

New IT developments and services in Hungarian Cadastre

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Content

- n Introduction
- n Legal frame
- n DAT, the Hungarian Cadastral Standard
- n DATR, a new Cadastral IT system for the Land Offices
- n Real property transactions
- n Integrated Cadaster data service via Internet
- n Conclusions

History

- n Started from Kaiser Joseph II., through the 19th and 20th century until 1972, Cadastral mapping and „Grundbuch“ were separated. (see the former KUK countries)
- n From 1972 the two activities (land registry and cadastral mapping) belong to the same administrative body (to the land office network) (unified land registry)
- n Land Office network contains:
 - 19 County + 1 Capital Land Offices (+FÖMI) (Regional – Countrywide management)
 - 116 District Land Offices (daily management)
- n 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.

- n 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.)
- n Act on Surveying defines:
 - Cadastral maps registered and managed by the land offices
 - Defines state base data and base data
 - n State base data: are the data whose production and maintenance financed by the central budget
 - n Base data: are the data whose production and maintenance financed by other funds.
- n 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.) and objects inside a parcel (e.g. buildings)

Legal Frame II.

n Principles of real property registry:

- Inscription (any right in the real property registry arises from the registration of it on the land record),
- 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

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

Standardization

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 had been created for 500 000 hectares (5% of the country) until now.

Thematic structure of DAT standard



Characteristics of INFOCAM

- n LIS project at the Capital Land Office (1998-2000)
- n Tender financed by the Swiss government aid fund 1,5 million SFR
- n Winner: LEICA/INFOCAM
- n The project was successful, the integrated handling of land registry and cadastral map data is operating

DATView 3.0

The project financed by the National Cadastral Program Non-profit Company

- MoARD prescribed the use of it in:
 - n updating old DAT maps to the current situation
 - n negotiation of new cadastral maps
- Installation will be finished by the beginning of 2006.

n Experiences

- FÖMI has tested the software during this year:
 - n Area differences between the map and land registry is not handled
 - n Wrong handling of sub-parcels, arable-land classes and floating areas
 - n Multiple-schemes in uploading data
 - n New sub-parcels are not uploaded to the land registry
 - n Non-standardized solution

On-going projects

- n Digitization of Cadastral maps for the rural areas of settlements
 - Deadline: end of 2005.
- n Digitization of Cadastral maps for the built-up areas of settlements
 - Deadline: end of 2007.
- n Projects is financed by bank loan (guaranteed by the government)
- n Re-payment of bank loan based on the income of LA from data services

