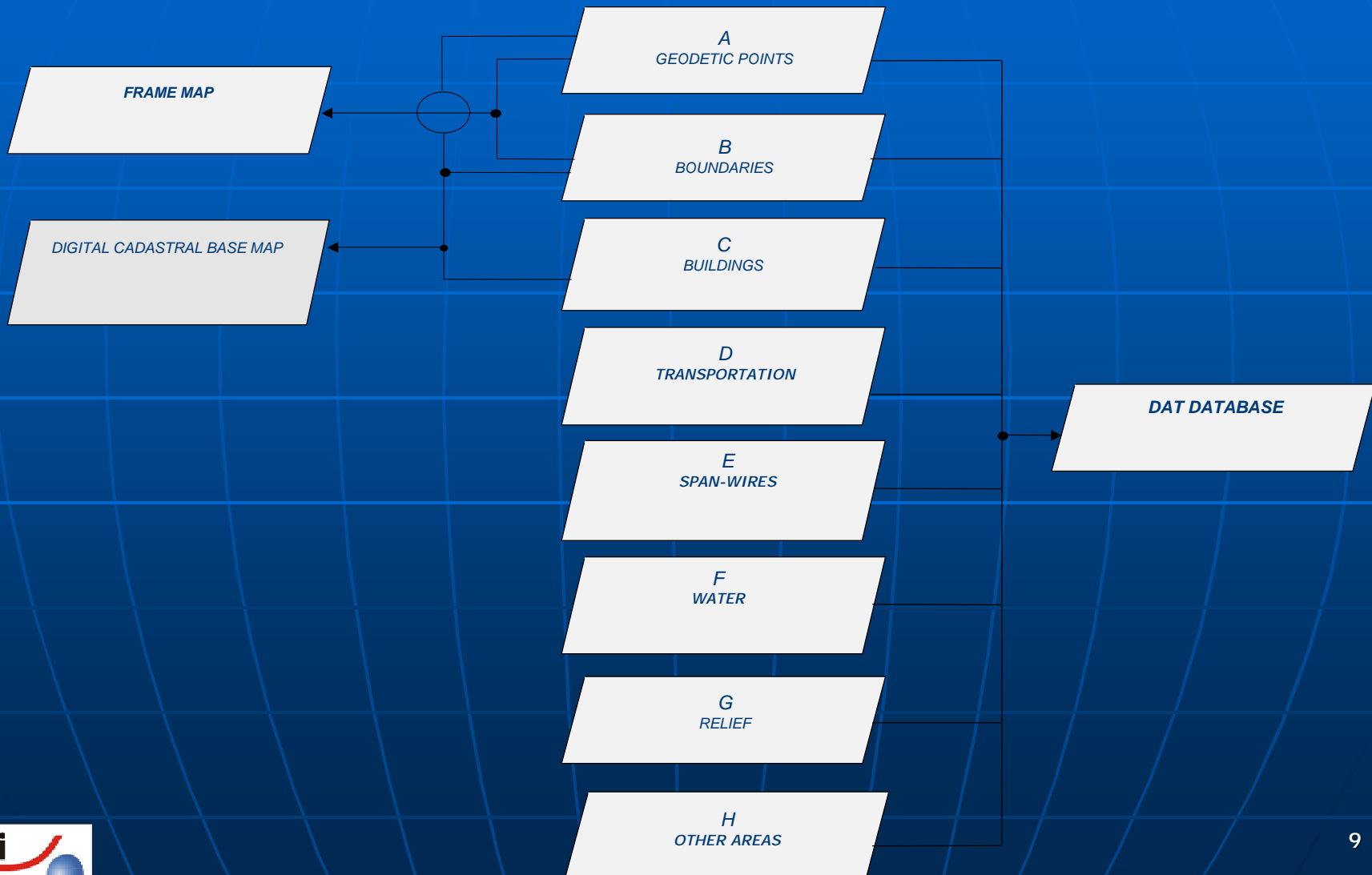
Standardization

n **Hungarian GIS Data Exchange Standard (MSZ 7771 or HUNEX), 1995 (META)**

n **The Digital Base Map Standard (MSZ 7772-1 or DAT standard), 1996**

- Defines the conceptual model of a cadastral database,

- Harmonized with the CEN pre-standards,

- New instruction system based on DAT standard, developed by FÖMI,

- In National Cadastral Program (NCP), new DAT databases have been created for 500 000 hectares (5% of the country) until now.

MSZ 7772-1 or DAT standard

- The role of DAT standard is:
    - to determine the objects including in the cadastral database,
    - to define:
        - their geometric properties,
        - connectional and qualitative characteristics,
        - principles of the integration of them
        - their metadata.

