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MASTER'S THESIS

EVALUATION OF E-GOVERNMENT SERVICE QUALITY: THE CASE OF A LOCAL E-GOVERMENT IN BOSNIA AND HERZEGOVINA

Sarajevo, May 2014   **NAĐA KEČO**

AUTHORSHIP STATEMENT

The undersigned Nađa Kečo a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), declare that I am the author of the master's thesis entitled EVALUATION OF E-GOVERNMENT SERVICE QUALITY: THE CASE OF A LOCAL E-GOVERMENT IN BOSNIA AND HERZEGOVINA, written under supervision of prof. dr. Eldin Mehić and co-supervision of prof. dr. Nevenka Hrovatin.

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TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

INTRODUCTION

Information and communication technology (hereinafter: ICT) and the use of the Internet have nowadays become an inevitable part of our economic and, social life and development. The users of ICT beyond households, individuals and enterprises include governments as well. Although they only recently started using it, governments are using ICT in order to offer their services and to communicate with: citizens, among the employees of the organization itself, other governments and businesses. This is known nowadays as e-government. The main focus of e-government is to improve the delivery of government services; and to create a better government for citizens, businesses and other governments with the help of ICT and especially the Internet.

In order to better understand e- government and what it offers, citizens need to know and have an understanding of the difference between traditional government services and e-government services. The main difference is that citizens are now able to have access to information, get documents, forms and make requests through the Internet instead of walking from one desk to another. E-government is also based on two-way communication with citizens, on websites where citizens can find news, complain, ask and find answers to their queries. E-government has the aim of making government services more convenient, faster and more accessible to citizens.

Service quality is seen as the crucial part for the success of the e-government services and is often as well the reason why e-government services fail or succeed. The main problem in measuring and evaluating e-government services is quality. Quality is a widely defined term whose definition at the same time causes much confusion and which as a concept is hard to measure. There is a big difference in measuring the quality of goods and the quality of services. The quality of services is a much more complex concept and is hard to measure since it can very often be subjective. Service quality is usually determined by the difference between the expected service and the perceived service.

How customers perceive the quality of e-government service can depend on numerous things. One example can be the speed of the Internet connection that the citizens have at home; long downloading time and slow speed can ruin their perception of the service. This may lead to a decrease in perceived quality. On the other hand, when multimedia on the websites is effective it can improve a customer's satisfaction and enhance the perception of quality.

There are several ways of measuring e-service quality, such as: E-QUAL, E-SQUAL, SITE-QUAL, WebQual etc. The basis for all of these models of measurement is the original SERVQUAL model. The evaluation and measurement of e-government service quality will be based on the SERVQUAL model, which is the most often used model for measuring service quality. In the context of e-government the original SERVQUAL model

will need to be modified since e-government service take place in an online environment, not a physical market. The dimensions that will help to evaluate e-government service quality are the following: website design, reliability, responsiveness, security, personalization, information and ease of usage.

Taking into consideration all of what is mentioned above, the contribution of this thesis is to create awareness among local e- government service employees to give more attention to e-government service quality, as well to show how e-service performance and effectiveness can be improved and in the end to test the modified SERVQUAL model through the example of local e-government. The reason for choosing a local level rather than state level is because the local level is the level at which the interaction between government and citizens happens. Also, at this level particular important issues and decisions are made for the population that affect the daily life of the people.

The main purpose of this master's thesis is to evaluate the quality of e-government services using an example of local e-government from a municipality in Canton Sarajevo. The evaluation will be done through the modified SERVQUAL model which will measure and give insight into the quality of e-government services from the citizen's point of view. An additional focus will be to raise awareness about e-government services among both the government itself as well as its citizens. It is important for them to have knowledge about these services, and to know how and which services they can use online. On the other hand, it is important to bring to the attention to local e-governments the importance and understanding of measuring the quality of their services and how they can be measured.

The main research questions of the master's thesis are:

- what is the perception of e-government services quality on a local (municipality) level from the citizen's point of view?
- what is the citizen's perception towards different dimensions of the SERVQUAL model attributes and which are they most satisfied/unsatisfied with?
- How can the quality of e-government services be improved?

In order to have a better insight into the topic of the master's thesis certain objectives should be set out, as well as those issues that will be focused on. The objectives of the thesis are the following:

- to analyze citizen perception of e-government services quality using the example of a local government;
- to recognize why measuring the quality of traditional services is different from measuring quality in e-services and why it needs adjustment;
- to analyze citizen perception towards different dimensions of SERVQUAL model attributes and show which they are most satisfied/unsatisfied with;

- to identify the stage Bosnia and Herzegovina is at when it comes to implementation and development of e-governments services;
- to propose to local government a model of how e-service quality can be measured and improved.

The methodology that was used in the thesis was separated into two parts. The first part was secondary research, which was based on desk research and looking at materials, books, journals, articles and already published material on this topic. This gave insight into the research problem and the theoretical background. This was used as an overview of what is already written and pointed out some relevant facts that already exist regarding this topic.

The proposed method of measuring e-government service quality is based on the SERVQUAL model which was used for the evaluation of service quality. The SERVQUAL model is a model that is based on a service quality framework that measures service quality through several attributes. It actually measures the gap between customer's expectations (opinions) and perceptions (feelings). The original model was used for traditional services and has five aspects known as RATER: reliability, assurance, tangibles, empathy and responsiveness. In the context of e-services, the SERVQUAL model is used as well, but with certain adjustments to the e-context. This means that several new dimensions were added to the model and a few of the dimensions from the original were left out and replaced with others.

The primary research is based on analysis of the modified SERVQUAL dimensions. The following dimensions gave insight into the quality of e-government service on the local level: website design, reliability, responsiveness, security/privacy, personalization, information, ease of usage.

For the purpose of conducting primary research one particular local e-government (municipality) was taken as an example. The second part of the thesis is based on primary research that was conducted through a questionnaire and qualitative assessment. The respondents that were of interest to this research were any citizens from this specific municipality that use or have used some of the e-governments services or used the municipality website. The questionnaire was online-based, created as an online survey through Google Drive and in the end yielded 170 respondents.

This master's thesis consists of six main chapters. The first chapter gives insight into what e-government in general is, what role e-government has in a digital world and what the main differences are between traditional government and e-government. In addition this chapter shows the stages of e-government and in the end presents a classification of e-government services. In order to provide a better understanding of the topic the second chapter explains the relationship between citizens and (e)-government. This chapter further

deals with what citizens expect from e-government, as well as what their perception of e-government is and how they perceive satisfaction when it comes to e-government. The third chapter goes deeper into the thesis topic itself, and deals with the concept of quality, how it is defined, why it is hard to understand, what service quality is and why it should be treated differently than the quality of goods. At the end of this chapter is a discussion of what e-service quality is as a concept in the new era and its connection with the concept of e-government service quality. The forth chapter deals with the problems and obstacles of measuring service quality, as well as giving an explanation of one of the most well known model for service quality evaluation, the SERVQUAL model. It further discusses how the SERVQUAL model which was invented for traditional services can be put into an online context. At the end of the chapter there is also a proposal of a model for measuring e-government service quality. The last theoretical chapter is the fifth chapter which deals with e-government in Bosnia and Herzegovina. The country is in the process of implementing e-government, and this chapter outlines the implementation obstacles it is facing as well as the stage Bosnia and Herzegovina is at when it comes to e-government, while providing a comparison of Bosnia and Herzegovina and the rest of the region. The sixth chapter presents the primary research; giving results form the research, and opens a discussion of the topic that leads into the conclusion, discussion, recommendations and limitations of this master's thesis.

1 E-GOVERNMENT

1.1 Definition of e-government

The term e-government, also known as electronic government, digital government, and electronic governance, is a term that started to be used in the late 1990's (Grönlund & Horan, 2004). The roots of computing in governments started already at the beginning of computer history. The literature that exists about 'IT government' goes back to at least the 1970's (Kraemer, Danziger, & King, 1978; Danziger & Andersen, 2002). These authors refer more to the use of IT within government, while recently the e-government literature and authors tend to refer more often to the concerns of external usage, such as services to citizens (Ho, 2002).

Grönlund & Horan (2004) believe that the term e-government was born out of the Internet boom, just like the term e-commerce. It is important to point out that e-government is not only limited to citizens or customers by the direct use of internet and publicly accessible systems. As practitioners started to struggle to meet the new challenges that the Internet created, e-government started as a new field that would convene these practitioners by implementing new systems creatively. There are numerous definitions of e-government and there is always a debate on understanding the scope and meaning of e-government.

According to the Organisation for Economic Co-operation and Development (hereinafter: OECD) (2001a, p.2): "The term "e-government" focuses on the use of new information and communication technologies (ICTs) by governments as applied to the full range of government functions. In particular, the networking potential offered by the Internet and related technologies has the potential to transform the structures and operation of government." On the other hand the European Commission (2010, p.29) defined e-government as: "eGovernment is about using the tools and systems made possible by Information and Communication Technologies (ICTs) to provide better public services to citizens and businesses."

According to the World Bank (2009, p.3) e-government is defined as the following: "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."

In general, among all of the existing definitions from different sources there are many things that are in common. The main focus of all the definitions is based on the fact that e-government should improve the delivery of government services; create a better government for citizens, businesses and other governments with the help of ICT and especially the Internet.

1.2 Role of e-government

In order to make a change in governmental organization and government services it was expected that governments as any other business would introduce and start using information and communication technology. ICT not only brought organizational change, but also aimed to change and modernize public administration and governmental services.

According to the Commission of European Communities (2003), e-government enables governments to become conscious of better and more efficient administration. E-government helps the public sector to deal with the conflicting demands of delivering more and better services to citizens with fewer resources. In addition e-government is used as an opportunity to improve and develop public policies. Technology might not have the power to turn bad procedures into good ones, but introducing e-government to the public sector provides the chance to do tasks differently. Nowadays e-government presents transparency, clarity, efficiency and accountability.

Marche & McNiven (2003) and Davison, Wagner, & Ma (2005) believe that the process of transition from one system to the other (traditional government to e-government) gave governments the opportunity to improve their responsiveness, clarity of purpose and operational transparency, internal efficiency and effectiveness to their citizen, all important concerns that economies face in times of economic crisis.

As further discussed by the Commission of European Communities (2003) massive savings can be made by improving efficiency and competition in public procurement by introducing electronic procurement instead. Money can be reinvested in public goods and services, which means that it directly contributes to economic growth, at the same time improving the transparency and accountability of public procurement. There are examples of government that significantly reduced the time that is needed to set up a new company and introduced free online registration. This gave an opportunity to entrepreneurs to give more attention to truly entrepreneurial activities rather then spending limited resources on administration and paperwork. Nowadays companies already save on administrative overhead through online social security reporting, which allows them to spend their resources on production and innovation. Making public sector information online available for re-use (which depends on whether it is allowed under the legal framework) gives businesses the opportunity to create more attractive and competitive products for the

market. Having a website that offers information in several languages gives more credibility and confidence to citizens, and allows foreign citizens to find the information they need, meaning that they can easily integrate both socially and economically. Through e-government the public sector can foster and maintain good governance in a knowledge society.

This creates a more transparent government that is understandable and accountable to citizens and that will be at the service of all, a system that does not exclude anyone and can provide personalized services. E-government should provide its customers maximum value, which means that citizens will spend less time standing in queues, errors will be reduced and more time will be given to professional face-to-face service. In general, e-government tries to establish a more open, illusive and productive government in line with good governance.

1.3 Differences between traditional government and e-government

In recent years modern society has moved more and more towards the electronic world, but there are still communities that have yet to fully understand the transition from traditional government to e-government. Bashar, Rezaul, & Grout (2011) refer to the concept of traditional government as being very slow, conservative and very bureaucratic, marked by red tape. According to Accenture (2000) a stereotypical image of government is that it is years behind other industries and sectors in terms of using new technology and new business models, it has a slow-moving bureaucracy and it is unable or unwilling to make any changes. Bashar, Rezaul, & Grout (2011) discuss how traditional government citizens and businesses get involved with the government in many different areas and create an enormous amount of paperwork, which makes the process for citizens very inconvenient and often confusing. Many stereotypes exist about traditional government, and there are always exceptions, but the characterization written and expounded above will be familiar to many citizens who neither use nor have access to e-government.

According to Bashar, Rezaul, & Grout (2011) e-government is a general term for web based services from agencies of local and state government. The main idea behind it is that governments use ICT, particularly the Internet support in order to engage citizens, and provide them with government services, while expecting them to interact with the government in different forms. As opposed to traditional government, e-government is based on ICT, reduces paper based forms and the time of processing, whereas traditional government is pen and paper based and has strict rules and regulations, it is afraid of change and is time consuming.

The interest of the public sector in e-government was stimulated by the development of e-commerce. By adopting e-government, governments should use the appropriate technology solutions. The main idea behind the introduction of e-government was to improve the

quality of government services to citizens and businesses and to reduce the internal organization of the administration. Bashar et al. (2011) claim that corruption, bribery for example, is common in ordinary bureaucratic government as some opportunists always seek gaps in the rules and regulations. This form also lacks accountability in some cases. Rose-Ackerman (2008) points out that a weak government's bribery demands in countries that were emerging from civil war were used as an opportunity to extort funds from citizens operating under unclear rules that would allow then to invent offences.

Although e-government has many benefits, some limitations should be identified. The introduction of e-government can be very expensive and might not be cost effective. Expenses include: the installation of appropriate hardware, software and expertise. In addition, there is the relevant concern that there are people who live in the countryside, in rural areas or who are illiterate, so unfortunately e-government services are not accessible to all citizens. According to Accenture (2011) many people who would most benefit from e-government are the least educated, are the least connected and hence least aware of how to use e-government.

1.4 E-government maturity levels

In the literature there are several models of e-government maturity levels, they show phases/levels of the maturity of e-government and e-government services and the requirements and expectations to move from one level to an other. The maturity level model is a good starting point for analysis and evaluation of e-government services. The maturity level of an e-government can be easily identified and it can give an understanding of what can be expected from the quality of e-government services. The model used to show e-government maturity levels proposes a four-stage model, Ganter Group model, which involves: web presence, interaction, transaction, and transformation (Baum & Di Maio, 2000).

Level 1- Web presence- The first level provides citizens and the general public with a government web site on which basis information can be found. The presence level creates a virtual environment on the Internet of the government and action is immediately initiated in order to provide the public with information.

Level 2- Interaction- The second level provides citizens with the ability to contact their government through the website, for example by sending email or leaving messages on the website, and it provides self-services; such as document and form downloads. At this level the website should provide search ability and it should provide the public with access to other websites.

Level 3- Transaction- The third level allows citizens, as well as businesses to complete entire transactions online (e.g. different kinds of applications and procurement). The

transaction level provides the online execution of public services, such as different types of accounts payments.

