Hungarian Land Administration restructured: Opportunities and Challenges

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1. SUMMARY

Hungary has a long tradition in Land Administration. Since the end of the First World War all the lands have been registered and surveyed. In the mid of the 1930's condominium and condominium units were registered. The Land Registry has been operating and permanently updated, during the socialist era (1948-1990) as well. In 1973 a Unified Land Registry was introduced, which provides land registration and cadastral mapping in the same institutions, in the Land Offices. It was the fourth unified land registry of the world. Beside Land Offices a research and development institute has been established, the Institute of Geodesy, Cartography and Remote Sensing (FÖMI, former affiliate member of FIG).

There was a large change in Land Administration structure, when Land Offices were integrated into Government Offices in 2011, so Land Offices lost their self-sufficiency.

Institute of Geodesy, Cartography and Remote Sensing was also integrated into another institution, Lechner Non-profit Ltd. (LTK) in 2019. LTK is a state-owned company and has a wide-range of activity. LTK is an affiliate member of FIG, as the successor of FÖMI. By this integration the opportunity has been created for the establishment of a modern Land Administration system in Hungary, including the four elements (Land Tenure, Land Valuation, Land Use and Land Development) in one institution.

The paper deals with the huge tasks of integration and new challenges faced, including introduction of a new, fully-digitalised Land Registry system, and other important developments for the public, and public administration.

SUMMARY (optional summary in one other language in addition to English, e.g. your own language)

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1. INTRODUCTION

Hungary has a long tradition in Land Administration. Establishment of Land Registry started in the 1850's including Cadastral Mapping as well. Since the end of the First World War all the lands have been registered and surveyed, and continuously updated. Hungarian Land Registry is a typical, German type Title Registry. The original registry was a dual system, land registration was supervised by the Courts, while cadastral mapping was under the supervision of Ministry of Finance (taxation purposes). In the mid of the 1930's condominium and condominium units registration started, and finalized.

After the Second World War in 1948 a socialist (communist) Land Tenure Concept was introduced, but some (minor) parts of land remained in private ownership (flats, condominiums). Therefore, unlike other communist countries, the Hungarian Land Registry remained operational.

In 1967 a research and development body was established (Institute of Geodesy, Cartography) for scientific activities in the field of geodesy and surveying. In the 1980's these tasks were supplemented with remote sensing, therefore the institute was renamed to Institute of Geodesy, Cartography and Remote Sensing (FOMI).

Because of the great discrepancies between the so called "Land Book" (Grundbuch) maps, responsible for ownership changes, and the real ownership situations, the Hungarian Government decided on the introduction of a Unified Land Registry system. The Unified system established a new institutional network (Land Offices), which was responsible for both, land record management (legal issues) and cadastral mapping. This network contained 20 counties (including Budapest, the Capitol), and 119 district Land Offices. FOMI acted as the R&D institute, assigned to County Land Offices. In 1990's with the introduction of IT systems in Land Administration, FOMI became the developer, maintainer and operational body of Land Administration IT systems. There were many publications on this theme at FIG events as well.

There was a large change in Hungarian Public Administration structure, including Land Administration in 2011. The Hungarian Government established Government Offices, and Land Offices were integrated into Government Offices, so Land Offices lost their self-sufficiency.

The metropolitan- and county government offices (hereinafter: government offices) are the territorial state administration bodies of the Government with general competences. They are

implementing government functions at territorial level, and carrying out general state administration powers towards the customers. Government offices - led by government commissioners appointed by the Prime Minister – are operating in each county and the capital city of Budapest. Government offices have a wide range of tasks and competencies covering policy areas from education management to pension insurance and environmental protection. Beside their administrative and coordination tasks, the metropolitan and county government offices are responsible for the legal supervision of the local self-governments as well.

The district offices are integral sub offices of the government offices, and as such they are the lowest level units of territorial state administration. District offices have been operating in 174 districts and 23 metropolitan districts since the 1st of January 2013, when the districts as territorial administrative units with a history of hundreds of years were reintroduced. They are administering authority cases directly connected to the citizens, and in this respect, they carry out inter alia tasks related to personal data and address register, guardian and child protection and social affairs.

In order to deliver more efficient public services to citizens and enterprises, the district offices are operating integrated customer service offices – so called Government Service Centre – at more than 300 places all over the country. Government Service Centre are providing high quality customer service possibilities in more than 2500 types of cases in an easily accessible and barrier free environment.

