ESTABLISHING A MODERN LAND ADMINISTRATION SYSTEM: THE CASE OF THE CZECH REPUBLIC

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History of Land administration systems on the territory of the Czech Republic

Historically, the land register systems in our country have been tied to the Austrian and later on to the Austro-Hungarian system of a mutually interconnected Land Registry and Land Cadastre. The Land Cadastre originated in the 1820's and contained a technical description of real properties including cadastral maps and surveys, while, as of 1873, the Land Registry contained the rights to real estates. In 1918, this dual system was taken over by the newly established Czechoslovak Republic and was then successfully operated with minor technical changes till 1951.

In 1951, the new Civil Code discontinued the duty to register real estate transfers in Land Registry and a period of incorrect information and chaos began. In 1964, a so-called Real Estate Registry was created which bore certain features of the current Cadastre; however, it focused mainly on users' rights to real estate. Real estate transfer contracts were registered at state notaries. At the same time, Land Registry was closed and archived to serve in the future only as one of the sources of the Real Estate Registry. In 1976, a unified computer-based processing of Real Estate Registry was launched. However, it only included data on territorial units, lots and users/owners; detailed information regarding ownership folios and detailed data on ownership were still kept only in paper form. Then surveying centers (the predecessors of today's cadastral offices) received updated quarterly printings, later microfiches, and all changes made between the updates were carried out manually.

Up to the beginning of the nineties, the changes to the system involved only updating of computer processing; however, after 1989, the year of the immense political change, the system could no longer manage extensive tasks associated with the political and economical transformation, mainly those related to privatization and restitutions as well as the creation of the real estate market. The beginning of the year 1991 was the moment of the division of tasks between the state administration and private bodies in the field of surveying and mapping and, for example, the execution of survey plans (sketches) for the maintenance of cadastral maps, have been carried out only by private surveyors since that. The year 1992 was the year of the preparation of the legislation in the field of land registry and cadastre, coming into force on 1.1.1993. The basic idea of the new cadastral legislation was to restore the earlier traditions and good experience from the previous systems, used till 1950, as much as was possible, but in the realistic way. The main important and unavoidable change was connected with the fact that it was impossible to restore and complete Land Registry data after the 40-year gap and so only the Czech Office for Surveying, Mapping and Cadastre bodies administered data on real estates, even incomplete from the view of upcoming tasks. These facts led to the decision that Cadastre of Real Estates of the Czech Republic, established on 1.1.1993, would integrate the administration of real estate technical data and legal relations to real estates into one system. This decision has been justified by the fact that many advanced countries, e.g. Norway, Sweden and Denmark, have come to the same decision and that newly established systems in countries lacking the tradition of real estate registration are usually drawn up this way.

Cadastre of Real Estates of the Czech Republic. Czech Office for Surveying, Mapping and Cadastre

There are two main parts of the Cadastre of Real Estates of the Czech Republic ("Czech Cadastre, Cadastre, CRE"):

- Descriptive Information Files ("DIF") – "written part of CRE" - consist of records on territorial and cadastral units, parcels, owners, rights, encumbrances, mortgages, etc. DIF have been fully computerised since 1998.
- Survey Information Files ("SIF") – mostly represented by cadastral maps. Cadastral maps are either in an analogue form (currently about 64% of the territory) or in a computerised form – Digital Cadastral Maps ("DCM") – about 36% of the territory. Cadastral offices administrate cadastral maps, but private licensed surveyors provide cadastral offices with data for the maintenance of cadastral maps in the form of Survey sketches.

The CRE comprises both classical cadastre (the technical tool) and land registry (the legal part) according to the new cadastral legislation launched in 1.1.1993. Cadastral offices act in cases of entries of proprietary and factual rights related to real estates (e.g. a case of the contract based on conveyance of real property) as courts in many European countries. Entry into the CRE is based on the decision of Cadastral Office and new proprietary rights come into full force only after realization of the entry into CRE. There is also another type of the registration into the CRE - a record - when proprietary and other factual rights are changed by the decision of a court or other state administration bodies (inheritance cases, restitution cases, results of land consolidation projects, etc.).Cadastral Offices just check the technical correctness of documents in cases of records.

