Integrated Land Information Services in Hungarian Land Administration

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The unified Hungarian Land Registry and Land Administration Sector

Department of Lands and Geoinformation at Ministry of Agriculture and Rural Development
Overall supervision of LA Sector

19 County Land Offices + Land Office of the Capital
- County level supervision of District Land Offices
- Second level authority in LA cases
- Planning and coordination

District Land Offices (118)
- Daily updating of unified Land Registry
- Cadastral mapping
- Land valuation, land protection, land use
- Data service
- First level authority in LA cases

FÖMI
- R+D activities
- Support of Land Offices
- Operation of TAKARNET
- Topographic mapping
- Remote Sensing activities
- State Boundary Survey
- Quality Management
- Cosmic Geodesy

National Cadastral Program
- Huge cadastral mapping projects

Information Systems in Hungarian LA

Department of Lands and Geoinformation at MoARD
- META (statictics, management IS, decision making)

County Land Offices
- META (County Land IS for supervision, quality management, statistics, decision making)

FÖMI
- Development of ISs
- Support
- Operation of TAKARNET

District Land Offices
- TAKAROS (base information system of LO-s)
- FÖNYIR (land user IS, based on land registry)

Budapest District Land Office
- INFOCAM/BIIR
- FÖNYIR

TAKARNET Network

National Cadastral Program

Physical structure of TAKARNET

Logical structure of TAKARNET

MoARD
- Access to any data

TAKARNET Center at FÖMI
- Central management of the network
- Central land registry database
- Access to land registry data via Internet for registered users
- Harmonization of different data sources
- Unified data services

External, registered users
- lawyers, notaries, banks ...

Budapest Land Office
- Up-to-date land registry data in BIIR database
- Land user data
- Access to META database
- Cadastral maps from INFOCAM database

County Land Offices
- Access to META databases

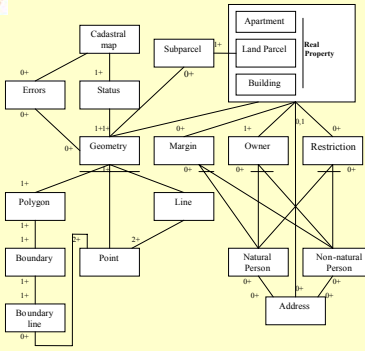
District Land Offices
- Up-to-date land registry data in TAKAROS databases
- Land user data
- Cadastral maps

DATR, the IT system for unified land registry

The base of the developments has been the following visions:

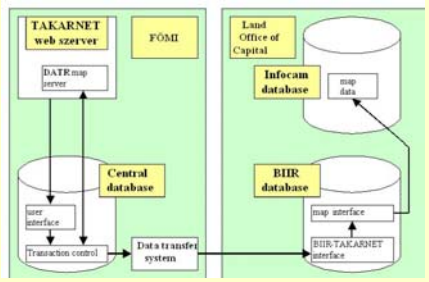
- In the unified land registry cadastral maps are the geometric attributes of land records registered in land registry,
- The system should provide authentic updating of land registry and cadastral maps together,
- The developments should be independent of any commercial GIS software,
- The system should cover all the business procedure in District Land Offices,
- The system should fit into the existing IT systems in Hungarian Land Administration.

Core data model of DATR



The core data model of DATR is conformed with the Cadastral Domain Model defined by our Dutch Colleagues

Integrated map services from Budapest Land Office



Graphic engine is DATR

TAKARNET services

- Base services:
  - Copy of Land record of any real property countrywide
- Expanded services:
  - Copy of cadastral map (if available in digital form) of any real property countrywide
  - Billing information
  - Downloadable standardized documents for applications
  - countrywide queries based on ownership (only for authorized bodies, Tax Office, National Intelligence Agency)
  - Land record change monitoring (on e-mail or SMS)

Integrated map services with orthophotos I.

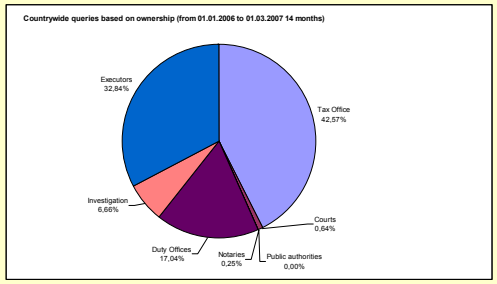
- Digital Orthophoto Database of Hungary (MADOP 2005)
  - Technical characteristics:
    - Original photos' scale 1:30 000
    - 0,5m ground resolution
    - 24 bit color depth
    - rectified by the high resolution (5m) DEM of Hungary, produced by FÖMI
    - available in 1:10 000 scale topographic sheet unit (6km x 4km)
- The services are under construction and testing

Services for built-up areas (1:1 000)

Services for built-up areas (1:2 000)

Services for rural areas
(1:4 000)

Distribution of queries based on personal data



Saves by the usage of TAKARNET

Saves of Land Offices 2006:
Number of queries of external users: 2 023 081
Man-power expenditure at LO:
5 min issue+5 min cash-desk = 10 min
5 hours/day -> 225 day/year
Means 300 staffs/year man-power save
Saves of external users:
Travel expenses: 10 USD/Land record
network usage: 2,5 HUF/Land record.
All in all more than 15 million USD/year
Time saving of external users:
0,5 day/land record -> means 4 495 manday / year

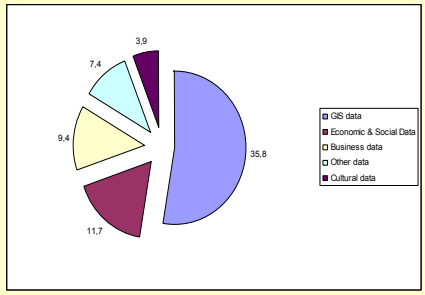
Some data….

- Number of properties: Approx. 10 million
- Number of external users: Approx. 2 750
- Number of digital certificate: 5 700
- Queries on land records: Approx. 250 000 /month
- Queries on maps: Approx. 750 db/month
- Registrated SMS request: 300

New developments

- Vectorization of 1:10 000 scale topographic maps has been finished (4098 sheets within 2 years)
- Uploading vector format 1:10 000 scale topographic maps into a unified geodatabase
- Establishment a geoportal, which based on the same geometric frame, the unified geodatabase (3m resolution) for the whole country
- Our partners (mainly from public sector) can upload their own data to this unified geometric frame
- Unified geodata service for external users, based on the unfied GIS database, including all data available in the Unified Hungarian Land Administration

Need for the project



52,4% of data value are GIS data!

Value of data, arised in Public Sector in European Union (billion Euro, 1999)

Economic and social effects of the project

- With the execution of the project a base framework and GIS data infrastructure will be built, which has many advantages on National economic level
- Establishment of a moderner public administration, harmonization of GI data of public sector, data sharing among the public authorities grounds the decisions of decision makers on an objective and easy way. Good governance and decisions benefit sustainable economic growth and decrease the number of unemployed people

Conclusions

- Standardization in Cadastral Domain is one of the most important condition for an effective land information services, and fortunately this task is proceeding, thanks for the activities of our Dutch Colleagues
- The Hungarian unified land registry and land administration provides a flexible background to implement integrated services
- Our solution (DATR), which is operating on the standardized Hungarian Cadastral Domain, shows that the full integration of land registry and cadastral maps goes to the best results
- Amplifying and integrating of „raw" land administration data with other GIS datasets (e.g. DEM, orthophotos, satellite images) results in a better services and recognition of land management sector

Thank you for your attention

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