Development of E-government in Serbia and Bosnia and Herzegovina

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Abstract – **Communication and information technologies as a means towards an information society impose the need to modernize public administration and to introduce electronic government as a state management tool. In this paper we will present the state of e-government in Serbia and Bosnia and Herzegovina at the central and at the municipal level covering the period of four years. In addition we will provide analysis of the present state of ICT infrastructure at the municipality level in both countries.**

Keywords – **e-government, measurements of e-government, ICT infrastructure, legislation framework**

I. INTRODUCTION

The interpretations of e-Government are broad and divergent. Generally speaking, e-government can be defined as the use of ICT for delivering more effective and proficient government services to citizens, businesses or government agencies, by various communication means as the Internet, telephone, wireless devices or other communication systems. Effective e-government involves rethinking organizations and processes, and changing behavior so that public services are delivered more efficiently to the interested parties. As stated in [1] e-government contributes significantly to the process of transformation of the government towards a leaner, more cost-effective government. By intercepting appropriate technology, e-government can facilitate communication and improve the coordination of authorities within the different tiers of government.

To achieve the goal of e-government and improve the delivery of public services, ICT involvement is inevitable. ICT provides various ways for integrating information systems into one compact entity, offers relatively inexpensive infrastructure for data interchange and the possibility of accessing information and e-government services from any place.

The success of e-government implementation needs to be measured on all government levels, both state and municipality level. This can be done using various methodologies, as those listed in [2]. The most comprehensive methodologies are measuring the supply and the usage side of e-government services, as well as the state of ICT infrastructure. According to [3] the supply side of e-government can be evaluated through the sophistication and availability of 20 basic public services.

In the rest of this paper we will present the state of e-government in Serbia and Bosnia and Herzegovina (B&H), both on the state and on the municipality level. We will overlook the state of e-government from different viewpoints, including implementation of 20 basic public services, the legislative background and the state of ICT infrastructure.

II. EVALUATION OF E-GOVERNMENT ON THE STATE LEVEL

Evaluation of e-government on the state level can be done by measuring the development of 20 basic public services in terms of availability and sophistication, and percentage of individuals and enterprises that are using the Internet for interacting with public authorities. This evaluation is proposed in the i2010 benchmarking framework [3]. For the purpose of this paper we will also take into consideration the state of legislation and the ICT infrastructure, because they are important factors in implementing e-government services.

A. State of e-government in Serbia

E-government in Serbia in the past few years has significantly advanced, taking into account that the state has brought some of the necessary laws for its functioning [4]. In June 2009, the Ministry of Telecommunication and Information Society, has proposed a new Strategy of e-government development in the Republic of Serbia for the period 2009-2013. Special significance for e-government development in Serbia has the adoption and implementation of Law on Electronic Signature. Registration of certification bodies for issuing qualified electronic certificates enabled the use of qualified electronic signatures for signing electronic documents. In July 2009, the Law on Electronic Document was passed and it would have a major impact on the process of modernization, rationalization and the introduction of electronic government. The new Law on Public Procurement entered into force on January 2009 enabling, among other, the possibility of electronic procurement, including electronic auctions. One of the key innovations, brought by this Law, is the introduction of customer commitment to publish ads electronically on the public procurement portal, instead of in a

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daily newspaper, as it was the case previously. In the next period, the Government of the Republic of Serbia plans to adopt a few more laws (such as Law on Electronic Government, Law on the Protection of Personal Data in Electronic Form and Law on Electronic Archives) that will significantly improve the implementation of e-government.

First evaluation of e-government in Serbia was done in 2004. Since then, benchmarking of e-government has been done yearly by measuring the sophistication of 20 basic public services and their online availability, according to methodology described in [5]. Sophistication of public services on the state level has grown from 15.25% (2004) to 47.42% (2008) [6] [7]. That is a total growth of 32% for the four years period. Services offered to businesses are more sophisticated in comparison with citizens' centric services [7].

When comes to the implementation of particular e-services, we can say that the most sophisticated are: Job search, Public procurement, Public libraries and Customs declaration.

Through Public Procurement Office portal it is possible to query existing procurements or electronically publish new and monitor their status. On the Web site of the National employment agency it is possible to search job database that covers the whole territory of Serbia as well as to register in order to apply for job. Through the state Web portal for customs declarations it is possible to submit the required documents electronically; in that way customs clearance takes much less time than usual.

Health related services are, on the contrary, least developed. Scheduling medical examination is not feasible through the Web site of the health care center or other state medical institutions. It can be done only by coming to the health care institution or in rear situations by phone calls.

E-Government internet portal was launched in March 2007, and it served as a source of information about basic public services and the corresponding authorities. In 2010 it was upgraded from information oriented to service-oriented Web portal. Its final function is to be a "one-stop-shop" by enabling users to easily and rapidly access information and electronic services of public administration from any place.

