Český úřad zeměměřický a katastrální

2020

ANNUAL REPORT

Annual Report
of the Czech Office for Surveying, Mapping and Cadastre
for 2020

Prague, 2021

CONTENT

INTRODUCTION

The activity of state administrative bodies of the real estate cadastre managed by the Czech Office for Surveying, Mapping and Cadastre (ČÚZK) was being negatively influenced by the restrictions caused by the situation connected with the COVID-19 pandemic when fulfilling its tasks in the field of real estate cadastre administration and performance of surveying activities in the public interest in 2020.

These restrictions manifested themselves externally, especially in the spring and autumn months, in the reduction of office hours of cadastral offices bringing complications when submitting proposals for the entry of rights into the real estate cadastre. Due to the high degree of digitization of the real estate cadastre, the restrictions did not affect the provision of data from the real estate cadastre which is carried out mainly electronically. The use of electronic outputs has further increased due to restrictive measures.

In 2020 cadastral offices performed the records of ownership and other rights to real estate without significant extension of time limits. In times of emergency, the cadastral offices used mainly the rotation of groups of employees at workplaces, thus reducing contacts between employees and minimizing the risk of spreading the disease. Work from home was used, which can be performed with a full connection to the departmental network by approximately a quarter of the total number of employees in the department.

During the previous year, there was a slight yearly decrease in the number of transactions on the real estate market. Records and deletion of liens remained practically on the same level as in 2019 due to the development on the mortgage market. Cadastral offices received in total 862 967 proposals for entry of owners´ and other rights to real estate in 2020 which is 7 % less year-on-year. This comparison is influenced by the extreme number of proposal submissions for the entry of rights in the end of 2019 in connection to the increase of the administration fee and consequently to high decrease of the proposals´ number in January 2020. Registrations of rights did not worsen in 2020 due to accepted organizational measures, although cadastral offices faced in emergency times significant capacity outages. Average deadlines were 22 days in all regions. The number of completed registrations or deletions based on record and notation mildly decreased year-on-year to 409 967. The number of delivered requests regarding the verification of the survey sketches increased yearly and reached 167 356. Data provision was carried out mainly in the electronic way using the remote access to the real estate cadastre. Nearly 17 million requests for information were performed, representing mild increase in comparison to 2019.

In 2020, we successfully renewed the cadastre documentation by new mapping or by taking over the results of land readjustments in 281 cadastre units with very poor quality maps, and checked the compliance of technical data of the cadastre with the reality with help of revisions in 582 cadastre units. Particularly this activity was being limited in the spring and autumn months due to the state of emergency, and so the total number of revised cadastre units is 100 less than we planned at the beginning of 2020.

State administration of land surveying and real estate cadastre is responsible also for important land surveying products and services which co-create the national geoinformation infrastructure necessary for task fulfilment of the public administration. These activities are mainly carried out in the field and that is why they were less influenced by the emergency situation in 2020. The care for existing geodetic control points has been carried out together with all planned land surveying works on the state borders. Both continuous and periodical update of the Fundamental base of geographical data (ZABAGED®) went on and the Orthophoto ČR was updated on the eastern half of the state territory. Most products are provided via remote access from Geoportal ČÚZK.

More information on results of work of land surveying and cadastral offices in 2020 brings this detailed annual report.

1. Surveying, Mapping and Cadastre Sector in the Czech Republic

The real estate cadastre 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 real estate.

State administration of land surveying ensures chosen land surveying products and connecting services from the whole territory of the state as stipulated by the Act No. 359/1992 Coll., on Land surveying and cadastral bodies and by the Act No. 200/1994 Coll., on Land surveying.

Administration authorities in the branch of land surveying and cadastre have been set up by the Act No. 359/1992 Coll., on Land surveying and cadastral bodies, which also specifies their subject-matter and territorial competence. ČÚZK governs 14 regional cadastral offices (KÚ), 7 survey and cadastral inspectorates (ZKI), the Land Survey Office (ZÚ), and is also the founder of the Research Institute of Geodesy, Topography and Cartography, p.r.i (VÚGTK, v.v.i.).

Cadastral offices execute state administration of the real estate cadastre with territorial scope of the single regions; KÚ have their branch offices in large cities,number of which is now 94. Survey and cadastral inspectorates control cadastral offices and supervise some commercial activities, whose results are applied to the real estate cadastre and state documentation funds and have usually the territory scope of two regions. In the Land Survey Office, which focuses on other land survey activities that are provided in the public interest, has the national coverage.

2. Administration of the Real Estate Cadastre

Current Czech real estate cadastre was established in 1993 by the Act No. 344/1992 Coll., on the Real estate cadastre of the Czech Republic, and integrates the function of Land Registry Book (registration of rights) and former Cadastre of Lands (records of real estate) into one tool. On January 1, 2014 the Act No. 256/2013 Coll., on the Real estate cadastre (Cadastral Act) came into force, having replaced not only the Cadastral Act No. 344/1992 Coll., but also the Act No. 265/1992 Coll., on Registration of rights into the real estate cadastre. Both issues - real estate cadastre and registration of rights to the cadastre - are now regulated in one act.

The new Cadastral Act was adopted in connection with the overall recodification of the private law and took into account many new provisions regarding real estate brought about by this recodification. The principal change is the brand new definition of the term “real estate” and application of the principle “superficies solo cedit”, according to which the building is a part of the parcel. The new Civil Code also introduced many other material rights not existing yet, which have to be registered into the real estate cadastre from January 1, 2014. As from the same day the implementing rules of the Cadastral Act came into force, i.e. Decree No. 357/2013 Coll., on the Real estate cadastre (Cadastral Decree), the Decree No. 358/2013 Coll., on Information provision from the real estate cadastre and the Decree No. 359/2013 Coll., on Specimen form specification for submission of the proposal for institution of proceeding on entry permission.

Since its adoption, the Cadastral Act has been amended ten times, but it was mostly a minor change due to the adoption of other laws. In 2020 occurred two amendments of the Cadastral Act.

Act No.163/2020 Coll., amending Act No. 89/2012 Coll., the Civil Code, as amended, and other related acts, repealed the record of the note regarding the waiver of pre-emption right of the co-owner with effect from July 1, 2020. The second amendment to the Cadastral Act with effect from January 1, 2021, is the Act No. 481/2020 Coll., amending Act No. 139/2002 Coll., on Land

readjustments and land offices, and amending Act No. 229/1991 Coll., on the Regulation of ownership relations to land and other agricultural property, as amended, introduced then mechanisms enabling the deletion of historical personal services registered in favour of insufficiently identified entitled persons.

The legislation on entries in the Land Registry, including the implementing decrees, can be considered as successful and does not require substantial changes in the near future.

Act No. 364/2019 Coll., amending certain tax laws in connection with the increase of public budget revenues, changed the amount of the administrative fee for the submission of the proposal starting the procedure of registration of right to real estate, with effect from January 1, 2020 from the original CZK 1000 to CZK 2000.

Real estate cadastre in the Czech Republic is administered with help of the information system. The Information system of the real estate cadastre (ISKN) is an integrated information support system for state administration of the real estate cadastre and for providing user services of the cadastre.

Since 2012 ISKN has been interconnected to the Information system of territorial identification (ISÚI) together representing the key agenda information systems serving for editing of the Registry of territorial identification, addresses and real estate (RÚIAN), which is one of the four basic registries of state administration. Launch of the system of basic registries has brought tangible results into the administration of real estate cadastre particularly in the area of checking up data on physical and legal persons compared to the registries of inhabitants and persons so as in the possibility of taking over the data changes from these registries (changes of addresses, surnames etc.).

ISKN is interconnected via web services to other registers, f.i. to insolvency register, which enables verification of the participants of the proceeding. ISKN also uses interconnection with Document management system (DMS) in which both electronic and scanned paper documents used for registration to the real estate cadastre have been stored.

2.1. Main Tasks of Cadastral Offices and Their Statistics

Main task of cadastral offices is recording of proprietary and other rights to real estate and other data.

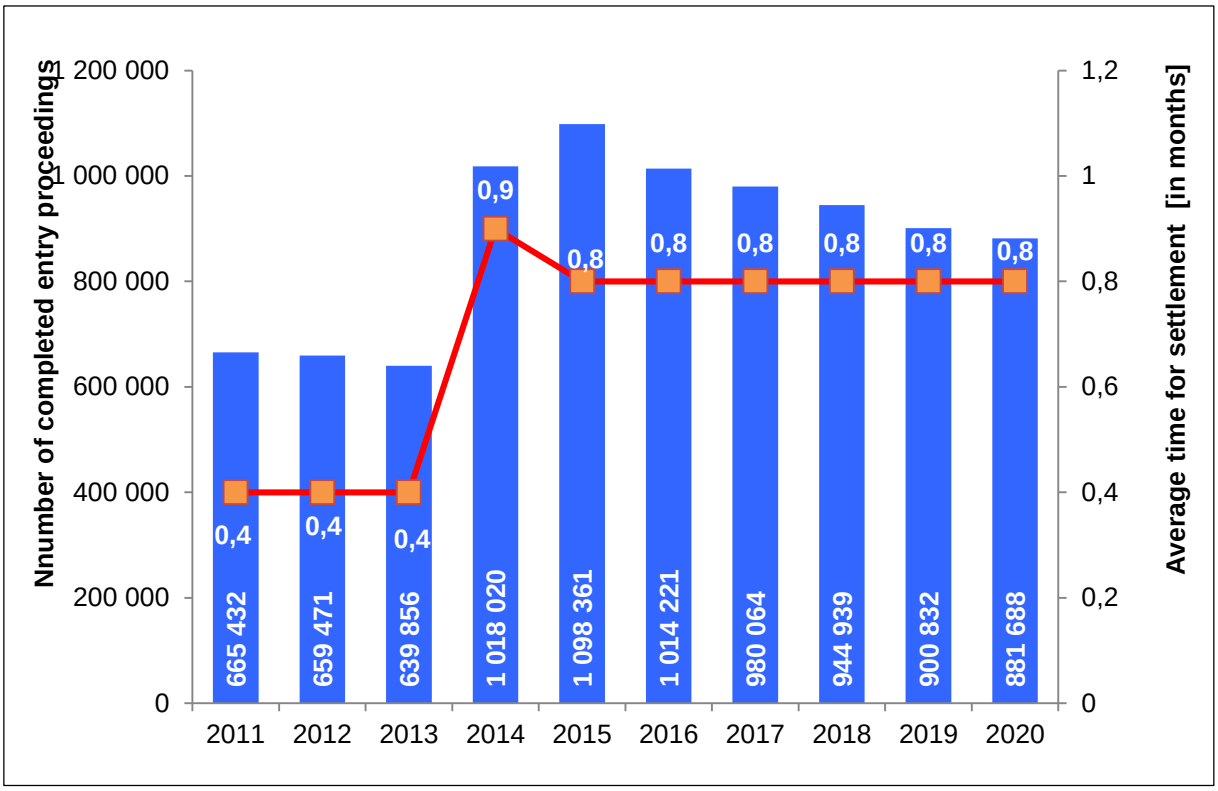
Entries of Proprietary Rights into the Real Estate Cadastre

Registration of all material rights, rights agreed as material so as lease and tenure are being performed in the way of entry regardless of its constitution – either based on the contract or other way. It includes at present ownership right, right of building, easement, right of lien, future right of lien, right of sub-mortgage, pre-emptive right, future possibility of using the property after its transfer (type of easement), supplementary co-ownership, administration of trust fund, reservation of ownership right, reservation of the right to purchase back, reservation of the right of back sale, prohibition of alienation or encumbrance, reservation of the right of better purchaser, trial purchase arrangement, lease (based on the request of the owner or leaseholder with the approval of the owner), tenure (based on the request of the owner or the tenant with the approval of the owner) and surrender the right for damage compensation on the estate. Further the distribution of right to real estate into single ownership rights to units is registered by entry.

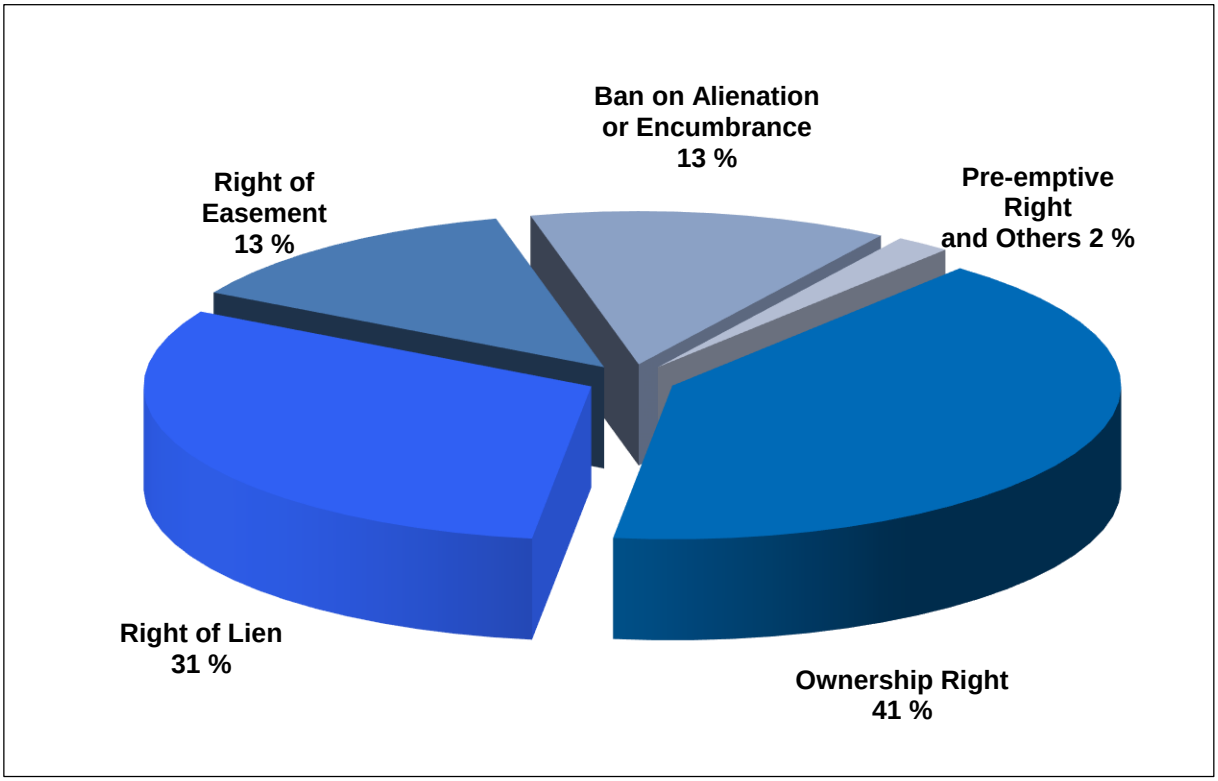
In 2020 the number of accepted proposals for entries of rights by cadastral offices was 862 867, which means decrease of 7 % in comparison to 2019. The share of mortgages on the total number of entries did not change year-on-year. Number of completed proposals for entry of proprietary right was 881 688 and yearly average time for completing of application for entry has not changed. The 30day time was exceeded only in cases containing some defects.

From the total number of yearly requests for entry in 2020, 96 % entries of rights were approved, the rest of administrative proceedings were refused or interrupted. In 2020 the number of refused entries mildly decreased, as you can see in Fig 3.

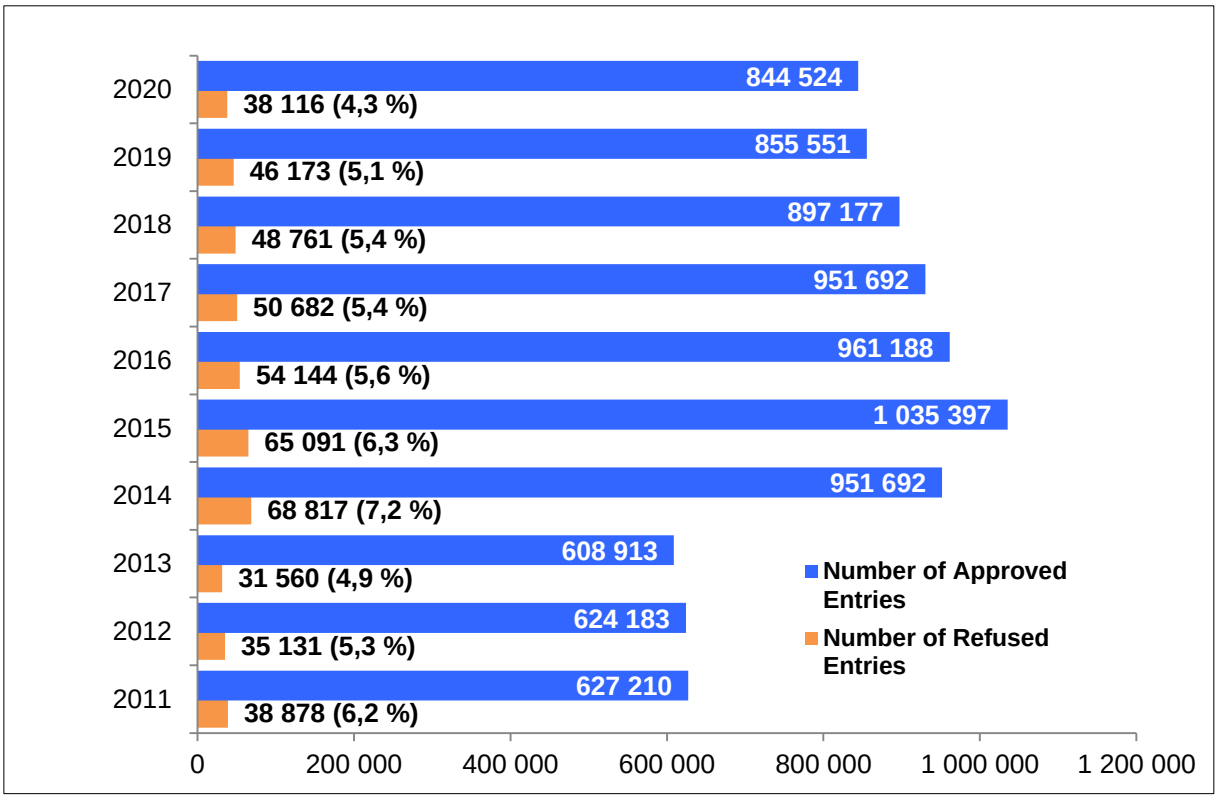
Registration of Rights to the Cadastre (Fig 1)