Levels 4- Transformation- At the fourth level governments transform their current processes into more efficient, integrated, unified and personalized services. The transformation level is about making sure that governments communicate internally at all levels, as well as externally among themselves and with non-governmental organizations. The transformation can be seen at local, regional and national levels as part of the integration process.

1.5 Classification of e-government services

The classification of e-government services is commonly connected to interaction levels. As traditional government offers services to citizens, so e-government provides e-services, like any e-business. The classification of e-government services is commonly connected to interaction levels (Chen, 2002). Types of e-government services include:

Informational: informational services are those services that only provide information and that information is presented on the website. This mostly means that the government is present on the web and there is no interaction between the government and citizens. The most important aspects of informational services are content, quality and usability.

Interactive: these services offer some degree of interaction. Although they are called interactive services they are seen as a one-way service and include those services in which the information of the service is more structured, for example documents that are available for download or sites where citizens can enter job applications or submit complaints.

Collaborative: these services are seen as two-way services and support more complex services that help citizens to submit or receive public administration information and documents. For businesses this is of great relevance, especially businesses working with government on projects, public-private partnerships, NGO's, citizens forms etc.

Transactional: transactional services support online payments and transaction that businesses or citizens can make with the government.

Aside from classification based on interaction levels, another e-government service classification. It is related to the users of e-government services: citizens, businesses, other governments, agencies or NGO's (Becker et al., 2004; Chen, 2002).

Government-to-Citizen – this category of services takes care of relationships that exist between the government and citizens. The government provides the citizens with

information and services immediately from anywhere and in a convenient way. To this category of services we can add services that are provided by the government to their employees, Government-to-Employees services. The area of Government-to-Employees services aims to support civil servants to manage their own activities within the organization.

Government-to-Business – this category of services mainly has the purpose of taking care of e-transaction initiatives between the government and private sector (e-procurement). These services are highly important to the government because they give businesses the opportunity to conduct transactions online. Reducing red tape and simplifying many regulatory processes. These services help businesses as well since these services support specific tools for online tax paying and can allow businesses to become more competitive. Another group that can fit into this category are the services the government offers to the non government organizations such as accessing specific support for their initiatives, providing information about funding, etc. These services are called Government-to-Non-profit.

Government-to-Government – this category of services provides governments an internal exchange of information among its departments and deals with cooperation between them. Communication within the government takes place horizontally (between or within governmental institutions at the same level) and vertically (between government institutions and agencies at different levels). This category of services is very important to the government itself, because the government depends on other levels of government and other government institutions in order to deliver services. With the introduction of full interpretability to public administration, governments now can more easily facilitate data sharing, and increase the efficiency and effectiveness of many processes.

2 CITIZENS AND E-GOVERNMENT

2.1 Citizens

According to the Business dictionary (n.d), the definition of citizen is the following: "A citizen is a person who is entitled to enjoy all the legal rights and privileges granted by a state to the people comprising its constituency, and is obligated to obey its laws and to fulfil his or duties as called upon". In the context of e-government, citizens are the centre of attention. Those citizens who actually use information technology are known as e-citizens. According to Singh & Sahu (2007) an e-citizen is one who is able to use and deal with information technology on a daily basis and receive his requirements from relevant institutions, organizations and businesses by using electronic tools and systems.

The government as any other business provides certain services to certain people. In the case of commercial businesses these people are called customers, but from a government point of view we are discussing citizens. The customers of e-government services are citizens and as much as they have similarities with customers in e-commerce, while at the same also have different characteristics as end users.

Osbourne & Gaebler (1992) believe that citizens should be seen as customers and treated in the same way. They suggest that governments should redesign the delivery of their services with a customer focus. On the other hand, Mintzberg (1996) challenges this point of view regarding the citizens/customers issue and the roles that people have in society and as members of certain communities. Mintzberg (1996), further draws distinctions between customers, citizens, clients and subjects, and argues that someone does not need to be called a customer in order to be treated well or that service is performed best when geared towards customers. Unlike customers and clients citizens do not buy just products or services, but have rights that go far beyond those of customers or even clients. Citizens have some duties as subjects, such as: paying taxes, voting in elections, being drafted into armies and respecting the law (which, if they do not, carries consequences). This suggests that citizens have a very specific relationship, with government that includes- obligations and duties towards it.

In order to say or suggest that citizens are equivalent to customers and should be treated in the same way does not give a clear picture of the nature of the relationship between government and citizens. Unlike customers, citizens expect more from government than customers expect from businesses. Governments do not have to encourage citizens to buy and consume their products and their relationship does not end once the service is delivered, but is usually everlasting. The services that are provided by the government are usually more complex than others and engage complex trade-offs between parties that have competing interests (such as: social security, welfare, economic policy, and infrastructure).

2.2 Government- citizen relationship

The term citizen was mentioned and defined in the previous section, and it is now important to state that a citizen is not solely defined by its relationship to a government, but has at the same time several roles they play in society, as: parents, volunteers, neighbours, business owners, employees, consumers, students, pensioners, children, etc. Citizens have different roles and as such belong geographically to a certain area, defined by the area where they live from the state to the local level.

Mintzberg (1996) believes that there are four hats that all of us wear in society: customers, clients, citizens and subjects. Customers and citizens have a give-and-take relationship with the government. A government's customers receive direct services at arm's length: its

citizens benefit more indirectly from the public infrastructure it provides. Under the citizen category, there are an enormous number of activities that are forms of public infrastructure: social infrastructure (e.g. museums), physical (e.g. roads and ports), economic (e.g. monetary policies), meditative (e.g. civil courts) and offshore (e.g. embassies). As clients and subjects the relationship with the government is more one-sided. The question for citizens as subjects is what we must do for our government in the form of respecting state control. In contrast, as clients who receive professional service, a question that is often raised is what the state provides to us. The four hats that we all wear in society overlap often at the same time we can be a citizen that has her/his own rights, as well as a subject that has her/his obligations.

According to the OECD (2001b) the relations between government and citizens are about the interactions between the two. Government and citizens are related to each other in many areas, from policy-making to delivering and consuming public services. The government is in contact with citizens on many different levels: local, regional, national and international. Citizens can relate to the government as individuals or they can be part of an organized group through civil society organizations.

The government provides information to its citizens and should ask for consultation with citizens in terms of asking and receiving feedback. Consultation can only happen if there is a two way relationship between the government and citizens. In the case of e-government and their relationship with the citizens, their main aim is to engage the citizens by using information communication technology (ICT). The OECD (2001) has proposed a three stage maturity model for government engagement with citizens using ICT, which can be seen in Table 1.

Table 1: OECD e-government engagement model

Information	A one-way relationship in which government delivers information to citizens Government ➡ Citizen
Consultation	A two-way relationship in which citizens provide feedback on issues defined by government Government ⇄ Citizen
Active	A collaboration in which citizens actively shape policy options, but where government retains the responsibility for final decisions Government ⬌ Citizen

Table 1 shows what kind of engagement citizens and government can have; the development of an e-government can be easily understood with this engagement model. The more the citizens and government are engaged the more developed the e-government is. In terms of e-government, it is important to say that unlike traditional government it is not accessible to all citizens. What governments should develop is political, social, and economic strategies that can give the greatest number of citizen's access to e-government.

2.3 E-citizen expectations

Citizen expectations will mainly depend on the citizen's previous experience with government services, but beyond that there are several other things that should be taken into consideration and which are important. Batenburg, Vermaas, van de Wijngaert, & Bongers (2006) state that the facts that citizens have different expectations of e-government, some believing that it works while others consider it still a work in progress can be explained by several factors. Batenburg et al. (2006) create a conceptual model in

order to give insight into citizen expectations. The basic idea behind the model is that citizen expectations on e-government are driven by two factors:

1. The citizens' attitude towards ICT (the citizen's experience and usage level);
2. The political attitude of citizens (citizen's general interest in politics and government).

Within a short period more government institutions have started offering electronic public services to citizens. In recent years these services have become more and more advanced and integrated. Nowadays citizens not only can look for information, they can complete forms electronically and deliver them as well. Over the past few years people have started creating and developing more digital skills, mainly because of the active use of the Internet which rapidly increased the development of these skills. Citizen expectations, as well as online experience are very dynamic and are likely to change together with the development of ICT.

Batenburg et al. (2006) identified two important factors when it comes to citizen's expectations, experience and the level of usage of ICT. Venkatesh & Davis (2000, 2003) discuss how an individual will be more likely to use a particular technology the more experience he has with it. A good example of this are e-business and e-commerce, the more people became aware of the possibilities with ICT they started using it more and started using new opportunities. At the same time this means that with time their overall expectations of e-services increased because they were well aware of the possibilities available. In terms of satisfaction e-businesses and e-commerce showed over recent years a gradual upward trend. Batenburg et al. (2006) believe that with this increased experience the general trends of what people expect will change not only for a society as a whole, individuals as well, who will have different expectations of e-government. Unfortunately, some people that belong to certain demographic groups and with certain characteristics will lag behind. Rogers (1995) discusses that these demographic variables can be correlated with the diverse society of internet users. There is an assumption that education and occupational status are positively correlated to e-government expectations and that age has a negative correlation. This finally leads to the conclusion that citizen e-government expectations are positively correlated with the level and frequency of Internet use, as well as the user experience factor and demographic characteristics.

The second factor: attitude towards politics will be explained through a recent approach known as the PPA (Participatory Policy Analysis). According to Mayer (1997) the PPA was developed as an innovative method and had the aim involving ordinary people, citizens, and stakeholders participating directly in policy development and planning processes. The results of the PPA research showed that politically motivated citizens are often female, older and a relatively high level of education. Mayer (1997), Roelofs (2000), Bongers (2000) identified age, gender and level of education as a key in self-selection and participation especially when citizens were invited to get involved in different kinds of

work shops, debates or conferences. In terms of e-government and citizens expectations this means that citizens who have high expectations about e-government are closely connected to those that see opportunities in participatory policy involvement. These citizens feel that they are taking part in public decisions and have confidence in government plans and activities. As mentioned before the background characteristics (age, gender and level of education) of these citizens are an important determinant in having such a political attitude.

Finally, putting these two factors together brings us to the conclusion that ICT attitude and political attitude are the two key factors for citizens in creating their opinion about expectations of e-government along with socio-demographic characteristics (age, gender, occupation, education and household situation). ICT and political attitude determine e-government expectations, and have an indirect relationship with the dependent variable which would be in this case background characteristics. Figure 1 presents a visualisation of this conceptual model of citizen expectations towards e-government.

Figure 1: Adapted conceptual model to determine citizen expectations of e-government
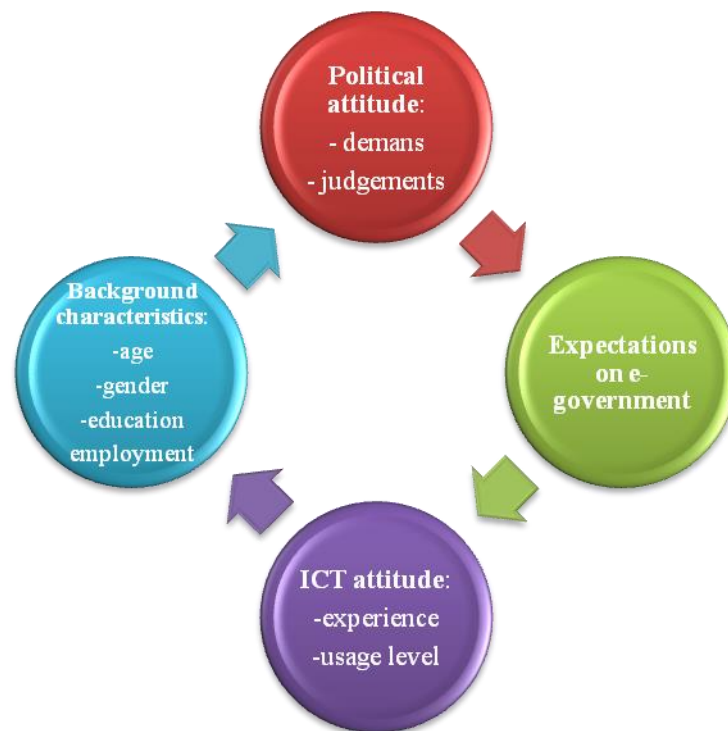
Source: R. Batenburg, K.Vermaas, L. van de Wijngaert, & F. Bongers*, Expectations that run high Dutch citizens on e-government,* 2006.

2.4 Citizen satisfaction

The terms satisfaction and perception are usually closely related. Satisfaction refers to the fulfilment of certain wishes, expectations or how fulfilled the needs of the customers are. But in order to find out whether people will be satisfied with something depends on how they perceive. Perception is how people see the world around them. The biggest problem with perception is that it is highly individual and can not yield generalization, as all people have different perceptions of things.

This also brings up the question of the problem with services in general, about which we'll talk about later; services can not be standardized and they will always be perceived and performed differently to a certain degree. For example if we have a few citizens who need the "same" service, they won't have the same experience, first because of their perceptions and second of all because of the fact that services can not be standardized as a human factor plays a key role in them.

According to Welch et al. (2004) there are certain factors that affect citizen satisfaction when it comes to e-government services. The first factor is the perception of online service convenience (transaction). The second is the reliability of information (transparency), and the last is the engaged electronic communication (interactivity). In addition, Kelly & Swindell's (2002) definition of citizen satisfaction views it as service output by the performance measurements and service outcomes. In order to measure the success of service outcome, one appropriate method is Citizen Satisfaction analysis. By utilizing information and internet communication technology appropriately, the government can elevate citizen satisfaction. This superior channel of communication brings about numerous outcomes. Through this mode of communication, government information can be contended to be accessible and complete. This mode of communication also provides service delivery in a suitable way, and as a result, it decreases the information gap between citizen and government. It also increases citizen trust in government activities.

Government should have an understanding of the importance of measuring and evaluating citizen satisfaction, because that will give them the opportunity to make changes and correct mistakes. Some researchers came to the conclusion that the perception of local e-government has to do as well with the level of citizen participation, because citizens have a positive perception towards participation. They are more likely to participate in local government issues (Bowman & Kearney, 2007, Yang, 2006, Crosby, Kelly & Schaefer, 1986, Irvin & Stansbury, 2004). The following questions should ultimately be raised whether e-government brings more satisfaction to the citizen, whether it will change their perception about government services, and whether citizens are more likely to trust government activities since they are more transparent and easier to access now.

3 QUALITY, SERVICE QUALITY AND E-SERVICE QUALITY

3.1 Quality

Quality is one of the most used and most determined terms in the business world. According to Golder, Mitra, & Moorman (2012) quality is probably the most important and most complex component of a business strategy. Customers look for quality in services and products, so companies compete on quality and markets are transformed by it. Quality is important and one of the most frequent focuses of research in many disciplines such as: marketing, management, economics, engineering, and operations, strategy and market research. Authors such as: Boulding, Kalra, Staelin, & Zeithaml (1993), Cronin & Taylor (1994), Oliver (1980), Parasuraman, Zeithaml, & Berry (1985, 1988), and Zeithaml (1988) believe that service quality in marketing is explained by the understanding of perceived quality, customer expectations and satisfaction.

