

TAKARNET – intranet for the land administration

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Abstract The modernisation process of the Hungarian land administration has reached a new phase. After developing the information technological infrastructure of land offices the country-wide access and service of land office data are becoming possible. Within the framework of the PHARE supported project “TAKARNET: Wide Area Network for the Land Offices of Hungary” the connection of the Hungarian land registration sector offices with each other and external users can be realised. The establishment of the TAKARNET network makes radical changes in the client service of the land offices, speeds up the processing time of applications, improves data and administration security, attends to a great number of users simultaneously, and in addition the network ensures more efficient communication and management information flow between district and county land offices, FÖMI and the Ministry.

The paper presents the TAKARNET concept in the mirror of the modernisation strategy of the land registration sector and analyses the new possibilities opened by establishing this network. Then a short overview is given about the network structure and the functions of the TAKARNET application software. Finally, in connection with the EU harmonisation, the implementation phases, main milestones are described which are on the way to create a National Land Information Service based on the TAKARNET infrastructure.

1. Introduction

The land registration sector is a key element of a free market economy whereby the safe and secure transfer of title can be freely conveyed. In Hungary, like in many other European countries, the government acts as the guarantor of title through the act of registration of property which records all required legal, administrative, financial and physical description within the system of the register (property sheets) and upon the cadastral map.

Since 1972, the Ministry of Agriculture and Regional Development, Department of Lands and Mapping (MARD DLM) has been responsible, through its two-level network of land offices, for the unified land registration and the updating of large scale cadastral maps. The property sheets and cadastral maps actually are maintained in 115 District Land Offices (DLO) and the separate Capital District Land Office (CDLO) in Budapest. The principal activities of the 19 County Land Offices (CLO) and the separate Budapest Capital Land Office (Bp CLO) are supervisory.

The comprehensive modernisation of the land registration sector is a long process. Following an agreement signed in December 1990 between EU and the Hungarian government, the EU PHARE supported programme called “The computerisation of land offices” has started to establish the infrastructure background for this complex process. Besides the technological development the legal, operational, marketing and other related problems are also investigated within the modernisation programme. The PHARE support takes the form of technical assistance and the provision of supplies and services.

Computerisation is an important factor of the sector's modernisation strategy. As a general result, MARD DLM aims at creating a decentralised nation-wide Land Information Service system with electronic access to appropriate records both at county and district levels, to realise a more service-oriented land management in line with the EU requirements. It is worth to emphasise, that in this modernisation programme it is a great advantage that all major tasks of land management are concentrated within one institutional network – including the land offices, DLM and FÖMI – so the integrated Land Information Service can be created on a common base.

Over the past years DLM, with the aid of the EU Phare Programme and the Hungarian counterpart funding from the national budget, and to a lesser extent, the Swiss and German governments, has made a considerable investment in the modernisation of the infrastructure of land management. The main milestones of the implementation are as follows:

1. Complex Decentralised Property Sheet Registration System (CDPRS): computerised property sheet databases in the district land offices (finished in 1994)
2. Computerisation of the Capital District Land Office System (1997-98)
3. Mapping System for the Capital District Land Office (1997)
4. Upgrading the District Land Office System (TAKAROS DLO): computerisation of land office procedures (1995-98)
5. Wide Area Network for the Land Offices (TAKARNET): remote access to land office data (1997-98)
6. Computerisation of the County Land Offices (META - TAKAROS CLO): GIS products, new services support for EU harmonisation (1999-2002)

As a result of this investment, all of the property sheets (the land register) of the country were loaded into PC based computer systems in the district land offices by the end of 1997. This will speed up the management and updating processes as well as potentially making the land office information available for electronic on-line access by clients, banks, lawyers, public notaries and other interested parties. From technical point of view, information can be accessed electronically from remote sites by connecting all of the land offices in a Wide Area Network (WAN). In the series of IT infrastructure projects, establishing this network means both internal and external communication links.