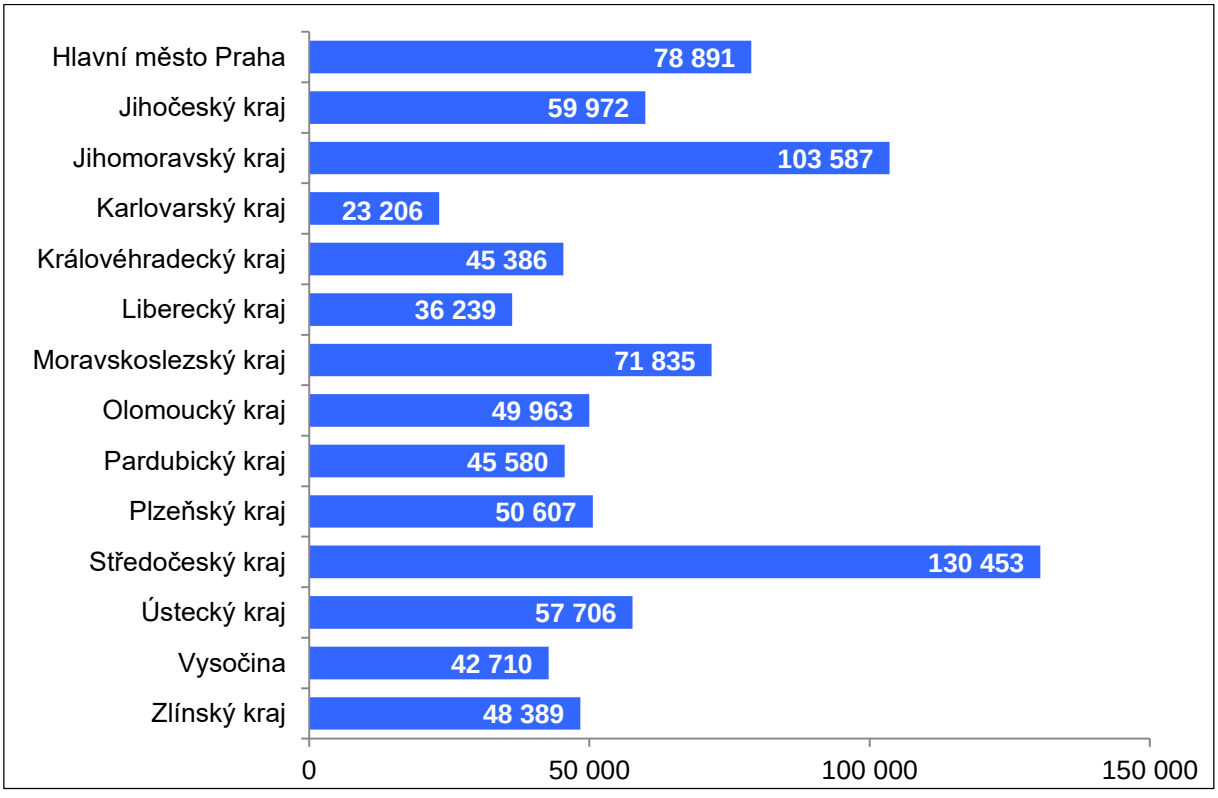
Share of Different Types of Rights Recorded by Entry into the Cadastre (Fig 2)



Development in the Number of Approved and Refused Entries (Fig 3)



Number of Entries in Single Regions of the Czech Republic in 2020 (Fig 4)

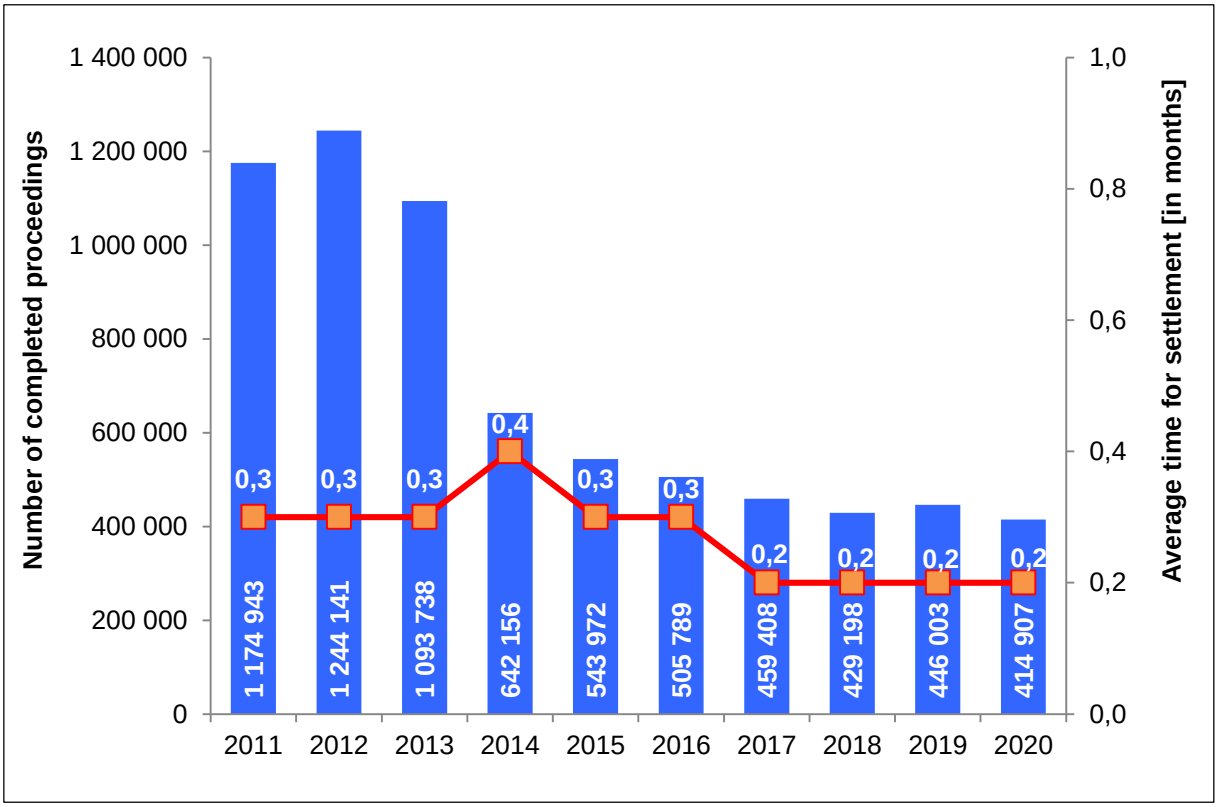


Registration by Record and Note and Others

Cadastral offices performed also other registrations into the real estate cadastre. It is primarily the competence of the state and state organizations to manage state property, the right to manage state property, state property management, property of the capital city of Prague and statutory cities entrusted to urban areas or districts, property owned by local self-governing units etc. Other types of records are notes serving for record of legally important facts relating to a real estate or person. Following data are recorded into the real estate cadastre regarding e.g. change of land type, real estate protection etc.

In 2020 in total 409 967 submissions for registration by record and by note were delivered to cadastral offices, which means that the number of these records decreased yearly by 8 %. In total 414 907 submissions were completed and the average time has not changed year-on-year.

Number of Completed Submissions for Registration by Record and Notes (Fig 5)



Data Acceptance from the Basic Registries of the Public Administration

Part of other registrations into the real estate cadastre previously carried out on the basis of submissions from owners and other authorized persons has been since 2014 taken over from the basic registers of public administration. These are mainly changes of the data on individuals, which are taken from the Basic register of inhabitants (ROB) and about legal entities that are taken from the Basic register of persons (ROS). In 2020, in total 120 822 changes in addresses of permanent residence and registered offices of legal entities and changes in names were taken over from ROB and ROS. Furthermore, in 2020, 174 366 participants of administrative proceedings were verified in ROB and ROS and the data on them were used in the real estate cadastre. Both numbers are significantly lower than in 2019, particularly due to lower number of entry of rights to the real estate cadastre. From the Basic register of territorial identification, addresses and real estate, 40 777 changes in real estate data were taken over in 2020, mainly due to the real estate cadastre revisions.

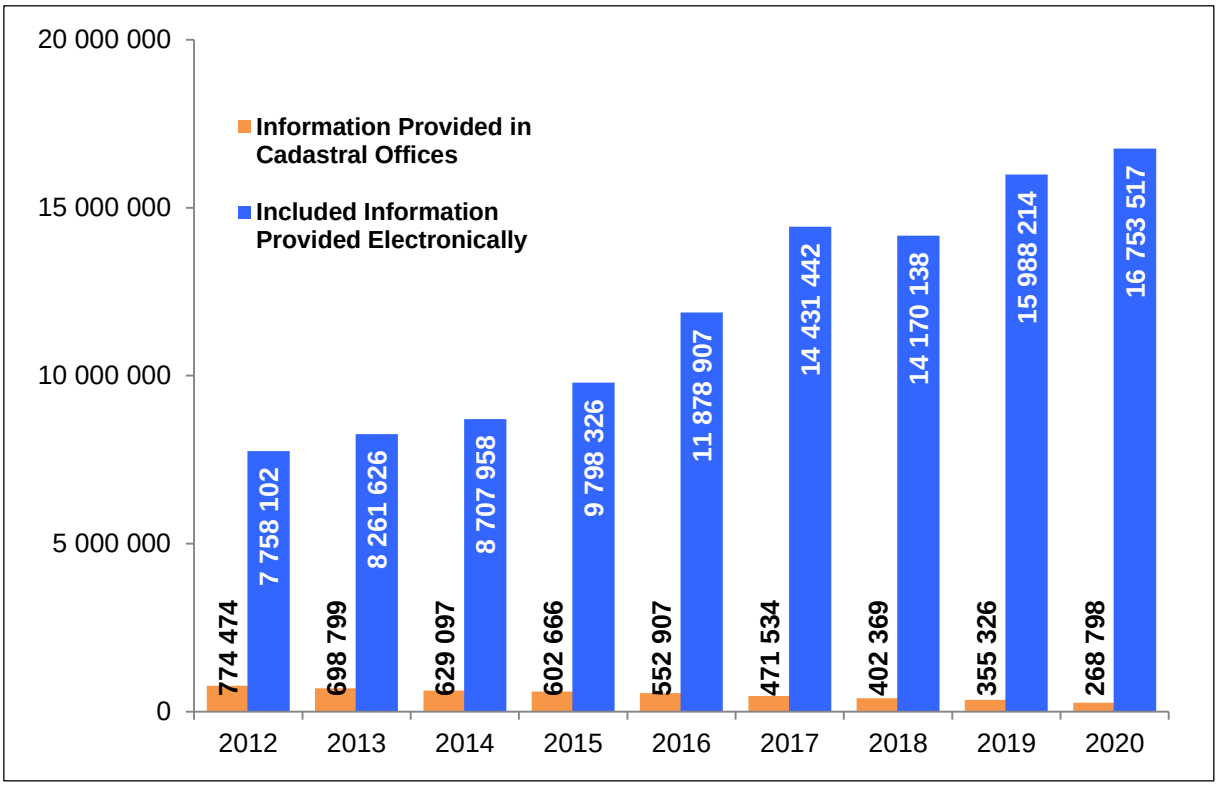
Provision of Information from the Real Estate Cadastre

Individual workplaces of cadastral offices provide clients with information from the cadastre over the counter during office hours. All outputs from the cadastre (extracts from the real estate cadastre, copies of cadastral maps, copies of documents stored in document funds in case they are digitized) are provided by cadastral branch offices from the whole state territory. Since 2001 internet services have been made available allowing outputs from the cadastre by remote access, without visiting the cadastral office. These services satisfy today most of continually growing demands for information from the real estate cadastre.

The number of completed requests for information provision at the counters of cadastral offices decreased yearly on 24 % in 2020 and number of completed requests for information from the real estate cadastre including remote access decreased slightly. The number of applicants for information from the real estate cadastre remained almost unchanged in 2020 – nearly 98 % applicants received the information by electronic services. Big share on this high number of electronically provided services have permanently court executors, notaries, municipalities, regions and governmental bodies, because of free of charge remote access to the data from the real estate cadastre.

On contact points of public administration (Czech POINT) more than 177 000 outputs from the real estate cadastre and 6 600 thousand map copies were issued in 2020. Professional users, such as banks and real estate agencies have been more and more oriented towards acquiring information by means of remote access via internet services, and so the trend of continuous decrease of information provided at the desks of cadastral offices goes on. The electronic statements from the real estate cadastre are since 2006 marked with an electronic mark and are considered as public documents.

Information Provision from the Cadastre (Fig 6)



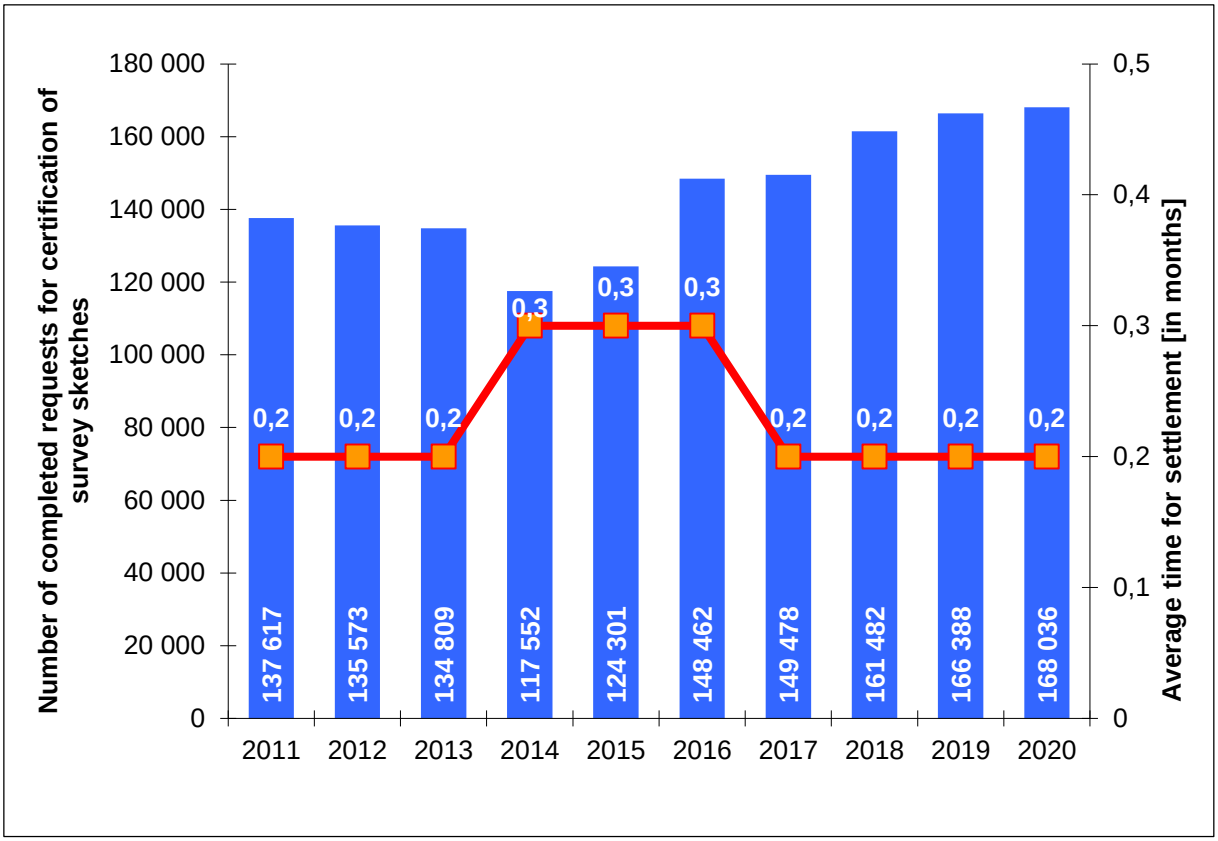
Certification of Survey Sketches

Survey sketches represent land parcel division, position of a building or change of its external outline in the real estate cadastre and some other changes depicted in cadastral maps. They

are made solely by private geodetic companies. They create important part of documentation for maintaining of cadastral maps, thus every survey sketch must be certified by an authorised surveyor who is officially authorised to certify the results of surveying activities by the ČÚZK under Section 14 of Act No. 200/1994 Coll., on Surveying and mapping. Survey sketch is created in electronic form; for the purpose of document creation the paper counterpart is created according to the before mentioned Act on Surveying and mapping.

The number of survey sketches is still very high in the Czech Republic (in 2020 increase of 1 % in comparison to 2019) and despite it the average time for checking and certification of survey sketches by the cadastral offices decreased again mildly in 2020. Since 2016 web services are available enabling automatic acquisition of documentation for survey sketch creation, which has to be delivered into ISKN in electronic form.

Development in the Number of Requests for Certification of Survey Sketches (Fig 7)



2.2. Digitization of the Real Estate Cadastre

Digitization of the real estate cadastre is a basis for effective operation and administration of the real estate cadastre and for operative satisfaction of the users of the cadastral information. Cadastral maps in digital form are fundamental for administration and area decision-making. They serve not only for overview on the territorial range of material rights, but they are important as a basis for creation of information systems and applications relating to the territory as f.i. digital technical maps, spatial plans, price maps etc.

Digitization of the file of descriptive information of the real estate cadastre was realized in years 1993 – 1998, having created basic conditions for the transition to a higher version of the information system equipped with remote access to data in the central database of the cadastre.

Computerization of all important processes within the administration of the real estate cadastre was carried out gradually. Ongoing is the digitization of further parts of cadastral documentation such as the file of documents or results of land surveying activities.

Digitization of cadastral maps ran very intensively in years 2009 – 2017. At present only finalizing works are carried out within complex land consolidation and new mapping.

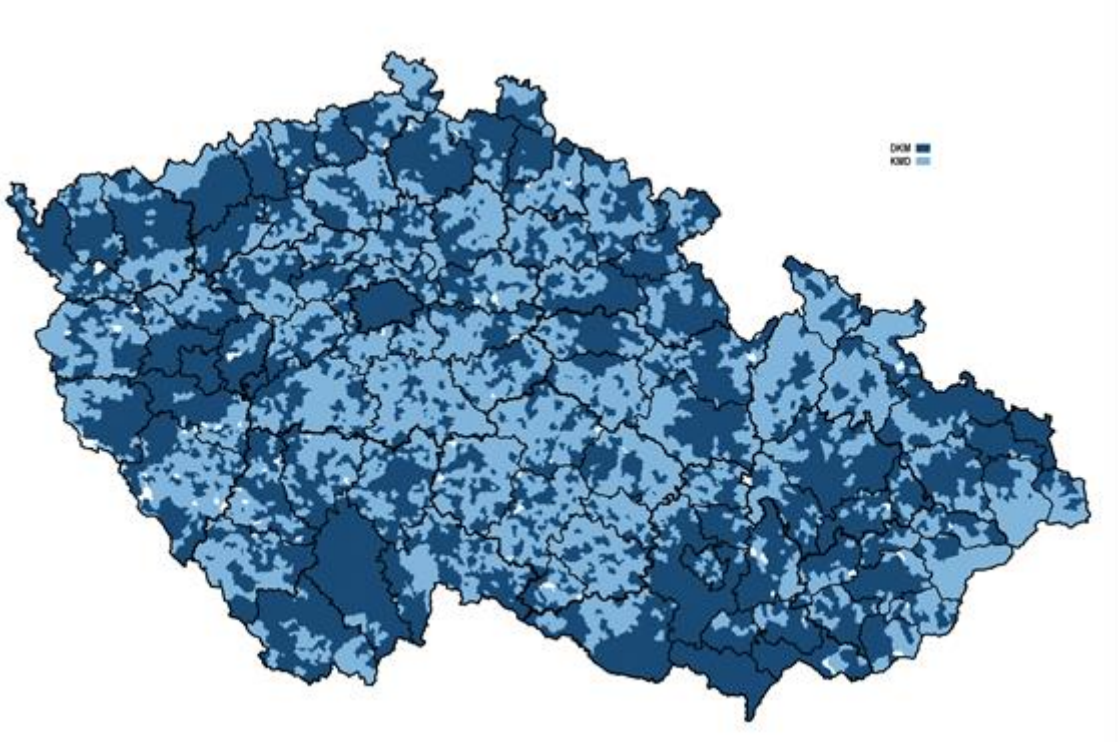
Development of Digitization of Cadastral Maps between 2010-2020

Year	Till 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Digitization Completed	5 739	1106	1 094	1 127	1 074	910	877	622	349	25	23	24
Total in Digital Form	5 739	6 845	7 939	9 064	10 166	11 121	11 990	12 612	12 954	12 972	12 995	13 019
Yearly Growth from the Total of 13 075 c.u.(%)		8,5	8,5	8,7	8,4	7,0	6,7	4,7	2,7	0,2	0,2	0,2
% from the Total Number	44	52,5	61	69,6	77,9	84,9	91,6	96,3	99	99,2	99,4	99,6

Accurate digital cadastral maps (DKM) surveyed after 1927 in national coordinate system JTSK covered 49 % of cadastral units by 31.12. 2017, cadastral maps digitized (KMD) from graphic maps based on the Stabile cadastre in the first half of 19th century covered 50 % of cadastral units.