According to Rai (2012) quality is an attribute that is seen as subjective, depending on perception and usually is differently understood by different people. The term quality can be looked at from two opposite sides: the producer (service provider) and the customer (service receiver). From the customers perspective they may be focused on certain specification of a product/service, leading them to compare the product/service to the service of competitors on the market. On the other side the producers may deal with conformance quality or assuring that the product/service is produced and delivered correctly. The degree of quality that product oriented companies need to produce is much different than service quality. Products can be standardized and they have to go through controlling processes, whereas services can never be delivered in the same way. According to Ishikawa (1991) if customers and producers points of view are combined it gives a 360 degree view of the different groups that are involved in judging quality by covering all possible directions. In the approach Rai developed the customer view is comprised of true characteristics and the producer view of substitute characteristics. He claimed that customer satisfaction is determined by the degree to which the true and substitute views match.

Zeithaml (1988) believes as well that objective quality does not exist, because all quality is perceived by someone. Garvin (1984) believes on the other hand that perceived quality is just one of the dimensions of quality. According to the newest Journal of Marketing issued in 2012, Golder et al. (2012) create an Integrative Quality Framework and defined quality as set of three distinct states and offerings whose attributes are relative: performance generated while producing, experiencing and evaluating offerings. Offerings are products, services or a combination of both, attributes are components, properties, or a feature that comprises an offering. Basically they assert that quality in evaluation has three processes,

which deal with different sets of attributes. According to Golder et al. (2012) these processes are:

- The quality production process occurs when firms use attribute design and process design specifications to convert their resource inputs and those from customers into produced attributes;

- The quality experience process occurs when firms (alone or with customers) deliver attributes for customers to experience and customers perceive these attributes through the lens of their measurement knowledge and motivation, emotion, and expectations;

- The quality evaluation process occurs when customers compare an offering's perceived attributes with their expectations to form summary judgments of quality and satisfaction.

These three processes are crucial for evaluating quality. Different process attributes give a different perspective about quality, which is why all three should be given great importance.

3.2 Services quality

Before we move on to service quality it is important to make a clear distinction between products and services, why services are so specific and why they are treated differently from products/goods. According to Rai (2012) the knowledge that people have about the quality of goods is not enough to understand the quality of services. In order to better understand services, the characteristics of services and what separates them from products (goods) will be further discussed. Services have four unique characteristics that make them different from products:

- Intangibility of services- the easiest way to explain intangibility is to say that services can not be touched; they can not be counted, measured, stored nor tested in advance. Services are mainly seen as performances, activities, benefits or satisfactions rather than objects. With such characteristics services can not have standardized procedures concerning the quality of how the service will be "produced". Zeithaml (1988) highlights that the degree to which the service is tangible has an impact on how the customer will perceive the service. Because of the intangibility companies find it hard to understand how their service is perceived by customers.

- Inseparability of services- according to Zeithaml (1988) inseparability of services means that the delivery and consumption of many services happen at the same time simultaneously. J.R. Lehtinen (1982) & U. Lehtinen (1982) discuss how in many

services during the delivery of the service the customer can interact with the service provider, which means that the quality of the service occurs during the service itself. This means as well that the company has less managerial control over the quality of the service because of the participation of consumer. The customers have a direct influence on the end result of the service because usually they have to give a description of what they want or describe how they feel (e.g. a visit to the hairdresser, beautician salon or doctor).

- Heterogeneity of services- Zeithaml et al. (1985) claim that services are heterogeneous because they have high potential for variability in delivery. This problem mainly occurs with services that have high labour content because the service is not always delivered by the same person and how people will perform is different from day to day. Service personnel lack consistency in their behaviour and it can not be guaranteed to customers. Usually what the company wants to deliver is completely different from what the customer receives.

- Perishability of services- the last characteristic of services is perishability which is connected to time. Zeithaml et al. (1985) suggest that services can not be stored nor carried with us into some future period, they happen at the moment they are delivered. Time plays an important role for services since they are time dependent. Usually this characteristic is more a concern for the service deliverer than for customers, because the customer only becomes aware of this problem when they realize that they have to wait for a service.

Santos (2003) claims that although the phenomena of service quality is relatively new, it is one of the driving factors for sustainability and organizational achievements in a company. According to Parasuraman et al. (1988) service quality represents the comparison between customer's expectations and the costumer's perception of the delivered service.

According to Rai (2012) customers request services at the service interface, where the service encounter (also known as the moment of truth) is realized by the customer after the service is provided and delivered or consumed at the same time by the customer. In order to meet customer needs and for the company to remain competitive their main focus is on quality. Satisfying and meeting customer needs is crucial for companies to survive nowadays. As an outcome of using quality practices companies tend to identify problems quickly and improve their operational processes. Companies that are quality oriented establish valid and reliable performance measures, such as measuring customer satisfaction and outcomes. They also tend to measure customer satisfaction and outcomes of different performances. Service quality can be seen as the degree of achievement, of an ordered service. Referring to the degree of achievement two types of quality can be distinguished: objective and subjective quality. People create their expectations of a service through past experiences, personal needs, but very often as well through the word-of-mouth. In the end

19

the customer will compare the expected service and perceived service, and the result of these two will lead to perceived service quality. When expected and perceived service are compared there can appear a gap, which means that the perceived service does not match with what was expected from the service. There are several factors that influence the appearance of these gaps and were found by Parasuraman, Zeithaml and Berry in 1985. The factors that influence gaps and the gaps model will be explained later on. Service quality can be divided into two broad types: subjective and objective service quality.

Objective service quality can be seen as an accurate measurable conformity of a working result with the previous defined benefit. The measurability criteria for objective quality can easily turn out to be subjective due to the fact that measurability is highly dependent on the definition of accuracy. Subjective service quality can be defined as the perceived conformity of the working result with an expected benefit. The expected benefit is a creation of the customer's imagination about the service and the service provider's skills into performing as well as possible.

Service quality relates to terms such as service potential, service process or service result. The qualifications that co-workers possess can be seen as potential quality, process quality as the speed of the service and service result as how much the performance and customer wishes matched. There are several interconnecting factors that are relevant for service quality which include the way in which individuals are treated by the service provider, the amount of information the provider offers to the client, the level of personalization given to the client, accessibility and technical competences. Service quality is an important indicator to customer satisfaction. According to Normann (2000), service quality is the *Moment of Truth*, it is what is served at the moment of the delivery of the service and if a problem occurs at that moment that is the best moment to solve the problem, because after the delivery it is usually too late.

3.3 E-service quality and e-government service quality

Sohn & Tadisina (2008) and Song & Zinkhan (2008) claim that nowadays internet marketing is becoming an increasingly important electronic marketing tool for attracting customers, delivering electronic services and executing transactions. Authors such as Gounaris, Dimitriadis, & Stathakopoulos (2005) and Collier & Bienstock (2006) came to the conclusion that despite the fact that with technological innovation the number of internet users has grown rapidly over the years electronic service marketers are still facing problems with designing efficient web sites. The problems that they face mainly concern creating features that will improve the customer's perception of service quality and value in online transactions. The service designers should all have one goal: to fulfil the customer's expectations. In order to do that the service designers have to improve the quality of the service, create websites that are based on interaction and improve the e-

20

service recovery issues. Ozment & Morash (1994) suggest that companies that want to differentiate their service offers must establish customer value and satisfy customers' needs. This has been shown to be a key strategy for marketers that want to use a differentiation strategy in their companies.

Zeithaml, Parasuraman, & Malhotra (2002) define e-service in relation to a company's websites. They claim that e-service quality is the extent to which a website can facilitate efficient and effective shopping, purchasing, and delivery of products and services.

According to Parasuraman & Grewal (2000) customers assess website quality and e-service quality through their experience of interacting with the website and the post interaction service aspects which include the following core service quality elements: efficiency, fulfilment, system availability and privacy and e-recovery service quality such as: responsiveness, compensation and contact. The main indicators that were used to understand the dynamics of service in an online environment showed that they are related to satisfaction and website security. According to Keating, Rugimbana, & Quazi (2003) website design, reliability, and privacy/security have been identified as elements of service quality on shopping websites.

In the last couple of years e-service quality has been the centre of attention to many researchers because of its importance. The concept of e-service quality came from the concept of quality from traditional service quality. Authors such as Keating, Rugimbana, & Quazi, (2003) and Barnes & Vidgen (2002) claim that e-service quality is a key determinant of the success or failure of an online based organization. According to Lee & Lin (2005), many online organizations fail due to poor e-service quality, because consumers evaluate and create opinions based on the e-delivery of the service in a virtual market place.

Yang (2001) suggests that e-government users measure service quality by the potential advantages that the Internet can bring them. Some researchers have referred to e-government service quality as the extent to which the government website helps, offers and delivers e-services to citizens, businesses and agencies to achieve their transactions efficiently (Tan, Benbasat, & Cenfetelli, 2008). Online organizations that use electronic services can provide them with a competitive advantage by improving their performance and customer's satisfaction. E-government service can play a very important role in improving e-government efficiency, as well as increase citizen satisfaction.

As mentioned numerous times when measuring and evaluating e-government service quality we should keep in mind that quality is usually very subjective and depends on people's perceptions, previous experience and knowledge. In the case of e-services we are talking about virtual environments and as such these have their own characteristics. As much as governments can bring their website to perfection the websites the success will

still depend on their customers. How the customers perceive the quality of e-government service can depend on numerous things. One example could be the speed of the internet that the citizens have at home, where a slow speed can ruin their perception of the service, and as well old devices might have a slower speed or won't allow pages to run quickly. Lightner et al. (1996) discuss how citizens without the benefit of high-speed modems may experience long download times, which can cause dissatisfaction. This may lead to a decrease in perceived quality. On the other hand when multimedia on the websites is effective it can improve customer satisfaction and increase the perception of quality.

4 MEASURING SERVICE QUALITY

4.1 Measuring service quality

Rosen & Karwan (1994) discuss how many studies have shown that the principal measure of performance in a service market is quality. However service quality is not found to be the easiest to define nor to operationalize. Service quality perceptions and evaluations are complex and it is hard to develop a dimensional structure of service quality (Dagger, Sweeney, & Johnson, 2007). The term service quality is differently interpreted among different industries and in recent years there has been noticeable progress in how the perception of service quality should be measured, but there is little progress with regard to the question of what should be measured.

Brady & Cronin (2001) point out that perceptions of service quality are based on multiple dimensions and that there is no agreement as to the nature or content of these dimensions. Rosen & Karwan (1994) conduct a study based on the belief that service quality dimensions have similar relative importance across various service types. The result of their study showed that the relative importance of service quality dimensions varies according to the service setting. These findings were in contrast to Parasuraman et al. (1988) and Zeithaml et al.'s (1990) study, whose results showed that the 'reliability' dimension consistently proved to be the most crucial in all services investigated, and the 'empathy' dimension the least important.

Rosen & Karwan (1994) further argue that in the marketing literature there are relationships and distinctions between service quality, satisfaction and service value. One of the biggest constraints and difficulties of measuring services is due to the unique characteristics of a service which comprises intangibility, heterogeneity, inseparability and perishability (Bateson, 1995).

Measurement approaches of service quality actually depend on how service quality is perceived. To date, no concrete consensus has been established. There are basically two options. If service quality is based on satisfaction theory (e.g. SERVQUAL), the

disconfirmation (comparison of perceptions to expectations) approach is supported. On the other hand if service quality is perceived on the basis of attitude, the attitudinal theory is adopted, which supports the perceptions-only approach.

Over the years there has been a major debate regarding the measurement of service quality, specifically whether it should be measured as perceptions (Cronin & Taylor, 1992 and Cronin & Taylor, 1994) or as disconfirmation (Parasuraman et al., 1988, Parasuraman, Zeithaml, & Berry, 1994). We are unable to say whether any of the approaches is wrong or right, as both approaches have their strengths and weaknesses.

For this thesis, the approach of measuring quality that will be used is that established by Parasuaman, Zeithaml, & Berry, which is known as the SERVQUAL model, for the very reason that this model is one of the most frequently used in the literature and fits into the context of e-government by measuring both expectations and perceptions, which will all be discussed in further sections of this chapter.

4.2 SERVQUAL model

Parasuraman, Berry, & Zeithaml (1985) developed one of the most dominant and well known models of assessing service quality, and which is known as SERVQUAL. At first the authors identified ten dimensions of service quality, which were later in 1988 cut down to five. According to Parasuraman et al. (1988) the model is based on a service quality framework that measures service quality through several attributes. The main idea is actually to measure the gap between customer expectations and experience. The original model was developed in a traditional marketing services environment and has five aspects known as RATER: reliability, assurance, tangibles, empathy and responsiveness (Parasuraman et al., 1988).

- Tangibles- physical facilities, equipment, and appearance of personnel. Also known as physical evidence; since services have the characteristic of being intangible this is the attribute that "tangibilizes" the intangible for customers. Because of the intangibility of services, customers often evaluate services based on limited tangible elements;

- Reliability- the ability to perform the promised service dependably and in an accurate manner. Making sure that the service is performed right the first time;

- Assurance- the knowledge, skills and credibility of employees and their ability to use their expertise to inspire trust and confidence;

- Empathy- caring, individualized attention the company provides its customers. Having an understanding of customer specific needs, providing individualized attention and

when informing customers to make sure that they speak a language that the customers can easily understand;

- Responsiveness- dealing with customers 'complaints, giving solutions to problems, giving prompt attention to questions and requests. Responsiveness refers to the willingness to help customers and to deliver prompt service to them.

Parasuraman et al. (1988) discuss how assurance and empathy contain items that representing the previous seven original dimensions: communication, credibility, security, competence, courtesy, understanding/knowing customers, and access. Although the SERVQUAL model has only five dimensions, they capture all of the ten original conceptualized dimensions. The SERVQUAL model suggests that the expected service is influenced by several different factors: people's personal needs, word-of-mouth, past experiences and external communication with customers. The model tries to evaluate and measure how close the expected service was to the perceived service. There can be a big difference between expected service and perceived service quality. The difference between them is known as the perception gap and is called the service quality gap. Perceived service quality depends on external communication to the customers and how the service is delivered. The communication gap appears when promises do not match the delivery and appears between external communication with customer and service delivery.

The GAPS model is as well known as the service quality model and goes hand in hand with the SERVQUAL model; it was also developed by Parasuraman, Zeithaml, & Berry in 1985. The authors proposed a conceptual model which highlights the requirements for high service quality. The model suggests that customer's perception of service quality depends on four gaps that can exist in the organization. Zeithaml, Bitner, & Gremler (2009) claim that the GAPS model is a model that gives an integrated view of the customer-company relationship. Customers tend to compare their service experience with what they expected from the service. When the experience and expectations do not match there appears a gap. In the centre of the GAPS model is the customer gap. **The customer gap** is defined as the difference between the customer expectations of the service and the perceived service.