In addition, offices of government issued documents, customer services for special tasks (e.g. land administration, pension insurance, labour administration etc.) and - in small villages - local case assistants are staying at the disposal of citizens in administering their cases.[1]

But FOMI remained independent, until it was integrated into the Government Office of the Capital City Budapest in 2017. But this integrated work did not last too long, because FOMI merged into Lechner Knowledge Center Non-profit Ltd. (LTK) in 2019.

LTK is a state-owned company, which original activities covered regional and spatial planning, city planning and other services, related to land management. (Lajos LECHNER (1833-1897) was a famous city planner architect, the company named after him).

LTK is an affiliate member of FIG, as the successor of FÖMI. By this integration the opportunity has been created for the establishment of a modern Land Administration system in Hungary. On the next pages these challenges and opportunities will be discussed

2. INTEGRATION OF ARCHITECTURAL AND GEO KNOWLEDGE

It was a hard job to integrate such wide range of activities, knowledge into one institution. Architects, spatial planners on one side, and civil engineers, surveyors, geodesist, geophysicist, remote sensing experts on the other side. The question arose, what is the common language

[1] Source: https://kormanyhivatalok.hu/en

between them? The answer was the spatial information and services, which bridges the two kinds of knowledges.

During the last 6 years a lot of discussion, decisions have been made, but today the solution is getting clearer and clearer.

There were two institutional changes during the last period. From 2025 Idomsoft IT Corporation, as the subsidiary of Digital Hungary Agency exercises ownership rights on LTK.

Digital Hungary Agency, Hungary's central institution driving the country's digital transformation and e-government modernization. The Agency leads Hungary's digital progress by implementing future-proof, customer-centric digital public services and robust IT infrastructure. Our goal is to foster transparent, secure, and user-friendly e-government for all, supporting the digital growth of Hungary and the competitiveness of its ICT sector.

Idomsoft IT Corporation is a leading developer and operator of nationwide, high-security government IT systems, including secure identity and document issuance platforms and complex central registers, complemented by consulting, systems design and operations, servicing, and contributions to the Digital Citizenship Program. [2]

3. PILLARS OF LTK'S ACTIVITY

LTK is largest spatial information hub of Hungary that manages and analyzes the national geospatial databases, offering data services to public administration, urban planning and agricultural purposes, as well as for the general population. LTK is especially dedicated to supporting the Hungarian citizens in the fields of remote sensing, land registry and construction.

3.1.E-Construction

Lechner Knowledge Center operates the National Construction Register (OÉNY) in Hungary on the basis of legal authorization.

The National Construction Register (OÉNY) is a central system of online IT applications serving construction matters, operated on the IT infrastructure of LTK.

3.2. Regional Planning and Spatial Modeling

The National Regional Development and Spatial Planning Information System provided by the LTK. The system, which has been running since 1998, provides thousands of data sets with the opportunity to get to know the state and territorial characteristics of society, economy, the built, landscape and natural environment, and to monitor its changes. It gives assistance to regional and sectoral actors performing development and spatial planning activities at regional and

[2] Source: https://www.dmu.gov.hu/digital-hungary-agency

settlement level for the preparation of plans, the preparation of decisions, as well as the analysis of the effects of decisions and the performance of monitoring by continuously following changes.

The basic concept of establishing the Electronic Spatial and Urban Planning Support System (E-TÉR) is to cover all the life cycle of spatial planning, spatial development, urban planning, settlement development plans – from the selection of the planner through planning, reconciliation, to the availability of approved plans – and thus make the widest possible web support available to all actors involved in spatial planning.

On the one hand, in order to achieve the goal in the three modules of the system under development – Information, Reconciliation, Planning – E-TÉR will make documents and information related to regional planning available.

On the other hand, it provides an interface for those involved in formal and community consultation to conduct the review process. The third task of E-TÉR is to provide designer access to GIS and other databases.

The National Development Potential Map (NFPT) is a web-based GIS application to select the ideal location for real estate investments and to support development policy decision-making. The map database displays reliable spatial data and information that will not only make it more efficient, but also easier to find a place to invest.

On the website of the Townscape Image Handbooks (TAK) builders, decision-makers and architects can find out about the collections of examples presenting the architectural values and character of settlements and certain regions, and through the Townscape Image Handbooks (TAK) and the Architectural Landscape Image Handbooks (ÉTAK), the general public can also get acquainted with the values of the country. In the future, the TAK system will also provide assistance in the preparation, coordination and display of handbooks currently used for the coordination of TAKs.

3.3.Geodesy and Surveying

LTK as the National Mapping Agency of Hungary provides a wide range of services for surveying ang geodetic activities.

