

eGovernment Maturity & eRediness at BiH Municipality

Jasmin Cosic

Ministry of Interior, Bihac
Department of informatics
Bihac, BiH
jascosic@bih.net.ba

Adis Medic

„InfoSys“, Bos.Krupa
System engineering
Bos.Krupa, BiH
adismedic@hotmail.com

Abstract. *eGovernment reflects the ultimate visions for public administrations and governments to make change. However, eGovernment is not a simple on-line information provision, it requires an evolutionary and comprehensive architecture to avoid unnecessary duplication of infrastructure and major components, to integrate disparate processes, services and activities located outside administrations. The aims of eGovernment are not only the transformation of traditional information into bits and bytes and making it accessible via the Internet and moving existing government functions to an electronic platform.*

In this article, authors present a research that has been made on specimen of 131 municipalities and local communities¹ [1], it gives an overview of few eGovernment maturity models on the local government level and present a proposal for our own model, which has been used in research. The model is based on the abrupt development of web technology back 3 or 4 years, specially web 2.0 services and Content Management System (CMS). The research results showed that the maximum number of web portals (web site URLs) of local communities in Bosnia and Herzegovina is at the lowest stage of development (88%), and that the maximum number of local communities (82%) still do not understand the importance of electronic communications with its citizens.

This paper shows a stage model for the current state of eMaturity for municipalities in

Bosnia and Herzegovina. To improve service delivery on local government level, departments and agencies have to work together and manage the mutual information flow, which is based on various government websites and initiatives. These governmental websites and initiatives are the catalyst for establishing a model that will help to improve the development of infrastructure facilities.

Keywords: eGovernment, eMaturity

1 Introduction

E-government practices must be designed for creating, adding value to public products and services, thus increasing the administration efficacy, transparency and security [2]. This means that many things in e-government are still an immature research area with a majority of papers on case stories and product descriptions, and few articles on theory building and theory testing [3]. Development of the eGovernment in Bosnia and Herzegovina is in the initial stage. Ongoing, currently, is the state level, the web sites of B&H, entities, municipalities and the state of the record in the public administration of Bosnia and Herzegovina.

View on eGovernment, primarily, depends on the interests of one who is describing it. For a businessperson, eGovernment presents a fast eRegistration of company, arranged and electronically guided cadastre, or on-line public procurement [4]. For a citizen the most interesting are on-line checking and paying taxes, the electoral system in which there is no „cheating“, the results of enrollment in schools and faculties on the Internet, notice of Ambrose destruction, or a public works in the neighborhood. The journalist was

¹ Data on municipalities and the number of municipalities are taken from the Agency for identification documents, records and data exchange BH (www.cips.gov.ba)

primarily interested in an unlimited, quick and free access to public information etc [5].

In a large number of local communities and municipalities in Bosnia and Herzegovina in progress are projects for building backoffices [6] which will serve to citizens and that presents a lower level of “one-stop-shop on the place” services. For example, about (over) 33% of citizens in B&H have an internet connection [7], it is clear that a large number of citizens is “ready” for using on-line eGovernment services. The authors have conducted a research on a sample of 131 municipalities. The first part of the research introduces an intention through search engines (google, yahoo, etc.) and key words to try to find whether the municipality or local community, in general, has a web site or any other portal? If the portal exists, in order to see the level of service provided to citizens, analysis has been performed (stage of development), possibility of contact by e-mail, form, etc., as well as architecture and technology that portal is based on. After that, it is examined whether and how secure is the portal (security of conducted transactions). In the last phase, an e-mail was sent to all municipalities at the e-mail address that was set as the official e-mail on web site with the query in the civil state, and it was expected to be seen how the municipality will respond to e-mail (expected in any reply by email, the content was not so important).

The work presents the results of research, and the model that the authors created especially for this study as a mixture of several reference models. When a model was created, the main criteria were the rapid development of Web technology and web 2.0 service back a few years (since 2004, which is in fact completely suppress the phase I "of static and informational" web sites from the previous models [8].