January 1st, 1993 was also the date of establishing of the Czech Office for Surveying, Mapping and Cadastre together with its subordinated bodies.

The Czech Office for Surveying, Mapping and Cadastre ("COSMC") is the central autonomous administrative body for Surveying and Cadastre of Real Estates of the Czech Republic. The COSMC manages

- 14 regional Cadastral Offices, which have 107 cadastral workplaces in larger towns and execute state administration of Cadastre of Real Estates,
- 7 Survey and Cadastral Inspectorates that control cadastral offices and supervise some commercial activities, whose results are applied to the Cadastre of Real Estates and state administration funds,
- Land Survey Office, which is the central administrative body with nation-wide competence. Land Survey Office administrates basic geodetic control, administrates basic map series and thematic map series specified by the COSMC, maintains geodetic control, administrates the Fundamental Database of Geographic Data, provides surveying activities at state border, manages the Central archive of surveying, mapping and cadastre and performs other tasks,
- and it is also a founder of the Research Institute of Geodesy, Topography and Cartography, a public research body.

The COSMC ensures consistent performance of following activities: administration of the Cadastre of Real Estates, establishing and maintenance of minor geodetic control, creation, updating and editing of basic and thematic state map series, standardization of names of geographic objects, forming and maintaining of the Automated Information System of surveying and Cadastre of Real Estates, documentation of results of survey activities. The COSMC also acts as a coordinator of research and of international cooperation in Surveying, Mapping and Cadastre of Real Estates. Furthermore the COSMC administers the Central Database of the Cadastre of Real Estates, approves standardized names of geographical

features and cadastral units, decides on appeals against decisions of Land Survey Office and Survey and Cadastral Inspectorates, grants and forecloses special licenses of surveyors, nominates administrators of basic and thematic map state series and publishes basic and thematic map state series.

Cadastral Offices are administrative bodies for the Cadastre of Real Estates, including rights to real estates. Besides it, Cadastral Offices in particular administrate, in particular, densification points and minor horizontal and vertical control, investigate breeches of order against the Cadastre of Real Estates and approve changes in boundaries of cadastral units.

The COSMC branch has about 5600 employees. Its most important task, i.e. state administration of the Cadastre of Real Estates, consumes about 90% of its capacities, both human and financial.

In connection with the large increase of demands on cadastral offices, the Czech government initiated in 1993 a compilation of the Cadastre development strategy. Its principal steps included finalization of legislation, complete digitalization of written part (descriptive data files) in 1994-98, digitalization of cadastral maps (1994-2006), the control densification and the application of information technologies at all levels of cadastral administration. All these tasks, except the digitalization of cadastral maps, have been successfully completed.

During the first stage of the mass computerization of the Czech Cadastre all cadastral offices were equipped with local area networks of personal computers. The data structure was based on the current structure used in the central computer. Development activities from the end of the eighties and beginning of the nineties were used for the program solution; however, as the solution had to be launched fast, there was not enough time to make any extensive structural change.

Creation of the Information System of the Cadastre of Real Estates

The second stage task was to create the Information system of the Cadastre of Real Estates – IS CRE, as only the new system could remove many principal deficiencies of the old system, such as the inconsistency of the Cadastre data structure with national standards, insufficient system security, the diverse information environment of the central system and local systems and the impossibility to achieve the up-to-date compliance of their data, insufficient interconnection of descriptive data with the cadastral maps and the impossibility to provide cadastral data outside the territorial activity of the individual cadastral offices. The basic goals of the new Information System of Cadastre of Real Estates can be characterized as the removal of all the aforesaid shortcomings, securing sufficient capacity for the increase in data volumes, consistent interconnection of all parts into a unified integrated solution and the securing of a new quality of user services, e.g. the provision of cadastral data for the entire territory of the Czech Republic via remote access using internet.

