



**THE ROLE OF THE ELECTRONIC CADASTRE IN DEVELOPMENT OF THE  
BUISSNES COMMUNITY – THE CASE OF REPUBLIC OF MACEDONIA**

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**Paper prepared for presentation at the  
“2017 WORLD BANK CONFERENCE ON LAND AND POVERTY”**

**The World Bank - Washington DC, March 20-24, 2017**

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# Responsible Land Governance: Towards an Evidence Based Approach

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY  
WASHINGTON DC, MARCH 20-24, 2017



## **Abstract**

The business community in the Republic of Macedonia is continuously searching for opportunities for opening new business, development and improvement of their existing facilities and services, or is simply seeking information on future investments. Thus, they are seeking for a fast way of getting transparent, reliable and up to date data about the possibilities for new investments or new ways for the development of their business. The Agency for Real Estate Cadastre with the introduction of the electronic cadastre called e-kat, has become a valuable partner to the business community and a huge provider of relevant and up to date data. By listing the needs of the business community the Agency for Real Estate Cadastre has created services that reduce the time of the company needed for obtaining a construction permit, property certificates, has found new ways for providing credits for new constructions and has secured the mortgage market. This tool also helped the private valuers and the notaries to improve their businesses and as well helped the municipalities in their taxing operations. The main idea of this paper is to analyze how the business community dealt with the geospatial information before e-kat, how it deals with it after the implementation of e-kat and how their business changed with its use.

## **Key Words:**

Agency for Real Estate Cadastre

Electronic Cadastre (e-Kat)

Business development

## 1 Historical development of the AREC

The Agency for Real Estate Cadastre (hereinafter AREC) was formed on the 14th July 1947, with a decision published in the Official Gazette of People's Republic of Macedonia no. 25/1947, adopted by the Government of the Former Peoples Republic of Macedonia and the Agency was named Peoples Authority for Geodetic Works of the Republic of Macedonia. However, this was not the foundation of the Macedonian cadaster and land registration system. The beginnings of the land registration system on the territory of the Republic of Macedonia were established in the middle of the 19th century when the territory was ruled by the Ottoman Empire. The Ottoman Empire has developed a deed system called (tapija) which was used as a land registration system and the document that was issued by the empire represented an ownership certificate for the owner of that land. This system was used to register the owners of the entire land in the state and after that only the changes in the ownership were register in the deed books. The Agency of Real Estate Cadastre has signed a memorandum for cooperation with the Turkish archives, upon which it has received the original forms of the deed books and is now implementing a project for translation of these books. Though, they only have a historical value and will not be used to make changes in the cadastre system that is already set up in the country. After the Balkan Wars and the First World War were ended, Republic of Macedonia became a member of the Kingdom of Serbs, Croats and Slavs. In 1928, the Law on Land Cadastre came into force according to which the land was being registered in the cadastral books and for proof of ownership a Possessory List was issued.

The Agency became an independent body, within the state administration, in 1967 with the decision of the Government of the People's Republic of Macedonia when the Geodetic Administration was renamed in State Geodetic Authority. In 1977, in order to increase productivity and efficiency in the execution of administrative and operational matters, with the decision of the Executive Committee, made reorganization of the Republic Geodetic Authority and the majority of employees have been reassigned to the newly established Institute for geodetic and photogrammetric work. With the establishment of the Authority for Geodetic and Photogrammetric Works, the Republic Geodetic Authority continues to perform the administrative affairs of the legislation in cooperation with the Republics of Yugoslavia, for international cooperation, adoption of annual and five-year plans for survey, financing the basic geodetic works, supervision and control executed operative geodetic works, archiving and distribution of geodetic maps, as well as other matters. In 1989, by a decision of the Executive Council of the Socialist Republic of Macedonia, the Office for Geodetic and Photogrammetric Works, it has again been integrated into the Republic Geodetic Authority which besides management, became authorized to perform the operational geodesy. At the same time, with this decision all 30 local cadastre offices were transferred under the jurisdiction of the Republic Geodetic Authority on national level.

The major changes in the name of the Agency were made in 2002, with the Law on Organization and Operation of the State Administration, where the Republic Geodetic Authority has been renamed in the State Geodetic Institute who continues as its legal successor. The name Agency for Real Estate Cadastre was given in 2008 with the Law on Real Estate Cadastre, by adopting a decision of the Government for appointing members of the Management Board of the Agency for Real Estate Cadastre no. 33-2022 / 6 in May 6, 2008. After this Law the State Geodetic Institute continues to work as an Agency for Real Estate Cadastre, as his successor ([www.katastar.gov.mk](http://www.katastar.gov.mk), 2017).

## **2 Basic information on the AREC**

The AREC is established as one Agency responsible for the land cadaster, as well as for the land rights registration, thus we have one single system where we incorporate the law and the geodesy. The AREC is a legal entity with rights, obligations and responsibilities stipulated by the Law on Real Estate Cadastre, and for its work it is responsible directly in front of the Government of the Republic of Macedonia. The Agency works on the principles of legality, professionalism, efficiency, openness, service orientation, professionalism and accountability for performance and results.

Competences of the AREC are:

- Management of GCIS
- Conducting basic geodetic works
- Performing real estate survey
- Surveying and maintenance of the state border
- Geodetic works for special purposes
- Establishing and maintaining of Cadastre of Real Estate
- Performing mass appraisal of properties register in REC
- Establishing and maintenance of Graphic registry of construction land
- Preparation of topographic maps
- Establishing and maintenance of Register of Spatial Units
- Establishing and maintenance of Graphic registry of streets and house numbers
- Establish, maintain and provide public access to National Spatial Data Infrastructure in accordance with the special law
- Monitor the performance of authorized surveyors and trade companies for geodetic works

The Agency is managed by the Director of the Agency and the Management Board. The Management Board is composed of five members as follows: one member representing the Ministry of Justice,

Ministry of Transport and Communications, Ministry of Finance, Ministry of Environment and Physical Planning and Ministry of Agriculture, Forestry and Water Management. The director of the Agency has its deputy director. The Director of the Agency, the deputy director and the members of the Management Board are appointed by the Government of the Republic of Macedonia for a mandate that lasts for 5 years. (cadastre, Law for real estate cadastre, 2013)

The Agency is constituted from 19 sectors and it has 30 local offices across the country and one General Office for Real Estate Cadastre situated in Skopje. In the Agency has a number of 908 employees, with different types of academic backgrounds mostly in geodesy, law and informatics, and with a different level of education. If we look at the gender representation in the Agency, it has almost equal representation of the both genders, by which 47% of the employees are women and 54% are men. If we look at the gender representation on managerial position then women hold 51% and men 49% of the managerial positions in the Agency. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

### **3 Real Estate Cadastre**

The real estate represents land, buildings, special parts of buildings, infrastructure objects and other objects, as well as other real estate which is registered in the real estate cadastre in compliance with the law. The Real Estate Cadastre (hereinafter REC) is a public book that records the right of ownership and other real estate rights, real estate data, as well as other rights and facts whose registration is stipulated by law. Survey of real estate is collecting spatial and descriptive data on real estate of the establishment and maintenance of real estate cadaster, as well as processing and formatting of data. In the course of the survey of real estate two-dimensional spatial and descriptive real estate data are being collected. Moreover, the AREC performs processing and formatting of data for the purpose of establishment and maintenance of real estate cadastre.