By 31.12.2020 only in 56 cadastral units the digital form of cadastral map were not at disposal, which is 0.6 % from their total number of 13 075. Since 2018, the cadastral maps have been digitized as a rule only on sites where renewal of cadastral documentation by means of new mapping or land consolidation is ongoing, will be completed in a very short time and replace then the existing cadastral map. It is impossible to carry out the digitization in these cadastral units because the map would be replaced in a short time by a new map. Such a procedure cannot be considered economical.

State of Digitization of Cadastral Maps on 31. 12. 2020



2.3. New Cadastral Mapping and Cadastre Revision

State administration of the real estate cadastre of the Czech Republic was carrying out long-term development concept since its establishment in 1993. Its goal was to fulfil the basic mission of the modern land registration based on ensuring reliable information on real estates and legal relations to them. High level of cadastral data reliability is necessary for rights protection, development of real estate market and mortgages, territorial development and support of decision-making processes in the public administration.

In the registration of rights to real estate and data connected with these rights the conceptual changes have been realized on January 1, 2014 in accordance with acceptance of the new Civil Code and Cadastral Act. New legislation proves its quality and fulfils all the requirements of a modern registration of legal relations to real estates. Digitization of the real estate cadastre has solved easy accessibility of cadastral information as well as dealing with electronic submissions for registration of rights and other data.

In the area of the technical data of the cadastre it is necessary to build on forthcoming completion of digitization of cadastral maps with further innovations. The users of cadastral information are pointing to two areas of shortcomings of existing real estate cadastre at present. The first one is lack of accuracy of the parcel boundaries in those areas where cadastral maps digitized (KMD) based on original maps with geometry from the 1st half of the 19th century are still used and the second one is insufficient updating of registered technical data as f.i. nature and mode of land use or real estate protection.

Lack of boundaries accuracy complicates construction preparations to investors so as the activity of construction offices in the territorial or construction proceeding. It also brings problems in real estate transactions because of unclear area, which is important parameter for setting the price and does not help to keep good neighbour relations regarding the boundary surveying in the field – the discrepancies can be in some cases in meters. Obsoleteness of technical data complicates the use of cadastral data, especially in some decision-making processes of public administration, in property valuation and administration of property taxes.

Before mentioned insufficiencies can be solved by the tools embedded in the existing Cadastral Act, by the renewal of cadastral documentation based on new mapping and cadastral revisions, thus procedures not being used in practice sufficiently in previous years because of the digitization priority.

New Mapping and Use of Land Consolidation Results till 2023

During the renewal of the documentation by the new mapping the existing boundaries and these are precisely surveyed. At the same time updating of further cadastral information (such as mode or nature of land use) is carried out following the negotiation with the owners and with particular public institutions. In 2020 the digital form of cadastral map was at disposal at 99.6 % of cadastral units or at major part of them. Only in 56 cadastral units (from the total number of 13 075) digital cadastral map has not been completed at the whole cadastral unit. Nearly all cases refer to cadastral units with land consolidation in rural areas in process or where the renewal of cadastral documentation will be in progress based on the new mapping and where the bad quality of original maps did not enable mere digitization. Cadastral offices will follow the progress in land consolidation and the excluded part will be renewed by new mapping.

In further 323 cadastral units the digital maps have to be completed in smaller parts of them. It relates to areas touched recently by land consolidation where either land consolidation will have to be completed or the renewal by the new mapping finalized in parts of cadastral units excluded from land consolidation, and thus by the end of 2023.

Cadastral office for	Total number of c. u.	Without digital map		Digital map only at a part of c. u.		In process by 31. 12. 2020	
Prague-City	112	0	0,0 %	0	0,0 %	0	0,0 %
South Bohemia region	1 624	7	0,4 %	64	3.9 %	71	4,4 %
South Moravia region	892	2	0,2 %	41	4,6 %	43	4,8 %
Karlovy Vary region	566	1	0,2 %	4	0,7 %	5	0,9 %
Hradec Králové region	961	0	0,0 %	10	1,0 %	10	1,0 %
Liberec region	508	5	1,0 %	14	2,8 %	19	3,7 %
Moravia-Silesia region	616	0	0,0 %	6	1,0 %	6	1,0%
Olomouc region	769	3	0,4 %	9	1,2 %	12	1,6 %
Pardubice region	790	2	0,3 %	22	2,8 %	24	3,6 %
Plzeň region	1 396	19	1,4 %	49	3,5 %	68	4,9 %
Central Bohemia region	2 075	7	0,3%	61	2,9 %	68	3,3 %
Ústí region	1 060	3	0,3 %	15	1,4 %	18	1,7 %
Vysočina region	1 263	7	0,6 %	21	1,7 %	28	2,2, %
Zlín region	443	0	0,0 %	7	1,6 %	7	1,6 %
Total	**13 075**	**56**	**0,4 %**	**323**	**2,5 %**	**379**	**2,9 %**

New Mapping and Use of Land Consolidation Results – Long-term Outlook

Digitization of cadastral maps enables wide accessibility of maps, ensuring full conformity with descriptive data on real estates. High comfort in work with map was achieved included combination with other maps via web services. Nevertheless, approximately 50 % of the territory of the Czech Republic will still be covered by cadastral map originated from the Stable cadastre surveying in the 1st half of the 19th century after 2023. Neither continuous adding changes nor realized digitization did not improve the accuracy of most boundary break points in comparison to national coordinate system, which remained on the level of 1 to 2 meters. In these cadastral units it will be necessary to perform gradually new cadastral mapping. The new mapping will cover virtually all built-up areas and forest complexes, thus areas excluded from the land consolidation. Those parts of cadastral units already solved during land consolidation will be renewed based on their results. This method enables to reach needed accuracy of all cadastral maps in comparison to national coordination system which is characterized by the coordinate positional accuracy m_{xy} = 14 cm.

Long-term plan will be realized supposing that land consolidation will proceed in the present range of approximately 200 cadastral units per year so as new cadastral mapping should. This work amount can be financed without extra budget claims, provided the expenditure of state budget dedicated to these activities remains at the same level.

The result of renewal of cadastral documentation by the new mapping will be the cadastral map depicting accurate parcel boundaries surveyed in the field with owners´ participation. Real estate owners´ involvement enables to use the renewed cadastral documentation even for property settlement of various discrepancies (not solved changes of communications location and parameters, water courses regulation, water constructions or small constructions registered in the cadastre). Updating of nature and mode of land use will be realized in the frame of new mapping and so the cadastral map can better serve for many decision-making processes of the public administration regarding the territorial administration.

Cadastral Revision

Real estate cadastre is based on the principle of data registration according to the submitted documents. Moreover, the constitutional principle applies for registration of legal rights (the right arises only after registration) as well as Bona fide protection is applied on these registrations and so the owners´ motivation not to postpone the registration is very strong. For other records (nature of land, its mode of use, preservation) only simple registration principle applies and so up-to-dateness of this information is negatively influenced because real estate owners do often not fulfil their notification duty. Sometimes it is even more advantageous for the owners not to update this information in the cadastre (f.i. because of lower property tax). It limits use of the cadastral data for many activities which should reflect the situation in the terrain. During cadastral revision cadastral offices find the discrepancies between cadastral data and real situation in the terrain, and remove them in cooperation with relevant public institutions and owners.

In 2020 the cadastral revision was completed in 582 cadastral units and more than 148 000 discrepancies were improved. The most often discrepancies were merging of superfluously registered parcels and changes in the mode and nature of land use. Information about another 18 000 found discrepancies was recorded into the cadastre in 2020, because the owners did not submit necessary documents to the cadastral office. Information about these discrepancies are published on internet for free.

It would be possible to complete revisions in all cadastral units not included in renewal of the cadastral documentation by new mapping or based on land consolidation results by the end of 2030. Time schedule will be designed focusing on territories with greatest development.

Updating of Tax Data and Real Estate Data Protection

Real estate cadastre contains at present some data regarding the property tax, the real estate evaluation so as some selected data on real estate protection (protection of monuments, spas protection, nature conservation).Registration of this data are based on documents from the public administration authorities responsible for these land specifications. In practice this notification duty seems to be not very practical and does not ensure sufficient consistency of registered data and real state. For example comparison of the real estate cadastre data and database of the Nature Conservation Agency of the Czech Republic showed that only at low number of parcels with stated nature conservation this information has been registered. To improve this situation it is necessary to implement more efficient procedures for this data updating. It could be realized with help of the basic Registry for territorial identification, addresses and real estate. Its launch in 2013 created the technical conditions for crucial innovation of these registration procedures. The public authorities responsible for tax data or real estate conservation can directly register these changes into the RÚIAN. Any possible taking over of these data into the cadastre or its provision from RÚIAN in one output together with the cadastral data is technically manageable.

3. Electronic Services of the Real Estate Cadastre

Some eServices have been launched in the area of the real estate cadastre, which enable to get a wide range of information from the cadastre to our customers. There are both free of

charge services enabling to get some chosen data without any restrictions, as well as paid services providing verified documents serving as public documents, that is from the whole territory of the Czech Republic. Except for this, some other applications are available, facilitating the access to cadastral data and communication of inhabitants with cadastral offices.

Entry Proposals

From 2013 there is a legal obligation to submit the entry proposal on the given form. The objective of this measure is to reduce errors that still occurred in the proposals for entry of right and get structured data for further use within record of changes into the database. In order to facilitate completing the form to the applicants an internet application is in operation enabling creation of the entry proposal, which is interconnected to the cadastral database and leads the user through the entire process. The application is very intensively used; in 2020 more than 810 000 entry proposals were created via it. In 2020 the use of these web services of this application went on, mostly by the bank and other institutions as well as by the subjects of state administration, who incorporated the application entry for right of lien into their information systems. Webservices were enlarged and user login via the National point portal for identification and authentication was launched.

Service for Monitoring of Changes

The Service for monitoring of changes in data about real estates is provided by ČÚZK according to § 55, art.6 of the Cadastral Act, to those persons who have real right to particular real estate or to participants of proceeding about such a right. The service automatically informs the user about the fact, that there occurred a change in the real estate cadastre regarding the monitored real estate. Number of its users reached already 35 062 in 2020.The service is used not only by some natural persons but also by legal persons or banks because of the information about those real estate transactions securing the provided mortgages.

Remote Access to the Real Estate Cadastre http://katastr.cuzk.cz/

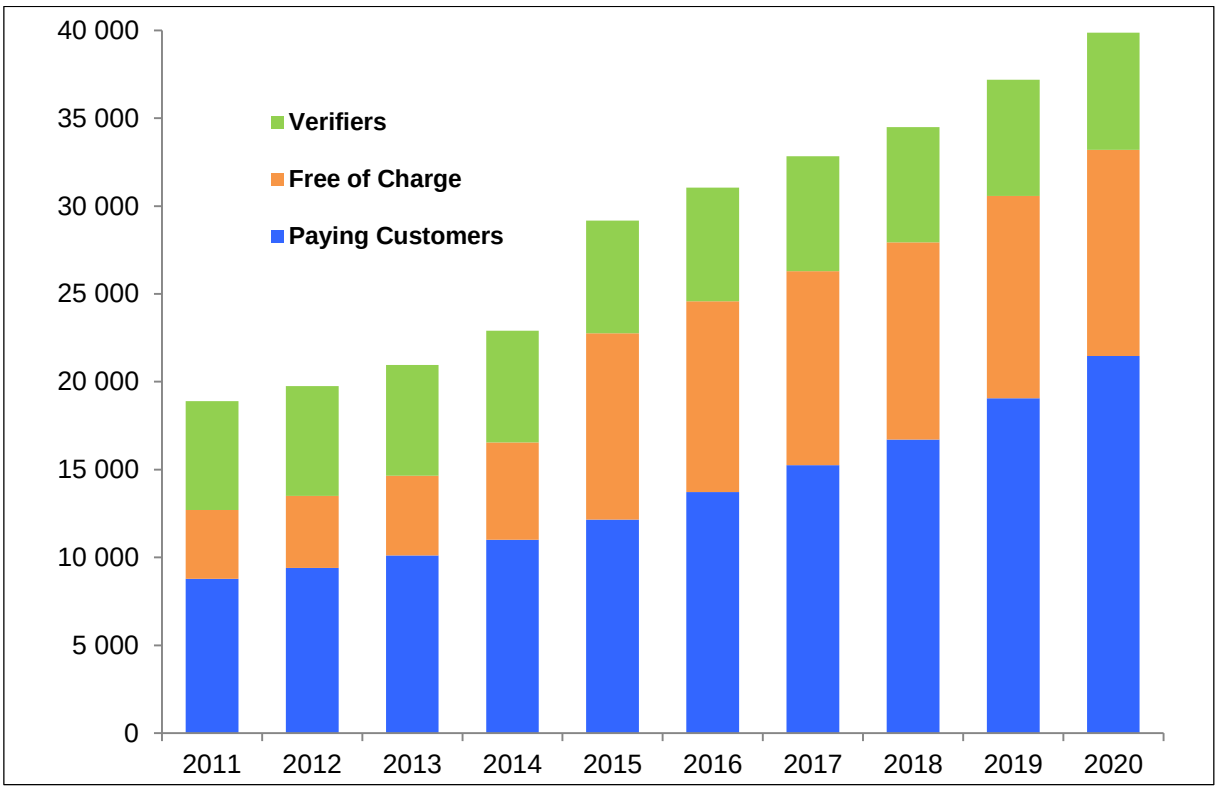
Remote access (DP) enables to get the data from the real estate cadastre from the whole territory of the Czech Republic via internet. Outputs from the real estate cadastre, such as extract from the real estate cadastre and other compositions provided in this way, are formally and materially identical to the documents issued with the same timestamp by the cadastral office and are considered public documents.

The application enables provision of outputs not only based on input of basic parameters but it also supports the visual search based on digital cadastral maps, both with help of Orthophoto CR and topographic maps as navigation tools.

The outputs are charged, but numerous groups of users from public and local administrations receive the information from the real estate cadastre in this way free of charge. DP has been in operation since 2001 and since that the number of customers actively using it has been constantly growing. The yearly increase of users was nearly 7 %. The number of accounts for users was 39 871 by December 31, 2020, 11 739 out of which were free of charge and 6 674 accounts were for verifiers, particularly in the frame of CzechPOINT project.

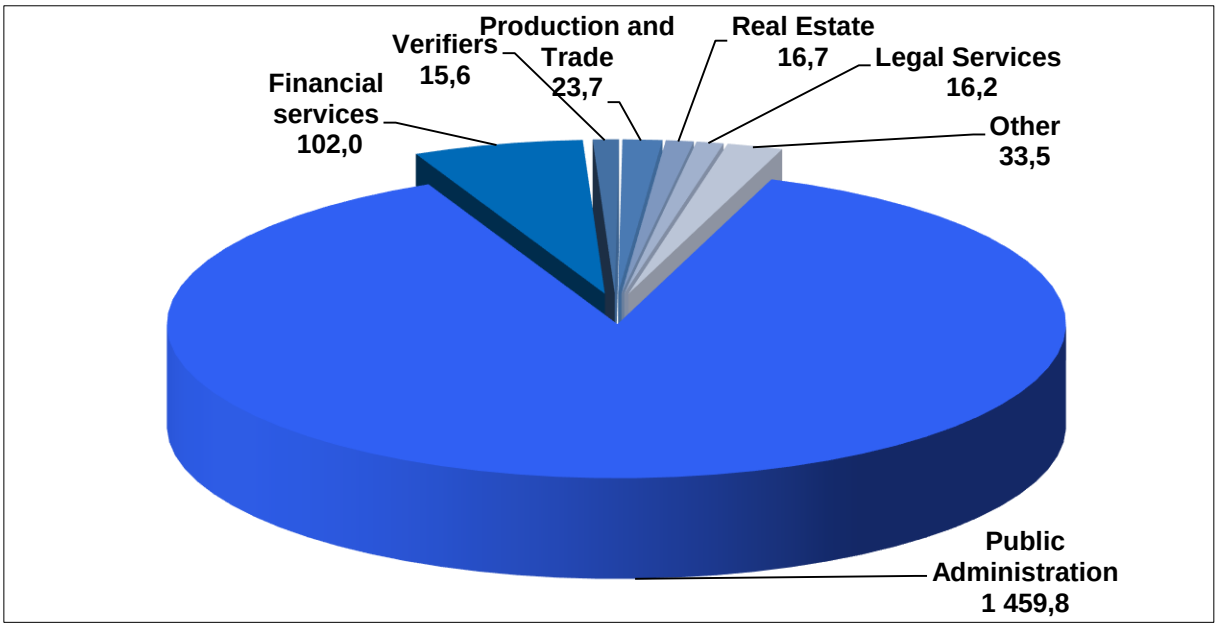
From January 1, 2016 it is possible to provide the documents from the file of documents via DP. In 2020 more than 720 000 documents were downloaded via this application, in total from its launch it was more than 3.1 million documents. Digital part of the file of documents contains more than 19.4 million documents at disposal (completely available are documents from years 2014 - 2019). In case the document has not been scanned yet, it is possible to ask for it via inquiry form. More than 208 000 of such requests were solved in 2019. This process enables to deliver the document in digital form to the applicant within 2 working days.

Development of the Number of DP Users as for the Type of Account (Fig 8)



The verified extract from the real estate cadastre can be acquired at the contact points of state administration – CzechPOINTs. In 2020 it was more than 177 700 verified outputs. Another 55 000 outputs were provided via service CzechPOINT@office. At present it is possible to issue following verified outputs there: extract from the real estate cadastre, overview of rights registered per an individual person and the cadastral map copy. The completion of the digitization of cadastral maps thus ensures the provision of cadastral information in almost every municipality, even for persons who do not themselves use internet services.

The Biggest DP Users – as for the Data Value in CZK Million (Fig 9)



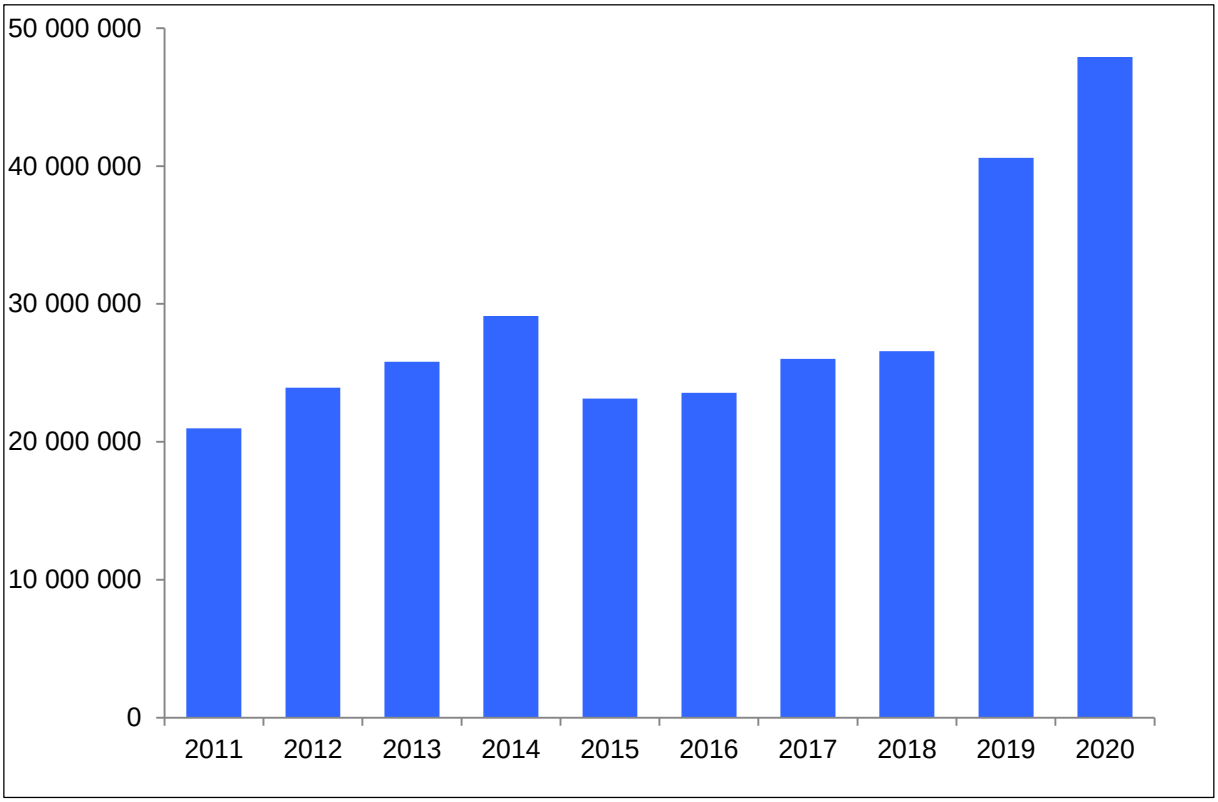
The number of DP users has been growing constantly, so as the income for data provision via DP service. Income of the state budget from charged customers reached in total CZK 203.1 million. The biggest charged user of DP service is the bank sector, which uses it for acquiring of necessary documentation for mortgage provision. However, 88 % of data are provided to the public administration. Free of charge DP is at disposal not only to municipalities and regions for performing their competency but also to governmental bodies, notaries and executors carrying out the distrains so as to insolvency administrators. The executors were provided with outputs in the amount of CZK 948 million in 2020. This range of service use by the executors is obviously disproportionate to the agenda they provide, but unfortunately effective measures have not been taken yet to reduce it.

