



School of Computing
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Implementing e-Government in Bosnia and Herzegovina

Practices and Challenges for the State government

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ABSTRACT

Context Electronic Government (sometimes referred to as digital government, online government) is the use of information and communication technologies to: a) enable optimization and innovation of all government internal processes in the back-office and external processes by providing government services to customers through Internet and other electronic means; and b) facilitate achieving goals of all government policies and strategies.

Objectives In this study we are explaining e-Government practices, perceptions and performances of state institutions of Bosnia and Herzegovina (BiH) and analyzing obstacles and challenges of current approach to e-Government management, in order to propose immediate and middle-term e-Government actions for BiH state institutions to start delivering integrated and useful e-Government services.

Methods In this, three sources of information are used: a) comprehensive survey of state employees, b) interviews with some of the e-Government practitioners and c) systematic review of a number of relevant article sources. All questions/reviews have been done in order to find out what measures could be taken and what guidelines should be followed by the BiH state institutions so they become more IT savvy in taking advantage of e-Government implementations.

Results Measures for improvements have been proposed in several distinct areas: building human capacities for e-Government development, changing management and leadership practices, building regulatory and organizational framework for e-Government and resolving interpersonal issues in e-Government systems design. Additionally, a *Phase plan for e-Government project implementation* is proposed to those having a vision and idea on some e-Government project, but maybe lacking the skills and knowledge on how to actually initiate, design and implement it.

Conclusions We conclude that BiH state government should realize that e-Government is not just about implementing some IT projects; it is an overall public administration reform process which has to be adequately supported by regulative and organizational measures. This thesis provided arguments for such strategic e-Government decision-making and necessity for government-wide management and development capacity. We conclude that there is a need for BiH state government to understand the current situation and arguments presented, and take steps in building its capacities in this field.

Keywords: e-Government, practices, challenges, Bosnia

PREFACE

Purpose

As the title implies, *Implementing e-Government in Bosnia and Herzegovina - Practices and Challenges for the State government* is about identifying current practices in implementing e-Government in my country and analyzing performances and challenges the state institution faces, in order to propose some recommendations – immediate and middle-term actions for Bosnia and Herzegovina (BiH) state institutions to start delivering useful e-Services. My intention was not just to write a work that would lead to completion of this Master of Science program, but to systematically research the topic that I'm especially interested in, summarize my experience and knowledge on the subject so to help myself, and hopefully interested reader, to deepen understanding and knowledge on the subject and develop professionally. The premise is quite simple. Occupied by our day-to-day work we usually lack a chance to observe the larger picture and think about it, so I hope this thesis helps by shedding more light on e-Government implementation issues in BiH.

Assumed background

This thesis can be read by IT person or public administration employee with some basic information processing technology skills. Some experience in IT management and analyzing and designing information systems would be an asset.

Content

The thesis is organized into five major parts:

- *Introduction and Background* – An overview of the particular characteristics of BiH which are relevant to the thesis. This includes national policies and strategies for the sector, the origin and immediate history of present situation in e-Government development, relevant human resources capacity and constraints and discussion on some of the major problems in e-Government development.
- *Research questions and Background* – Explains thesis aims and objectives, research questions/issues identified as main obstacles in e-Government development in state institutions of BiH as well as expected outcomes of the projects. This part explains in brief research methodology that will be used in different parts of the thesis to be able to answer the research questions and produce the expected outcomes.
- *Research results and discussion on state of e-Government on state level* – This chapter represents first deliverable of the thesis. Several key factors for e-Government success are researched and discussed: e-Government awareness, e-Government management and leadership practices in state institutions of BiH, current legal framework, organizational and individual capacities for e-Government projects implementation, and finally interpersonal relations of all actors involved in those projects. Every factor is researched and discussed, and as outcome, a set of recommendations – measures for improvement are proposed.
- *Where to in implementing e-Government in state institutions* – While the previous part deals with *how* to change the current situation by changing current perceptions, practices, management and leadership approaches to e-Government development BiH state institutions; here I give a short description of *what* should the goal of those abovementioned efforts. Additionally, this part is a prelude to a second deliverable of the thesis presented in its last part.

- *How to implement e-Government projects in state institutions: Phase plan* – This chapter represents a second deliverable of the thesis - developed guidelines for e-Government projects initialization and implementation. The first deliverable of the thesis was to point on problems and obstacles to e-Government development in state institutions of BiH, and then to identify and propose measures for improvements to overcome those problems. Proposed measures for improvements were, however, government-wide guidelines which are built around fundamental concept of “centralized e-Government planning and decentralized e-Government implementation”. What I wanted to offer here is immediate practical help for IT and public managers of BiH state institutions who are planning introduction of e-Government services in their institutions.

* * *

I enjoyed preparing this thesis. I hope you'll appreciate it and find it useful.

EXECUTIVE SUMMARY

E-Government is the use of available ICT in every aspect of government work and in implementing any public policy and strategy. This thesis explored challenges and practices of Bosnia and Herzegovina's (BiH) state government in this field, in order to propose immediate actions for BiH state institutions to start delivering useful e-Government services. The main conclusions are that:

- a) E-Government is not just about helping employees of BiH state institutions to be more efficient and work easier, but for their customers also (citizens, businesses, other government agencies on all administrative levels) to become involved in electronic communication and electronic transactions with the state government in a manner that is tailored to their needs. It is the same process that the private sector has gone through by adopting different e-Business solutions. BiH state institutions have to adopt a new *service* culture and develop a greater sense for customer's interests as a prerequisite.
- b) E-Government in BiH state administration is ultimately driven by the *IT smart* government employees. Training programs targeting e-Government capabilities of government employees should be carefully planned for every group of civil servants starting from *e-Government awareness* to providing practical tools for *implementing and managing e-Government systems development*.
- c) The successful e-Government leadership and management practice in BiH state institutions would be the one in which public managers defend ICT investments, strategic ICT planning is defined and driven by the public policies and strategies, and public managers are knowledgeable about the technology in place to drive IT-enabled change.
- d) To support and coordinate e-Government actions government-wide, a strong central Unit for e-Government should be established. This unit, organized as agency, directorate or even ministry, should be a center of competence in e-Government, employing technology-aware public managers and skillful and experience IT managers. Their responsibility should be to help, coordinate and support e-Government systems development in the individual state institutions. When necessary, they would lead a project on behalf of institutions lacking its own capacities.
- e) State government has to enforce regulation to initiate and support e-Government development. State institutions should be guided on how to develop institutional e-Government plans which fit in wider public policies and strategies, how to implement e-Government projects and how to monitor and control the whole process. E-Government unit should become a part of every state institution's organizational structure and perform these functions.
- f) Implementing e-Government is a joint effort of all government employees. Wrong personal beliefs and stereotypes of different groups of employees represent a barrier to e-Government development. In order to strengthen the cooperation and mutual understanding of these groups, BiH state government has to organize thematic conferences and meetings to discuss and solve e-Government-related issues.

At the end of this master thesis the *Phase plan for e-Government project implementation* is introduced to partially supplement missing methods or guidelines for managing and developing e-Government projects in state institutions of Bosnia and Herzegovina.

CONTENTS

ABSTRACT.....	I
PREFACE	II
EXECUTIVE SUMMARY	IV
CONTENTS	V
1 INTRODUCTION.....	2
2 BACKGROUND.....	4
2.1 WHAT WE ARE TALKING ABOUT, BRIEFLY	5
2.2 HOW E-GOVERNMENT IS CURRENTLY RELATED TO <i>BETTER GOVERNMENT</i> IN BiH?	6
2.2.1 <i>Achieving better government: Current BiH state government perspective</i>	6
2.2.2 <i>Achieving better government: Customer perspective</i>	7
2.3 IS IT TIME FOR E-GOVERNMENT IN BiH STATE INSTITUTIONS?	8
3 RESEARCH QUESTIONS AND METHOD.....	10
3.1 AIMS AND OBJECTIVES	10
3.2 RESEARCH QUESTIONS AND METHOD.....	10
3.3 EXPECTED OUTCOMES	12
4 E-GOVERNMENT ON THE NATIONAL LEVEL: RESEARCH RESULTS AND DISCUSSION	13
4.1 HOW IS E-GOVERNMENT PERCEIVED IN BiH STATE INSTITUTIONS?.....	13
4.1.1 <i>Discussion and proposed measures for improvements</i>	15
4.2 CURRENT PRACTICES IN MANAGING AND LEADING E-GOVERNMENT DEVELOPMENT.....	16
4.2.1 <i>Practices in management of e-Government projects</i>	17
4.2.2 <i>Practices in e-Government leadership</i>	18
4.2.3 <i>Discussion and proposed measures for improvements</i>	20
4.3 LACK OF LEGAL AND ORGANIZATIONAL FRAMEWORK.....	21
4.3.1 <i>Regulatory aspects of e-Government in BiH state government</i>	22
4.3.2 <i>Organizational capacities for e-Government development</i>	27
4.3.3 <i>Discussion and proposed measures for improvements</i>	28
4.4 PERSONAL AND MANAGEMENT ISSUES.....	31
4.4.1 <i>Negative stereotypes on IT function and IT personnel</i>	31
4.4.2 <i>Negative stereotypes on non-IT employees</i>	33
4.4.3 <i>Key actors' performances in implementing e-Government</i>	35
4.4.4 <i>Discussion and proposed measures for improvements</i>	38
5 WHERE TO IN IMPLEMENTING E-GOVERNMENT IN STATE INSTITUTIONS OF BiH?	40
5.1 WHERE VISION AND LEADERSHIP CAN TAKE US?	40
5.2 USER-FOCUSED E-GOVERNMENT SERVICES	41
5.3 MULTI-CHANNEL SERVICE DELIVERY.....	42
5.4 E-GOVERNMENT PORTALS.....	42
6 HOW TO IMPLEMENT E-GOVERNMENT PROJECTS IN STATE INSTITUTIONS OF BiH?	44
6.1 PHASE PLAN FOR IMPLEMENTING E-GOVERNMENT PROJECTS.....	44
6.1.1 <i>Initiating a project</i>	46
6.1.2 <i>Tendering</i>	48
6.1.3 <i>Analyzing requirements and designing the system</i>	50
6.1.4 <i>Overseeing implementation</i>	51
6.1.5 <i>Testing, user training, testing and testing over again</i>	51
6.1.6 <i>Post-implementation issues</i>	52
6.1.7 <i>Promoting e-Government system to end-users</i>	53
7 REFERENCES	55

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1 INTRODUCTION

E-Government is the most powerful enabler of the public sector...

Nowadays „every policy initiative becomes, sooner or later, an ICT project”

Wolfgang Schäuble, German Minister of Finance¹

One of the most frequently asked questions about electronic government, or e-Government is: *What does e-Government exactly mean?* Especially in Bosnia and Herzegovina (BiH), since the study and practice of electronic government is just beginning, it is difficult to reach a precise definition, and those who deal with it will certainly discuss what exactly this term means. One thing we are sure is that the electronic government should be much more than buying the latest computer equipment or selective release of some information on the web sites of government agencies.

Although it is important to understand that in the term “e-Government” much greater emphasis is on “government” rather than “e-“ [6, p.11], the information and communication technologies (ICT) can’t be seen just as a mere *tool* for achieving *better governance*. ICT is no longer just the servant to government operations; it has become an integral partner [7, p.2]. “Better governance” means achieving better results of public policies, providing better and more meaningful services to citizens and businesses and increasing cooperation between government and civil society [6, p.11]. Only the ICT can provide adequate information and support to this collaborative process. The public administration of BiH, as well as elsewhere in the world, is judged and will be judged only by the abovementioned criteria of success.

Bosnia and Herzegovina started the process of introducing e-Government with the adoption of Information Society Development Policy and Strategy by the Council of Ministers (CoM) of BiH in November 2004. The documents were complemented with the Action plan consisting of a number of precise projects and goals and, in that moment, it seemed that preconditions to approach a more serious development of the information society in general and specifically e-Government were set. The Policy, Strategy and Action plan were devised by an UNDP² BiH team, but although adopted and declaratively supported, the vast majority of envisioned policies and actions has never been implemented because state institutions didn't have the internal capacities to implement them. The project targeting 2004-2010 time frame was ultimately declared failure.

The following effort came with the ongoing Public Administration Reform (PAR) project which incorporated some of the policies and actions stated in previously mentioned documents. The Strategy and Action plan for PAR was adopted in 2006, again by the CoM BiH, with the aim to reform the Bosnian public administration and substantially improve it by 2016. This reform project is very much devoted to pave the way for the integration of BiH into the European Union (EU). PAR project is grounded in a vision to develop a public administration that is more effective, efficient, and accountable; that will serve the citizens better for less money; and that will operate with transparent and open procedures [12]. The project seems to provide a great opportunity for e-Government development in BiH, especially considering the overall PAR goal of complying with “all conditions set by European integration process” on one side, and the known level of e-Government sophistication in Europe, on another.

¹ Statement at e-Government Conference, April 2007, Berlin

² UNDP – United Nations Development Program

However, by the late 2011 we are still waiting to see more practical results of those efforts.

BiH society is living a time of highly dynamic evolution of technology: new ICT enabled products and services are creating new possibilities and benefits the society in general doesn't hesitate to grasp, so it is time for BiH public administration, like any other in the world, to understand this process also and get involved.

2 BACKGROUND

E-government: almost everything has been said, much remains to be done
Claude Wiseler, Minister for the Civil Service and Administrative Reform,
Luxembourg

This master thesis intends to deal with utilization of ICT by the state level public administration in Bosnia and Herzegovina (BiH). Implementing e-Government services is important in terms of improving information channels and services delivered to citizens and businesses and increasing the public participation in decision-making and building a more responsible, transparent and efficient Government; but equally important also as a prerequisite for European integrations (driving force of BiH society development, at the moment) and a building block that needs to be in place prior to participation in any pan-European government service.

Use of ICT in BiH was interrupted by the horrible war that occurred in this country. This interruption occurred in the time when the development of ICT technologies was at its peak, and as a consequence of that, the BiH society missed the chance to join the world trends. Therefore, BiH society is an entire decade behind in terms of development.

Strategically speaking, previously mentioned Information Society Development Policy and Strategy adopted in 2004 and PAR strategy adopted in 2006 by governments on all administrative levels in BiH, aimed at improving BiH's e-Government position. The ongoing PAR strategy identifies the use of the ICT by the public administration as one of the six components of the BiH development in a medium-long term; but the strategy speaks in very broad terms and there's no organization which would translate the strategic goals in practical actions.

In practice, the adoption and implementation of e-Government legislation and projects have gradually started in the country. There are already some laws, but they are either unimplemented yet, either adopted just to serve some specific e-Government projects (e.g. issuing biometric passports, national ID cards, driving licenses etc.) However, at the moment, the legislative and organizational framework for the wider implementation of e-Government in different administrative levels in BiH is very poor, and e-Government development coordinating function among administrative levels in BiH doesn't exist at all.

Despite of the increasing in the number of e-government projects and budgets in Bosnia and Herzegovina there are no existing guidelines for e-Government implementation and management. Moreover, a disperse responsibility across administrative levels and institutions and frequent reshuffle of those in charge has failed to keep up with building up expertise and know-how related to e-Government implementation and management.

Thus this master thesis intends to address these problems by investigating practices, perceptions, performances and challenges facing BiH administration in implementing e-Government. The results should represent deeper understanding of potentials, risks and assumptions related to e-Government development in BiH and a set of recommendations - immediate and middle-term e-Government actions for BiH public administration to start delivering integrated and useful e-Government services. Additionally, the thesis intends to be of some immediate practical use and to offer a phase plan for introduction of e-Government services for those willing to make changes in their organizations.

