CRITICAL SUCCESS FACTORS FOR E-MUNICIPALITY IMPLEMENTATION: THE CASE OF ISTANBUL

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DECLARATION OF ORIGINALITY

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ABSTRACT

Critical Success Factors for e-Municipality Implementation: The Case of Istanbul

The purpose of this study is to identify and test critical success factors for the implementation of e-municipality systems, which are very beneficial in today's world. When the population of Istanbul is considered, e-government systems are very important for Istanbul citizens, and the smallest part of that e-government systems is e-municipalities. Because of that, creating a highly used e-municipality environment is very important. In this study, for testing hypotheses about critical success factors, a questionnaire is developed and applied to information technology (IT) services of 32 municipalities of Istanbul. There are 39 municipalities and that means 82% of these municipalities are covered in that research. Some of them are applied online and some of them are administered personally. Collected data is analyzed by SPSS software. For testing hypotheses, ANOVA, Regression and Chi-square analysis methods were applied. At the end of these analyses, it can be said that a highly used e-municipality system is directly correlated with development strategy, website functionality, website usability can be concluded that usage rate of e-municipalities is high in Istanbul.

ÖZET

E-Belediye Uygulamalarındaki Kritik Başarı Faktörleri: İstanbul Örneği

Bu çalışmanın amacı, günümüzde büyük önem taşıyan e-Belediye sistemlerinin önemli başarı faktörlerini belirlemek ve test etmektir. İstanbul'un nüfusu düşünüldüğünde, e-Devlet sistemleri İstanbul'da yaşayan vatandaşlar için önemli bir konuma gelmiştir. Bu sistemlerin en küçüğü de e-Belediye sistemleridir. Bu sebeple başarılı bir e-Belediye sistemi geliştirmek oldukça önemlidir. Bu çalışmada önemli başarı faktörleri ile ilgili belirlenen hipotezleri test etmek için bir anket uygulanmış, bu anket 32 belediyenin bilgi işlem müdürlüğünde uygulanmıştır. İstanbul'da 39 ilçe belediyesi olduğu düşünülürse, belediyelerin 82%'sinin kapsandığı anlaşılmaktadır. Anketin bir kısmı çevrimiçi, bir kısmı ise kâğıt üzerinde uygulanmıştır. Toplanan veriler SPSS yazılımı üzerinde analiz edilmiş ve ANOVA, Regresyon ve Ki-Kare analizi metodları uygulanarak hipotezler test edilmiştir. Bu analizlerin sonucunda, sıkça kullanılan bir e-Belediye sistemi ile geliştirme stratejileri, web sitesi fonksiyonelliği, web sitesi kullanılabilirliği, bazı diğer faktörler ile kullanım oranı arasında düzenli bir ilişki olduğunu söylenmesi mümkündür. Aynı zamanda İstanbul e-belediye sistemleri için kullanım oranının yüksek olduğu söylenebilir.

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LIST OF ABBREVIATIONS

COBIT	Control Objectives for Information and Related Technology (COBIT),
CRM	Citizen Relationship Management (CRM)
CS	Computer Science
CSF	Critical Success Factors
CSS	Cascading Style Sheet (CSS)
CTO	Chief Technology Officer
CV	Curriculum Vitae (CV)
FAQ	Frequently Asked Questions (FAQ)
GPS	Global Positioning System (GPS)
ICT	Information and Communication Technology
IS	Information Systems
ISO	International Organization for Standardization
IT	Information Technology
ITIL	IT Infrastructure Library (ITIL)
MA	Master of Arts (MA)
MIT	Massachusetts Institute of Technology
NASCIO	National Association of Chief Information Officers
OECD	Organization for Economic Co-operation and Development (OECD)
PR	Public Relations
QA	Questions and Answers (QA)
QoS	Quality of Service
RSS	Rich Site Summary (RSS)
RTI	Real Time Interaction (RTI)

SWOT	Strengths, Weaknesses, Opportunities, Threats (SWOT)
TAM	Technology Acceptance Model
TUIK	Turkey Statistics Institution
UI	User Interface (UI)
UK	United Kingdom
UN	United Nation
URL	Uniform Resource Locator (URL)
US	United States
VMM	Value Measuring Methodology
W3C	World Wide Web Consortium (W3C)

CHAPTER 1

INTRODUCTION

In today's world, internet is very important. Many people use internet for communication, ordering, sending/receiving money, paying bills, even controlling their washing machines. While internet is that important, people, obviously, also want to do governmental works online. Because of this need, governments are developing e-government systems in order to serve their citizens online. However, only developing e-government systems is not enough; municipalities, which have different services than government, need to develop their own electronic systems called e-municipalities.

E-municipality systems are sub-branches of e-government systems. Aim of e-municipality and e-government systems is to transform governmental applications into online platform. This may include paying taxes, getting information about government/municipalities, claiming information, contribution to decision making procedures, etc. It leads to transparency for government in citizens' eye. Initial investment for e-government systems is high, but in long term, it saves many costs. It doesn't make everything easier, but also makes everything faster.

In traditional methods, people come to municipality, wait in the queue in order to make their work, and then if there is a need, they need to go to other departments and wait again in a queue, and this process may repeat for several times. It is a time consuming and tiring process. In addition, people who are disabled can have many problems during that process. It is not good for citizens and it is not good for the municipality either. In addition, there is a huge paperwork during that process

and this paperwork arises a storage need for the documents and an environmental problem due to tree cutting.

In case of e-government, above disadvantages are not present; people can do their work just in seconds, they don't need to come and wait in the queues, they just do that work with some clicks and everything is done automatically. Employees of the municipality don't need to deal with irrelevant jobs. There are no documents to be stored; data are stored in storage devices and compared to documents, size of these devices is extremely smaller. That saves money, space, and time. In addition, data stored in databases makes data access/modification easier and quicker. Furthermore, since many of the processes are done automatically on e-municipality environments, less number of employees is hired leading to a reduction in cost of human resources.

Istanbul is a very important city for Turkey. Ankara is the capital city of Turkey, but in practice, capital city of Turkey is Istanbul. Because Istanbul is the city where most of the cultural, social, academic events take place, it produces the highest economic value for Turkey. Many headquarters of the biggest national and international companies are located in Istanbul. Municipality services are very important in Istanbul; since the population of Istanbul is very high (14.657.434 people in 2015), there is also a very high demand for municipality services which means so many time to spend in the queues.

Due to above issues, this study is done for evaluation of e-municipality implementations in Istanbul. In order to evaluate this, a questionnaire is prepared based on literature survey and applied to the municipalities of Istanbul. At the end of the research, findings are explained and most important success factors for e-municipality implementations are listed.

This thesis has six main chapters. These chapters are;

- Introduction to the study
- A literature review about researches done in the past about this topic
- Development of the research questions and hypotheses
- Methodology of the study
- Results and findings of the study
- Conclusion for the study.

Also, the questionnaire applied, and the analyses reports are included in the appendix section (See Appendix A and B).

CHAPTER 2

LITERATURE REVIEW

2.1 History of Governing

Active participating of citizens to governmental activities has a root from ancient Greek cities, called polis. There were interactions between citizens and government in those times. According to Wijkman (Wijkman, 1998), governments should be democratic and democratic governance is about decentralization of power and active participation of people to the governmental actions; it is about interactivity between citizens and government. In order to be a good municipality, it is sometimes important to be integrated with the neighborhood municipalities (Castells, 2000). Local agencies are established for demands and needs of local people, and according to Henden and Henden (Henden, & Henden, 2005), the most important thing is to measure people's satisfaction about how their demands are provided.

In the past, local authorities were for organization and management, while it is now about total quality and customer satisfaction (Uçkan, 2003). Local authority word comes from French to Turkish. It is about decentralization and it includes municipalities, villages and special provincial associations, but it is generally used for municipalities (Henden, 2005 and Yıldız, 2007). In addition, Yıldız supports that and also adds that with the help of technology, local authorities become decentralized (Yıldız, 2007). These local authorities have their own resources; legal personalities. Their responsibilities and privileges are defined by law and they are being elected. They develop active citizenship, improve local participation and build a local identity while improving public consciousness. Even they are being elected; it doesn't mean they are democratic. E-municipality brings more democracy to local governments.

Globally, local authorization gains more and more power, they compete with each other, in order to gain economic advantage. Local authorities must give information about their activities to citizens (Henden, 2005).

According to Lemke (Lemke, 2000), modern government view is about being social market as citizens. Reforms about governments are causing new styles of governing techniques. With the globalization, people's needs are changed. Everything is affected by this change and also it impacts local and national government perspective. A situation in one country can cause an effect to another country, which is far away from first country Yıldız (Yıldız, 2007) says (Yıldız, 2007). In this new era, from the end of 80's, market mechanism gets importance and this situation affects global money flow. Local agencies' right about service production are decreased and that causes to fill that need by private sector. Before that time, local agencies see themselves as founder of country, but in that new era they become to produce services to companies. That evolves local agencies to producers from being a consumer (Durna, & Özel, 2008). Citizens become customers in this era. With that perspective, government becomes a company and it has some suppliers such as companies, other governmental organizations and people. Before that, the idea was "If there is a social benefit, service continues to serve" for local authorities and governance is a very suitable concept for them. Good governance represents the presence of participation to government, active civil societies, superiority of law, good morality, competition, laws and limitations (Yıldız, 2007). Also, with this new market orientation, according to de Kervenoael and Kocaoglu (de Kervenoael, & Kocaoglu, 2012), also government services became market oriented. This market orientation has four parts and they are;

- Putting customer's interest for creating services,
- Generating market intelligence according to current and future needs of customers
- Disseminating knowledge
- Identifying diffusers of market orientation strategy for acting while planning the development.

In 1985, the USA's National Association about schools said that there is a need for computer education in schools. Also, in 1986, technology in government is started to be debated. In 1996, intergovernmental level of e-government applications is started to be tested. Also, in 1996, there is an act about using technology in government agencies is signed. Government of the USA integrates information technology (IT) to governmental processes as a strategic plan (Yıldız, 2007). Erdal (Erdal, 2004) says e-governance brings interaction between local agencies and citizens. In traditional methods, this interaction was very limited. Interaction is hugely increased by e-governance techniques. According to Demir (Demir, 2013) there is a traditional way of serving to people as a public service and a new way of serving those services, which are called online public services. Local and central government's e-ways of doing things are dependent to each other and differences between e-government and traditional government are as being explained in Table 1.

There is a new concept called public management. Properties of new public management are as follows (Demir, 2013);

- Orientation of government according to business
- Quality and performance orientation of public management services
- Separation between public demand, public provision and public service production.

- Link between demand, provision and supply via transaction device and management of quality.
- Using the intelligence of market while retreating government.

Table 1. Citizen and Public Administration in Traditional Government & E-Government

Traditional Government	E-Government
Passive Citizen	Active Customer-Citizen
Paper-Permanent Communication	Electronically Communication
Hierarchical Settlement	Coordinated-Horizontal Network Settlement
Data Uploading by Administration	Data Uploading by Citizen
Personnel Response	Automatic Vocal Mail, Call Center, etc.
Personnel Help	Automatically-Expert Help
Personnel-Permanent Auditing Process	Auditing by Automatically Data Uploading
Cash Flow	EFT
Prototype Service	Personalized Service
Classified Service	Integral Service
High Transaction Cost	Low Transaction Cost
Unproductive Growth	Productivity Management
One-way Communication	Interaction
Nationality Relations	Participation Relations
Close Government	Open Government

(Demir, 2013)

There are two sides in e-government strategies. One of them is supply side and the other one is demand side. Supply side is the government and demand side is the citizens and their needs such as transactions, information, e-democracy, etc. (de Kervenoael, & Kocoglu, 2012). Governments can be classified as informational, interactive and transactional, but information is at the center of all these three categories and all these categories need information in order to continue to serve according to United Nations (UN) (United Nations, 2001). According to Bovens and Zouridis (Bovens, & Zouridis, 2002) internet allows people to contribute to the contents and enables an active citizenship, people don't just get information, they

also create them, and they interact with the government. Street-level bureaucracy transforms to screen-level bureaucracy.

With globalization, Turkey started to debate transferring government processes to local authorities with new legislations. Because of this, local authorities need to face with e-government concepts. As other e-settlements, e-government process has also five steps (computerization, automation, internet, web site establishment, transferring government to e-world). At the municipal level, it has three main dimensions. These are as follows according to Şahin (Şahin, 2007).

- Automation of economic, personal, management and writing processes,
- Citizens' right to gain information and applications of some licenses, payment of taxes
- Sharing basic information with other public services.

Also, in the aspect of governmental perspective, local agencies are service companies in Turkey. Many public services are given by local agencies. However, firstly because of money, and management techniques, they have some difficulties about producing these services efficiently. E-governance -mainly about producing services by using IS- makes everything easier for local agencies. (Durna, & Özel, 2008)

2.2 Definition of e-government and e-municipality

According to Heeks and Bailur (Heeks, & Bailur, 2007), e-government concept was under the computer science (CS), information systems (IS) and public and political science areas, but while days are passing, e-government becomes a new research area. Since it is a new concept, there is a lack of research in that area. Generally, e-government researchers are not really theory builders, they commonly apply the

theories about information sciences to e-government area. Despite of that, Fountain says (Fountain, 2003) there is a lack of practice of theory applications for e-government systems. Heeks's research (Heeks, 2006) says researchers are not that objective; they generally approach to this concept positively. Also, there is a lack of longitudinal research about e-government concept.

E-government term is firstly used at World Bank report in 1989 and it was written for Africa (Demirhan, & Öktem, 2011). E-government can be called as digital government or a virtual state (Yıldız, 2007). It is about enhancing and delivering access and giving information to people who belong to the government. These people are citizens, business, employees, etc. i.e., whole habitat that creates a government (Layne, & Lee, 2001). According to Apak (Apak, 2005), e-government systems enable citizens to participate political activities directly. These activities are about e-democracy and e-voting.