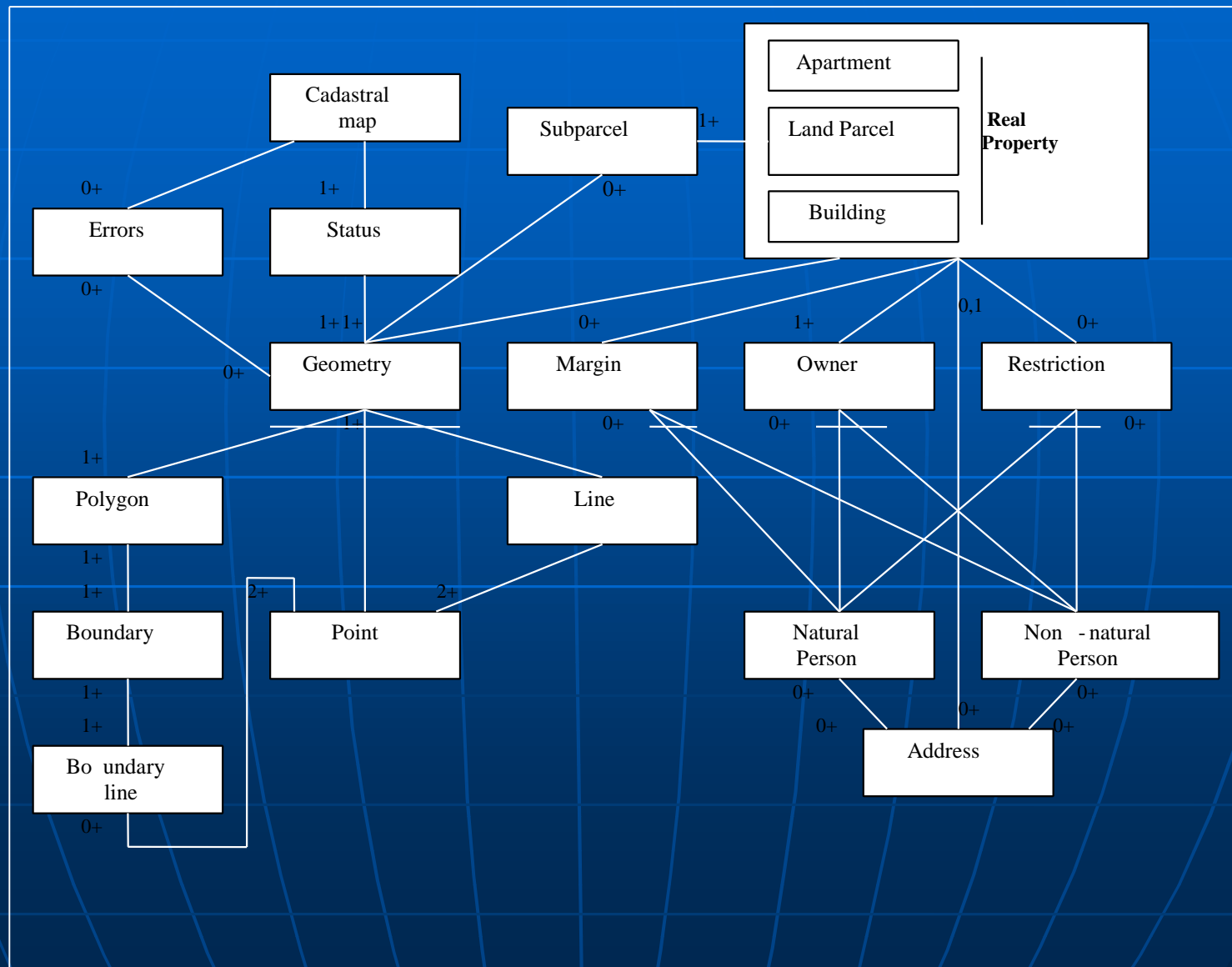
DATR, a new cadastral IT system for the land offices

- n DATR (DAT-based mapping system)
- n 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