GAP 1- the knowledge gap is caused by the management not knowing what the customers are actually expecting. It is the difference between what customers expected and what management perceived about the expectations of customers.

Provider GAP 2- the service design and standards gap occurs mainly because of the intangibility and heterogeneity of the service. It is caused by the management not setting the right standards and also by the differences between the management's perceptions of customer expectations and the translation of those perceptions into service quality specifications and designs.

Provider GAP 3- the service performance gap is about not delivering the service to the customers according to the service standards. Gap 3 is the difference between specifications or standards of service quality and the actual service delivered to customers.

Provider GAP 4- the communication gap- occurs when what was promised does not match the performance. The communication gap happens when the service that is delivered to the customer does not match the promises the company made about its service quality to its customers.

The SERVQUAL and GAPS model are important in services marketing as they give insight into the customers' perception of the service quality. The SERVQUAL model proposes the dimension through which customers create their perceptions and expectations, and the GAPS model identifies the factors that cause the gap in meeting customer expectations.

4.3 SERVQUAL model in online context

Although the SERVQUAL model was developed in a physical marketing environment it has been widely used in the context of information technology, in areas such as: online banking, online retailing, academic and public libraries, online shopping, online traveling, web portals and online financial services. The SERVQUAL model was successfully used in an e-commerce context by authors such as: Kim & Lee (2002), Li, Tan, & Xie (2002), Kuo (2003), Devaraj, Fan, & Kohli (2002). In the context of e-government the following authors used the SERVQUAL or modified SERVQUAL model to measure quality of e-service in their work: Shirish, Thompson, & Rohit (2011), Tan, Benbasat, & Cenfetelli (2008), Ray & Rao (2004), and Connolly (2007).

Landrum, Prybutok, Zhang, & Peak (2009) claim that some researchers still are not sure if the SERVQUAL model is appropriate for use in the IT context, while there are other researchers that disagree on the appropriateness of using the difference between expected and perceived service quality to measure service quality. Lee & Lin (2005) and Hongxiu & Reima (2009) suggest that due to the different characteristics of physical and electronic markets they should be treated differently and that the SERVQUAL model should be reformulated and adjusted before using in an e-government context. According to Zeithaml (2002) there are some dimensions of the SERVQUAL model that can be used in the online context by adding a few technical dimensions. Lee & Lin (2005) came to the conclusion that by modifying the original SERVQUAL model they would be able to measure the quality of online shopping. The dimensions that Lee and Lin identified are: website design, reliability, responsiveness, trust and personalization. Later, the SERVQUAL model was adjusted by Zeithaml, Parasuraman, & Malhorta. According to Zeithaml et al. (2002) in order to fit an e-service environment 11 dimensions should be taken into considerations:

access, ease of navigation, efficiency, flexibility, reliability, customization/ personalization, security/privacy, responsiveness, assurance/trust, site aesthetics and price knowledge. In 2005 the same authors Zeithaml, Parasuraman, and Malhorta developed a model called E-S-QUAL which was based on the pervious mentioned dimensions. The E-S-QUAL model consists of: e-core service quality and e-recovery service quality. The e-core service quality consists of four dimensions: efficiency, fulfilment, system availability and privacy. On the other hand e-recovery service quality has three dimensions: responsiveness, compensation and contact. Just one year later Kim and Lennon decided to modify this model. According to Kim & Lennon (2006) the E-S-QUAL and e- RecS-QUAL were missing some dimensions that were relevant, so in the end they added three dimensions: privacy, information, graphic style, and decided to remove the compensation dimension. The main reason behind this adjustment was to create a model that would measure the quality of online apparel retailers.

In recent years there have been a growing number of studies based on e-service quality with different dimensions for measuring e-service quality. Two other relevant models were developed which mainly deal with the quality of websites: SITEQUAL and WeBQaul. SITEQUAL was proposed by Yoo & Donthu (2001) and it is a model that measures website quality and is based on four factors: ease of use, aesthetic design, processing speed and security. WebQual was developed by Loiacono, Watson, & Hoodhue (2002) and evaluates website quality through 12 dimensions: informational fit-to-task, tailored communications, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, online completeness and relative advantage.

The increasing studies in the field of e-service quality show the importance and development of this topic, as e-services are developing rapidly and becoming a relevant part in the lives of customers. In the next section a proposed measure of e-government service quality will be given with an in depth explanation of its dimensions.

4.4 Proposed measure of e-government service quality

The suggested SERVQUAL model for measuring e-government service quality that will be used in this master's thesis is based on the work and findings of Alanezi, Kamil, & Basri (2010). Their proposed measure is based on relevant literature research that was done on e-service quality. The authors came to the conclusion and formulation of the proposed measure by the context in which the literature was used, how frequent the authors were quoted, and the number of items they created. According to Alanezi, Kamil, & Basri (2010) the proposed instrument is identified by rewording and reformulating the five SERVQUAL scale dimensions and adding two dimensions. The dimensions and items included in the proposed measure are validated and used in most measures of e-service

quality research in the e-commerce environment. The proposed dimensions were defined by properties such as context of usage, frequency of citation, and number of created items. They added two more dimensions: information and ease of use, because of the fact that they came to the conclusion that they are relevant in the online government environment. The relevant authors that found these two added dimensions important and used them in their work are the following: Yoo & Donthu (2001), Sohn & Tadisina (2008), Hongxiu & Reima (2009), and Obi (2009). Table 2 shows on one side of the table the original SERVQUAL dimensions and on the other side the adjusted SERVQUAL dimensions that are proposed for e-government service quality measurement.

Table 2: An instrument dimension constructs and definitions

SERVQUAL Dimensions	E-government Service Quality Dimensions	
Tangible	**Web site design**	**Items**
Refers to physical facilities, functional appeal and the appearance of employees	The tangible dimension can be replaced by web site design in e-government domain because the web site design is comprised of technical functioning of e-government web site and web site appearance. Many researchers have replaced tangible dimensions with web site design dimension in considering online environment.	1. The e-government web site is visually appealing. 2. The user interface of the e-government website has a well organised appearance. 3. It is quick and easy to complete transaction at the governmental web site. 4. The government site is always available for citizens. 5. The government web site launches and runs right away. 6. The government website does not crash. 7. Pages at this site do not freeze after entering order information.
Reliability	**Reliability**	**Items**
Refers to the ability to execute the promised service in an accurate and reliable way.	Related to the degree to which a promised service provided by an e-government web site is going to perform by the promised time, such as e-mailing or calling a customer by the promised	1. When the e-government web site promised to e-mail, or call my by a certain time, I like them to do so. 2. I like to ensure that the e-government website will deliver the right services I order.

27

(table continues)

SERVQUAL Dimensions	E-government Service Quality Dimensions	
	time as well as providing the confidence of delivering the right products, and correct charges..	3. I like to ensure that the e-government web site will charge me correctly for my service order. Such as paying taxes.
Responsiveness	**Responsiveness**	**Items**
Refers to willingness to assist the end users and provide punctual service	Refers to the degree to which services provided by the e-government web site is helpful and there is no delay in responding to citizens	1. I think the e-government web site gives prompt service. 2. I believe the e-government web site is always willing to help citizens. 3. I believe the e-government web site is never too busy to respond to citizens' requests.
Assurance	**Security/ Privacy**	**Items**
Refers to personnel knowledge which persuades users' confidence and trust.	Related to the level of security and protection of citizen's personal information provided by the e-government web site. We placed the assurance dimension because we found in the literature that both security and privacy play enormous role in increasing customers confidence in organization	1. The e-government web site assures me of the security it provides. 2. I am confident of the security of the e-government site. 3. It does not share my personal information with other sites. 4. The site protects information about my credit card.
Empathy	**Personalization**	**Items**
Refers to providing caring ad paying individual attention to customers.	Refers to the degree to which and e-government web site provides a variety of services to convince specific individual citizen's needs	1. I like e-government web site that offers a choice for personalization. 2. This e-government we site contains links to other web sites that citizens may be interested in (e.g. links to its parent web site, branch web site, or other e-government sites). 3. The e- government we site

28

SERVQUAL Dimensions	E-government Service Quality Dimensions	
		provides different e-government service options (e.g. payment methods). 4. The e-government web site provides service delivery options.
Adding dimensions	**Information**	**Items**
	Refers to the information provided by e-government web site which should be accurate, current and easy to understand.	1. I like e-government information that is accurate. 2. I like e-government information that I current. 3. The e-government web site provides information that is easy to understand.
	Easy to use	**Items**
	Relates to the degree of ease of using the web site and the facility to search for information.	1. The e-government web site is very easy to use. 2. It is very easy to search for information in e-government web site.

Source: M. A. Alanezi, A. Kamil and S. Basri, *A proposed instrument dimensions for measuring e-government service quality,* 2010.

Further on in the text the e-government service quality dimensions from Table 2 are explained in detail and compared to the original SERVQUAL dimensions.

Website design- website design is an important dimension, as this is the place where the interaction between the citizens and the government happens. It is the first impression that the citizens will have about their government. Many things will depend on the website design, as it represents the face of the institution, it is the thing that citizens notice first and it is like the space of a restaurant or a window shop. It is crucial in terms of attracting customers/citizens. Sukasame (2010) claims that for e-government the website design plays an important role for e-government users because it is the interface for connecting the users and the government. According to Lee & Lin (2005), there are many studies that were investigating the influence of web design on e-service performance and shown that website design plays a key role in customer satisfaction.

Reliability- according to Alanezi, Kamil, & Basri (2010) reliability is the degree to which the e-government service is going to be performed, taking into consideration promised delivery time, contacting customers such as e-mailing or calling them, as well as making sure that they provide the right service and that they charge the customers correctly. Authors such as: Parasuraman at al. (1988), Zeithaml (2002), Sukasame (2010) recognised reliability as one of the most important dimensions of the SERVQUAL model.

Responsiveness- according to Parasuraman et al. (1988), responsiveness is providing citizens prompt service and being willing to help them. In terms of e-government responsiveness is the degree to which the government is helpful to citizens and that there is no delay in responding to citizens requests. Authors such as Yang & Jun (2002; Lee & Lin (2005) believe that user expect organizations to respond without any delay and that there is an important correlation between responsiveness and customers satisfaction.

Security/Privacy- in the original SERVQUAL model this dimension was called assurance, but since customers are not in touch with people in an electronic environment this dimensions is adjusted to new circumstances. Parasurnaman et al. (1988) claim that assurance in the SERVQUAL deals with the employee's knowledge, skills and ability to inspire trust and confidence into customers. Wolfinbarger & Gilly (2003) claim that in an electronic context assurance is replaced with the security/privacy dimension.

Personalization- the personalization dimension of the modified SERVQUAL is replaced with what before used to be empathy in the original model. According to Parasurnaman et al. (1988) the empathy dimension in the SERVQUAL model deals with providing care and paying individual attention to customers. Since there is no human interaction in the online environment, personalization of a service comes closes to showing that each citizen can have personal treatment and that the government can help with their specific individual needs.

Information- the information dimension was added to the modified model. According to Alanezi et al. (2010) the information dimension deals with all the information that the government provides on their website and where the information should be accurate and easy to understand. Information plays a very important role in the online environment, especially for an e-government website where mostly citizens visit websites in order to find information and get responses to their queries.

Ease of usage- the ease of usage is the second added dimension to the model. According to Alanezi et al. (2010) a government website should be easy to use and information should be very easy to find.

4.5 Quality criteria for web services

An important aspect in evaluating e-government services is the quality of the government website itself. In e-services the website is a very important staring point, because the website itself represents the market place and where all of the interaction happens. It is the place where people get information, search for information and make requests. The website itself is the first impression of the organization and its design and user-friendliness will depend greatly on citizen satisfaction and confidence. The website, in a sense, is like the person that sits at the front desk and represents the organization. According to website criteria (n.d) organizations should approach their websites as they were a long term project in which the beginning and end are defined. In order to effectively run a website organization should understand that websites are alive and have a life cycle and certain phases they need to go through. When an organization creates a website it does not mean that all of the work stops at that point. The organizations website is at any point either, under development, re-developed, or being planed, launched, evaluated, improved and promoted.

According to website criteria (n.d) there are certain stages that together form a website's life cycle: initial planning, as each section should be planned out in detail according to a strict schedule, monitored at all times, further developed, and implemented in accordance with new trends. Any manager should know that this life cycle requires constant management and improvement if the website is to be successful. Any activity one performs on the website can be found in the life cycle. The website life cycle consists of four stages: planning, building, sustaining and improving. The stages are separated, but it is important to say that they are interdependent; they can not work if anyone is neglected. Each section does have its own inner processes, but they are also together a part of the life cycle itself. Having a good understanding of the website life cycle shows that developing and managing the website does not stop at the moment when the website is launched. Once the website is launched it needs constant care and updates.

5 E-GOVERNMENT IN BOSNIA AND HERZEGOVINA

During the years of the peak development of ICT technologies Bosnia and Herzegovina was interrupted by a war (1992-1995) and as a consequence the society of Bosnia and Herzegovina missed the opportunity to follow world trends in ICT. As a result the Bosnian society is still at a very early stage regarding the development and usage of ICT. According to Gerin & Vujčić (2007), the post-war development of ICT did not follow world trends because of the complexity of the constitution of Bosnia and Herzegovina. The complexity of the governmental organization limits the development of many segments including ICT. A prerequisite has been set for the further development of ICT in Bosnia and Herzegovina in the form of the adoption of a document that establishes at the state level the Policy,

Strategy and Action plan for the development of an information society in Bosnia and Herzegovina for the period 2004 – 2010.

Gerin et al. (2007) further discuss how in Bosnia and Herzegovina a reform of public governance institutions is inevitable, and it is suggested that the governance system should introduce state-of-art technologies that would have the primary goal of building and making a functional governance system. Taking into consideration economic and political changes, as well as the reorganization of the country's governance structure and management, the reform has the intention of ensuring that tasks that are performed by organisations are faster, less expensive and that in the end they provide better services to citizens. The changes in the reorganization of the management system should be performed in such a way that they provide support to changes and give a more feasible and contemporary vision of the future.

Bosnia and Herzegovina provides public administration services in 146 municipalities, two entities, the Brčko District and at the state level. At each level of service delivery there are problems identified with their administration, such as the following (Gerin et al. 2007):

- the acts that are adopted by the 14 parliaments are in some segments conflicting;
- the administration does not operate according to European standards;
- the principles and practice at the level of one municipality or canton are different from principles adopted in other municipalities, Cantons or Federation of Bosnia and Herzegovina;
- lack of transparency regarding work and finance matters;
- the tendency to unify and connect databases is poorly executed (some projects are exceptions, such as CIPS and DGS);
- there is no horizontal or vertical electronic communication within the institutions;
- there are no hardware and software policies or standards adopted due to that there are various operating systems, application and database systems;
- there is no global plan for introducing information technologies in the state administration;
- the existing systems operate autonomously - as islands in isolation so that they cannot provide citizens with information;
- due to partly outdated equipment suitable networking is impossible;
- usage of state of art communication (such as video conferencing, email etc.) is minimal;
- the websites public administration provide citizens with few services, infrequently updated information, and rarely include forms that can be printed locally.