According to Wimmer (Wimmer, 2001), there are some views for e-government. These views are cultural, social, political, legal, process, organizational, user, knowledge, security, privacy and technical views. Also, Mousavi, Pimenidis and Jahankahni (Mousavi, Pimenidis, & Jahankahni, 2008) agree to those views and add something to that opinion, which is about these views stakeholders and target areas. Each of them is different according to them. In developing countries, main poverty is high-level bureaucracy and that causes a decrease in participation of citizens. Interaction is very limited and there is a need for an interaction between government, business and citizens. One of the aims of e-government is decreasing bureaucracy and increasing participation.

There are some types of e-government as can be seen in Table 2 in Apak's research (Apak, 2005). Also, there are some categories of e-government such as

G2C, G2G, and G2B. Additional to that, G2CS and C2C are sub categories of e-government (Brown, & Brudney, 2001). E-government motto of Turkey is "Enter to website instead of entering to the queue". Government should bring a pluralism, which is about interacting with each other and behaving according to all of the neighbors' advantages, not living in own world.

Demir's research (Demir, 2013) states that e-municipality is a sub-branch of e-government. It takes the definition of Turkey Informatics Institution (*Turkiye Bilisim Dernegi*), which is also used by Henden and Henden (Henden, & Henden, 2005), that defines e-municipality as about managing city's data by using technology and produce information for the citizens which they can get benefit. Municipalities are the closest part of government to the citizens. According to Turkey Statistics Institution's (*TUIK*) statistics, there are 14.804.116 people living in Istanbul in 2017 (TUIK, 2017). One of the main goals of e-municipality is spreading information as quickly as possible and to reach more people and provide easy services for municipality. Çoruh (Çoruh, 2008) states that e-municipality enables people to use municipal services from one place with few clicks and aims to be easier, faster and cheaper. Henden and Henden (Henden, & Henden, 2005) also signifies that e-municipality is about serving a service and analyzes data for the benefits of citizens online, which is supported by IS. It increases communication between municipalities, citizens and other governmental and non-governmental organizations. There are some categories of e-municipality according to Henden (Henden, 2005) and these are as followings:

- Daily Life
    - Work life
    - Staff

    - Living
    - Education
    - Culture
    - Transportation
    - Environment
- Remote Management
    - Local authorization guide
    - Governmental process guide
    - Municipality records and databases
- Political participation
    - Legislations
    - Assembly records
    - Political programs
    - Opinion documents
    - Decision making process documents

Table 2. Types of E-government

Items	Information	Communication Online	Transaction
G2C and C2G	Information requests of a firm or the citizen regarding taxes, business licenses, registers, laws, political programs, administrative responsibilities, etc.	Information requests and discussion regarding administrative processes and products; communication with politicians, authorities	Online delivery of service and posting of results; electronic voting, providing solution online, and participation online, etc.
G2B and B2G	Information requests of a firm or the citizen regarding taxes, business licenses, registers, laws, business programs, business policy, administrative responsibilities, etc.	Information requests and discussion regarding administrative processes for business and products; communication with politicians, authorities, etc.	Online delivery of service and posting of results; electronic transactions of accounting, e-auditing, e-procurement, e-shopping, etc.
G2G	Exchange of information among different authorities and different hierarchical levels, regarding administrative acts and laws, policy making, data, projects or programs, background information to decisions, etc.	Information is exchanged among different authorities and different hierarchical levels; discussion for; communication in negotiation and decision making; interaction regarding administrative acts and laws, projects or programs, etc.	Interorganizational workflow and exchange of data, exchanging policy and solution online, information and knowledge management, etc.
N2G and G2N	Exchange of information regarding administrative acts, administrative policy, data, registers, laws, political programs, background information to decisions etc.	Information is exchanged among different organizations and agencies; discussion for; communication in negotiation and decision making; interaction regarding administrative acts	Interorganizational workflow, and exchange of policy and solution, data, information and knowledge management, etc.
G2E	Exchange of information regarding works and performance, personnel policy, data, and notice for career management and development of government employees, etc.	Information is exchanged among different department or persons; discussion for; communication in negotiation and decision making; interaction regarding works and performance, etc.	Interpersonal workflow, and exchange of personnel policy and solution, data, information and knowledge management, participation online, etc.

(Apak, 2005)

2.3 Digital Divide

According to Reyes, Gil-Garcia, Ramon and Cruz's research (Luna-Reyes, Gil-Garcia, Ramon, & Cruz, 2007), literature about e-government is generally from supply side, but demand side is also needed. Digital divide is seen as demand side proxy for e-government. It is a crucial thing for the usage of e-government systems.

Norris (Norris, 2001) says digital divide should be conceptualized as global, social and democratic divide. Global divide is about countries' differences; social divide is economical where democratic divide is people's usage. In addition to that, some researches done by Dewan and Riggins (Dewan & Riggins, 2005) include the information that digital divide can be categorized as digital divide, multi-dimensional digital divide and multi perspective digital divide. It also has two different groupings such as first and second order effects, which are about accessing to technology and usage of technology. They can be seen in Figure 1.

Fig. 1 Parallelism between E-Government literature and Digital Divide literature (Helbig, Gil-Garcia, & Ferro, 2009)

Digital divide can also be caused by democratic divide. If government doesn't give democratic rights to citizens, availability and usability problems may occur (Demirhan, & Öktem, 2011). E-inclusion is a word that is used instead of digital divide in Europe. In Europe's i2010 plan, increasing of employment rate, life standards and growth rate are fundamentals. Benefits should be for everyone in society, not differs from people's ethnicity, gender, education, age, or socio-

economic status. E-government's success is dependent to the social, organizational, political and technological factors. For example, in the United States (US), Latinos and Afro-Americans have higher motivation about using computers while they have less ownership rates for computers. E-government usage and digital divide are complementary in the US (Helbig, Gil-Garcia, & Ferro, 2009). Also, internet usage rate in the US is far below the average of internet usage in Europe (Demirhan, & Öktem, 2011).

Gender gap is high at usage of the internet in US and Europe. In less developed countries, this gap is higher (Mousavi, Pimenidis, & Jahankahni, 2008; Akman, Yazıcı, Mishra, & Arifoglu, 2004 and Demirhan, & Öktem, 2011). Education level increases usage level of the internet while there is no difference seen between different ethnicities and economic status (Mousavi, Pimenidis, & Jahankahni, 2008 and Akman, Yazıcı, Mishra, & Arifoglu, 2004). Young people are using the internet more than the other people and they can adopt new technologies faster (Mousavi, Pimenidis, & Jahankahni, 2008 and Demirhan, & Öktem, 2011).

2.4 E-government in Turkey vs. the world

In the world, e-government is generally started with social security issues, rights of citizens and e-commerce. In addition, municipal services are the first online services in world (Apak, 2005). However, in Turkey, municipalities' websites are generally an information place like e-bulletin (Güler, 2001) and e-government is recognized as giving information to people (Apak, 2005). E-government application building strategies at developing countries can be based upon the experiences of developed countries. Their experiences may be a guide for developing countries, while implementing their e-government systems. They can take lessons from the failures of

the previous ones, and this causes not to do same mistakes and spend resources (Huang, D'ambra, & Bhalla, 2002).

According to Henden (Henden, 2005), in developed countries, people do more than 50% of their works with government online. E-municipality is also a participant municipality. Because they share information about local decisions online. Using e-government increases trust of citizens. 169 of 190 UN countries has government web site and 84 has national government website while 36 of them has a single portal to enter e-government system. Ireland has the highest rate for online government with 85%. Average of Europe is 55%. According to Akman and Yazıcı and Mishra and Arifoğlu's study (Akman, Yazıcı, Mishra, & Arifoglu 2004), International Data Corporation (IDC) says that Finland's e-government system is the advanced in Europe. However, for Accenture; Canada, Singapore and U.S. are innovative leaders of world.

Durna and Özel (Durna, & Özel, 2008) state that Germany planned to use 376 governmental services online. It is a 1.65 billion € investment but it will be a 400 million € cost saving each year. Also, in the U.S. plate services cost 100$ for government when it is offline, but when they switched online, it costs just 18 cents. In Singapore, there is a 2.7-dollar cost saving for each service of a file. Finland has an e-street, where people can use governmental services with their cellphones. In US, e-government is generally about developing portals for states. These are easy to use, and citizens can do many things from their home. In the United Kingdom (UK), Microsoft and government work dependently to develop an e-government system. In Europe, generally tax systems are online in order to solve tax problems. Singapore is an important country about e-government perspective. Singapore started to integrate IT with national problems in 1981. In 1997, more than 250 services are available to

citizens in Singapore. Citizen can do many things in that portal, even searching for a job. With e-Europe+ project in 2001, candidate European Union (EU) members modernize their economy, by using IT trends and become a competitor in the market (Apak, 2005).

Turkey signed e-Europe+ in 2001. In 2002, first national congress about information is organized. Result of that organization becomes a roadmap for Turkey's e-transformation project. Before that, according to researches done in 2001, Turkey was at the twenty-third place at e-government process. There was an increase from 3% to 13% but it was still insufficient. Also, there has been an increase in number of people (from 2% to 12%) who asks for information online (Geymen, & Karaş, 2006). Turkey created a short-term action plan after that which has 73 items. They are categorized as Information Society Strategy, Technological Infrastructure, Information Security, Training and Human Resources, Legal Infrastructure, Standards, E-government, E-health and E-commerce. According to some studies, Turkey is in the mid-high group of countries in the scope of e-government maturity (Akman, Yazici, Mishra & Arifoglu, 2004). According to the research done by Darrel and West (Darrel, & West, 2007), Turkey is at the sixty-ninth place according to UN' e-government improvement index in 2010, while South Korea was at the first place and followed by the US and Canada.

According to World Economic Forum's report for being prepared about information society, Turkey is at the fifty-sixth place among 102 countries in the world where it was at the seventieth place in 2005. In this list EU countries' internet usage rate is about 55% while Turkey's is about 26%. In England, one of the political parties' promise was to transfer every government process online (Şahin, 2007). According to Brown University's research about e-government, Turkey reached

eighth place from twenty-seventh place within one year, from 2006 to 2007 (Darrel, & West, 2007). Also, according to United Nations' report on 2010, Turkey is at the twenty-eighth place for citizens' e-participation among 28 countries. That means Turkey has the lowest rate for e-participation, which is 30% (Demirhan, & Öktem, 2011).

E-government has some issues in Turkey. First issue is the quality of computer engineering education. Only 10 of 40 Computer Engineering departments are close to the quality of developed countries, it makes harder to build an e-government project (Şahin, 2007). Also, in-house or outsource development and using appropriate software for the development process is a big problem in Turkey. In addition, there is a situation about EU processes. There are some funds for information and communication technology (ICT) projects and Turkey doesn't want to lose them. So that, Turkey is giving importance to use ICT on governmental projects in order not to lose these fundings (Yıldız, 2003).

With the given statistics, there is limited number of user centered municipality websites in Turkey. According to Turkish Statistics Department, in 65% of the municipalities, mayors, in 20% of them IT and in 7% of them website makers decide the services of e-municipality. In research of Durna and Özel, it is stated that 20% of municipalities have user-centered services (Durna, & Özel, 2008). According to another research by Aktel (Aktel, 2009), 93% of municipality websites are easily reachable and accessible. 68% of them are at first two rank in search engines where 55% of them are updated daily. 55% of them are charming, in 57% of them navigation is satisfactory and 59% of them are sufficient in terms of information. In 68% of them there is transparency. 20% of them have language options and 38% of them are efficient about promotion of city. Administrative information exists in 78%

of them and 40% of them are integrated with other governmental services. There is passive interaction from municipality to citizen by 54% while citizen to municipality is 16%. They don't have real time interaction.

Istanbul Metropolitan Municipality (*İstanbul Büyükşehir Belediyesi*) website is a breakpoint in Turkey's e-municipality history. It started to be online at the end of 1997 and it is dynamically being updated. It is a bridge between people living in Istanbul and the municipality and it develops public relations (PR). It has many areas such as information about transportation systems, health, management, constructions, etc. (Demir, 2013). Especially for taxation problems, e-government is very important in Turkey. In addition, MERNIS project is also important for e-government systems. With MERNIS, each people had obtained a citizenship number as an identifier for online systems. Many of governmental parts of Turkey developed online services based on this identifier. Legal systems and privacy issues are problems for Turkish e-government system, but the main problem is education (Şahin, 2007).

2.5 Why e-government is Important

Bill Gates claims that, e-government will be the most exciting field for e-commerce in the future. Also, The Economist magazine calculates that, by using e-government systems, governments of USA and the United Kingdom (UK) can save 110 billion $ and 144 billion £ (Chen, Chen, Huang, & Ching, 2006). US spend $1.5 billion for the internet technologies for e-government in 2000 (Layne, & Lee, 2001).

Yıldız says, technology provides a good perspective for decision-making. Technology is just for increasing the effectiveness of managers of public administrations and automation of big processes before introduction of internet. After

PC and internet usages become widespread, needs of people changed and people started to demand everything online (Yıldız, 2007).

Interacting with government builds a trust mechanism between citizens and government (Layne, & Lee, 2001). According to this study, there is an administration reform in the world after e-government perspective became popular. E-government has been used as a catalyzer for government reform about administration. It is about increasing Quality of Service (QoS), saving money, increasing participation, increasing affectivity of policies. Approximately 85% of e-government projects have a failure in the world, according to Layne and Lee's study (Layne & Lee, 2001).

According to researches done in 2005 (Henden, 2005 and Henden, & Henden, 2005), only getting information is not a pure advantage. Important thing is making a good organization for converting information to a more efficient thing, making information sharing easier and creating a healthy communication medium. It is not just for information providing, it should be also for personal application, inspection, resulting, education, participation, security, health etc. It should be available always, globalization of services, reducing bureaucratic paperwork, reducing employees' workload because of online presence of documents, time and cost saving, increased communication between citizens and municipalities. Difference between classical and e-municipality services is on table 3.