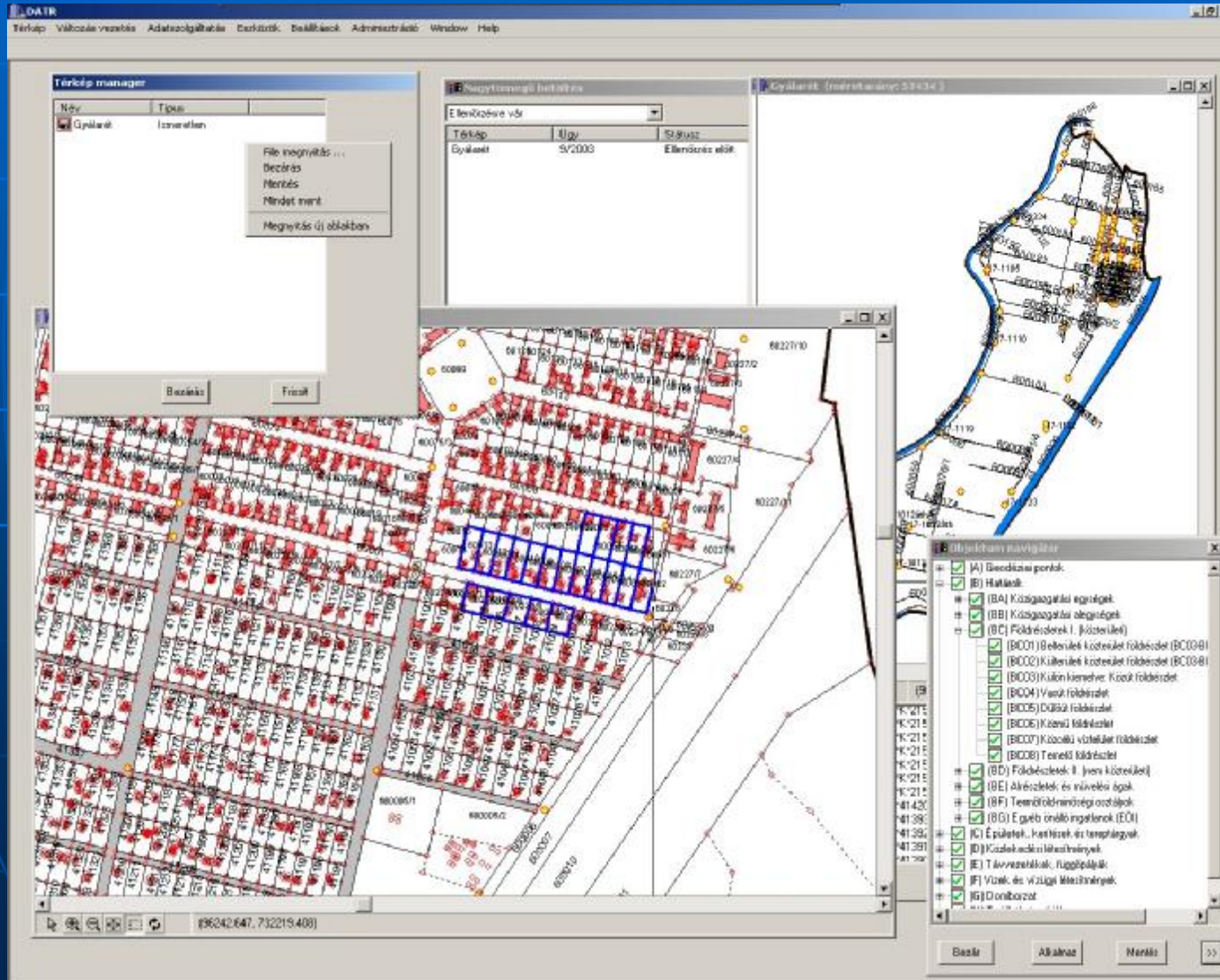
DATR II.

- 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
- 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 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