Viewing the Real Estate Cadastre http://nahlizenidokn.cuzk.cz/

Probably the best-known eGovernment service, operated in the ČÚZK branch, is "Viewing the cadastre". This internet service allows provision of selected technical data and data concerning ownership of parcels, buildings and flats. According to a survey conducted in 2018 among users of cadastral office services, it is used by 94 % of clients whose professions are related to real estate and by almost 80 % of citizens interviewed when leaving the cadastral office after settling a private matter. By means of Viewing it is possible to find information on the condition of particular proceeding. The Viewing application is very intensively used by a wide range of users and has contributed in a significant way to increasing the transparency of the course of individual administrative proceedings.

In 2020, users´ login to this service via the Portal of national point for identification and authentication was launched and a webpage "My cadastre" was created containing real estates and proceedings registered for the particular user.

Development of the Number of Accesses via Viewing the Cadastre (Fig 10)



For real estate valuation purposes the application enables easily find out which real estates in the selected area have price recorded since 2014. The application serves also for data provision to registered users – creators and verifiers of survey sketches – enabling them access to previous surveying results – recording of detailed surveying of changes (ZPMZ),

which should be taken into account during creation of the survey sketch in the given area. More than 6 million ZPMZ (12.5 million files) are made available at present. In 2020 more than 497 000 were downloaded. Since the beginning of provision of these documents more than 1.9 million of them were provided. It is possible to ask for historical document with help of the request form and their provision does not usually take more than two working days.

Viewing the cadastre is one of the most visited websites of the Czech state administration. Since 2014 the application has been achieving a constant growth in the number of users with a mild decrease in 2015, which was caused by implementing strict rules against prohibited automated data harvesting. In 2020 the number of accesses increased mildly in comparison to 2019 to nearly 48 million visits.

Web Map Services for Cadastral Maps http://wms.cuzk.cz

Web map services for cadastral maps enable further possibility of work with cadastral maps; the user can combine the cadastral maps layer in his computer with other datasets. In that way he gets access to brand updated data via internet and has to take care neither about the storage of map copies in his data storage nor about their updating. This service is also free of charge. The volume of provided data increased significantly, namely year-by-year by more than 25 %.

Web Services for Survey Sketches (WSGP)

Web services for creators and verifiers of survey sketches (WSGP) represent programme interface enabling access to cadastral data to creators of survey sketches. It enables them to ask for documentation for creation of GP via internet and GP verifiers can send the verified GP directly to the particular cadastral branch office for its authorization. Web service for data delivery (measurement documentation, Exchange format (VF) data export) was launched in August 2015, and web service for data reception (application and GP authorization) was launched in October 2016. 1444 customers´ accounts for these free of charge services were created by December 31, 2020.

4. Registry of Territorial Identification, Addresses and Real Estate (RÚIAN)

https://www.ruian.cz

ČÚZK is the administrator of the registry of territorial identification, addresses and real estate, which is one of the four basic registries of the public administration. The content of basic registries is defined in the Act Nr.111/2009 Coll., on Basic registries, stating also rights and obligations connected with creation, use and operation of basic registries. RÚIAN is edited by ČÚZK in cooperation with municipalities, building offices, Czech Statistical Office (ČSÚ) and cadastral offices.

In 2020 the Act No. 111/2019 Coll., On the basic registers, was amended by the Act No. 51/2020 Coll., On the territorial administrative division of the state and on the amendment of related acts, which introduced a uniform general territorial administrative division of the state, with effect from January 1, 2021, resulting in changes of legal regulation of RÚIAN.

In 2020 RÚIAN was enlarged with new functionalities by the RÚIAN 3.0 update. It contains completing of Information system of territorial identification (ISÚI) with the error statistics (state and development) or the possibility to pass the complaints directly among municipalities and building offices. In cooperation with the Ministry for Regional Development (MMR) and ČSÚ the investigation of technical and economic attributes of buildings (TEA SO) for the need of the Population and housing census 2021(SLDB) by the building offices, which started in 2019, went on. Special application was used, created by ČÚZK, from which data were taken into ISÚI. This work was completed in the end of 2020.

In terms of functional and data model, RÚIAN had to respond to Act No. 51/2020 Coll., On the territorial administrative division of the state (effective from January 1, 2021) and prepare for the implementation of necessary changes in the data structure, in the jurisdiction of municipalities into authorized municipalities (POU)/ municipalities with extended powers (ORP)/ district and other related impacts on the system, which will be part of the RÚIAN version 3.1 installed in production at the beginning of 2021. The content will also include new ISÚI functionalities, which aim to facilitate the work of editors. This is, for example, the introduction of bulk operations when editing TEA SO. Other modifications concern the data model and new functionalities for the introduction of special-purpose territorial elements (ÚÚP) into the register, on which the development of RÚIAN is primarily focused in the next period as well.

In 2020 the introduction of new ÚÚP into the registry moved forward slowly, especially in the legislation, because the process of approval of new acts slowed down in consequences with the epidemiologic situation connected with the COVID-19 disease. Nevertheless, in the end of 2020 the amendment of the Act On mining areas states was approved by the Parliament, which introduces mining areas, protected deposit areas and areas for special interventions in the earth´s crust as ÚÚP. Assumed introduction of these ÚÚP into RÚIAN is planned for the first half of the year 2022. According to the draft amendment of the Land surveying act, which was submitted to the Parliament in the middle of 2020, the Ground control points and their protection zones are to be kept as ÚÚP. Other acts are in the legislation process enabling administration of nature and landscape protection enabling to introduce further elements in RÚIAN as ÚÚP (nature and landscape protection, protection of geodetic points, senate constituencies).However, it is difficult at present to predict whether the individual proposals will be accepted. At the same time, analyses are underway to introduce the last necessary adjustments to the system, related to the administration of ÚÚP in RÚIAN, the implementation of which is planned to be delivered at the end of 2021.

Preparatory work for the transfer to the updated database version Oracle 19.6 (ISUI/RÚIAN/VDP) are underway. The launch of the technological change is planned for the half of 2021.

In 2020 intensive training of RÚIAN editors´ via practical trainings went on. Nevertheless, their number had to be limited significantly because of the COVID-19 measures. The organization of regular seminars and personal consultations at building authorities was also influenced. However, great attention is still paid to methodological support, within the available options, as the unification of procedures eliminates the occurrence of errors in the RÚIAN database.

Detailed information about the RÚIAN project including detailed methodical instructions for editors are published and continuously updated on the project website https://ruian.cuzk.cz.

ČÚZK went on in 2020 in checking of the RÚIAN data quality. The results of chosen inspections for municipalities and building authorities are published via the application at the https://kontrolyruian.cuzk.cz/ , which was being recently enlarged by the regional statistics. The number of errors is continuously successfully decreasing. The number of address points without definition points decreased by 14 % as well as the number of buildings without identification parcel.

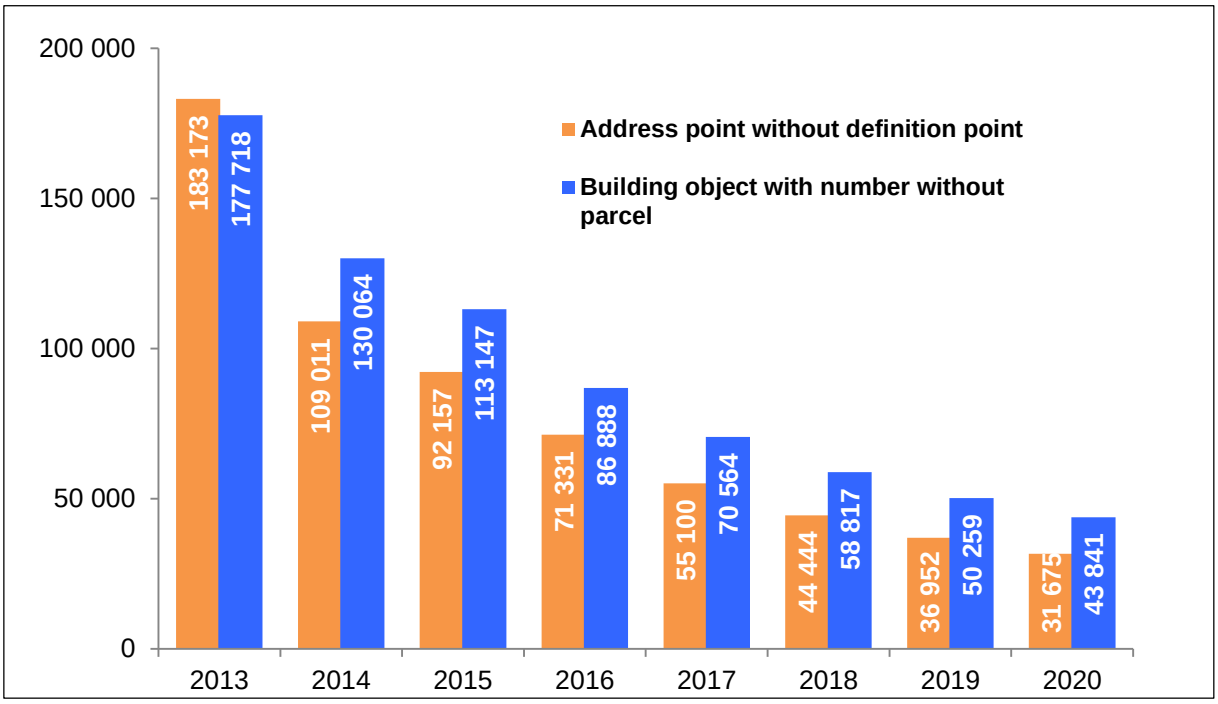
Users of RÚIAN complaint forms published on the RÚIAN website: https://reklamace.cuzk.cz/formular also help to reduce the number of incorrectly kept data in RÚIAN. Currently, they are used mainly by financial and cadastral offices or the ČSÚ.

Cooperation with external users (“Seznam” who takes RÚIAN data to its maps and draws attention to found discrepancies) helps to decrease the number of incorrectly entered data in RÚIAN.

The Content of RÚIAN at December 31, 2020 for chosen Items was following:

Subject	Number 2019	Number 2020
Municipality	6 258	6 258
Part of municipality	15 102	15 104
Cadastral unit	13 076	13 075
Building object	4 098 234	4 123 396
Building object with the orientation/registry number	2 860 596	2 875 410
Address point	2 932 801	2 947 741
Parcel	22 714 398	22 656 087
Street	83 385	83 726

Errors Removal in RÚIAN (Fig 11)



5. Land Surveying Activities in the Public Interest

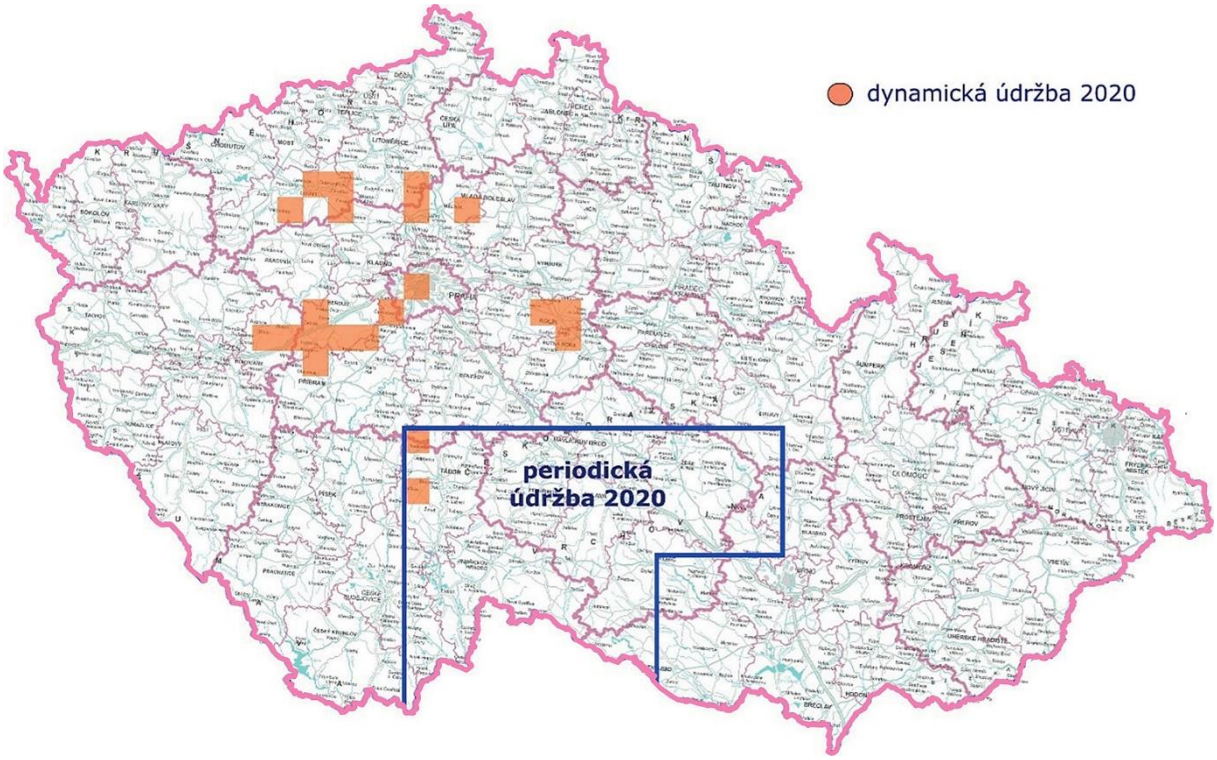
Main task of the state land surveying service is administration of national geodetic control and creating basic standardized geographic datasets and map products particularly for support of activities of the state and local administration of the Czech Republic. Fulfilling this task in the ČÚZK branch is in responsibility of the Land survey office (ZÚ).

5.1. Geodetic Control

Geodetic control is a set of theories, equipment, technologies and services enabling spatial and time assignment and documentation of geographical objects and features in binding reference systems with defined accuracy. Basic frame for the geodetic control of the Czech Republic are fundamental geodetic control points (ZBP) being divided into horizontal, vertical and gravity geodetic control. Taking into account the development of technologies of global navigation satellite systems (GNSS) the fundamental geodetic control comprises also the points of the network of permanent stations GNSS CR (CZEPOS) that create the fundamental reference frame for horizontal and time assignment of geodetic surveying by means of satellite geodesy.

By the end of 2020 the database of geodetic control points included 69 261 centres of trigonometric (ZPBP) and densification points and 30 217 associated points, further 1 313 levelling lines of the Czech state levelling network (ČSNS) being in total 24 714 km long, 119 223 levelling points (82 610 out of them are ČSNS points) and 462 gravimetric points.

Dynamical Maintenance of ZBP Points in 2020



In the area of ZBP administration ZÚ focused in last years, particularly, on so called dynamic maintenance based on defects reporting on single ZBP points sent to ZÚ by users. In 2020 in total 1 865 cooperating users were registered. Dynamical maintenance was carried out in range of 80 points in locations chosen based on the density of reports. In 2020 the maintenance of 532 significant geodetic control points was carried out as well. It was suspended in 2012 and launched again last year.

In the frame of special vertical control administration (ZNS), resp. levelling networks, the reconnaissance of the external parts of ZNS Most was realized in total length of 240 km.

Administration and development of the fundamental gravity geodetic control points (ZTBP) was ensured by completing the Uniform gravimetric network with the results of relative gravimetric surveying of gravimeters on the main gravimetric base; the maintenance of 70 points was completed. For purpose of densification and inspection of gravimetric mapping relative gravimetric measurements were carried out on 610 points.

Using new technologies of satellite geodesy enables continuous accuracy improving of reference systems both at the continental and global levels. Parallel activities occurred for integration of national reference systems with the goal of realization of unified reference frames both at the European and global levels. ZÚ as the administrator of geodetic control in the CR ensures both theoretical and practical activities, some supporting documents and data with the goal of positioning points of geodetic control in new reference systems, particularly, in the frame of European projects. Further ZÚ publishes information about realized reference systems and provides the development of transformation services that enable precise transformation of points' coordinates between geodetic reference systems, which are mandatory in the state territory, and reference frames in European Union.

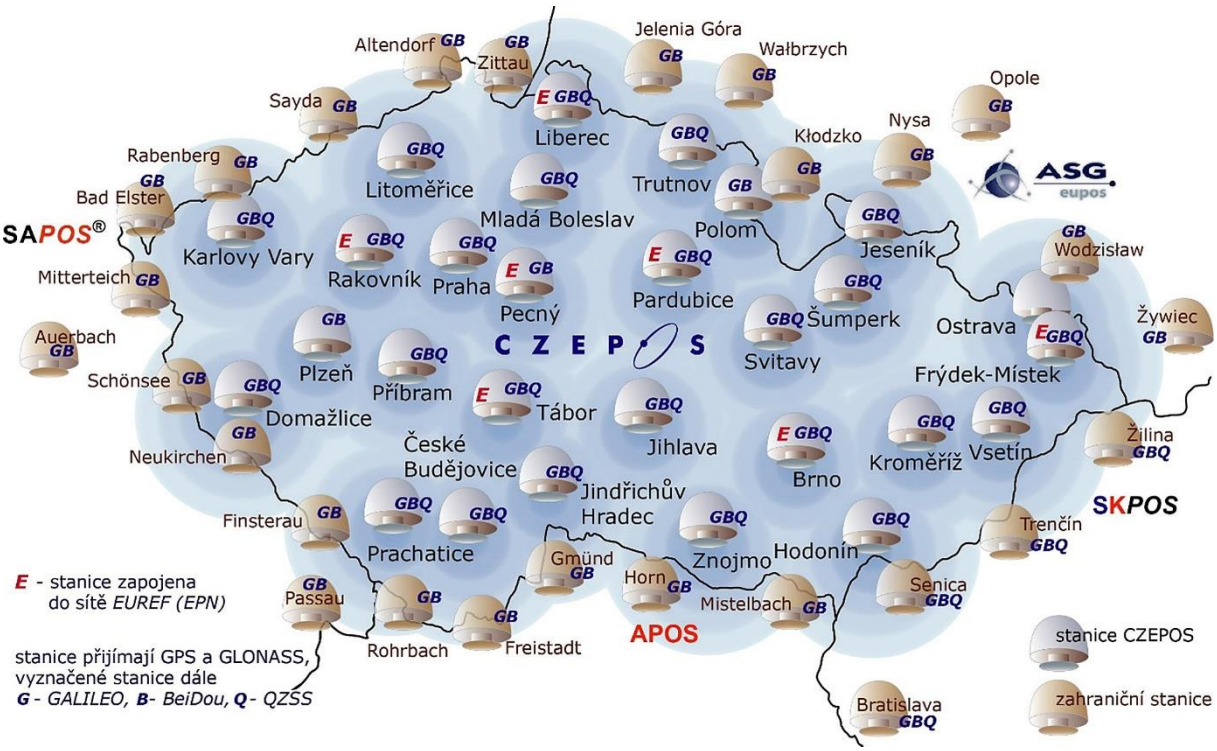
In accordance with the provision "Analysis for stating of uniform reference positional and altimetry coordinate system including the transformation method" (one of the outputs of GeoInfoStrategy in the Czech Republic till 2020), the accurate transformation relations between reference systems were enlarged by the possibility of transformation from/to WGS 84. The accuracy of the transformation from ETRS89 (in the realization ETRF2000) and WGS 84 (in realization G873) is characterized by the mean error in position m_p = 4.0 cm. Before mentioned transformations were implemented into the new version of transformation programme ETJTZU 2019 and its calculation module and updated also in the transformation services of Geoportal ČÚZK.

