

FIG COMMISSION 10 - Construction Economics and Management



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Rome, Italy



COOPERATION BETWEEN PUBLIC AND PRIVATE SECTOR - PROJECT OF DIGITALIZATION OF THE CADASTRAL MAPS IN THE CZECH REPUBLIC

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Robert ŠINKNER, Czech Republic 

-  ✓ FIG Commission 10 Chair
-  ✓ CUSC – Czech Union of Surveyors and Cartographers, 1st Vice-Chairman of the Board
-  ✓ GEFOS a.s. – private company, co-owner, Vice Chairman of Board
-  ✓ VŠTE – University for technical and economical studies, Faculty of Applied Science - Geodesy



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Education:

- ✓ **Secondary School - Gymnázium Jírovcova, ČB, 1983**
- ✓ **Czech Technical University in Prague (ČVUT), CR
Faculty of Construction, Department of Geodesy
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- ✓ **Sheffield Hallam University + MÚVS, MBA, 2004**



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**PROJECT OF DIGITALIZATION OF THE CADASTRAL
MAPS IN THE CZECH REPUBLIC**

—

**COOPERATION BETWEEN PUBLIC AND PRIVATE
SECTOR**

CONTENT:

- *Czech Office for Surveying, Mapping and Cadastre*
- *Digitalization of File of Geodetic Information*
- *Future development, some statistic data*
- *2 rounds Bidding process – cooperation P+P*
- **CONCLUSION**



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Cadastre of Real Estate

State administrative bodies of the Cadastre of Real Estate managed by the Czech Office for Surveying, Mapping and Cadastre (ČÚZK) provide state administration in the area of registration of land parcels represented by the Cadastre of Real Estate.

The Cadastre of Real Estate of the Czech Republic is a set of data about real Estate in the Czech Republic, including their inventory and description and their geometric specification and position. Parts of it are records of property and other material rights and other legally stipulated rights to this real Estate.



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Administration of the Cadastre of Real Estates

First records concerning the land inventory were collected for tax purposes. The effort for unified tax policy was tangible even in 1022, when the Czech prince Oldřich from the family of Přemyslovci set up the hide tax. Despite the area of the estate taking for the tax basis was not accurate, we can consider it as the first step towards the development of the cadastre of real estate (real estate records) as a fiscal tool.

The foundations of today's modern Cadastre of Real Estate were laid by issuing a supreme patent of the Austrian Emperor Franz I on 23. 12. 1817, about land tax and land surveying. Its basis was a precise inventory and geodetic measurement of all land, a so-called Stable Cadastre. Most cadastral maps of the territory of the Czech Republic are today still derived from the survey documentation of the Stable Cadastre. Such cadastral maps (usually at a scale of 1:2 880) are available for about 48 % of the territory of today's state.



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Administration of the Cadastre of Real Estates

Current Czech Cadastre of Real estate was established in 1993 and integrates the function of Land Registry Book (registration of rights) and former Cadastre of Lands (records of real Estate) into one tool.

Cadastre of Real Estate in the Czech Republic is administered with help of the information system. The Information System of the Cadastre of Real Estate – ISKN is an integrated information support system for state administration of the Cadastre of Real Estate and for providing user services of the cadastre. It was implemented in 2001. The new system increases the data quality, their accessibility and reliability and offers the option of connecting to other basic registers of state administration.



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Organizational chart of the COSMC Sector

- Administration of Cadastre of Real Estate is performed by 14 cadastral offices in regions and 114 subordinated offices, 80% of all activities in the sector of the Czech Office for Surveying, Mapping and Cadastre - COSMC).
- Maintenance and modernisation of fundamental geodetic control, medium- and small-scale official mapping, creation of the Fundamental Base of Geographic Data (ZABAGED) and geodetic surveys and documentation of state boundaries are mostly carried out by the Land Survey Office in Prague (380 employees).
- 7 Survey and Cadastral Inspectorates (90 employees) supervise the performance of cadastral offices and those activities of private companies and licensed surveyors performed for the state administration.
- The Czech Office for Surveying, Mapping and Cadastre is an autonomous supreme body of the state administration of surveying, mapping and cadastre in the Czech Republic. The president of COSMC is subordinated only to the prime minister of the Government. The Office has its own account in the State budget of the Czech Republic.