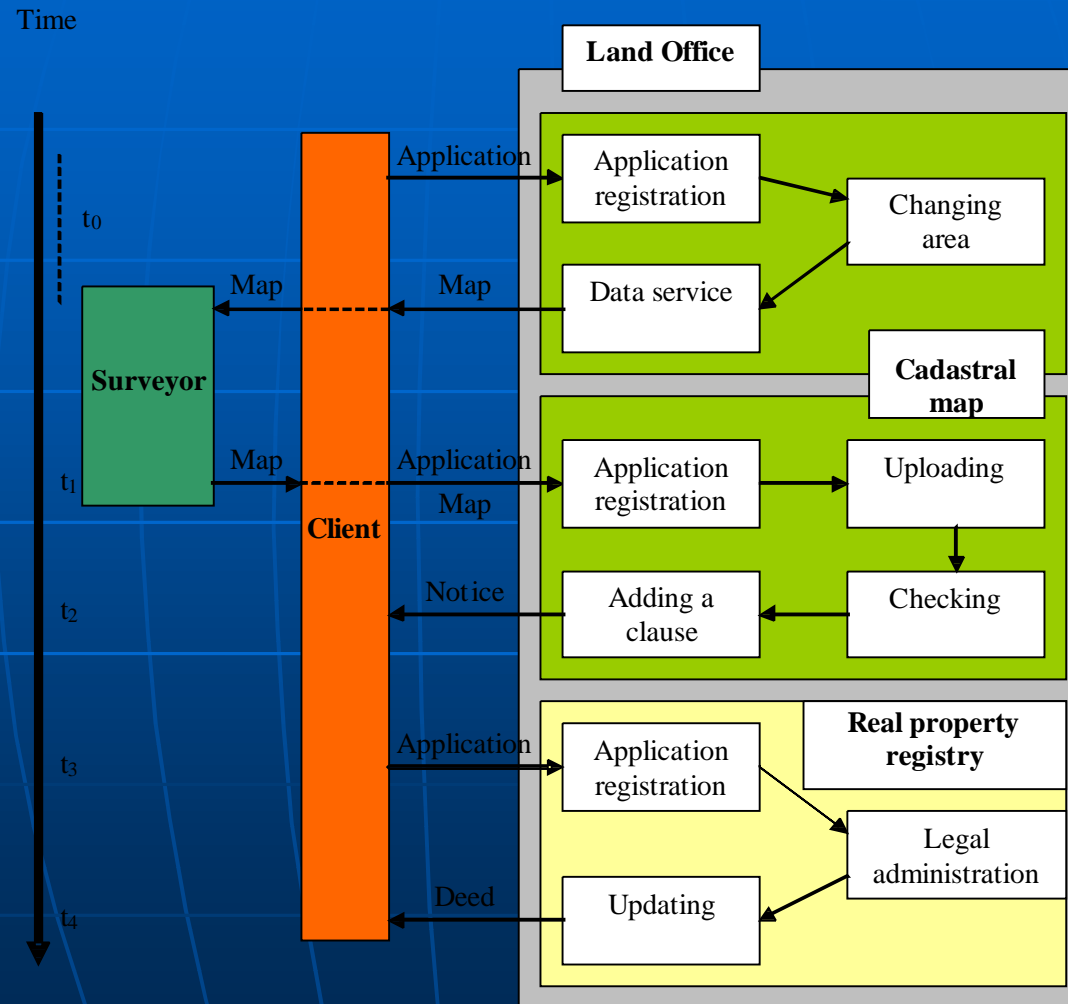
Core data model of DATR



DATR III.



Real property transactions in DATR



Integrated land registry data service via TAKARNET

- n Land registry data service has been available since 2000
- n Integrated (map+land registry) data service has been available 1th June 2005., only some districts of Budapest