2.1 What we are talking about, briefly

There are many definitions of the term “e-Government” all trying to grasp its essence. The OECD emphasizes the general usability of technology and defines e-Government as “the use of information and communication technology, and particularly the Internet, as a tool to achieve a better government” [6, p.23]. The US government gives a broader picture, where e-Government is seen as “the use by the government of web-based Internet applications and other information technologies, combined with processes that implement these technologies, to (a) enhance the access to and delivery of government information and services to the public, other agencies, and other government entities; or (b) bring about improvements in government operations that may include effectiveness, efficiency, service quality, or transformation.” [1] Another one emphasizes the scope of e-Government within government, defining it as: “The use of information and communication technologies in all facets of the operations of a government organization.” [2]

What should be clear is that not any use of ICT in government can be considered as e-Government, which is particularly important to stress when studying BiH e-Government case.

Based on actual practices of BiH state institutions and opinions surrounding me, as a writer of this thesis and the state employee for almost a decade now, I would like to give some starter points contradicting those opinions:

- E-Government *is not* about simply having a web site with just some information on organizational structure, mandate and contacts; or procuring the latest hardware and software; nor is it some standard technology one can buy in a computer shop.
- E-Government *shouldn't be* just about automating processes within government because “the improvement of service quality cannot be achieved with a one-to-one transfer of the old administrative processes to the Internet.”³ Today's technology should be utilized as *enabler* of new organizational and procedural designs within government.
- Due to the nature of the information society we are living in and everyday technological innovations, the e-Government *can't be seen* as a product or service with the final state solution. One Bosnian deputy minister proudly declared in his biography that he “implemented e-Government in BiH”. As long as technological innovations happen and there are some new public policies and reforms to achieve, e-Government innovations are not just possible but necessary. E-Government development is additionally determined by the changing mindset of public administration and the customer's needs.
- The scope of ICT utilization in BiH state government should not be limited to any particular process; all processes within government and between government and its customers (citizens and businesses) are information-based and no other resource beside *information* itself is used in government operations.

Since my thesis has a goal to deal with implementation measures for e-Government development in BiH state institutions and taking into account the abovementioned issues, for the purpose of this thesis I'll define desired e-Government practice in BiH state institutions as the use of ICT as: a) enabler of optimization and innovation of all government internal and external processes, on all administrative

³ State Secretary Brigitte Zypries, German Federal Ministry of the Interior, Conference statement, 21 March 2001.

levels and b) facilitator of achieving goals of all government policies; to rephrase the citation on the beginning of this thesis.

2.2 How e-Government is currently related to *better government* in BiH?

Earlier in this text I mentioned that “better governance” is about achieving better results of public policies, providing better and more meaningful public services to citizens and businesses and increasing cooperation between government and civil society. To achieve results i.e. better governance, we obviously need to have better organizations and processes i.e. better government.

In this chapter I’ll identify two current perspectives of achieving *better government* by putting “e-” in its front: one that comes internally from the government itself i.e. insider perspective and another one coming from the users of government services i.e. outsider perspective. Let’s briefly discuss both viewpoints.

2.2.1 Achieving better government: Current BiH state government perspective

Public officials in state institutions of BiH usually perceive e-Government as a tool to achieve a more *efficient* government. It is the mindset of public managers which determines how complex will be the IT-enabled change:

- On the lowest level of complexity, e-Government projects offer *process automation* so that current government processes are performed in a more efficient way (which here means reducing errors and improving consistency of outcomes of automatized and standardized tasks [10, p.14]). Those projects are about keeping electronic records and making electronic data exchange to support current government business processes without changing them. To my knowledge, the majority of e-Government projects in BiH state institutions fall in this category.
- Higher level of ICT utilization is when business process reengineering (BPR) is done prior to constructing information systems. Public agencies that can achieve both efficiency (by reducing costs and layers of organizational processes through re-engineering and streamlining operating procedures [10, p.14]) and effectiveness (the quality of services may be improved through quicker transactions, improved accountability, and better processes [10, p.15]). While in previous case the consequences were more of technological nature, here the operational excellence within public agency is a goal that can be achieved. E-Government projects in BiH state institutions include business process reengineering usually un-systemically and partially.
- When implementing business process reengineering while focusing on the end-user needs, the government organization shifts to the “service mode”, where customer of the government services is in primary focus of ICT utilization. It is the care for customer needs that drives development of electronic services (e-Services). The e-Government projects are done for the sake of the customers, not the government entity itself. This is something called “customer-centric” e-Government. There are only few examples of such e-Government services delivered by BiH state institutions.
- Finally, the potential that ICT could have for a particular public service combined with a vision of public leaders can lead to a strategic transformation of organization(s) responsible for that particular service. The ICT becomes a cornerstone around which the government organizations are built. E.g. creating the electronic public procurement

When developing information systems within government, whatever of the previously mentioned approaches is chosen, it is important to mention that conventional *face-to-face* channel of delivering government services continue to work as regular, as long as the need for that channel exists. This makes many BiH public officials believe that e-Government is some kind of “luxury” for the already burdened government budget, which is quite expected reasoning if we consider that Bosnia and Herzegovina is a post-war developing country with a lot of social problems. It is quite unrealistic that such need would cease to exist here any time soon. It will happen when BiH society becomes developed and digitally undivided – then cases like of *Post-och Inrikes Tidningar* (PoIT) – The Official Swedish Gazette⁴ can happen.

Without getting to deep in analysis of current perceptions which I’ll discuss later on, the overall public official’s position in BiH state institutions on e-Government is that e-Government is about IT making work easier within state institutions.

We are still very far from the view of e-Government as a tool and enabler of *better government*, where both back-office and front-office of government organization are computerized. Front-office should be comprised of multiple channels of service delivery including electronic ones, but the back-office, which handles the customer’s cases and provides information for the front-office, must be based on a single information system for a single government service.

2.2.2 Achieving better government: Customer perspective

From the perspective of end-users or outsiders (citizens, businesses) the *better government* would be the one with less corruption; increased transparency; which provides greater convenience in communicating with, by providing better and integrated services; the one that ensures the revenue growth and makes administrative costs reductions [9, p.4]. In the people’s mindset, e-Government implementation could help in several ways:

- People could be better informed because they would get up-to-date and comprehensive information online about government laws, regulations and policies of their concern and where and how to obtain government services [3].
- People could have access to better services. The end-users expect flexible, fast and cheap access to government services whether they are conventional or online-based. E-Services has a potential to satisfy those user needs since they can be available 24/7, accessed from virtually anywhere and relieved from waiting in queues, and could reduce costs of traveling on site and paying administrative taxes that covers the expenses of conventional case handling.
- People could have access to integrated services. One of the common user requirements is that end-user or customer should not have to understand

⁴ PoIT was founded 1645 by Queen Kristina and is the world’s oldest newspaper, still being published, but from January 1st, 2007 only in online edition, since there were no more customers interested in buying a printed version.

complex government structure and internal relations and procedures in order to interact with the government [8, p.15]. While it is impossible to imagine e.g. buying a car in “parts” (going for a tires in a tire store, car seats upholstery in another one, etc... in order to “complete” the car as a product) it’s quite common for citizen or businessman to have to visit several government departments once or several times each, to complete a service he/she needs. The internet can help change this practice by enabling different government departments to appear as unified online organization providing seamless online service [8, p.15]. This e-Government feature would be especially useful in BiH, a country with complex government organization with unclear division of authority among institutions and government levels.

- People could have a say in creating public policies in a form beyond participating in elections every 4 years. This concept is often called e-Democracy which aims for broader and more active citizen participation enabled by the ICT in today's representative democracy, as well as through more participatory or direct forms of citizen involvement in addressing public challenges [4]. E.g. The British Parliament offers a chance for every UK citizen to petition Parliament, lobby a Member of Parliament (MP) or Lord, find out about elections, contact a Lord or its own MP, and find out about outreach events in its area⁵.

All these features of e-Government would be of benefit to BiH citizens and society in general: the *better* BiH state government should provide services that would support citizens and businesses in everyday life in a user-friendly, seamless way; and enable them to enjoy opportunities provided by the society as it develops. People could truly influence policy making by using relevant information and taking active participation in relevant online public consultations and feedback surveys.

2.3 Is it time for e-Government in BiH state institutions?

Although the question in the above title today should be considered outdated for any country, especially European; we’ll give some facts about specific context of Bosnia and Herzegovina that will make us rethink the whole issue.

Bosnia and Herzegovina is still living the consequences of the horrible war that happened in the early 1990s, it is established as a complex state, composed of two entities to which, later on, following the international arbitration decision, one district was added as an independent administrative unit within Bosnia and Herzegovina. While one entity is a strongly centralized entity having only two levels of government: the entity level and the level of municipalities; the other entity is strongly decentralized where most of the powers are shared between entity level and 10 cantonal governments (which, in a way, represents second layer of regional government) with some powers resting on the municipality level⁶.

Such complex constitutional set-up combined with unclear division of competences is additionally burdened by the different political agendas of the entities. While one entity would like Bosnia and Herzegovina to be as much decentralized as possible so BiH to become a confederation of two entities; the other one would like to see more centralized and streamlined constitutional set-up with a stronger government on the national level. The state institutions of Bosnia and Herzegovina are caught in the middle of disputes coming from both sides so that limited powers which they

⁵ Available online at <http://www.parliament.uk/get-involved/>

⁶ More information on the unique constitutional set-up in Bosnia and Herzegovina can be found online - http://en.wikipedia.org/wiki/Political_divisions_of_Bosnia_and_Herzegovina

exercise are strongly influenced by the two different political agendas coming from the entity level.

Although with limited powers, Bosnia and Herzegovina still has more than 70 institutions on the state (national) level with some 10.000 employees. In the first chapter I mentioned that initiatives for systemic approach to e-Government development in state institutions of BiH existed, but due to above mentioned political differences, the Information Society Development Policy and Strategy (2004-2010) and corresponding Action plan were never implemented. Namely, these documents envisioned that the Agency for Information society of BiH should be established to implement the Strategy and Action Plan. CoM BiH in three occasions submitted the Law on Agency before the BiH Parliament, but it was never adopted, as it was seen, by representatives of one entity, as measure that strengthens state institutions. Nothing has changed so far, there is no state institution with a mandate for e-Government development, and so it rests and is solely dependent on efforts on individual institutions, to be exact: on individuals in those institutions we could label as “e-Government leaders”. Accepting Heeks classification, we could say that e-Government development in BiH state institutions is performed in a so-called “decentralized way” [11, p.24]. This author identified potentials and constraints of this approach to e-Government development, but in the case of BiH state administration the constraints prevails, as we will see later on.

To summarize, the context of e-Government development in Bosnia and Herzegovina is in a complex governmental set-up; largely decentralized, asymmetrical and with unclear division of competences. Coordinating need for different intra- and inter-governmental e-Government activities exist, but strong arguments for such centralized strategic approach to e-Government development haven't yet been proven by any research. Thus, one of the thesis ambitions is to provide some inputs, arguments with possible potential to overcome political differences in building capacities for strategic e-Government decision-making on the state level of governance in BiH.

3 RESEARCH QUESTIONS AND METHOD

E-Government needs an interdisciplinary research approach, which is highly relevant to practice

Hans J. Scholl, Information School, University of Washington

Analyzing my work in state institutions and problems my colleagues and I faced in IT management practice, I understood that there are several main issues that generate obstacles to e-Government development in BiH state institutions: (a) inadequate human capacities of all actors involved in IT projects, (b) inappropriate management practice and leadership missing among state institutions' managers, (c) lack of regulations that would explain in details what exactly was meant by policies and strategies in place and how to implement those, and (d) interpersonal issues that prevents people from functioning as a collaborative and cooperative part of a solution, not the problem. I also noticed that there's no guidance whatsoever, which could guide someone to at least make less mistakes in e-Government project implementation.

Those issues became a focus of my research. I decided to analyze them and gather enough information to be able to propose measures that would, in my opinion, be a part of solution for successful e-Government implementation in BiH state institutions.

3.1 Aims and objectives

As I said, the aim of this master thesis is to provide wide-ranging information on main issues of implementation and management of e-Government services in BiH. The objectives of the thesis could be summarized as following:

- Explaining e-Government driving forces, benefits, barriers and risks in state institutions of BiH;
- Investigating practices, perceptions and performances of civil servants working on ICT implementation in state institutions of BiH;
- Analyzing obstacles and challenges of current approach to e-Government management;
- Proposing immediate and middle-term e-Government actions for BiH public administration to start delivering integrated and useful e-Government services.

3.2 Research questions and method

To investigate practices, perceptions, performances and challenges facing BiH state administration in implementing e-Government and to propose appropriate e-Government actions to BiH state institutions, the following research questions have been identified as useful for accomplishing thesis aims and objectives:

- What are the current practices of e-Government implementation among public administration managers, e-Government practitioners and civil servants in state institutions of Bosnia and Herzegovina?
- Most e-Government initiatives in BiH fail or are partially successful. What are the main reasons of poor performance in delivering e-Services?
- To what extent beliefs in some classic negative IT stereotypes affects people's individual and joint efforts in implementing e-Government services?
- To what extent are the existing strategies, standards, laws and especially information systems methodologies, consulted/used in developing e-Government services?

In my research, three sources of information are used: a) comprehensive survey of state employees, b) interviews with some of the e-Government practitioners and c)

systematic review of a number of relevant article sources. All questions/reviews have been done in order to find out what measures could be taken and what guidelines should be followed by the BiH state institutions so they become more IT savvy in taking advantage of e-Government implementations.

In order to better comprehend understanding, current practices and beliefs of state level public administration in relation with e-Government, I did a survey on the following topics:

- Perceptions of the main ICT-related questions/issues that keep recurring in state institutions;
- E-Government leadership and management practices in state institutions of BiH;
- Understanding and implementing strategies, laws, standards and methodologies that relates to e-Government development in state institutions of BiH;
- The actual mutual grading of all actors involved in e-Government projects, divided in four distinctive groups of state institutions' employees: non-IT and IT, non-managerial and managerial civil servants.

The survey, consisting of some 50 questions, has been conducted online in the course of writing this master thesis on more than 1000 civil servants, of which 345 gave complete responses and 667 dropped-out during the survey. State level employees surveyed were divided across 4 main categories: non-IT and IT civil servants, non-managerial and managerial civil servants; so that their responses could be counted as levels of agreement on many different issues the survey intended to tackle: from the basic understanding of the role of ICT in public administration and definition of e-Government; over IT leadership practices; ways that public administration managers, IT persons and civil servants combine their efforts in implementing e-Government projects; to actual mutual grading of all actors in e-Government projects.

The complete survey is available online⁷. In some parts, it was inspired by an earlier survey conducted by Valuedance, with support from Harvard Business Review, searching to understand how business managers and IT leaders interact with each other in managing the IT in corporate America⁸. All questions have been asked in order to find out what measures could be taken and what guidelines should be followed by the BiH state institutions so they become more IT savvy in taking advantage of e-Government implementations.

Thanks to the fact that I personally know most of the e-Government practitioners in state institutions of BiH, I conducted interviews to find out methods and logic behind current e-Government project implementations, to be able to assess them and propose some guidelines based on research through available literature and Internet references.

In course of writing this thesis I also systematically reviewed a number of relevant article sources.

⁷ www.bajramovic.net/master-survey.doc

⁸ Published in "CIO Insight" magazine, Q1, 2010

3.3 Expected outcomes

Measures for improvements will be proposed in several distinct areas: building human capacities for e-Government development, changing management and leadership practices, building regulatory and organizational framework for e-Government and resolving interpersonal issues in e-Government systems design.

Additionally as a second deliverable, a *Phase plan for e-Government project implementation* will be proposed, so this thesis could be useful to those having a vision and idea on some e-Government project, but maybe lacking the skills and knowledge on how to actually initiate, design and implement it.

4 E-GOVERNMENT ON THE NATIONAL LEVEL: RESEARCH RESULTS AND DISCUSSION

Sometimes, IT projects fail because of economic reasons; rarely, if ever, because of technological factors. Most usually, the failures are political in nature. ... Instead of studying latest IT magazines and textbooks read San Tzu and Machiavelli's The Prince.