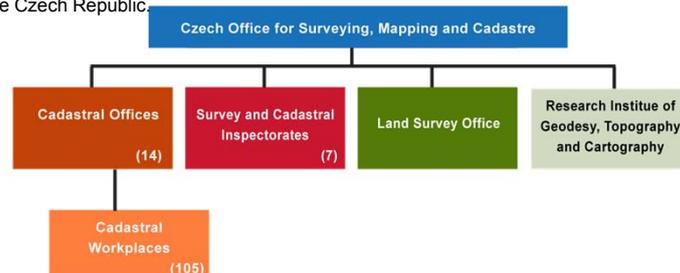


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Digitalization of the Cadastre of Real Estate

Digitalization of the real estate registry is a vital step for effective operation and administration of the Cadastre of Real Estate. Cadastral maps in digital form are fundamental databases for administration and decision-making about the area. They are strategically important as a reference basis for creation of further maps, information systems and applications relating to the territory as for instance digital technical maps, spatial plans, price maps, monitoring and development of technical and traffic infrastructure, environment and others.



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Development of Digitalization of the File of Geodetic Information of the Cadastre (FGI): 2002–2011

In 2009 the reversal occurred thanks to the provisions for acceleration of the digitalization, accepted by the government. The rate of digitalization reached nearly 6 % of the territory yearly. This growth in rate of digitalization went on even in 2010, when the increase of the number of cadastral districts covered by the digitized cadastral map reached 8.5 % from the total number of them. Attention was still focused on cadastral maps of cities and larger municipalities, where higher quality documentation is usually available and where more transactions on the property market and development objectives are realized.



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Table 1: Development of Digitalization of the File of Geodetic Information of the Cadastre (FGI): 2002–2010

Year	Until	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Digitalisation Completed cadastral districts		440	453	543	383	314	279	263	313	763	1 106
Total in Digital Form cadastral districts		2 428	2 881	3 424	3 807	4 121	4 400	4 663	4 976	5 739	6 845
Yearly Growth from the Total of 13 027 cadastral districts		3,4 %	3,5 %	4,2 %	2,9 %	2,4 %	2,1 %	2,0 %	2,4 %	5,9 %	8,5 %
% from the Total Number		18,6 %	22,1 %	26,3 %	29,2 %	31,6 %	33,8 %	35,8 %	38,2 %	44,1 %	52,5 %

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Results of Digitalization in 2009

On 31st December, 2009 the cadastral map was available in digital form in 5,739 cadastral districts, which represents 44 % of the total number of 13,027 cadastral districts of the Czech Republic. Revision of cadastral documentation was completed based on the results of land consolidation projects, by new mapping and by adaptation of the set of geodetic information, which means digitalization of existing cadastral maps included transformation into the S-JTSK (System of Unified Czech /Slovak Trigonometrical Cadastral Net) coordinate system to DCM in 763 cadastral districts.

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Results of Digitalization in 2010

On 31st December, 2010 the cadastral map was available in digital form in 6,845 cadastral districts, which represents 52.5 % of the total number of 13,027 cadastral districts of the Czech Republic. Revision of cadastral documentation was completed based on the results of land consolidation projects, by new mapping and by adaptation of the set of geodetic information, which means digitalization of existing cadastral maps included transformation into the S-JTSK (System of Unified Czech /Slovak Trigonometric Cadastral Net) coordinate system to DCM in 1,106 cadastral districts.