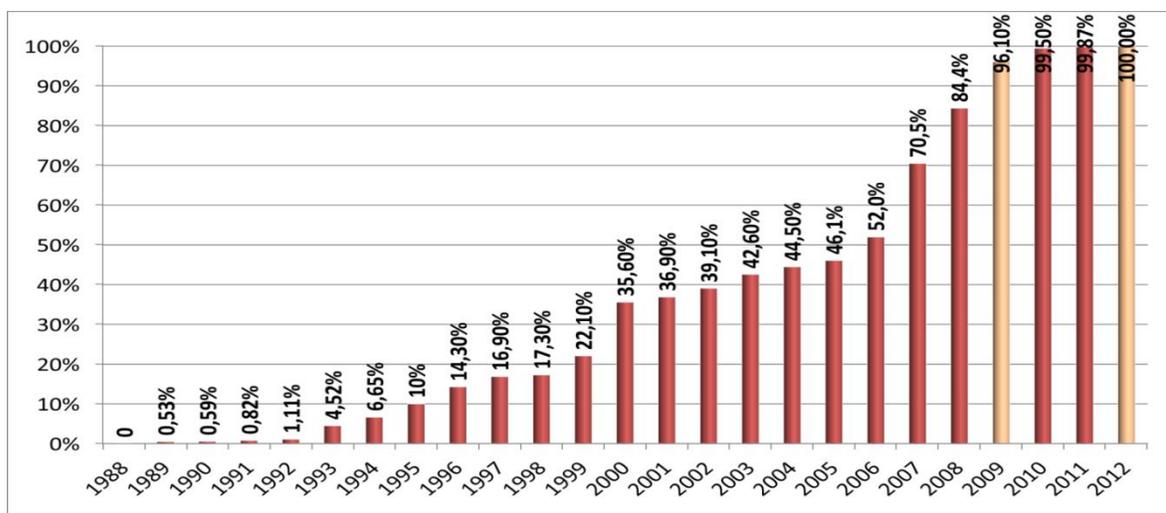


Figure no. 1 – Tempo of establishment of Real Estate Cadastre on the whole territory of R. Macedonia

The Real Estate Cadastre is established in systematic registration of real estate rights, sporadic registration of real property rights, registration of unregistered real estate rights after the establishment of the Real Estate Cadastre and data conversion of land cadastre in the REC. In REC is recorded title, sub-forms of title (co-ownership and joint ownership), other real rights (easement, right of lien - mortgage right to real burden and right to long-term lease of land), the right to lease, fiduciary mortgage as well as other rights and facts whose registration is stipulated by law. (www.katastar.gov.mk, 2017) In the data base of the real estate cadastre 4.2 million parcels, 1 million owners and 500,000 buildings are registered. Republic of Macedonia has a surface area of 225.435,8 km<sup>2</sup> divided on 1767 settlements, 80 local municipalities and 1912 Cadastral Municipalities. The Agency of Real estate cadastre is organized in 7 regions.

#### 4 Electronic Cadastre E-Kat

The AREC in 2006 was only accepting applications on physical front desks and only in paper form. The work processes in the Agency were slow, and the citizens and professional users were losing a huge amount of time in rows waiting to submit an application in front of the front desks of the Agency. The business process in the Agency was set up in a way that the solving of the cases was going very slow even for the simple ones, such as issuing a property certificate or copy from the cadastre plans. The Agency had only 30 front desks both for citizens and professional users, so the crowd in the local branches was enormous. Bigger notary offices have employed people whose main task was to wait in line at the Agency. Another problem was that the managing team was having a poor control on the work of the employees because everything was in paper form and the distribution of cases was performed manually

by the archive of the Agency. It was almost impossible to calculate some statistics about work efficiency and to prepare detailed statistics for the performance of the employees. A survey was conveyed in 2006 on a total amount of 506 customers that were using the Agency services. The survey demonstrated that the average satisfaction of the customers was 3,44 on a scale from 1 to 5. The survey also showed that the customers usually are not satisfied by the time necessary to solve their cases. (Mitrevska, 2013)

In 2005, the amendments to the Law on Cadastre and Registration of Real Estate Rights, stipulated an establishment of private geodetic practice to perform operational (field) geodetic survey work, as public authorities. This change made the crowd in front of the front desks even larger.

The AREC has recognized the need for developing better business processes that will speed up the handling of the cases and will give to the managing team a tool for control and more efficient way to manage the employees. The Agency, as well recognized the need for opening a separate front desk for the professional users of the agency services which would facilitate their daily work. In 2007 AREC developed the e-cadastre (eKat) system which is the base ground that made AREC to grow in a modern and efficient institution, a stone foundation for the legal rights of the real estate properties in Macedonia. The e-cadastre system has one central database in which the data from the real estate cadastre such as: data for the property owners, data for the parcels, data for the buildings/apartments as well as data for the mortgages and the conditional and temporary registrations of properties are located. The graphic and alpha-numeric data are integrated in one single real estate cadastre database.

With the E-kat the employees of the Agency got a tool for faster and easier processing of the changes in the real estate cadastre and became significantly more efficient in their work. With this the time needed for processing the cases was considerably decreased. The ability to view the data and the other cases which are under processing has given a whole new perspective in the performance and has increased the trust and the confidence of the employees in the IT system.

The managerial team with the e-kat gains a tool for controlling the cases and monitoring the work of the employees. The e-Kat allows to review the received and solved cases in real time, how much one employee is burden with cases, which employee is most efficient in his work and other statistics that made the work of the managerial team easier and gave them the real picture so they can faster and efficiently deal with the problems that can occur through the work.