Table 3. Comparison of Classical and E-municipality Services

Classical Local Government System	e-Government
Classical local government	New management type that includes e-municipality applications
Decision making without sharing	Sharing decisions online
Long bureaucratic workflow	Fast electronic process
Managers decide things about citizens without asking to citizens about their opinions	Asking to citizens via survey, complaints or white desks and deciding according to them
Management-Citizen relationship	Service provider-customer relationship
Difficulty to apply competent body	Continuous improvement and accessibility
Long bureaucratic process with other public services	Integration between other public services and being active
Bureaucratic auditing	Personal participation and performance evaluation

(Henden, 2005)

Trust of citizens to government is very important. According to Nye's study (Nye, 1997), citizens' trust level to government decreases. Their expectations and realities about governments are different. In addition to this, with the development of the technology, there is an opportunity for governments for raising that trust level and satisfaction again. This level is generally connected with psychological and information proximity between two sides of that equation. Government can erase biases with a good and true information flow to the citizens. They need to narrow down information gap between government and citizens. There are different types of trust according to that research. They are reputational, mutual and social trust.

- Reputational trust is about asymmetric relation between government and citizens about information.
- Mutual trust is personal interaction and it makes that relation more symmetric. It creates a relation between government and people.
- Social trust is about relation between people, it is also represented as social capital. How they interact with each other.

Overall satisfaction about government is based on different values, such as efficiency, equity, effectiveness and accountability. When government starts to block or misinterpret the usage of technology, customers' (citizens') dissatisfaction increases. Citizens want to monitor activities of government for trusting them. Two-way interaction is a must for it. Higher reliability of information means higher level of e-government satisfaction. Web-site usage and satisfaction is related with trust and satisfaction about government. Also, interactivity has a correlation with satisfaction. Satisfaction about e-government is highly related with satisfaction about government and trust for government (Welch, Hinnant, & Moon, 2005).

2.6 Positive, Negative Sides and Opportunities

In democratic countries, participation to governmental processes and governance by citizens, civil organizations and companies by using information systems is higher (Çoruh, 2009). ICT is providing a new way for transparency and many countries found out that and created new laws for ICT implementations. ICT enables a new, good and interactive governing strategy. It enables citizen-government relationship. Citizens can also track government. Also, according to the research, data corruption is less in countries, which use e-government applications (Bertot, Jaeger, & Grimes, 2010). Internet is crucial for local and general government agencies in the aspect of information sharing. It also makes everything cheaper (Çoruh, 2009).

There are more than 20 million web pages referring to e-government. E-government practically and intellectually creates a conscious about reaching information online. Optimists about technology impact say that, taking government to online places has a great impact about usage of government services and saves a lot of money. They also say it improves service quality. On the other hand,

pessimists say e-government has a high cost and accountability is bad in that situation (Heeks, & Bailur, 2007).

Also, with the 9/11 terrorist attack in 2001 in the Unites States of America (USA), IT becomes crucial in government in order to enhance participation in government and convenient government perspective. E-government has some benefits and some disadvantages. With the increase of usage in e-government systems, IT can be a target for terrorists. They can try to manipulate the system and create a virtual chaos (Halchin, 2004).

There is also another perspective, which is about technological and social determinism. Technological determinists say that features impact use of technology, while social determinists say human choices determine that. According to the research done by Heeks and Bailur (Heeks, & Bailur, 2007) IT's diffusion to public sector both has positive and negative impacts. Technology plays fewer roles compared to social choices.

According to Durna and Özel (Durna, & Özel, 2008), online answering to people reduces the response time and effort. Citizens get information from websites before they ask their questions to workers. According to Durna and Özel's research (Durna & Özel, 2008), there are some advantages of using e-government instead of classical government and they are listed below:

- Advantages of using e-government according to classical government
    - Usage of information
    - Easiness
    - New service giving method
    - Speed of service and information distribution
    - Truth and time perspective of information

- New information opportunity to users.
- Cost efficiency
- Integrating data process

- Advantages of e-governance in perspective of municipalities are
  - Increasing efficiency in working process
  - Increasing domestic communication
  - Better customer service
  - Satisfying needs of people
  - Participation of citizens
  - Transform of public services
  - Improving local e-democracy
  - Improving public benefits.

Şahin and Sevinç say (Sevinç, & Şahin, 2013), one of the biggest problems in Turkey's e-government services is lack of integration of services. In order to solve that problem "e-government portal" ("*e-devlet Kapısı*") project has been started. Advantages of that project are:

- Security of personal information
- Personal service
- Shared information between agencies
- One website for all electronic services
- Reaching of many services by one identification
- High security opportunities for electronic services
- Payment services

Using new media devices enables municipalities to serve faster, more qualified, easy and efficient service to citizens (Durna, & Özel, 2008). Citizens have

a little enthusiasm about e-government issues. Some of them are due to limited access to technology. With the development of mobile technology, some authorities are also considering m-government. It's cheaper, easier to access by everyone and easy to be applied in local level. Only 4% of people, who have internet access, uses e-government services. Also 63% of that 4% is using e-government just for getting information (de Kervenoael, & Kocoglu). M-Government also enables to reach these services from anywhere and anytime. In 2000, 55% of internet users visited a government website online. In Germany, 69% of citizens made their governmental works online in the beginning of 2000s (Durna, & Özel, 2008).

Also, social-media is a new way to communicate with people. It has four major strengths, which are collaboration, participation, empowerment and time. People interact fast, organize fast, participate more in social media. Governments should turn it to an advantage. It is a new way to democratize. In addition to this, it is a new media channel, because everyone can share news, publish videos so that, it created a new place to democracy. Governments should give importance to that. Besides that, success of government is dependent on managerial decisions, support, leadership and political environment inside the local government (Bertot, Jaeger, & Grimes, 2010).

2.7 Implementation of e-government systems

According to Henden and Henden (Henden, & Henden, 2005), main aim to create an e-municipality system which contains increased capacity is to process information and faster decision-making process. UN says (United Nations, 2001) most important objective of e-government systems is providing a place where user and government interacts. This interaction must be cheaper and faster. In order to be a digital

municipality, they need to reorganize their management schema, transmit themselves into the digital world. Bureaucracy is the main handicap for people's participation to the government. E-municipality and e-government increase that participation (Durna, & Özel, 2008). Governments spent 3 trillion $ for ICT projects and that's a huge amount of money and there is a failure rate about those projects between 60% and 85% (Gubbins, 2004). While developing an e-government system, it is hard to get a well-established system from another country and use it in another place. Because there are many key points in there, such as lifestyles, cultures, internet habits, etc. That means, one system can't rule them all. Every country, every city and also every village municipality may need different e-government or e-municipality systems (Aktaş, 2008).

Managers, who want to transform municipality online should ask to others for their experiences. They need to create a framework which is suitable for their municipalities and needs of people. Targets should be very clear. They should be citizen oriented. Analysis of cost-benefit should be done carefully. E-municipality takes citizen to the center of local authority. Public workers are responsible for the quality of service they provide. E-government evaluates public workers' performance (Henden, & Henden, 2005).

According to Hazman (Hazman, 2005), e-municipality services can be listed as;

- Association of urban and regional planning,
- Map,
- Ekistics and cadastral transactions,
- Technical infrastructure services,
- Transportation,

- Green field manufacturing and managing services,
- Urban controlling and management
- Tax and fee,
- Crisis management,
- Traffic,
- Trade and industry,
- Tourism,
- Community health,
- Education,
- Address numbering information system,
- Service desks.
- Public transportation

Also, e-municipality system should interact with local communities in order to provide better services and should inform people about every aspect of the city-life such as transaction services, management, employment opportunities etc. (Yıldırım, & Öner, 2004).

Information users are more than transaction users. In terms of e-government and e-municipality systems, it can easily be said that, there are not enough municipal applications except metropolitan municipalities and many of them provide information in order to service (Kaypak, 2010). Municipalities can generally be considered as e-information municipality instead of e-consultation municipalities. Municipalities don't have sufficient sources for transformation of services online (Demirhan, & Öktem, 2011). E-government should ask benefiters which groups are influenced and outcomes about needs and how will it affect people. Choosing a service about e-government is about usefulness. Managers should advertise these

services to target customers. Customer orientation is a key success factor for e-government. Government should be careful about the information online. E-government should bring customers and managers together. E-government also should coordinate projects at all levels (Helbig, Gil-Garcia, & Ferro, 2009).

A good e-government system should be integrated by each of its module, ubiquitous about availability of all applications while a user connects to them, transparent and easy to use, accessible, secure, private, re-engineered about transformation services to online, interoperable and developed for e-government system (Apak, 2005). Municipality websites can be categorized as functional, if they are top-clickable website at search engines, frequently updated, have a charming web interface, direction and navigation easiness of website, transparency, tourist information and integration between government, public and private sectors (Aktel, 2009). Also, citizens at anytime and anywhere can reach these services. For that purpose, municipalities may build public hotspots or some terminals for people for reaching services over internet (Layne, & Lee, 2001).

With the eighth development plan of Turkey, there is a need for integration between local government and national government. Also, there should be an information network between them (Henden, & Henden, 2005). Because of that, Intranet is also important for e-government systems. Intranet is the system, which is used inside of a government agency. There are bigger governmental portals, and inside of them, there are smaller ones for agencies. This is about government's hierarchical system (Apak, 2005). There are 81 special provincial administration, 3226 municipalities, 34600 villages, over 1000 local authority associations and unknown number of companies under them. They need to be tracked by that project. There were some prizes for e-government in 2005. Osmangazi municipality is the

first winner of that prize. They use International Organization for Standardization (ISO) standards for their e-municipality system. It is 7/24 online, transparent and participant. Citizens can learn many things from that system (Henden, & Henden, 2005).

According to Çoruh (Çoruh 2009), it's only possible to use resources efficiently, fast access to information with using and processing geographical information. City information system (CIS) is explained as; "collecting information about city by professional managers and storing and processing, planning and sharing that information with public and governmental agencies by using information systems. CIS may include all governmental and private sector companies. Municipality information system is a subset of CIS. It's the automation of municipality services. Those services may be;

- Applying for construction
- Information about zoning status of a land
- Learning park amount of constructions and paying of them.
- Tax information and payment
- Reaching legislations for municipalities
- Information rights
- Reservation for marriages
- Sharing information about municipality decisions
- Traffic and weather information
- Permission for opening a company.

Also, Çoruh says (Çoruh, 2008); for sufficient usage of municipality resources, they need to increase participation of people, higher usage rates of IT and get the help of civil organizations. Municipality understanding evolves from service

municipality to social municipality and then to vision municipality. Vision municipality is about creating a vision which includes every citizen, private sector organizations, public agencies, civil organizations etc. Steps for them are:

- Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis
- Deciding city vision, with the participation of all stakeholders according to SWOT analysis
- Strategic planning for accomplishment of vision decision.
- Managing according to system approach
- Hiring professional managers for that system approach
- CIS installation
- Transferring information to website via CIS

Some cities race for providing high speed Internet connection to citizens in public places (Çoruh, 2008). They offer free internet in public places for citizen satisfaction. They say that, with that approach they aim to

- Prevent poverty
- Better education
- Preventing digital divide
- Better work quality
- Better life for citizens
- Equal rights for citizens
- Increasing contribution of citizens
- Participation of citizens to budget planning
- Getting investment of high-tech companies
- Getting the focus of touristic, cultural and sport organizations

Information and service quality should be increased day by day. They need to be updated. With that kind of opportunities, information spreads easily and wider. Citizens can interact with government easily and they can personalize their needs, they can ask for detailed information about the services of municipalities and government. They can track supply-chain process and they can get information about legislations. They can also feedback elected mayors immediately.

Legislations of municipality should be updated according to IT development, standardization of municipal automation systems, integrating banking systems with municipal systems, IT infrastructure should be established, professionals should be hired for the IT departments. Technical and economic support should be given immediately also (Geymen, & Karaş, 2006). Bigger municipalities are more interested in being e-enabled municipality. They mostly have websites and IT departments. Many of them have either ISO 9000 or ISO 9001:2000 certificate in 2006 (Arslan, 2007). Broadband connections increased the usage of e-government services in the municipalities (Arslan, 2007). ISO is an organization, which provides standards for industries. There are also some standards for quality management. There are codes for these standards and code standard about quality management is 9000. These ISO9000 standards are as followings (ISO, 2000);

- Focusing customer
- Leadership
- People involvement
- Process approach
- System approach to management
- Improving continuously

- Decision making's factual approach
- Relation with supplier which based on mutual benefits

Heeks says (Heeks, 2006) e-government is a complex issue. It has social sides, technological sides, managerial sides, etc. There are 8 dimensions of e-government systems. They are

- Information
- Technology
- Process
- Objective and values
- Staff and skills
- Management system & structures
- Time, money
- Outside world

Transparency is about right for accessing information provided by government, prevention of corruption. Also, it is a must for democratic participation, trust for government, informing of decision making process (Bertot, Jaeger, & Grins, 2010). It is based on

- Proactive dissemination by the government
- Release of requested materials by government
- Public meetings
- Whistleblower leakages.

According to research done by Zucker (Zucker, 1986), trust differs in e-government systems. Institution based government system's trust is about third-party guarantors, characteristic based government's trust is about socio-economical and ethnicity, and lastly process based trust is about previous experience of people about

these systems. This is also accepted by U.S. General Services Administration and they added that, data should be collected in a secure way. Government shouldn't be the "Big Brother". People should have an option to share this information or not (U.S. General Services Administration, Intergovernmental Advisory Board, 1999).

Most important factor of implementing e-government systems is preventing the increase in dissatisfaction of government. ICT is an enabler for new public management (NPM). Also, for some countries like Turkey, it is important to be a competitor, and because of that, they create ICT enabled government systems in order to establish new workforces and investing to people and development of their skills (Yıldız, 2003).