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Private sector has been invited in 2009

to take part in the digitalization of cadastral maps in the form of public tenders for selected activities. Public tenders were launched as open proceeding for so called framework agreement followed by implementing agreements for single localities. To define range and contract prices the catalogue pages (catalogue sheets) for four basic renewal types are used. Cadastral offices made 75 implementing agreements for digitalization of cadastral maps with 40 land survey companies and by 31st December, 2009 they took over the results in the amount of 77.4 million CZK, e.g. 3.10 million EUR (1 EUR equals nearly 25 CZK).

Private sector is still active in 2010 and 2011 (2012)



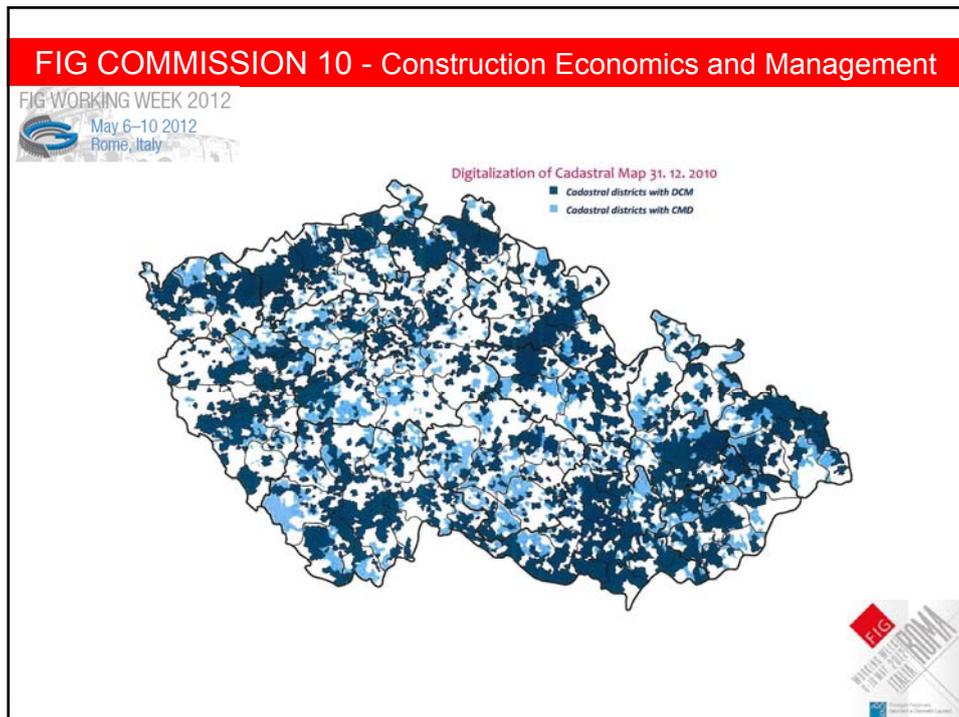


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Schedule of Digitalization of FGI: 2011 – 2017

Year	1997 – 2010	2011	2012	2013	2014	2015	2016	2017
Proposal of the number of cadastral districts for map digitalization	-	1 045	1 045	1 045	998	879	760	410
Total number of cadastral districts with cadastral map in digital form	6 845	7 890	8 935	9 980	10 978	11 857	12 617	13 027
Yearly growth in % out of total number	-	8.0 %	8.0 %	8.0 %	7.8 %	6.8 %	5.8 %	3.1 %
% out of total number	52.5%	60.5%	68.5%	76.5%	84.3%	91.1%	96.9%	100%

FIG

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DIGITALIZATION OF THE CADASTRE – COOPERATION BETWEEN PUBLIC AND PRIVATE SECTOR Start of the Public Tender

In the first half of year 2008 six cadastral districts were prepared for the six pilot projects. Each of them was with the different quality of base data and with the different stage of digitalization of cadastral map or even with just an analogue cadastral map. Every chosen case needed the different approach to the Renewal.