For the users of the Agency services, the e-kat brought lots of benefits which were previously unimaginable. First and most important was that the deadlines for processing the cases were reduced for almost a half. For example, with the e-kat, issuing a property certificate lasts only a several minutes, and

before the e-kat took at least a couple of days to obtain such a document. Another benefit for the citizens was that they were no longer obliged to issue a property certificate only in the local offices responsible for the territory on which the real estate is located. After establishing the e-kat, citizens can now obtain a property certificate in any local office of the Agency regardless of where the immovable property is located. This prevented the citizens from travelling hundreds of kilometers just for obtaining a property certificate. The information for the status of the submitted application before the establishment of the e-cadastre system was almost impossible to get. Today, via the web-page of the Agency, at any time, clients can check the status of the submitted application and obtain information whether the application is still being handled, has been declined or has been processed. The transparency and the availability of the information for the processing of the applications submitted from clients of the Agency for Real Estate Cadastre has significantly increased the trust in the institution. (Gruevski, 2014)

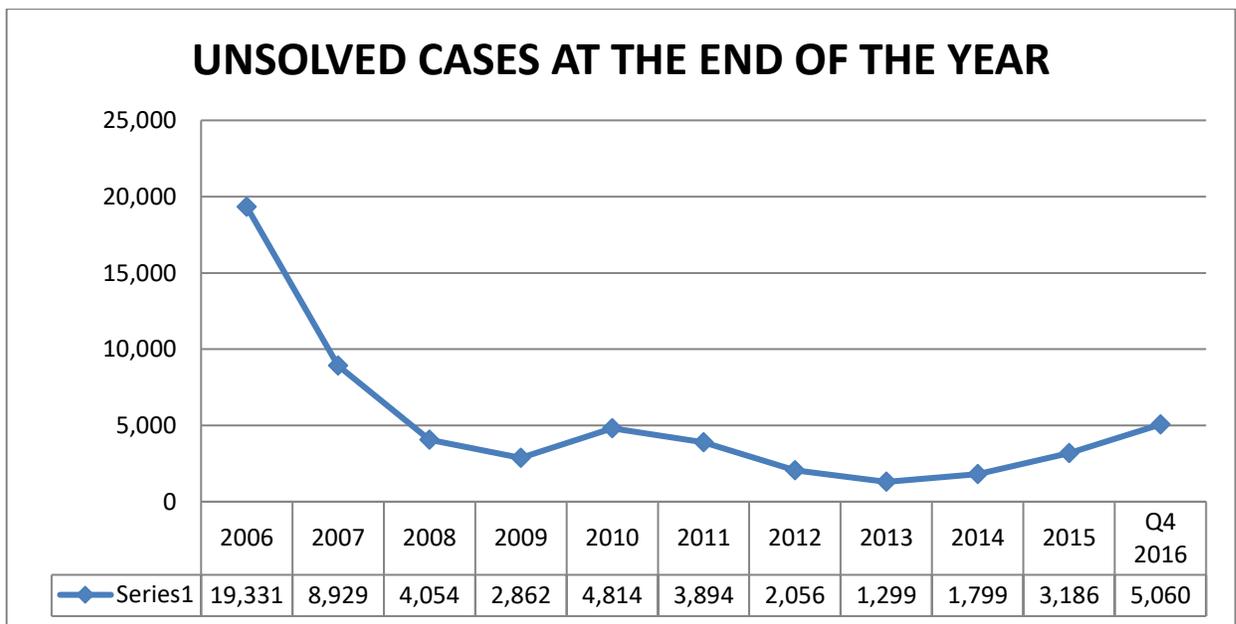


Figure no. 2 – Reducing of the back lock cases

One of the significant improvements that were brought with the e-kat was reducing the back lock of cases. Prior to e-kat, in 2006 the number of back lock cases on the end of the year was 19.331, cases that were not solved during a period of one year. In 2008 when the e-kat was fully implemented the number of back lock case was 4.054, which is a reduction of 15.277 cases. In 2013 the number of back lock cases was the lowest since the implementation of the e-kat with only 1.299 unsolved cases. In 2016 the number of back lock cases raise to 5.060 cases, but due to the fact that in the last year the Agency received 1.165.685 cases, a year with the biggest number of received cases since the implementation of the e-kat. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

## **5 Benefits from the implementation of the E-kat – AREC**

Beside the benefits for the citizens with the faster and easier procedures and the benefits for the employees with simplifying their work procedures, the implementation of the e-kat brought to the Agency a various opportunities for modernization of the cadastre and development of new software products that can be offered to the customers. The Agency had recognized these opportunities for fast development into modern, efficient and digital cadastre that the e-kat brought, so the Agency implemented several projects such as: infrastructure cadastre, digitalization of cadastre maps, register for street addresses, register for construction land, register for prices and leases, registration on future construction, VIP procedure for registering of property and OSSP one stop shop portal. In development of this project the Agency was led by the mission and vision that was set up in the strategy of the Agency for Real estate cadastre in 2013-2016. The main mission of the Agency set up in this document was that it mainly has to provide electronic, efficient and reliable access to users of GCIS data as the body responsible for maintaining the cadastre of real estate. It is also responsible for establishment and maintenance of the cadastre of infrastructure objects as part of the real estate cadastre, management of GCIS and establishment, maintenance and public access to the National Spatial Data Infrastructure, striving gradually to entirely self-financing. The vision of the Agency for 2016 was that the Agency should be effective and efficient self-financing government agency, oriented to its customers, which provides and maintains digital geospatial data information from the real estate cadastre and cadastre of infrastructure objects as part of the real estate cadastre, 3D cadastre of buildings, separate and common parts buildings and other facilities, calculates and records the value of real estate and establishes and maintains a National Spatial Data Infrastructure necessary for the general public and the business sector in the country. The main goal was to develop digital services for professional users, to become a paper free Agency, to work only with digital data and digital business processes, and last but not least, to become a self-financed institution. (cadastre, Strategic plan for the work of the Agency for real estate cadastre for the period 2013-2016, 2013)

### **5.1 Cadastre of infrastructure objects**

The Agency for Real Estate Cadastre with the changes of the Law for Real Estate Cadastre in April 2013 became responsible for establishing and maintaining a cadastre for infrastructure objects. The cadastre of infrastructure objects is part of the real estate cadaster, as well as, part of the e-kat. The Agency for Real Estate in accordance with the legal competences set up in 2014, when the cadastre for infrastructure was established, continuously performs registration and pre-registration of all types of infrastructure projects

upon a request. The registration of an infrastructure object in the cadastre for infrastructure objects enables placing it on the legal market (sale, lease, mortgaging). Consequently, the owners receive a valid certificate – property certificate for the property and the possibility to use the object in legal marketing or selling, issue it under lease or to put it under mortgage and provide additional funds for other investments. The first property certificate was issued on the 24<sup>th</sup> of April 2014. The property certificate for infrastructure object contains data for:

- infrastructure objects
- beginning and end of the infrastructure, accompanying buildings expressed descriptively with coordinates
- owners of rights of infrastructure objects with their address data and data identification number or tax identification number
- ownership and other real estate rights of infrastructural facilities, and other rights whose registration is stipulated by law
- legal basis for registration
- date and time of registration and the case in which the registration is performed
- the amount of the claim which is provided by the lien
- conditionally registration
- temporary registration (cadastre, Law for real estate cadaste, 2013)

For registration of infrastructure objects the owner should submit an application, documents for legal basis, geodetic elaborate for the infrastructure object and proof of payment of the registration fee. The first mortgage in the cadastre for infrastructure objects was registered on the 19<sup>th</sup> of April 2016. The first registered mortgage was for a pipeline for technical water 10.7 kilometers long worth 2.1 million Euros. With the registration of this mortgage the efforts of the Agency to participate in the development of the business community in the country were proven. With the possibility for registration of a mortgage on infrastructure objects begins a new era in crediting in Macedonia which will provide fresh capital from banks for implementation of new projects.