Internet is the most crucial thing that is going to be used in e-government services. But also, there is a need of some other things beside internet in order to develop new services and increase the efficiency of these services. These other things are databases, discussion support systems, decision support systems. In order to do things automatically, there is a need of automation and in order to communicate between the parts of the government, there is a need of networking tools. Also, there may be a need of using some multimedia issues such as pictures of citizens. E-government systems should also track their users in order to give a faster service (Jaeger, 2003).

There is a correlation between education, wealth and usage rate of e-municipality services. E-municipality users have a positive perspective about e-government. Despite of that, e-government usage rate is very low in Turkey. Users find that, quality level of e-government services is very low. 60% of people think that, using online governmental services is good. 70% think that e-government has a positive effect on classical government management issues of governmental

organizations in Turkey. The most used e-government service is about reaching citizenship information and getting information about municipal services. Getting information about addresses and telephone numbers of government agencies are also used frequently. Students' internet usage rates are higher than others (Saruç, 2007).

Technology and sociology are related, and it is called sociology of technology, but the line between technical networks and social organizations are not that clear. Nowadays, technology is being used as social converter. Computerization is complex from gaining or losing new skills. It's hard to decide which employees will be affected by the change from classical municipal actions to e-municipality. Implementation process is equally important for all the employees. Monotonic case workers are being outdated in customer-oriented model of bureaucracy, while professionally personalized bureaucrats are more suitable to that kind. E-Government is a part of the change from mass customized bureaucracy to customer-oriented bureaucracy (Nyxgen, 2009).

People need to participate to government's decision-making processes, and e-government application is one of the main tools for increasing participation. According to Demirhan and Öktem, e-participation has four parts. They are online information providing, provision of online services, communication between local authorities and citizens and lastly participation for decision-making process (Demirhan, & Öktem, 2011).

According to Angelopoulos, Kitsios, and Papadopoulos (Angelopoulos, Kitsios, & Papadopoulos, 2010), new service development of e-government system is a multi-faceted thing and many organizations take some of the components and ignore others. This causes some failures and this failure rate is about 58%. It is a very high value for failure rate. There are some techniques developed for preventing these

kinds of failures. There is a model in Angelopoulos and Kitsios and Papadopoulos's study (Angelopoulos and Kitsios and Papadopoulos, 2010) represented by Edvardsson. This model has four stages, which are idea, project, development and implementation phases. But some of these phases may cause a turn back to early phases because of overlaps. Also, it has three key parts in this model. These are; development of service concept, development of that service's process and system development of that service.

There are some differences between very successful and less successful systems. These differences are obvious. It is seen that, customer participation while innovating the service, participation of senior management, and participation of non-contact people are the significant differences between these services (Angelopoulos and Kitsios and Papadopoulos, 2010).

There are four stages of e-government, which are cataloguing, transaction, vertical integration and horizontal integration (Layne, & Lee, 2001).

Cataloguing is the stage where people can easily reach to the information about their government via web without using phone or papers. It is generally based on citizens' demands and consequently saves staffs' effort and time. But there are some problems such as different parts' needs for online presence and resources, privacy due to tracking the behaviors of people on pages, maintenance to be done within agency or through outsourcing and assignment of people for replying the citizens' questions.

Transaction is all about bringing classical government to the online world. There are some databases in this stage. Citizens interact with government virtually with minimum effort. They make transactions online. This is a two-way communication with people and government. Quality, fulfillment outsourcing,

integrating system with web site, cost, on-line to off-line integration and security are the main questions in that stage.

Vertical integration is about integrating different functions of different government levels. Separate databases should be integrated. It should solve searching of services issue. Remote connections, virtual connections, data compatibility between different governmental levels, authentication are main problems at that stage. Flexibility is needed (Layne, & Lee, 2001), information security is crucial, and nothing should be lost. Generally electronic and digital signatures are used for a security system. These e-protection methods are generally used for approval mechanisms. Only needed information should be provided by citizens. Also, system should be ready for attacks and must protect the infrastructure for information theft. This kind of protection methods automatically needs a policy and increases the cost of system. Physical security is also a need. Servers, hardware etc. should be protected and any stranger shouldn't be allowed to enter these places. Users' enter exit information should be kept in some place (Apak, 2005).

Horizontal integration is about integrating different parts and functions. Different databases should be integrated if some process affects the other one. Different parts have different processes and data requirements. Also, inside of the agency, all department directors think that their department is the most important one and close their eyes to other departments (Layne, & Lee, 2001).

Beside that model, there is also a framework proposed by Yıldız about for theories such as decentralization and democratization via IT, technology's limits and contradiction, interaction between technology and organization in two way and lastly global integration. There is an e-government topology, which can be seen in table 4 and a framework which can be seen in the figure 2 (Yıldız, 2007).

Another phase perspective for e-government has been considered by Chen, Chen, Huang, and Ching (Chen, Chen, Huang, & Ching, 2006). According to them initiation system provides information access about government to citizens where enabling payments are key points of that phase. Next phase is infusion phase which is an e-democracy need. At this phase, principles are being developed and payment applications are being installed for e-government. At this phase, small governments use application service provider, while bigger ones implement their own systems. After all these phases, customization phase takes the role which creates a relation between citizen and government.

Table 4. E-government Topology

Stage	Orientation	Services	Technology	Citizens
Stage 1: Emerging Web presence	Administrative	Few, if any	Only Web	Going it alone
Stage 2: Enhanced Web presence	Administrative, information	Few forms, no transactions	Web, e-mail	Links to social agencies
Stage 3: Interactive Web presence	Information, users, administrative	Number of forms, online submissions	Web, e-mail, portal	Some links to state and federal sites
Stage 4: Transactional Web Presence	Information, users	Many forms and transactions	Web, e-mail, digital signatures, PKI portals, SSL	Some links to state and federal sites
Stage 5: Seamless Web Presence	Users	Mirror all services provided in person, by mail and by telephone	Web, e-mail, PKI, digital signatures, portal, SSL; other available technologies	Crosses departments and layers of government

(Yıldız, 2007)

Fig. 2 E-government framework (Yıldız, 2007)

2.8 Challenges

Limitations about e-government are lack of definition, different implications to different people and ambiguous concept. Suggestions about these situations are explaining process and participation patterns for e-government, problem addressing about e-government literature, policy making for that politic environment and connecting past and present presence of e-government (Yıldız, 2007). ISO is an organization for defining standards, but Turkey is not an active player in ISO. Also, there is no data standard for Turkey. Things differ from company to company, project-to-project, etc. It makes communication between companies harder.

People think that, with an investment for e-government systems, staff can be fired immediately. It's not a valid argument. If all the systems are not online and/or errors are not corrected, and systems are not started to be used by people, shortage of

staff cannot be done. That means, if everything is not stable, there is a possibility of occurring errors, managers can't make a shortage from e-municipality development staff. They are long-term investments according to that perspective. Also, people think that e-government systems are not secure, but if the necessary things are considered, it is a more secure system. For example, government agencies can sell information to people, but in digital government, some legislation protects citizens from that problem (Durna, & Özel, 2008).

There are some needs for e-government such as legislations and e-signature for judicial rights of people (Ayvalı, & Aktepe, 2002). Many things such as legislations, laws, regulations, culture should be kept up with technology. Authorities should be transparent to citizens (Apak, 2005). Transparency is an issue for e-government and therefore IT should have different legislations for transparency since IT transparency is not as same as normal transparency of governments (Relly, & Sabharwal, 2009). Countries, which have independent IT laws are more likely to respond their citizens for providing information (Bertot, Jaeger, & Grins, 2010).

Layne and Lee (Layne, & Lee, 2001) state that, there are some challenges for e-government such as infrastructures, policies and interoperability. Technologic infrastructures are about network communication between agencies and public, online judicial services etc. In addition, there is a need of educated people about usage of that technology. According to Sevinç and Şahin (Sevinç, & Şahin, 2013), finance is another problem. Classical budget planning will not work in that process. There are extra costs beside IT costs. There may be some advertisements, sign up fees, service-based fees for reducing costs of that systems.

According to research done by Durna and Özel (Durna, & Özel, 2008), there may be a lack of information and technology, managers may not give enough support

to e-municipality development for creating online public services. Online public services must be updated, and people must use internet for these public services. Traditional and e-government process have some differences and they are shown in figure 3. Technology is evolving too fast and while you are developing a system, that system can be outdated. In order to solve that problem, governments should make small projects. There should be some pilot areas for those systems. After that, they can start to use these services.

Fig. 3 Comparison of Traditional and E-Government (Durna, & Özel, 2008)

There are 20 e-government services that EU had prioritized to be integrated in Turkey. There are more than 60 browsers and usage of e-government becomes harder with these different browsers. There are also some scams, for which e-government systems should warn people about these situations. Over 198 government services can be done online in Turkey, but because of the lack of integration between these services, effectiveness is low.

Error management is also a big problem. With errors, speed advantage of e-government systems is being destroyed. In 2011, 150 words were forbidden in

Turkey by government which has made some websites inaccessible to some e-government web sites also. Also, e-government systems are making paperwork people unemployed, so causes a resistance of the classical staff. National ID system should be integrated with e-government systems to serve to right people.

There are some different properties of using e-government and m-government. They can be seen on table 5 (de Kervenoael, & Kocoglu, 2012).

Table 5. e-and m-Government properties

e-government	m-government
• Easy and fast access to the service • Transparency • Increased participation • Timeliness • Disappearance of prejudice regarding government • Equality in the service provided • Increased efficiency level among society • Valuing citizen demands and requirements • Fast, objective and correct decisions by increasing information sharing and participation	• Increased service quality-system consolidation • Cost savings • Increased trust toward government • Determination of standardization, minimizing errors, increasing effectiveness, and efficiency • Communication of actions and leadership • Clearer control mechanism • Increased effectiveness of law • Decreased bureaucracy-immediacy • Prevention of duplicated investments • Fast and correct responses to fluctuations and crises

(de Kervenoael, & Kocoglu, 2012)

Benefits of m-government according to e-government can be listed as followings (de Kervenoael & Kocoglu, 2012):

- Adoption of online governmental services by end users through the improved convenience it offers.
- Mobile devices are always switched on, unlike laptop computers.
- Higher capability of mobilization. Applications may be designed to provide

instant information to users (e.g., sending a warning message about forthcoming bad weather conditions or emergencies).

- Personal use in contrast to shared use of many computers.
- Personalized and user-friendly channels. Ubiquitous and instant contact.
- Mobile devices exceed the wired Internet use level.
- Reduction of the digital divide as less training or experience with ICT is required.
- Reduction of average service processing time, mainly for correspondence concerning simple notifications. Reduction of costs.
- Early detection of problems reported by citizens.

Increased citizen participation in community matters. Ubiquitous and instant contact.

Privacy and trust issues are most important problems for e-government. But in Şahin's study, it is at the lowest level of problems. Most important problems are lack of professional staff and cost (Şahin, 2007)

According to Gil-Garcia and Pardo (Gil-Garcia, & Pardo, 2005), there are some challenges while implementing e-government. They are; about information and data, about information technology, organizational and managerial, legal and regulatory, and institutional and environmental.

- Information and data challenges
    - Data quality (for the usage of organization, qualified data is very important)
    - Inaccuracy
    - Inconsistency
    - Incompleteness

- Information technology problems
    - Lack of dynamic information
    - Usability
    - Secure information
    - Incompatible technology
    - Complex technology
    - Skills of employees
    - New technologies
- Organizational and managerial issues
    - Size of the project,
    - Manager's attitude towards project
    - Diversity of user/organization
    - Alignment of goals
    - Conflicting goals
    - Resistance for change
- Legal issues
    - Restrictive laws
    - Short term budgets
    - Relationships outside of the government
- Institutional and environmental problems are about
    - Privacy concerns
    - Agencies' autonomy
    - Political issues
    - Context of environment

2.9 Critical Success Factors (CSFs)

Decision and evaluation of CSFs are dependent to service infrastructure for efficient public services, communication of agencies, and centralized management of these services. These CSFs are about legislation problems, technical problems and management problems. In order to identify, services will be provided for e-government, there is a need of legislations and strategic plans of these e-government processes (Polat, 2003).

Critical success factors for e-government are firstly introduced by D. Ronald Daniel and then expanded by John F. Rockhart. There are 55 different critical success factors for e-government systems and they are as followings according to Napitupulu and Sensuse (Napitupulu, & Sensuse, 2014)

- User and stakeholder involvement
- Good planning
- Using portal/application in order to reach governmental services
- Training
- Good system usability
- System campaign
- Prototype
- Good team skills and expertise
- Strong leadership
- Good coordination between all project participants
- Best practice consideration
- Enough funding
- Make better business process

- Supportive government policy
- Political support and stability
- Good outsourcing strategy
- Supportive ICT infrastructure/service availability
- User/citizen computer/internet literacy
- Good and clear organizational structure
- International support
- System security
- Legal framework
- Monitoring and evaluation
- Good partnership with other institution
- Good change management
- Supportive cultural environment
- Good system modeling
- Deal with bureaucratic processes
- Citizen relationship management
- Top management support
- Support interoperability
- Good project management
- Good information quality
- Good system quality
- Good service quality
- Trust
- Awareness
- Good governance

- Citizen satisfaction
- System development methodology
- Electronic transaction
- User/premium fees
- Gradual implementation
- Re-usable
- Continuous improvement
- Creativity & innovation
- Willing to change
- Reward & recognition
- Highly demand of citizen
- Self-sustainable revenue
- E-participation
- Prioritization of e-government
- Market synergy & potential
- External pressure
- Guidelines for e-government development

Davis also created a technology acceptance model (TAM) (Davis, 1989). This model represents some success factors but not tested well for e-government applications by other researchers. That model is about acceptance of software in organizations. Figure 4 represents that model.

