

# **Digital transformation of public land administration services in Federation of Bosnia and Herzegovina**

**Denis TABUCIC, Zeljko OBRADOVIC, Bosnia and Herzegovina and Andja ZIMIC, Sweden**

**Key words:** FBH, FGA, transformation, services, interoperability

## **SUMMARY**

Efforts of geodetic authority and partners in Federation of Bosnia and Herzegovina (FBH) with the support of various carefully coordinated projects are leading to the fulfillment of set goals, improvement of entire land administration system and facilitation of digital public service provision. The dedicated and successful work on the establishment of accurate and up to date interoperable property registers, address registers and sales price registers has attracted many stakeholders enabling continuous activities on data integration and interoperability.

Exchange of data via web services with other governmental authorities and local governments raising efficiency of work in entire land administration system for user benefits. This prevents duplication of data, issuance of incorrect data from unauthorized sources, help in clear definition of roles and jurisdictions among public institutions. The achievements in integration and interoperability of data among different institutions enables simplification of already existing services and development of new modern customer oriented services.

FBH recognizes the activities of the Land administration sector as an important goal that can significantly contribute to the digital transformation goals, the European Union accession and consequently to overall economic and social development and growth. Joint efforts of geodetic authority and other spatial data holders, with the support of various carefully coordinated projects is leading to the fulfilment of ultimate goals and facilitation of public service provision. Data and metadata standards, procedures, and policies are used to promote coordination among data in the Federation of Bosnia and Herzegovina.

Continued evidence of the digital transformation in the FBH is the increased exchange of data via web services with different authorities and local governments that raises the efficiency of work in land administration and laying the foundations for e-government for user benefits. This consequentially prevents data duplication, issuance of incorrect data from unauthorized sources, helps in clear definition of roles and jurisdictions among public institutions.

# Digital transformation of public land administration services in Federation of Bosnia and Herzegovina

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## 1. INTRODUCTION AND BACKGROUND

Joint efforts of Federal Administration for Geodetic and Real Property Affairs (FGA) and other spatial data holders, with the support of various carefully coordinated projects is leading to significant progress in the area of public service provision. FGA is the central authority of Federation of Bosnia and Herzegovina (FBH) responsible for administrative and professional tasks in the following areas:

- Surveying
- Land Cadastre
- Real Estate Cadastre
- Technical Archive – original maps and data produced by geodetic works
- Utility cadastre
- Cartography
- Land consolidation
- Coordination body of SDI
- Inspection supervisions



Figure 1- FGA jurisdictions

Organization of geodetic affairs within FBH is decentralized – top-level decision making processes are dispersed throughout the Federation. FGA is under the responsibility of

Government of FBiH (GoFBiH), whereas Cantonal Geodetic Administrations (CGA) and 79 Cadastral Offices (CO) are under the responsibility of the Cantonal Governments of FBiH and Local Self-Government Units (LSGU) respectively. Consequently, neither CGAs nor COs are under the direct responsibility of FGA. FGA doesn't have jurisdiction over CGAs – they are under jurisdiction of the Cantonal Governments. Similarly, CGAs don't have jurisdiction over COs, which are under jurisdiction of LSGU. There should be also pointed out the fact that only four cantons in FBiH (out of 10) established CGA. Consequently, in many cases the coordination, communication and cooperation between FGA and COs is direct, without CGA involvement.

Regardless of the decentralised framework, the dedicated work on the establishment of accurate and up to date spatial data registers has attracted many stakeholders enabling continuous activities on data integration and interoperability. Continued evidence of the digital transformation in the Federation of Bosnia and Herzegovina is the increased exchange of data and user servicing via web services that raises the efficiency of work in land administration and laying the foundations for e-government for user benefits.

## **2. CHANGE DRIVERS**

The vision that is guiding the reform process is to create a land administration system in which relevant authorities will ensure: the availability of digital data to all in order to enable unhindered access to data and data distribution; data accuracy and data quality in the sense of their sustained maintenance and timeliness; and compatibility and consistency of the data maintained and provided by different authorities.

The major movements rapidly propelling IT – social, mobile, analytics and cloud – are changing the IT and domains that rely heavily on IT, such as Land administration systems, and will continue to do so for the foreseeable future. The impetus for this change is coming from the following developments:

- A connected world with exponential growth in adoption of smartphones to enable easy access to information & people
- Increased pervasiveness of social media both in the consumer world and internal to enterprises
- Rapidly increasing volumes of data being captured by businesses across customer touch-points
- Advancements in the field of Analytics tools/apps/platforms that aid in bringing insights closer to the actual customers and stakeholders
- Cloud enabling businesses to deploy mobility and analytics capability in a cost-effective manner and reducing time-to-market

Although these forces are innovative and disruptive on their own, together they are revolutionizing business and society, disrupting old business models and creating new leaders.