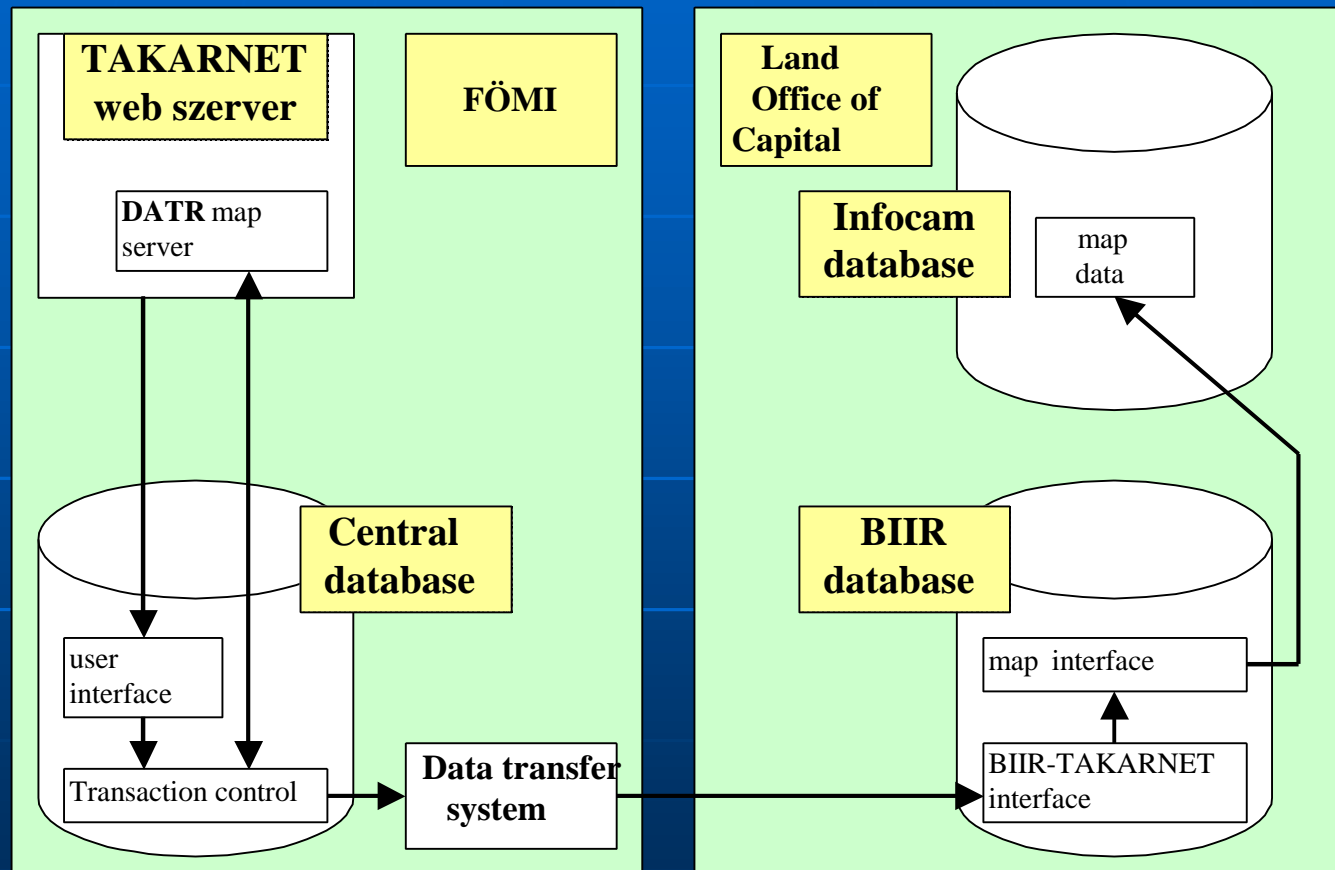
Software base of map service via TAKARNET

- n TAKARNET unified data transfer system (same as land registry data)
- n TAKARNET 4.0 transaction handling
- n Modular BIIR/TAKARNET interface
- n Graphic engine: DATR
- n DATR modul handling