Paul A. Strassmann⁹

In this chapter I'll exam how e-Government is perceived in BiH state institutions; what the current practices are in managing and leading e-Government projects; and what are the main obstacles to e-Government development. So, issues identified in previous chapter are analyzed here and the results of research are followed by conclusions in form of proposal for improvements in those areas.

4.1 How is e-Government perceived in BiH state institutions?

One of the first questions to be asked to employees of BiH state institutions is certainly one considering their understanding of the term "e-Government". There can't be capacities to build e-Government if the government doesn't understand the true meaning of that term. Back in 2004-2005, the EC-funded project called "System Review of Public Administration Institutions of BiH"¹⁰ investigated general capacity issues in six horizontal systems of governance common to all institutions. Among others, the utilization of information technology and systems were researched. The Information technology team in public administration review findings showed that in administrations at all levels of BiH, there was a weak understanding of the role that IT can play in public administration reform and of the improvements it can bring [12, p.17]. While we know that the success of e-Government depends on the right combination of many different factors: innovative ICT, leadership and vision of public managers, re-organization and process reengineering, etc.; the introduction of IT in the BiH public administration was still treated merely as the computerization of government operations and not as a tool in an overall government reform. I mentioned this approach in chapter 1.2.1: those ICT projects are about keeping electronic records and making electronic data exchange to support current government business processes without ambition to change and optimize them. That lack of political awareness, vision and leadership contributed to the lack of a systemic, organized and methodological approach to the use of ICT in the public administration and it is not surprising that BiH was one of the last countries in the Balkan region to adopt a countrywide IT strategy¹¹.

Seven years after and we still have no major improvements in e-Government development in state institutions of Bosnia and Herzegovina. In order to examine the understanding of e-Government and the expected scope of ICT utilization in state institutions of BiH, I asked several multiple-options single-choice questions in the survey of public administration employees:

Q1. How do you see the role of ICT in your institution?

⁹ Information Sciences professor and advisor to the US Deputy Secretary of Defense

¹⁰ http://www.delbih.ec.europa.eu/files/docs/publications/en/FunctRew/Final_Report.pdf

¹¹ Information Society Development Policy and Strategy (2004-2010) mentioned on the previous page.

- Q2. Which of the following sentences best describes the term “e-Government”?
 Q3. Is it cost-effective to invest in ICT in public administration?

In the tables below Tot stands for the Total number of responses, while PM, CS, ITM and ITP represents responses given by public managers, non-managerial civil servants, IT managers and non-managerial IT personnel, respectively.

		Tot.	PM	CS	ITM	ITP
		564	136	359	17	52
Q1. How do you see the role of ICT in your institution?	ICT should be used to create a new value for customers of our services	106	32	60	6	8
		18,8%	23,5%	16,7%	35,3%	15,4%
	ICT is enabler for transformation of our organization and internal processes	219	69	123	7	20
		38,8%	50,7%	34,3%	41,2%	38,5%
	ICT should be used to automate current business processes within our institution	155	25	108	4	18
		27,5%	18,4%	30,1%	23,5%	34,6%
	ICT should be used to create a modern office environment where computer replace typewriting machine and e-mails can be used for internal communication	84	10	68	0	6
		14,9%	7,4%	18,9%	0%	11,5%

		Tot.	PM	CS	ITM	ITP
		557	135	355	17	50
Q2. Which of the following sentences best describes the term "e-Government"?	E-Government is about service reengineering, where change is ICT based and driven by the interests of our customers	72	24	38	5	5
		12,9%	17,8%	10,7%	29,4%	10%
	E-Government is about providing our current services to customers via the Web	108	22	63	6	17
		19,4%	16,3%	17,7%	35,3%	34%
	E-Government is about putting ICT on our business processes to make them more efficient, faster and cheaper	269	66	176	6	21
		48,3%	48,9%	49,6%	35,3%	42%
	E-Government should be a web site of our institution where	95	22	67	0	6

	visitors could check information about our institution, what we do, what are the relevant laws and recent activities	17,1%	16,3%	18,9%	0%	12%
	Don't know	13	1	11	0	1
		2,3%	0,7%	3,1%	0%	2%

Combining responses on the first two questions, we can learn the following:

- State institutions in major perceive e-Government as a tool for internal government improvements, not service delivery at all: 65% of public managers, 70% of civil servants and almost 50% of IT personnel think so. This is not a big surprise; my experience tells me that most of the public administration employees don't position themselves in the service sector at all. They perceive their job as doing things for the benefit of government (the institution they work for) not for the benefit of citizens and businesses.
- State institutions in BiH doesn't understand the potentials of ICT in providing citizen-centric e-Services: 80% of public managers (as decision-makers) sees ICT as a tool to improve or just automate current processes within intuitions; the best score is given by IT managers where about 30% of them believes that ICT should be used for creating reengineered citizen-centric e-Services.

On the third question "Is it cost-effective to invest in ICT in public administration?" I offered six answers where only one shows the true vision in utilizing ICT in public administration:

- "Yes, because it enables us to work in a better way (more quality) and enables us to do what we couldn't do before".

Other offered answers are not visionary or are even retrograding:

- "Yes, because it can make resource savings",
- "Yes, because of the trends of ICT utilization in other institutions and image of modern administration",
- "It's even; ICT saves resources but generates expenses also",
- "It's even, ICT makes work easier but can't change processes and working culture in our institution" and
- "No, ICT is all about expenses".

The responses given on this question shows that:

- State institutions in major perceive ICT as a handy *tool* for the government workers, not as *enabler* of change towards something better and new. Only one third of the public managers and civil servants have chosen the first answer, and the worrying part is that the same score was given by the IT personnel. Almost 50% of IT managers see ICT as enabling technology, not just as an everyday tool.

4.1.1 Discussion and proposed measures for improvements

It is quite clear that while public employees itself doesn't grasp the true potential of ICT utilization in public administration, and position themselves in the service sector, where "e-" *enables* them to provide their services in a customer convenient and

friendly way, it is quite unrealistic to expect e-Government initiatives that will exploit those potentials in full.

The above findings show that BiH state institutions should first work hard on building human capacities for e-Government. Some of the measures that need to be implemented are:

1. Build mechanism for continuous capacity building of public managers by organizing courses/workshops to understand the potentials and benefits of e-Government; provide examples of “good practices” and present the potential e-Government solutions for their institutions. It is the leaders’ understanding of IT that enables them to set and manage the information strategy [13, p.4] and perceive e-Government as a path towards successful management of both internal and external government processes.
2. In the training agenda for all civil servants in state level institutions include the introductory course on e-Government.
3. Organize the courses for IT managers and IT personnel that would cover the topics like change management, business process reengineering, service-oriented culture and e-Government. IT leaders need knowledge to evaluate different technologies and understand product life cycles, key players and the various risks involved in e-Government projects [13, p.4].

Trainings should be carefully planned for every group of civil servants starting from *e-Government awareness* to providing practical tools for *implementing and managing e-Government development*.

4.2 Current practices in managing and leading e-Government development

The adoption and implementation of some e-Government projects has gradually started in the state institutions of BiH. Bosnia, as a post-conflict society, receives a lot of attention by international development agencies and donors. Thanks to their efforts and efforts of some e-Government leaders in state institutions, there are already significant number of e-Government projects and initiatives.

Despite of the increasing in the number of e-Government projects and budgets there are no official guidelines for e-Government implementation and management. The lack of institution or unit that would have a coordinating function has failed to keep up with building up expertise and know-how related to e-Government implementation and management. In this chapter, I’ll examine the current practices in ICT leadership and management of e-Government development. The discussion is based on the survey, and interviews conducted with some of the e-Government practitioners of BiH state institutions¹² that have made results in developing e-Services.

The multiple-options single-choice questions in the survey of public administration employees, asked to explore current practices in managing and leading e-Government development, were:

Q1. Select the sentence that best describes how your institution ensures success of projects with significant ICT part?

¹² E-Government practitioners from Agency for Identification Documents, Registers and Data Exchange, Public Procurement Agency, Ministry of Security, Ministry of Transport and Communications.

Q2. Select the sentence which best describes type of co-operation of the public managers and IT managers/personnel in implementing projects with a strong ICT component.

Q3. Who is initiating development of new information systems in your organization?

Q4. Select the sentence which best describes the way public managers and IT managers identify potential utilization of ICT in your institution, in order to achieve the mandate of organization.

Q5. Select the sentence that best describes the level of ICT system utilization by the management of your institution.

4.2.1 Practices in management of e-Government projects

In the tables below Tot stands for the Total number of responses, while PM, CS, ITM and ITP stands for responses given by Public managers, Civil servants, IT managers and IT personnel, respectively.

		Tot.	PM	CS	ITM	ITP
		554	134	353	17	50
Q1. Select the sentence that best describes how your institution ensures success of projects with significant ICT part?	Management of institution is held responsible for achieving success of ICT-supported projects	166	63	94	1	8
		30%	47%	26,6%	5,9%	16%
	Management of institution is responsible to provide support and IT manager is held responsible for achieving success of ICT-supported projects	234	51	145	12	26
		42,2%	38,1%	41,1%	70,6%	52%
	IT manager is responsible to provide support and IT personnel is held responsible for achieving success of ICT-supported projects	116	12	86	4	14
		20,9%	9%	24,4%	23,5%	28%
	The ICT partner (ICT company selected to implement the IT project) is held responsible for achieving success of IT component of such projects	38	8	28	0	2
		6,9%	6%	7,9%	0%	4%

		Tot.	PM	CS	ITM	ITP
		551	134	351	17	49
Q2. Select the sentence which best describes type of co-operation of the public	Public manager lead a whole project with assistance of IT manager/personnel	131	36	82	2	11
		23,8%	26,9%	23,4%	11,8%	22,4%
	Public manager is focused on business tasks while IT manager/personnel is focused on ICT component of the project	184	55	108	6	15
		33,4%	41%	30,8%	35,3%	30,6%

managers and IT managers/personnel in implementing projects with a strong ICT component.	IT manager lead a whole project with assistance of public manager	205	38	138	7	22
		37,2%	28,4%	39,3%	41,2%	44,9%
	IT manager/personnel are fully responsible for implementation of such projects	31	5	23	2	1
		5,6%	3,7%	6,6%	11,8%	2%

Combining responses on the first two questions, we can learn the following:

- Public managers and IT managers strongly disagree on who's responsible for success of ICT projects. While 47% of public managers respond they are responsible, only 6% of IT managers support that view. IT managers in majority (71%) view themselves responsible for the success of ICT projects. Some 63% of all respondents support that view, by responding that either IT manager or IT personnel are held responsible for success of ICT projects.
- Public managers and IT managers strongly disagrees on who's in charge in leading ICT projects. While almost 70% of public managers say they lead a whole ICT project, or at least a business part of it; in the same time the majority of IT managers (53%) say they are fully responsible for project management (with possible occasional assistance from public managers).

I combined the responses given in the survey with interviews conducted with some of the IT managers in BiH state institutions and my personal experience, to conclude the following:

Public managers in BiH state institutions have a wrong perception on "leading the project". They don't understand it as a process of initiating the project, leading the planning and execution, monitoring and closing phases; but instead thinks their role is in giving occasional approvals and overall support to the efforts of someone else - IT managers and personnel. Since it is about ICT, they thinks, experts in the field should be responsible for the project success. This belief comes from the understanding of ICT projects as "gaining the ICT value" and not "gaining the business value through the ICT-enabled change". Internationally speaking, in many unsuccessful e-Government projects, technology performed well but managers failed to recognize the importance of managing change [9, p.102] in those projects.

The measures that could change the e-Government management practices will be discussed after review of e-Government leadership practices.

4.2.2 Practices in e-Government leadership

I'll continue with the discussion on the topic by examining current practices in e-Government leadership in state institutions of BiH. By "e-Government leadership" I mean: how strategic ICT planning is done, who is initiating e-Government projects and what are approaches to utilization of e-Government systems by the public managers?

The following responses were recorded:

	Tot.	PM	CS	ITM	ITP
	554	135	353	17	49

Q3. Who is initiating development of new information systems in your organization?	Management of the institution	114	31	77	1	5
		20,6%	23%	21,8%	5,9%	10,2%
	IT manager/personnel	266	56	158	15	37
		48%	41,5%	44,8%	88,2%	75,5%
	Non-managerial civil servants (back-office users of IS)	174	48	118	1	7
		31,4%	35,6%	33,4%	5,9%	14,3%

		Tot.	PM	CS	ITM	ITP
		548	133	349	17	49
Q4. Select the sentence which best describes the way public managers and IT managers identify potential utilization of ICT in your institution, in order to achieve the mandate of organization.	Public manager and IT manager works together to identify ICT needs of organization and plan financial part in drafting the budget for the next year/period	274	75	174	6	19
		50%	56,4%	49,9%	35,3%	38,8%
	IT manager identifies ICT needs of institution and plan financial part in drafting the budget for the next year/period	167	33	101	11	22
		30,5%	24,8%	28,9%	64,7%	44,9%
	ICT needs are identified in an ad-hoc manner throughout a year	107	25	74	0	8
		19,5%	18,8%	21,2%	0%	18,3%

		Tot.	PM	CS	ITM	ITP
		552	135	351	17	49
Q5. Select the sentence that best describes the level of ICT system	Management understands, personally uses and completely exploits the available ICT	97	26	63	3	5
		17,6%	19,3%	17,9%	17,6%	10,2%
	Management understands the capacities of available ICT, on a	71	16	49	2	4

utilization by the management of your institution.	higher level, and manages people which holds responsible for extensive exploiting of current systems	12,9%	11,9%	14%	11,8%	8,2%
	Management more or less understands the capacities of available ICT, on a higher level, and expects IT personnel to advise on the use of current systems	221	55	140	6	20
		40%	40,7%	39,9%	35,3%	40,8%
	Management doesn't understand what current ICT can offer to the organization, and expects that IT personnel will provide support in an ad-hoc manner to satisfy immediate information and IT needs of employees	163	38	99	6	20
		29,5%	28,1%	28,2%	35,3%	40,8%

From the responses on these questions we can learn the following:

- All categories of employees (even the public managers itself) agree that public manager is the least expected initiator of an e-Government project in BiH state institution. IT managers/personnel strongly feel (above 80%) they are to contribute initiation of such projects.
- Non-IT and IT personnel have a different view on the practices in strategic ICT planning. While Non-IT personnel in major believe that public managers are also involved in strategic ICT planning, the majority of IT personnel believe that they are solely responsible for such planning. The worrying part is that 20% percent of all respondents reports that their institutions don't practice ICT planning at all.
- All categories of employees agree that public managers of BiH state institutions have a very limited understanding of the capacities of available ICT. Even the public managers itself admits they: either understand those capacities on a very high level and expect IT personnel to manage ICT (40, 7%) or even don't understand what can be done with current ICT at all (28, 1%). Some 80% of IT managers/personnel think the same.

I combined the responses given in the survey with interviews conducted with some of the IT managers in BiH state institutions and my personal experience, to conclude the following:

Most of the public managers in BiH state institutions don't act as e-Leaders because they either (a) don't act as leaders at all or (b) don't comprehend the potential of ICT in providing added value to the public administration business.

Considering all the before mentioned findings, I'll suggest some measures that could change the e-Government leadership and management practices.

4.2.3 Discussion and proposed measures for improvements

Public managers should be able to manage every aspect of the work of their institutions. That means they should be able to lead, and not to be led by, the institution's IT department or outside partners. While the proposed measures in chapter 2.2.1 were targeting the administration ability and capacity to understand *what* needs to be done regarding ICT utilization, here we have to offer some measures that would ensure appropriate leadership and management of e-Government projects.