The IS CRE was developed in years 1997-2001. The development was not always the smooth one and encountered some difficulties and delays, for example there were necessary two pilot runs of the old system and the IS CRE simultaneously at selected cadastral offices. The very launch of the system was carried out in several stages per approximately ten offices from April to the end of August 2001. The transition to the new system at each office consisted of the termination of the old system and data backup, loading the migration interface, the actual data migration, validation of the technical infrastructure, installation of the IS CRE program equipment, verification of transferred data and, after that, data transition into the central database in Prague and the launch of the new system. At the same time, the staff underwent an extensive training program. The successful start of the new system was dependent heavily on the result of the migration of data. It was definitely a very difficult task

due to the method of data storage within the old system, as well as due to the fact that the old system allowed some local diversity in data storage. For this reason the system of the migration underwent careful testing at all cadastral workplaces and was being improved continuously since April 1999. The care given to the migration of data was justified by the smooth course of the sharp migration; only one cadastral workplace from one hundred and fourteen had to use the emergency scenario and to return back to the old system temporarily. As of 3 September, 2001, IS CRE is running in systematic operation, which is interrupted only by necessary short-term technological breaks.

The IS CRE is based on the client/server architecture and has basically the same application software environment in all 107 local databases at Cadastral Workplaces and in the central database at the COSMC, interconnected via WAN. For optimum data storage, a single data model was selected for the storage of descriptive (written) data and spatial (graphical) data in one common Oracle database. This allows simultaneous updating of descriptive and spatial data and maintaining their mutual harmony. The files of descriptive information are fully digitalised; cadastral maps are digitalised approximately on one third of the territory. Each Cadastral workplace carries out the state administration of the Czech Cadastre (and the maintenance of the local cadastral database) within its territorial competence. Changes in local databases are replicated every two hours into the central database, which therefore contains up-to-date data (the maximum age is 2 hours) from the whole territory of the Czech Republic. The central database serves as a sole point for providing Internet services.

We consider the IS CRE as the representative of one of the most advanced cadastre land registry systems in the world. First of all, the IS CRE fully secures the legal relations to real estates in accordance with the law (it is often the function of the land registry) as well as the maintenance of technical real estate data (usual function of the cadastre). This integrated administration of both legal and technical parts of land administration in one system brings extended demands on the complexity and accuracy of a supporting information system. Files containing descriptive and surveying information are integrated with documentation funds; however, they are still being saved in analogue form. The system is uniform for the entire territory of the Czech Republic – this feature is, among others, secured by remote software installation at all cadastral offices at the same time and also by a uniform replication of classifiers from the center. The data on owners and other participants to the proceedings who are natural persons are being compared with the data from the Information System of the Population Register administered by the Ministry of Interior of the Czech Republic. The data on legal entities are also being compared with the same data administered by the systems of the Ministry of Finance of the Czech Republic.

By means of ten mutually integrated applications, the IS CRE provides overall support of state cadastre administration performance, enables provision of Cadastre data either directly at the Cadastre Offices counters or via remote access, receives data from the respective state administration systems, administers the classifiers, keeps points of horizontal control and secures the technical and organizational aspects of the operations. In cases where the descriptive information update comes with the necessity to update geodetic information, IS CRE ensures that both updates are carried out simultaneously. The Cadastre outputs also carry the information on the time of execution as well as the time of validity of the data. IS CRE allows displaying the state of the Cadastre in a given moment in history (as of the launch of the system). In order to access the system, authentication via username and password is necessary; all significant operations are logged and the logging files are being permanently saved so that the author of a given operation may be traced retroactively.

Services of the Information System of the Cadastre of Real Estates

As was mentioned above, the IS CRE was put into successful operation in September 2001, but since then it has experienced the continuous incremental further development. There are two main reasons for it:

- The IS CRE ensures also the legal relations to real estates, therefore is has to keep up with the relevant changes in legislation.
- An immense progress in information and communication technologies enables to add new services for clients.

It would take too much time and space to describe the gradual improvements of the IS CRE in years 2002 – 2008, so only the current state-of-art services of the IS CRE is described in following paragraphs.