It is important to note that from 2007 there has been improvement in e-government in Bosnia and Herzegovina, and although not drastic, steps are being taken. According to the United Nations E-government Database (2012), some information were found regarding e-

government development in Bosnia and Herzegovina. Figure 2 shows the e-government index trend from 2003 up to 2012. Table 3 shows a comparison between the average European and Bosnian e-government related indexes. On the United Nations Member States e-government rank, which consists of 190 states, Bosnia and Herzegovina is ranked in 79th place. The information in Figure 2 and Table 3 are taken from the United Nations E-government Database (2012) and have been adjusted to this form.

Figure 2: E-government trend index for Bosnia and Herzegovina
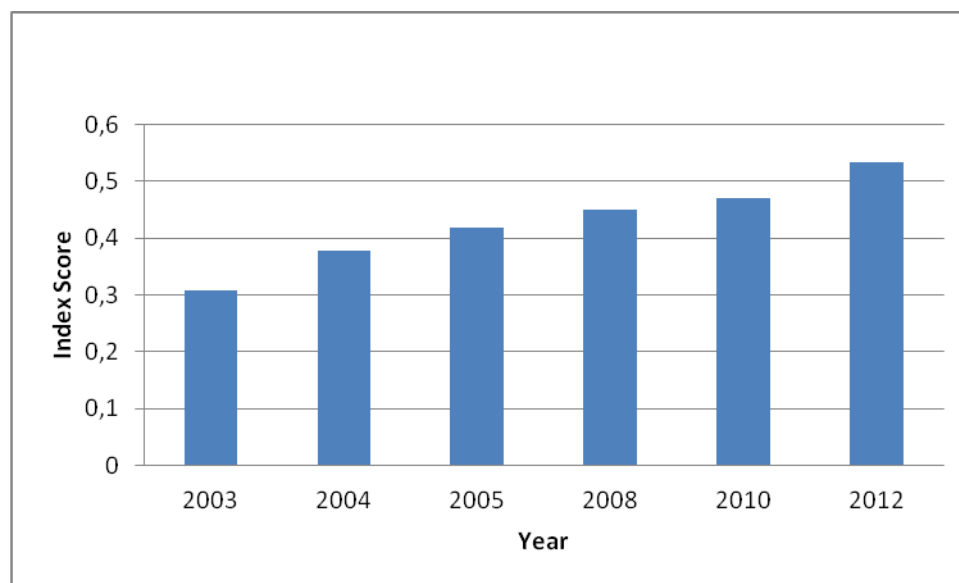
Source: United Nations E-government Database, *United Nations E-government Development Database: Bosnia and Herzegovina e-Government Development Index,* 2012.

Table 3: Comparison of Bosnia and Herzegovina and European averages indexes

Index	Bosnia and Herzegovina	European Average
E- government index	0.533	0.719
Online service index	0.373	0.619
Infrastructure index	0.392	0.646
Human Capital index	0.834	0.892
E-participation index	0.000	0.365

Source: United Nations E-government Database, *United Nations E-government Development Database: Bosnia and Herzegovina e-Government Development Index,* 2012.

According to the data in Figure 2 the e-government index trend for Bosnia and Herzegovina shows an increase from year to year, a good sign that the country is developing e-government and that the index is increasing instead of decreasing. As seen from Table 3 the e-government index of Bosnia and Herzegovina is lower than the European average. The e-government index measures a country's capacity and willingness to use e-government for ICT development. This index connects also characteristics such as infrastructure and educational level to reflect how a country is using IT to promote access to such technologies and to include the people.

The online services index shows the phase at which a country is in terms of its offerings of online services in terms of the Internet and World Wide Web (WWW) use for finding information, and using products and services. This index also shows the level of development a county has in terms of telecommunication and human capital infrastructure. It is obvious that Bosnia and Herzegovina is far behind the rest of the region in its offering of online services, which explains also the country's rank.

In terms of infrastructure it is also obvious that Bosnia and Herzegovina lags behind, and in the context of e-government this means that the country lags behind in information technology. According to the UNDP (2012) access to information technologies have become crucial for the development of any country. Technologies are crucial for the development of a country so that it can increase competitiveness and efficiency. By introducing new technologies better service can be delivered to citizens, as well as creating new sources of income and opportunities. ICT gives countries the opportunity to improve their service delivery over and above traditional forms and to make processes more efficient, as well as improving living conditions. E-government gives the opportunity to citizens to learn new technologies, and to make use of that knowledge in their homes as well as in society. Bringing ICT closer to the people allows both individuals and societies the opportunity to develop and empower themselves.

The human capital index can be seen as a big surprise compared to the other indexes, because we follow the regional trend and the country has an even higher human capital index than the world average, which is 0.721. Countries that have a high level of educational skills are more likely to have greater access to ICT and to adapt new ICT quickly. A population that is skilled in the use technologies is more likely to adapt it in order to gain better social and economic productivity. The biggest advantage of ICT is its ability to diffuse learning, information and knowledge rapidly and more widely and deeply than before.

Unfortunately the e-participation index which is one of the most important indexes for the future of e-government in Bosnia and Herzegovina is 0.00, which is far behind any average regionally and in the world. Promoting citizen participation is the key element for creating socially engaged governance that unfortunately has not yet developed in Bosnia and

Herzegovina. One of the main reasons for this is that e-government is still at a very basic/primitive level and it's in its development phase. E-participation is a goal for the e-government in Bosnia and Herzegovina for the future. E-participation initiatives should improve the citizen's access to information and public services. Promoting participation in public decision making will make an impact on the society, but as well to individuals.

Ćurčić, Silajdžić, Jusić, Hodžić, & Jusić (2011) point out that there is little knowledge about the level of development of e-governance in Bosnian municipalities and that the general development of local e-government is moving extremely slowly in facing numerous problems and obstacles. The main reason behind these has already been mentioned in this section is the complexity of the country's administrative and political structures. As a result of the Dayton Peace Agreement, the state-level government is weak and has limited responsibilities for the adaptation and implementation of public policies.

Due to the Congress of Local and Regional Authorities of Europe, CLRAE 2006, A.13 the state level government has no power over local self-government. Ćurčić et al. (2011) claim that in the RS the entity government is responsible for local self-government, whereas on the other hand in the FBiH the cantonal levels are responsible for local-self government. One of the biggest problems is that there is no unique strategy on a state level for the development of e-government; every entity does it in its own way. As a result of all these difficulties Bosnia and Herzegovina remains the only country in the region that does not have a state-level body for the development and promotion of an information society.

Ćurčić et al. (2011) point out that their research was conducted in 143 units of Bosnia and Herzegovina and came to the conclusion that the country in general is at the first stage of e-government development. This means that the country has a bureaucratic model of e-government, in which IT is primarily used to improve the efficiency of public administration and internal government structure. The country is still far away from the second stage of development which is characterized by strong citizen participation. Bosnia and Herzegovina lies significantly behind in the development of e-government compared with other countries from the region and the trends in this field, but this brings negative consequences in the development of local e-governments as well. On the other hand, it is a bit contradictory that infrastructure and individual readiness to use public services are developing rapidly, which give IT supported services great potential and provide an opportunity to promote participation.

There is a visible lack of strategic vision and coordination when it comes to implementation and development of e-government within the country. Standardization on the state level would guarantee quality of services and creation of a unique database. The development of e-government has been jeopardized as a result of conflicting and confusing competences at various administration levels, as well as imbalances within legal and institutional framework between the entities. The legal framework is incomplete and

contested (also because of conflicting competences). A big downside of local government is the flow of information within public administration, particularly within and between units of local government. There is in general the problem that municipalities are not networked among themselves as well as the fact that there is a large gap between municipalities and higher levels of government.

The final observation is that there are budgetary constraints that municipalities' face which are reflected in a lack of software resources and are related to human resources and knowledge. As a result of limited resources, bureaucracy, lack of transparency and accountability, the municipalities lag behind in the area of e-government and e-participation. The local government still has not put citizens at the centre of their attention which is crucial for the development of e-government. More attention should be given to the development of local e-government, because that is place where most of the interaction between citizens and governments takes place. In addition at this level important decisions are made that are visible to citizens and affect their daily lives.

6 PRIMARY RESEARCH: EVALUATION OF E-GOVERNMENT SERVICE QUALITY THROUGH THE EXAMPLE OF A MUNICIPALITY IN CANTON SARAJEVO

6.1 Qualitative assessment of the municipality website

The research is based on the evaluation and observation of a website of one particular municipality in Canton Sarajevo. Later on, for further primary research the citizens of this particular municipality were sent an online questionnaire related to e-government service evaluation.

The municipality website was observed during a six month period, several times per week. This analysis had the purpose of giving insight into how the website works, how to find information, how often changes are made on the website and how often updates are made.

First, what should be brought to attention is that this local e-government (municipality) is characterized to belong to the second level of the e-government maturity (see Chapter 1.4 for more explanation). The second level of e-government maturity is characterized by the government having a website that provides information to the public, meaning that the municipality is web present (first level) and has come to the beginning of the second stage (interaction) where citizens are able to contact the municipality through the website (e.g. email) and have the option of self-services such as downloading forms and making online requests.

During the 6 month period the website design did not change, while the website never failed to launch and neither froze nor crashed. It is also important to say that the website is updated on a daily basis; citizens have the chance every day to read on the home page about news in their municipality. There is also a small questionnaire with one question placed on the website, which asks the citizens to give their opinion if they are satisfied with the appearance of the website. By providing an answer the citizens get the opportunity to see the results of the questionnaire. The only notice about the questionnaire on the website is that it has already has been there for six months, with no new question having come up in that period.

On the home page citizens can find information about the "open phone" which is an information phone number provided to the citizens so they can ring and ask questions. On the home page there is information about checking the status of citizen's cases through SMS texts and offering the citizens the opportunity to register for the municipality newsletter to come to their email. The home page also offers three links to other websites. One of the websites is the Centre for culture and education, another is the Centre for sport and recreation and the third is a sub-website which deals with the environmental and

ecological aspects of the municipality. The two websites mentioned above bring you to these websites, but the problem is that the websites are not updated or accurate in terms of information. Both of the websites have a confusing structure with a mix of English and Bosnian language text. On the other hand the environmental and ecological website has a nice appearance. The information and the news are up to date, yet the whole site lacks content generally.

The e-government section is very obviously highlighted on the website and tells the citizens on the home page what e-government is, the importance of it in the digital era and which e-government services it provides to citizens. The municipality offers the following e-services, listed below in Table. 4.

Table 4: Overview of local e-government services

E-government services	Description of service	What's required from the citizen to do (level of interaction with the citizen)	Information on the web site of when this service will be performed
Parish registers	Citizens can verify data from registers of births, marriages, deaths and the book of nationals.	Enter name and ID number and the web site automatically verifies the required information.	The service is performed automatically and gives immediate information.
Online certificates	. Citizens can fill in an application through the webs site to get the required certificate.	Fill in name, contact phone number, ID card number, address and purpose of issuing and option to chose the certificate the citizen needs.	The competent municipality office will inform via your e-mail or phone about how to take over the required certificates. Within 24 hours.
Q & A section	A section with frequently asked questions by the citizens summarised in one place with provided answers.	Search for the answers to their question.	No information, since there is a list of answers on the site.
Tenders and announcements	An overview of public call for announcements and tenders.	No interaction	No relevant for this service since it information oriented.
Legal assistance	Offering free legal advices to the	Fill in required field for name, address,	No information when service will be

(table continues)

E-government services	Description of service	What's required from the citizen to do (level of interaction with the citizen)	Information on the web site of when this service will be performed
	citizens of the municipality which includes: • Legal advice • Delivery of finished forms complaints, complaints, requests, etc. • Assistance in the preparation of documents; • assistance in the preparation of petitions and motions authorities; • Other tasks of legal aid.	email, contact phone number, question and short a brief description of the application or list of questions.	performed.
E-forms	Citizens are able to download the necessary electronic forms, fill them in and print.	Find the appropriate form.	The service is performed automatically and brings to the page where forms can be downloaded.
Contact the municipality	Provides the citizens the option to directly contact the municipality through the web site. Citizens can ask questions, send suggestions and complaints.	Fill in the required field for: name, address, email, contact phone number, request (the citizen gets a list of department to whom it can address), subject and the question.	No information.
Checking the status of the citizens case	Provides the citizens information to follow up on their cases status.	The citizen should know the number of the code or the number of the case.	The service is performed automatically and gives immediate information

Source: *Općina Centar Sarajevo 2013*, 2013.

What was noticed to be a key flaw is that the site provides contact information, but only the contact email of a department in general and phone number, not a specific person that a citizen should or could refer to. In addition, particularly for e-services; the section for contacting the municipality does not provide any information for when an answer could be expected. The items that are highlighted in this section when the citizen is filling in the required fields is that you have to provide all contact information, define your question clearly and address it to the appropriate department, otherwise it will be taken as invalid. In this context the problem is that the citizen's questions can end up in a completely different department as the citizen would not know to whom to address the question and it might not at all be taken into consideration or forwarded to another department.

After entering personal information on the web site there is no written statement or notice to the citizens that their personal information won not be used anywhere else, but solely for the purpose of the service or that the citizens' personal information will be highly confidential. This statement is important to citizens and brings a feeling of security to the website.

One of the disadvantages of the website is that it is only in the Bosnian language, which on one hand is understandable as that is the native language of most of the citizens of this municipality. Still, this presents access problems for any people of foreign origin that live in this municipality, do business within this municipality or might be interested in some information about the municipality.

Another aspect that was noticed, and which while not strictly connected to service quality, is important with regard to website content was one section on the website called "business centre". Under the business centre section there is a subsection called "family farms". It is a study given by the municipality about the development of the rural areas of this municipality. Although this specific municipality mainly consists of urban area, 3.4% of these citizens live in rural areas. The idea of the municipality was to give attention to the rural area and to help make it a comfortable place to live. The authorities saw a good opportunity in creating these family farms in order to develop agricultural production, offering various services especially in the filed of tourism in these areas. This would help decrease the unemployment rate, the closeness of the urban area would give an opportunity for tourism and Canton Sarajevo is one of the biggest markets for agricultural products in Bosnia and Herzegovina. The problem with this content is the question of who should be the target audience to see and absorb this information. It would probably be the people who live in rural areas, as they would benefit from this directly. But this raises the additional question, how they would come upon this information. On the other hand it is understandable that the content as such and the activities and ideas of the municipality need to find a place on the web site. In addition, after the explanation of the entire study about family farms, there is no information about implementation or how people could apply or who to contact. Does the municipality have information on how many people in

rural areas have access to the Internet? This section was mentioned as important for e-government, because it shows that e-government is not available to every single citizen and it is usually unavailable to the citizens that could most benefit from it. This section also shows that e-government obviously has a target audience and does not put all of its citizens in equal positions.