The successful e-Government leadership and management practice would be the one in which public managers defend ICT investments, strategic ICT planning is defined and driven by the public policies and strategies, and public managers are knowledgeable about the technology in place to drive IT-enabled change. Public managers should be held accountable for delivering IT-enabled business value while IT managers should ensure success of immediate goals of an ICT project. To come closer to this practice, the following measures should be taken by the BiH state administration:

1. In order to immediately substitute the missing leadership and management capacities at the state level, a strong central unit for coordinating and helping government-wide e-Government efforts should be established. This unit should be a center of competence, employing technology-aware public managers and skillful and experience IT managers. Their responsibility should be to help, coordinate and support information systems development in the individual institutions. Where necessary, the e-Government unit should take responsibility of managing information systems development, if the institution lacks the capacities to do it internally. The unit should evaluate every e-Government proposal in order to ensure the project fits with overall public policies and strategies of the government.
2. The CoM of BiH should adopt a) formal methodology for strategic ICT planning and b) formal methodology for information systems design and project management, and should make them obligatory for use. The ICT planning methodology should provide tools for:
 - a. identification of services with online potential,
 - b. estimating resources for their implementation, and
 - c. giving budgeting guidelines.Information systems design and project management methodology should provide tools to appropriately:
 - a. initiate the project,
 - b. analyze requirements and tender,
 - c. design and oversee implementation,
 - d. operationalize and eventually close the successful project.
3. State institutions should identify its e-Government leaders to be focal points of cooperation with the central e-Government unit. They would be responsible of transpositioning adopted methodologies in practice.

All these actions should be supplemented with extensive training in leadership and management skills with a curriculum customized to reflect e-Government development needs.

4.3 Lack of legal and organizational framework

I already mentioned that e-Government coordinating function among BiH state institutions doesn't exist yet. Another important obstacle to e-Government development is the lack of legislative framework to support e-Government efforts at the level of individual state institution. In chapter 1.3 we stressed that, among number of other forces driving the e-Government development, one of the most important one is *legislation*, especially in case of G2G e-Services which have to be in place to allow G2B and G2C e-Government.

But even if such legislation exists and covers every aspect of ICT utilization; still the organizational capacities of BH state institutions to adopt and implement such legislation are very poor. It's interesting that some state ministries still don't have IT

persons employed at all, while some others employs only one or two IT persons working primarily as technicians.

I'll start the discussion by exploring the current legal framework for e-Government and levels of adoption and implementation of those relevant laws and regulations.

4.3.1 Regulatory aspects of e-Government in BiH state government

State Ministry of Transport and Communication (MCT BiH) is responsible government body for proposing legal acts and regulations related to the use of information and communication technology. I've made a research, and found the following laws and regulations adopted by the BiH Parliament and CoM BiH. Regulations (some in English too) can be found on the MCT BiH web site¹³:

- Digital Signature Law („Official Journal of BiH“, No. 91/06)
- CoM Decision on Basic Rules of Digital Signature use and Providing services of Certification Authority („Official Journal of BiH“, No. 21/09)
- Electronic Business and Legal Transactions Act („Official Journal of BiH“, No. 88/07)
- CoM Decision on Software Policy of state institutions of BiH („Official Journal of BiH“, No. 88/07)

Digital Signature Law envisioned foundation of special regulatory body that is supposed to give work permits to Certification Authorities (CA) in BiH and later supervise their operations and fulfillment of relevant standards. Law was enacted back in 2006, and, as we can see, it took three additional years for CoM to adopt a bylaw where it is explained in details how this regulatory body will be formed and how it will operate. To this date, early summer of 2011 that envisioned government body has not been formed yet.

Another interesting regulation was CoM's Decision on Software Policy of State Institutions of BiH. Text of the Decision reveals that the intention was to create a framework for development of the government enterprise ICT architecture – a collection of ICT policies, standards and methodology documents that should guide state institutions in their ICT-related initiatives and investments. The Decision obligate the Ministry to prepare and propose for adoption to CoM, the following Rulebooks: Rulebook for interoperability framework; information system design method in state institutions, method to calculate Total Cost of Ownership - TCO of software solutions, method of software proposals assessment, rules and standards that needs to be followed when implementing information systems, procuring workstations, developing web sites, etc. Decision was adopted in 2007 and the working group (WG) was formed in 2009 by the MCT BiH to prepare the drafts of above mentioned rulebooks. The WG consisted of some 20 e-Practitioners from different state institution and I was one of the members. Unfortunately, due to the low interest in activities of the WG by the Ministry, after having just a few initial meetings, we simply ceased to gather and work. So again, like in the case of Digital Signature Law, the adopted regulation was never implemented.

The two examples I presented here practically explains the attention given to the ICT legislation in general, by the policy-makers in state institutions of BiH. While they might support adoption of policies and strategies, laws and regulations, since they are perceived as technical and not political in nature, no mechanism which would monitor, benchmark and control its implementation, and ensure its enforcement doesn't exist. In order to examine the understanding of importance of ICT legislation and regulation for

¹³ Ministry of Transport and Communication of BiH - www.mkt.gov.ba

e-Government implementation in state institutions of BiH, I asked several multiple-choice questions in the survey of public administration employees:

Q1. Select the sentence that best describes your understanding of need for strategic planning regarding implementing ICT in your institution.

Q2. Is it necessary to regulate (by the laws and relevant bylaws) the use of ICT in public bodies?

Q3. Do you think that ICT utilization in state institutions of BiH has anything to do with the process of EU integration?

Q4. Do you consider useful to use some specific information system design method during implementation of such a project?

Q5. What is, in your opinion, the role of IT department/personnel in the project of information system development in your institution?

Q6. How many different information system design methods are you aware off?

In a way, the above questions continue to explore perception of public employees regarding the importance of ICT utilization. If it is considered important, it should be planned on a high level, supported by the relevant legal framework, possibly connected with the wider EU efforts in the field, and implemented in systemic and organized way.

4.3.1.1 Opinions related to the ICT regulatory framework

In the tables below Tot stands for the Total number of responses, while PM, CS, ITM and ITP stands for responses given by Public managers, Civil servants, IT managers and IT personnel, respectively.

The following responses were recorded:

		Tot.	PM	CS	ITM	ITP
		391	99	241	15	36
Q1. Select the sentence that best describes your understanding of need for strategic planning regarding implementing ICT in your institution.	State of ICT utilization in the field of our institution mandate requires systemic approach and should start with relevant strategy and action plan.	293	73	173	14	33
		74,9%	73,7%	71,8%	93,3%	91,7%
	Strategy/action plan are unnecessary documents which spend resources that could be more effectively spent in practical projects.	52	14	35	1	2
		13,3%	14,1%	14,5%	6,7%	5,6%
	IT projects are not of such complexity to require strategic planning.	32	10	21	0	1
		8,2%	10,1%	8,7%	0%	2,8%
IT projects = public procurement of ICT goods and services when needed, thus such documents are unnecessary.		14	2	12	0	0
		3,6%	2,0%	5,0%	0%	0%

		Tot.	PM	CS	ITM	ITP
		389	99	239	15	36

Q2. Is it necessary to regulate (by the laws and relevant bylaws) the use of ICT in public organizations?	Yes, it is required to strictly regulate and standardize the use of ICT in public organizations.	77	27	39	6	5
		19,8%	27,3%	16,3%	40,0%	13,9%
	Yes, but to the extent that regulations give free space for implementation of innovative solutions.	172	37	108	6	21
		44,2%	37,4%	45,2%	40%	58,3%
	Yes, but only in basic principles since every public institution has a different ICT needs.	115	32	71	3	9
		29,6%	32,3%	29,7%	20,0%	25,0%
No, because the lawmakers don't understand the potentials of ICT and inadequate regulations could just make things worse.	25	3	21	0	1	
	6,4%	3,0%	8,8%	0%	2,8%	

		Tot.	PM	CS	ITM	ITP
		390	99	240	15	36
Q3. Do you think that ICT utilization in state institutions of BiH has anything to do with the process of EU integration?	Yes, because of the special EU requirements (regulations, directives) in that area.	126	28	77	7	14
		32,3%	28,3%	32,1%	46,7%	38,9%
	Yes, for the reasons of effective and efficient communication with EU institutions and institutions of Member States.	234	64	144	8	18
		60,0%	64,6%	60,0%	53,3%	50,0%
	No, it is a matter of following the global trends of modern public administration, such as in EU member states.	28	7	17	0	4
		7,2%	7,1%	7,1%	0%	11,1%
No, ICT is irrelevant for the process of EU integration.	2	0	2	0	0	
	0,5%	0%	0,8%	0%	0%	

From the responses on these questions we can learn the following:

- 75% of all public employees understand that e-Government implementation should be a result of strategic ICT planning. But when it comes to enforcing ICT utilization by regulation, public managers are very divided – similar numbers of them supported first three different options. Given fact is that public institution dynamics is usually strictly regulated by decisions, instructions and other regulations, so this division in opinions, in a way, collides with declarative support for strategic ICT planning. This is also source of resistance to e-Government: as change of

a simple procedure/form may need a great deal of legislative effort [9, p.80].

- Interviewing IT managers I found out that almost none¹⁴ of the state institutions they work for, have a strategy and/or action plan for ICT utilization/e-Government implementation. While they recognize absolute need for strategic ICT planning (above 90% of IT employees) there were no major efforts to systemically plan e-Government development. My opinion is that this issue can be addressed to IT managers also, not to blame everything on public managers. In current situation, IT managers should take a lead in strategic ICT planning if it is obvious that public managers don't have capacity to lead that process.
- Majority of public employees of BiH state institutions doesn't have knowledge on importance of ICT in EU integration process. More than 70% of public managers think that ICT in relation with the EU integration is just about - exchanging e-mails! The score is low among IT managers also – only some 45% of them are aware of ICT-related EU requirements.

Opinions provided by the state institutions employees' shows that some measures have to be taken to introduce proper ICT strategic planning, to regulate ICT utilization by BiH state institutions and to connect it with relevant European ICT-related policies, strategies and regulations. I'll discuss these measures at the end of this chapter.

4.3.1.2 Current e-Government systems' development opinions and practices

I continue with the discussion on regulatory aspects for e-Government development in BiH state institutions, by exploring how systemically e-Government projects are implemented in this moment. Again, I had the following responses of the target groups:

		Tot.	PM	CS	ITM	ITP
		387	99	237	15	36
Q4. Do you consider useful to use some specific information system design method during implementation of such a project?	Yes, because the use of method's tools and techniques could lower uncertainties in project implementation.	126	38	67	6	15
		32,6%	38,4%	28,3%	40,0%	41,7%
	Yes, because the use of IS design methods ensures the project success.	166	42	108	5	11
		42,9%	42,4%	45,6%	33,3%	30,6%
	No, information system development is just like any other project implementation and only project management skills are required.	78	14	52	4	8
		20,2%	14,1%	21,9%	26,7%	22,2%
No, every method supports IS development only in an ideal	17	5	10	0	2	

¹⁴ Except Public Procurement Agency of Bosnia and Herzegovina, which have developed Strategy for introduction of national e-Procurement system through phases in the timeline of 2010-2015.

	environment, which is never the case in the real-life.	4,4%	5,1%	4,2%	0%	5,6%
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		Tot.	PM	CS	ITM	ITP
		389	99	239	15	36
Q5. What is, in your opinion, the role of IT department/personnel in the project of information system development in your institution?	IT department/personnel should organize project activities, and management of the institution and future back-office users should make most of the decisions.	60	20	36	3	1
		15,4%	20,2%	15,1%	20,0%	2,8%
	IT department/personnel should lead the project and submit periodical reports to the management to get decisions for crucial questions.	226	58	133	9	26
		58,1%	58,6%	55,6%	60,0%	72,2%
	IT department/personnel should independently carry on all activities in project implementation and should be fully responsible for the project success.	52	8	36	1	7
		13,4%	8,1%	15,1%	6,7%	19,4%
IT department/personnel should only provide necessary ICT infrastructure, and should not deal with the business logic of the future system at all, since it's not their expert field. Responsibility should be taken by the selected ICT company.		51	13	34	2	2
		13,1%	13,1%	14,2%	13,3%	5,6%

On the last question “How many different information system design (ISD) methods are you aware off?” only one IT manager said he/she is aware of 1 method only, while others reported they are aware of up to 5 different ISD methods. Combining responses on the questions stated above, we can learn the following:

- Although all IT employees have stated they are aware of at least one ISD method, more than quarter of them believes such methods don't need to be used in implementing information systems in their organizations. Additionally, large number of them wrongly believes that their use “ensures” the project success.
- The vast majority of all respondents (around 85%) see the development of information systems in public organization as sole responsibility of IT employees or external IT consultant selected to implement the system. Although e-Government systems are developed for the customers (the front-office of the system) and for the civil servants and public managers (as end-users of back-office of the system), no one, including IT managers, gave a bigger role to those categories. So even though IT employees claim they know ISD methods, no one seems to practice agile methods or e.g. participative design as method of choice when designing information systems in public administration.

Opinions provided, and my knowledge and understanding of situation, tells me that IT managers and personnel are not up-to date with current IS design and

management methods. Those groups might know some theory but either it is out-of-date, either they don't practice it. Even the IT people see IT as their own job, and they are too divided over whether and how to regulate the use of formal method in IS design. I'll discuss the measures for improvements at the end of this chapter.

4.3.2 Organizational capacities for e-Government development

Commenting on current management and leadership practices of BiH state institutions I stated that the central e-Government unit should be formed to substitute missing management capacities, and if the individual institution lacks the capacities to internally lead the e-Government projects, this unit should be in charge. Until this central e-Government unit is not established, the individual institutions should work more to build its internal capacities to implement e-Government systems they're in charge of.

In this chapter, I connected the institutional capacity for e-Government development with the existence of IT personnel and/or IT units, for the reasons we stated before: majority of survey respondents said that IT employees are most likely to initiate the e-Government project, e-Government projects are perceived as their responsibility and they are usually in charge for making ICT plans for future. In order to investigate existence of IT personnel and/or IT units in state institutions, I used data available in the HRMIS¹⁵ system of BiH state institutions. I found out that no other rule, but the vision of public manager in charge; determine the organization of ICT function in their institutions. E.g. small institutions like Public Procurement Agency of BiH and Police Support Agency of BiH, with some 20-30 employees in total, have an ICT department consisting of at least two units with some 5-10 employees. These institutions are application service providers for other institutions, and they've organized to support such function. On the other side, Ministry for Civil Affairs of BiH with 161 employees in total and mandate to coordinate entities in the field of employment, social protection, health, education, science and culture, sport, cadaster etc. currently doesn't have an IT unit or at least one IT person employed. So it was impossible to make any other conclusion, except that IT capacity of BiH state institutions depends solely on public managers' vision of its organization.

In order to find out what is a major opinion about necessity to organize the ICT-related work in a functional unit – with justified presumption that head of such unit could be considered as an e-Government leader while non-managerial IT employees could be more technically oriented persons, I asked the following question in the survey:

Q1. Does your institution needs an ICT department to implement e-Government projects and give common ICT support?

The responses collected were as follows:

		Tot.	PM	CS	ITM	ITP
		557	135	355	17	50
Q1. Does your institution needs an	We need an ICT department to be responsible for work of current ICT systems and development of new ones.	441	101	280	17	43
		79,2%	74,8%	78,9%	100%	86,0%

¹⁵ Human Resources Management Information System – managed by the Civil Service Agency of BiH, contains personal record files of all state level employees

ICT department to implement e-Government projects and give common ICT support?	ICT department is needed only in very large institutions, smaller needs 1-2 ICT technicians to maintain systems and equipment.	97	29	63	0	5
		17,4%	21,5%	17,7%	0%	10,0%
	ICT services can be bought on the market as any other service, and it is much cheaper to manage IT that way.	19	5	12	0	2
		3,4%	3,7%	3,4%	0%	4,0%

The responses shows that absolute majority (about 80%) of all surveyed thinks that ICT unit should be formed in their institution to support work of current ICT systems and development of new ones, regardless of the size of the institution. This goes in line with my opinion that every state institution, regardless of its size, provides some services to their customers (citizens, businesses, and other government agencies) therefore a small team of people working on development, maintenance and improvement of the corresponding e-Services should be a part of its organizational structure.