Fig. 4 Technology Acceptance Model (Davis, 1989)

In Gable's study (Gable, 2015), stakeholder examination is used for e-government. E-government scholarship becomes wider; there are many aspects of e-government for public. Goal of e-government is better service to public. Aneesh Chopra is the first Chief Technology Officer (CTO) of the US and he gave too much importance to e-government in order to make government more open to public. Also, Chopra aimed to be more innovative in order to make collaboration higher. E-government differs according to society. Different societies have different problems with government. Performance criteria which can measure the success of e-government implementation by Gable (Gable, 2015) are listed as:

- Accessibility
- Citizen participation
- Communication
- Efficiency
- Emergency management
- Equality
- Innovation
- Openness
- Privacy
- Responsiveness
- Security

- Social Change
- Usability

According to Şahin (Şahin, 2007) key success factors are as follows:

- Guide strategies and principles
- Organization, project and change management
- Applications
- Costs and opportunities
- Organizing for using right technology
- Abilities, motivation
- Adoption of e-municipality applications
- Collaboration
- Sustainable resources
- Legitimacy

For improvement of IT decision-making process, there is "value measuring methodology (VMM)" methodology which is important to evaluate some CSFs. There is a need for analytical way to evaluate investments, plans and management. VMM is used for these needs. It is focusing to cost, value, risk analysis and measuring the change over time. National Association of Chief Information Officers (NASCIO) provides a guide for governments for their e-government projects. It makes a discussion about current challenges for governments for their e-government projects and meets the policy and goals for them. There is a need for an analysis before the beginning of the project (Gil-Garcia, & Pardo, 2005).

There is also a concept about quality and it is called total quality management. QoS provided is an important thing for e-municipality systems. There

are 14 principles created by Deming about this total quality management (Deming, 1986).

- Purpose constancy
- New philosophies adoption
- Dependent cease for inspection
- Prevent awarding business for price
- Improving constantly
- Train for the job
- Leadership
- Omit fear
- Get rid of barriers
- Slogan elimination
- Work standard elimination
- Workmanship pride
- Retrain and educate
- Taking Actions

This quality management issue is very popular between researchers. Juran, who is one of the most important people of quality management area, has some words for quality management. He has a trilogy about quality management and this trilogy is as followings (Juran, 1992)

- Quality planning
    - Establishing goals
    - Customer needs and identification
    - Product and process evaluation

- Quality control
    - Performance evaluation
    - Comparing goals and acts
- Improvement of quality
    - Infrastructure establishment
    - Identification of improvements about team and project
    - Resource providing and train
    - Establishment of controls

Also, there is another quality guru, who is Crosby. Beside Deming and Juran, he has introduced step system and this system has 14 elements (Crosby, 1979). These elements are as follows:

- Commitment of management
- Establishing team for improving quality
- Measuring quality
- Evaluating the cost of quality
- Being aware of quality
- Corrective Action
- Establishing a committee about zero defect
- Train of supervisors
- A day for zero defects
- Set the goals
- Removing cause of errors
- Recognition
- Establishing a council for quality
- Doing it again

There are many researchers working on critical success factors for e-government applications, three of them are Drücke, Grabow and Siegfried (Siegfried, Grabow, & Drücke, 2003). According to them there are ten critical success factors for e-government applications listed as below.

- Guiding principles and strategy
- Organization, project and change management
- Applications
- Benefits and costs
- Organization of correct technology and use of technology
- Ability, motivation and qualifications
- The adoption of e-municipality applications,
- Cooperation and partnerships
- Sustainable resources
- Legality

Shah and Siddiqui were working on e-banking systems. They found out some critical factors for e-banking which can also be applied to e-government systems. There are three main factors on that research, where each of them has some sub factors (Siddiqui, & Shah, 2006).

- Strategic Factors
    - Integration of business
    - Web-enabling process
    - Cheaper
    - Channels integration
    - Expanding to other markets
    - Brand name and trust

    - Product and service innovation
    - Support of managers
    - E-commerce as a business project
    - Reflection of project team
    - Internal and external promotion of project
- Operational Factors
    - Customer relationship
    - Integration of services
    - Convenience compared to others
    - Making purchasing easy
    - Understand customer behaviors
    - Content richness
- Technical Factors
    - Technology integration
    - Securing Systems
    - Infrastructure upgrade
    - Being user-friendly
    - Personalize and customize

There are also some critical success factors in the information systems discipline. This is firstly conceptualized by Sloan School of management in Massachusetts Institute of Technology (MIT). According to researches these CSFs are listed as follows (Butler, & Fitzgerald, 1999)

- Low-level representation of the users ensuring while developing the system
- Estimate, plan, track, agreeing target, coordinate and control projects
- Vendor support

- Time management
- Prototype the techniques while determining user requirements
- Change management and client-business relations
- Commitment of sponsors
- Availability of methods about development
- To overcome technical obstacles about project

Again, related to IS, Ang and Teo have declared ten CSFs (Ang, & Teo, 1997).

- Getting support of management
- Having a clear IS development plan
- User-IS relationship
- Qualified personnel
- Clear planning procedure
- Communication and commitment
- Sufficient time
- Appropriate planning
- People and politics
- Anticipate changes in IT

Also, UN has defined some performance criteria for the evaluation of e-government systems that are used in countries (United Nations, 2001). According to these criteria, Turkey is at the interactive phase of e-government system. These criteria are;

- Webpage must exist
- Service delivery type should be available

- Education, health, employment, social and financial services should be established
- Single entry and de-facto portals should be established
- Strategic plans and e-government teams should be done

There are some e-government critical success factors according to Altameem, Zairi and Alshawi. These factors are about governing, techniques and organizations. Also, there are some sub-factors under these major factors. Most of the countries are taking the technical factors for their e-government system's success and omit other factors and it causes the failure of their projects (Altameem, Zairi, & Alshawi, 2006). These factors and sub-factors are listed below.

- Governing
    - Vision
    - Strategy
    - Top management Support
    - Leadership
    - Citizen-centric
    - Funding
- Technical
    - IT infrastructure
    - IT standards
    - National information infrastructure
    - Collaboration
    - Security
    - Relative advantages
    - Citizen relationship management (CRM)

- Organizational
    - Policy and legal issues
    - Quality
    - Reward system
    - Implementation
    - Training
    - Organization structure
    - Technical staff
    - Change management
    - Business process re-engineering (BPR)
    - Awareness

2.10 E-Municipality Website Evaluation

According to Gower and Cho's (Gower, & Cho, 2001) work on Tarhan's research (Tarhan, 2007), %92.6 of the attendants in Gower and Cho's study think that internet provides an easiness on relationships with media for PR. %84 of them say that they can directly connect to customers via Internet. They use internet for direct communication with customers. In generic PR, there is a single way data flow from source to destination or vice versa. On internet, it is possible to interact and communicate with people and data flow is double sided. There is no limitation about time and place. This increases the information reaching level.

Internet is an opportunity for organizations. These opportunities are about communicating via e-mailing, getting feedback, file transferring services, giving updated information and collecting information, creating an organization identity,

easiness for research on target market. According to Tarhan's study (Tarhan, 2007), there are sections on companies' websites about

- History of the organization, development and general introduction
- Administrators' list, curriculum vitae (CV) and contact information (phone/fax number, e-mail etc.)
- Information about the organization hierarchy
- Information about scope of organization
- Announcing PR events
- Photos and graphics
- Announcing the reports about actions taken.

In this way, they are enabled to establish a double sided symmetric connection. Also, they are enabled to serve 24 hours. Also, according to Tarhan's work (Tarhan, 2007), in big city municipalities, communication methods with the municipality is changed and can be seen that, e-mail is the second most used way to communicate with municipalities with the ratio of %80.8 while phone communication is taking the lead with %90.8. There are some problems about communication such as redirection, formalities, language, and administrative information. Internet overcomes this problem a little bit.

Municipalities should learn the needs of the people who are living on their municipal borders. It can help to develop an action plan according to needs of people. Because of that, in the website of a municipality, phone/fax numbers, e-mail addresses, a panel for messaging to mayor, wish and complain line, knowledge acquisition and questionnaires should be included (Tarhan, 2007).

They also need to promote their services. Because promotion is very important, and people should know what their municipality do, there should be a part

on the website about the administration promotion of municipality, promotion of the services, information about social and cultural events, information about mayor, touristic and cultural information about city, council's decisions, corporate news about municipality and information about how each part of municipality works (Tarhan, 2007).

There should be some criteria about websites while evaluating them and these criteria are (Tarhan, 2007);

- Easy to access
- Usability, design balance (graphic and text)
- There shouldn't be any field that makes usage of websites harder such as irrelevant question forms
- Constant update
- A place for uploading things
- All the links should be working
- Feedback mechanisms
- Contact information
- Site map
- Design (color, encoding, length of page, page widths, banners, buttons)
- Site search
- Archiving and reaching to archive
- Language
- Information about municipality (mayor, corporate info, reports, service, cultural, social info, organization schema, decisions of council)

According to Garcia, Maciel, Pinto's work (Garcia, Maciel, & Pinto, 2005) a web portal should satisfy customer needs first. It should become website's

characteristic. In this way, that web portal can enable accessing government and getting information about it. By the time of the research is done, %65 of the US citizen reaches government via internet. Also, service rendering is another important thing for governmental websites. There should be another aim of a governmental website, which is to increase the attendance of people to decision making process of government. With the light of that information, there are some evaluation criteria for governmental websites. These are;

- Cognitive effort: Minimum cognitive effort means maximum easiness to use it intuitively and reaching information more effectively
- Tolerance: Motivation of citizens for using the website according to websites' responses
- Reach: Reaching the maximum number of citizens (they can be from many kind of technical knowledge levels, can have different hardware)
- Physical effort: Easiness to use
- Trust: Secure, credible and reliable websites.
- Visibility of system status: System should give information about the status of the website.
- Match between system and real World: Languages used. Information should be in natural order.
- User control and freedom: Need to have an "emergency exit" in order to prevent wrong actions.
- Consistency and standards: Instructions should be clear
- Error prevention: Good error management and information.
- Recognition rather than recall: People should not be rushed to remember the data they entered before

- Flexibility and efficiency of use: Speeding up the interaction for expert user, or down for non-experts
- Aesthetics and minimalist design: Irrelevant information shouldn't be included
- Help users recognize, diagnose, and recover from errors: Error messages should be clear about the problem.
- Help and documentation: Need to provide documentation.
- Accessibility: Should be open to all people.
- Interoperability: Should do exact things with the bureau.
- Security and privacy: People's information should be secured and protected from hackers.
- Information truth and precision: Information on the website should be true because it is affecting people's life.
- Service agility: Time for response to the actions of the user.
- Transparency: Municipalities should provide all information transparently, they shouldn't hide information about the things that are affecting people.

Checklist items about this evaluation are shown in the Table 6 (Garcia, Maciel, & Pinto, 2005).

Table 6. Checklist items for evaluating websites

Components	Sub-items
Visibility of system status	Provides feedback information on user location. Keeps user informed regarding processing progress
Match between system and the real world	Uses metaphors common to citizen's real world. Other: _____
User control and freedom	Guides users to non-existing links Requests user confirmation of relevant actions before executing these...
Consistency and standards	Uses an information hierarchy pattern, creating specific pages for each specific navigation level Standardizes scheme for colors, font, ..., links, including e-gov sites
Error prevention	Informs which fields are mandatory and how each field should be filled out Calls the user's attention when field completion is incorrect
Recognition rather than recall	Relevant or commonly soght information is highlighted in the site
Flexibility and efficiency of use	Offers shortcuts so those more experienced users can access information with fewer clicks Personalizes pages to suit different citizen profiles
Aesthetics and minimalist design	Information is provided in progressive detail levels Avoids scrolling
Help users recognize, diagnose, and recover from errors	When filling out forms, the site informs the user what is causing the error and instructions on how to correct it In case of failure, previously input items can be rescued
Help and documentation	Offers help tool Offers personal help resources online and in real time
Accessibility	Allows visual perception through text markers Site compliance with W3C recommendations
Interoperability	Offers document under patterns xml, swxc, rtf, pdf, txt, htm or html Foresees gradual substitution of login/password for access (preferentially for intelligent cards)
Security and privacy	Use digital certification Uses virtual keyboard for password input
Information truth and precision	When necessary, imforms last update of each page When necessary, informs date of each displayed content
Service Agility	Offers other contact means besides Internet User requests are complied with in due time
Transparency	It monitors the budgetary execution Renders public account to citizens

(Garcia, Maciel, & Pinto, 2005)

According to Middleton's work (Middleton, 2007), in order to evaluate public sector websites, there should be some criteria and these criteria are listed in six groups, which are;

- Functionality is about navigation effectiveness in design period
- Authority is about the trust and reliability of the information
- Validity is about the usefulness by other party programs
- Obtainability is about recalling and displaying
- Relevance is about required information from user
- Substance is about the assessing significance of site about content's reliability

Under the light of information given and listed above, e-municipality websites can be evaluated in subcategories like

- Security and privacy, which is about keeping data provided by user in a secure way.
- Usability is derived from functionality and it is very wide
- Content is about the information provided in website
- Services can be divided into two subcategories, which are services for citizens and business.
- Citizen participation about the communicating with citizens
- Features is about creating a personal space for users.

In the work of Choudrie, Ghinea and Weerakkody's (Choudrie, Ghinea, & Weerakkody, 2004), e-government systems, such as e-municipalities, are considered to be specific examples for ICT enabled business process changes. These processes should be investigated. While world is changing, and all the businesses are transforming their services online, governments can't dismiss that opportunity and they also need to transform their processes online. They need to change operating

methods. In the case of e-municipality systems, citizens should be included to that transforming stage. People start to use internet rapidly and governments started to serve online. They established some web portals and in these web portals, people can get exact bureau services in everywhere. In their work, evaluation criteria are prioritized according to the following categories.