Availability of data provided by the land administration institutions, land registry and real estate/cadastral and variety of other spatial data and services to a wide range of stakeholders is set as one of the key business strategic goals. Due to the sensitivity of data, the distribution of

data and services must comply with the legal regulations relating to the protection of personal privacy data as well as all other relevant laws and regulations.

### **3. CHANGE SUPPORT**

Federation of Bosnia and Herzegovina (FBH) recognizes the activities of the Land administration sector as an important goal that can significantly contribute to the digital transformation goals, the European Union accession efforts and consequently to overall economic and social development and growth. Therefore, significant FBH Government support was given in the past decade. The change process has been significantly supported by several key influences: The World Bank; Sida (the Swedish International Development Cooperation Agency); Statens Kartverk financed by donations from Norway; but also significant contribution from the EU authorities is to be noted.

#### **3.1 RERP AF World Bank project**

The project development objective of the Additional Financing for the Real Estate Registration Project is to support development of a sustainable real estate registration system with harmonized land register and cadastre records in urban areas of both the Federation of Bosnia and Herzegovina and the Republika of Srpska. Real estate registers (land registers and cadastres) provide base information layers for land administration and for the establishment of a National Spatial Data Infrastructure. They are considered harmonized when their contents are interlinked and verified. The RERP AF capitalizes on the successful implementation arrangements established under the parent project RERP and maintains the momentum of the results achieved to-date. It is designed to scale up strategic investments for the sector that need to be expedited but cannot be financed through regular budget and are not covered by other development partners. The RERP AF responds to a need for scaling up the activities that were successfully implemented under the parent project RERP. It will allow the implementing agencies to scale up investments in the development of a sustainable real estate registration system with harmonized land register and cadastre records. This will be done through additional investments in data harmonization, civil works, IT, policy support, and institutional development. The RERP AF will also contribute to the sector' readiness for future investments through additional investment in policy support and institutional development.

#### **3.2 CILAP project**

“Capacity Building for Improvement of Land Administration and Procedures in BH – the CILAP Project” is a long-term project that aims at capacity building and knowledge transfer, in order to increase efficiency and reliability of the land administration process in Bosnia and Herzegovina. The CILAP Project was originally planned, described and approved for a period of six years, in order to support geodetic administrations in BH throughout the period of implementation of the Real Estate Registration Project. The CILAP Project is oriented to institutional components, such as strengthening of the capacity of the organizations involved in the project, transfer of knowledge and experiences, issues pertaining to staff training, and how

to ensure access to well-trained human resources in the long run. Furthermore, the proposed project also includes revisions in the domain of legislation, the issue of archiving of land registry documents and improved business process of the land administration. The project also intends to cooperate with the above project that is funded with credit facilities of the World Bank and with ongoing donor projects, in terms of providing support to solutions for strengthening of the land administration in BH. The continuation of the CILAP Project activities has been approved by the Government of the Kingdom of Sweden for the period of 2016-2022.

### **3.1 EU supported reforms**

FBH Authorities of the Land administration sector, namely FGA, have very positive experiences and successful results in the implementation of complex projects, such as "Spatial information services for BiH - phase two Digital Orthophoto Maps"; "Spatial Information Services for BiH, Phase 1: Establishing of Network of permanent (referent) GNSS-stations BiHPOS", implemented through the IPA 2008 fund of the European Commission. In 2022, EU office has approved a Project that will aim to improve the quality and number of services that the Land Administration institutions (geodetic authorities) provide to the governments, and the public and private sector. It will be implemented by conducting the surveying of the entire territory of Bosnia and Herzegovina (Republic of Srpska, Federation BiH and Brčko District), using LiDAR technology, and by subsequent setup of e-services to share and disseminate this highly precise data to all interested stakeholders.

Implementation of these activities would contribute to creation of the conditions necessary for the establishment and implementation of the INSPIRE (Infrastructure for Spatial Information in the European Community) directive, representing an additional condition to have the common spatial data available to the institutions at all levels of government authority.

## **4. DIGITAL TRANSFORMATION PROGRESS OVERVIEW**

It is important to note results in creating a favorable business and investment climate have been achieved despite the fact that the Federation of BiH has a complex dual land administration system established in the late nineteenth century and where cadastre and land registry are basic components of real estate registration real estate rights. This chapter will address some of the achieved results that ultimately contributed on the digital transformation road in the Federation of BiH:

-Land registers for the entire FBH have been digitized - Land Registration Project; 1,030,000 land registry records at the end of 2011

-All land registers and auxiliary registers (registers of parcels and owners) were scanned and integrated into the land registry software - Real Estate Registration Project - which significantly improved the efficiency of the courts and enabled the archiving of old books.