4.3.3 Discussion and proposed measures for improvements

Taking into account observations and findings stated in the two previous chapters, I would suggest the following measures to improve legal, regulatory and organizational framework for e-Government development in state institutions of BiH:

- Ministry of Communication and Transport (MCT BiH) should prepare a Law on e-Government. Its content should guide ICT utilization to provide customer access to state information and services. The Law should have scope limited to state institutions only, to avoid political implications with the governments of the entities and their representatives in BiH Parliament. The Law, once adopted by the BiH Parliament, should oblige state institutions to:
 - Identify the customers' requests for information¹⁶ and state services, to identify all services they provide. Every institution should analyze *online* potential of those services;
 - Prepare a comprehensive e-Government strategy to eliminate current barriers of electronic access to information and services, such as: a) missing information systems, b) system design barriers of current information systems, c) systems interoperability issues if the services are provided by multiple agencies, d) missing legal framework for e-Services implementation, e) lack of enabling technologies, etc.;
 - Report back to the MCT BiH on missing legal and other provisions that can't be adopted or implemented at the level of individual institutions.
 - Start working on implementing e-Government systems for which all preconditions are met, according to the adopted e-Government strategy.
- The Law should obliged MCT BiH to monitor individual state institutions on development of their e-Government strategies, to make a summary

¹⁶ Officially submitted by interested parties according to Freedom of Information Act („Official Journal of BiH“, No. 28/00)

reports to the CoM and make suggestions for adoption of bylaws that will further regulate implementation of those e-Government strategies.

- To avoid current incapacities of the MCT BiH, the CoM should be obliged to establish a Working group of ICT and legal experts, until it become possible to organize and establish central e-Government unit, under coordination of the MCT BiH, to devise state institution's enterprise ICT infrastructure. This would represent a regulatory framework for use of ICT in state institutions of BiH and would be consisted of set of ICT policies, standard and methodology documents that would guide state institutions in their ICT-related initiatives and investments. The documents should satisfy increasing need for legislative clarity around the ICT utilization in BiH state institutions. Among others, the following major documents should be produced:
 - *Instruction for developing, establishing and implementing e-Government strategy* documents of state institutions of BiH – a comprehensive guide for BiH state institutions to produce strategy content that would be easy to read, understand and follow by all parties interested.
 - The Strategy should be complemented with *Guidelines for benchmarking e-Government systems* implementation. State institutions should be instructed how to plan practical activities that would lead to expected results of e-Government projects, as well as how to benchmark implementation of those activities by measurable indicators of success.
 - *Common rules and requirements for ICT infrastructure* of state institutions of BiH should explain basic rules of establishing network, data center and its services as technological platform for current and future information systems. It could also define standards regarding procurement of ICT to boost cost-efficiency of public procurement procedures and related maintenance services.
 - *Phase plan for implementing e-Government projects* in state institutions of BiH, should guide state institutions through information system development life cycle, explain information system design method's tool and techniques and project management issues.

The second line of measures should be taken to *implement the legal framework that is already adopted*, especially the Digital Signature Act since that's a key enabling technology for implementation of e-Government services on a higher level of *online sophistication* (two-way interaction, transaction and personalization, see chapter 1.4). One of the BiH entities enacted its own Digital Signature Act which could lead to establishment of double standards in the country. The following measures should be taken by the government:

- Together with the relevant bodies of the entities establish a system for accrediting Certification authorities (CA) in BiH, with a proper hierarchy to ensure mutual recognition of certificates on all level of governance.
- Analyze current laws and adopt changes that will make electronic documents legally equal to conventional paper documents. All state institutions should be obliged to change their internal regulations to allow submission and exchange of electronic information and documents with the customers of their services.

The third line of measures should be taken to *raise awareness about importance of e-Government development* in state institutions of BiH, especially in the context of EU

integration; and build capacities of public employees to develop both business and ICT strategies of their institutions, so that they are mutually aligned. The following measures should be implemented:

- In the training agenda on e-Government for the public and IT managers include topics that would explain European e-Government initiatives, EU legal framework in this area (regulations and directives considering general ICT use, as well as of particular e-Services like public procurement, border security and customs, food security, statistics and many others), and EU requirements when it comes to implementation of pan-European e-Government services.
- Public and IT managers should be introduced with current legal framework for e-Government in BiH together with possible initiatives to implement before mentioned measures to keep all the government-wide e-Government efforts clear and transparent to everyone and enable every public and IT manager to position themselves in a broader e-Government picture.
- Public and ICT managers should be additionally trained in general management and leadership skills for e-Government. The goal of the training should be building their capacities in: a) avoiding leadership failures, b) overcoming workplace and organizational inflexibilities, and c) avoiding lack of trust and poor technical designs when developing e-Government systems in state institutions of BiH. The European Commission funded a three year project to investigate the legal, organizational, technological and other barriers to expanding effective e-Government services and to define possible solutions at a European level to overcome such obstacles. The project was led by the Oxford Internet Institute (OII) and the results were published in “Breaking Barriers to e-Government” and “Solutions for e-Government” publications¹⁷, which should be used as primary references for this training.

The fourth line of measures should be taken to ensure that IT personnel, especially IT managers, are capable of delivering anticipated results of e-Government projects they are involved in. The following measures should be taken to *build their overall IT management capacities*:

- Civil Service Agency of BiH should be obliged to plan funds for continuous education of IT personnel of state institutions of BiH, which should be based on training needs assessment done in cooperation with MCT BiH. This thesis has shown that IT personnel lack the knowledge of using ISD methods, so that topic should be a part of training agenda. Other conventional topics like project management, change management, business process reengineering, management soft-skills, etc. should be complemented with more e-Government related topics like user-focused e-Government, defining user priorities, multi-channel service delivery, interoperability of government information systems, etc.
- The network of e-Government practitioners of state institutions of BiH should be established under the MCT BiH, to allow them to meet and share their experiences and in that way learn from each other. This network could even partially supplement missing services of central e-Government unit, until it's established.

Finally, the fifth line of measures should tackle the *current organizational incapacities for e-Government development*. In my opinion, the CoM BiH should adopt a decision on establishment of units for e-Government development in state

¹⁷ Available online at <http://www.egovbarriers.org/>

institutions of BiH. The decision should clearly state what competencies are expected from such a unit, so that state institutions are properly guided in making changes to their organizational structure and in the process of staff employment.

4.4 Personal and management issues

Development of information systems in government is a complex process. It is not a bureaucratic routine the public employees are used to in everyday work; and if information system development is done properly, its introduction cause process and organization re-engineering which is always difficult to achieve, especially in public organizations. Slow and sporadic progress to e-Government can result from many personal and management issues: a) negative stereotypes on informatization efforts, on one side and b) IT and business “smartness” of actors involved, on another. Since most of the e-Government initiatives in BiH are partially successful and some even fail, I wanted to investigate to what extant personal and management issues represent barriers which contribute to humble performance in delivering e-Services. I’ve already identified some of those barriers: poor public management understanding of e-Government, poor strategic vision and planning, resistance to change by government officials, etc... but here question some other possible factors like, inadequate knowledge of business processes among IT persons, inadequate ICT skills among government officials, lack of vision of both sides, etc.

In the survey, conducted among public employees of state institutions, I asked questions to research to what extent beliefs in some classic negative IT and business stereotypes affects people's individual and joint efforts in implementing e-Government services. Additionally, I asked state level employees belonging to different categories in civil service to mutually grade each other. The results of the survey confirms that all actors involved in e-Government development in state institutions of BiH don’t always see eye-to-eye on how each other contribute to e-Government development.

4.4.1 Negative stereotypes on IT function and IT personnel

In their everyday work, public managers and civil servants, working on solving cases in mandate of their institutions, face many challenges. Sometimes the state institutions of BiH are caught in the middle of strong political differences in the country, in other cases the civil servant posts are usually under occupied, making some civil servants overwhelmed with their work. Some feel over engaged in solving cases that keeps coming, while others who don’t have so much work got used to that, and both don’t have time or will to deal with the possible change proposals coming from the IT department.

Instead of providing better computers and network connection, quick response in solving problems with the equipment and existing applications; IT department seems to insist only on some new information systems and databases they actually don’t know how to implement, otherwise they would be already implemented by themselves. In institutions where public managers and civil servants are IT aware, the IT department seems to be slow in response to the growing information needs of employees. In both cases, IT personnel seem to speak technical language only and are not proficient enough in business of the institution they work for.

These perceptions generally create problems in communication which even deepens negative stereotypes on IT side. In order to investigate to what extent negative beliefs on IT personnel exists among state institution’s employees, I asked state employees to respond to some of the most frequent stereotypes that keeps recurring in BiH state government.

Here are the responses given by the non-IT employees:

	Fully disagree	Don't agree	I'm neutral	Agree	Strongly support	Tot.
IT is too bureaucratic and obsessed with central control	8.2 % 33	42.5 % 171	29.4 % 118	17.9 % 72	2.0 % 8	100 % 402
IT personnel should know business processes within institution at least as employees working on them	1.2 % 5	24.4 % 98	16.4 % 66	43.0 % 173	14.9 % 60	100 % 402
Our IT department is consisted of technicians, not IT leaders	5.2 % 21	26.7 % 107	26.4 % 106	36.7 % 147	5.0 % 20	100 % 401
Our IT personnel doesn't care enough of legal consequences when introducing new information systems	9.0 % 36	38.0 % 152	37.8 % 151	13.3 % 53	2.0 % 8	100 % 400
Our IT personnel has technical knowledge, they lack social skills in communicating with other employees	7.3 % 29	40.9 % 163	25.3 % 101	22.6 % 90	4.0 % 16	100 % 399
Too much money is spent on ICT	19.8 % 79	57.5 % 230	18.3 % 73	3.3 % 13	1.3 % 5	100 % 400
IT department doesn't delivers results on time	4.8 % 19	41.0 % 164	36.3 % 145	16.3 % 65	1.8 % 7	100 % 400
IT department doesn't achieve results our institution requires	6.0 % 24	38.0 % 152	29.3 % 117	22.8 % 91	4.0 % 16	100 % 400
IT department outsource to much of its own jobs	4.3 % 17	29.8 % 119	51.0 % 204	13.0 % 52	2.0 % 8	100 % 400
IT department is „stuck" with old systems and technologies and doesn't focus on the future	8.0 % 32	41.5 % 165	27.9 % 111	18.8 % 75	3.8 % 15	100 % 398
The work of IT personnel is a reason to be worry	3.0 % 12	20.6 % 82	38.2 % 152	31.2 % 124	7.0 % 28	100 % 398

From the employees' responses on given statements we can learn the following:

- Only some 20% of non-IT public employees think that IT is too bureaucratic and “obsessed” with central control. My opinion is that this response rate reflects the low level of achieved standardization of ICT use in state institutions, not the perception of the practice itself. More ICT standards and policies we see in place in the future, more complaints on these issues by non-IT persons we'll have.
- Only 25% of employees don't agree that IT persons should know business processes within institution at least as they know. This might reflect a position where IT should be independent in IT projects, since they already know business processes so well, and non-IT employees shouldn't be burdened with additional responsibilities in IT projects. Similar response rate is given by IT personnel, some 70% agrees on this view, probably from their own practical experience. The “techie” image and approach to e-Government projects encourage senior officials to stay away and leave things up to IT staff [11, p.116]. My personal experience is the same, in all projects I've been involved it was always difficult to motivate employees to participate and give their contribution in appropriate phases of the project. Therefore, it is a) of outmost importance that IT personnel know well business processes affected by the IT project and b) important to work on changing the image of IT projects from “techie” to “business value adding”.

- Relatively high number of employees (42%) sees their IT personnel as simple technicians or has a neutral position (26%). Anyway, IT persons in BiH state institutions are generally not perceived as leaders or innovators. On the other side, majority of IT persons don't agree with this view (72 %). They probably attribute the lack of e-Government solutions to some other factors rather than the lack of their own personal capacities.
- Relatively high number of employees (above 50%) believes that their IT personnel lack social and communication skills, or they've express neutral position on the issue. Not surprisingly, only 8% of IT personnel support that view.
- Employees are divided on the subject whether IT department achieve required results (effectiveness) and are those results delivered on time (efficiency). They complaint more on effectiveness (26%) rather than on efficiency (18%). Relatively high number of employees (above 30%) has a neutral stand on these issues. It is interesting that the same percent of IT personnel (25%) sees that there's a problem with effectiveness of IT, but only 8% contribute it to the way they do business i.e. they consider themselves efficient and problems of effectiveness is probably attributed to someone else. Additionally, on the statement "The work of IT personnel is a reason to be worry" only 23% of employees disagreed.

The proposed measures to overcome negative stereotypes on IT function and IT persons working in BiH state government, we'll be presented at the end of this chapter.

4.4.2 Negative stereotypes on non-IT employees

I'm working on ICT projects in BiH state institutions, alone or together with other e-Government practitioners, for almost 10 years now. On numerous occasions, formal and non-formal, I've learned that state IT personnel have very reserved opinions on capacities of non-IT employees to participate in development of e-Government systems. Both public managers and civil servants are usually perceived as uninterested and incapable to help in e-Government projects, and the work of IT personnel is usually undervalued and/or nonunderstood. IT personnel believe that: "When it comes to spending capital investment funds from the budget, ICT is the last on the mind of public managers. IT is usually perceived just as supportive function to core business processes. For that reason, many non-IT public employees believe that IT is therefore somehow "less important" and that IT personnel should be at service to them, in order to achieve goals of their business which is the only one important. Complexity of IT work and IT expertise is usually not credited enough." All these beliefs cause bitter feelings in IT persons on their status in public administration and create problems in communication between both sides, which deepens negative stereotypes. In order to investigate to what extent negative beliefs on non-IT employees exists among state institution's IT personnel, I asked IT employees to respond to some of the most frequent ones that keeps recurring in BiH state institutions.

Here are the responses given by the IT employees:

	Fully disagree	Don't agree	I'm neutral	Agree	Strongly support	Tot.
Management and employees have semi-understandable demands on IT, not knowing their real business needs	0.0% 0	15.3% 9	22.0% 13	49.2% 29	13.6% 8	100% 59
Employees are not able to grasp benefits of ICT utilization in their line of work	0.0% 0	25.0% 15	28.3% 17	40.0% 24	6.7% 4	100% 60
Public managers wants ICT solutions now, not	1.7% 1	16.7% 10	15.0% 9	43.3% 26	23.3% 14	100% 60

understanding complexity and time needed to develop information systems						
Employees have a shallow approach (uninterested, unmotivated) when participating in information systems development	5.0% 3	23.3% 14	16.7% 10	46.7% 28	8.3% 5	100% 60
Management always change system requirements	0.0% 0	23.3% 14	40.0% 24	28.3% 17	8.3% 5	100% 60
Employees are not capable of using new information systems	3.3% 2	30.0% 18	33.3% 20	30.0% 18	3.3% 2	100% 60
Management pressures IT department to outsource jobs that could be most effectively done internally	6.7% 4	45.0% 27	33.3% 20	10.0% 6	5.0% 3	100% 60
Management requests are unrealistic and too visionary	3.3% 2	38.3% 23	31.7% 19	25.0% 15	1.7% 1	100% 60
The budget for ICT is hardest to acquire	1.7% 1	23.3% 14	18.3% 11	43.3% 26	13.3% 8	100% 60
Management of institution doesn't credit enough the work of IT personnel	0.0% 0	5.0% 3	23.3% 14	50.0% 30	21.7% 13	100% 60

From the employees' responses on given statements we can learn the following:

- IT personnel in major feel that public managers and employees have semi-understandable demands on IT because they don't have a clear understanding on how to make their business processes effective and efficient in an *offline* world. Some 63% of surveyees among IT personnel support this view, while 22% have a neutral position on the issue. It is interesting that the view of non-IT personnel on the same question isn't much different, although higher response rate of those who disagrees with the statement was recorded (33%). It seems that public managers and civil servants are aware to some extent that the business processes within institutions are not optimized and that cause problems in implementing ICT solutions.
- Employees (civil servants) are not able to grasp potential benefits of ICT utilization in their line of work according to almost 50% of IT personnel, while 28% of them took a neutral position. On the other side, employees have a totally different view on the same statement where some 50% of them disagree, while 17% are neutral.
- 67% of IT personnel believe that public managers in general don't grasp a complexity and specificity of information system development. Therefore they are too demanding and unappreciated to the IT personnel efforts. Only some 18% of IT personnel disagree with this statement. On the other side, 40% of public managers disagree and 30% of them have a neutral stand. Yet another case of clear misunderstanding on the same issue.
- 55% of IT personnel feel that civil servants are uninterested or unmotivated to participate in information system development while only 28% have opposite experience. Civil servants' opinions are divided; the same percent (38%) agree and disagree with the same statement. It would be fair to say that civil servants, to some point, are aware they are not doing their best in information systems development projects.