There are several ways of obtaining Czech Cadastre data from the IS CRE:

At counters of Cadastral Offices.
This is the basic way, usual for all cadastre systems, which allows obtaining the full range of paper documents (e.g. Excerpt from Cadastre - an official proof of ownership, Copy of the cadastral map, list of parcel, information on parcel, building, apartment, …) as well as authorized copies from the archival Collection of documents. Data can be obtained not only for the instantaneously valid state, but also for any given time in the history (from the launch of the IS CRE). By using Remote Access (see below) Cadastral Offices are able to provide clients with official documents from the whole territory of the country.

Data files.
Data files (both descriptive and survey information files) for the exploitation by other information systems are provided in a proprietary exchange format. Cadastral Offices provide data within limits of their territorial competence, the Centre in Prague provides data exceeding these limits. There is a possibility to obtain only incremental changes in Cadastre data since the last time of getting data files. There is a special version of data files for the provision private surveyors with background data for the creation of Survey sketches.

Via Internet.
I would like to highlight that we started to provide the flag ship of our Internet services, so called Remote Access, already in 2001. The Czech Cadastre is open to the public and everybody is entitled to get access to the Remote Access service, but an agreement with the COSMC is necessary. The Remote Access enables to search according to personal data of owners as well as the search according to the address of a real estate. Reports are provided with the exact time of the validity of data. The Remote Access enables clients to get a set of cadastral information, similar to what is available at the counters of Cadastral Offices, i.e. full range of cadastral detailed information. The most demanded output is the Excerpt from the Cadastre (the Title), proving the ownership of the real estate.

There are three slightly different versions of the Remote Access for the general public (paying clients), for the public administration (from March 1, 2009 free of charge) and for so called authorising persons. Authorising persons (notaries, Czech Post, Chamber of Trade and CZECH Points /contact points of public administrations at some municipalities, Czech version of one-point-shops/) are entitled to convert outputs from state information systems, procured with the e-Signature or the e-Mark, into paper public documents. These converted outputs, signed by authorising persons, have the same validity and effects as original documents, issued for example by COs. The Czech Cadastre issues Excerpts from Cadastre and Copies of Digital cadastral maps as public documents and authorising persons receive only these two document types. But all Excerpts from Cadastre and Copies of Digital cadastral maps, not just these for authorising persons, are procured with e-Marks so all

clients can profit on these electronic public documents. E-Marks are included in outputs in the PDF formats. The COSMC considers the availability of Excerpts from the Cadastre and Copies of Digital cadastral maps as public electronic documents as our major real contribution to the e-Government, enabling to decrease the administrative burden of citizens substantially. All players on the field of the real estate market can get these electronic documents easily and not to demand their delivery in the paper form from citizens.

The COSMC is obliged by law to issue electronic certificates that a person is not registered as an owner nor he / she has some other rights to real estates and this service started in January 2008. The exact name, surname and PIN are needed and in case that a person with identification data corresponding partially to the given identification is registered in Cadastre, this fact is stated in the certificate.

As digital cadastral maps in the IS CRE covered only 34% of the territory and clients demanded more cadastral map information on the Internet, in September 2006 the COSMC decided to put reference raster cadastral maps, so called Orientation map of parcels, on the Internet as a part of the Remote Access. Orientation map of parcels is a scanned picture of the analogue cadastral map, valid to the date of scanning, then approximately transformed into the state coordination system and assembled into the seamless coverage of the whole territory. In order to provide clients with the most possible up-to-date information, the Orientation map of parcels consists also of the overlapping layer, depicting the drawings of Survey sketches – changes on maps. In order to facilitate the usage of the Orientation map of parcels, navigation maps and orthophoto maps, which can be overlapped with the layer of the Reference raster cadastral maps, are available by Remote Access. Also the overlapping layer of centroids of parcels and buildings is available. All these abovementioned graphical information are provided free of charge. Only Copies of digital cadastral maps with the e-Marks are charged.