2. TAKARNET concept

The concept for this land office WAN has been elaborated by a consultancy carried out during May and June 1996, under the name TAKARNET (**TAKAR**os **NET**work). Note that despite being named after the TAKAROS system, TAKARNET fundamentally includes the facility to access the Capital District Land Office and Capital Land Office systems in Budapest.

The network facilitates:

- access to DLO databases by their managing CLOs and by FÖMI for queries, copies, archival management and value added products
- access to DLO databases by external (authorised) users for queries, copies and sending applications
- flow of management information between DLOs, CLOs, FÖMI and MARD DLM
- automatic creation of information about users and database access for management purposes
- automatic charging of the customers by type of use and/or amount of data used, etc.

In line with the land management strategy of MARD DLM, TAKARNET provides an integrating uniform network for the land registration sector (115 DLO, 20 CLO, CDLO, FÖMI, DLM, educational centres), supports a multi-level security strategy to allow appropriate access to land office information by various user groups, namely

- any user (e.g. via Internet)
- registered users (public notaries, lawyers, banks, local authorities etc.)
- internal users (FÖMI, DLM, land offices etc.)
- other government users (Interior, Justice etc.)
- system managers, developers.

Various users can reach differentiated services by simple low cost access to the network. Summarising, TAKARNET makes possible the commercial trading of land office information and services,

- modernises the land office operation
 - reduced processing time of applications
 - standardised electronic applications
 - automated processing
 - improved security
 - new and improved products and services
 - efficient management information flow
- improves the efficiency and cost recovery
- supports business planning.

3. Overview of the technical solution

The TAKARNET network is up-to-date both in its technical characteristics and in its concept. Some of the main characteristics are presented in the following.

3.1 Network architecture

TAKARNET can be visualised as a set of nodes (DLOs, CLOs, DLM, FÖMI) connected to a “cloud” representing the transport mechanism of the network.

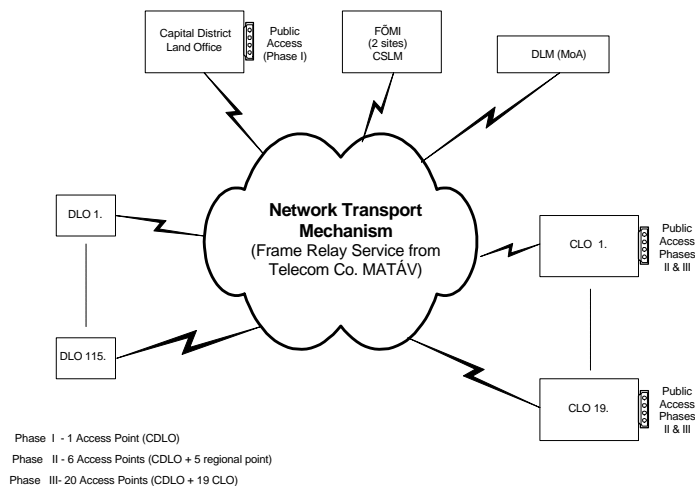


Fig. 1: Overview of the TAKARNET

Users at a node (or those from outside that are granted to access) do not need to know how the mechanism works; they simply log-on to TAKARNET and make their transactions through a simple user interface which guides them through a query, a request for copies or the filing of an application.

TAKARNET is a private network with only limited and strictly controlled access. All of the external users can have access via Access Point(s) - of which there will only be one in the first phase - which will be connected to TAKARNET through a so-called Firewall computer system. The Firewall prevents unauthorised access, supervises and controls both the internal and external data flow.

The Web Site and E-mail systems of the network can support the comprehensive registration of the message stream. Security is ensured with several tools, like multi-level password protection, dynamic keys, identity codes etc. The system supports the usage of digital signature and digital authentication as well. TAKARNET is able to apply different techniques to protect land office data and data flow. Transactions are fully monitored. The network is supervised from a single point, by FÖMI TAKARNET Team.

3.2 Intranet with WWW interface

TAKARNET realises an interactive application. Programmed WWW pages will guide the users through database queries, the request for copies of property sheets or map extracts and the filing of applications. The interface also provides the users with additional information, for example, the prices of all of the services that are on offer and the likely times that the user may have to wait for the service that has been requested. The WWW pages assist the applicant to create and send in an application. The Web Site system server provides a first check on the applicant and the proposed content of an application and interactively helps to complete the application correctly.