- IT personnel in major believe that public managers are not consisted in their IT requests. Only 23% oppose to this view, while others support it or are neutral. Inconsistency in defining system requirements can be attributed to (a) lack of systemic approach in IS planning and design or (b) missing IT-potentials awareness. This view is supported by another opinion which shows that public managers don't have unrealistic or too visionary requests. Of course, only 19% of public managers agree with the statement, while majority of them thinks totally opposite.
- IT personnel are divided exactly on half on the issue whether employees are not capable of using new information systems. Employees have a different view, above 70% disagree with the statement or have a neutral stand.
- The budget for ICT is hardest to acquire according to 67% of IT personnel. Public managers support the view; 47% agree while 27% have a neutral opinion.
- On the final issue the IT personnel is almost unanimous; 95% agree that management of institution doesn't credit enough the work of IT personnel or have a neutral stand. About 27% of public managers support this view.

The proposed measures to overcome these negative feelings towards non-IT staff working in BiH state government, we'll be presented at the end of this chapter.

4.4.3 Key actors' performances in implementing e-Government

As an enabler of change in government, e-Government offers potential benefits and solutions to leaders across the whole of government: a) IT managers to achieve their vision of electronic agency/ministry and b) public managers (agency and ministry heads) to pursue their business policies and strategies through IT-enabled change. This would be an ideal situation, which is, unfortunately, not a case of BiH state institutions and probably of many other governments around the world. Public managers often regard IT projects as low-priority technical issues rather than essential to the success of the overall business plan [13, p.1] and IT managers either: (a) lack the vision mentioned, (b) lack the public manager's support or (c) lack the resources to implement it. Only the strong leadership can speed the process of e-Government implementation, promote coordination within and among agencies and help reinforce good governance objectives with IT [13, p.2], therefore the focus of this chapter are government leaders in state institutions of BiH, both in the field of government business and government IT.

Previous chapters were about some negative stereotypes that both sides hold on each other; here I'll present further current perceptions by presenting how both groups of government leaders grade each other's efforts in implementing e-Government. Since most of the e-Government initiatives in BiH are partially successful and some even fail, I first wanted to explore to what cause these groups attribute such results, by asking the following questions:

		Tot.	PM	CS	ITM	ITP
		355	90	217	15	33
Q1. What do you consider to be a basic reason of	Bad management of project implementation	95	23	59	4	9
		26,8%	25,6%	27,2%	26,7%	27,3%

unsuccessful implementation (partially or fully) of some ICT project that you are aware of?	Unclearly specified system requirements in the beginning of the project	122	34	70	6	12
		34,4%	37,8%	32,3%	40,0%	36,4%
	Lack of resources (time, employees, money)	117	30	74	4	9
		33,0%	33,3%	34,1%	26,7%	27,3%
	Bad implementation by the software developing company	16	3	9	1	3
		4,5%	3,3%	4,1%	6,7%	9,1%
	<i>Vis major</i> , unmanageable changes in project environment	5	0	5	0	0
		1,4%	0%	2,3%	0%	0%

		Tot.	PM	CS	ITM	ITP
		355	90	217	15	33
Q2. Following the previous question, who should be blamed for that failure?	Management of the institution	132	31	83	4	14
		37,2%	34,4%	38,2%	26,7%	42,4%
	IT manager	49	11	26	4	8
		13,8%	12,2%	12,0%	26,7%	24,2%
	The whole team representing the government institution in the project	113	31	68	7	7
		31,8%	34,4%	31,3%	46,7%	21,2%
	The whole ICT personnel working on the project	40	12	24	0	4
		11,3%	13,3%	11,1%	0%	12,1%
	Software development company that implemented the project	21	5	16	0	0
		5,9%	5,6%	7,4%	0%	0%

From the response given, we could conclude the following:

- Public managers and IT managers agree that there are two basic reasons for e-Government projects fails: a) lack of project management skills (which includes estimating and funding project costs and other resources)

and b) lack of ISD method use which would guide project team in establishing true system requirements specification and ensure their propagation through the system development life cycle. Whoever is on the head of a team implementing e-Government project should know that the team should have competencies in both areas.

- Both groups in major blame the whole team representing the government institution for not achieving success in some particular e-Government project. It may be because nobody in public administration like to finger points when issues arise, or it really could be the case. However, civil servants and non-managerial IT personnel blames significantly more public managers (~40%) than IT managers (~15%). Public managers are also more critical about themselves than IT managers. Other international surveys show that – behind the public relations image – only a minority of projects have consistent involvement or support from politicians or non-IT senior officials [11, p.116]. My conclusion is that public managers are to blame more than IT managers: public manager’s full support is essential to implementation of e-Government project. Those projects are usually perceived by them as project with technological rather than business goals, until the system is put in operation when they finally understand that e-Government is a part of institution’s business not just institution’s technology.

To further explore how (e-)Government leaders in state institutions of BiH work in the field, I asked all employees to grade their business and IT management. The results are presented in the following tables:

		Tot.	PM	CS	ITM	ITP
		354	90	217	14	33
Q3. What mark would you give to IT department/personnel of your institution, for their work and results accomplished?	A (excellent work and results)	49	14	22	6	7
		13,8%	15,6%	10,1%	42,9%	21,2%
	B (good work and results)	142	31	87	5	19
		40,1%	34,4%	40,1%	35,7%	57,6%
	C (averageness in works and results)	130	34	87	3	6
		36,7%	37,8%	40,1%	21,4%	18,2%
	D (poor work and results)	21	7	14	0	0
		5,9%	7,8%	6,5%	0%	0%
	E (disappointing work and results)	12	4	7	0	1
		3,4%	4,4%	3,2%	0%	3,0%

		Tot.	PM	CS	ITM	ITP
		353	90	215	15	33
Q4. What mark would you give to management, for their work and results accomplished in managing ICT utilization in your institution?	A (excellent work and results)	23	11	8	2	2
		6,5%	12,2%	3,7%	13,3%	6,1%
	B (good work and results)	121	25	81	4	11
		34,3%	27,8%	37,7%	26,7%	33,3%
	C (averageness in works and results)	157	39	94	8	16
		44,5%	43,3%	43,7%	53,3%	48,5%
	D (poor work and results)	35	8	23	1	3
		9,9%	8,9%	10,7%	6,7%	9,1%
	E (disappointing work and results)	17	7	9	0	1
		4,8%	7,8%	4,2%	0%	3,0%

Here we have some expected results:

- While IT managers and IT personnel mark the work of IT department in major on a “good-to-excellent” scale (above 80%), public managers and civil servants are more reserved and mark their work as “average-to-good” (almost 80%). While some 10% of non-IT employees sees the work of IT department in their institution as “disappointing” or “poor”, no one among IT personnel share that view.
- Work and results accomplished by public managers in managing ICT utilization in their institutions are viewed in major as “average”. With 45%, IT managers and IT personnel are mostly contributing to that view.

It is important to say that these marks given to (e-)Government leaders would probably be harsher if there is a true understanding of “e-Government” meaning among public employees. Previous finding showed that e-Government is, in major, perceived as a tool for internal government improvements and not as providing customer-centric institutional electronic services (see chapter 2.2).

4.4.4 Discussion and proposed measures for improvements

As public managers get smarter about the use of IT in state institutions of BiH, they will increase the adoption of correct e-Government practices and start breaking through the negative stereotypes on IT personnel. The same way, as the IT personnel starts discussing on the civil servants’ viewpoints regarding information system developments and adopts proper IS design tools and techniques; they will increase the level of understanding with non-IT personnel and start breaking through the negative stereotypes on them. Based on results of my study, I would complement previously

stated recommendations with the following one: In addition to measures of creating “IT smart” public leaders stated in previous chapters, institutions should sponsor training programs to help develop “business smart” IT leaders also. IT managers should be trained to focus on delivering business results, offer multiple solutions and be more flexible in information system development and communication with the civil servants. Public managers should be additionally explained to what they can do with the current systems, what information systems are missing, what would be the business benefits of such systems and how they could give an optimal support in their development.

In order to further explore what could be the proper measures of improvement of personal and management issues, I asked these groups for their own opinion. Non-IT personnel were asked: “What would be your recommendation to IT personnel of your institution?” and “What IT personnel should learn/know about core business of your institution?” and the IT personnel were asked: “What would be your recommendation to the management, regarding ICT utilization in your institution?” and “What management of your institution should learn/know about ICT?”

The most often repeated words of non-IT civil servants were that IT personnel should “take more efforts to understand the needs of civil servants”, “avoid the use of technical language” and be more “open to ideas of civil servants and managers”. They should be also “more proactive in suggesting ICT solutions for business needs” and “cooperate with the civil servants in ICT planning”. Many believe that IT personnel underestimate the capacities of non-IT civil servants and they should finally open the dialog on ICT subject, but on equal basis.

On the other side, IT personnel repeatedly asks for “public managers to consult IT personnel in decision-making and planning processes”, “involvement of civil servants and public managers in IT projects” and that “public managers should be more sensitive to the training needs of IT personnel”. IT personnel say also that public managers should do a fewer of “changing priorities”, make “smarter decisions faster” and “make less delegation and more personal effort”.

All these issues should be a starting point for promoting dialogue about how to better leverage the IT to achieve business goals of BiH state institutions. In order to strengthen the cooperation and mutual understanding of these groups, the government should organize thematic conferences and meeting to discuss these issues in an organized way.

5 WHERE TO IN IMPLEMENTING E-GOVERNMENT IN STATE INSTITUTIONS OF BiH?

The data should run, not the public.

*Gerhard Schröder*¹⁸

E-government is based on the common principle of enabling customers to access government information and services, when and how they want (i.e. 24 hours a day, seven days a week) through different channels including the Internet. Today, however, this approach is being enhanced by the realization that the benefits of online services depend not just on the availability of those services, but also on how they are organized and provided to customers and to which extent are they utilized. Service delivery should be based on the needs of service customers rather than service providers, is increasingly common principle in e-Government implementation worldwide. Citizens and businesses do not necessarily know how or where to access e-Government services; they often perceive government as complex, un-connected and un-transparent and their knowledge of e-Government services can be quite limited. In order to reduce complexity of structure of e-Government services and make government back-office as transparent as possible, the governments worldwide are introducing a “single point of access” principle in implementing e-Government services.

5.1 Where vision and leadership can take us?

E-Government is all about change: changing current processes to more optimized one, changing the focus from agency-centric to customer-centric, changing the approach to creating value for the customer of government business and not solely to government business or government IT. For such changes to happen, personal and organizational leadership is required. Perhaps more than any other factor, it is the presence of an e-Government leader that will contribute to the success of e-Government projects: this is “the key role of an e-Government champion who has the vision and force of personality to inspire, cajole, and lead the transformation of work practices.” [11, p.271]

E-Government leader in the state institution of BiH could be anyone with a clear vision on how to leverage ICT to achieve business goals of his/her organization. It's important to say that it's not a reserved post for an IT person. On contrary, an *IT smart* public manager capable of driving e-Government projects all the way through customer/business value realization would be of more significance due to the fact that no one but him/her understands better real business needs and how those e-Government projects will affect the government businesses they're in charge of. In fact, from the survey results, we have learned that IT person leading the e-Government project in state institution of BiH is likely to have many problems in its implementation: from the lack of motivation and involvement of civil servants in IS development to misunderstanding and lack of support by the public manager. It's almost like one author puts it directly: “If an IT guy's in charge, it won't work.” [16]

While e-Government leaders don't have to be persons with an IT background, they should have long-term work experience within a particular public agency, and have strong political connections critical in gaining support for initiatives and then in insulating those initiatives from interference [11, p.272]. Such leadership is also

¹⁸ Former German Federal Chancellor. Statement at the e-Government conference, 2000.

important as it helps “sell” the project to a larger internal audience and the public [9, p.90]. The value of those e-Government leaders would increase significantly as they build-up their experience in IT-enabled change; and that increased experience could only result with more e-Government initiatives.

My personal experience of an IT manager working in state institutions of BiH for almost a decade now, brings me to a conclusion that implementations of e-Government have a two-fold base: one based mainly on common practice of exploiting current technology and another based on visionary of a e-Government leader – a “great man” as professor Angell¹⁹ defines innovators of today: “Innovation is about leaders who are simply the best. The mediocre do not lead innovation. They follow it. Nor does capital investment by itself create growth. It is the innovators, the *great men*, who create jobs and generate wealth.” [15] My understanding is that whenever there’s a chance for a new e-Government design, new e-Government innovation, and new government functionality; those public bodies need innovators – e-Government champions. E-World we are living in promotes such environment: providing enough information that leads to knowledge, knowledge that leads to understanding, so finally public managers capable of understanding to be able to make innovations. The successful public agency of tomorrow, as I see it, will be a community of professionals of many varieties who complement and co-operate in creating a new value for customers of that public agency.

The e-Government innovations of e-Government champions are sooner or later accepted as a common practice, and based on its quality, innovation can propagate even globally. *ePractice.eu* is maybe the best example supporting this view, where the European Commission created a portal dedicated to service the professional community of e-Government in Europe, empowering them to discuss and influence open government, policy-making and the way in which public administrations operate and deliver services²⁰. The portal enables users to share their real-life cases by publishing them on the site and learn from the experience of others, rate and comment on the published cases, so that true innovations could be noticed, practices and know-how exchanged and new standards established.

Although different e-Government initiatives attempt to accomplish different goals, author agree that one of the principal goals of e-government is “to fully realize the capabilities of available information technology in an effort to transform government from an agency-centric, limited service operation into an automated, citizen-centric operation capable of delivering government services to citizens, businesses, and other government agencies 24 hours a day” [10, p.12] in an integrated way while keeping multiple channels of service delivery. In the following chapters I’ll give brief explanations on these terms in context of BiH state institutions.

5.2 User-focused e-Government services

Focusing on user needs in e-Government development is about comprehending true users’ needs and “organizing information and services according to those needs and not according to the government department structure” [4, p.20]. That means that if government service cross the agency borders then the corresponding e-Service should also be delivered as a single, borderless and integrated service. To achieve the integration and to make government internal structure transparent to the user, it is required, above all other things, to have a government-wide planning, managing and coordinating function. This is still missing in state institutions of BiH, and without a strong central e-Government unit, state institutions of BiH could experience

¹⁹ Professor of Information Systems at the London School of Economics since 1986

²⁰ ePractice.eu portal - <http://www.epractice.eu/en/about>

“frustration by lack of standards and lack of overall view” [11, p.26] in attempts to implement such e-Government projects. In cases where public agency is solely responsible for delivering service to its users, the key of success is in the vision of an e-Government leader which main project guideline should be the creation of a true value for the service user and not just creation of agency’s operational excellence in service delivery.

A crucial part of providing user-focused e-Government services is to ask users what they want, need and value as a basis for designing both services in the back office as well as government web sites and portals in the front office [8, p.27]. It might be very difficult to organize citizens’ involvement in information system design process, but it is important for BiH government to adopt such IS design method which would ensure that customer interest was in focus of development of state institutions’ e-Services.

The lack of understanding of users’ needs explains, at least to some extent, why the adoption of governmental e-Services remains relatively low and why the expected results from e-Government initiatives have not yet been achieved [17].