In order to provide general public with the basic cadastral information free-of-charge and without any necessity to conclude a contract with the COSMC, the COSMC launched the Internet service Viewing at Cadastre in January 2004. Current Viewing at Cadastre enables access to:
- Basic descriptive data of parcels, buildings and apartments and the identification of the owner (name, address, number of ownership's folio) and basic information if mortgages or similar factual rights burden the ownership to the real estate.
- Orientation map of parcels with all possibilities to use overlapping layers as mentioned above.
- Data depicting how proceedings (about entries, records) are processed at Cadastral Offices – status of specific proceeding, overview of all proceedings. A client that delivers the application to the Cadastral Office and knows the reference number can follow his / her case as it is processed. This service has distinctive preventive "anticorruption" effect.

Service is fully open to the general public and free-of-charge. Service has met with the enormous interest of citizens and it is one of the most frequently used Internet services in the Czech Republic.

Web services.
Based on the survey of users´ needs, the COSMC decided on the step-by-step implementation of web services, starting with the most demanded services. Following web services are currently available:
- Excerpt from Cadastre,
- Information on parcels, buildings and apartments,
- Copy of Digital cadastral map,
- Necessary supporting services (e.g. codebooks).

Reports are available in the PDF and XML formats (Copy of Digital cadastral map only in the PDF).

Watch dog service for big clients, e.g. banks, it means warning about received proposals for registration, concerning real estates to which a client has ownership or other factual rights (e.g. from mortgages) has been under pilot run since January 2009. The use of web services enables a direct exploitation in information systems of banks.

Similarly to the other Land administration authorities, the COSMC also strives to implement e-Lodgement, but it will be a long-term and very demanding process, as also necessary changes in the legislation are needed. Some first steps have been under preparation and testing in the IS CRE. The first case is the semi-automatic registration of writs of execution. Cadastral offices are obliged to register writs of execution and there has been continuously increasing number of writs of execution in recent years, e.g. more than 400 000 in 2007. It led to the discussion with distrainers and to the decision to move to the electronic communication. Information system of distrainers will send a writ of execution in the .PDF format with e-Signature and also the XML file with the corresponding content. The IS CRE will prepare registration of writ automatically and the responsible cadastral officer will check the correctness and validate registration. The pilot run is expected in March 2009 and we expect the substantial speeding up the process. The second case under the preparation is the semi-automated registration of submissions for entries into the Cadastre. Client will use an electronic form and fill it in by an Internet browser. Based on the delivery of the electronic form, the IS CRE will prepare the registration, but in this case the delivery of paper deed is necessary. This service has been currently under preparation in the IS CRE, but waiting for the final version of the amendment of law (expected in the end of 2009).

Consolidation of the Information System of the Cadastre of Real Estates

Although the current production IS CRE has been very reliable and well functioning well, the COSMC, taking into account some complexity and during recent time also some vulnerability of its replication system and also the ending life span of central servers, decided on quite a new, centralised architecture of the IS CRE as the current state-of-art of ITC allows it. The new architecture of the IS CRE will be three-tier, with the database and applications servers only in the centre. It will use Oracle Database, Oracle Application Server and Forms / Reports, all in version 10g. Employees at Cadastral Offices will only use a thin client for tasks connected to the written part of the Cadastre; half-thick client will be used for the maintenance of digital cadastral maps. The first envisaged time for the migration to the centralised system was the end of the year 2008, but the consolidation was delayed heavily by objections against the result of the tender for the centralised hardware, launched in April 2007 and by the following cancellation of this tender. This hindrance was overcome by launching another tender, the contract on delivery of centralised infrastructure was signed in February 2009, but the migration towards the centralised IS CRE is now expected in the first half of 2010. We consider that the centralised IS CRE will facilitate substantially the implementation of many improvements and new services of the IS CRE, the introduction of new web services, the collaboration of the IS CRE with the system of basic registers of the Czech Republic and with other information systems, e.g. an on-line connection with bank information systems for an automated discharge of mortgages and further steps towards the e-Lodgement.