6.2 Data and Research Methodology

The empirical research was conducted using primary data. The primary data was collected through a questionnaire, which was developed on the basis of an extensive literature review of Yoo & Donthu (2001), Sohn & Tadisina (2008), Hongxiu & Reima (2009), Obi (2009), Alanezi, Kamil, & Basri (2010), Sukasame (2010), Wolfinbarger & Gilly (2003), Lee & Lin (2005), Yang & Jun (2002). The respondents that were of relevance to this research were citizens that belong to this specific municipality in Canton Sarajevo.

The questionnaire was divided into three parts. In the first part of the questionnaire the respondents were expected to rank their expectations regarding e-government service quality. The second part of the research examined the respondent's perceptions/feelings toward the e-government service quality of the municipality. What should be brought to attention is that the survey took place in an online environment and that the respondents actually gave their opinions about the website of the municipality, as that is the "physical place" where the interaction between them and the municipality happens. The third part of the survey dealt with demographic questions. The questionnaire was distributed in the Bosnian language; the full questionnaire can be seen in Appendix B.

The level of expected and perceived e-government service quality was measured on the basis of 29 web site attributes. The 29 attributes that were used to measure e-government service quality are a combination of the original SERVQUAL model and the proposed measure of e-government service quality (see chapter 4). The proposed dimensions for measuring e-government service quality are based on an extensive literature review and survey of the following authors: Alanezi, Kamil, & Basri (2010). These authors came up with 26 attributes that were a modified version of the SERVQUAL model, modified to the e-government context. For the purpose of this thesis all the attributes from this model that involved payments and financial transactions had to be taken out from the questionnaire due to the fact that the municipality is not yet at that level of e-government and does not provide such services. The original SERVQUAL model for traditional services was compared with the proposed model and adjusted to an e-government context taking into account the e-government maturity level of the municipality. The model that was used has 29 attributes (see Appendix A). The 29 attributes are divided into seven dimensions proposed by Alanezi, Kamil, & Basri (2010): web site design, reliability, responsiveness, security, personalization, information, and ease of use. The attributes were assessed by the

41

respondents by using a seven-point Likert scale where 1 presented "strongly disagree" and 7 presented "strongly agree".

The questionnaires were distributed online, with the help of the programme Google Drive. The respondents that were of interest were any citizens of this municipality that have used or are using the municipality website and e-government services. Data were collected during a four week period in May/June 2013. The data analysis is based on a sample size of 170 respondents. In total the questionnaire was sent to 250 email addresses, from which 170 fully answered the questionnaire.

Further analysis of the collected data was done through the statistical package SPSS; descriptive and paired sample t-test statistical analysis were used for data analysis. Paired samples *t*-tests in most cases consist of a sample of matched pairs of similar units. It is most commonly applicable when test statistics have a normal distribution and usually determines whether two sets of data are significantly different from one an other.

6.3 Respondents profile

The demographic features of the respondents are shown in Table 5 and were analyzed through descriptive statistical analysis. The sample contained slightly more male respondents (53%) than female respondents (47%). Most of the respondents fitted into the age group of 36-45 (37%), and the age group of 26-35 (27%), which means that most of the respondents that use these services are in the age group between 26- 45. There were also no respondents that fit into the group above the age of 66. The majority of the respondent had at least higher education or a bachelor's degree (64%) and there were no respondents that had solely a primary school or lower level of education. The respondents had different professional backgrounds. Most of the respondents (34%) related to the category "others" when it came to profession. The monthly average income of 31% of the respondents is between 801-1500 KM, for 42% of the respondents it was between 1500-2500 KM and 32% had an income of 2501-4000 KM. The last question showed that 72% of the respondents visit the municipality website at least once per year. The results are presented in Table. 5.

Table 5: Profile of survey respondents

Items	(%) Percentage of the sample (n=170)
Gender	
Male	53
Female	47
Age	
16-25	14
26-35	27
36-45	37
46-55	18
56-65	4
More than 66	0
Level of education	
Primary school or lower level of education	0
High school diploma or specialized education	21
Higher education or bachelor degree	64
Master degree or PhD degree	15
Profession	
Entrepreneur	7
Manager	17
Administration worker	16
Technical employee	9
Student	10
Unemployed	6
Other	34
Average monthly household income	
0-800 KM	2
801-1500 KM	31
1501-2500 KM	42
2501-4000 KM	32
Above 4000 KM	2
Frequency of web site visit	
Daily	0
At least once per week	5
At least once per month	23
At least once per year	72

6.4 Results

Table 6 presents a detailed overview of the attributes that the citizens were asked to observe. They were first asked about their expectations, and then about the perceptions they have about e-government service quality. In addition, the expectations and perceptions will be compared and shown as the service quality gap the Table 6. All of the 29 attribute statements belong to one of the seven SERVQUAL dimensions, which are: website design, reliability, responsiveness, information, security, personalization, ease of use.

Table 6: Citizens' expectations and perception of e-government service quality

Attributes	Expectations		Perceptions		Gap	t-value	D Effect size
	Mean	SD	Mean	SD			
1. Up to date website.	6.65	0.53	6.23	0.73	-0.42	6.48*	0.66
2.Visually appealing website.	6.63	0.58	5.39	1.41	-1.24	10.97*	1.15
3.Availability of the website to citizens.	6.79	0.44	6.66	0.51	-0.13	2.43*	**
4. Website launching and running right away	6.88	0.32	6.80	0.40	-0.08	2.30*	**
5. Website not crashing.	6.89	0.31	6.84	0.37	-0.05	1.78*	**
6. Website freezing after requesting information.	6.86	0.55	6.85	0.36	-0.01	0.25*	**
7. Well organized appearance of the user interface.	6.88	0.33	5.33	1.99	-1.55	9.97*	1.08
8. Website promising to do something by a certain time.	6.59	0.56	4.93	1.74	-1.66	12.21*	1.28
9. Website delivering the right service.	6.90	0.30	6.46	0.81	-0.44	6.77*	0.72
10. Dependable website.	6.91	0.29	6.36	0.85	-0.55	7.89*	0.86
11. Service in the promised time.	6.68	0.56	5.31	1.79	-1.37	10.05*	1.03
12. Accurate records.	6.89	0.52	6.54	0.63	-0.35	5.79*	0.61
13. Telling citizens when the service will be performed.	3.85	1.71	1.06	2.01	-2.79	13.40*	1.5
14. Prompt service.	3.96	1.54	2.82	2.02	-1.14	6.09*	0.63

44   *(table continues)*

(continued)

Attributes	Expectations		Perceptions		Gap	t-value	D Effect size
	Mean	SD	Mean	SD			
15. Willingness to help.	3.55	1.78	3.18	1.94	-0.37	1.88*	**
16. Responding to citizen's requests promptly.	2.97	1.87	2.79	1.82	-0.18	0.94*	**
17. Website assurance to citizens- security.	6.80	0.49	5.24	1.31	-1.56	14.87*	1.58
18. Citizen's confidence about provided security.	6.83	0.46	5.26	1.27	-1.57	15.81*	1.64
19. Citizens private information sharing.	6.75	1.12	5.25	1.24	-1.50	11.27*	1.27
20. Website provides personal attention.	3.42	1.94	1.05	1.77	-2.36	10.84*	1.27
21. Website knowing what citizens needs are.	4.12	1.28	3.25	1.71	-0.87	5.68*	0.58
22. Website containing links to other websites.	5.33	1.89	1.94	1.49	-3.39	18.44*	1.99
23. Citizens best interest at heart.	4.10	1.35	3.42	1.77	-0.69	4.16*	0.43
24. Restaurant supports the employees.	6.79	0.93	6.40	0.76	-0.39	4.05*	0.46
25. Accurate information on the website.	6.69	0.19	6.43	0.67	-0.53	10.30*	1.08
26. Current information on the website.	6.90	0.30	6.18	0.89	-0.72	10.15*	1.08
27. Easy understandable information on the website.	6.95	0.21	6.04	1.19	-0.91	10.11	1.06
28. Easy to use the website.	6.92	0.38	5.59	1.53	-1.33	11.20*	1.19
29. Easy to find information on the website.	6.95	0.22	5.52	1.60	-1.43	11.82*	1.25

Note. * T-test (2-tailed Sig.) $p < 0.05$.
   ** attributes with statistically insignificant values

Table 7: Overall attribute mean scores

	Expectations mean	Perception mean	Gap
Overall mean for 29 attributes	6.02	5.15	-0.87

Table 7 presents the overall mean values of the 29 attributes, and shows that citizen expectations of attributes exceeded the perceived attribute values, with a gap value of 0.87, which is not a large gap, but does mean that there is room for improvement.

Table 8: Citizen expectations and perception of e-government service quality through dimensions

Dimensions	Expectations Mean	Perceptions Mean	Gap
Web site design	6.80	6.30	-0.50
Reliability	6.79	5.92	-0.87
Responsiveness	4.60	3.57	-1.03
Security	6.79	5.25	-1.54
Personalization	3.30	3.28	-0.02
Information	6.94	6.21	-0.73
Easy to use	6.93	5.56	-1.37
Overall mean of seven dimensions	6.02	5.15	-0.87

Table 7 shows the results for all of the 29 attributes, whereas Table 8 shows the results according to the seven dimensions. The higher the score of the expectation is, the greater the citizen expectation/perception of e-government service is.

The mean scores for citizen expectation ranged form 4.41 to 6.95, meaning that the lowest expectation item was that of the 'web site providing personal attention to citizens'. On the other hand the highest expectations were for the attribute 'information on the web site should be easy to understand and easy to find'. The overall mean score of e-government service quality expectations is 6.02, which indicates that the citizens have high expectations of e-government services.

Table 8 shows the seven dimension expectation scores. The mean scores range from 3.30 to 6.94. This means that the dimension the citizens had the highest expectations of was information (6.94) followed by website easy of use (6.93) and the lowest expectations were on the dimension of personalization.

The mean scores of citizen perceptions ranged from 1.94 to 6.43. The lowest score for perception was on the item regarding the website containing links to other websites that citizens may be interested in, meaning that the perception of citizens is that the website does not provide links to other websites citizens might be interested in, which was also confirmed by the observational analysis. The highest perception score was regarding 'accurate information on the website', meaning that the citizens perceive that the information on the web site is accurate. The overall perception mean score is 5.15, which implies that their perception is very high regarding e-government service quality. The dimensions perception score shows that the highest perception was 6.30 for website design and the lowest was for personalization at 3.28.

Table 7 presents results that show that citizen expectations are higher than their perceptions of the delivered service. This means that the e-government service quality gap is negative for all the municipality website attributes. The widest gap in the service quality is noticed for the attribute related to 'links to other web sites citizens might be interested in'. On the other hand, the lowest negative gap was for the attributes that had to do with the dimension of website design, which were the following: the availability of the website to citizens, the website launching right away, the website neither crashing nor freezing after information requests. This would mean that there is a small difference between the perceived service and expected service. The overall gap of all attributes is 0.87, which implies that e-government service quality should be improved as all of the attributes were assessed below citizen expectations.

The paired t-test analysis was used to make a comparison of citizens' perception of e-government service quality and their expectations. The paired t-test indicated a statistically significant difference for 23 out of 29 examined e-government attributes. The attributes that had the narrowest gaps were: website launching (Sig. 0.23), website availability (Sig. 0.16), website freezing (Sig. 0.77) and website crashing (Sig. 0.806) showed together with the website's willingness to help (0.62) and answering promptly requests (0.349) that they are not statistically significant. All the others 23 attributes showed statistical significance at the value of Sig. 0.00). In order to identify whether the strength of the research sample is the significant effect size was calculated. The effect size was calculated through Cohen's d for a Student t-test. The effect size evaluates the standard mean effect, and expresses the mean difference between two groups in standard deviation units. This means that the value of the means for citizen expectations was compared to the mean value of citizen perceptions. The effect size was calculated for all the 23 attributes that were statistically significant. The results showed that the value of Cohen's d varies for different attributes

between 0.43 and 1.99, which are high values in terms of interpreting effect size. This suggests that on average this sample has moderate to high practical significance.

CONCLUSION

This master's thesis aimed to analyze and evaluate e-government service quality through the example of a local e-government in Canton Sarajevo. In order to analyze the e-government service quality a sample of 170 citizens participated in an online questionnaire. The initial indicator for determining, evaluating and assessing e-government service quality of particular service providers was the gap between citizens expectations and citizen perceptions of the delivered service. As mentioned in many of the previous sections of the thesis the methodology of measuring service quality was done through a modified SERVQUAL model. The modified SERVQUAL model gives important insight into how well the actual service meets the customer (citizens) expectations. The results in general showed that overall the citizens expected more than they have gotten so far from e-government services, meaning that their expectations exceeded their perceptions.

The analysis showed that the citizens had the highest expectations towards the attribute of dealing with easily understandable information and easily searchable information on the website. These two attributes belong to the dimensions called 'information' which was the dimension that had the highest overall mean score when it came to expectation level, which is interesting since in question 7 of the questionnaire most of the respondents stated that they were actually visiting the website mainly to find information about the municipality and contact information. The attribute that had the lowest mean expectation score should not be ignored; because it does not mean that it is not important, only that among all the attributes the citizens found that it was less important in comparison to other attributes. The attribute with the lowest score was the website giving citizens personal attention. Although it had the lowest score, it is expected from the municipality to provide at least this minimum amount of personal attention. This attribute belongs to the dimension called 'personalization' which in the overall mean results was shown to be the dimension for which citizens have the lowest expectations. This dimension is a replacement for the empathy dimension from the original SERVQUAL model and in a study by Zeithaml et al.'s (1990) the results of an investigation of all the services showed that the 'empathy' dimension was the least important that could be confirmed from these results.

The perception that citizens have about e-government services showed a very high overall mean score of 5.15. This means that the municipality performs its e-government services in general very well. The attributes that were the best ranked by the citizens were : the website being up to date, the availability of the website to the citizens, the website not crashing, nor freezing and launching right away after information requests. All of these attributes belong to the dimensions of 'website design' which had the overall highest mean

score among the dimensions. The lowest ranked attribute regarded the website providing links to other websites that the citizens might be interested in, which belongs to the dimension of personalization. The results of the gap analysis showed an overall gap of -0.87, which means that the municipality website service providers did not meet the customer's expectations, and that there is room for improvement in terms of service quality.

Special attention should be given to the website design dimension. This dimension although it was not shown as statistically significant it had definitely among all the best results, citizens expectations and perception had a really narrow gap, which means that the citizens are satisfied with this service quality attribute since it was very close to the expectation means. The website design does play a very important role in e-government services; it is the customers' first impression of an institution. The success of the website design dimension was as well confirmed by the observational analysis of the website.