2 Overview of the eMaturity models

2.1 Gartner Study

To measure progress for eGovernment initiatives and to establish a road map to achieve the desired levels of service consistency, Gartner research (2000) study titled “Gartner's Four Phases of eGovernment Model” classifies eGovernment into four distinct phases. This can be used as a reference

to position where a project fits in the overall evolution of an eGovernment strategy.

- Presence: This stage is classified by a simple information-providing Web site of a passive nature, sometimes described as “brochure ware,” indicating the same level of functions as a paper brochure.
- Interaction: The interaction stage offers simple interactions between government and citizen (G2C), government to business (G2B), or government agency to government agency (G2G). Interaction stage Web sites provide e-mail contact and interactive forms that generate informational responses.
- Transaction: The transaction stage enables transactions such as paying for license renewals online, paying taxes or fees, or submitting bids for procurement contracts.
- Transformation: The highest stage, most closely aligned with the concept of governance, involves a reinvention of how government functions are conceived and organized [9].

2.2 United Nations / American Standard Public Administration (UN / ASPA) Study

United Nations Division for Public Economics and Public Administration (2001) study “Benchmarking E-government: A Global Perspective, Assessing the Progress of the UN Member States” identifies the five stages for quantifying progress of eGovernment. Study identifies eGovernment stages as representative of the Government’s level of development based primarily on the content and deliverable services available through official websites.

- Emerging: An official government online presence is established through a few independent official sites. Information is limited, basic and static.
- Enhanced: Government sites increase; information becomes more dynamic. Content and information is updated with greater regularity.
- Interactive: Users can download forms, e-mail officials, interact through the web and make appointments and requests.
- Transactional: Users can actually pay for services or conduct financial transactions online.
- Seamless: Full integration of eServices across administrative boundaries. Total integration of eFunctions and services

across administrative and departmental boundaries [10].

2.3 Layne & Lee Study

To help public administrators think about eGovernment and their organizations, Layne and Lee (2001) provided a four stage of eGovernment development and proposed a 'stages of growth' model for fully functional eGovernment.

- Cataloguing: In stage one of cataloguing, initial efforts of state governments are focused on establishing an on-line presence for the government.
- Transaction: In the transaction stage, eGovernment initiatives will focus on connecting the internal government system to on-line interfaces and allowing citizens to transact with government electronically.
- Vertical integration: Vertical integration refers to local, state and federal governments connected for different functions or services of government.
- Horizontal integration: Horizontal integration is defined as integration across different functions and services. In defining the stages of e-Government development, the vertical integration across different levels within similar functionality is posited to precede the horizontal integration across different functions [11].

2.4 World Bank study

To assist policymakers in devising their own plans and initiatives, Center for Democracy and Technology (2002) divides the process of e-Government implementation into three phases. These phases are not dependent on each other, nor need any phase to be completed before another can begin, but conceptually they offer three ways to think about the goals of eGovernment.

- Publish: Publish sites seek to disseminate information about government and information compiled by government to as wide an audience as possible. Doing so, publish sites serve as the leading edge of eGovernment.
- Interact: Interactive eGovernment involves two-way communications, starting with basic functions like e-mail contact information for government officials or feedback forms that allow users to submit comments on legislative or policy proposals.

- Transact: Allowing citizens to obtain government services or transact business with the government on-line. A transact website offers a direct link to government services, available at any time. Transact sites can enhance productivity in both the public and private sector by making processes that require government assistance or approval simpler, faster, and cheaper [12].

2.5 IBM Study

For eGovernment transformation to flexible, outcome-focused organizations that citizens are learning to expect, governments will need to develop on demand capabilities. On demand environment will require an open and scalable infrastructure, new technologies, and appropriate and targeted implementations of reengineered processes. (IBM Business Consulting Services, 2003, p. 12). The overall eGovernment evolution can be viewed as having four basic stages or waves of change. These waves of change move from Access (Waves 1 and 2) to Integration (Wave 3) and to "On demand" (Wave 4), which is a dynamic and highly responsive stage. Each wave is characterized by a common set of achievements and objectives driven by similar concerns and challenges.