In the frame of international relations and cooperation ZÚ participates in projects dealing both with geodetic control initiated by the sub-commission of International geodetic association for European reference systems (EUREF) and with European network of permanent stations GNSS (EUPOS). For purpose of unified adjustment of coordinates of EUPOS stations the EUPOS processing centre was regularly provided with bulk data from GNSS surveying (SINEX) from the CR territory based on the CZEPOS monitoring. ZÚ participates significantly in this way on the definition and accuracy improvement of the European geodetic frame.

Czech Positioning Network GNSS – CZEPOS http://czepos.cuzk.cz/

CZEPOS is the network of GNSS permanent stations spread on the whole territory of the Czech Republic. CZEPOS stations are installed on roofs of buildings, in which cadastral offices are located, and record the data from GNSS signals 24 hours a day. Users are provided with them in the form of corrections enabling to specify GNSS measurements. CZEPOS services are provided in continuous operation since 2005.The network solution uses data from together 55 stations, 28 of them located on the territory of the Czech Republic (23 located on roofs of cadastral offices and 5 external) and 27 in the cross-border areas of neighbouring countries.

Overview CZEPOS Map



After the modernization of CZEPOS receivers, completed in 2019, the corrections are provided for all currently available GNSS frequencies, namely American NAVSTAR GPS, Russian GLONASS, European Galileo, Chinese BeiDou as well as for regional Japanese QZSS.

In the frame of international cooperation the data exchange between border GNSS CZEPOS stations and state GNSS networks of surrounding countries (Austrian APOS, Polish ASG-EUPOS, German SAPOS® and Slovak SKPOS®) has been carried.

Availability and quality of the provided CZEPOS services and products can be verified on the internet website in on-line regime by the users. There were 2 014 registered CZEPOS network users by December 31, 2020, it means grow of 157 users in comparison to the end of 2019.

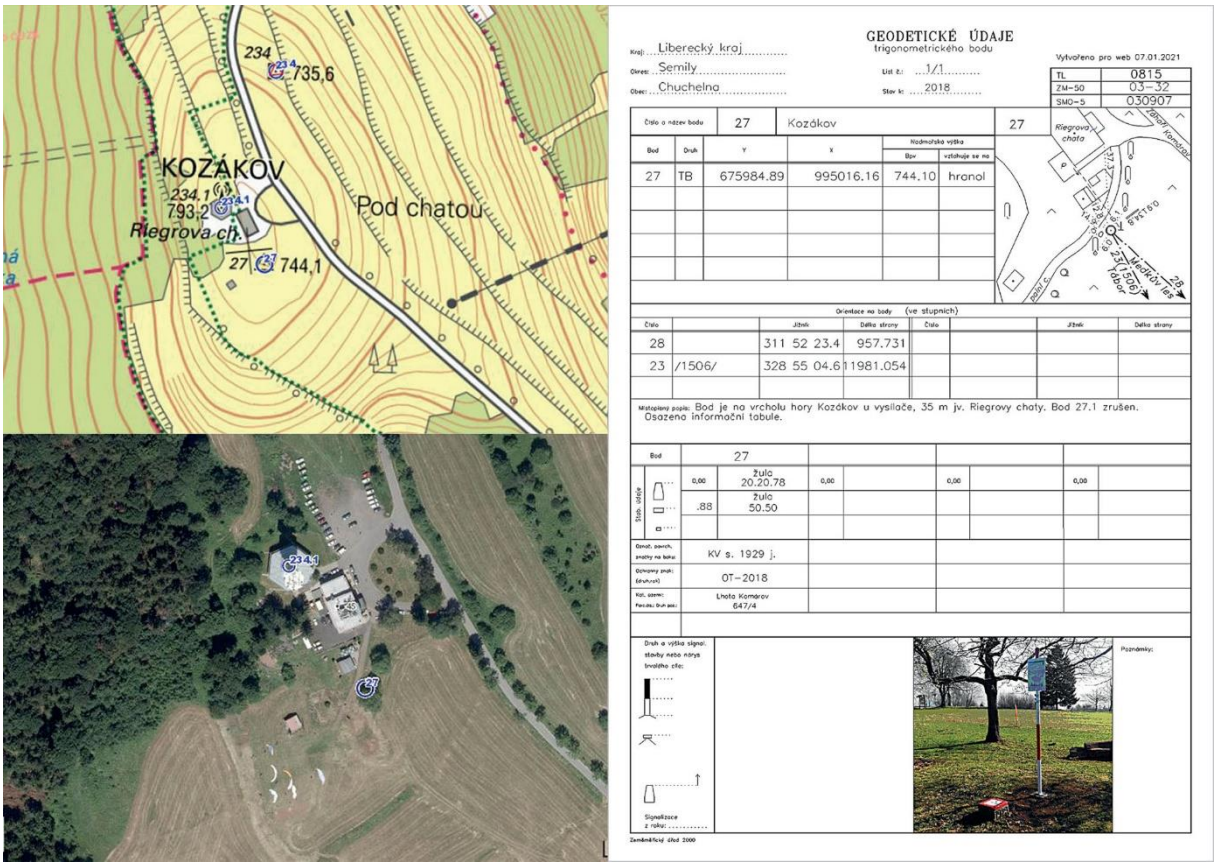
Database of Geodetic Control Points http://bodovapole.cuzk.cz/

Database of geodetic control points (DBP) contains geodetic data on points of fundamental horizontal, vertical and gravimetric control, data on densification and minor vertical control points. Database serves either as the basic tool for CR geodetic control administration or for the geodetic public providing them with basic reference data for follow-up geodetic surveys and setting-out in the territory of the CR.

Information about the geodetic points can be found on the ČÚZK Geoportal via application Geoviewer or via viewing services WMS Geodetic control or download service WFS Geodetic control; access to data is public and free. Users can also inform about the defected points of horizontal and vertical control via implemented application so as view the Statistics of provided geodetic data according to the categories of respective points in another application.

In 2020 another 20 historically significant ZTBP points were marked by the information table that should point out the historical significance of these points and make these points popular by link to the website http://bodovapole.cuzk.cz/vyznamneTB.aspx.

Geodetic data on fundamental geodetic control points



5.2. Maintenance and Documentation of the State Border

Land survey activities for maintenance and verification of state borders are carried out based on agreement with the state border documentation administrator, which is the Ministry of Interior. The actual performance of surveying activities, their scope and specific material content is different for state borders with individual neighbouring states. They are completely subject to tasks arising from international agreements on state borders and their documentation, which is administered in agreement between both partners. The international border commission coordinates processing of documentation for maintenance of state border markers, verifying state borders and updating border documentation. All state borders have just been under regular examination. Besides regular examination of the stability of state borders according to international agreements precise geodetic surveying with the goal of interconnection of geodetic data on state borders into a uniform geodetic reference system ETRS89 is in the process.

Cooperation on the EuroGeographics project SBE (State boundary of Europe) went on. On the bilateral level, the cooperation went on of the technical group of the Permanent Czech-Polish boundary commission on the boundary data preparation determined in ETRS89; independent surveying test of the transformation results of the Czech-Polish boundaries was carried out in cooperation with the Ministry of Interior.

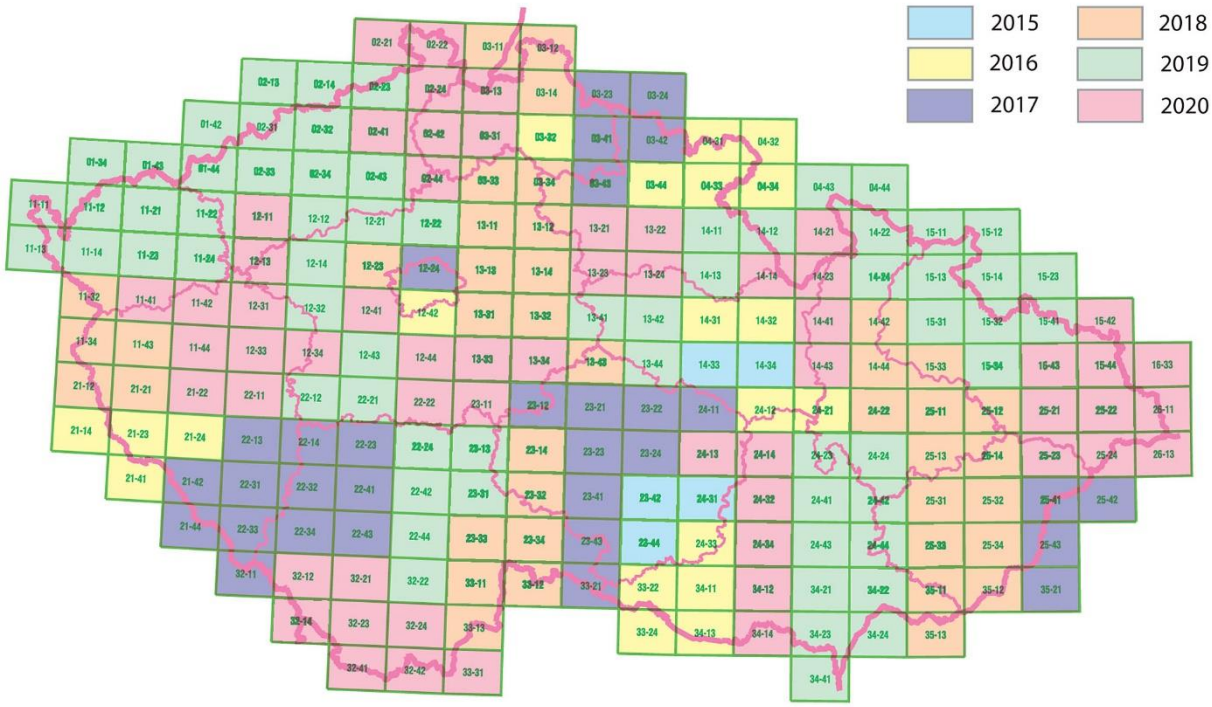
5.3. Fundamental Base of Geographic Data (ZABAGED®)

ZABAGED® is a digital geographic model of the territory of the Czech Republic. In 2020 ZABAGED® contained 134 types of geographical features (included 3 types of ZABAGED® elevation part) represented by vector graphic and descriptive part with more than 400 types of descriptive and qualitative attributes. Selected types of features (hydrography,

communications) contain in its descriptive part the identifiers (integration keys) for the connection to the databases of their expert administrators.

Regular updating of ZABAGED® at the whole territory of the state using Orthophoto ČR and aerial photos went on together with investigation of selected information at the public administration bodies and field investigation. The updating cycle of ZABAGED® is maximum six years, in 2020 the third year of the 5th cycle went on, based on the principle of so called areal update. It means that the territory with quicker dynamics of change is updated at shorter interval than the standard one. In 2020 together 1 200 map sheets of the Base map CR in the scale of 1 : 10 000 (ZM 10) were updated in this way.

State of Areal Updating of ZABAGED® by the End of 2020



The ZABAGED® content was also being improved by continuous updating of more significant types of features at least once a year, some of them even four times a year. Information about changes are collected from their cooperating administrators. More detailed information about the condition of the continuous areal updating are regularly published on the ČÚZK Geoportal in the section ZABAGED® - planimetry.

In 2020 systematic accuracy improvement of the position of buildings and other constructions based on the existing drawing in ISKN, Orthophoto ČR, data of airborne laser scanning and other available sources went on. The goal of the project is to acquire the layer of pedestal contours of buildings and other constructions, corresponding to the physical reality, with the positional accuracy characterized by the mean positional error m_p = 1.0 m. This solution should ensure, besides increasing of positional accuracy of building depiction in ZABAGED®, a higher degree of harmonization with ISKN or RÚIAN data. Improved buildings are continuously integrated into ZABAGED®, in 2020 it was in the range of 2 931 cadastral units.

In addition to improving the content of ZABAGED® data, a major technological innovation in database management and the renewal of all hardware and software took place in the past period. At the end of the year, the solution of the contract for the project co-financed by EU "ZABAGED® 2014+ development" was taken over from the supplier.

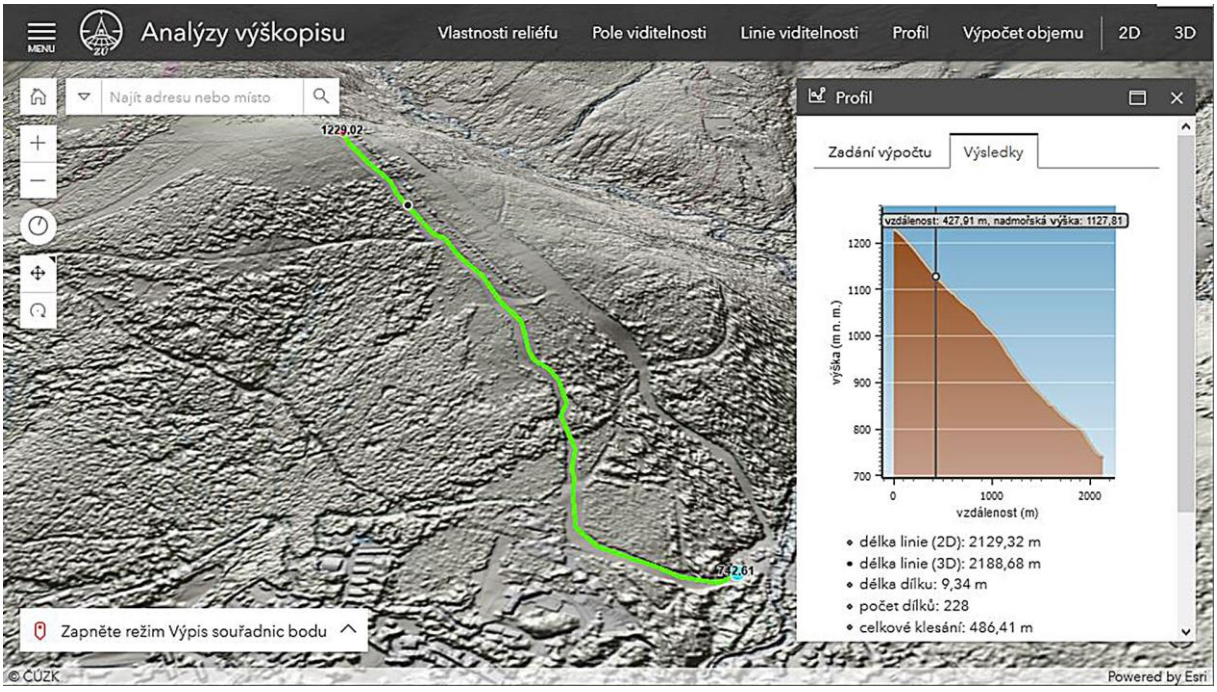
5.4. Altimetry

At present the newest and most accurate elevation data at the whole Czech Republic territory are result of the multiannual common project of Ministry of Agriculture and Ministry of Defence that was realized in years 2009 – 2013. Based on the airborne laser scanning data three elevation models were created, Digital terrain model of the 4th generation (DMR 4G) – regular square network of elevation points (GRID) 5mx5m, Digital terrain model of the 5th generation (DMR 5G) – irregular triangular network (TIN) of elevation nodal points and Digital surface model of the 1st generation (DMP 1G) – earth surface included objects above it (buildings, vegetation etc.). Before mentioned models are used for orthophoto processing, contour line creation used in state map series, for refinement of ZABAGED® planimetric components or for creation of flood maps. DMP 1G is used for visibility analyses and possibly also in military applications. DMR and DMP are continuously updated both based on data acquired by the airborne laser scanning or by the special aerial photographing. In cooperation with the Czech Ministry of Defence the ZÚ instruments, either laser scanner Leica ALS80 or digital three line photogrammetric camera, are installed into the military plane L410FG-Turbolet.

Based on DMR 5G data creation of a new comprehensive dataset of contour lines went on in 2020 with the contour lines interval of 1m. The contour lines creation was at present completed on the area of 10 333 map sheets of the SM 5; completion of new contour model is planned for the end of 2021.

Elevation data are published - in the form of text files suitable for further elaboration - via web application Altimetry analyses, which enables expressing of the terrain in different way, as for instance slope steepness, orientation towards cardinals or different kinds of shaded terrain. The possibility of reading the point height in the map, the tool for construction of the height profile along the defined line, dynamic function of vertical profile of chosen route or visibility between two points is also for disposal. The application enables also to count the approximate volume of the construction pit or causeway.

Illustrations from the New Application Altimetry Analyses (Špindlerův mlýn, digital surface model – DMP 1G in 3D and the profile of the ski slope)



5.5. State Map Series

Apart from cadastral maps state map series represent sets of basic and medium scale thematic map series. The fundamental state map series is a cartographic work with a widely usable content, coherently showing the territory according to unified principles, created and issued by the state administration body in the public interest. The sources of topographic content of the fundamental state map series are particularly ZABAGED® and Geonames. Modern technology of database cartography and digital print ensures processing of the quality of map outputs and gradual reduction of their updating cycle.

Base maps of the Czech Republic (ZM) at scales 1 : 10 000 to 1 : 100 000 have been created since 2010 from two digital databases, Data10 and Data50, which are part of the modern information system of state map series. In 2020 were updated 9 titles of base and thematic maps according to the frame of the ČÚZK publishing plan (EP) as follows in the table.

Updating of Base and Thematic State Map Series based on the EP 2020

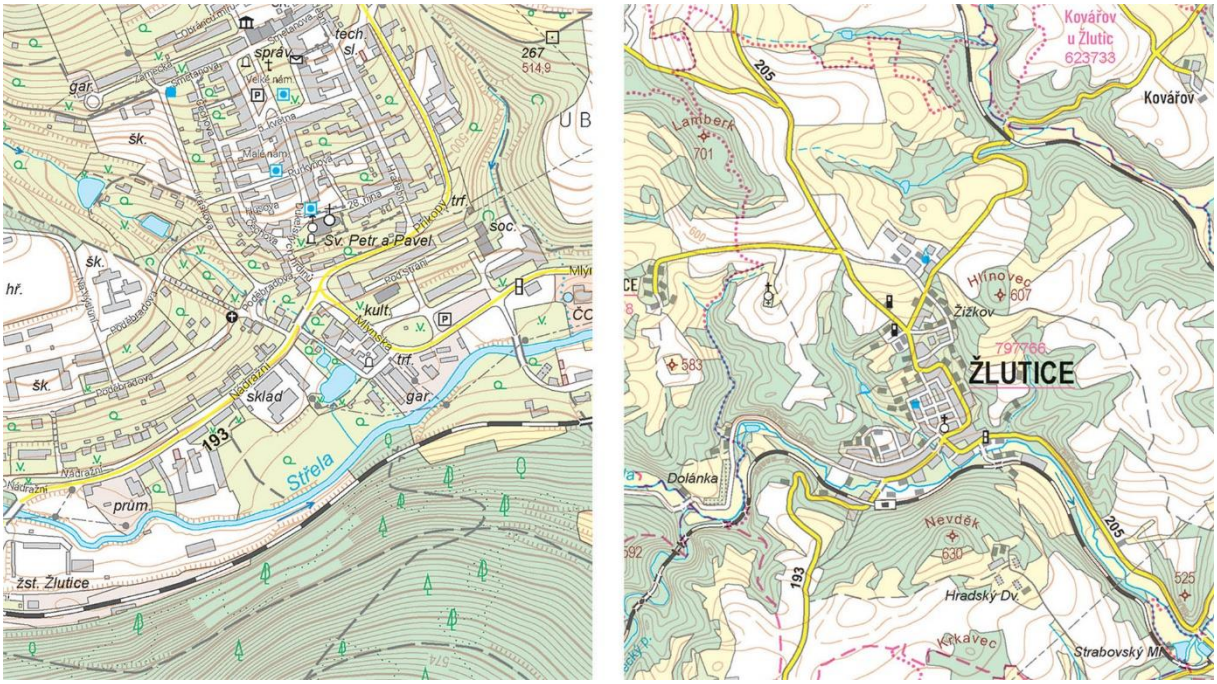
EP Title	Number of Map Sheets
Base Map of the ČR 1 : 200 000	18
Map of the ČR 1 : 500 000	1
Map of Administration Units ČR 1 : 200 000	13
Map of Administration Units ČR 1 : 500 000	1
Map of Administration Units ČR 1 : 1 000 000	1
Map of Administration Units ČR 1 : 2 000 000	1
Overview of Trigonometric and Densification Points 1 : 50 000	26
Overview of the Altimetry (Leveling) Network 1 : 50 000	26
Road Map of the ČR 1: 50 000	10

Due to the preparation of the fundamental State map series, a comprehensive update of ZM 10 – ZM 100 was not carried out in 2020 within the current EP. However, ZM ČR data were continuously updated throughout the Czech Republic according to current changes in the communication network or large construction objects, administrative unit boundaries were modified and street names were maintained, mainly for the publication of file data and viewing services via ČÚZK Geoportal.