Geodata are served via internet to partners defined by law and to other customers. Services are mainly WMS or WMTS, web-based services and web applications.

LTK maintains and develops the Satellite Geodetic Observatory, and the GNSSnet.hu reference station network. LTK’s GNSS Service Centre is the leading satellite-based positioning system of Hungary, supporting the everyday work of several thousand surveyors and precision farmers. In the K-GEO Accredited Calibration Laboratory, LTK performs the calibration of geodetic electro-optical distant measuring (EDM) instruments and GNSS receivers as well.

LTK supervises, records and maintains the horizontal and vertical control point network serving as the geodetic reference system of Hungary, which is also the basis of national maps. LTK's official tasks also include the authorization, technical supervision and official acceptance of works related to control point networks. Based on the principle of 'organized border – good neighbourship', LTK provides the surveying and mapping tasks, the periodic maintenance and renewal of the border marks, the clear visibility of the border-line of the 2215 km-long border of Hungary, marked with nearly 21000 border marks.

LTK performs official tasks related to "Surveyor" and "Licenced surveyor" certificates and provides access to a public list of those. LTK accredits the training courses required for certification. Since the control points can only be replaced or moved by a surveyor who is registered by the state administration for surveying and geoinformatics, LTK operates the registry of qualified control point network and state border surveyors.

3.4.Remote Sensing

Primary activities include the development of methodologies for various mapping purposes, the downloading and pre-processing of optical and radar satellite images, the compilation, interpretation and analysis of satellite image time series. This last phase is also one of the main research and development activities of the Unit, where new machine learning algorithms are tested and processing is automated to the highest possible degree. Thus, LTK facilitates a faster response to ad hoc tasks and an increasingly efficient performance of operational tasks. Automatization is necessary, as there are years when a flood or inland water situation has to be mapped within days at the national level, or, unfortunately, more and more often, a drought damage assessment needs to be carried out at the country level. LTK's current tasks are varied. LTK produces maps to support the monitoring activities of the Common Agricultural Policy, and works with other departments of LTK on tasks requiring remote sensing techniques for various national and international projects. LTK regularly publishes the results at national and international conferences.

The Earth Observation Unit mainly uses data from the Sentinel satellite constellation established and operated by the European Union and the European Space Agency (ESA) under the Copernicus programme, but this may vary depending on the task. New and archive images from NASA's Earth observation satellites are also used, especially images from Aqua, Terra and the Landsat series. These satellites provide a great basis for long-term monitoring of changes on the Earth's surface.

LTK focuses its activities in collecting, acquiring, processing and analysing remotely sensed data and country-wide thematic mapping, along with research and development in a variety of application fields, for public administration development and support mainly – in cooperation with the Ministry of Foreign Affairs and Trade. LTK also plays a central role in the coordination and quality control of European land cover mapping activities, provides training for experts

from the 39 participating states and contributes to strategic developments shaping the future of this field.

3.5.Land Registry

LTK inherited the professional and IT support of Land Registry system from FOMI.

LTK task is the maintenance, operation and development of a unified Hungarian land registry system. LTK provides IT support for 119 district and county land offices, performing the maintenance and development of databases, software, and online data supply solutions. LTK's customer service assists more than 10 000 users. The customer number is increased by the several thousand land registry experts employed by the Government offices. The land lease register and the land registry database, including cadastral maps, manage the authentic data of nearly 10 million properties in Hungary, so that the activities of LTK are connected with almost every inhabitant and enterprise across the country.

Last year (in 2025) a new IT system introduced in Hungary for Land Registry, E-Land Registry. E-Land Registry is directly linked to other key-registries of the country (e.g. Address Register, Citizen Register etc.). All the data are managed in one central database (land records and cadastral maps).

CONCLUSIONS

Restructured Hungarian Land Administration offers a lot of opportunities and challenges in the future. Challenges cover the elaboration of new, ICT based solutions for the activities of LTK, which provide better services for the clients, for the public. Integration of such services into existing public services is also a great challenge.

But within this new structure many opportunities arise. There are few countries in which, modern land administration functions concentrated within one institution. LTK is such a company. From the modern land administration base functions:

Land Tenure, Land Value, Land Use, and Land Development (Williamson et.al., 2010)

two of them (Land Tenure, Land Use (Spatial Planning)) is working within LTK. LTK now is planning the development of a Mass Land Valuation system in Hungary. It means, that three functions of modern land administration will be present in LTK.

If existing spatial information, and techniques are added (GNSS, Remote Sensing etc.) LTK has the opportunity to establish a modern land administration system in Hungary.

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