- Automate: Initial focus on citizens and Web presence is relatively straightforward.
- Enhance: Governments do not have to make many changes to existing applications or policies to reach Wave 2.
- Integrate: To progress toward Wave 3 is more difficult as it requires serious planning in transformation of business processes and integration.
- On demand: To progress to Wave 4, which is a transformation to an "On demand" model involves three paths: business model transformation, infrastructure transformation and cultural transformation [13].

We try to describe in short the most important models, but there are numerous other models for this category of so called stage models and studies for public e-services, like: ANAO Model, SAFAD Model, Hiller&Belanger model [14], Deloitte and Touché's Model, Siau and Yong's Synthesised Model [15], or we can talk about stages of growth or evolution models and that have been applied in various domains [16].

3 The stages for eMaturity at local level in B&H

The research was based on several key elements on the web sites (web portals) which are officially representative for municipalities and local communities in Bosnia and Herzegovina. The components important for researching are: the structure of the web presentation, based technology, security for the transactions that are carried out through the web site (update, patch, "up-to-date" system, etc.), level of service provided to citizens, the possibility of communication with e-mail, on-line forms, etc., and the level of the domain on which the web sites are registered. Essential is the question whether the municipalities in general are ready for this kind of electronically communication, and whether anybody answers to this kind of questions which are sent via on-line form.

Most municipalities and local communities use popular open-source CMSs like Joomla, phpNuke, Mambo etc. Using these CMS's was made possible by all the hosting provider, with pre-configured pre-scripts, a user with a minimum of technical experience can do the installation and

have the full functionality of the web portal with the possibilities of transactions, G2C, C2G, G2B and others. That is what the model is based on and the recommendation by authors of this paper. This model was used during research.

3 levels can be suggested as follows:

- Information & Simple Interaction, presence of basic information, on-line forms, e-mail communication or contact forms, download for forms and other documents, FAQ, forum...
- On-line full transactional, all transaction are on-line, real-time communication, e-banking, e-voting, certificates, on-line citizen help-desk
- Integration and services on demand, integration of system, on-line web services, services only to the demands of citizens (on-demand), Exchange Server for data exchange between different organizations, high-security, on-line privacy