Characteristics of map service

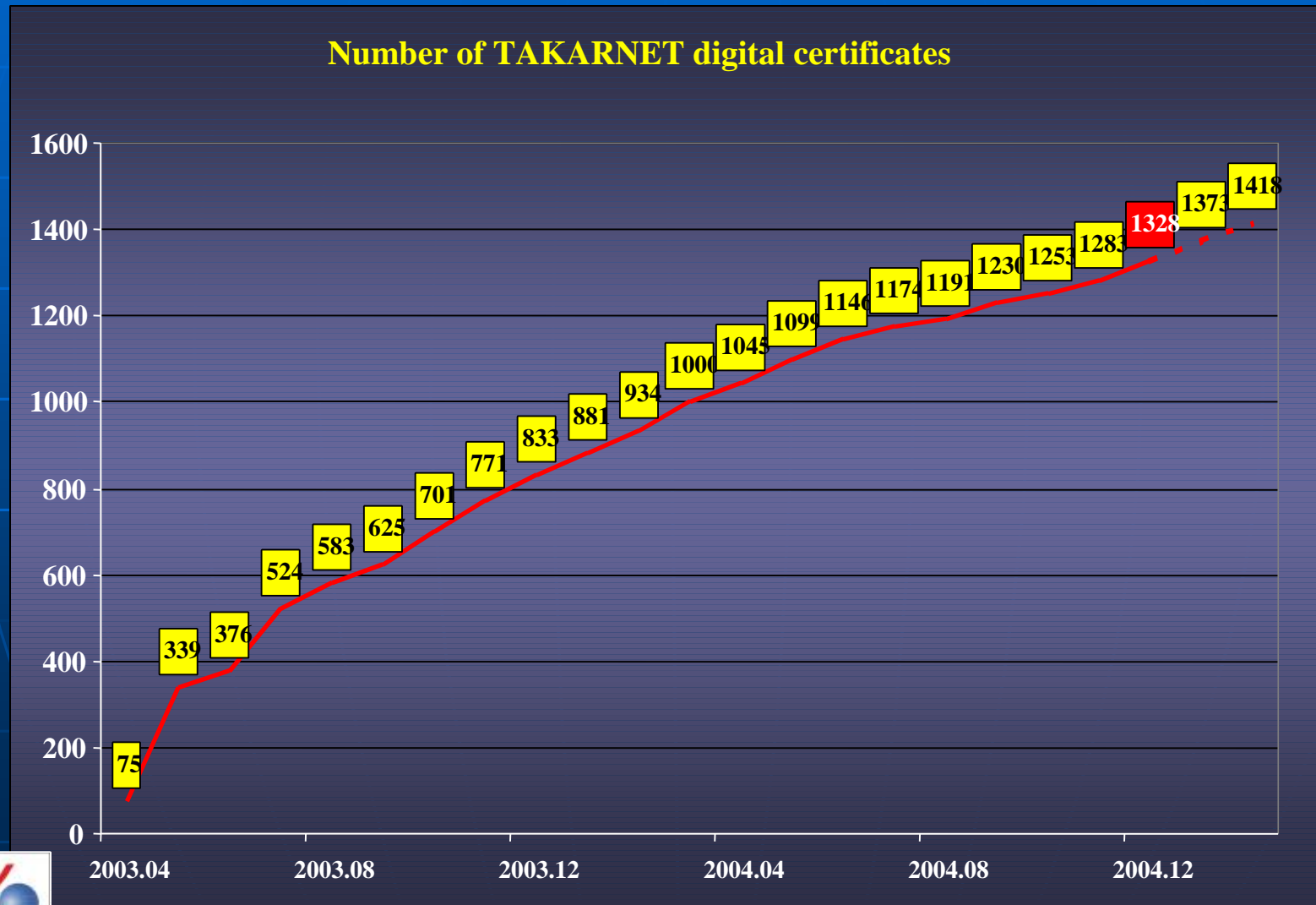
- n Extended display based on DAT standard
- n Real-time map production
- n Service of legal and preparatory status of the map
- n Support multi-scale display (automatic)
- n Map service in PDF format, so platform-independent

Architecture of map service



Data transfer is operating in vector format, conversion to PDF format is only owing to the legal regulations

Trend on digital certificates to TAKARNET



Characteristics of communication

- n **Communication:**
 - 128 bit, with SSL security
- n **Data flow, without security, is not operable in TAKARNET**
- n **User identification:**
 - With digital signature

Conclusions

- n Standardization is a very important role in cadastre
- n DATR is a practical example for the usage of cadastral standardization and its legal procedures
- n A modular standard for Cadastral Domain is very important to provide a flexible data exchange among different systems.
- n The concrete solutions can be different from country to country, but the common channel must be defined in a standard
- n Authentic and integrated real-property registry is one of the most important base data infrastructure in any country, which provides the sustainable development of the economy
- n IT solutions now provide the authenticity of these dataset
- n Data services via network increase the acknowledgement of land management sector

Thanks for the cooperation
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Thanks for your attention



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