The production of the new edition of State map 1: 5 000 (SM 5) was going on with the intention of serving especially for the purposes of urban planning. The conception of the new SM 5 is an automate visualisation of chosen object types based on the data from the real estate cadastre, ZABAGED®, Geonames and Database of geodetic control points. In 2020 in total 16 262 map sheets were published with the validity of January 1, 2020.

According to the advanced level of the preparation of the new map series – Basic topographic map in the scale of 1: 5 000 (ZTM 5) and new medium scale map series – based on the Development concept of land surveying in 2015 – 2020, the production of these maps was launched. In the case of ZTM 5 the production has been in operation since 2019. By the end of 2020 together 4 767 map sheets were completed. Launch of the creation of data for the scales 1 : 10 000, 1 : 25 000, 1 : 50 000 and 1 : 100 000 was carried out. By the end of 2020 cartographic data for 930 map sheets of ZTM 20, 109 Map sheets of ZTM 25, 15 map sheets of ZTM 50 and 4 map sheets of ZTM 100 were successfully prepared. Publication of new edition of fundamental state map series is due in 2023.

Illustration from the ZTM 10 (left) and ZTM 50 (right)



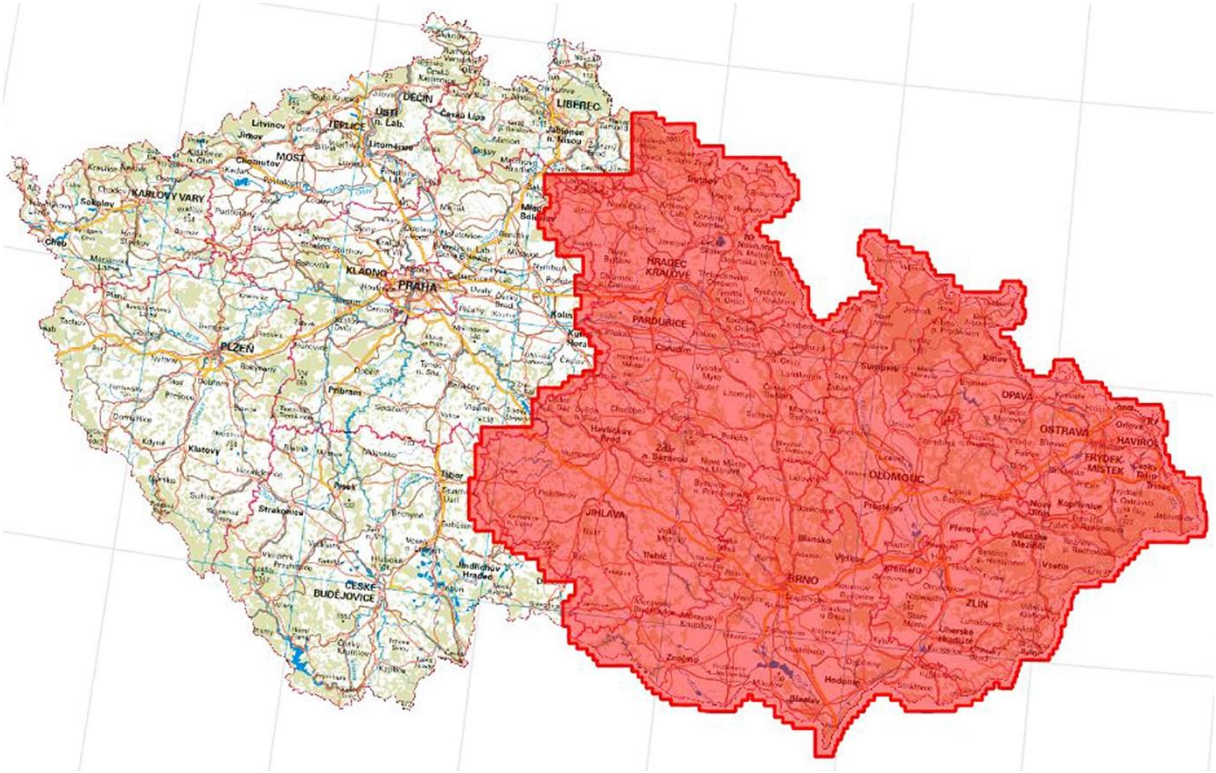
In the first quarter of the year 2020 the digital geographical models of the territory Data50 and Data200 were updated. Mentioned projects are provided even from 2019 as open data.

5.6. Orthophotographic Representation of the Czech Republic

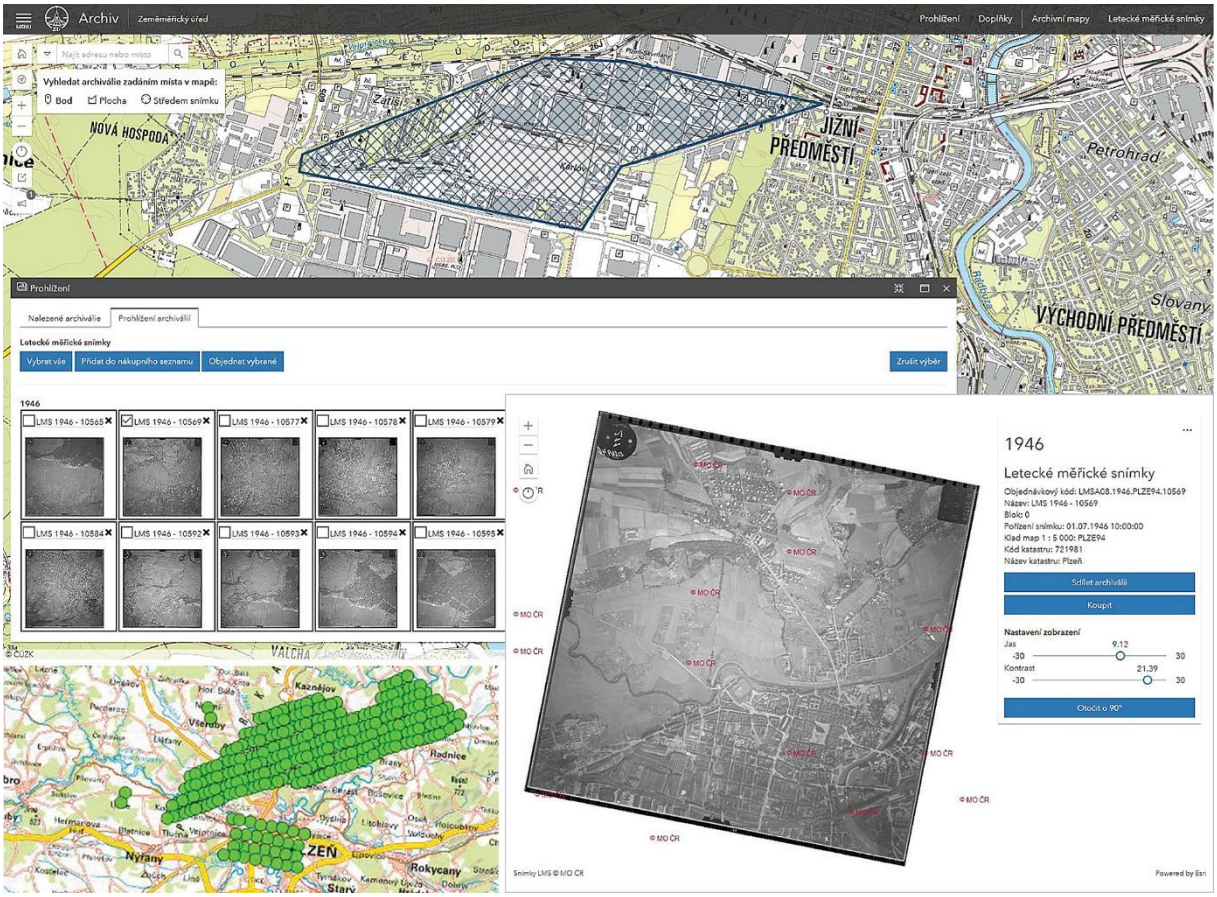
Orthophoto CR created by the orthogonalization of aerial photographs has been widely used in various information systems. Aerial photography is being carried out by the private subjects based on the frame agreement. Orthophoto processing is ensured by the ZÚ in cooperation with the Military Geographic and Hydro-meteorological Office (VGHMÚř). At present the aerial photographs have been taken solely by digital cameras, which enables simplification of data processing and improvement of their photo interpreting quality. Since 2012 the aerial photographing of the CR territory has been realized in two-year cycle, in 2020 the east half of the CR was completed. Unlike the previous years the boundary between East and West bands was changed. The administrative boundaries of the region were taken into account, which will better fit for purpose of the project of Digital Technical Maps of Regions, resp. Digital Map of Public Administration.

Photography was launched in May 7, 2020 and completed in August 22, 2020 and in total 24 259 photos were taken. The resulting Orthophoto ČR product is located on the area of 39 790 sq. km, which means 7 958 map sheets of State map 1 : 5000 (SM 5). Orthophoto ČR has the GSD of 0.2 m and is provided in datasets on map sheets SM 5, further via viewing services and in the printed form. Data are in raster format JPEG are georeferenced in the coordinate system S-JTSK or WGS 84.

Aerial Survey Photography of the Czech Republic in 2020



Publication of Aerial Survey Photographs in the Application Archive (Image Selection from Archive, Plzeň, Photos from 1946)



Beside the up-to-date orthophoto also file data of the archival black-and-white orthophotos from years 1998 – 2001 and colour orthophotos from 2003 are provided. Archival orthophotos are published via WMS viewing service as well.

Since 2011 ZÚ cooperates with VGHMÚř in the area of scanning of old aerial photographs besides provision of updated aerial photos and Orthophoto ČR. Scanned photographs can be viewed in the application Archives https://ags.cuzk.cz/archiv/ and are at disposal also as the raster datasets. By the end of 2020 aerial photographs from years 1936-1938, 1940, 1942, 1946-1957,1959 -1965 so as from 2003 to 2018 were available to users.

5.7. Geonames Database

The Geonames database provides a complete set of information on standardized geographical names and names of territorial units (in total 165 types of designated objects) and names of settlement units. The Geonames database facilitates the access to terminological data, allows their analysis for the needs of onomastic and historical research. It is increasingly used in map portals, web applications and search services. Alongside with the ZABAGED® data it provides users with an integrated view of the territory of the Czech Republic. It is a source for publishing state map series in different scales.

In 2020 updating of the Geonames database was going on harmonized with updating of ZABAGED® together with digitization of cadastral maps. After completing the data integration in both mentioned applications geographical names have been connected directly to the objects and set into the database only once and not in the number of their occurrence in the map. In accordance with ZABAGED® updating were geographic names updated on 1 534 map sheets ZM 10 and on 38 map sheets ZM 50 in 2020. In cooperation with cadastral branch offices the updating of geographical names was carried out in the range of 515 cadastral units.

5.8. Archival maps

http://archivnimapy.cuzk.cz

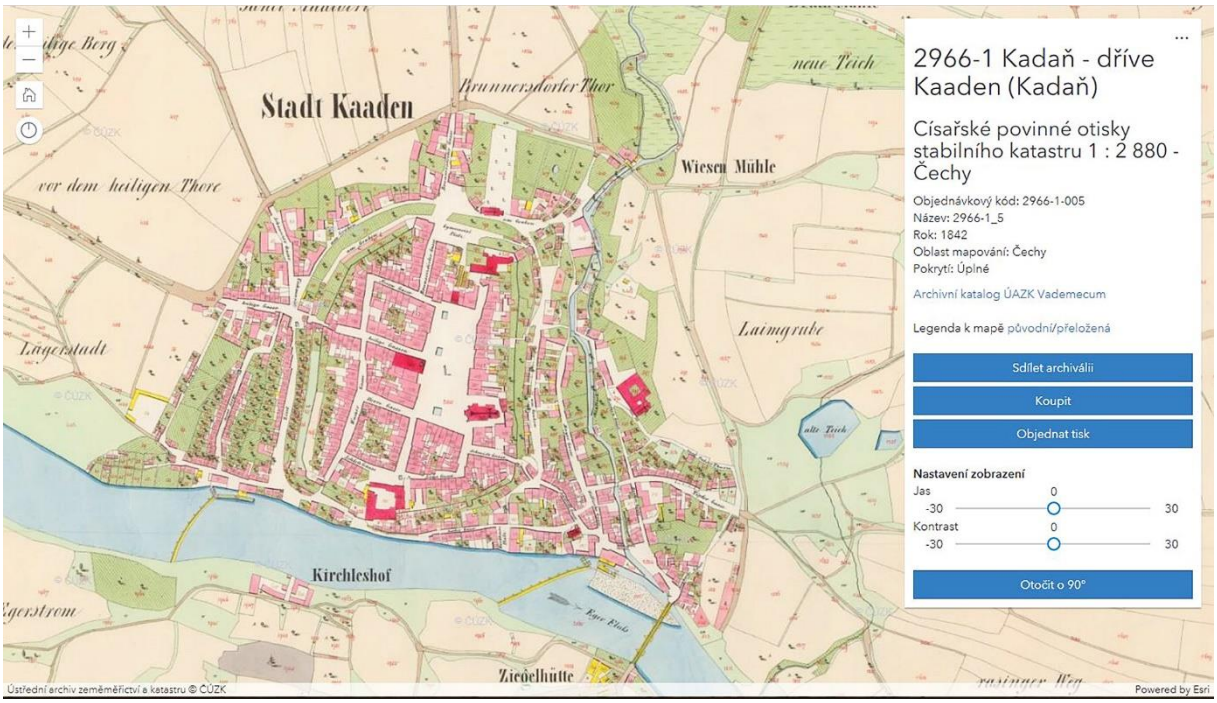
Central archives of land surveying and cadastre (ÚAZK) is a public specialized archive, the main activity of which is taking over and registration of branch archival documents, their proceeding and systematic digitization which enables making them public in the largest range both to the professional and non-professional public.

ÚAZK is under responsibility of Land Survey Office, its seat is in Kobylisy. Archival materials are stored in specially equipped rooms; a public research room, enabling to study directly the originals, is also located there. For storage of large archival funds serves also a depository located in Pardubice.

Funds and collections of the ÚAZK were enriched by many valuable pieces not only from the current ZÚ production (mandatory copies) but also from the discarding procedures or as gifts from institutions and private persons in 2020. Further 23 452 maps were scanned. Data about registered archival materials are concentrated in the database, chosen parts of which are published in the application Vademecum https://uazk.cuzk.cz/vademecum/.

The archival documents can be viewed via application Archive https://ags.cuzk.cz/archiv/; maps ÚAZK and archival documents are available in the data file as well. The most used archival documents are still Imperial mandatory prints of the Stable cadastre from 1824 to 1843 in scale of 1: 2880, included the comparison records of areas between 1845 and 1948, prints of topographical sections of the third military mapping between 1872 and 1853 in scale of 1 : 25 000, collection of maps and plans from the second half of the 16th century until 1850. Even so called indication sketches are available there, which are physically stored in other archives. It is possible to order copies of archival documents or digital sets in printing quality in the eShop of the ČÚZK Geoportal.

Illustration from the ÚAZK Archival Funds



As a result of the government´s measures as a consequence of the COVID-19 epidemic, only 101 visits by researchers took place in ÚAZK in 2020, which was only one third of the usual number compared to previous years. However, thanks to the possibility of constantly expanding remote access to the majority of the most requested archivals, the research requirements were satisfied without outages and also other requirements were satisfied remotely.

5.9. INSPIRE

ČÚZK branch is a key provider of basic datasets for the Infrastructure for spatial information in the EU INSPIRE (see Directive 2007/2 / EC). According to the Act No. 123/1998 Coll., and § 4 of the Act No. 200/1994 Coll., ČÚZK provides basic data sets, which are harmonized in accordance with the INSPIRE data specification in GML format. Above these datasets network services have been created, enabling searching, viewing, downloading or transformation of data and their provision via Geoportal ČÚZK. Downloading services are based on the WFS standard; for Opendata and for pre-prepared data based on ATOM standard. Datasets and services are described in metadata, which are shared both on National and European INSPIRE geoportal. In 2020 big effort was given particularly to activities connected with metadata updating for new version 2.0.

From the ISKN database the theme Parcels (CP) is published, from RÚIAN the themes Buildings (BU), Addresses (AD) and Administrative units (AU), from ZABAGED® it is the Transport network (TN) and Hydrology (HY) themes, from Geonames it is the Geographical names (GN), from DMR 4G the theme Elevation (EL) and Orthoimagery (OI) is from the Orthophoto CR database. The theme Geographical grid systems (GGS) is being prepared from the data of geodetic control. New theme published in 2020 is the Land use (LU). All datasets are continuously updated. Based on the approved INSPIRE implementation strategy ČÚZK is the gestor of approximately one third of National INSPIRE datasets.