4. TAKARNET functions, network services

After logging on to TAKARNET by entering ID and password, a user can select functions from menus and after completing certain data fields of the WWW pages the software will generate a query which is sent to the relevant land office(s). A response message (data in standardised form) will be the result of the query.

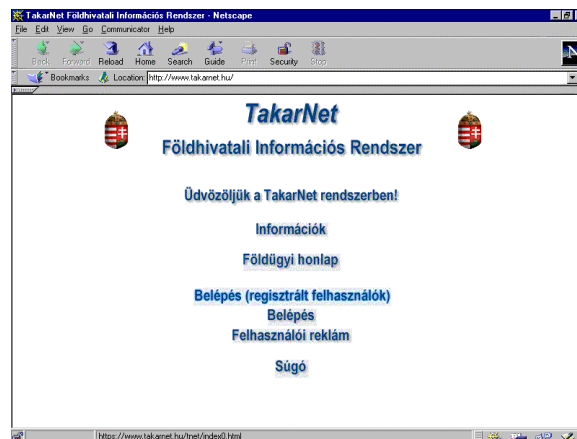


Fig. 2: The entering screen of TAKARNET

During Phase 1. of the TAKARNET WAN implementation, the most frequently requested land office functions have been developed, presented in Fig. 3.

As the Hungarian land registration system is public (with some exceptions) there is a special function called viewing. In traditional sense, it means the right for everyone to take a look at the cadastral maps and property sheets, and make notes about them. According to the law, this right of the citizens should be ensured in computerised environment as well. The PHARE-supported TAKARNET project does not include this function, but it has been realised by the same developers within another different project from MARD financial resources.

All registered users have their individual TAKARNET account. These are accessible to the users “on-line” at any time and give details of transactions and charges to date. The system will generate monthly account summaries which, in the case of chargeable services, will lead also to the generation of invoices which may have itemised accounts attached just like now with most telecom companies.

From technical point of view, the electronic application management is possible via TAKARNET, but at present these transactions have no legal background in Hungary. It means that from the application services only “Any Application” (which is an electronic letter sent to a land office) is available for the users. All the other applications will be available when legal regulations come into force and make it possible.

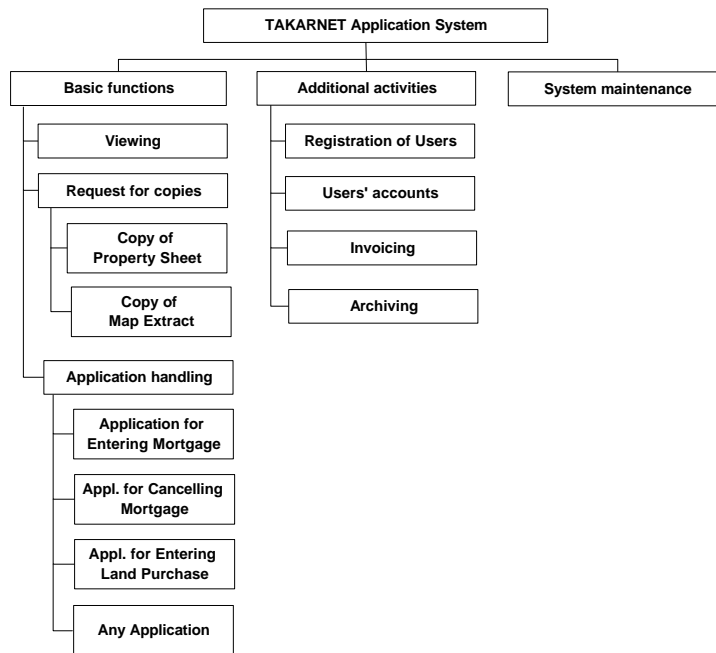


Fig. 3: TAKARNET functions

5. Usage of the network

5.1 Implementation phases

The PHARE tendering procedure of the network was finished by the end of 1996, and the implementation started in February 1997. There were two contracts for realising TAKARNET. The first one was signed with MATÁV (Hungarian Telecommunication Company) for supplying data transmission infrastructure (Frame Relay Service, ISDN). The other contract included the supply of necessary hardware equipment with standard software, the development of the above described TAKARNET application system and some important documentation (e.g. System Security Plan and Guide, Customisation Guide etc.). The supplier was the KFKI Computer Systems Group with three subcontractors.