Until the end of 2016 in the cadastre for infrastructure objects 389.419 meters of line infrastructure objects, 663 square meters of surface infrastructure objects and 502 infrastructure objects were registered as points. Furthermore, 367.258 meter of line objects and 1 point are conditionally registered, and 170.672 meters of line infrastructure are only initially recorded. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

<b>Infrastructure objects</b>		
<b><u>Register</u></b>	line (meters)	389419.51M
	surface (M <sup>2</sup> )	663.57 M <sup>2</sup>
	points	502
<b><u>Conditionally register</u></b>	line (meters)	367258.38M
	surface (M <sup>2</sup> )	/
	points	1
<b><u>Recorded</u></b>	line (meters)	170672 M
	surface (M <sup>2</sup> )	/
	points	/

Figure no. 3 – Register, conditionally register and recorded infrastructure objects in cadastre for infrastructure objects till 31<sup>st</sup> December 2016

## 5.2 Digitalization of the cadaster plans

The project for digitalization of the analogue cadastre started in 2010. The project for digitalization of the cadastral maps is a conversion of cadastral maps from paper form into vector form. Vectorised cadastral maps are imported in the graphic database (MAK EDIT). Following the harmonization of graphic data of cadastral maps with attribute data, they are stored in a central database (E-kat). Through the system of quality control and quality assurance, the graphic and alphanumeric data of cadastral maps is continuously controlled in the process of digitization.

The graphic module in e-kat gives a graphic display of the location, placement of real estate in space (cadastral parcels and buildings), enables faster, more efficient and improved maintenance of cadastral data, and faster and more efficient electronic data exchange with the professional users of AREC and

private surveying companies. Till December 2016, the E-kat graphics are imported a total of 1805 cadastre municipalities, of which 407 are digital and 1398 are analogue cadastre plans. Digital cadastral maps are developed, harmonized and included in the E-cat database or 97.19% of the entire territory by the Republic of Macedonia is cover with digital cadastre maps. Moreover, in 1805 cadastre municipalities, the citizens are enabled to obtain a copy of the cadastral plan on the front desks of AREC immediately after submitting the application. Changes in the maintenance of the real estate cadastre are conducted based on the digital geodetic elaborates that are made with the MakEdit software by private surveying companies. The project will be fully implemented until the end of 2017. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

### **5.3 Registry for street addresses and house numbers**

With the Law on Real Estate Cadastre, the Agency has extended its jurisdiction to the establishment and management of the graphic registry of streets addresses and house numbers as part of the addressing register of the Republic of Macedonia. The Graphic registry of streets and house numbers will contain spatial and descriptive data for streets and house numbers, as well as spatial data for the line of coverage upon which the system determines the connection of the house number with the street. This is a project which is in starting phase where the Agency is the main implementer and maintainer of the system and it is supported by other state bodies that are gathered in one working group. The working group is composed by representatives of the Ministry of Transport and Communications, Ministry of Interior, Office for Civil Registration, the Central Registry and Agency for Real Estate Cadastre. The working group has drafted a new law for address register in which the European Directive for spatial data standardization and interoperability has been transposed.

Currently, the Agency is working on the production of a software (database and GIS infrastructure, development of a web application for working with address data), business analysis, field visits to collect and analyze data on pilot areas in four municipalities which will include specific cases (shopping center, industrial area and objects found beside roads and motorways) and production of a mobile / tablet application for easier collection of field data. The software solution for the address register will be realized as update of the e-Kat system with a module for address data which will include graphics of streets and house numbers associated with the image data from the cadastral maps and data addresses recorded in the property lists. The change of address data in the addressing register will be directly implemented in the database of the real estate cadastre. The data for the establishment of the registry will be provided through field inspections and collecting address data which will determine which model of addressing will be applied in a particular settlement, in order to meet the prescribed standards. Based on

the established Registry for street addresses and house numbers for settlement, the new numbering and marking of the addresses on the field will be made. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

#### **5.4 Registry of construction land**

The Agency for Real Estate in a few months will fully establish the graphic registry of construction land. This registry will make standardization of all urban planning documentation and all urban plans will be situated at one central base. Standardization of urban plans in GIS format will provide an overview of the overall urban planning documentation for the entire territory of the Republic of Macedonia. Issuing an Export from the urban plan for citizens and companies will be done immediately at the front desk of the Agency or via e-kat. The registration of the construction land in the real estate cadastre will be done in a period of one day. With the establishment of the register of construction land and its connection with the digital cadastral maps, the Agency will be able to make quick analysis and statistics for the construction land in the country. These analyses and statistics are of great importance for the investors as well as for the strategic planning of municipalities and the Government of the Republic of Macedonia. The Graphic registry of construction land with other spatial data will give a lot of information that will enable municipalities to do better spatial planning and environmental protection in the country.

The software solution has been developed and placed in test environment and now it is in the implementation phase at the planners' offices and the municipalities. The training for planners and employees of the Agency is already finalized and the Agency is performing additional training for municipalities and other users of the system. Through the register of construction land over 1000 urban plans and urban planning documentations have passed and the control of compliance with the cadastral maps is made. For 680 urban plans and urban planning documentations the Agency for Real Estate Cadastre has issued a positive opinion on the compliance of the same with the cadastral plans. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

#### **5.5 Registry of prices and leases**

The Registry of prices and leases was established and functional from 18th of March 2015. With the changes of the Law for Real Estate Cadastre made in August 2014 the Agency has become responsible for establishing and maintaining of the registry for prices and leases as one part from the system for mass valuation of properties which is also a part of the competences of the Agency. The Statute for the registry was adopted by the Managerial Board on the 15th of March 2015. The electronic cadastre was upgraded with functions and tools needed for establishing the registry of prices and leases such as searching

through the registry, statistics from the registry of prices and leases, statements for additional data about the properties that are part of the transaction and etc. With this update all the agreements for sales and leases through the country are collected in the registry of prices and leases.

In the Registry of prices and leases the Agency is collecting data contained in the legal basis for transaction of properties, the value of property upon which the tax on real estate is calculated, the value of rents and other real estate data contained in the statement of seller / lesser, given in front of the notary and confirmed by the same. AREC is connected with all the notary public offices through the country with the electronic cadastre and the notaries submit and obtain all the documents electronically with a digital signature. The data of the Registry of prices and leases was made available on the GIS portal of the Agency from April 2015. The data that is published on the GIS portal of AREC is accessible free of charge for everybody. All transactions are published on the GIS portal with macro location of the real estate and limited amount of information about the transaction such as: date of transaction, type of transaction, area of the property, price and currency. Access to all of the data in the Registry of real estate is possible through the e-kat light, the electronic cadastre for professional users. AREC has developed special module named e-valuator from which all professional users that have contracts with the Agency can access all the detailed information about every transaction free of charge.