Basic registers of the Czech Republic

According to the bill on Basic registers of the Czech Republic that Chamber of Deputies of the Czech Parliament passed on February 13, 2009 and handed over to Senate of the Czech Parliament, there will be four basic registers in the Czech Republic:

- Basic register of Inhabitants – physical persons – created and administered by Ministry of Interior Affairs of the Czech Republic,
- Basic Company Register– juridical persons - created and administered by Czech Statistical Office,
- Basic register of Territorial identification, addresses and real estates – created and administered by the COSMC,
- and Basic register of Rights and duties – created and administered by Ministry of Interior Affairs of the Czech Republic.

Main aim of the system of basic registers is to provide information systems of public administration with reliable, so called reference data that can be taken over without any justification. The pilot run should start on July 1, 2010 and the production run on July 1, 2011. The Basic register of Territorial identification, addresses and real estates ("RTIARE") will provide reference data on:

- Territorial elements (e.g. districts, parcels),
- Territorial units (e.g. streets),
- Will act as a mediator between the IS CRE as concerns data on ownership of real estates,
- Addresses.

The creation of the RTIARE is another big task of the COSMC and the coordination with the further development is necessary, as the IS CRE will serve as source of data for the RTIARE.

Core duties of the Czech Cadastre. Digitalization of cadastral maps.

The good quality of the IS CRE has been justified by the fact that the IS CRE has been able to cope with the immense, not expected fully increase in core duties of the Czech Cadastre, i.e. registering into Cadastre and the provision of information. Following figures show the volume of basic activities, connected with the administration of the Czech Cadastre during last 8 years.
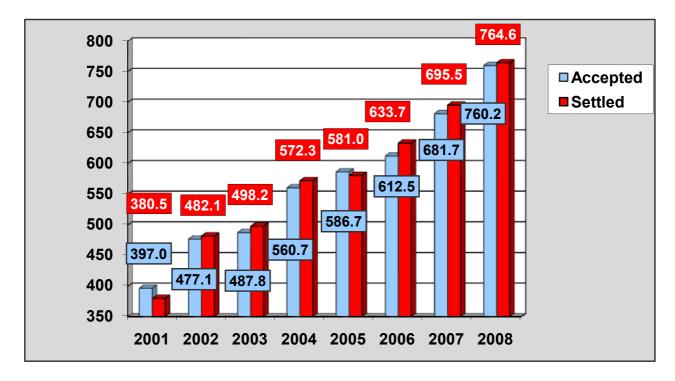

Figure 1. Registration of rights by entry into the Cadastre (in thousands of cases)

The sharp decline in number of applications for entry into the Cadastre was seen in January 2009, when Cadastral Offices received only 76% of applications in the comparison with January 2008. The fact is probably one of consequences of the economical crisis, which affects also the real estate market in the Czech Republic.
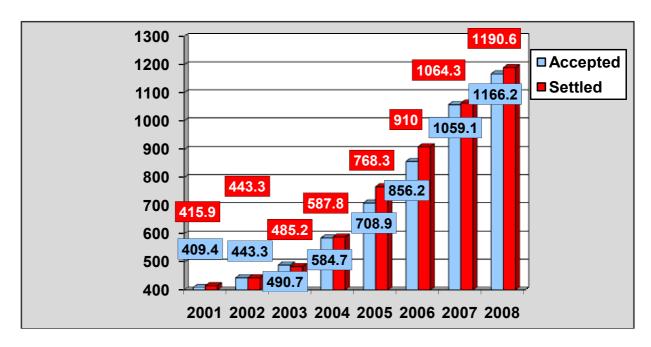

Figure 2. Registration by record into the Cadastre (in thousands of cases)

Moreover, the ability of Cadastral Offices to cope successfully with the high increase in demands on the registration to the Czech Cadastre has been accompanied with the substantial reduction in the average time, needed for the registration; namely for the entries into Cadastre from 2,1 months in 2001 to 0,52 month in 2008 and as concerns records into the Cadastre from 1,4 months in 2001 to the average 7 days in 2008. This progress was, of course, reached thanks to employees of Cadastral Offices and a good management in the first line, but the merit of the IS CRE cannot be avoided.