The Phare-supported TAKARNET project includes only Phase 1. from the complete implementation of the network. In longer term, there will be two more phases as the use of the network grows and as the map databases are fully populated (as a result of the National Cadastre Programme). All the land registration rector offices have been connected to TAKARNET in Phase 1. The data transmission equipment provided by the telecommunication provider is suitable to cope with expected future requirements, too. The capacity of the lines initially specified are commensurate with immediate needs. This is one of the main reasons for having chosen the Frame Relay technology for the implementation of TAKARNET.

5.2 Present status

The establishment of the network was finished by the end of 1997 and the software application development was ready by mid 1998. The network has been fully used for internal communication and data transfer since May 1998.

At the moment, the legal background of using these electronic land office services by external users is still missing. A proposal has been prepared and it is under discussion now. Probably this ministerial decree on the usage of the network will come into force this year. After then, the registered external users can reach property sheet and cadastral map information in electronic form from remote sites.

Proving the TAKARNET concept, users' demands have already generated the start of further projects for examining the technical possibilities of the connection and the usage of land office data. New requirements

have also arisen. New potential users of the network turn to the Ministry almost every day with their request of being connected with TAKARNET.

Local authorities require on-line access to the DLO databases for ownership information and for maps as well. Within a pilot project, it is intended to establish one stop shop services at two local authorities with land office support. The idea is to connect local authority databases with DLOs for making the administration procedure more efficient. For example, clients can receive property sheet copies also at the local authorities or they can arrange some technical matters (e.g. asking for building permission) at the same place.

According to the Hungarian Land Registration Law, public notaries should have access to property sheet information. Public notaries can authorise signatures on contracts, thus they will soon be able to send contracts to the land offices in digital form. The legal basis for this type of transaction should be clarified. The draft of the law on digital signature and digital authentication is under development.

The banks and other institutions within the financial services sector need legal data and map extracts for ensuring that a loan is being made for a real purpose (e.g. is there really a house which needs the gas line?) and that the title and burden information are valid. Banks are very interested in having such information quickly, thus a pilot project was started for determining the technical requirements of the connection and developing further TAKARNET functions for the use of banks.

5.3 Future development

Summarising it can be stated that these joint projects with future users make possible the elaboration of more TAKARNET applications, stimulate the clarification of the legal background and promote the development of the whole network.

Within the modernisation strategy of the Ministry the final step, namely the computerisation of county land offices (TAKAROS CLO project) will extend the usage of the network with realising marketing purposes, the commercial trading of value added land office information, creating thematic GIS products and making them available via Internet etc. TAKAROS CLO (META) project will make the Hungarian Land Information Service system complete. The introduction of the TAKAROS/TAKARNET systems allows an opportunity for the land offices to transform their information service requirements into proactive suppliers of structured spatial information. The county land offices are to be developed as the regional centres for spatial information, and this will involve the development of marketing skills, product development, project management, and the definition of goods and services to be supplied.

One of the participants realising the National Programme for the Adoption of the Acquis Communautaire (NPA), MARD DLM is responsible for the establishment and development of land information related services as needed by the Integrated Administrative and Control System (IACS) in line with the ongoing Phare TAKAROS/TAKARNET/META developments of the Land Office Network. Additional objective is to enhance the present land information service with special emphasis on the needs related to the sustainable agriculture and rural development even in the pre-accession phase by developing and distributing data, products and services in a network based environment allowing one stop shops, inter-agency data transmission for the user's convenience.

“We can reach anything but not at the same time.” (Oprah Winfrey)

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