AREC has registered 41.211 transactions since the establishment of the Registry for prices and leases in March 2015. From all these transactions 16.059 transactions were registered in 2015 and 25.152 transactions in 2016. If we look by type of transaction 56% of these transactions are sales, 33% leases, 8% sales by investor as first sale of new constructed properties and 3% are ransom from Republic of Macedonia. The sector for mass valuation in AREC is publishing quarter reports from the Registry of prices and leases. These reports contain data about: scope of transactions, data about mortgages on properties, data about how many apartments are newly constructed and for sale, how many apartments are in phase of construction, statistics for sales, average prices per meter square for apartment's through the country, statistics from leases, average prices for leases per meter square for apartments and business premises.

The main goal of the Registry of prices and leases was to make the property market more transparent and to give more public information about the transactions and characteristics of the properties. However, the main goal of the Registry of prices and leases is to gather more detailed information about the properties, data that is required for establishing the system for mass valuation of properties. AREC this year will conduct field data collection for real estate necessary for the system of mass valuation of properties for 4 pilot municipalities. The e-kat will be upgraded with functionalities that will enable automatic insertion of

the data in the statements in the data base of the Register for prices and leases. AREC will work on software for statistics that would enable more accurate data about the transactions with the real estate and a wide range of statistics that will be used by banks, valuers, real estate agents and a number of state institutions. AREC will establish value zones on the whole territory of the country and will establish software for modeling, software that through data from the real estate cadastre and the registry based on the prices of certain additional parameters, will perform a valuation of the property. AREC will conduct mass valuation of properties for 4 pilot municipalities.

### **5.6 Registration on future construction**

In the Law on Real Estate Cadastre from 2008, one of the innovations that were first introduced was the registration of future constructions on the basis of the project documentation and building permit. The future construction, in accordance with the project, is registered in the real estate cadastre with all its parts, apartments and garages. For the future construction, after the conditional registration, a list for conditional registration can be obtained, which is the investor's evidence that he/she could use so to obtain a loan from a bank that will help to build that building. Also, all pre-existing contracts between the investor and future customer are noted in the List for conditional registration. Thus, all of the Notaries which conclude the contracts, have information for which future apartments, from the pre-registered building, there is an already signed pre-contract of sale and purchase, and which are still available and may be sold. This is particularly important to avoid potential scams of selling the same apartment in one building to several buyers. (Gruevski, 2014) With this registration on future construction, the banks have developed a totally new product mainly for the construction companies and buyers of newly constructed apartments. With this the banks were in position to offer to the future investors credits on future construction as well as credits or mortgage of apartments to the buyers. This project helped in development of the construction companies, and opened a totally new market for the commercial banks.

### **5.7 VIP procedure for registering of property**

In the report of Doing Business 2016 made by the World Bank, Republic of Macedonia in the indicator registering of property was set up on the 48 place. The regular procedure for registering of property in Republic of Macedonia according to the report of Doing Business it has 7 procedures and lasts for 30 days. The main reason that this procedure is going very slow is the fact that the municipalities have to make valuation in order to calculate the amount of transaction tax that should be paid. This procedure lasts for 21 day. In order to cut the procedure and time needed for registering the property, the Agency for Real Estate together with the Ministry of Finance and other stakeholders has introduced the VIP procedure

for registering of property. With the changes of the Law for property taxes in 2015 and introducing the new advance tax payment the VIP procedure became in force from the 1<sup>st</sup> of January 2016.

The new VIP procedure is optional procedure, namely the parties that are part of the transaction can choose one of the two procedures for registration of property, the regular one or the VIP one. The VIP procedure is composed of three procedures that are complete in 6 working days. The parties that will choose the VIP procedure, first they go to the office of the valuator that has to perform an assessment of the property and prepare an appraisal report, calculation of the value of the property and fulfill the application for advance tax payment. The valuator according to the law has 3 working days to complete all the documents. All the documents that the valuator creates are send electronically to the notary office that is chosen by the parties that are part of the transaction trough the e-kat. The parties after this are transferring the required amount for paying the advance tax payment on separate account of the notary that is used only for VIP procedure for registration of properties. The notary transfers the received funds on the separate account, to the account of the municipality, makes verification of validity (solemnization) contract and put on a clause for an advance tax payment on the contract. The notary is obliged by the law to fulfill the procedure in two working days. Through the e-kat he sends all the documentation in AREC, so the transfer of property can be registered in the real estate cadastre. AREC registers the transfer of property in one working day. With the VIP procedure, the necessary steps and time required for registering a property is cut for 4 procedures and 24 working days from the regular one. However, the VIP procedure costs 50 Euros more than the regular one.

### 5.8 OSSP - One stop shop portal

In order to further develop the GIS portal of AREC, on the 29<sup>th</sup> of December 2015 AREC has launched a distribution system which is a single point of access to digital geospatial data for which the Agency is responsible. On the portal <http://ossp.katastar.gov.mk/OSSP/> data from real estate cadastres available, surveying and mapping, data from the register of spatial units and more types of thematic data (Registry of prices and leases, infrastructurecadastre, urban plans, etc.) for the territory of the whole country. The Distribution System is available on line - 24 hours for all legal entities and individuals at home and abroad. Everybody can register on the portal and order some of the products that are available. Users can obtain the documents in digital or paper form.

NAME OF PRODUCT	Number of orders	Number of products	Measure unit
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Coordinates (X, Y)	7842	9191	1 point
Property certificate	2578	3867	1 sheet
Coordinates and altitude	1068	1277	1 point
Extract from cadastre plan	513	763	1 CP
List of indications for cadastral parcels	384	36462	1 CP
Cadastre plan (working original)	128	64701	1 plan
List for conditional registration	48	49	1 sheet
Altitude	16	24	1 point
Description of a position with coordinates and altitude	15	22	1 point
Map in raster form geo reference 25000	7	7	1 map
Package topographic characteristics	3	1	1 map
Border of one unit of local government in vector format	2	3	1 unit of LG
Set of borders on all local government units in vector format	1	1	Whole territory of R.M.
Package for waters	1	1	1 map
Cadastre parcels	1	1	Enable aces for one month to one layer
Package for roads	1	1	1 map
Map in raster form geo reference 100000	1	18	1 map
Package names	1	1	1 map

Figure no. 4 – Products by type, form and amount which are distributed through this application for the period of 01.07 to 30.12.2016

According to the form of product, in electronic form 116 357 products are issued, in paper form 32 are issued and one service. The products that are issued in electronic form are officially available products signed with a digital certificate of AREC and are public documents that can be used before other state bodies, banks and other institutions. Products issued in paper are delivered to the address given by the user through fast post. From the establishment of this portal until today, it is a subject to continuous upgrading with new themes, services and data. Specifically for these data is that they are updated with the change in the base of the real estate cadastre and they represent the current state of the GCIS. The analysis showed that this portal is increasingly used by the legal and private persons. For the period from 01.07.2016 to 30.12.2016 the portal has a total of 1013 registered entities who have made a total of 12,469 orders. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

## 6 E--front desk

AREC in order to reduce the rows in front of the counters has developed an electronic cadastre for professional users called e-kat light or e-kat front desk. The e-kat front desk was developed in 2011 and from then on it's used by the notaries, municipalities, valuers, geodetic companies, state institutions and many others. By the end of the year e-kat front desk was used by 730 professional users.