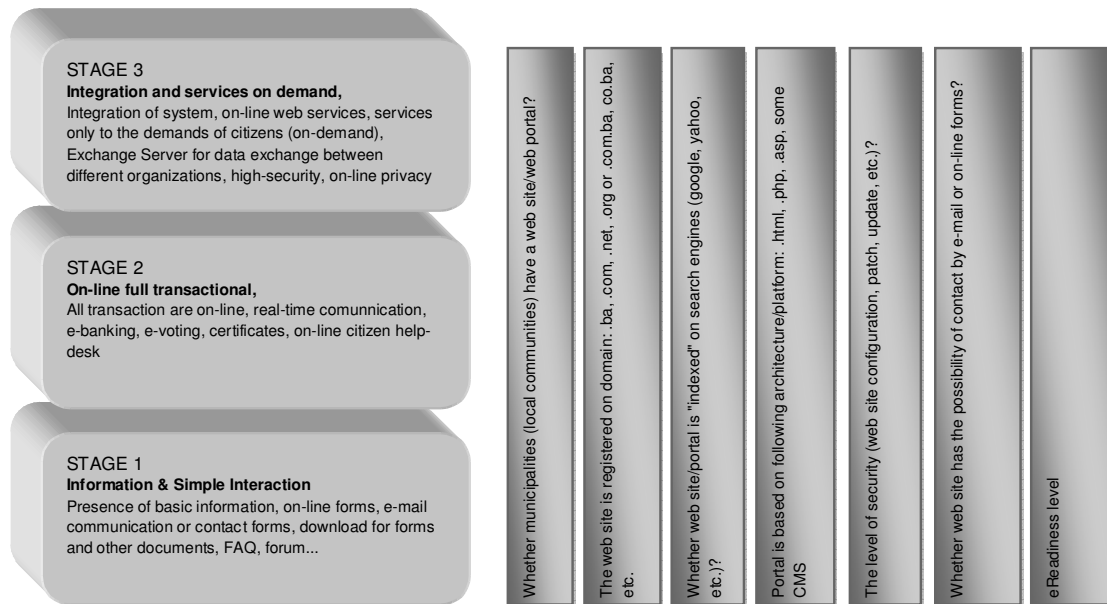


Figure 1. Recommended model

4 Research methodology & results

This article is presenting the research that was first done in this manner at the local level in Bosnia and Herzegovina. The study covers 131 municipalities (local community) in Bosnia and Herzegovina. List

of municipalities was taken from the web site of the Directorate of CIPS [17]. Data were collected exclusively on-line, via the Internet. The authors tried by a web search engine (google and yahoo) and by using keywords (municipality, city, local community, etc.) to find the official web presentation. Of the total number of 131 municipalities, 105 municipalities (80%) has a web

page. Those 105 municipalities were studied, with of a form that was created for the purpose of this research.

Only 42% (44/105) of municipalities was registered on the top level domain (.ba), while other web sites are registered on subdomains (.org, .net, .info, .com, .com.ba, .co.ba, .rs.ba). 71 municipalities has an e-mail address clearly presented on a web site, while 39% (28/71) of them has an e-mail address registered on a „valid“ .ba domain.

In terms of technologies used to create a web site or portal then the situation is as follows: the most of web sites are based on open-source CMS solutions (joomla, phpNuke and mambo) 62%, while rest of them use .asp, .html or „danes“ commercial domestic CMS. 76% of municipalities has a possibility to contact by an e-mail or on-line form.

Next, what was important in this research is whether municipalities, in general, are aware of

the importance of electronic communications with its citizens, and are they at that level that provide such communication with citizens. To find that out, an e-mail was sent to all addresses (the ones that are official and which are found on the web site of the municipality), and as a purpose of the research presented was: citizen was sent the e-mail and he tries to obtain certain information from the competent services of municipality. In our case it was the "office for building and inspection tasks", where they looking for information about "getting a permission for urban construction." In fact it was necessary to get any response to confirm the readiness of municipalities to use electronic mail and electronic communication with citizens. The results were: only 18% of municipalities (13/72) responded to the request, and 7 municipalities within a few hours responded, 4 municipalities within 2 days, 1 municipalities within 5 days and one within 8 days, etc.