Attributes such as personalization and responsiveness received the lowest scores both in terms of expectations and in citizen's perceptions. The reason for such a result is that the level of e-government services is still pretty low, and mostly serves to inform citizens and enable them to order certificates online and download forms. It is probably the case that citizens still do not think much about options such as personalization or responsiveness and at this stage certain dimensions are less relevant to their immediate needs.

One of the last questions of the questionnaire was an open question, where citizens were not offered answer, but could give their own. The question that the citizens were asked was about their reasons for visiting the website. The answers mainly showed that people search for contact information or general information that they can find on the website, downloading forms and ordering online certificates, but that only a few actually said that they sought to contact the municipality personally (looking for legal advice, sending suggestion, questions and requests). The website is probably still mainly used by the citizens as a place where they can get information.

Considering the situation in Bosnia and Herzegovina and its development of e-government in general (mentioned in detail in chapter 5) this municipality serves as a good example of how it is possible to implement e-government and to try to make changes to the traditional bureaucratic government style. This is also one of the few municipalities that provides e-government services.

A major limitation in this research is that the questionnaire respondents were mainly people that had at least higher education or a bachelor's degree (64%), and none of the respondents were listed among those with only primary school education or lower. Also the people that use these services are middle aged people between 36 and 45 years of age and there were no respondents above the age of 66. Although the sample was possibly not

large enough, an assumption for further discussion can be made, that the users of e-government are educated people who have IT knowledge. The question becomes whether education level and IT knowledge have an influence on citizen expectation on the quality of e-government services.

This raises as well an additional important question. As much as we live in a digital world and some changes will be inevitable, traditional government will always be there and have its own role. It is important to note that as much as e-government has the aim of transparency, clarity and improving government services there will be people that will not be able to access and to use it because of various reasons.

Considering what has been mentioned above, the contribution of this thesis is to create awareness among local e-government service employees to give more attention to e-government service quality, as well to show how e-service performance and effectiveness can be improved and in the end to test the modified SERVQUAL model on an example of local e-government in Canton Sarajevo. The reason for choosing a local level rather than the state level is because the local level is the level at which the interaction between government and citizens happens. Also, at this level extremely important issues and decisions are made for the citizens that affect their daily lives.

There is always room for future improvement in any type of service, including the case of the examined local e-government in Canton Sarajevo. In order to make an improvement in e-service quality a few things should be brought to attention. One of the most important prerequisites for all of the other dimensions to work properly is website design. Website design is fundamental for e-services and that is why much attention has to be given to website design and it needs to be done right. Although in the research analysis this dimension showed the best results and the narrowest gap between expectations and perceptions, a high standard should be set for this dimension and maintained. The municipality website has to be more visually appealing, have a better organized user interface, assuring users that the website is always available to citizens that it is updated continuously, that it does not freeze, crash and that it launches and runs straight away. Website design should always be kept at a high standard, because when there is something wrong with it, it is the first thing that citizens will notice and complain about.

Reliability is an important aspect in which e-service quality improvement should be made, especially through the example of this municipality. When promises are made to citizens, and especially when these promises are related to service delivery, including a certain time, these services have to be performed by that time. Time is an important aspect for people, and they want to know and plan how long certain things will take. As seen from the qualitative assessment certain services on the website do not provide information on when a service will be performed. This should change and people should be informed roughly on how long a procedure should take. This is because we live in a fast moving internet society

where information can be found quickly and unlike traditional government services, citizens expect that e-government services will be delivered quickly and on time.

Another aspect that is very important for e-services and that will especially become more important to the municipality in the future is the website security dimension. A website needs to have a notification that the information that citizens provide will be kept highly confident and not used for any other purposes, because the information that the citizens use is very personal. For example for this; once e-transactions are available on the website the citizens will need to be assured that their bank account details are not used or tracked for any other purposes.

Once this municipality's e-government services move to the next level and not only serve to provide information to citizens, but for interaction, the biggest change will be that citizens will have a more personalized service approach. Customers should have at that stage their own log in to the website, which can give them an overview of their previous activities and requests, as well as registering customers in the system and tracking their particular interests and needs, which at the same time would give the municipality important information on their citizens' needs generally. By knowing what the citizens needs are the municipality can have a better understanding of citizen' personal needs and what kind of external links it can offer on the website to the citizens.

In future the municipality should consider moving e-government to the next level so that citizens can complete entire transactions online and make online payments possible. In the end it should try to focus on promoting more e-government and e-government services and trying to make them available as much as possible to citizens, by educating citizens about them. The website should definitely have language options on the site, at least the English language for a start. The municipality should also promote it in such a way that the citizens do not hesitate to contact and insist on interaction with e-government.

The main difficulty with e-government services is that citizens are not customers and the government is not a business. Citizens can not choose the products or services they will buy and can not switch to competing companies. The success of an e-government is not measured in terms of profits, and citizens do not actually buy any products/services from the government. This makes it harder to understand the motivation that should exist between both parties to make this work and function well. Citizens and government need to have a mutual interest in their relations. This means that as much as the government needs to provide something to citizens, citizens need to be willing to provide feedback and interact.

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APPENDIXES

TABLE OF APPENDIXES

Appendix A: Overview of SERVQUAL dimensions

Table 1: SERVQUAL dimensions comparison

Original SERVQUAL Dimensions Parasuraman, Zeithaml and Berry, 1985	E-government Service Quality Dimensions Alanezi, Kamil and Basri, 2010	Suggested e-government service quality dimensions
1. Tangible	**1. Web site design**	**1. Web site design**
1.1 The company has up-to-date equipment. 1.2 The company's physical facilities are visually appealing 1.3 The company's employees are well dressed and appear neat. 1.4 The appearance of the physical facilities of this company is in keeping with the type of services provided.	1.1 The e-government web site is visually appealing. 1.2 The user interface of the e-government website has a well organised appearance. 1.3 It is quick and easy to complete transaction at the governmental web site. 1.4 The government site is always available for citizens. 1.5 The government web site launches and runs right away 1.6 The government website does not crash 1.7 Pages at this site do not freeze after entering order information.	1.1 The municipality has an up-to-date website. 1.2 The municipality web site is visually appealing. 1.3 The municipality web site is always available for citizens. 1.4 The municipality webs site launches and runs right away. 1.5 The municipality web site does not crash. 1.6 The pages at the municipality website do not freeze after entering order information. 1.7 The user interface of the web site has a well organised appearance.
2. Reliability	**2. Reliability**	**2. Reliability**
2.1 When the company promises to do something by a certain time, it does so. 2.2 When customers have problems, the company is sympathetic and reassuring. 2.3 The company is dependable. 2.4 The company provides it services at the time they promise to do so. 2.5 The company keeps it records accurately.	2.1 When the e-government web site promised to e-mail, or call my by a certain time, I like them to do so. 2.2 I like to ensure that the e-government website will deliver the right services I order. 2.3 I like to ensure that the e-government web site will charge me correctly for my service order. Such as paying	2.1 When the municipality web site promises to do something (email or call) by a certain time, they do so. 2.2 The municipality web site delivers the right service that's ordered. 2.3 The municipality web site is dependable. 2.4 The municipality web site provides their services at the time they promise to do so.

1

(table continues)

Original SERVQUAL Dimensions Parasuraman, Zeithaml and Berry, 1985	E-government Service Quality Dimensions Alanezi, Kamil and Basri, 2010	Suggested e-government service quality dimensions
	taxes.	2.5 The municipality web site keeps records accurately.
3. Responsiveness	**3. Responsiveness**	**3. Responsiveness**
3.1 The company doesn't tell customers exactly when services will be performed. 3.2 The customers do not receive prompt service from the company's employees. 3.3 The employees are not always willing to help customers. 3.4 Employees are too busy to respond to customer requests promptly.	3.1 I think the e-government web site gives prompt service. 3.2 I believe the e-government web site is always willing to help citizens. 3.3 I believe the e-government web site is never too busy to respond to citizens' requests.	3.1 The municipality web site doesn't tell citizens exactly when services will be performed. 3.2 The citizens do not receive prompt service from the municipality web site. 3.3 The municipality web site is not always willing to help customers. 3.4 The municipality web site is too busy to respond to customer requests promptly.
4. Assurance	**4. Security**	**4. Security**
4.1 Customer can trust the employees of this company. 4.2 Customers feel safe in their transactions with these company's employees. 4.3 The employees of this company are polite. 4.4 Employees get adequate support from the company to do their jobs well.	4.1 The e-government web site assures me of the security it provides. 4.2 I am confident of the security of the e-government site. 4.3 It does not share my personal information with other sites. 4.4 The site protects information about my credit card.	4.1 The municipality web site assures the citizens of the security it provides. 4.2 Customers feel safe in their transactions with the municipality web site. 4.3 Citizens are confident about the security the web site provides. 4.4 The web site doesn't share citizen's private information with other sites.
5. Empathy	**5. Personalization**	**5. Personalization**
5.1 The company does not give the customers personal attention. 5.2 Employees of the company don't give customers personal attention. 5.3 Employees don't know that	5.1 I like e-government web site that offers a choice for personalization. 5.2 This e-government we site contains links to other web	5.1 The municipality web site doesn't give citizens personal attention. 5.2 The municipality web site does not know what the needs of the citizens are.

2

Original SERVQUAL Dimensions Parasuraman, Zeithaml and Berry, 1985	E-government Service Quality Dimensions Alanezi, Kamil and Basri, 2010	Suggested e-government service quality dimensions
the customers needs are. 5.4 The company does not have the customers best interest at hear. 5.4 The company does not have operating hours convenient to all their customers.	sites that citizens may be interested in (e.g. links to its parent web site, branch web site, or other e-government sites). 5.3 The e- government we site provides different e-government service options (e.g. Payment methods). 5.4 The e-government web site provides service delivery options.	5.3 The municipality website contains links to other web sites that citizens may be interested in. 5.4 The municipality does not have citizens interest best at heart. 5.5 The web site should provide service delivery options.
Adding dimensions	**6. Information**	**6. Information**
	6.1 I like e-government information that is accurate. 6.2 I like e-government information that I current. 6.3 The e-government web site provides information that is easy to understand.	6.1 The information on the web site is accurate. 6.2 The information on the web site is current. 6.3 The web site provides information that is easy to understand..
	7. Easy to use	**7. Easy to use**
	7.1 The e-government web site is very easy to use. 7.2 It is very easy to search for information in e-government web site.	7.1 The web site is very easy to use. 7.2 It is very easy to search for information on the web site.

Source: M. A. Alanezi, A. Kamil and S. Basri, *A proposed instrument dimensions for measuring e-government service quality,* 2010.

Appendix B: Questionnaire for primary research

Evaluation of e-government services

This survey deals with your opinions about the quality of e-government services in the municipality Centar, Sarajevo. Please show the extent to which you think the municipality services should possess the features described by each statement. Do this by picking one of the seven numbers next to each statement. If you strongly agree that these firms should possess a feature, circle the number 7. If you strongly disagree that these firms should possess a feature, circle 1. If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers – all we are interested in is a number that best shows your expectations about the municipality e-government services quality.

I   The following statements deal with your expectations of e- government services. Please rank your agreement/disagreement with the following statements.

1. The municipality should have an up-to-date website.
2. The municipality web site should be visually appealing.
3. The municipality web site should always be available to citizens.
4. The municipality webs site should launch and run right away.
5. The municipality web site should not crash.
6. The pages at the municipality website should not freeze after entering order information.
7. The user interface of the web site should have a well organised appearance.
8. When the municipality web site promises to do something (email or call) by a certain time, they should do so.
9. The municipality web site should deliver the right service that's ordered.
10. The municipality web site should be dependable.
11. The municipality web site should provide their services at the time they promise to do so.
12. The municipality web site should keep their records accurately.
13. The municipality web site shouldn't be expected to tell citizens exactly when services will be performed.
14. It is not realistic for citizens to expect prompt service from the municipality web site.
15. The municipality web site doesn't always have to be willing to help citizens.
16. It is okay if the municipality web site is too busy to respond to customer requests promptly.
17. The municipality web site should assure the citizens of the security it provides.
18. Citizens should be confident about the security the web site provides.
19. The web site shouldn't share citizen's private information with other sites.
20. The municipality web site cannot be expected to give citizens personal attention.
21. It is unrealistic to expect the municipality web site to know what the needs of the citizens are.
22. The municipality website should contain links to other web sites that citizens may be interested in.
23. It is unrealistic to expect the municipality web site has the citizens' best interest at heart.
24. The web site should provide service delivery options.
25. The information on the web site should be accurate.

26. The information on the web site should be current.
27. The web site should provide information that is easy to understand.
28. The web site should be very easy to use.
29. It should be very easy to search for information on the web site.

II The following statements deal with your feelings about e- government services. Please rank your agreement/disagreement with the following statements.

1. The municipality has an up-to-date website.

2. The municipality web site is visually appealing.

3. The municipality web site is always available for citizens.

4. The municipality webs site launches and runs right away.

5. The municipality web site does not crash.

6. The pages at the municipality website do not freeze after entering order information.

7. The user interface of the web site has a well organised appearance.

8. When the municipality web site promises to do something (email or call) by a certain time, they do so.

9. The municipality web site delivers the right service that's ordered.

10. The municipality web site is dependable.

11. The municipality web site provides their services at the time they promise to do so.

12. The municipality web site keeps records accurately.

13. The municipality web site doesn't tell citizens exactly when services will be performed.

14. The citizens do not receive prompt service from the municipality web site.

15. The municipality web site is not always willing to help customers.

16. The municipality web site is too busy to respond to customer requests promptly.

17. The municipality web site assures the citizens of the security it provides.

18. Citizens are confident about the security the web site provides.

19. The web site doesn't share citizen's private information with other sites.

20. The municipality web site doesn't give citizens personal attention.

21. The municipality web site does not know what the needs of the citizens are.

22. The municipality website contains links to other web sites that citizens may be interested in.

23. The municipality does not have citizens interest best at heart.

24. The web site should provide service delivery options.

25. The information on the web site is accurate.

26. The information on the web site is current.

27. The web site provides information that is easy to understand.

28. The web site is very easy to use.

29. It is very easy to search for information on the web site.

Demographic questions

1. Gender: male/ female
2. Age:
   ☐16-25

   ☐26-35

   ☐36- 45

   ☐46- 55

   ☐56-65

   ☐More than 66

3. Which of the following is the highest educational degree you have received:

   ☐Primary school or lower level of education

   ☐High school diploma or specialized education

   ☐Higher education or bachelor degree

   ☐Master degree or PhD degree

4. Which of the following categories best describes your professional status:

   ☐Entrepreneur
   ☐Manager
   ☐Administration worker
   ☐Technical employee
   ☐Student
   ☐Unemployed
   ☐ Other

5. Average household income:

   ☐ 0 – 800 KM

   ☐801 – 1500 KM

   ☐1501 – 2500 KM

☐2501 – 4000 KM

☐above 4000 KM

6. How often do you use this web site?
   ☐Daily
   ☐At least once a week
   ☐At least once a month
   ☐At least once per year

7. What were you primarily looking for on this web site?
   Descriptive:

Appendix C: Primary research results (SPSS)

Primary research from SPSS

In the SPSS results the abbreviation **e** represents expectations and it deals with the first part of the questionnaire which was dealing with customers expectations of e-government services. The statements/attributes are put into seven categories/dimensions, where WB represents website design and consists of 7 statements/attributes; REL represents reliability and consists of 5 statements/attributes; RES represents responsiveness and consists of 4 statements/attributes; S represents security and consists of 3 statements/attributes; P represent personalisation and consists of 5 statements/attributes; I represents information and consists of 3 statements/attributes; EU represents easy to use and consists of 2 statements/attributes.