5.10. ČÚZK Geoportal

https://geoportal.cuzk.cz/

The ČÚZK Geoportal enables centralized access to map products and services of the branch. It is possible to find information (metadata) on spatial data, services and applications in

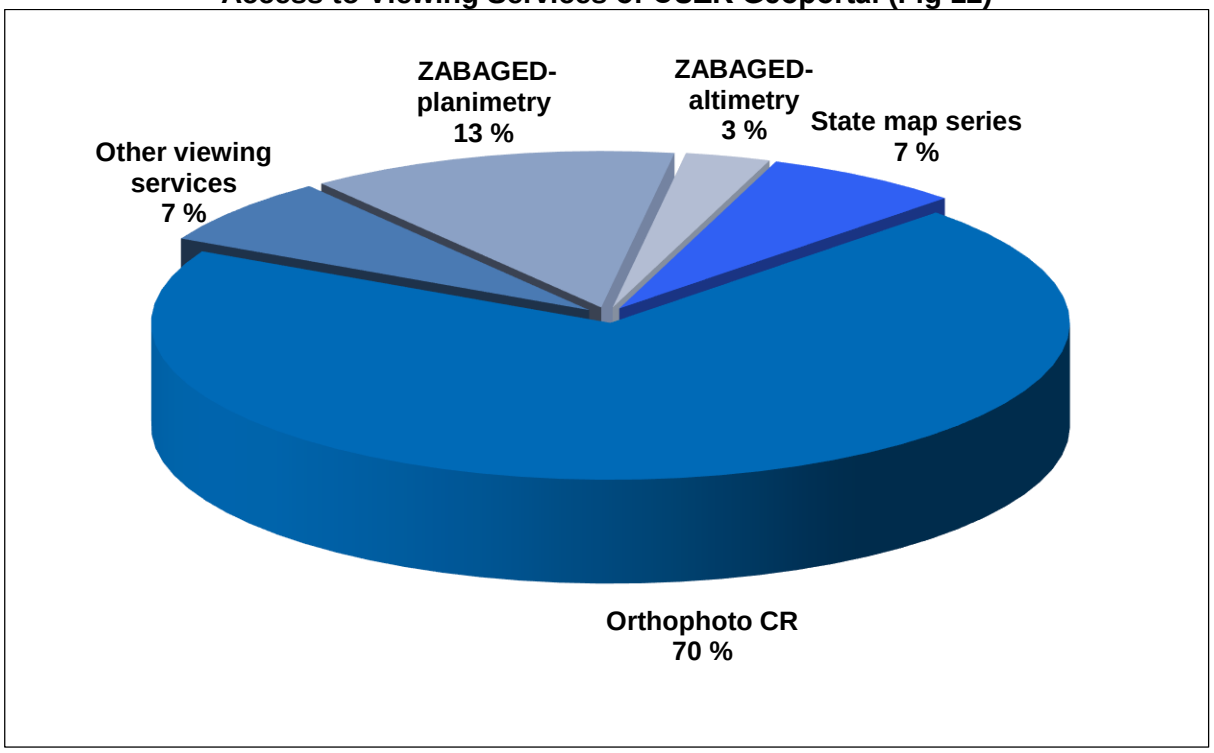
responsibility of the branch in one place, it enables viewing and ordering electronic or printed data and services. Network services are used also in geographic information systems, map portals and web applications of other providers. Via ČÚZK Geoportal the results of the obligations resulting from the INSPIRE Directive are provided to the National INSPIRE Geoportal and information is being harvested from there to the European INSPIRE Geoportal.

By means of the internet shop (eShop application) it is possible to order data not only in existing vector and raster formats, but also, for example, in GML format (ZABAGED®, Geonames and INSPIRE themes data). The client has the possibility to select required data according to the sheet line system or according to square units for direct files. The most often provided datasets are ZABAGED®, Orthophoto CR and raster form of the Base map of the Czech Republic 1 : 10 000.

Viewing services are most popular with Orthophoto CR. To simplify the processing of orders or their payment there is a payment portal for users. The biggest data amount is provided to users from the public administration.

Use of data via network services and applications has been growing during last years. Available data are provided with maximum up-to-date content and defined service quality (SLA).

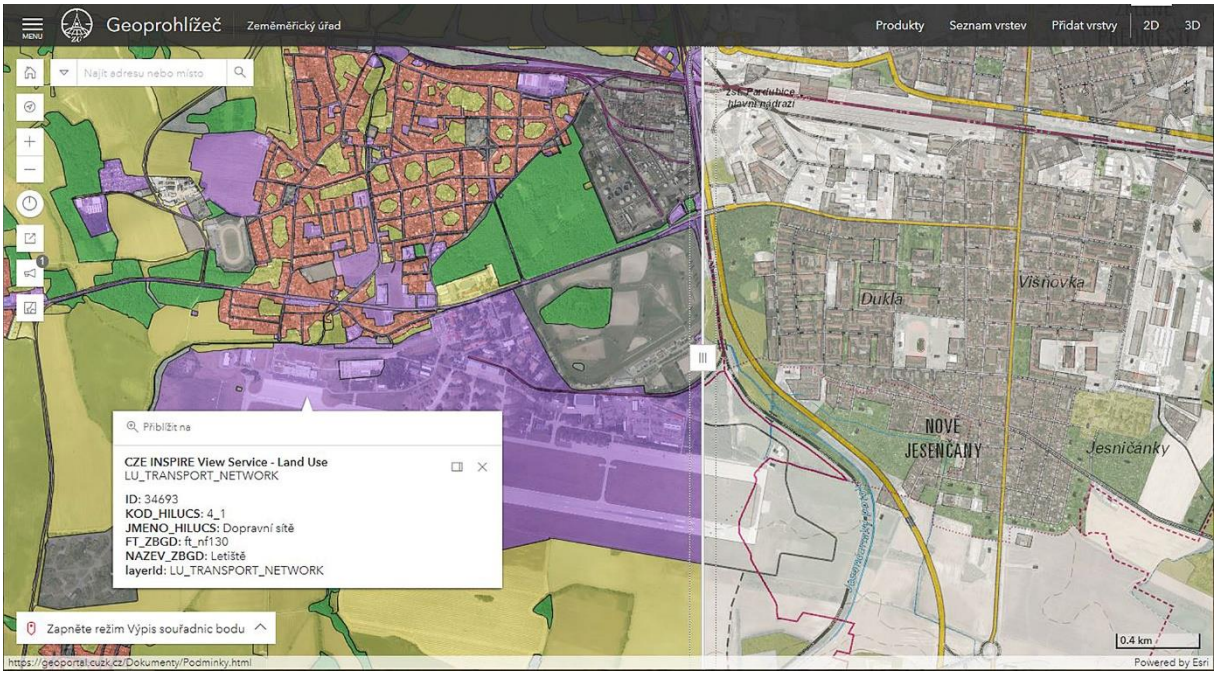
Access to Viewing Services of ČÚZK Geoportal (Fig 12)



In 2020 significant modifications of web applications for viewing and data analyses was carried out. Existing application Geoviewer, Geoviewer for small mobile devices, Archival maps, Archive of LMS and Altimetry analyses were replaced by brand new applications based on the unified platform ArcGIS API for JavaScript 4.x. The appearance and control systém have been unified; so far separate applications have been integrated into the unified environment of the newly designed Geoviewer. It mainly enables access and viewing of current data - ZABAGED®, SMD, Orthophoto CR, ground control points, administrative division, INSPIRE data and others. It is possible to launch further applications directly from the Geoviewer or even separately, namely Archive (replacing the previous application Archival maps and Archive of LMS) and new Altimetry analyses. Through the modern way of using gadgets (widgets), the functions Error Reporting, Expressions on the existence of ground control points

and Coordinate transformations are available from the menu of the central map application of the ČÚZK Geoportal. An important feature of the new solution is the adaptation of the content of the information provided according to the screen resolution, which expands the usability in various mobile touch devices and thus supports the use of map applications in the field.

Data Publication in the New Geoviewer Application – on the Basis of Orthophoto CR INSPIRE Data for the Theme Land Use and Data50 are depicted



6. Economics and Human Resources

6.1. Employees and Education

By December 31, 2020 together 4 944 persons were employed in the ČÚZK branch, 3 365 out of them were civil servants and 571 ordinary employees. Neither educational and age structure nor the share of women in the branch has significantly changed in the long-term perspective. Traditionally prevailing share in educational structure have employees, who reached the secondary school education (56.6 %), second place belongs to the employees with University degree (39.0 %).The most numerous age group was created by the employees aged 41-50 (36.6 % from all) and further by employees aged 51-60 (33.1 % from all).

Physical State of Employees by 31.12.2020

ČÚZK Branch	Age Structure						Women	Graduated
	to 30	31-40	41-50	51-60	61 and more	In total		
Civil Servants	286	713	1708	1498	374	4579	56.1 %	40.9 %
Employees	14	39	99	141	72	365	66.7 %	15.1 %
Total	**300**	**752**	**1807**	**1639**	**446**	**4944**	**56.5 %**	**39.0 %**

One of key tasks in the management of human resources was carrying out tenders for civil service vacancies. In 2020 in total 416 tenders were prepared in the ČÚZK for vacant service

positions (at some positions repeatedly); based on their results 253 successful candidates for civil service were chosen either for civil service position or appointed to the civil service position head; 32 tenders were due to be completed in the beginning of 2021. Together 60 % of all tenders for service position carried out in 2020 were successful and the applicant was chosen. Some civil servant positions were successfully occupied based on ordinary employee transfer without tender in accordance with the Act on Civil service, and the final successful number is then 63.5 %. The number of carried out tenders was by 47 lower than in 2019 and the success rate decreased mildly by 1.7 %. Civil service positions can be temporarily occupied by the ordinary employees according to the § 178 of the Act on Civil service. Together 73 such tenders were carried out in 2020, 65.8 % of which were successful. Better situation occurred with occupation of 35 positions of ordinary employees (91.4 %). It is year-by-year significant improvement.

Fluctuation Rate in Previous Years

Year	Terminated Employment	Rate of Fluctuation
2020	299	6.0 %
2019	417	8.3 %
2018	374	7.4 %

During 2020 in total 255 civil servants and 44 ordinary employees terminated their employment. The rate of fluctuation was 6.0 % in 2020 that is 2.2 % less than in 2019 and as such it is the lowest rate in recent years.

By December 31, 2020 the number of women in managerial positions was 341 (56.5 %) in the ČÚZK branch from the total number of 604.

Share of Women in Leading Positions by 31.12.2020

Management Type	Civil Servants			Employees		
	Number of Heads	Women out of Them	Women Share	Number of Heads	Women out of Them	Women Share
Head of the Staff Office	23	4	17.4 %	0	0	
Section Director	14	8	57.1 %	0	0	
Department Director	135	59	43.7 %	2	2	100 %
Division Director	414	258	62.3 %	16	10	62.5 %
Total	**586**	**329**	**56.1 %**	**18**	**12**	**66.7 %**

Regular official assessment of civil servants for the period from January 1 to December 31, 2019 was carried out in the first quarter of 2020. A total of 4 184 civil servants were evaluated in the service offices of the ČÚZK branch, 582 of which were superiors. 15.5 % of the evaluated persons got excellent results, 38.2 % of them got very good results, 41.7 % got good results and 4.6 % of the total number of evaluated civil servants got sufficient results. Only 1 servant was evaluated with unsatisfactory results. The next regular official evaluation will take place in the first quarter of 2022 for the period January 1 to December 31, 2021.

Official Assessment of Civil Servants for the Year 2020

Civil Servants	Number of Assessed	Assessment Results				
		Excellent	Very Good	Good	Satisfactory	Unsatisfactory
Superiors	582	374	200	7	1	0
Other Civil Servants	3 602	275	1397	1 739	190	1
Total	**4 184**	**649**	**1 597**	**1 746**	**191**	**1**

Another main priority in the area of the human resources was education of employees. It was carried out in 2020 based on the approved Plan of education in the Czech Office for Surveying, Mapping and Cadastre in accordance with stated individual goals for personal development of civil servants. Personnel departments of individual administrative offices prepared a lot of educational activities for their employees focused on the problems of real estate cadastre, human resources management, legislation and law, economics and accounting, IT and other areas of professional education. Moreover the ČÚZK personnel department prepared or participated in preparation of 15 specialized team workshops for chosen workers from all branch offices as well as for the internal lecturers, many of them repeatedly, mostly with help of external lecturers. The year 2020 was influenced by the negative pandemic situation caused by COVID-19 and so some workshops were cancelled, part of them were postponed from the spring months to more promising period and some workshops were carried out in an on-line environment instead of full-time teaching.

In the period from January 1 to December 31, 2020 in total 87 tests from general part of civil service tests were carried out in the ČÚZK, 17 of them were non civil service employees. In the same period, namely in 2020, 94 tests were carried out from the professional part of civil service tests namely branch No 55, land surveying and real estate cadastre which falls within the scope of ČÚZK. 3 applicants were not successful, 2 of them in the general part of the test. 4 applicants have repeated the test in 2020. In comparison to 2019, the number of carried out general tests was 55 less than in 2019 and 63 less in the professional part. Lower number of carried out tests is probably in coincidence with the negative pandemic situation in 2020. Further 24 branch employees passed the professional tests from other branches of civil service in other offices, namely service branches No 1, 3, 22, 2, 37 and 63.

6.2. Granting Official Authorization for Verification of Results of Land Surveying Activities

Within granting official authorization for certification of the results of surveying activities professional competence exams for authorization were held in three terms in 2020 in accordance with section 14 of the Act on surveying and mapping (February, June and September).

The total number of completed applications was 42 and the official authorization was newly granted to 24 applicants and 3 applicants enhanced their existing authorization. The other cases were solved as follows: 1 applicant did not pass the exam repeatedly and his application was refused and 3 applicants took the application back. 5 participants did not succeed but are going to repeat the exam in 2021. 6 applicants submitted the application in the end of 2020 and will be invited to the exam in the beginning of 2021. In 2020 any official authorization was not deleted from the registry.

6.3. Economics

Approved state budget of the Czech Republic for 2020 specified revenue of CZK 1 326.6 million and expenditure of CZK 3 633.8 million for the chapter 346 ČÚZK. Revenue collection,

coming to the budget from the administrative fees, was prescribed in the amount of CZK 1 120 million, which was CZK 500 million higher than in 2019; its fulfilment reached CZK 1 170.2 million, which is 104.5 %. This increase of revenues is due to the increase of administrative fee for the entry into the real estate cadastre from January 1, 2020. Non-tax revenues were in 2020 approved in the same amount as in 2019, namely of CZK 200 million, and were fulfilled by the amount of CZK 266 million, meaning 133 % fulfilment. The EU revenues were given by the budgetary measure to CZK 6 million for an ongoing project „Development ZABAGED 2014+“, co-financed by the EU in the frame of the Integrated regional operational programme (IROP). This project is carried out by the Land Survey Office. During the year 2020 the revenues from EU increased by CZK 60 million for two projects of thermal insulation of buildings of cadastral offices (CZK 9 million) in the frame of the Operational programme environment and a project of Information system of the Digital map of public administration, co-financed in the IROP frame (CZK 51 million).Real revenues from the EU budget were in 2020 CZK 16.5 million for the ZABAGED project, which covered the expenditure from 2019.

The budget for expenditure was modified in 2020 by fourteen budgetary measures of the Ministry of Finance (MF). The budget was increased by CZK 88.7 million in total. It particularly dealt with increase of the expenditures to the share of the state budget and EU funds for the EU co-financed projects by CZK 80 million by transfer from the Ministry of Regional Development and from the Ministry of Environment. Ministry of Finance further approved two budgetary measures in accordance with the changes in systemization and transfer of funds among the salaries of different groups of employees. Further increase of the budget in the amount of CZK 8.2 million was due to the transfer of funds from Ministry of Agriculture and Ministry of Defence for ensuring aerial survey photography and CZK 2 million from the General Treasury Management for IS RÚIAN modification towards the 2021 Census. On the other hand CZK 0.7 million were moved from the ČÚZK budget to the budget of Ministry of Interior for Base registers administration and CZK 0.8 million to the budget of Ministry of Industry and Trade for supply of protective equipment and disinfection. Beside the measures in competence of MF in total nine budgetary measures were carried out in the branch competence used mainly for shifting expenditures between programmed and other material actions.

Within the justified exceeding of mandatory indicators, the savings from previous years of Chapter 346 ČÚZK (claims from unused expenditures) drawn in the amount of CZK 33 million were used, of which CZK 17 million was drawn for program expenditures, including expenditures on EU projects.

Total expenditure in 2020 was CZK 3 606.1 million. The biggest part was used for the salaries of employees in the civil service regime, for other employees and employment agreements including the insurance and FKSP (Fund for cultural and social needs) in the total amount of CZK 2 794.1 million. These expenditures created 77.5 % of the total expenditure. The average monthly income achieved in 2020 reached CZK 35 738 per civil servant and CZK 29 475 per ordinary employee.

The second biggest expenditure group of the chapter 346 ČÚZK were other material expenditure in the amount of CZK 605.2 million; postal services were received in the amount of CZK 142.2 million. Except for postal services mainly further services were purchased in 2020 included particularly data processing services and services related to information and communication technologies (CZK 159.5 million), on building and computer equipment lease (CZK 34.6 million) and data and voice telecommunication services (CZK 14.9 million). Further expenditure were given to energy purchases, heating, gas, fuel and water in the amount of CZK 61.0 million, to property repair and maintenance in the amount of CZK 28.8 million, and for purchase of material (CZK 40.8 million). Compensation of salaries during illness was more than one-third higher than in 2019 and reached CZK 22.0 million. The rest of the expenditure was given to catering allowance of all employees, travel costs, compensations during illness, education and workshops, bank services, court proceedings, and EuroGeographics membership fee.These expenditures also included extraordinary expenditures of departmental

offices on anti-epidemiological measures related to the spread of COVID-19 in the amount of CZK 3 million. Expenditures were used to purchase protective aids for selected employees (gloves, respirators and veils), disinfectants (for cleaning and personal hygiene of employees and clients), protective glass for registries, disinfection stands.Significant part of the expenditure (CZK 206.8 million) were those used on financing of programmes administered in the information system of programmed financing, it means the expenditure allotted for procuring and modernisation of the sector of tangible and non-tangible property. The share of these expenditures was in 2020 5.7 %. A substantial part of the program investment expenses consisted of expenditure on acquisition and technical improvement of intangible fixed assets, in particular software (CZK 93.8 million) and for computer technologies (CZK 68.3 million). Other items were the programme investments for building reconstructions (CZK 28.0 million) and renewal of the transport (CZK 8.7 million) and computing and surveying means.

Revenues and Expenditures of the State Budget - Chapter 346 ČÚZK

Index/ Year	2016	2017	2018	2019	2020
Revenues of the chapter (in CZK thousands)	929 130	889 519	849 376	880 856	1 452 676
Out of it: revenues for administration fees	657 597	651 805	618 146	620 995	1 170 170
Income from EU budget	38 730	194	0	9 418	16 547
Total expenditure of chapter	2 981 920	3 108 288	3 327 114	3 540 266	3 606 067
Out of it: projects co-financed from EU budget	912	0	11 697	20 473	26 165
Current expenses without non-investment	2 770 128	2 905 947	3 079 634	3 302 312	3 399 240
Including: wage resources	1 613 019	1 705 674	1 832 443	1 992 878	2 058 158
Insurance and FKSP	572 228	613 732	659 433	715 280	735 934
Other material expenditure	584 881	586 541	587 758	594 154	571 055
Program expenditure	211 793	202 341	247 480	237 954	240 920
Including: non-investment	40 079	40 297	33 537	42 781	34 093
Investment	171 714	162 044	213 943	195 173	206 827
Number of employees in Sector	4 995	4 963	4 957	4 956	4 849
ČÚZK	137	136	136	135	137
Cadastral Offices	4 398	4 371	4 361	4 358	4 261
Land Survey Office	375	372	376	379	370
Survey and Cadastral Inspectorates	85	84	84	84	81

7. Inspection and Supervisory Activity

7.1. Professional Inspection and Supervision

Inspection of state administration of the real estate cadastre, supervision over the certification of results of land survey activities used for the real estate cadastre and state map series, and decision-making on appeals against first instance decisions of cadastral offices are delegated by law to the 7 surveying and cadastral inspectorates.

Only some data from the complete ZKI activities statistics for the year 2020 are published here. ZKI received in total 32 complaints and 337 other submissions. The extent of decision-making agenda on appeals against decisions of KÚ decreased in comparison to 2019 (323 appeals delivered in 2020 as opposed to 337 appeals delivered in 2019). The quality of decision making activities of cadastral offices as first step authorities improved slightly in 2020 (40.0 % KÚ decision were proved illegal as opposite to 47.4 % in 2019). The number of appeals in matters regarding correction in cadastral documentation decreased by 17.0 % in comparison to 2019 (181 appeals delivered in 2020 as opposed to 218 delivered in 2019), the number of appeals in matters regarding objections against the content of renewed cadastral documentation increased by 7.9 % (41 in 2020 as opposed to 38 in 2019) and the number of delivered appeals against procedural decisions of KÚ increased by 14.9 % in 2020 in comparison to 2019 (77 in 2020 as opposed to 67 in 2019).