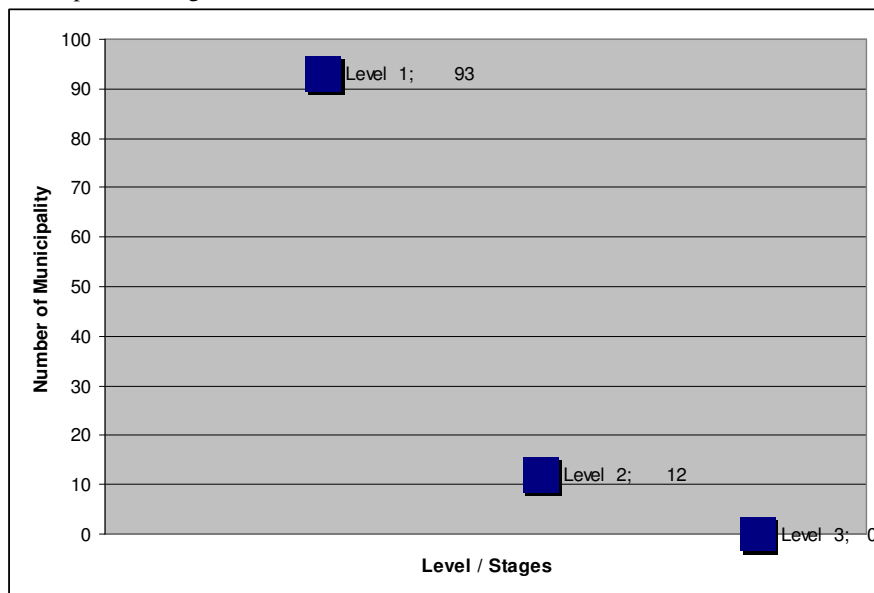


Figure 2. Results of research

5 Conclusion and recommendation

From these studies, it is clear that eGovernment involves multiple stages or phases of development and is not a one-step process. If we want to define eGovernment, or eGovernment development, it is clearly that this depend, in first row, upon education level of the population [18]. The process of eGovernment implementation into different phases, these phases are not dependent on each other, nor need any other phase to be completed before

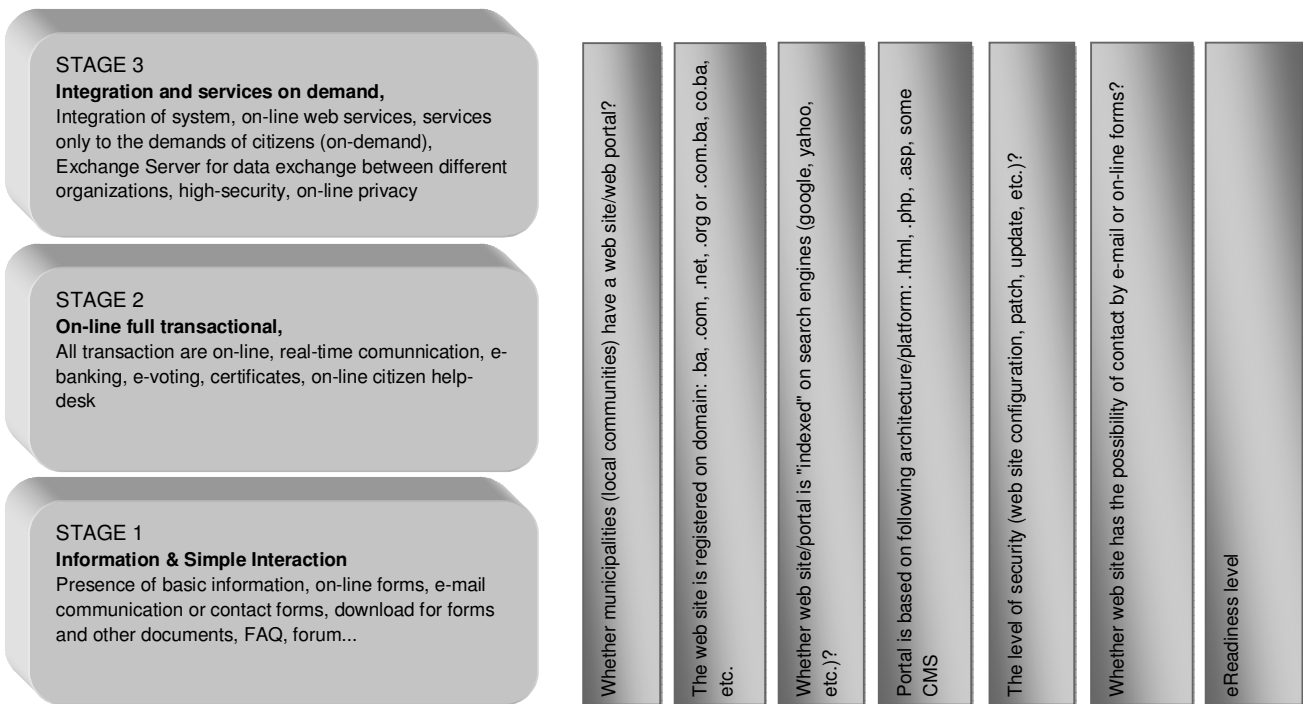
another can begin, but conceptually they offer several ways to think about the stage of eGovernment presence, access, interaction, transaction and integration. Moreover, eGovernment does not happen just because a government buys more computers and puts up a website. While on-line service delivery can be more efficient and less costly than other channels, cost savings and service improvements are not automatic.