-More than one million and two hundred thousand owners and co-owners have so far registered their real estate within the RERP project and protected their rights to it, which has improved the preconditions for secure legal real estate transactions and the development of the overall economy.

-Land registry and cadastre software has been developed and refined to the highest standards, which has enabled transparency, reduced the possibility of corruption, enabled statistical analysis and monitoring the efficiency of all cadastre services and all land registry offices in FBH. Deliveries of IT equipment for the land registry and cadastral system have improved the efficiency of work and established a secure system of land registry administration of the Federation of BiH.

-Internet availability of cadastral data from the Real Estate Cadastre Database provided for all 79 municipalities and cities, 2,049 cadastral municipalities (LRP + RERP), including graphic data on plots and ortho-photo images / substrates for the entire FBH ([www.katastar.ba](http://www.katastar.ba)) .

-Internet insight into the land registry data of the FBH provided for all land registry offices, a total of 2,418 cadastral municipalities ([www.e-grunt.ba](http://www.e-grunt.ba)).

-Access to data is provided through two groups of web services, public and user - in addition to searches by parcel number, by Possession List number, insight into geometry / cadastral plans, search by land registry file number, by parcel number and by land registry status, and user services for cadastral data, e-services for the needs of security agencies, access and exchange of data on personal identifiers and residence records is provided and residences of BiH citizens with the Agency for Identification Documents, Records and Data Exchange of BiH (IDDEEA).

-E-services provided annually record multi-million figures, which significantly speaks of the interest and need of citizens, legal entities and institutions.

-The interoperability of the cadastral and land registry information system is ensured, then the interoperability of the cadastral information system with the systems of the Digital Archive, Address Register and IDDEEA, and the interoperability of the land registry information system with the systems of the Address Register and IDDEEA.

- 59 land registry and cadastral offices are renovated and equipped with appropriate furniture in accordance with the highest standards, which significantly improved the quality of services provided to users, improved working environment and work organization, greatly reduced the possibility of corruption and significantly improved citizens' perception and confidence in land registry and cadastre .

- More than 58% of land registry entries are based on the new cadastral survey (the total number of all land registry entries in the electronically kept land registry of the FBH is 2.03 million). For the sake of comparison, it is illustrative enough to say that at the end of 2007, that percentage was only 13%! The number of land registry entries based on the new cadastral survey is constantly increasing thanks to the implementation of activities on the systematic harmonization of real estate data between the land registry and the cadastre.

- More than 72% of the territory of FBH was vectorized through Government budget funds, through regular work of employees and WB Project funds; The total number of plots in the Federation of BiH in vector form is 4.2 million, which is more than 75% of the total number of plots in RECDB.

- Excellent cooperation of the Federal Administration for Geodetic and Real Property Affairs and Tax Administration of the Federation of Bosnia and Herzegovina during the realization of the CILAP project resulted in a functional and up-to-date Sales Price Register of the FBH and by development of a public presentation of SPR data (Public Access).

- Public online presentation of Sales Price Register data of the FBH provides realistic insight of real estate market and its developments/ trends and at the same time data on real estate prices

(purchases) at different locations in order to achieve transparency and security of the real estate market. Data for over 140.000 real estate transactions is available online ([www.katastar.ba/rcn](http://www.katastar.ba/rcn)).

- With the CILAP project support, the application for establishment, management and maintenance of address register has become fully operational and ready for installation in FBH municipalities.

Data on addresses in the FBH is available to all citizens through the FGA geoportal and FBH Geoportal of Spatial Data Infrastructure. Currently, the FGA has signed agreements on distribution of AR data with forty five municipalities, data have been prepared for 30 municipalities.

- Data harmonization according to INSPIRE standard for 12 datasets is completed.

- GIS Browser of the SDI Geoportal of FBH was published with the support of the Government of the Federation of BiH.

- The GIS Browser, together with the Catalog of Metadata, the Register of IPP Sources and Subjects as well as the SDI website, form one unit that represents the SDI Geoportal of the FBH.

- The metadata catalog is online, and widely used. The catalogue contains all metadata about the displayed spatial data, and 19 metadata have been entered so far.

- 54 SDI subjects and 109 data sources have been registered in the SDI Registers.

- All applications are accessed centrally through the official website of the SDI FBH: <https://ippfbih.gov.ba/>.

- Gender-disaggregated data on land and real estate ownership in the FBH are monitored and analyzed on a quarterly basis. Of the total number of natural persons registered in the land register with a unique personal identification number, 38.5% are women and 61.4% are men. During the implementation of the Project, these percentages were changed in favor of women - there was an increase from 37.0% to 38.5%.