Due to many factors, BiH society is digitally divided. Only some 40% of population has internet access, and the number of those who trust internet transactions is certainly much lower. Although e-Government has a potential to substitute any other form of government services delivery, for those reasons in BiH the only way is that e-Government becomes additional channel of the service delivery.

5.3 Multi-Channel Service Delivery

The ideal of e-Government is totally transparent government, government without internal borders, where citizens and businesses communicate with the government electronically via the e-Services available on the agencies’ web sites. Unfortunately, even in developed countries, where Internet penetration is high, the proportion of citizens using e-Services is relatively low when the applications are launched, gradually increasing along time, but usually never to reach 100%. Exception is when some e-Services, by government regulation, become obligatory for use. Usually those services are not targeting citizens as the widest user population. In most cases, e-Government becomes just an additional channel to offer services [9, p.42]. In BiH, where internet penetration is relatively low (~40% of population) it is unrealistic to consider e-Government as an only channel of service delivery in the near future. Therefore, most of the government services will continue to be offered in conventional way, while gradually introducing more and more matured e-Services.

What should be imposed in BiH state institutions’ practice is a model of central information system in the back office which provides information and service platform for multi-channel service delivery. It is a combination of centralized portal with decentralized service systems [11, p.24]. That way, the government back office would be capable of offering the same quality of service throughout all the service channels and would remain flexible and adoptable to changes in technology, processes and organizations.

5.4 E-Government portals

In the decentralized, bottom-up approach to e-Government development, which is the practice of BiH state institutions, it is difficult to achieve integration and user-centricity of cross-departmental services. Developing such services requires strong coordination of e-Government leaders to facilitate and encourage cross-departmental

work. Even then, such services are often difficult to achieve, since such e-Services requires approval and consensus among different departments [9, p.6].

The level above the occasional development of integrated user-centric e-Services is development of e-Government portals. E-Government portal is a web site which integrates all government services into a similar, if not necessarily standardized format as viewed by the user [9, p.300]. E-Government portals are based on users' "life events" and should not reflect the internal organization of government [8, p.39]. In state institutions of BiH there is misconception of the term: in the current PAR strategy and action plan [12] the BiH state institutions' portal is defined as a web site containing links to all sub-portals – web sites organized around some particular sector of government or, more often around specific public agencies. I'm not saying this is a wrong approach; it is just less sophisticated and less user-focused than development of a true e-Government portal. For such to be developed by/for the BiH state institutions, requires a strong commitment of CoM BiH and centralized management and implementation by the (still non-existing) e-Government unit. This is yet another strong argument of necessity of strong central unit for coordinating and implementing government-wide e-Government efforts in BiH state institutions.

6 HOW TO IMPLEMENT E-GOVERNMENT PROJECTS IN STATE INSTITUTIONS OF BiH?

My approach so far in this master thesis was to point on problems and obstacles to e-Government development in state institutions of BiH, and then to identify and propose measures for improvements to overcome those problems. Proposed measures for improvements were government-wide guidelines which are built around fundamental concept of “centralized e-Government planning and decentralized e-Government implementation” which I see as a possible compromise between the two main and opposing political programs existing in BiH state government.

Until the proper measures, which would guide state institutions in management and development of e-Government projects, becomes regulated by documents I described earlier in the chapter 2.4.3, I decided to complement the lack of those documents with some of my ideas and views on how to initiate, analyze and implement individual e-Government projects.

The phase plan for implementing e-Government projects, as I called it, is a combination of ideas presented in “e-Government manual” [18] published by German Federal Office for Information Security, principles of participative design method of IS design, which I was introduced with during the master program, and my own practical experience in managing e-Government projects in state institutions of BiH.

This phase plan doesn’t have an ambition to impose itself as an official method for e-Government services development in state institutions of BiH (mentioned in chapter 2.4.3), but rather to complement many of the wrong-understandings and wrong-doings I recognized in current e-Government systems development practice.

6.1 Phase plan for implementing e-Government projects

In chapter 2.4.2.1 *Current e-Government systems’ development opinions and practices* we have learned that more than 75% of all IT personnel in BH state institutions believe that IS design methods should be used in e-Government development projects. It should be 100% among IT managers at least, but unfortunately a quarter of all surveyed doesn’t see the difference between IS design methods and general project management. When asked how many different IS design methods they know, all IT managers claimed they know at least 1, many said they are aware of up to 5 different IS design methods. IT managers seem confident they have all the skills and knowledge required for their job.

On the other side of the story are results of e-Government development projects in state institutions of BiH. In interviews with some of the IT managers, I understood that the main reason for the partial success or even failure of e-Government projects lays in the lack of “plan” or “method” or “guidelines” on how to *design* the information system. IT managers are usually focusing on managing major project steps, and are less interested in information system design. What is overseen by them is that every project should be consisted of two different set of activities: overall management and information system design. Two teams representing the state institution in an e-Government project should be involved: the *steering committee* team would have overall responsibility over the project; it would adopt inception, interim(s) and final reports from the e-Government project team (*design team*) which would be responsible counterpart to project implementer in every project phase: system requirements analysis, design, implementation, training, testing and fine-tuning.

It seems that IT personnel are more focusing on managing development, rather than designing information system. This view was supported by the responses of IT personnel on question how to start an e-Government project, where responses offered are about how to approach to system requirements analysis phase of the project:

		Tot.	ITM	ITP
		51	15	36
Q1. Your institution needs a new information system. What would be your starting point in the project?	I would prepare the tender documentation by myself so that the system requirements analysis would initially be done in the first phase of the project and modifications would be allowed throughout the whole phases of the project.	10	2	8
		19,6%	13,3%	22,2%
	I would prepare the tender documentation by myself, where system requirements analysis would be one phase of the project implementation.	9	5	4
		17,6%	33,3%	11,1%
	I would prepare the tender documentation by myself where I would describe in details all the requirements of future information system.	11	4	7
		21,6%	26,7%	19,4%
	I would explore the market and start talking with the ICT companies in order to prepare the tender documentation.	21	4	17
		41,2%	26,7%	47,2%

By analyzing responses given we can learn the following:

- IT personnel are divided on how they would start a project. While majority would make their own effort, relatively large number of them would start talking with ICT companies immediately. The problem with the second approach is that, in practice, IT personnel become led by, instead of leading, the outside ICT partner.
- The second issue that divides IT personnel is: when to establish the system requirements? Most of the respondents would do it prior to the project tendering or in a separate initial phase of the project (86% among IT managers, 78% among non-managerial IT personnel) which shows that IT personnel in state institutions of BiH are “stuck” with the old common way of designing information systems – the *waterfall* method²¹. The obstacles of such design methods are many:
 - System requirements are fully specified before development can start, so this design method is quite inflexible when it comes to changing user requirements; the method can’t handle too much uncertainties in the beginning of the project since system quality is based on early requirement specification;
 - Possible uncertainties in system requirements produce problems that starts to show in late phases of IS development and required changes are usually compromised;
 - Promotes clear division between users and designers; doesn’t support collaborative work and participative design; no true effort

²¹ More information online - http://en.wikipedia.org/wiki/Waterfall_model

is made to motivate user involvement and it's very hard to influence the user interface of the system since the focus of system analysis and design is primarily on data and process.

The lack of user involvement in all phases of the project development causes the developed systems to be more or less far from what users really needs.

Evidently, there is a problem with current skills and knowledge of IT personnel on *how* to manage and design e-Government information systems. Since there is no government adopted method or guidelines to do so, I decided to propose a "phase plan" to balance many of the wrong-understandings and wrong-doings in current management and design practices. As I said previously, this "plan" doesn't have an ambition to impose itself as an official method for e-Government services development in state institutions of BiH, but rather to give tips mostly based on my experience, on how to successfully both manage the project steps and get involved in the information system design.

This phase plan is devised for the people who have a vision and idea on some e-Government project – the e-Government leaders, but maybe lack the skills and knowledge on how to actually initiate, design and implement it.

6.1.1 Initiating a project

The e-Government project is initiated in this phase. The main activities would be: organizing presentation of the project idea to the institution's management and, upon approval of the project, establishment of e-Government project team for the purpose of its implementation.

The first activity is crucial. In order to get approval for project, the e-Government leader should organize a meeting on project proposal with the management of his/her institution. E-Government leader should, in the beginning, deliver a small presentation explaining the following topics:

- What is my idea about? What are the project goals?
- How ICT can help our institution in general?
 - Small introduction with policies and laws that affects ICT use in our institutions,
 - Small introduction to main e-Government concepts,
 - E-Government opportunities – citizens/civil servants satisfaction, efficiency, better public image, etc...
 - Where we stand with development of our e-Government services now?
- Benefits of this particular project: What is motivation for this proposal? How will institution, its employees and customers of this particular service benefit from project implementation?
- What are the risks and assumptions connected with this project?
 - Continual management support,
 - Necessity of including employees in project design and development,
 - Readiness to change current processes, jobs and organizations,
 - Conducting public procurement for information system development services: how to select the best company?
 - etc.
- Short presentation of this phase plan or any other method the e-Government leader is comfortable with, to show he/she knows not just *what* need to be done but *how* to do it also.
- Proposal of e-Government team members. Two issues have to be resolved by the e-Government leader regarding selection of *design team* members: first,

the size of a team, second, the criteria for selecting team members. Although agile methods and participatory design is all about involving users in design of new information systems, we obviously can't involve everybody in the design team and we have to make a compromise between involving users and keeping the design team relatively small. The criteria for team members' selection among employees would be: Who could best contribute to success of the project?²² Who is willing to participate? Who has social and technical skills necessary to work in e-Government project team?²³ Who could benefit the most from participation in e-Government project team?

The goal of this presentation would be to get approval for project implementation. E-Government leader should do his/her best to deliver presentation in persuasive way and to demonstrate personal capacity not just to define project and its goal, but also to manage it successfully. If management decides that project proposal is convincing and has good arguments, hopefully it would be approved and would entrust e-Government leader with the preparation of the subsequent activities.

If the project is approved, the following activity would be presentation of the project to employees. It could be arranged as formal presentation with participation of all employees (or employees' representatives, if the institution employs big number of employees) together with the management. E-Government leader should make the same initial presentation encouraging spontaneous discussions on the topics of presentation. Another way to do it is by informal discussions with employees, especially those that will be directly affected by the introduction of e-Government system. After presentation or discussions are finished, and all topics are exhausted, e-Government leader should move to another point of agenda i.e. selection of e-Government project team. E-Government leader should elaborate some of his/her expectations of team members, but ultimately allow employees to agree over or volunteer or suggest design team members among themselves. That way the employees would feel the people working in e-Government project team are truly representing their interest, and there would be no intrinsic hostility with project team like it's usually the case with unknown external project teams.

Result of previous activities should be appointment of e-Government project team or to call it *design team*, to underline its core responsibility. Design team members would officially be allowed to devote an agreed percent of their time to the project. Employees would be excused to participate in activities with design team also, although they wouldn't need to spend nearly as much time. Design team has to be appointed with powers to visit, question and involve employees as they feel appropriate and to make decisions exercising project management function.

Design team would organize its following work in workshop meetings. Meetings would start with presentation - quick reminder of project goals and current state of the project and then would proceed in facilitated design process. Objective of design team would be to go through iterations, that is, moving from analysis over design to system

²² Departmental managers e.g. could possibly have a better insight on overall experiences with previous IS development projects, while employees could give their perspective on how they voice should be heard in such projects. The idea is to have representatives both from managerial and non-managerial group.

²³ I would prefer to have team members that are creative, innovative, flexible, have been involved in projects before, who build their reputation as respectable, reliable colleague, who knows how to approach to people and build good relationship. We can't expect to find a lot of superheroes like I described, but as many of the attributes I stated the person have, so much the better. Success of the project is based on mutual understanding of all involved, which is built through mutual social interactions for which one has to have skills.

prototyping, while in the same time moving from definition of processes, user roles and interfaces of the system towards development of the actual e-Government system. Design work would be based on full participation of all involved, mutual understanding and shared responsibility.

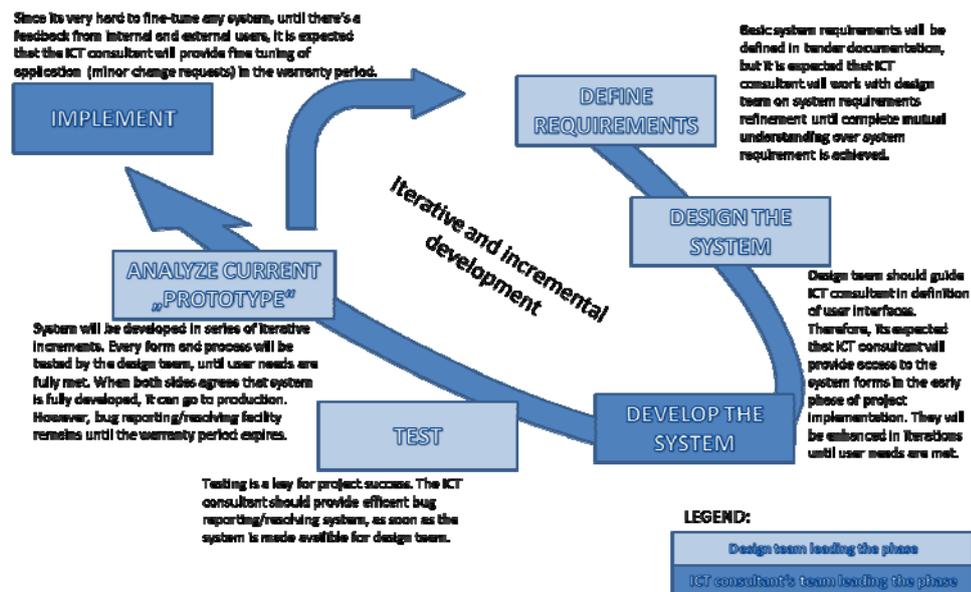
6.1.2 Tendering

Common practice in BiH state institutions is to outsource the actual development (programming, database development, system integration) of e-Government systems. In early years (after the end of war in 1995) there were some cases where institutions tried to build their own capacities in software development, by hiring appropriate staff, but due to the frequent movement of those in charge on other positions within government or to the private sector, those institutions never succeeded. The information systems developed were poorly documented, developed to satisfy ad-hoc needs of different departments, usually not integrated across different department, and had deficiencies or errors that substitutes, after original developer left a job, simply were not able to fix. Soon it became obvious that coding the software applications and developing databases is not a part public administration core business, and this kind of practice was rightfully abandoned. However, the selection of appropriate developers to develop envisioned information system still remains as a one of the key for project success. The tendering process is important for other reasons also: the described overall project objective, purpose, results to be achieved by the ICT consultant, scope of the work, project description and description of specific activities will be the basis for the future cooperation.

The tender documentation will be a ground document around which mutual understanding of sides (e-Government project team representing BH state institution and contracted ICT consultant) will be built. Therefore it is necessary that tender document follow some rules and recommendations:

Participation enforced. It is expected that ICT consultant have to involve in every project phase: system analysis; system design; system implementation, installation and integration; training and testing; pilot implementation and maintenance and fine tuning in warranty period. However, the same level of involvement is expected from the design team representing BH state institution. The tender document should enforce such participation of design team in every project phase, except maybe in actual coding of the software. The bidders should be aware in the very start of the project that they will be led by the design team, not the opposite.

Iterative and incremental development enforced. ICT consultant should be informed with tender document that the system will be developed in iterations and increments. System requirements will be defined throughout the project: in the beginning of the project it will be more intensive – through a series of workshop meetings and other *participative design* techniques: storytelling, interviews, questionnaires and workspace observations. Later on, as system development and testing reveals such chances, both sides will continue to learn from each other, design team will fine-tune required functionalities and ICT consultant will present new possibilities and options.