- Accessibility problems which are affecting usage of websites for people, especially for disabled people. This is also a criterion for passing World Wide Web Consortium (W3C) Guideline.
- Accessibility problems that can be considered not critical
- Accessibility issues such as
    - Needs for getting AAA conformance for Web Content Guidelines
    - Quality for a slow connection
    - Availability of information (metadata, last updated information, stylesheets, image maps, multimedia
    - Platform for Privacy Preferences compliance (encryptions, number of GET forms)

According to Katre and Gupta's work (Katre, & Gupta, 2011), in order to evaluate state websites such as e-municipalities, there are seven categories and each category has many different parameters.

- Accessibility
    - Site map/description
    - Information in different languages
    - Keyword search
    - Text for image alternatives
    - Adjustable font sizes

- Font types
- Appropriate titles for pages
- Recommended browser information
- Recommended resolution information
- Page alignment
- Fix/scalable layout
- Management of clicked Uniform Resource Locator (URL)
- Home page links
- Information about files that can be downloadable
- Bookmarks for long text
- Rich Site Summary (RSS)
- Meta tags

- Navigation
  - Dropdown menu usage/hierarchy
  - Breadcrumb trails
  - Internal/external page differentiation
  - Hyperlinks highlighting
  - Categorizing of information
  - Prioritization
  - Task/goal Orientation
- Visual Design
  - Color scheme
  - Simplicity
  - Background highlighting
  - Cascading Style Sheet (CSS) usage

- Quality and size of images
- Content arrangement
- Effective use of fonts
- Color of text
- Scrollable texts
- Animated icons
- Consistency about presentation of pages

- Information content
  - Government agenda
  - Information about municipality
  - Information about services
  - Information about news
  - Announcements/decisions information
  - What's new?
  - Weather info
  - Media info
  - Tenders
  - Real Time Interaction (RTI)
  - Dynamic content
  - Statistics
  - Event information
  - Awards information
  - Departments list
  - Forms
  - Frequently Asked Questions (FAQ)

    - Maps
    - Holiday information
    - Market rates
- Interactivity
    - Online services
    - Online questions and answers (QA) part/discussion forum
    - Poll for decision making
    - Online tracking of proposals
    - Web 2.0 application
- Ownership
    - Write to minister
    - Other governmental departments contacts
    - Photos, offices or addresses of council
    - Feedback
    - Emergency info
    - Security/quality certification
    - Contact info of webmaster
    - Designed by part
- Branding
    - State logo
    - Mission projection
    - Local culture projection
    - Photo gallery
    - Newsletter

In Holzer and Kim's work (Holzer, & Kim, 2005), there are many useful information about digital governance in municipalities all around the world. In this work, they say that in 2005, there is a divide in the world in terms of digital governance. Digital governance score is raised, but there is a big difference between Organization for Economic Co-operation and Development (OECD) countries and non-OECD countries and this makes a huge gap in terms of digitalizing government all around the world. In 2005, 25 of 30 OECD cities are above average, while 11 of 51 are above in non-OECD cities. They use some measurements while evaluating and finding these averages and some of these measurements are about;

- Security/Privacy
- Usability
- Content
- Service
- Participation

They scaled countries into four groups and these scales are numbered from 0-3. 0 means no information about a topic given in website. They put information giving countries on scale 1. 2 is for downloadable items' existence such as audiovisual content and the most developed countries are including services, transactions and interactions on their websites.

They divided these evaluation criteria into groups and then subgroups as given in Table 7.

Then Ataloglou and Economides (Ataloglou, & Economides, 2009) found random people and asked them to evaluate some of the websites according to the criteria above. These people are all non e-government experts, designers and developers. They found that, some criteria such as quality of media can affect some

marks not only for presentation, but also for performance. Reason of it is the long waiting periods for loading of images. They state that, governmental websites (including municipalities) should continuously develop their systems according to new developed technologies such as Global Positioning System (GPS) systems, mobile devices etc. They also need to develop m-government applications. They need to serve not just to people, but also to the firms. There are many criteria that are used in order to evaluate websites in that research and these are listed in Table 7.

Table 7. Website evaluation criteria

Privacy/Security	
1-2. A privacy or security statement/policy. 3-6. Data Collection 7. Optional to have personal information used 8. Third party disclosures 9. Ability to review personal data records 10. Managerial measures 11. Use of encryption	12. Secure server 13. Use of "cookies" or "Web Beacons" 14. Notification of privacy policy 15. Contact or e-mail address for inquiries 16. Public information through a restricted area 17. Access to non-public information for employees 18. Use of digital signatures
Usability	
19-20. Home page/page length 21. Targeted Audience 22-23. Navigation bar 24. Site map	25-27. Font color 30-31. Forms 32-37. Search tool 38. Update of website
Content	
39. Information about the location of offices 40. Listing of external links 41. Contact information 42. Minutes of public 43. City code and regulations 44. City charter and policy priority 45. Mission statement 46. Budget information 47-48. Documents, reports or books (publications)	49. GIS capabilities 50. Emergency management or alert mechanism 51-52. Disability access 53. Wireless technology 54. Access in more than one language 55-56. Human resources information 57. Calendar of events 58. Downloadable documents
Service	
59-61. Pay utilities, taxes, fines 62. Apply for permits 63. Online tracking system 64. Apply for licences 65. E-procurement 66. Property assessments 67. Searchable databases 68. Complaints 69-70. Bulletin board about civil applications	71. FAQ 72. Request information 73. Customize the main city homepage 74. Access private information online 75. Purchase tickets 76-77. Webmaster response 78. Report violations of administrative laws and regulations
Citizen Participation	
79-80. Comments or feedback 81-83. Newsletter 84. Online bulletin board or chat capabilities 85-87. Online discussion forum on policy issues 88-89. Scheduled e-meetings for discussion	90-91. Online surveys/polls 92. Synchronous video 93-94. Citizen satisfaction survey 95. Online decision making 96. Performance measures, standards or benchmarks

(Holzer & Kim, 2005)

In the research of Ataloglou and Economides (Ataloglou, & Economides, 2009), they searched literature and from this search, they find some evaluation criteria for websites. In their research, 2 to 6 categories are decided for evaluating websites. These are driven from previous researches. These all have advantages and disadvantages. According to Ataloglou and Economides (Ataloglou, & Economides, 2009) previous researchers says that just information content criteria, that is evaluating information is not enough to evaluate services and ease of use criteria that contains links, feedbacks, etc. On Ataloglou and Economides's research (Ataloglou, & Economides, 2009), on the other hand, some researchers decided three criteria that are about functionality, accessibility and usability are also enough. The widest evaluation information giving one is about usability testing, user feedback, data usage and performance. They are giving lots of information about evaluation of a website, but it takes too much time and it costs too much. Then in Ataloglou and Economides's work (Ataloglou, & Economides, 2009), another researcher offered a six-factor quality measurement which is about disability access, reliability, multi-language, interaction, accessible from every kind of people/device and fees. According to these criteria, they created a framework and decided 13 categories which are

- Content
- Presentation-Media-Format
- User Interface (UI)
- Structure & Organization
- Navigation
- Orientation
- Interactivity & Feedback

- Services-Functions-Facilities-Operations-Applications
- Reliability & Availability
- Maintainability
- Performance
- Openness-Compatibility-Interoperability
- Security

Table 8. Criteria used for the evaluation of the ministries' websites

1. CONTENT Comprehensive, complete, valid, accurate, correct content Useful, relefant, simple and clear content Unique content Current and updated content Uniform and consistent use of terms Multiple languages for immigrants Special needs persons' consideration Non-discfrimination and Objectivity	6. ORIENTATION Variety of orientation methods Appropriate quantity of orientation and accuracy of orientations in every page Consistent orientation through the whole website Simple search from every page Advanced search from every page Site map Table of contents Alphabetical-Chronological-Geographical Index Departments directory Persons-telephone-email-address-URLs directory
2. PRESENTATION-MEDIA-FORMAT Variety of Media (Text, Diagrams, Pictures, Maps, Sound, Video, Webcam, etc.) Quality & Fidelity of Multimedia Right spelling, grammar, syntax, etc. Appropriate & Effective titles Aesthetics Suitable and consistent use of style, format, colors and fonts Right quantity of multimedia Right position of media Special needs persons' consideration (e.g. audio, zooming)	7. INTERACTIVIVTY AND FEEDBACK Online application Email, telephone, SMS, fax, postal address Newsletter, RSS feeds, podcasts Alerts for new or special content or deadliness Chat, VoIP, Videoconference Discussion forums, e-commmunities Blogs, wikis Polls, surveys, voting Easy use of interactivity Request-Applications form Complaints and suggestion form
3. USER INTERFACE User profile registration, modifications, etc. Simple, useful and effective menus, toolbars, buttons and shortcuts Appropriate & useful frames Ergonomic user interface Right position of menus, toolbars, frames etc. Consistent and stable position of menus, toolbars, frames etc Consistent and stable position of menus, toolbars, frames, etc. in whole website Appropriate background Input and output for special needs persons	8. SERVICES-FUNCTIONS-FACILITIES-OPOERATIONS-APPLICATIONS Variety of services Easy to find and use the services Description of services procedures FAQ What's new;? Easy request a service Easy printing downloading and storing
4. SYRUCTURE & ORGANIZATION Simple structure & organization Intuitive and rational structure and organization Appropriate number of levels and choices per level	9. RELIABILITY & AVAILABILITY Continuous operation Recoverability & resume-ability in case of error/fault Acknowledging transaction
5. NAVIGATION Easy and simple navigation Intuitive and rational navigation Alternative paths to a page Shortcuts Return to home from every page Help from every page Notification when transfer to another website No navigation errors No broken and missing links No under construction pages Clear and consistent highlighting of links Navigation prediction (e.g. short description of links)	10. MAINTAINABILITY User technical support
	11. PERFORMANCE Input speed (e.g. Application submission) Output speed (e.g. Multimedia downloading) Processing speed (e.g. Calculation, searching, order)
	12.OPENNESS-COMPATIBILITY-INTEROPERABILITY Support various user connections Support various user operating systems No neede for user to have special software and plug-ins
	13. SECURITY Security certifications and gyarantees Confidentiality and privacy of user

(Ataloglou & Economides, 2009)

2.11 Development Strategy

Mahmood says (Mahmood, 2013), while developing an e-municipality system, integration between government and municipality is a challenge and while developing e-municipality system, it is important to include governmental integration into the system. In strategic plan of the development of e-municipality system, integration between e-government and e-municipality should be included, since it is a real challenge for the system. Also, there should be a strategy for dealing with the resistance to change between employees. In addition to that, managers' role is important in development. They should support development process and participate in the strategic planning of it. Citizens should be included to the development process, since they are stakeholders of this e-municipality system.

According to United Nations Conference on Trade and Development (UNCTAD) (UNCTAD, 2013), development of the e-municipality system should include a well build strategic plan. At the end of the development process, target outcomes are increasing customer participation, designing system according to customer feedbacks and joined-up government. These are the key points of e-municipality development strategy. Well-developed e-municipality systems are built upon a well build process development strategy. In that process, budget is very important and finding funds from industry is playing a key role for this funding mechanism. Municipalities should find sources for budget of e-municipality development since a good e-municipality costs a lot of money.

International Agency of the Association of Netherlands Municipalities (VNG) says that (VNG, 2010), strategic planning is a tool for creating a guideline while developing of e-municipality system. It is like policy making process. So that, it can

be said that, while creating a strategic plan for the development of e-municipality system, there is a need for a guideline for the specifications of a strategic plans. Generally, resources are tight in that kind of projects, and there is a need for a good plan for having a well-developed e-municipality system with limited resources situation. There is a need for integration between government, municipality and industry for successful e-municipality system. It is important to have a technical assistance, because this assistant can easily find errors and technical assistant can assess system more objectively according to technical specifications and that can lead development team to create a well-developed system. Also, there should be requirements analysis, SWOT analysis and a work plan in order to design a good strategic plan.

According to United States Agency for International Development (USAID) (USAID, 2005), while implementing an e-municipality system, there are many criteria to be considered and after implementation, these criteria should be tracked continuously. Progress should be tracked, and outcomes of the processes should be monitored. Answers for the question "What are the benefits of that e-municipality system?" can be found with that tracking process. Also, a roadmap should be created for the strategic plan of e-municipality. After the development process, it should be planned how to act while a change will be made and for that situation, employees should be trained.

CHAPTER 3

HYPOTHESIS DEVELOPMENT

After making the literature survey, it is seen that one of the major performance indicator about e-municipality applications is its' usage rate and this usage rate is dependent on many factors.

These independent variables affecting this usage rate are listed and explained below and the theoretical model developed on these independent variables is shown in Figure 5.

- E-Municipality Website Functionality: Affects e-municipality usage rate in positive way, which means, more functional e-municipality website brings more usage for that e-municipality website. If website of an e-municipality includes multi-language support, technological support (i.e. online help), documentation, reports of municipal actions, information about city, well used social media, certifications, accurate and updated information, and it has an interaction with people, it means that website is functional and probably will be more used by people.
- E-Municipality Website Usability: Affects e-municipality usage rate in positive way, which means, more usable website brings more usage of that e-municipality website. If website of an e-municipality includes multi-platform support, accurate site length, a sitemap, a good hierarchy, contact info of employees in municipality, non-broken links and if this website is easy to use and it is in a good condition in terms of aesthetics, this means this e-municipality website probably will be more used by people.

- Usage Rate of E-municipality Development Techniques: Affects e-municipality usage rate in positive way, which means, if development techniques are highly used, e-municipality website will be used more. If website of a municipality considers strategies such as training of ICT team, making SWOT analysis, having a roadmap while developing this website, taking the support of managers, continuously tracking of website, making assessments of this website by objective people, designed and developed according to feedbacks, bug management is done, and if previous works of other municipalities' websites are analyzed and development is done according to these analysis, that means this municipality will probably has a more used website.
- Level of Governmental Integration: If website of an e-municipality is integrated with other governmental places (i.e. tax payment systems of government), it affects the usage rate of e-municipality website, because people want to make everything done from one single place.
- Development Type of E-municipality: Affects usage rate of e-municipality whether it is developed in-house or outsource development is used.
- Level of Standardization: Affects usage rate of this e-municipality website. If an e-municipality website is designed according to some standardizations, such as Control Objectives for Information and Related Technology (COBIT), IT Infrastructure Library (ITIL), ISO, that means, many of security and technical issues are solved, and this affects usage rate of this e-municipality, because people uses trustable websites more, and this standardization certificates brings more trust to websites of e-municipalities.