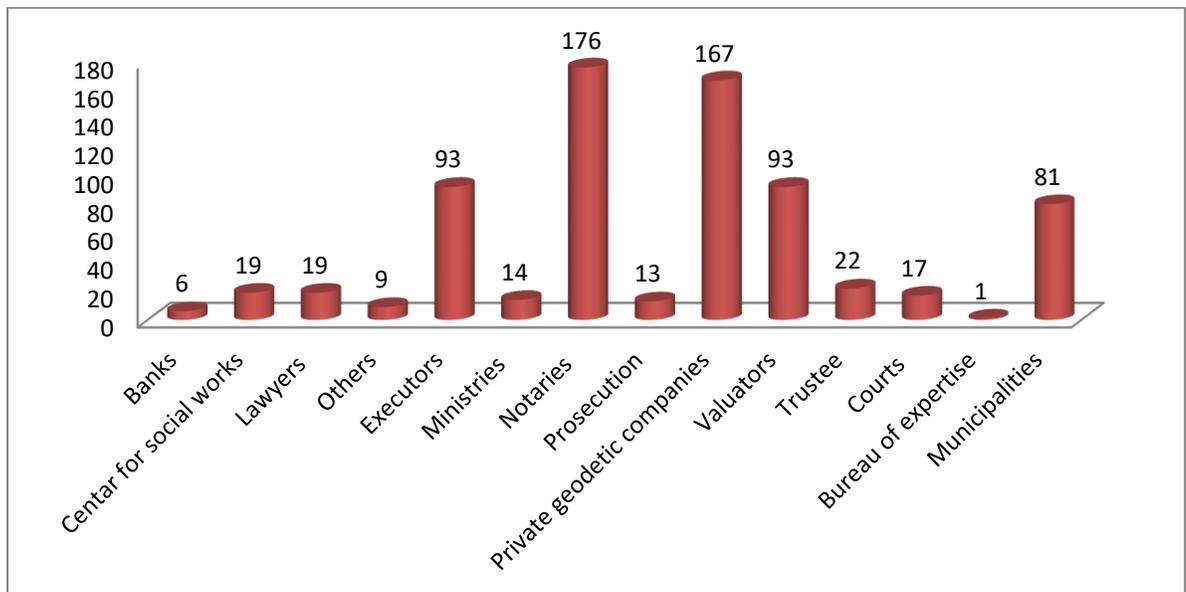


Figure no. 5 – Number of contracts signed for e-front desk by the end of December 2016

With the establishment of the e-kat front desk, all professional users are electronically connected with the cadastre. Through this system they can issue electronic document like property certificate, extract from cadastre plan, other cadastre layers and they have insight in all of the data in the real estate cadastre and

its registries like the registry for prices and leases. All professional users are obliged to submit all cases electronically through the e-kat front desk into AREC. Thus, the professional users received a more efficient way to obtain documents and to submit cases in the cadastre, which saves them a lot of time and they always have up to date data because they have an insight in the data in real time. With the e-kat front desk, the Agency has reduced the rows in the local offices and became closer to its users. All citizens can now issue all documents from the professional users and they don't need to come to the local offices of AREC. With the e-kat front desk the Agency beside the 30 local offices now has 730 more counters in which the citizens can obtain any of the AREC products. The e-front desks have raised the efficiency and the speed for submitting documents and issuing documents by the users and their customers. It has also raised the efficiency of the Agency, made the business processes more transparent. The documents issued through the e-kat front desk are delivered only in electronic form with electronic signature from the Agency and they are public documents that can be used before other state bodies, banks and other institutions. (cadastre, Report for the work of AREC for the period from June to December 2016, 2017)

In order to improve the services to the final users, AREC established direct cooperation with all relevant state institutions and professional users in order to perform faster and more efficient electronic data exchange with professional users. In the past, AREC implemented a series of reform changes for effective functioning. One of the reform activities that AREC has implemented was mandatory electronic filing of cases by professional users, thus enabling easy, fast, safe and efficient delivery of applications and requests electronically. AREC is now connected and works only electronically with all notaries, executors, geodetic companies and municipalities in the state. In 2016 the Agency had raise an initiative in front of the Government of the Republic of Macedonia for changing 30 laws so all state institutions could work and exchange documents with AREC only through the e-kat front desk in electronic form. Till January 18 state institutions have change their laws and started to submit and obtain documents with AREC only trough e-kat front desk. Another reform in the e-kat front desk is that if professional users submit request which does not contain all necessary documents, it receives an e-mail that indicates what needs to be added to fill up the request with the missing document for 48 hours after receiving the e-mail. Consequently, the cases that are submitted trough the e-kat represent around 70% of the all cases submitted in AREC with a tendency for the percentage to grow up. The cases submitted in paper form are under 30%.

## **7 Practical example: the experience of the notaries with the e-kat front desk**

The main users of the e-kat are the notary offices with total of 176 accounts, which at the same time makes them the biggest users of e-kat. Before the introduction of the e-kat they were forced to wait in lines of the physical front desks of the Agency for real estate cadastre so they can issue property certificate or any other document needed for registration of mortgages, registering of property or pledge of property between companies. The procedures were slow, the clients of the notaries, mainly the big companies, were unsatisfied and there were big lines in front of the front desks. With the introduction of the e-kat all documents from the Agency of the real estate cadastre were accessible in the notary offices, with electronic signature which made them a legal document. With this a lot of procedures and required time was cut and the notaries become more effective and efficient in their work, as well they have raised the number of cases that are solved, thus raising the customer satisfaction.