Graphical presentation of method for e-Government system development

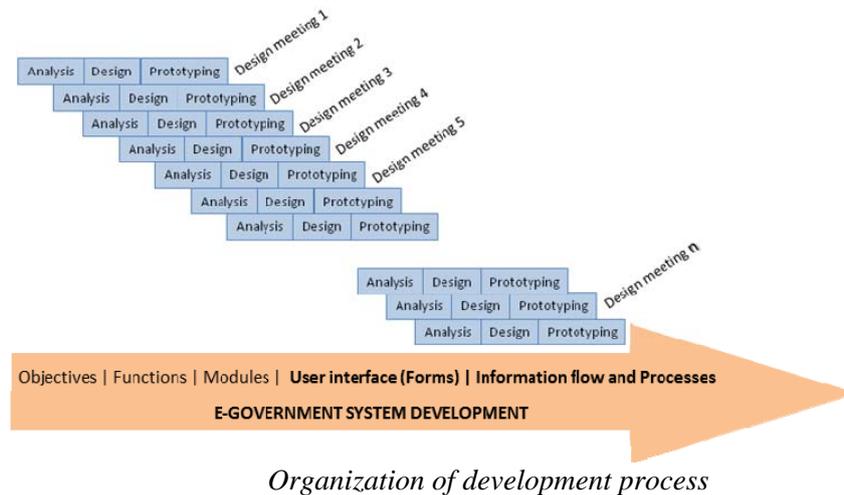
Good practice would be to include the above picture in tender dossier, so that the ICT consultant is aware of approach the customer insist on.

Define initial system requirements. Tender dossier's most important part is initial description of the project. E-Government project leader should precisely describe what will be the major functionalities of the system, what modules the system should have, what user groups will use and how they will interact with the system. It can be explained in narrative text only, but use of graphical representations is recommended. I personally prefer using BPMN, since it's made of simple diagrams with a small set of graphical elements. It should make it easy for design team members and developers to establish mutual understanding of information flow and business process using BPMN²⁴. There can't be too much of project description; I've witness many projects in big turmoil just because tender document, over which the Contract was signed, poorly described what the ICT consultant is expected to do. Potential bidders need to have a better insight in the scope of the future work, to estimate more precisely what would be the project costs and to be aware that they are dealing with a customer who knows what he wants and how he'll get it.

Define a project timeline. A list of tasks to be undertaken in order to achieve the contract objective should be complemented in the tender dossier with the provisional timetable. For each project activity (system requirements analysis and design, system delivery, core system installation, system configuration, data migration, user training, acceptance testing, etc...) a precise deliverables should be defined. That way potential bidder will be informed what the customer's expectations are regarding the dates of ending of each specific activity and there would be a control mechanism to check if results of tasks have been achieved. I've seen approaches where timeline is mentioned with only one sentence in the tender dossier e.g. "All project activities will be implemented in 12 months." It's a wrong approach. If there's no timeline for every project activity and no deliverables specified, it won't be possible to control project implementation and most certainly the project won't be finished in expected period of time.

²⁴ More information on http://en.wikipedia.org/wiki/Business_Process_Model_and_Notation

After the tender is successfully finished and contract with selected ICT consultant (company) is signed, design team will start working with the ICT consultant's team in project implementation. To remind us again, objective of design team would be to go through iterations, that is, *moving from analysis over design to system prototyping*, while in the same time *moving from overall description, purpose and functions of the system towards development of the actual forms, information flows and processes* through the series of *design meetings* with the ICT consultant's project team.



6.1.3 Analyzing requirements and designing the system

E-Government system requirement specification and design of the user interfaces is performed in this phase of the project. System analysis should result in a full, accurate and comprehensive specification of system requirements that has to be recorded in a formal way. The deliverable of system analysis phase should be the SRS (System Requirements Specification) document. This document should cover system overview, list of actors in the system, use cases, supplementary requirements, supporting models and diagrams, etc. It should represent a complete description of the behavior of the system, interactions that the users will have with the software and detailed flat-viewed description of business processes. The best way would be to record those requirements using standardized general-purpose modeling language like Unified Modeling Language (UML) and/or equivalent techniques. This should be mentioned in the tender dossier in description of this specific activity of the project.

The SRS document will be the starting point for system implementation. By the time when the document is reviewed and approved by both sides, the complete mutual understanding over most of the system requirements should be achieved. However, information system analysis and design always confronts a mix of certainty (users exactly know some requirements) and uncertainty (users can't anticipate some functionalities and changes so early in the project development or just guess what could be some of the solutions, but no one can guarantee which solution is the right one). The SRS document will enable ICT consultant's project team to develop a working e-Government system, while iterative and incremental development will enable design team to append new and new functionalities to the system, usually without extensive re-work of existing modules.

Design team should guide ICT consultant in definition of system's graphical user interface (GUI). System GUI gives an early insight in how the system will implement the required business processes. Working with GUI enables fine-tuning of system requirements specified as well as discovery of the new ones. It also supports participative and collaborative atmosphere to develop around the project as well as

sense of ownership of the project to develop among members of design team representing BH state institution. So it is best that ICT consultant provide access to the system forms in the early phase of project implementation. This is very easy to achieve if the system is envisioned as a web application, but even if it is a desktop one, it can be arranged. GUI should be enhanced in iterations until the user needs are met.

6.1.4 Overseeing implementation

Design team representing BH state institution should maintain strict control over the project implementation. It is not enough just to check if the deliverables of project activities are produced in time; it requires active involvement and commitment of both sides. E-Government project leader responsibility in this phase of the project is to constantly check if both sides keep their promises in time. Design meetings are usually places of great enthusiasm, but later on both sides might be slow on implementing their tasks mutually agreed. As in this phase the primary work is done by programmers of ICT consultant, the role of the members of the design team is to support the process of coding the system. Programmers' understanding of system requirements will be tested here, so the design team should be available to provide explanations and instructions on programmers' requests. If the system is available online, the design team should already start initial testing of system's functionalities and GUI and proactively guide programmers to desired solutions.

E-Government project leader must ensure that the implementation actually corresponds to the requirements of the SRS document and that the software prepared satisfies other formal criteria in relation to ease of use, interoperability, low maintenance etc. [18].

There's no strict line between this and the following phase. As more functionalities and forms are introduced, the testing of design time should gradually intensify. The next phase starts when the system is developed so that the first tests under realistic working conditions can be performed. "Realistic working conditions" are to be understood as a test environment at this stage, which although it is completely separated from productive operation, simulates productive operation as far as possible [18].

6.1.5 Testing, user training, testing and testing over again

Testing is a key for project success. The ICT consultant should provide efficient bug reporting/resolving system, as soon as the system is made available to design team. This could be a part of requirements for ICT consultant to participate in the tender, so to distinct those companies who have a more serious approach to this activity by providing electronic bug tracking and resolving capacity.

As soon as first tests under realistic working conditions can be performed, the design team and ICT consultant's team should organize a comprehensive training for the future back-office end-users of the e-Government system. The training could be complemented with written user manuals. One tip from my experience: such manuals have to be "business process"-oriented, describing in step-by-step mode how to implement a specific business process. Other, wrong approach is to explain form by form, as they're accessible from the main menu. The goal of the training is to enable rest of the end-user community (let's remember that some of them are already members of the design team) to fully participate in testing of the system.

E-Government project leader role is to build effective bug reporting mechanism so that real bugs, missing functionalities, quality improvements are reported to the ICT consultant's team. As e-Government system will be developed in series of iterative increments, every form and every process have to be tested by the design team and

future end-users over and over again, until user needs are fully met. When both sides agree on that the system is fully developed, it can go to production. However, bug reporting/resolving facility should remain active until the warranty period expires.

The end of the testing phase and the start of productive operation should be precisely scheduled. If possible, the transition to full production should go through pilot implementation phase, i.e. a couple of cases selected should be implemented through the new e-Government system, then issues that arouse and are reported by both internal and external users should be recorder and resolved. In next step more and more cases should be implemented through the system until it seamlessly goes in full operation.

6.1.6 Post-implementation issues

There are two important post-implementation issues that have to be planned in the beginning of the system development and included in the tender document: maintenance and programming support.

Maintenance services must be provided effectively and without delay, and must include full time support in the form of assistance and advice on using e-Government system, as well as to provide support for investigation, management and resolution of queries and software errors. It can be organized in two lines: first line would be an IT department of BH state institution who would primarily investigate end-users complaints, give advice and assistance in using the system, and if the complaint is justified (bug reporting, quality issue) it would be intermediated to the second line of maintenance, the ICT consultants team who would then resolve such issue. Maintenance support staff should have a comprehensive understanding of business processes and procedures to allow them to provide detailed and effective support. Members of design team are source for such qualified staff. Otherwise, they must be fully trained in all aspects of the software and be able to answer detailed questions up to a basic technical level.

The ICT consultant should be obliged to provide some period of free on-site support after the first provisional acceptance of the e-Government system, with defined response time, throughout a working time and days of BH state institution. The warranty period offered could be fixed or a part of award criteria in the tender. The ICT consultant will guarantee that the e-Government system will work in line with the required functionalities during the maintenance period and that any corrections of errors in the system will be made free of charge. In addition, during this period, in case of some minor changes in legislation, some visual changes in GUI or other minor changes limited to the existing modules, the ICT consultant should try to align the system to these changes free of charge if they do not require extensive rework.

The last question e-Government project leader should ask himself is what happens after warranty period? How to ensure maintenance and further development of the system (let's recall that e-Government system can be more or less sophisticated, and that sophistication is usually a gradual process) when this period ends? Currently, there is common approach by BH state institutions where one of the deliverables of the project is a source code of the software, delivered to the design team. Institutions usually think that ownership over the source code will be sufficient to procure system's upgrading services. In practice, it is rarely seen that any ICT consultant is ready to work on system upgrade if the system was originally developed by another company. The institutions end up forced to conduct negotiated public procurement procedure with the same ICT consultant that originally developed the system. This procedure usually takes time and money to end up as a contract. To substitute this approach, I would suggest to BH state institutions to plan this services in advance, at

the very beginning of the project – the tendering procedure. They should retain the option of requesting programming support and further maintenance of the e-Government system from the ICT consultant for a further period after the end of the contract. Any such programming support and maintenance provided after the first contract should be a subject of separate contract between the ICT consultant and the BH state institution, signed before the first contract ends. In fact, contract for long-term support should be one of the deliverables of the first contract. Since both parties wouldn't be able to close a project until this agreement is reached and new contract is signed, the ICT consultant wouldn't be able to take advantage of his monopoly over that e-Government system.

6.1.7 Promoting e-Government system to end-users

The operation of the new e-Government system marks the conclusion of an IT project that has kept the design team and staff in the public agency as a rule busy for a number of months, more likely even one or two years [18]. If the e-Government system is developed for external users, e-Government project leader should know that citizens, businesses and civil servants across other public bodies do not necessarily know that e-Government service has been established and how or where to access it. Large number of potential users could be unaware of e-Government service or they might lack knowledge on how to use it. In these cases e-Government systems must be effectively marketed and communicated to end-users.

The Australian Government Information Management Office (AGIMO) has identified a “Better Practice Checklist” for effective use of ICT in Australian government, where one part is devoted promotion and marketing of e-Government services [19, p.221-232]. This checklist is intended for staff who have a role in implementing, marketing and promoting e-Government initiatives and who may not be marketing specialists, so it can suite needs of e-Government project leader in any BH state institution. The checklist covers a wider range of activities: from getting the e-Government system right by using the market research to shape the development of the e-Service in the system analysis and design phase, over developing e-Government marketing capabilities and developing marketing plans to actually promote e-Government services. The last one is of our interest, and here is the list of recommended activities to promote developed e-Government system to end-users:

- Identify one or several popular, high-profile e-Government service provided by your or other BH state institutions and try advertising your service on that web site. It will definitely result in greater awareness and use of your e-Service. Encourage other websites to link to your website also.
- Optimize the extent to which search engines will list the site in search results. A range of “search engine optimization” techniques can be used to improve the ranking of sites in public search engines.
- Choose an intuitive and catchy URL (Uniform Resource Locator) for the website. E.g. I chose “MyVacancy” and “MyTraining” for domain names of my institution's services providing electronic application and notification for candidates pursuing jobs in civil service and civil servants applying for trainings, respectively, provided by institution²⁵ I work for.
- Consider whether a “Make this my homepage” or “Bookmark this site” facility would be worth providing in homepage of your e-Service.
- If promoting the service within BH state institution, use any existing communications mechanisms before creating new ones: Rather than

²⁵ More on Civil Service Agency of BiH – www.ads.gov.ba/v2/

“reinventing the wheel”, consider using existing communications mechanisms: organizing seminars and conferences to promote the service.

* * *

The main message of this master thesis is that BiH state institution should realize that e-Government is not just implementation of IT projects; it is part of the overall public administration reform. The public administration reform means that public processes across BiH state institutions should be analyzed and optimized, possible entirely redesigned, to a) comply with the needs of end-users of public services and b) completely leverage the potentials of ICT.

The essence of e-Government is achieving goals of public policies and strategies through IT-enabled change. The process is focusing on creating real value for the society at large. Hopefully, this master thesis has provided some insights and tools that could lower uncertainties in e-Government introduction and project implementation in BiH state institutions.

7 REFERENCES

- [1] U.S. Government (2002) *E-Government Act of 2002*. Washington: U.S. Government Printing Office, Available online: [USGPO](#).
- [2] Koh, C.E., Prybutok, V.R. (2003) *The three-ring model and development of an instrument for measuring dimensions of e-government functions*. Journal of Computer Information Systems, Vol. 33 No.3, pp.34-9
- [3] E-Government - a vision for New Zealanders - <http://www.ssc.govt.nz/egovt-vision-for-nzers>
- [4] Clift, S. (2004) *E-Democracy Resource Links from Steven Clift - E-Government, E-Politics, E-Voting*. Retrieved July 10, 2009, from Publicus.Net Public Strategies for the Online World: Publicus.net
- [5] Atkinson R, Ulevich J. (2000) *Digital Government: The Next Step to Reengineering the Federal Government*, Washington: Progressive Policy Institute
- [6] OECD e-Government Studies (2003) *E-Government Imperative*. Paris: OECD publication services.
- [7] CapGemini (2009) *Smarter, Faster, Better e-Government - 8th Benchmark Measurements*. European Commission: Directorate General Information Society and Media
- [8] OECD e-Government Studies (2003) *E-Government for Better Government*. Paris: OECD publication services.
- [9] Bhatnagar, S. (2009) *Unlocking E-Government Potential - Concepts, Cases and Practical Insights*. London: SAGE Publications Ltd.
- [10] Seifert, J.W. (2003) *A Primer on E-Government: Sectors, Stages, Opportunities, and Challenges of Online Governance*. Washington: The Library of Congress
- [11] Heeks, R. (2006) *Implementing and Managing e-Government - An International Text*. London: SAGE Publications Ltd.
- [12] Public Administration Reform Coordinator's Office (2006) *Strategy and action plan for Public Administration Reform in Bosnia and Herzegovina*. Available online: [PARCO](#).
- [13] OECD observer (2003) *Checklist for e-Government Leaders*. Available online: [OECD Policy Briefs](#)
- [14] Oxford Internet Institute. (2007) *Breaking Barriers to eGovernment - Overcoming obstacles to improving European public services*. Brussels: eGovernment Unit of DG Information Society and Media, EC
- [15] Angell Ian. (2000) *New Barbarian Manifesto: How to survive the information age?* London: Kogan Page Limited
- [16] Holmes, D. (2001) *eGov: eBusiness Strategies for Government*. London: Nicholas Brealey.
- [17] Wallström, Å. (2009) *Public e-Services from the citizens' perspective*. International Journal of Public Information Systems, vol 2009:2, pp.123-135
- [18] Bundesamt für Sicherheit in der Informationstechnik (2003) *E-Government Manual*. Available online: [BSI](#).
- [19] Australian Government Information Management Office (2004) *Better Practice Checklist - Practical guides for effective use of new technologies in Government*. Canberra: National Office for the Information Economy. Available online: [BPCG](#).