- Existence of Public Places to Use E-municipality: Affects usage rate. If a municipality creates places to do municipal actions online, people will come there and make their municipal actions online from these public places. Not all people have internet connections in their home and these public places creates an opportunity for them, in order to make their municipal actions fast and free of internet connection fees.
- Application of Security Tests: If an e-municipality website is not tested according to security criteria for websites, information of people is always in danger and people will not trust a website like this. Also, because of transactions are done over these e-municipality websites, security is a big issue for these websites.
- Existence of Security Problem: If some security problems exist on these websites, this means information of people can be stolen, which can include credit card information, or even there is no problem in terms of information theft, other problems can be seen, and should be fixed in order to have a highly used e-municipality website, because people will not use a problematic website.
- Existence of Promotion: If a municipality brings a new service to its e-municipality website, people should know that, in order to use them. If they don't know these services are online, usage rate of that service may be lower. Instead of increasing this usage rate, municipalities should promote these new services to people.
- Percentage of Error-Free E-Municipality Applications: People do not use a problematic website. If website of a municipality has some problems and transactions or actions of people is interrupted because of that technical

problem, people may not use that e-municipality website again. In order to prevent this situation, these errors should be fixed.

Considering the above independent variables and the theoretical model given in Figure 5 the related hypotheses are proposed as below.

Hypothesis 1: e-municipality website functionality increases usage rate of e-municipality

Hypothesis 2: e-municipality website usability increases usage rate of e-municipality

Hypothesis 3: Usage rate of development techniques of the e-municipality increases usage rate of e-municipality

Hypothesis 4: Level of governmental integration increases usage rate of e-municipality

Hypothesis 5: Development type affects usage rate of e-municipality

Hypothesis 6: Level of standardization increases usage rate of e-municipality

Hypothesis 7: Existence of public places to use e-municipality affects usage rate of e-municipality

Hypothesis 8: Application of security tests affects usage rate of e-municipality

Hypothesis 9: Existence of a security problem affects usage rate of e-municipality

Hypothesis 10: Existence of promotion affects usage rate of e-municipality

Hypothesis 11: Percentage of error-free e-municipality applications increases usage rate of e-municipality

Fig 5 Theoretical Model of hypotheses of e-municipality usage rate

CHAPTER 4

METHODOLOGY

In order to test the hypotheses, a questionnaire and an evaluation instrument prepared according to the criteria compiled from literature survey for e-municipality website usage are used.

The first tool, the questionnaire is applied to the people who are responsible from e-municipality systems in IT division of municipalities. They are asked how to do they want to fill the questionnaire and according to their responses, questionnaires are applied either online or on paper.

Questionnaire starts with a short introduction about the aim of questionnaire, the researcher that prepared that questionnaire, the estimated duration of the questionnaire and the supervisor of the research. Questions are aimed to evaluate the correlation between independent variables and dependent variable. There are different scale type questions in the questionnaire; nominal, ordinal, ratio and interval.

The questionnaire consists of 23 questions. First question is for getting the name of the municipality. 23rd question is for measuring the value of the dependent variable which is the usage rate of the e-municipality system (Interval scale), second question is for measuring user interaction (Interval scale), and third question is for measuring the ease of use of the e-municipality (Likert scale). Number of questions for measuring usage rate of development techniques of the e-municipality techniques is 11 (Question 4 to-14-Likert scale). For Likert scale questions, 1 is declared as strongly disagree and 5 as strongly agree.

The remaining 8 questions are prepared for determining the existence of the other factors that affect e-municipality usage rate. 7 of these 8 questions (Questions 15-21) have answer as either yes or no, and one of them (Question 22) is in interval scale.

The questionnaire, translated from Turkish by a Master of Arts (MA) student, can be seen in Appendix A, and the original Turkish questionnaire is shown in Appendix B. Face to face application of the questionnaire is applied by the MA student and online applications of the questionnaire are done on the SurveyGizmo platform (http://www.surveygizmo.com). This platform is being used for its' better options for easiness of creating surveys, showing of questions to respondents in a better way, better UI for both respondent and admin of questionnaire, better analysis options, and more options for exporting the results to user.

The second tool, the evaluation instrument is designed by considering some of the criteria derived from literature survey for Istanbul. Bearing in mind of all the criteria stated by previous researches, 23 criteria listed below and prepared for evaluating the municipality websites. All of those criteria are measured by Likert scale (1-very weak, 5-very strong) and evaluation of these criteria are done by the MA student. 10 of these criteria used for testing hypothesis 1, and 13 of them are for testing hypothesis 2.

Criteria being used for evaluating the hypothesis 1 in the evaluation instrument are given as follows:

1. Multi languages
2. Accurate information
3. Certifications (SSL-3D Secure)
4. Updated Content

5. Technical Support
6. Citizen Participation
7. Documentation (How to use services)
8. Documents, reports, media
9. Social Media
10. Information About City

Criteria being used for evaluating the hypothesis 2 in the evaluation instrument are as follows:

1. Website lengths
2. Easy to use
3. Loading time
4. Aesthetics
5. Multi-Platform
6. Contact information
7. Site Map
8. Accessibility
9. Search
10. Hierarchy
11. Calendar
12. No broken links
13. Statistics

The criteria in the evaluation instrument and the questions in the questionnaire are merged according to which independent variable they aim to measure, and the analyses are done according to this merge.

Group variables of hypotheses 1, 2, and 3 are analyzed according to reliability analysis using SPSS and only the variables that have Cronbach Alpha value greater than 0.7 are considered for analyses. For hypotheses testing of the research, two different methods are used. For Likert scale independent variables, regression analysis is done, and for yes/no questions, chi-square analysis is done, in order to decide whether these independent variables significantly affect dependent variable of this research.

CHAPTER 5

RESULTS AND FINDINGS

5.1 Preliminary Analysis of the Questionnaire

As the first step of analyzing the results, all the questionnaires that are done face to face by IT departments of municipalities, are input to SurveyGizmo platform, in case of putting all of them together and download data from there.

There are 39 municipalities in Istanbul and 32 of them responded to the questionnaire and all the analyses are done using these responses. Some parts on the questionnaire must not be left empty and some parts can be. Some of the questionnaires have some missing values. Respondents might not want to answer because of confidentiality. After all the responses are collected, only the missing values in the questionnaire are excluded in case of a good and consistent analysis.

5.2 Preliminary Analysis of the Second Instrument

As the second step of analyzing the results, criteria of the evaluation instrument are scored considering the websites of the municipalities. These scores are given in the table in Appendix D.

5.3 Reliability Analysis of the Tools

Values of criteria evaluation instrument and answers of the questionnaire are merged for the related independent variables and reliability analyses is done according to that merge. The facts that have Cronbach Alpha values greater than 0.7 are considered to be reliable and taken for the analyses. These Cronbach Alpha values can be seen on Table 6, 7, and 8 for the related independent variables.

Table 9. E-municipality Website Functionality Reliability Analysis

Item Statistics (N=32)	
Item Name	Mean
CitizenParticipation	1.1250
DocumentsMediaReports	4.2188
UserInteraction	4.3750
TechSupport	2.7500
MultiLanguage	2.2813
Documentation	1.1250
InfoAboutCity	3.5313
SocialMedia	4.1875
AccurateInfo	4.6250
Certification	4.2188
UpdatedContent	4.5938
FeedbackTracking	3.0900
Cronbach's Alpha (N=12)	.752

Table 10. E-municipality Website Usability Reliability Analysis

Item Statistics (N=32)	
Item Name	Mean
SiteLength	4.56
EasyToUse	4.41
Aesthetics	4.03
MultiPlatform	4.09
ContactInfo	4.44
SiteMap	4.03
Hierarchy	4.94
NoBrokenLink	4.50
Cronbach's Alpha (N=8)	.704

Table 11. Usage Rate of Development Techniques of the E-municipality Reliability Analysis

Item Statistics (N=29)	
Item Name	Mean
ManagerSupport	4.66
FeedbackDesign	4.07
Integrationw.bus	3.21
Cont.Tracking	4.34
FeedbackDev	4.34
RoadMap	4.03
ObjectiveAssesment	3.90
WorkerEducation	4.24
SWOTReq.An	3.48
BugMng	4.52
PreviousWorks	4.17
Cronbach's Alpha (N=11)	.819

5.4 Descriptive Results

For exploratory purposes, frequencies of the independent variables are calculated. For these purposes, questions' answers and criteria evaluations are taken and analyzed. Yes/No Questions' frequency distributions can be seen in table 9. Mean values of all independent variables can be seen on table 10, and Likert scale factors' descriptive statistics can be seen in table 11. Also, usage rate's frequency distribution can be seen in table 12.

It is obviously seen that, too few of the municipalities in Istanbul build their e-municipality applications on their own. Just 9 of 32 municipalities build their own e-municipality applications, and other ones are outsourcing these development phase. Also, few of them (10 out of 32) integrates their systems with other governmental places. Low mean of standardization and promotion of services can be seen on the municipalities' e-municipality applications (See Table 13).

Table 12. Yes/No Answers' Frequencies

Factor Name	Number of Responses	Number of Yes Answers (%)	Number of No Answers (%)
Promotion of Services	32	21 (65.6%)	11 (34.4%)
Public Spots	32	19 (59.4%)	13 (40.6%)
Security Test	32	23 (71.9%)	9 (28.1%)
Security Alert	32	13 (40.6%)	19 (59.4)
Integration with Public	32	22 (68.8%)	10 (31.3%)
Inhouse Development	32	3 (9.4%)	29 (90.6%)
Standardization	32	21 (65.6%)	11 (34.4%)

Table 13. Mean Values of Independent Variables

Variable Name	Mean	N
Usage Rate of Development Techniques of the E-municipality	3.94	32
e-Municipality Website Functionality	3.31	32
e-Municipality Website Usability	4.50	32
Percentage of error free e-municipality applications	4.37	30
Existence of Promotion	1.66	32
Existence of Public Places to Use e-municipality	1.59	32
Application of Security Tests	1.72	32
Existence of Security Problem	1.41	32
Level of Governmental Integration	1.69	32
Development Type	1.09	32
Level of Standardization	1.66	32
Usage Rate	3.53	30

(1- Very low, 5- Very high)

Table 14. Usage Rate of E-Municipality Systems' Likert Scale Factors' Frequencies (1-Very Low, 5-Very High)

Factor Name	# of Values	# of 1 Values (%)	# of 2 Values (%)	# of 3 Values (%)	# of 4 Values (%)	# of 5 Values (%)
No Broken Links	32	1 (3.1%)	1 (3.1%)	4 (12.5%)	1 (3.1%)	25 (78.1%)
Feedback Design	32	1 (3.1%)	0 (0%)	7 (21.9%)	11 (34.4%)	13 (40.6%)
Integration with Business	32	3 (9.4%)	5 (15.6%)	11 (34.4%)	6 (18.8%)	7 (21.9%)
Continuous Tracking	32	0 (0%)	2 (6.3%)	4 (12.5%)	9 (28.1%)	17 (53.1%)
Feedback Development	31	1 (3.2%)	0 (0%)	4 (12.9%)	9 (29.0%)	17 (53.1%)
Creating a Guideline	30	2 (6.7%)	2 (6.7%)	5 (16.7%)	7 (23.3%)	14 (46.7%)
Objective Assessment	31	0 (0%)	1 (3.2%)	9 (29.0%)	12 (38.7%)	9 (29.0%)
Worker Education	31	1 (3.2%)	0 (0%)	3 (9.7%)	13 (41.9%)	14 (45.2%)
SWOT Analysis	31	3 (9.7%)	4 (12.9%)	7 (22.6%)	10 (32.3%)	7 (22.6%)
Bug Management	31	0 (0%)	0 (0%)	3 (9.7%)	9 (29.0%)	19 (61.3%)
Previous Works	31	0 (0%)	0 (0%)	6 (19.4%)	13 (41.9%)	12 (38.7%)
Technical Erroneous	30	1 (3.3%)	0 (0%)	3 (10.0%)	9 (30.0%)	17 (56.7%)
User Interaction	32	1 (3.1%)	2 (6.3%)	3 (9.4%)	4 (12.5%)	22 (68.8%)
Citizen Participation	32	31 (96.9%)	0 (0%)	0 (0%)	0 (0%)	1 (3.1%)
Documents, Reports	32	0 (0%)	0 (0%)	8 (25.0%)	9 (28.1%)	15 (46.9%)
Technical Support	32	4 (12.5%)	12 (37.5%)	7 (21.9%)	6 (18.8%)	3 (9.4%)
Multiple Language	32	19 (59.4%)	0 (0%)	2 (6.3%)	7 (21.9%)	4 (12.5%)
Documentation	32	31 (96.9%)	0 (0%)	0 (0%)	0 (0%)	1 (3.1%)
Information About City	32	1 (3.1%)	4 (12.5)	9 (28.1%)	13 (40.6%)	5 (15.6%)
Social Media	32	0 (0%)	1 (3.1%)	8 (25.0%)	7 (21.9%)	16 (50.0%)
Accurate Information	32	0 (0%)	1 (3.1%)	0 (0%)	9 (28.1%)	22 (68.8%)
Certifications of System	32	1 (3.1%)	0 (0%)	10 (31.3%)	1 (3.1%)	20 (62.5%)
Updated Content	32	0 (0%)	0 (0%)	1 (3.1%)	11 (34.4%)	20 (62.5%)
Website Length	32	0 (0%)	1 (3.1%)	1 (3.1%)	9 (28.1%)	21 (65.6%)
Easy to Use Website	32	0 (0%)	2 (6.3%)	3 (9.4%)	7 (21.9%)	20 (62.5%)
Aesthetics of Website	32	0 (0%)	0 (0%)	9 (28.1%)	13 (40.6%)	10 (31.3%)
Multi-Platform	32	0 (0%)	1 (3.1%)	8 (25.0%)	10 (31.3%)	13 (40.6%)
Contact Information	32	0 (0%)	2 (6.3%)	4 (12.5%)	4 (12.5%)	22 (68.8%)
Site Map of Website	32	3 (9.4%)	2 (6.3%)	5 (15.6%)	3 (9.4%)	19 (59.4%)
Hierarchy in Website	32	0 (0%)	0 (0%)	0 (0%)	2 (6.3%)	30 (93.8%)

People doesn't participate municipalities' decisions on Istanbul. Just one of the 32 municipalities answers that, they have a place for citizen participation on their website. Also, number of one language websites are quite high for a metropolitan city. 19 of 32 municipalities don't have an option for second language. Also 31 of 32

e-municipality websites don't have a documentation for how to use these e-municipality services (See Table 14).