It was mentioned to find the right way in the cooperation between Private Sector and State Authority in the Cadastre, to develop a proper methodology for the work and to develop the checking tools as well. The main Private companies were invited into the small tenders to win and make these pilot projects. There were prepared the presentations at every Region with the presenting the results, good achievements and mistakes in cooperation at the end of 2008.



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The First Step of the Public Tender

In 2009 the first round of the Public tender was launched to the market. The area of the Czech Republic is divided into 14 regions and The Czech Office for Surveying, Mapping and Cadastre Czech is divided into 14 Regional Cadastral Offices, every for each region.

Central Office for Cadastre prepared bidding documentation and conditions, Agreement Suggestion, Technical Instructions and Methodology

That is why the whole Call for Tender was divided into 14 smaller regional tenders to ensure the best Private Companies for every Region. The whole tender included four types of Catalogue Pages (Catalogue Sheets – CS). Each CS was prepared for different kind of input analogue or graphic data and maps and for different type of Renewal of File of Geodetic Information (FGI):



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CATALOGUE PAGES (CATALOGUE SHEETS)

Catalogue Sheet 1 – Renewal of FGI with a new mapping

Catalogue Sheet 2 – Renewal of FGI with conversion the analogue (“paper”) cadastral maps into the Digital Cadastral Maps (DCM)

Catalogue Sheet 3 – Renewal of FGI with remaking the analogue (“numbered”) cadastral map in State Coordinate System into the Digital Cadastral Map (DCM)

Catalogue Sheet 4 – Renewal of FGI with conversion the analogue cadastral map into the Cadastral Map Digitised (CMD)

Each Catalogue Page (Catalogue Sheet) includes a wide scope of activities which leads to the proper delivery of demanded results (Digitized Cadastral Map – DCM, or Cadastral Map Digitised – CMD) and it was mentioned, that every part of every Catalogue Page (Catalogue Sheet) could be done separately.

The Results of the first round were the Frame Agreements with five best Bidders from the sub tender as Contractors for each Catalogue Page (sheet). Every Frame Agreement includes Catalogue Pages (Catalogue Sheets) of all successful Contractors in the official Enclosure. Frame agreements are signed for the period of four years (2009 to 2012).



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The Second Step of the Public Tender I.

- In the second half of 2009 and 2010 there were prepared small tenders for every Region and for chosen Catalogue Sheet. The Contracting Parties were Regional Cadastral Offices and the successful Bidders from the frame tender. As a renewal unit was chosen the cadastral district.
- If the Contractors wanted to win the sub tender and get the Implementation Agreement (to renew the cadastral district) they had to beat the lowest price from all known Catalogue Pages (enclosure to the every frame agreement). They had to submit an offer with the price below the lowest one.
- At least the Contractors had to submit the bid with the prices from their Catalogue Sheet and so to take part in these sub tenders; otherwise they were charged with a penalty 5% from the price of subcontract. The penalty is charged by Employer also in the case the contractor submits the bid with the mistakes and causes it to be no acceptable.



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The Second Step of the Public Tender II.

- There were some tries not to take part in the tender and after some negotiations to pay the penalty and let the other contractor with better price to win the tender. Then you get the penalty back from the winner and sometimes participate in the contract as a subcontractor but in better prices.
- **!!!** There is an institution of the “special affair to be considered” in the some disadvantageous conditions for the Employer that can help him to revoke the invitation to the tender and organize the new one.



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Conclusion

Although there were some disputes between Private and Public Sector, the digitalization of the Cadastral Map became quicker and there are still two years of agreed cooperation (Frame Agreement) between contracting parties. Everybody hopes the amount of money from the state budget will be sufficient to cover this kind of digitalization.

The project of cooperation between Public and Private in the digitalisation cadastral (or other maps or data) could be transferred into the other countries, only the methodology and instructions have to be adapted to the local law. I can add some more official documentations and concrete examples and numbers with the cooperation of COSMC.



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Thank you for your attention! 😊

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