Thematic structure of DAT standard

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Result of the use DAT standard

- From 1st of January,1997 the use of DAT standard in cadastral mapping is compulsory (theoretically)

- A new DAT-based instruction system has been developed for the creation, maintenance and updating of DAT-based cadastral databases. This instruction system defines the complete logical model of the DAT cadastral database

- In National Cadastral Programme, DAT-based cadastral databases has been created for the 5% of the country

Problems

- The former cadastral information system developments have not been solved the complete integration of cadastral map and real property registry data, as it is defined in the Act on real property registry.

- Land offices are not able to handle the newly-created DAT based cadastral databases with real property registry, therefore the databases are loosing their actuality

- Data and value-added services are not available from the new databases via network

DATR, a new cadastral IT system for the land offices

- DATR (DAT-based mapping system)
- Main visions:
  - Cadastral map is the geometrical representation of objects stored in the real property registry
  - The system provides the authentic updating and maintenance of real property registry and cadastral maps
 - Enable map and real property registry data service on Internet together

DATR II.

- n The system is using the same administrative functions and procedures like the operating TAKAROS real property registry IT system

- n Cadastral map data are stored in the same database like real property registry, -> one database scheme and enforce integrity between maps and registry

- n All changes must be carried out within a database transaction, no map editor function is available -> authenticity

- n For the graphic representation of geometric data stored in the database, the standard functions of a graphic operating system are enough

- n All changes in map database can be only executed by a change-management system

- n The system supports real-time queries of TAKARNET network -> on-line map service is available

- n System requirements:
  - Windows NT 4.0 or Windows 2000 Client and server
  - ORACLE v8.05 RDBMS or higher