ZKI performed in total 1 096 documented inspection actions (the decrease of 15.9 % occurred in comparison to 2019, when 1 303 inspections were performed). In the framework of supervisory activity regarding certification of the results of land survey activities ZKI performed in total 192 documented supervisory actions in 2020 (decrease by 20.7 % in comparison to 2019, when 242 actions were performed). In 16 from 17 cases (18 in 2019) in the subsequently conducted administrative proceedings ZKI decided that the verifier of the result of land surveying activities had committed an administrative offence of infringement of order in the sphere of surveying and imposed fines at a total of CZK 240 thousand (CZK 362 thousand in 2019). ZKI also received 17 applications for measures against inaction, 1 request for renewal of proceedings, 7 requests for review proceedings, 32 requests for information pursuant to Act No. 106/1999 Coll., On free access to information, 29 requests for extradition of the authorization to verify the results of surveying activities, 24 applications for the issue of an official entry permit and 2 applications for the issue of a service card for entry to real estate.

Particular cases of discovered insufficiencies were specified and commented in ZKI half year analyses which are systematically organized according to unified concept and regularly handed over to other ČÚZK departments for further utilization. Internal branch publicity has been ensured via branch intranet.

Systematic inspection activity of ZKI in 2020 focused mainly on:

- examination of procedures for the renewal of the cadastral documentation on the basis of the results of land consolidation until the moment of entry of the specified district of land consolidation into the cadastre in the scope of 2 cadastral units on the basis of own choice,
- checking the implementation of cadastre revisions together with methodological assistance provision to KÚ,
- checking the implementation of cadastral documentation renewal by new mapping together with methodological assistance provision to KÚ.

Complaints

Inspectorates	Not resolved at 1.1.	Received after 1.1.	In total	Forwarded	Legitimate	Not legitimate	Still being resolved
in Brno	-	9	9	4	1	2	2
in Č. Budějovice	-	2	2	-	-	2	-
in Liberec	-	1	1	-	-	1	-
in Opava	1	3	4	3	-	1	-
in Pardubice	-	3	3	1	1	1	-
in Plzeň	-	3	3	-	-	2	1
in Praha	-	11	11	5	-	2	1
Total	1	32	33	13	2	13	5

Other Submissions according to the Part IV of the Inspection Rule

ZKI	Not resolved at 1. 1.	Received after 1. 1.	In total	Referral for no jurisdiction	Resolved	Still being resolved
in Brno	2	75	77	5	70	2
in Č. Budějovice	1	82	83	6	70	7
in Liberec	-	19	19	-	19	-
in Opava	3	29	32	2	30	-
in Pardubice	1	50	51	4	46	1
in Plzeň	-	24	24	1	22	1
in Prague	-	58	58	4	52	2
Total	7	337	344	22	309	13

ZKI Decisions on Appeals against KÚ Decisions

Matters	Not resolved at 1.1.	Received after 1.1.	In total	Appeal rejected	KÚ decision changed	KÚ decision repealed and proceeding terminated	KÚ decision repealed and returned to KÚ	Decision annulled	Still being resolved	Faulty and Forwarded proceedings
Correction of errors in the cadastre	27	218	239	104	43	1	56	0	27	8
Objections to revised cadastral documentation	13	38	51	24	5	-	15	1	4	2
Infringements of order in the sphere of the cadastre	-	-	-	-	-	-	-	-	-	-
Procedural	6	67	73	30	2	1	19	8	5	8
Changes in the boundaries of cadastral districts	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	4	4	2	-	-	1	1	-	-
Rejection of applications for submission of information	-	4	4	1	-	-	2	-	-	1
Other	1	6	7	2	-	-	2	-	1	2
Total	41	337	378	163	50	2	95	10	37	21

ČÚZK (as relevant central administrative office) performed in 2020 inspection of delegated powers conferred on the regional institutions and Prague-city in the area of RÚIAN. In 2020 together 4 inspections were carried out in regional offices (Karlovy Vary, Vysočina, South Bohemia and Central Bohemia regions). General information for the year 2020 about their results are published on the ČÚZK website in accordance with the § 26 of the Inspection Rules.

7.2. Financial Inspection

ČÚZK carried out public inspections in the subordinated bodies according to the Act No. 255/2012 Coll.,on Inspection (Inspection order),Act No. 320/2001 Coll., on Financial inspection in public administration (further only Act), and to its implementing Decree No. 416/2004 Coll. Public inspection is integral part of the financial inspection system.

According to the approved plan of public administration inspections for the year 2020 the inspection group of ČÚZK carried out public administration inspections at following 4 inspected bodies:

KÚ for the Region Hradec Králové, KÚ for the Region Plzeň, KÚ for the Region South Bohemia, and in Land Survey Office. According to the COVID-19 pandemics were 3 planned public administration inspections postponed to the year 2021. Inspection authorization and order was issued by the president of the ČÚZK.

In the course of 2020, two public administration inspections were also carried out by the inspection group of the Ministry of Finance of the Czech Republic at the KÚ for the Vysočina Region and the for the Pardubice Region.

Due to the COVID-19 pandemic measures, were all public administration inspections in 2020 carried out electronically by correspondence.

Public administration inspections performed by the ČÚZK inspection group were primarily focused on verifying economy, efficiency and effectiveness in the management of public funds and verifying the correctness of financial and property operations in accordance with the principles of sound management within the meaning of § 25 (1) of the Act No. 320/2001 Coll., on Financial control. The subject of the inspections was also the verification of the setting of the tender conditions and the method of evaluating the tenders in the implemented public tenders. Part of the public administration inspections was also the verification of the proper collection of administrative fees for data provision from the real estate cadastre and compliance with professional administration and principles in the management of the file service.

Accounting and compliance with budgetary discipline was verified by the control of bookkeeping, financial transfers between bank accounts of budgetary and extra-budgetary management, compliance with balance sheet continuity and accounting records in terms of the requirements of accounting documents in fact and form.

During the public administration inspections carried out in 2020, individual partial deficiencies were found in all 4 inspected entities, which did not affect the management of the organization and did not meet the parameters of the inspection findings. These were, in particular, cases of incorrect input of information into the NEN system and inconsistent implementation of ongoing and subsequent control regarding the public procurement. In the area of the file service, it was mainly the shredding of analogue documentation after the expiration of shredding deadlines and the complexity in ensuring the performance of the file service in the sense of file rules and file and shredding plans. The inspected organizational units were informed about the shortcomings in question and in some cases measures were taken during the inspection to prevent the recurrence of the identified undesirable condition. In other cases, the inspected persons submitted to the president of ČÚZK proposals for measures indicating specific employees responsible for eliminating shortcomings, and set deadlines by which they will be eliminated. The measures taken concerned in particular the fulfillment of the principles of transparency and proportionality, the prohibition of discrimination and the requirement of equal

treatment in public procurement, strict compliance with internal file rules and file and shredding plans and verification of the identity of applicants for data from the real estate cadastre.

The implementation of public administration inspections at all 4 selected organizational units did not reveal any cases of incomplete or inconclusive accounting in 2020. The audited entities submitted statements during the entire accounting period in terms and scope in accordance with the applicable generally binding and internal regulations. No unauthorized use of state budget funds or violation of the conditions under which the relevant funds were provided was found.

No serious shortcomings were discovered that would unfavourably affect the activities of inspected persons in 2020 and so there is no suspicion as for the possible corruption activities.

The internal control system creates adequate conditions for meeting the criteria of economy, efficiency and effectiveness in the performance of public administration and spending public means for carrying out specified tasks, while ensuring an important information function in terms of providing information to the appropriate levels of management.

7.3. Internal Audit

Internal audit is a part of the internal inspection system in the ČÚZK branch based on the Act No. 320/2001 Coll., on Financial inspection in public administration. It includes organizationally separate and functionally independent review and evaluation of the adequacy and effectiveness of management control, while the functional independence of the internal audit within the ČÚZK conditions as well as in the subordinated bodies is ensured through the relevant organizational rules. The internal audit function in all ZKIs is, in accordance with the Act on financial inspection, replaced by an annual public-administration inspection.

Internal audit is carried out by authorized employees - internal auditors. Systemized internal audit points are established at the level of ČÚZK, Land Survey Office and all 14 cadastral offices. Organizational rules ensure full independence of the auditors and their separation from managerial and executive structures.

The activities of internal auditors are performed on the basis of three-year medium-term plans, specified every year in the annual internal audit plans. Audit planning is based on the assessment of the frequency and significance of risks and is focused on priority processes in the activities of individual offices. In particularly justified cases, where the occurrence of unforeseen risks that could adversely affect the activities of organizational units is suspected, the performance of an audit beyond the approved annual plan may be exceptionally included in the performance of the internal audit.

In 2020 there were performed together 81 audits. A total of 84 audits were planned; 1 audit was included exceptionally outside the approved annual audit plan, 2 audits were not completed in 2020 and 2 audits were canceled due to the epidemiological situation. Out of the total number of 81 performed internal audits were

• 23 financial audits, focused mainly on the audit of management and accurate presentation of assets in financial, accounting and other statements,

• 25 systems audits, which examined the management of public funds and the financing of OSS activities,

• 23 performance audits that dealt with the operation of the internal control system, and

• 10 other, otherwise focused audits.

The internal audits carried out in 2020 examined the functionality and effectiveness of the internal control system, the actual status of compliance with the proposed recommendations from the audits and the controls carried out in the previous period. The subject of internal audits was primarily the compliance with applicable legislation in the management of public funds, inventory of assets and liabilities, management of state property, setting tender conditions and

verifying the method of evaluating bids in public tenders and verifying the correctness of selected operations in meeting the intentions and goals of individual organizational units. As every year, in 2020 special attention was paid to updating the catalogue of corruption risks and taking corrective measures to mitigate, resp. complete elimination of these risks, as well as other tasks arising from the Department's internal anti-corruption program in the fight against corruption.

None of the internal audits identified shortcomings with a significant risk to the management of public funds in 2020. The reports and recommendations from the performed audits were discussed with the responsible employees and measures were subsequently taken in the management of the authorities, which were implemented within the given deadlines. The conclusions of the audits carried out in 2020 will be the subject of follow-up audits by internal auditors.

8. International Cooperation

ČÚZK actively participates in the work of international organizations being active in the field of the real estate cadastre, land registration and land surveying administration. Beside that it also actively cooperates with all neighbouring countries in the area of mutual data and information exchange based on bilateral agreements and prepares professional programs and excursions for foreign students or branch experts. In 2020, most international activities moved to the virtual sphere, and due to measures related to the COVID-19 pandemic, no foreign visits, study tours or excursions took place.

ČÚZK is an active member of the organization EuroGeographics (EG), which associates mapping agencies and cadastral offices of European countries. EG enables experience exchange and mutual cooperation; it systematically develops the cooperation with the European Union bodies on building of the united infrastructure for spatial data in Europe. EG contributes to it by creating of pan-European products with harmonized parameters for all European countries, f.i. EuroRegionalMap, EuroBoundaryMap, EuroGeoNames, ESDIN, and EuroSpec and Core Reference Data (CRD). EG negotiates experts involvement from member organizations into modifications of harmonization provisions included implementing rules of the Directive of the European Parliament and the Council for establishing of the Infrastructure of Spatial Information (INSPIRE) and helps to implement them on the particular member states level. The EuroGeographics General Assembly, the meeting of the heads of most European mapping and cadastral agencies, was held virtually with more than 100 participants from 50 organizations in 40 European countries. EG organized a series of weekly workshops focusing on various areas of interest from the activities of its members, including several KEN meetings.

ČÚZK continued its active participation in the European section of UN-GGIM (United Nations Commission for Global Management of Geospatial Information established in 2011), whose plenary session and other meetings were monitored by a representative of ČÚZK.

In 2020, the implementation of the INSPIRE Directive continued and ČÚZK participated in several webinars. The main conference, which was to take place in Dubrovnik, was cancelled and moved to 2021.

ČÚZK regularly monitors the activities of the Working Party on Land Administration (WPLA), working under the auspices of UNECE, which is engaged in land and real estate information and related thematic. In 2020 the representatives from the ČÚZK monitored the WPLA activities only virtually.

The meetings of the Permanent Committee for Cadastre in EU (PCC) were in 2020 were held virtually from Zagreb (Croatia) and Munich (Germany) in accordance with the rules of the EU Council presidency.

37th meeting of cadastral service providers of succession state of the former Austro-Hungarian Empire, namely Croatia, the South Tyrol, Austria, Slovakia, Trentino, Hungary and the Czech Republic which was due to be held in Trieste in Italy 2020 was postponed to the year 2021.

In the area of geographical names, where ČÚZK also has a representative, no negotiations took place in 2020. The planned conferences have been postponed to 2021. The aim of these meetings is to raise awareness of the standardization of geographical names, to promote the collection, preservation and authorization of geographical names and to contribute to international and regional cooperation in this field.

In 2020, a virtual working meeting of the president and vice-president of the ČÚZK and the Geodesy, Cartography and Cadastre Authority of Slovak Republic (ÚGKK SR) took place, which partly continued in the tradition of mutual exchange of experience in both our states.

Other international activities were carried out mostly virtually or by correspondence, including the preparation of the professional magazine Geodetic and Cartographic Review (GaKO).

9. Research and Development

ČÚZK performs the function of the founder of the Research Institute of Geodesy, Topography and Cartography, v.v.i. The main activity of the VÚGTK is applied and basic research in geodesy, land surveying and cadastre branch, development and testing of new methods, procedures and programs and specialized consultations in the area of creation and management of the ISKN, photogrammetry and remote sensing of the Earth, geodesy, geodynamics, engineering, metrology and standardization, state map series creation and maintenance, development of special tools, equipment and measuring systems. In the frame of metrological requests for the ČÚZK branch and activities connected with its membership in international association EURAMET accredited calibrating laboratory is in operation in VÚGTK together with the authorized metrological centre. The Institute is also the accredited educational body and operator of the Land surveying library®.

During 2020 VÚGTK participated on solution of 19 projects from 5 domestic providers and 4 international projects (two GSA and two H2020) within the main scope of its activities. One of the most important projects is the project GSA “Galileo Reference Centre - Member State“ and H2020 „Galileo Improved Services for Cadastral Augmentation Development On-Field Validation“. Two more projects BETA 2 TA CR are also of big importance, because in their frame the research needs of the CUZK and of the Ministry of Interior in the field of geoinfostrategy and professional thesaurus creation are ensured.

In 2020 the GIS and real estate cadastre research department participated in the implementation of MapOO application results into the practice of the ČÚZK branch. Solving the research project “Procedures for geodata and specific data complementation by contactless surveying methods using consistent application of conceptual land consolidation tools” went on in 2020 and the project “Methodology and technology for creation of professional thesaurus and vocabularies for spatial information” was completed in 2020. Eight projects went on in 2020 with support of the TA CR, f.i. “Development of a new tropospheric model for GNSS refinement in the CZEPOS network”, “Improving of accuracy and reliability of determination of gravity acceleration at absolute gravity points in the Czech Republic” or “NaSaPo - National

set of spatial objects". Further the project "Strengthening rural resilience through the activation of local landowners", which aims to mobilize local landowners for responsible behaviour.

Land survey library® has a unique and exclusive status not only in the Czech Republic but also in the international scale as for its documentation fund and specialization in the branches of geodesy, geography, geodynamics, metrology and real estate cadastre. It is connected to many activities of interlibrary cooperation and provides scientific information resources from the area of its competence. The library provides the background for scientific activities not only for all employees of the institute but also to professional and general public. Unfortunately its activity was significantly limited only to the on-line information provision, because of pandemic situation.

Study Room of the Land Survey Library®

The ODIS research unit and the Land survey library® dealt in 2020 with the NAKI II project of the Ministry of Culture of the Czech Republic "Fields and pheasantry - ignored value of the cultural heritage" and "Landscape architecture in the period of totalitarian regimes in 1939-1989 in the Czech Republic" and in cooperation with EuroGV the project "BIM – Building administration" was launched in the frame of the MPO announcement – Application VII. Solution of the NAKI project "Fields and pheasantry - ignored value of the cultural heritage" was in 2020 successfully completed with the publication of two monographs and the organization of a professional exhibition.

Basic and applied research in the branches of geodesy and geodynamics is provided for a long time by the research department of the same name at the Pecný Geodetic Observatory in Ondřejov. Research needs were carried out in the frame of the department competence, particularly via projects of applied research and innovations for the needs of the public administration of the BETA programme of the Technological Agency CR. In 2020, the department dealt with two projects of this program focused on "Development of an accurate tropospheric model for GNSS refinement and software for generating virtual GNSS data in the CZEPOS network" and "Increasing the accuracy and reliability of gravity acceleration at absolute gravity points in the Czech Republic".

Other projects solved by the department within the purposeful support of research and development included "DORIS as an integral part of the implementation of reference systems and GGOS", "Research related to the International Gravity Reference System", both supported by Inter-Transfer of the Ministry of Education, Youth and Sports (MŠMT), and "Supporting the sustainability of the NTIS center" of the National Sustainability Program (MŠMT).As part of the department's international scientific cooperation, the "EGNOS Service Performance Monitoring" and "Galileo Reference Center - Member States" projects supported by the European Global Navigation Satellite Systems Agency (GSA) were addressed in 2020. Within the scientific services of the International Geodetic Association (IAG), the department operated data and analytical centers in 2020 (data archiving of satellite navigation systems and gravimetry, creation and dissemination of products obtained by data analysis). This activity significantly contributes to the implementation and maintenance of the Global Geodetic

Reference Framework and represents a national contribution to the implementation of the UN resolution "Global Geodetic Reference Framework for Sustainable Development". The applied research of the department was further focused on the development of software tools for GNSS data processing in the mode of accurate positioning, development of metrological bases for gravity and GNSS measurements (58 GNSS devices were calibrated on the Skalka position standard in 2020 for the needs of the department and the private sector), and to monitor the stability of the network of reference GNSS stations in the Czech Republic. The gravimetric laboratory in Pecný, with its superconducting and two absolute gravimeters, was, as in the previous period, involved in international projects in the fields of gravimetry, geodynamics and metrology in 2020 as well.

The Metrology and Engineering Geodesy Research Department solved the last phase of the project “Methodology and Technology for Creating Thesauri and Dictionaries for the Development of National Infrastructure for Spatial Information” in 2020, within the BETA2 TA CR program. It is a joint project of the Ministry of the Interior and ČÚZK, which was prepared as the first in the Czech Republic in the form of an innovation partnership. Other projects were solved within the EPSILON TA ČR program and the NAKI II program of the Ministry of Culture.

In the form of contractual research, the Institute for Nuclear Safety deals with the “Preservation of State Standard (SE) of lengths from 24m to 1450m”, the so-called metrological continuity of SE. Based on the proposal of VÚGTK the change in the composition of the national standard, was approved in 2020 together with its new metrological characteristics.

In addition to the research activities, the department was involved in determining the lengths of road sections with a controlled speed of vehicle movement within the Czech Republic and in the calibration of geodetic devices and tools. In 2020, in total 586 orders for 1 555 calibration of measuring devices and tools were carried out. An important activity was the participation of the calibration laboratory in the international inter-laboratory comparative measurements regarding the length parameter organized by the EURAMET (European Association of National Metrology Institutes).

State Standards of Gravity Acceleration - Gravimeters FG5X-251/HS5 and FG5-215/HS5

In connection with the activity of the calibration laboratory VÚGTK, v.v.i., the laboratory was subject to an audit of the Czech Accreditation Institute and the Czech Metrology Institute in 2020 according to the new international standard ČSN EN ISO / IEC 17025. Based on the positive assessment, the laboratory has been certified according to a new international standard and its results are acknowledged even within the EU.

Other activities of the department dealt with the “Development and production of sets of measuring HYNI hydrostatic systems” for their use on reconstructed bridges. Continuous provision of service activities for measuring systems at Temelín Nuclear Power Plant was ensured.

Under the contract with the Czech Office for Surveying, Mapping and Cadastre, services in the field of metrology were provided via participating in the Technical Committee for Gauges and in the Metrology Council at ÚNMZ.

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