In the second part the same abbreviations are used to observe the customers feelings towards e-service quality, except that instead of **e** (expectations), the citizens were asked about their **f** (feelings).

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
eWB1	170	5	7	6.65	.526
eWB2	170	4	7	6.63	.584
eWB3	170	5	7	6.79	.438
eWB4	170	6	7	6.88	.323
eWB5	170	6	7	6.89	.309
eWB6	170	1	7	6.86	.547
eWB7	170	6	7	6.88	.330
EWBav	170	6	7	6.80	.327
eREL1	170	5	7	6.59	.561
eREL2	170	6	7	6.90	.301
eREL3	170	6	7	6.91	.293
eREL4	170	5	7	6.68	.561
eREL5	170	1	7	6.89	.522
ERELav	170	6	7	6.79	.308
eRES1	170	1	7	2.15	1.710
eRES2	170	1	7	2.04	1.544
eRES3	170	1	7	2.45	1.781
eRES4	170	1	7	2.97	1.867
ERESav	170	1.0	7.0	2.403	1.4484
eS1	170	4	7	6.80	.494
eS2	170	4	7	6.83	.462

8

(table continues)

eS3	170	1	7	6.75	1.120
ESav	170	5	7	6.79	.484
eP1	170	1	7	2.59	1.945
eP2	168	1	7	1.88	1.282
eP3	170	1	7	5.33	1.887
eP4	170	1	7	1.90	1.353
eP5	170	1	7	6.79	.935
EPav	170	1.0	5.6	3.693	.6603
eI1	170	6	7	6.96	.199
eI2	170	6	7	6.90	.301
eI3	170	6	7	6.95	.212
EIav	170	6	7	6.94	.208
eEU1	170	3	7	6.92	.383
eEU2	170	6	7	6.95	.225
EEUav	170	5	7	6.93	.288
V37	0				
fWB1	170	3	7	6.23	.730
fWB2	170	1	7	5.39	1.407
fWB3	170	5	7	6.66	.510
fWB4	170	6	7	6.80	.401
fWB5	170	6	7	6.84	.372
fWB6	170	6	7	6.85	.361
fWB7	170	1	7	5.33	1.990
FWBav	170	4.714285714286E0	7.000000000000E0	6.30000000000000E0	.555059285381852
fREL1	170	1	7	4.93	1.739
fREL2	170	2	7	6.46	.815
fREL3	170	2	7	6.36	.854
fREL4	170	1	7	5.31	1.798
fREL5	170	4	7	6.54	.635
FRELav	170	2.6	7.0	5.920	.9741
fRES1	170	1	7	4.94	2.011
fRES2	170	1	7	3.18	2.020
fRES3	170	1	7	2.82	1.942
fRES4	170	1	7	2.79	1.817
FRESav	170	1.3	7.0	3.434	1.0486

9   *(table continues)*

fS1	170	1	7	5.24	1.308
fS2	170	1	7	5.26	1.270
fS3	170	2	7	5.25	1.241
FSav	170	2.000000000000E0	7.000000000000E0	5.25098039215686E0	1.1921349556184790E0
fP1	170	1	7	4.95	1.770
fP2	170	1	7	2.75	1.706
fP3	170	1	7	1.94	1.490
fP4	170	1	7	2.58	1.770
fP5	170	2	7	6.40	.757
FPav	170	2.2	7.0	3.725	.6192
fI1	170	4	7	6.43	.669
fI2	170	2	7	6.18	.893
fI3	170	1	7	6.04	1.196
FIav	170	3.666666666667E0	7.000000000000E0	6.2137254901960 8E0	.786603716895102
fEU1	170	1	7	5.59	1.533
fEU2	170	1	7	5.52	1.600
FEUav	170	1.0	7.0	5.556	1.5331
Q1	170	1	2	1.51	.501
Q2	170	1	5	2.71	1.047
Q3	164	2	4	2.93	.598
Q4	166	1	8	5.05	2.617
Q5	167	1	5	2.90	.838
Q6	167	2	4	3.66	.577
Valid N (listwise)	0				

Table 3: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	eWB1	6.65	170	.526	.040
	fWB1	6.23	170	.730	.056
Pair 2	eWB2	6.63	170	.584	.045
	fWB2	5.39	170	1.407	.108
Pair 3	eWB3	6.79	170	.438	.034
	fWB3	6.66	170	.510	.039

Pair 4	eWB4	6.88	170	.323	.025
	fWB4	6.80	170	.401	.031
Pair 5	eWB5	6.89	170	.309	.024
	fWB5	6.84	170	.372	.029
Pair 6	eWB6	6.86	170	.547	.042
	fWB6	6.85	170	.361	.028
Pair 7	eWB7	6.88	170	.330	.025
	fWB7	5.33	170	1.990	.153
Pair 8	eREL1	6.59	170	.561	.043
	fREL1	4.93	170	1.739	.133
Pair 9	eREL2	6.90	170	.301	.023
	fREL2	6.46	170	.815	.062
Pair 10	eREL3	6.91	170	.293	.022
	fREL3	6.36	170	.854	.065
Pair 11	eREL4	6.68	170	.561	.043
	fREL4	5.31	170	1.798	.138
Pair 12	eREL5	6.89	170	.522	.040
	fREL5	6.54	170	.635	.049
Pair 13	eRES1	2.15	170	1.710	.131
	fRES1	4.94	170	2.011	.154
Pair 14	eRES2	2.04	170	1.544	.118
	fRES2	3.18	170	2.020	.155

Table 4: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	eWB1 and fWB1	170	.135	.079
Pair 2	eWB2 and fWB2	170	.092	.231
Pair 3	eWB3 and fWB3	170	.025	.750
Pair 4	eWB4 and fWB4	170	.183	.017
Pair 5	eWB5 and fWB5	170	.208	.006
Pair 6	eWB6 and fWB6	170	.100	.196
Pair 7	eWB7 and fWB7	170	-.019	.808
Pair 8	eREL1 and fREL1	170	.103	.179
Pair 9	eREL2 and fREL2	170	.068	.381
Pair 10	eREL3 and fREL3	170	-.006	.937
Pair 11	eREL4 and fREL4	170	.206	.007

Pair 12	eREL5 and fREL5	170	.067	.387
Pair 13	eRES1 and fRES1	170	-.051	.511
Pair 14	eRES2 and fRES2	170	.081	.293

Table 5: Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	eWB1 - fWB1	.418	.840	.064	.290	.545	6.480	169	.000
Pair 2	eWB2 - fWB2	1.235	1.473	.113	1.012	1.458	10.936	169	.000
Pair 3	eWB3 - fWB3	.124	.664	.051	.023	.224	2.427	169	.016
Pair 4	eWB4 - fWB4	.082	.467	.036	.012	.153	2.300	169	.023
Pair 5	eWB5 - fWB5	.059	.431	.033	-.006	.124	1.779	169	.077
Pair 6	eWB6 - fWB6	.012	.625	.048	-.083	.106	.246	169	.806
Pair 7	eWB7 - fWB7	1.547	2.024	.155	1.241	1.853	9.967	169	.000
Pair 8	eREL1 - fREL1	1.659	1.771	.136	1.391	1.927	12.211	169	.000
Pair 9	eREL2 - fREL2	.441	.849	.065	.313	.570	6.773	169	.000
Pair 10	eREL3 - fREL3	.547	.904	.069	.410	.684	7.890	169	.000
Pair 11	eREL4 - fREL4	1.365	1.770	.136	1.097	1.633	10.054	169	.000
Pair 12	eREL5 - fREL5	.353	.795	.061	.233	.473	5.788	169	.000
Pair 13	eRES1 - fRES1	-2.788	2.705	.207	-3.198	-2.379	-13.441	169	.000
Pair 14	eRES2 - fRES2	-1.141	2.441	.187	-1.511	-.772	-6.097	169	.000

Table 6: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	eRES3	2.45	170	1.781	.137
	fRES3	2.82	170	1.942	.149
Pair 2	eRES4	2.97	170	1.867	.143
	fRES4	2.79	170	1.817	.139
Pair 3	eS1	6.80	170	.494	.038
	fS1	5.24	170	1.308	.100
Pair 4	eS2	6.83	170	.462	.035
	fS2	5.26	170	1.270	.097
Pair 5	eS3	6.75	170	1.120	.086
	fS3	5.25	170	1.241	.095
Pair 6	eP1	2.59	170	1.945	.149
	fP1	4.95	170	1.770	.136
Pair 7	eP2	1.88	168	1.282	.099
	fP2	2.76	168	1.710	.132
Pair 8	eP3	5.33	170	1.887	.145
	fP3	1.94	170	1.490	.114
Pair 9	eP4	1.90	170	1.353	.104
	fP4	2.58	170	1.770	.136
Pair 10	eP5	6.79	170	.935	.072
	fP5	6.40	170	.757	.058
Pair 11	eI1	6.96	170	.199	.015
	fI1	6.43	170	.669	.051
Pair 12	eI2	6.90	170	.301	.023
	fI2	6.18	170	.893	.068
Pair 13	eI3	6.95	170	.212	.016
	fI3	6.04	170	1.196	.092

Table 7: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	eRES3 and fRES3	170	.044	.567
Pair 2	eRES4 and fRES4	170	.115	.135
Pair 3	eS1 and fS1	170	.066	.393
Pair 4	eS2 and fS2	170	.126	.101

Pair 5	eS3 and fS3	170	-.069	.374
Pair 6	eP1 and fP1	170	-.171	.026
Pair 7	eP2 and fP2	168	.109	.159
Pair 8	eP3 and fP3	170	.007	.929
Pair 9	eP4 and fP4	170	.096	.214
Pair 10	eP5 and fP5	170	-.117	.128
Pair 11	eI1 and fI1	170	.133	.083
Pair 12	eI2 and fI2	170	.044	.568
Pair 13	eI3 and fI3	170	.146	.057

Table 8: Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	Df	
Pair 1	eRES3 - fRES3	-.371	2.576	.198	-.761	.019	-1.876	169	.062
Pair 2	eRES4 - fRES4	.176	2.450	.188	-.195	.547	.939	169	.349
Pair 3	eS1 - fS1	1.559	1.367	.105	1.352	1.766	14.866	169	.000
Pair 4	eS2 - fS2	1.571	1.296	.099	1.374	1.767	15.807	169	.000
Pair 5	eS3 - fS3	1.494	1.728	.133	1.233	1.756	11.275	169	.000
Pair 6	eP1 - fP1	-2.365	2.844	.218	-2.795	-1.934	-10.839	169	.000
Pair 7	eP2 - fP2	-.887	2.022	.156	-1.195	-.579	-5.685	167	.000
Pair 8	eP3 - fP3	3.388	2.396	.184	3.025	3.751	18.436	169	.000
Pair 9	eP4 - fP4	-.676	2.122	.163	-.998	-.355	-4.156	169	.000
Pair 10	eP5 - fP5	.394	1.270	.097	.202	.586	4.046	169	.000
Pair 11	eI1 - fI1	.529	.672	.052	.428	.631	10.269	169	.000
Pair 12	eI2 - fI2	.724	.929	.071	.583	.864	10.149	169	.000
Pair 13	eI3 - fI3	.918	1.184	.091	.738	1.097	10.107	169	.000

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	eEU1	6.92	170	.383	.029
	fEU1	5.59	170	1.533	.118
Pair 2	eEU2	6.95	170	.225	.017
	fEU2	5.52	170	1.600	.123
Pair 3	eWBav	6.80	170	.327	.025
	fWBav	6.3000000000000000E0	170	.555059285381852	.042571103862252
Pair 4	eRELav	6.79	170	.308	.024
	fRELav	5.920	170	.9741	.0747
Pair 5	eRESav	2.403	170	1.4484	.1111
	fRESav	3.434	170	1.0486	.0804
Pair 6	eSav	6.79	170	.484	.037
	fSav	5.250980392156 86E0	170	1.192134955618478E0	.091432577294049
Pair 7	ePav	3.693	170	.6603	.0506
	fPav	3.725	170	.6192	.0475
Pair 8	eIav	6.94	170	.208	.016
	fIav	6.2137254901960 8E0	170	.786603716895102	.060329751095575
Pair 9	eEUav	6.93	170	.288	.022
	fEUav	5.556	170	1.5331	.1176

Table 9: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	eEU1 and fEU1	170	.104	.178
Pair 2	eEU2 and fEU2	170	.176	.022
Pair 3	eWBav and fWBav	170	.108	.159
Pair 4	eRELav and fRELav	170	.138	.074

Pair 5	eRESav and fRESav	170	.074	.337
Pair 6	eSav and fSav	170	.005	.943
Pair 7	ePav and fPav	170	-.035	.646
Pair 8	eIav and fIav	170	.155	.044
Pair 9	eEUav and fEUav	170	.140	.070

Table 10: Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	eEU1 - fEU1	1.324	1.541	.118	1.090	1.557	11.200	169	.000
Pair 2	eEU2 - fEU2	1.429	1.576	.121	1.191	1.668	11.827	169	.000
Pair 3	eWBav - fWBav	.4966386554621 84	.6130652802 43457	.0470199605 82463	.4038165302 39682	.5894607806 84686	10.562	169	.000
Pair 4	eRELav - fRELav	.8729	.9804	.0752	.7245	1.0214	11.609	169	.000
Pair 5	eRESav - fRESav	-1.0309	1.7240	.1322	-1.2919	-.7699	-7.797	169	.000
Pair 6	eSav - fSav	1.54117 6470588 233E0	1.284076831 261204E0	.0984841972 56742	1.346758772 722016E0	1.735594168 454451E0	15.649	169	.000
Pair 7	ePav - fPav	-.0318	.9211	.0706	-.1712	.1077	-.450	169	.654
Pair 8	eIav - fIav	.723529 4117647 06	.7819684450 35482	.0599742419 72563	.6051342338 54281	.8419245896 75131	12.064	169	.000
Pair 9	eEUav - fEUav	1.3765	1.5199	.1166	1.1463	1.6066	11.808	169	.000

16