Core data model of DATR
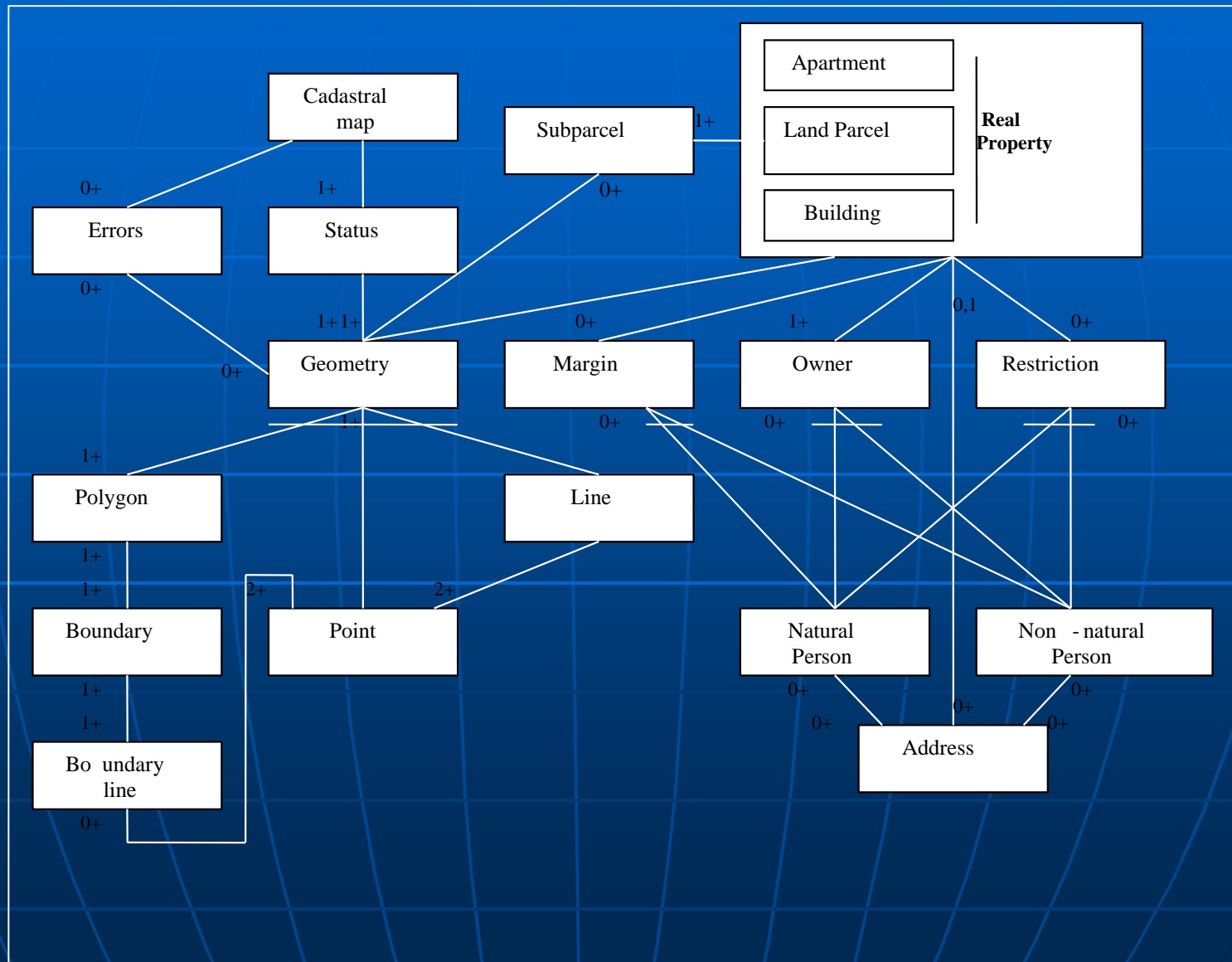
Real property transactions in DATR
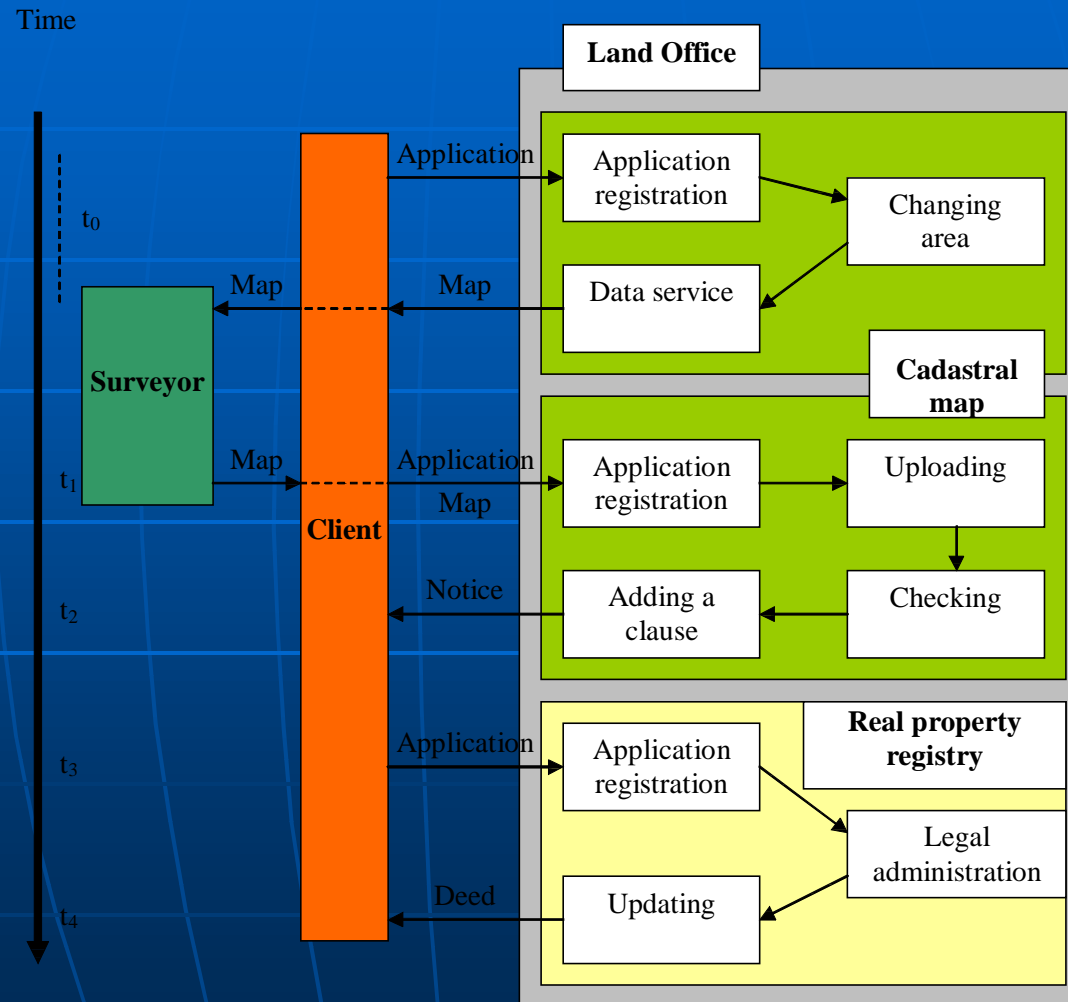
Conclusions

- Standardization is a very important role in cadastre
- DATR is a practical example for the usage of cadastral standardization and its legal procedures
- DATR database structure is very similar to Cadastral Domain Core Data Model, but the the way we have found the same solution was different and totally independent
- The concrete solutions can be different from country to country, but a common platform like Cadastral Domain standard is necessary, for a further interoperability and cooperation among different systems.

Thanks for your attention

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