According to the notary Ana Brasnarska, the e-kat is used in her everyday work at the office. The e-kat shortens the procedures; accelerates the work of the office and allows her to develop new services for her customers. She thinks that the e-kat made a huge impact on the performance of the notaries and improved their work comparing to the way they worked before. The use of the application is very easy and it satisfies the needs of the office, the notary explains. She thinks that the costumers are now satisfied more with the way this office works currently, rather than the previous way when they needed to wait on the physical desks of AREC. (Brasnarska, 2017)

According to the notary Biljana Pecovska, the e-kat made a little change in the working procedures of the office. The e-kat is used in the everyday work of her office and the employees in the office as well as the customers are satisfy from the application and the way how it shortens the procedure and the required time for submitting and obtaining documents. She thinks that the e-kat facilitated the work of the office in terms of shortened waiting time at the counter however she thinks that the e-kat should be changed in some parts, due to the fact that is difficulty to use it in the sense of the obscure procedures when submitting the cases and in terms of payment, as well as short-term correction of technical errors. (Prcovska, 2017)

The notary Majlinda Ajdari said that they use e-kat in their everyday work and that the e-kat had some impact on the working process of the office. She noticed that the e-kat allows them to develop new products for their customers, and that the costumers are very satisfied with the new products and the new way of working. She states that the e-kat shortens the working procedure and the time needed for submitting documents. (Ajdari, 2017)

In the notary office of Silvana Sandulovska, the e-kat is a tool for developing new services for customers. They use the application every day and they are very satisfied of how the electronic cadastre changed the

way of working in her office. She thinks that the costumers are also satisfied mainly because they can get all the documents in one place and sublimit them from the notary office to AREC. (Sandulovska, 2017)

According to notary Verica Sinadinova the use of e-kat in everyday work made a huge impact on the performance of the notaries. Before the establishment of the e-kat front desk we as a notary office had to go in the Agency for each entry in the real estate cadastre and extracting of property list, which caused us losing a lot of time, she points out. Therefore, the introduction of the e-kat front desk was a great move. However, it should be improved in the last step, when the payment for the cadastre services should be made. (Sinadinova, 2017)

In the notary office of Vesna Stojceva (2017), the e-kat allows them to developed new types of services such as the obligation of the customer to report transactions it carried out in the real estate cadastre is now transferred to the notaries, and is much easier and faster for our customers to complete certain legal matters without having to go to one or more institutions. She thinks that the application made a huge impact on the way of working in the offices. She pointed out that certain procedures in her office were much faster before the implementation of the e-kat, the because it imposed more cadastral obligations of notaries that is time-consuming, but in other aspects of the work, e-kat front desk enables them to solve cases faster which isa positive change in their business. She thinks that the e-kat front desk should be improved in the part of reducing the number of documents they receive with the confirmation of a submitted case and to simplify the procedure for recording an agreement for leas in the property certificate. She states out that the procedure for registering of cases from their office in AREC is the same because it requires the same documents as before, but with e-kat front desk is simplified due to the fact that the whole procedure is completed from the office, which is a big relief compared to before. She concludes that the e-kat is a very useful and fast tool that facilitates and modernizes the way that the notaries and the AREC cooperate, however somechanges and upgrades should be developed.(Stojceva, 2017)

According to notary Zafir Hadji Zafirov the e-kat front desk helps the notaries to developed their scope of work and raised the efficiency and speed of work, but the application should give an opportunity for extracting more property certificates simultaneously. (Zafirov, 2017)

In the notary office of Zlatko Nikolovski it was pointed out that the work of the notary office after the introduction of the e-kat front desk significantly changed the process of work, speed up the process of registering of real estate data base maintained by the cadastre and greatly strengthened the legal certainty in the transfer and leas of property. (Nikolovski, 2017)

The main conclusion is that the e-kat is used in the everyday work of the notaries, it changed their work procedure a lot, and made them more efficient, and as well fastened the submitting and obtaining of documents to and from AREC. It allowed them to develop a new range of services that are offered to their clients. They think that the e-kat helped them a lot in the process of giving more efficient and better services to their clients that are now more satisfied by the services of the notaries and the way they perform their activities. However, as some of the notaries already mentioned, changes for an improved e-kat system are always necessary and they depend on the market development and the progress of the informatics technology.

## **8 Practical example: the experience of the private valuers with the e-kat front desk**

The valuers are the newest group of users of the e-kat front desk. Through e-kat front desk they use the Registry of prices and leases and all the additional data related to the property that this Registry contains. Before this opportunity they only assessed the properties via cost method because they haven't got the necessary data for assessing it with the other two methods. With the establishment of the Registry and the possibility to be used through the e-kat front desk, the valuers in the Republic of Macedonia got the opportunity to use the other two methods. Today the new methodology for assessment of properties is in phase of adoption in the Government of the Republic of Macedonia and it contains the income and comparison method for assessment in it. Thus, the valuers received a large scale of data that is available for them on their own workplace and computer.

According to the valuator Branko Curilov the e-kat front desk is used in everyday work of the valuers. He notes that the e-kat front desk gives them possibility to develop new services for their customers and gives them a valuable data needed for their work. According to him the e-kat front desk raises the quality of their work. He said that the e-kat front desk had a huge impact on the working process in his company, and now he can obtain all necessary documents for his work from his own office in a very short time. (Curilov, 2017)

In the office of the valuator Ana Kuzmanoska the e-kat front desk is often used and according to her it raised the satisfaction of her customers. She stated out that the e-kat had huge impact of the work processes in her office, however the e-kat front desk should be upgraded with clearer and cleaner interface and it would be significant if the speed of the application increases. (Kuzmanoska, 2017)

According to the valuator Dimitar Grupcev the e-kat front desk enables them to develop new services and it made some impact on the work of the valuers. He stated out that the e-kat front desk raised the quality

of the services they provide and thus raised the satisfaction of their customers. He stated out that with the e-kat front desk their work is much faster, but the application should be upgraded and additional information in the part of the Registry of prices and lease should be placed. (Grupcev, 2017)

In the office of the valuator Lidija Antevska the e-kat front desk beside its use on daily bases, it has been used to create new products for the customers and has cut the working procedures. She pointed out that the difference in the work with e-kat and without it, is incomparable. Data availability via the e-kat front desk facilitates the work of everyone in the office and makes them more effective. She thinks that the application should allow the labeling of two or more cadaster parcels simultaneously, not only one as it is now. (Antevska, 2017)

We can conclude that the e-kat front desk changed the work of the valuers and gave them a lot of data that they couldn't use before. It cuts a lot of procedures and makes their customers more satisfied than before. They all agree that the e-kat front desk gives them opportunity to developed new products, improved their work and made them more efficient. However, they stated out that the application should be updated with new interface and with new data mainly in the Registry of prices and lease.

## **9 Practical example: the experience of the geodetic companies with the e-kat front desk**

The geodetic companies are also one of the most frequent users of the e-kat front desk. They use a lot of different products of the Agency and they represent the main partner of the Agency when it comes to surveying. The geodetic companies are competent for all the surveying in the country except the surveying that is performed for a state institution.