But the cost of these good results in the field of core cadastral duties was the fact that the majority of the human capacity of Cadastral Offices had to be shifted to carrying out of these increased tasks and this capacity has been missing in the field of the digitalization of cadastral maps. (Originally the completion of the digitalization of cadastral maps was foreseen in 2006.) As the current slow pace of digitizing of cadastral maps was unbearable and caused obstacles for many clients, the Czech government approved the decision, by which the COSMC will get extra money from Treasury in order to complete the digitizing of all cadastral maps by 2015. 60% from this extra money are foreseen for the temporary increase in number of employees of cadastral offices and 40% are devoted for private surveyors taking part in the digitizing of cadastral maps. As the increase of governmental employees goes against the basic governmental policy, higher governmental expenses should be covered by an increase in cadastral fees for the registration, currently being one of the lowest in Europe. Unfortunately the corresponding amendment of the law did not pass through the Chamber of Deputies by just one vote in October 2008. Currently the new structure of cadastral fees and the corresponding amendment are under discussion with the Czech government and members of the Parliament.

Lessons that can be learnt from the Czech Cadastre

We decided to move to the IS CRE, a fully new system, encompassing all parts of the administration of Cadastre and also new ways of provision of cadastral information, just in one big step – "big bang", not to proceed by leapfrogs jumps. We succeeded finally; the IS CRE was accepted by our employees and our clients and has been functioning well since 2001, but the project was very demanding and complex. The extent and complexity of the system brought extreme burdens on both the deliverer of the system and the COSMC. The application software of the IS CRE was delivered by the Czech software house NESS Czech that was very experienced in information technology, but did not have sufficient experience in the field of Land administration at the beginning of the development. In such a case the close cooperation with experts not only from the COSMC, but also from Cadastral Offices was vital for the final success. We established a ring of consultants for individual applications, who have been assisting both to the NESS Czech and to the COSMC in different stages of the project – analysis, design, acceptance of stages, testing, proposal of changes etc. We encountered some difficulties during the development, the changes in project were unavoidable and for solving them not only a good management of changes is necessary, but also both involved parties have to have in mind demands and the success of the project and to be willing to compromise in order to find out an acceptable solution for a commensurate price. Based on the experience that both parties got from the development, the further development of the IS CRE, carried out also by the NESS Czech, has been based on testing of prototypes of more complex extensions of the IS CRE and their development has been finished only after incorporating results of tests of prototypes. The big care has to be given to careful testing of new versions of the application software; these tests have to incorporate not only parts, affected by changes, but also comprehensive tests of the whole version. A special care was given to testing of data of the old system before the time of migration to the IS CRE.

The starting position in the creation of the fully computerized data of the Czech Cadastre was very appropriate, as concerns the Descriptive Information Files, the written part of the Cadastre. The majority of data was already kept in the computerized form in 1992 as data files of Real Estate Registry, they could be overtaken as data of the Cadastre and only temporarily, till the computerization of detailed data of ownership folios was finished in 1998, there was necessary to combine computerized data sources with data stored in paper files.

The case of the computerization, digitalization of cadastral maps is a quite different story. As regards cadastral maps (major component of Survey Information Files), the situation is very complex. The cadastral maps were largely composed (70%) in 1992 of maps redrawn from cadastral maps of the last century. These maps are non-metric and employ old projections, but they are still legally binding maps. During the socialist era, many physical property boundaries were destroyed during the collectivisation of agriculture and the corresponding cadastral boundaries were removed from the cadastral maps in agricultural areas. The original property boundaries are only recorded on the old archive maps from the earlier part of the 20th century. The creation of digital cadastral maps in areas with the old maps deserved to find out a solution for transforming old maps into the State coordinate system, even if there do not exist many identical points in agricultural areas, which coordinates could be surveyed and used for the transformation. There was also necessary to find out special methods for the further maintenance of digital cadastral maps created in areas of the old maps. It took a long time and after some not very successful trials in the years 2007 - 2008 the satisfactory solution was found out. Till that time the digitalization of cadastral maps was carried out mainly in areas, where technically precise maps of Real Estate Register were created in years ending 1989 (30% of territory). If funding allowed it (and it has not been the case of the Czech Republic), it would be easier to undertake a new mapping of cadastral maps.