We must pay our attention on current web development in world, so we cannot measure eMaturity in the way that one of the main criteria is

technology for development of web sites. The main consideration for this paper is quantity of implemented eServices and all other gadgets for easier and less costly public and administrative use. The next step, in near future, is to try to make a perfect (ideal) model, that will serve as a standard in eGovernment growth. To do this, we must, first of all, summarise all the other models and take a most common note which is relevant for eGovernment maturity. In order to do so, we are forced to accept an opinion that these models are developed and established from a different viewpoints.

References

- [1] Data on municipalities and the number of municipalities are taken from the Agency for identification documents, records and data exchange BH (www.cips.gov.ba), Accessed: 12th February 2009
- [2] Enrique C.C, Susana J.E., Juan J.T., „Egovernment maturity at spanish local levels“, EMCIS 2006
- [3] Groenlund, A., „State of the art in e-Gov research: A survey“, in Electronic Government: Third International Conference, EGOV. 2004, Springer-Verlag Berlin/Heidelberg.
- [4] Klievink B., and Janssen M., „Stage models for creating joined-up government: From local to nation-wide integration“, The Proceedings of the 9th Annual Digital Government Research Conference, pp 117-123, May 2008
- [5] IT Bussines support center, www.itbusiness.ba/ITB/sr-SP-Latn/Default.aspx?TabID=698, Accessed: 21th April 2009
- [6] The Governance Accountability Project (GAP), www.bihgap.ba, Accessed: 13th April 2009
- [7] Communication Regulator Agency BiH , www.cra.ba, Accessed: 28th April 2009
- [8] Referring to models that are presented in this study
- [9] Gartner Research. (2003). Traditional ROI Measures Will Fail in Government, www.gartner.com/DisplayDocument?id=317292, Accessed: 13th Mai 2009
- [10] Asian Instutute for Journalism and Communications, www.aijc.com.ph/PCCF/observatory/pfd%20files/directory/UN-ASPA%205%20Stages%20of%20E-government.pdf, Accessed: 15th April 2009
- [11] Layne, K., & Lee, J. (2001). Developing fully functional e-government: A four stage model. Government Information Quarterly, vol. 18, pp.122-136.
- [12] Center for Democracy and Technology. (2002). E-Government Handbook, www.cdt.org/egov/handbook, Accessed: 24th April 2009
- [13] IBM Business Consulting Services. (2003). How e-government are you? e-government in France: State of play and perspectives, www-03.ibm.com/industries/government/doc/content/bin/g510-3552-00-esr-e-government.pdf, Accessed: 28th Mai 2009
- [14] Persson A., Goldkuhl G., “Stage-models for public e-services - investigating conceptual foundations”, 2nd Scandinavian Workshop on e-Government, Copenhagen, February 14-15 2005
- [15] Saha P., „A Methodology for Government Transformation with Enterprise Architecture“, National University of Singapore, 2009
- [16] Janssen M. and van Veenstra A.F., “Stages of Growth in e-Government: An Architectural Approach”, The Electronic Journal of e-Government Volume 3 Issue 4, pp 193-200, 2005, available online at www.ejeg.com , Accessed: 16th April 2009
- [17] Agency for identification documents, registers and data exchange , www.cips.gov.ba, Accessed: 12th April 2009
- [18] Singh H., Das A., Joseph D., „Country-level determinants of e-Government maturity“, Communications of the Association for Information Systems, vol.20, pp.632-648, 2007



Recommended eGovernment maturity model-2009 (development of web 2.0 services, "clouding" expansion of CMS's)
 Model was used during the study and analysis of eMaturity of municipalities in Bosnia and Herzegovina!