B. State of e-government in Bosnia and Herzegovina

In the last few years B&H made significant progress in bringing regulations in the field of telecommunications and ICT in the public government. Lack of systematic, organized and methodical approach to the application of e-technology in public administration contributes to the fact that B&H is one of the last countries in the region of Southeast Europe that has adopted IT strategy. In 2005, the B&H Council of Ministers adopted Policy, Strategy and Action plan of the information society that is focused on legal infrastructure, e-Education, e-Governance, ICT infrastructure and ICT industry development.

B&H has gradually begun adoption and application of the law on electronic communications infrastructure and related services in accordance with the guidelines provided by the relevant Directive of the European Union. In recent years B&H has made major progress in terms of regulations in the field of telecommunications, and therefore in the area of application of e-technology in public administration.

Official analysis of 20 public services in terms of sophistication and availability haven't been done so far. However there are some partial analysis prior to 2009 [8]. The progress in e-services implementation is evident for job search and library services. The Agency for Public Administration partially offers job search on-line through a portal. National University library is developing an integrated overview of individual library funds [8].

B&H is still a long way behind world-wide transactional and cross-organizational services as stated in [9], there is encouraging awareness of internet use as a tool for public institutions to disseminate information; and a majority of institutions, regardless of level, have their own Web sites.

Most of the authorized institutions offer on their Web sites basic information for citizens and other interested parties, but there aren't any interactive electronic services. Public administration of B&H is still missing official e-government Web portal with on-line services available to citizens and links towards sub-portals at state, entity and other levels. Portal for e-services should improve the effectiveness of B&H administration authorities, by providing the possibility to review and collect information and by enabling appropriate data exchange using e-services, as foreseen by Bosnia and Herzegovina laws. In 2009 a Web portal of public administration of Republic of Srpska, providing e-services to citizens, has being released at entity level and named *e-srpska*. These kinds of portals help B&H to fulfill required clauses for approaching European Union considering 12 e-services for citizens that each e-government, willing to become a member of EU, has to conform [10].

It is necessary to develop information systems with support for horizontal functions, that is, processes which are common to majority of institutions. This means that institutions can automate some of the most commonly used procedures and so produce larger budget savings, with only one software solution. Most of initiated and implemented projects since 2004 until now have been dealing with the need for resolving some critical issues of inherited situation in this area, and therefore were designed as solutions to one and only problem that would appear in certain public administration institutions. As a result of such actions, enormous differences in levels of applied e-technologies have appeared among public institutions, varying from very modern systems and well developed networks (such as the Agency for identification documents, recording and exchanging data B&H - IDDEEA) to very obsolete solutions [11].

Subject to document eSEE AGENDA+ for development of information society in countries in the South East Europe 2007-2012, which is in accordance with the document i2010 European information society for e-Government [3], IDDEEA has a responsibility to develop through this Project three e-services for citizens:

- Personal documents (ID card, Driver License and Travel documents)
- Registration of vehicles (new, used or imported vehicles)
- Reporting on change of residence (address change)

III. EVALUATION OF E-GOVERNMENT ON THE MUNICIPALITY LEVEL

A. Serbia

Large number of cities and municipalities offer trough their Web sites, download forms and information of interest for citizens and businesses. Information that local governments most commonly post on their Web sites often includes description of government departments and officials, contact information, economic development data, the local government law book or special announcements. Some local government Web sites offer the ability to print forms that citizens can fill out and mail or bring to the government office. More elaborated sites offer interactive forms that can be filled out and submitted online.

The most common electronic services in Serbian local self-governments are: Virtual registry office, Voter's lists and e-Notary. The service "Virtual registry office" is used for ordering birth certificates (which are rarely supported by transactions operations - payment of certificates fees at the time of ordering). "Voter's list" is an online service used by citizens for checking the list before elections, in order to see if they are on the list and contact authorities if opposite. Some municipalities provide a complete monitoring of citizens' cases via the Internet through the e-Notary. This service is based on internal municipal service that allows movement and processing of case files in electronic form, without using the internal delivery book. Using the code obtained after submitting the request at the municipality in person, citizens are able to track and receive information regarding the status of their cases over the Internet.

Some municipalities have so-called citizens assistance centers that operate according to the principle of "one stop shop" – all services are provided in one place. Service centers have counters for work with citizens and/or legal persons. Counters are mostly organized in a way that every counter is dedicated to one municipal service. In some cases assistance centers provide even more - submissions are electronically distributed to appropriate municipal services due to the unique information system and the specialized "back office" software. All the electronic services to citizens and those that are available over the Internet in these municipalities are based on this "back office" software.

Majority of municipalities in Serbia so far have no information system upgrade with applications that allow the digitalization of paper documents and complete electronic processing. Majority of municipalities, which is certainly a good example of introducing e-government within the municipality, have electronic registries. The existence of information about citizens in electronic form provides the possibility of issuing birth certificates quickly and easily, thus reducing congestion in the citizens' assistance center. Many cities/municipalities provide issuing of birth certificates in local government branch offices, cited in remote locations that belong to the territory of the city/municipality. In order to implement this type of service it is necessary to have a unique database of citizens at the state level, or to provide access to independent databases of cities/municipalities based on digital certificates.