## 5. CONCLUSION

FBH headed by its Government recognizes the activities of the Land administration sector as an important goal that can significantly contribute to the digital transformation goals, the European Union accession and consequently to overall economic and social development and growth. Joint efforts of geodetic authority and other spatial data holders, with the support of various carefully coordinated projects is leading to the fulfilment of ultimate goals and facilitation of public service provision. Data and metadata standards, procedures, and policies are used to promote coordination among data in the Federation of Bosnia and Herzegovina.

Activities and projects lead by FGA are also recognized by users of land administration services - the results of several surveys, which were anonymous and voluntary, showed that respondents at both measurement points were satisfied with different aspects of land registry and cadastral offices. The average assessment of the satisfaction of individuals with different aspects of services provided by land registry and cadastral offices is even slightly higher in the second (follow-up) measurement compared to the first (baseline) measurement. The real estate registration project and the contribution to the improvement of the work of cadastres and land

registry offices were rated highly in all measurement points by the general population in the Federation of BiH.

Continued evidence of the digital transformation in the FBH is the increased exchange of data via web services with different authorities and local governments that raises the efficiency of work in land administration and laying the foundations for e-government for user benefits. This consequentially prevents data duplication, issuance of incorrect data from unauthorized sources, helps in clear definition of roles and jurisdictions among public institutions. There are limitations in the existing legal framework for the full operationalization of the interoperability, which will require further analysis and initiation of the procedures for amending the legal framework necessary for the implementation of the interoperability objectives. An important prerequisite for removing information silos, data redundancy and data inconsistency is the implementation of the Electronic Signature Act. It is important to note that these changes will trigger the redesign of business processes what could be considered as an additional opportunity to progress on the digital transformation road.

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## **BIOGRAPHICAL NOTES**

**Željko Obradović** is the Director General of the Federal Administration for Geodetic and Real Property Affairs of the Federation of Bosnia and Herzegovina. Željko Obradović has studied Geodesy in Sarajevo and earned his Master's degree from the University of Sarajevo in Sarajevo, Bosnia and Herzegovina. His specializations are Cadastre, Land Administration, Legal Framework, SDI, Project and Institutional management, Land Governance and has the experience of working in several domestic and international projects, Steering Committees, Scientific Organizations and Professional institutions, and has a long list of published articles in various expert publications.

**Denis Tabučić** is the Head of Sector for implementation of public investment programme projects in the Administration for Geodetic and Real Property Affairs of the Federation of Bosnia and Herzegovina. Denis Tabučić has studied Geodesy in Sarajevo and earned his Master's degree in 2011 from the University of Sarajevo in Sarajevo, Bosnia and Herzegovina. He has a strong IT background and his specializations are areas of Project management, Geospatial Data Infrastructure, GNSS CORS networks, Land Administration Information Systems. Denis Tabučić also has the experience of managing several domestic and international projects that are implemented by the Federal Administration for Geodetic and Real Property Affairs or other Governmental institutions.

**Andja Zimic** is the Director of the CILAP (Capacity building for improvement of land administration administration and procedures) from Lantmäteriet, the Swedish cadaster and mapping authority. Andja Zimic has studied Geodesy in Sarajevo and earned Master's degree from the University of Sarajevo in Sarajevo, Bosnia and Herzegovina. Her specializations are international cooperation projects, Cadastre, Land Administration, Legal Framework, Institutional management, Land Governance and has the experience of working and managing several domestic and international projects, Steering Committees, Scientific Organizations and Professional institutions, and has a long list of published articles in various expert publications.

## CONTACTS

Mr. Željko Obradović  
Federal Administration for Geodetic and Real Property Affairs  
Hamdije Kreševljakovića no. 96  
Sarajevo  
BOSNIA AND HERZEGOVINA  
+387 33 201 784  
+387 33 586 056  
zeljko.obradovic@fgu.com.ba  
[www.fgu.com.ba](http://www.fgu.com.ba)

Mr. Denis Tabučić  
Federal Administration for Geodetic and Real Property Affairs  
Hamdije Kreševljakovića no. 96  
Sarajevo  
BOSNIA AND HERZEGOVINA  
+387 33 586 078  
+387 33 201 784  
denis.tabucic@fgu.com.ba  
[www.fgu.com.ba](http://www.fgu.com.ba)

Ms. Andja Zimic  
Lantmäteriet, CILAP project  
Hamdije Kreševljakovića no. 96 – Project office  
Sarajevo  
BOSNIA AND HERZEGOVINA  
+387 33 586 068  
+387 33 201 784  
andja.zimic@lm.se  
[www.cilap-project.org](http://www.cilap-project.org)