According to the surveyor Goran Jovanovski, the use of the e-kat front desk in their office is part of their daily work, and this application totally changed the work of the company. He points out that with the application many procedures were reduced, the data they need now can be obtained through a computer for a very short period of time which makes them more efficient and their clients more satisfied by their work. The e-kat front desk also provides them an opportunity for development of new products. (Jovanovski, 2017)

In the office of the surveyor Marijan Dimitrievski the e-kat front desk positively influenced on the work in the company and changed the working process. He notes that the application had a huge impact on their work so they forgot how the working processes looked like before the e-kat front desk. He thinks that the application should be faster. (Dimitrievski, 2017)

According to surveyor Elavica Atanaskoska the e-kat makes them more efficient and faster in their work. The clients are more satisfied by their work and the application gives them the possibility to create new services for their customers. He stated out that with the e-kat front desk their work is more accurate and precise. (Atanaskoska, 2017)

The geodetic companies are another user that are satisfied by the work of the e-kat front desk. The e-kat changed their way of work and provides them with the opportunity to developed new products. It helped in the development of their business and make their work not just easier but faster and more proficient in the same time. The e-kat front desk played a key role in increasing the satisfaction of their customers.

## **10 Practical example: the experience of the municipalities with the e-kat front desk**

The e-kat is also used by the municipalities in their regular work for the purposes of giving construction permits and taxing the property on annual bases i.e. the property transaction tax. They had problems with finding the construction land or finding the owner of the property so they can send him the annual tax decision. In the end of 2015 and the beginning of 2016 the Agency of real estate and several municipalities developed a pilot project in comparing the data bases of real estate and the data base forms of the municipalities. The results showed that the municipalities are missing around 25% of the properties on their territory in their data bases. They also had problems with determination of the value zones in assessment for the purpose of property tax. When they got authorization to use the e-kat and trough this to use the Registry of construction land and Registry of prices and leases that the Agency established and maintains, they become more efficient in giving construction permits, they fulfilled their data bases and they get regular updates on the ownership of the properties on their territory.

According to Radmila Sopovska from the municipality of KiselaVoda, the e-kat made a huge impact in the working processes in the municipality, and it's one of the applications that they are using in everyday work. She stated out that the application reduced the working procedures, but it doesn't offer them an opportunity to develop new products. She points out that the application raised the quality of their work, but with this their work has enormously increased in order to reduce the rows on the counters of AREC. (Sopovska, 2017)

According to Uranka Avramovska from the municipality of Aerodrom the e-kat made a huge relief in the work of the municipality. The municipality of Aerodrom is one of the most urban municipalities in the City of Skopje and the construction expansion is constant from 2012. Using e-kat front desk enormously increased the efficiency of the municipality in the process of conditional registration and registration of

real estates. The benefit of this application is seen in the number of completed documents which is big. Also with the e-kat front desk the process of legalization was enormously reduced. She also stated out that the employees of the IT sector in the Agency for Real Estate with their professionalism and desire contributed in improvement of this application for faster and easier implementation. (Avramovska, 2017)

The main conclusion is that the municipalities are satisfied with the use of the e-kat front desk and this application reduces the procedures and makes them more efficient in their work.

## **11 Practical example: the experience of the commercial banks with the e-kat front desk**

Another big user of the e-kat are the commercial banks. They had problems with getting the property certificate up to date in the cases of giving mortgages, because in the past they received many property certificates that were out of date or with a wrong data in it. The banks were afraid to give mortgages and even if they gave some the credit risk was high. They also had problems with identification of the property when the mortgage was not paid and they had to activate the mortgage. The banks were in situation where they had a lot of bad credit that seriously influenced on their liquidity. With the e-kat they receive up to date data for every property in the state directly in their branch offices all over the state. With this they have raised the number of mortgages, increased their efficiency, lowered their credit risks and speed up the process of giving mortgages. Today 10.15% of the properties on the territory of the Republic of Macedonia have mortgages.

The sheet conditional that was enabled with the e-kat opened a whole new credit market for the banks. With this sheet conditional on a object that is in phase of construction the investors can receive credit from the banks. The banks recognized this opportunity and now they widely use it for giving credits to the investors and investors can always use this tool so they can get money to start their investment.

According to Natalija Galovska their bank uses the e-kat front desk on daily basis. With the application the process of verification of ownership of real estate for some clients is significantly easier and shorter than before. Before this application they needed to fill and process orders for each customer who were checked separately, to submit an application for each customer at the counter of AREC, wait their turn to be served, and depending on the local cadastre office of AREC the time for response in each city was different. This application replaces the physical presence on the counter of the Agency, the e-kat front desk works with electronic payment and the requests for information are received immediately. Thus we have constant access to e-kat application that leads to faster completion of work responsibilities compared to the past. (Galovska, 2017)

According to Toni Stojanovski their bank had a lot of benefits from using the e-kat front desks. The main benefits for the company from the establishment of the e-kat front desk application compared to the period before it are the following:

- Easy access to relevant and accurate information from the public record and their continuous availability depending on the needs
- Possibility of proper and efficient execution of tasks in a much shorter timeframe
- Greater security, control and monitoring of change of ownership of real estate
- An opportunity to timely take actions to protect the rights recorded in the real estate cadaster (Stojanovski, 2017)

The banks are satisfied users of the e-kat front desk and the options that the application is offering to them. They used it most to developed new products for their customers. With the application they obtain up to date data about the real estate and have opportunity to monitor the changing of ownership of the real estate.

## **12 Conclusion**

The main goal of this research paper was to make comparison of how the business community deals with geospatial information before e-kat and after e-kat and how their business changed with its use. The goal of the paper was through interviews with the people that use e-kat in banks, the valuers, municipalities, geodetic companies and notary offices to find out if this application changed their work, and did their efficiency and effectiveness raised with using this tool.

The conclusion that we can get from the interviews with the Agency for real estate cadaster officials and professional users is that the e-kat change the working processes of the both sides. The Agency of real estate cadaster based on the e-kat has developed a various other products like the one stop shop portal and many registries like the registry for constriction land and registry for prices and leases that are producing totally new spatial data for the users of the e-kat. An added value of this application is the fact that it represents a new product of the Agency that should help in the process of making the Agency a self-financing institution. The e-kat also makes the work in the cadaster much easier and reduces a lot of working procedures. The tool influenced the required time for solving the cases that was reduced for almost in half. Making changes in the real estate cadaster base, goes much faster nowand makes the agency considerably more efficient than before. The e-kat also opened the opportunity for establishing a

whole new cadaster, the cadaster for infrastructure objects. As a whole the e-kat made a huge impact on the modernization of the Agency and raised the trust of the citizens in the institution. The Agency becomes recognized as a partner of the business community and supporter of every business project that is included in the scope of work of the Agency.

All professional users that were interviewed stated out that the e-kat front desk made a huge impact in their working procedures. They also agreed that with the application many procedures were cut or reduced, they became more efficient and more precise in their work and above all, the application speeded up the working processes in the companies. The e-kat changed their way of work and provided them with opportunity to developed new products which helped them in the development and expansion of their business. They pointed out that e-kat front desk played a key role in increasing the satisfaction of their customers. Moreover, all users gave recommendations on how the application should be developed further, something that is already placed on the agenda of the Agency. The great success that the application had among the professional users represents additional burden and responsibility for the Agency to continuously improve the e-kat front desk and develop other services and products for its users.

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