When comes to the state of ICT infrastructure, as stated in [12], there is still 15% of municipalities with almost no infrastructure. It is evident that all municipalities without ICT infrastructure are among the group of weakly developed or underdeveloped municipalities. For example, 13% of municipalities have no servers, 15% of municipalities have no network printer, in 6% of municipalities network infrastructure doesn't exist, in 8% of municipalities less than 10% of employees have no Internet access, in 7% of municipalities less than 30% of employees have a computer in their workplace. On the other hand, 75% of municipalities have from 1 to 5 servers, while 13% of municipalities owns more than 5 servers, 40% of municipalities have an email server, in 60% of municipalities over 50% of employees have computers in their workplace, in 47% of municipalities over 50% of employees have an Internet access. The encouraging fact is that all municipalities have Internet access and that a large number of municipalities have a sufficient number of computers, networking equipment and servers for basic operational needs.

B. Bosnia and Herzegovina

Public administration of B&H provides services to citizens in 146 municipalities, 2 entities, in Brčko District and at the state level of B&H. At each level there are various problems involved in proper functioning of public administration. Principles and practice at the municipality level or a canton are different from principles adopted in other municipality, canton or B&H. The existing state at all public administration levels in Bosnia and Herzegovina shows there is lack in understanding the importance of e-technologies that could be involved in its functioning. Introducing e-government into public administration of Bosnia and Herzegovina is mostly considered as computerization of certain business processes, and then as a means for reforming public administration. There is a lack of transparency regarding work and finance matters. There is neither horizontal nor vertical electronic communication. Public administration offices use different operating systems, applications and database systems due to lack of standards and no global plan for introducing information technologies in the state administration. Web sites of public administrations provide citizens with not many services, not frequently updated information, and rarely include forms that can be printed locally [8].

Technical capabilities of administration units are somewhat satisfying. Large number of local legal and administrational organizations is properly technically prepared and has quality information equipment. However, that equipment isn't often used in appropriate and satisfying way and in accordance with regulations and procedures, which are established by competent institutions. 55% of employees in administration know how to use a computer, but only 5% of professional IT staff is employed in IT or equivalent sectors. Internet connection lacks in usage. There is formal presence of e-government online in the form of only several municipality, entity or state Web pages, basically used as official sources of

information. These pages provide users with static data about government institutions, sectors, ministries, agencies etc, as well as with contact information, but largely lack at actuality of data. One particular project that has been successfully implemented is the Project for municipalities' needs for issuing Birth and Citizenship certificates for the purposes of issuing Biometrical Passport. Usage of this Web solution has significantly shortened the lines in municipalities and lowered the pressure on referents.

The problem of verification of breeder documents in the process of identity chain (issuance of travel documents) is recognized as the weakest link of the system. Related experiences worldwide are equal to those of B&H. The Agency is trying to raise the work quality level in this field as high as possible in order to harmonize the process of issuing documents with the European standards [13]. The Law on Travel Documents does not impose the obligation that an individual who possess an identification document must submit an application for issuance of travel document accompanied with a birth certificate and certificate of citizenship. It is assumed that such check will be conducted during the process for issuance of identity card. Unfortunately, it is evident that the process for issuance of identity cards had a range of weaknesses, mainly in the field of breeder documents. Therefore, data currently contained in the civil register cannot be taken as absolutely accurate.

Thanks to the Governance Accountability Project - GAP, 70 municipalities at the B&H territory will be a part of the uniform system. Through implementation of this system, besides fulfilling of the requirements to introduce the system of biometric travel documents, municipalities will obtain appropriate network infrastructure as a basic condition for establishment of municipality information system: electronic registers, data exchange between municipalities, e-government, PKI, electronic signature-verification, etc.

Due to unconcern of the institutions for local administration, being uninformed and because of weak awareness related to process for meeting requirements for the purpose of accession to the EU, financing and realization of this project by local administrations themselves is not possible in a reasonable period of time. Certainly, there are municipalities which will meet the required conditions as specified by EU standards and procedures, but it is even more certain that there are municipalities where such process will last unreasonably long.

Responses to the questions on possession of Electronic Registers, existence of local networks, position of municipality election commissions (OIK), etc, from all municipalities in B&H were provided in cooperation with GAP. The obtained data confirms that 67% of municipalities already have electronic registers and that 83% municipalities have already met the technical requirements for the access to the information system of the Agency.

III. CONCLUSION

E-government has been a very important field of exploration in past few years, especially for the developing countries of the Balkan region. If successfully implemented e-government will bring benefits as better efficiency, accountability and accessibility to public services.

In this paper we have presented the current state of e-government in Serbia and B&H, from different aspects covering the period of four years. We have identified the critical factors related to e-government introduction, on the state and on the municipality level. They are focused around the following key drivers: legislation framework, ICT usage, systematization and education of personnel, municipal leaderships support and appropriate funding. With the proper usage of ICT, countries have opportunity to make a significant progress in a relatively short time period and to place themselves among efficient, citizen oriented e-governments.

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