With the development of the technology, people started to use web services for many operations. Municipality services are also one of them. They started to use municipality web services in order to pay their taxes etc. 31.3% of responders say that, more than 50% of their works are done online. That means, there are more operations done online instead of traditional municipality (See Table 15).

Table 15. Usage Rate's Frequency (1- Very Low, 5- Very High)

UsageRate					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	1	3	9.4	10.0	10.0
	2	6	18.8	20.0	30.0
	3	3	9.4	10.0	40.0
	4	8	25.0	26.7	66.7
	5	10	31.3	33.3	100.0
	Total	30	93.8	100.0	
Missing	System	2	6.3		
Total	32	100.0			

5.5 Hypothesis Testing

After completion of reliability analyses and descriptive statistics, hypotheses testing is done. Two different methods are used for testing hypotheses; Regression Analysis and Chi-Square Analysis. Regression tests are used, when both independent and dependent variables are interval/ordinal/categorical and chi-square test is used when independent variable is nominal and dependent variable is interval/ordinal/categorical. These hypotheses are modeled into four groups as website functionality, website usability, e-municipality website development strategy and other effects on usage rate of e-municipality systems. The hypotheses are tested

in order to find whether they are significantly affecting e-municipality website usage rate. %95 significance level is used for this research and because of that any significance value above 0.05 is not accepted significant. In the table below, accepted and rejected hypotheses can be seen in the light of that information (See Table 16).

Table 16. Hypothesis Analysis Results

Hypothesis number	Significance Level	Status	Scale Type	Method
Hypothesis 1	0.031	Accepted	Likert	Regression
Hypothesis 2	0.024	Accepted	Likert	Regression
Hypothesis 3	0.022	Accepted	Likert	Regression
Hypothesis 4	0.043	Accepted	Nominal	Chi-Square
Hypothesis 5	0.243	Rejected	Nominal	Chi-Square
Hypothesis 6	0.012	Accepted	Nominal	Chi-Square
Hypothesis 7	0.04	Accepted	Nominal	Chi-Square
Hypothesis 8	0.416	Rejected	Nominal	Chi-Square
Hypothesis 9	0.03	Accepted	Nominal	Chi-Square
Hypothesis 10	0	Accepted	Nominal	Chi-Square
Hypothesis 11	0.023	Accepted	Interval	Regression

5.5.1 Website Functionality Hypothesis Analysis

Hypothesis 1: E-municipality website functionality increases website usage of e-municipality systems.

With these variables in group of website functionality, their means are taken and with that mean, a regression analysis is done, and it is checked that, whether these variables are significantly affecting usage rate of e-municipality system or not. This analysis can be found in appendix (See Appendix C, Table C1). It is seen that; these

variables significantly affect website usage of e-municipality with a value of 0.031 (< 0.05). So that this hypothesis is accepted.

5.5.2 Website Usability Hypothesis Testing

Hypothesis 2: E-municipality website usability increases website usage of e-municipality systems.

With these variables in group of website usability, their means are taken and with that mean, a regression analysis is done, and it is checked that, whether these variables are significantly affecting usage rate of e-municipality system or not. This analysis can be found in appendix (See Appendix C, Table C2). It is seen that; these variables significantly affect website usage of e-municipality with a value of 0.024 (< 0.05). So that this hypothesis is accepted.

5.5.3 Website development process of e-municipality systems hypothesis testing.

Hypothesis 3: Usage rate of development techniques of the e-municipality increases website usage of e-municipality systems.

With these variables in group of website usability, their means are taken and with that mean, a regression analysis is done, and it is checked that, whether these variables are significantly affecting usage rate of e-municipality system or not. This analysis can be found in appendix (See Appendix C, Table C3). It is seen that; these variables significantly affect website usage of e-municipality with a value of 0.022 (< 0.05). Because of that, this hypothesis is accepted.

5.5.4 Other effects on e-municipality website usage

In that part, there will be items, which are affecting website usage rate alone by themselves. In this case, each hypothesis has its own significance value and these

hypotheses are not affected by any other sub elements. They are all analyzed by using chi-square analysis method.

Hypothesis 4: Level of governmental integration increases website usage rate

As discussed in literature survey, it is said that, if an e-municipality website is integrated with other governmental applications, its website will be used more. With the responses in this work's questionnaire part, that is supported with a significant value, which is 0.043 (< 0.05). So that, this hypothesis is accepted (See Appendix C, Table C4).

Hypothesis 5: Development type affects usage rate of e-municipality

As discussed in literature survey, with an in-house developed e-municipality system, there will be more usage of that e-municipality system. In this case, which is about Istanbul, there is no significant result about it, because there is a significance value of 0.243 (> 0.05). In that case, this hypothesis is rejected (See Appendix C, Table C5).

Hypothesis 6: Level of standardization affects usage rate of e-municipality

Standardization is very important as discussed in literature survey, and one of the hypotheses of this work is about standardization of e-municipality increases usage rate of that e-municipality system. Standardization is about being developed according to industrial standards such as ISO, COBIT, etc. It is seen that, standardization is really important, because it has a significance value of 0.012 (< 0.05). So that, this hypothesis is accepted (See Appendix C, Table C6).

Hypothesis 7: Existence of public places to use e-municipality affects usage rate of e-municipality

As discussed in literature survey, creating public places is about making some places available for citizens about using municipality's e-applications in these places

for free. In these places, people can do their works about municipalities. Since significance value of that hypothesis 0.04 (< 0.05), this hypothesis is accepted (See Appendix C, Table C7).

Hypothesis 8: Application of security tests affects usage rate of e-municipality

Making tests are important for software applications. Testing software increases usage according as discussed in literature survey. In this work, there is no significant result for that hypothesis, since significance value is 0.416 (> 0.05). So that, this hypothesis is rejected (See Appendix C, Table C8).

Hypothesis 9: Existence of security problem affects usage rate of e-municipality

As discussed in literature survey, seeing an error about security decreases usage of e-municipality system. So that there should be no error about security, which is seen by user. It is obviously seen that; security alerts are very important for the usage rate of e-municipality systems with a significance value of 0.03 (< 0.05). So that, this hypothesis is accepted (See Appendix C, Table C9).

Hypothesis 10: Existence of promotion affects usage rate of e-municipality

As discussed in literature survey, people can know about the services with the promotion of them. Because of that, in order to increase usage rate of e-municipality systems, these municipalities should promote their services, and this work confirms this information with the significance level of 0.0 (< 0.05). This hypothesis is accepted (See Appendix C, Table C10).

Hypothesis 11: Percentage of error-free e-municipality applications increases usage rate of e-municipality.

As discussed in literature survey, having an erroneous website increases usage rate, because nobody wants to take some governmental actions on a website which has errors. Because of that, when there is a look to the correlation between free of technical error website and usage rate, it is easily can be seen that, there is a significant relation between free of technical error website and usage rate of e-municipality systems with a significance value of 0.044 (< 0.05). So that, this hypothesis is accepted (See Appendix C, Table C11).

5.6 Final Model

According to hypotheses tests that are done in order to find whether they are accepted or not, not so much of the hypotheses are rejected. But still, there is a need to rebuild theoretical framework again, according to accepted values. The figure given below is representing new theoretical framework according to findings from this study.

Fig. 6 Final model of theoretical framework of e-municipality usage rate.

CHAPTER 6

CONCLUSION

With the development of the technology, more people started to use web and mobile applications. Since there are many places which have an internet connection, people can reach internet from these places even they don't have their own internet connection. That enables to do some operations online. Governmental places should follow technological developments and try to create web applications for municipal services. Even they create these services, if people don't know anything about them, they won't use it. Municipalities need to promote their online services to citizens. E-municipality services make citizens' life easier. Not only citizens, but also workers. More people using web services means less waiting queues.

Purpose of this study was to determine critical success factors for usage rate of e-municipality systems and their effect on building a highly used e-municipality system. Due to the scope of research, a questionnaire was applied to 32 municipalities of Istanbul. Other municipalities didn't attend this questionnaire for some reasons such as no permission from their managers, privacy of the information, etc. Some of these questionnaires were applied face-to-face, some of them via e-mail and some of them were applied on SurveyGizmo platform. Besides questionnaire, a criteria evaluation instrument is used, and e-municipality websites are scored according to some criteria derived from literature survey. At the end of the study, findings are listed below.

- Well functional websites increase usage rate of e-municipality system. If functionality of website increases, usage rate of e-municipality increases.

- Usability of e-municipality has a strong positive relationship with usage rate of e-municipality system.
- If a good strategy is followed while developing websites, it increases usage rate of e-municipality system.
- If there is no technical error in the system, there is high usage rate for e-municipality system.
- If there is a standardization applied on the system, then usage rate of e-municipality system is higher.
- Creating public places for the usage of e-municipality increases usage rate of that e-municipality system.
- If there is a security alert on the system, there is a decrease in usage rate of e-municipality system.
- Promoting new services gets the attention of citizens and cause an increase in usage rate of e-municipality system.
- Integration of the system with other governmental applications increases usage rate of e-municipality system.

These findings are matching with the literature that is included in this study. For the future researchers, there can be some recommendations as followings.

i. This is a local research. This research can be applied to other cities in Turkey in order to compare results with other cities.

ii. This is not a longitudinal research. This research's results may differ each year. In this case, researchers may apply this questionnaire on different times in order to see the difference in different times.

iii. This research is done to 82% of municipalities in Istanbul. In order to see all of the municipalities, this research can be applied to all municipalities of Istanbul, if they will be convinced.

APPENDIX A

ENGLISH VERSION OF QUESTIONNAIRE

Criteria of e-municipality success questionnaire

This questionnaire was designed by Mustafa Can Büken, under the invigilation of Prof. Dr. Meltem Ozturan. It is created for MIS690-Master's Thesis course of MA, Management Information Systems, Bogazici University. Aim of the questionnaire is investigation of the positions of municipalities in Istanbul, under the concept of e-municipality. Also, it is targeting to evaluate their success according to success criteria in literature. All the given information will be hidden, secured and will just be used for aimed analysis by the owners of this questionnaire.

Required time for completing this questionnaire is approximately 10 minutes. For your questions, contact information is given below.

Owner of questionnaire: Mustafa Can Büken

Cell phone number: (543) 422 53 42

1) The district of your municipality: _____
2) Choose percentage of communication with citizens through e-municipality system (Responding to complaints, responding to evaluation of suggestions)
    a. 0-20% b. 20.01%-40% c. 40.01%-60% d. 60.01%-80%
    e. 80.01%-100%

Part 3: In that part (Questions between 9 and 20), please choose best answer about your e-municipality system and development of that system according to your agreement level

5- Strongly Agree 4- Agree 3- Neutral 2- Disagree 1- Strongly Disagree

3) E-municipality interface is user-friendly	5	4	3	2	1
4) Our managers support us for development of e-municipality system.	5	4	3	2	1
5) We get feedback from users while developing e-municipality systems	5	4	3	2	1
6) E-Municipality system is integrated with business/industry	5	4	3	2	1
7) E-municipality system is being tracked continuously	5	4	3	2	1
8) E-municipality system is being developed according to feedbacks	5	4	3	2	1
9) Objective evaluations of e-municipality system are being considered.	5	4	3	2	1
10) There is a roadmap for development of e-municipality.	5	4	3	2	1
11) IT Crowd and staff are being educated for using and developing e-municipality systems.	5	4	3	2	1
12) SWOT and requirement analysis are being done while developing e-municipality systems	5	4	3	2	1
13) We intervene to bugs on system	5	4	3	2	1
14) We get help from previous experiences of other municipalities while developing our e-municipality systems.	5	4	3	2	1

Part 4: Choose appropriate answer (Either percentage or numeric value) to following (Question 21-24) questions according to values for your e-municipality system.

15) Our e-municipality system is integrated with other e-municipality/e-government systems

a. Yes, it is integrated b. No, it is not integrated

16) E-municipality system is totally developed in-home

a. Yes, e-municipality system is totally developed in-home

b. No, we get help from outsource companies

17) Standardization such as COBIT, ITIL, ISO, etc. is applied to e-municipality system.

a. Yes, applied b. No, doesn't applied

18) There are public spots created for citizens in order to use e-municipality system (Such as computer houses)

a. Yes, they are created b. No, there is no public spots created

19) Security tests are completely done for e-municipality systems

a. Yes, tests are done completely b. No, tests are not done completely

20) Security problems occurred on tests

a. Yes, there are some problems occurred

b. No, there is no security problems occurred

21) New services on e-municipality system are being promoted

a. Yes, they are being promoted b. No, they aren't being promoted

22) Choose failure rate of processes to all that are not caused by user actions (Such as internet connection lost, closing website, etc.) to all of processes.

a. 0-2.5% b. 2.51%-5% c. 5.01%-7.5% d. 7.51%-10% e. Over 10.01%

23) For services both available on e-municipality and traditional municipality, choose percentage of e-municipality used process ratio to all process ratio

a. 0-12.5% b. 12.51%-25.0% c. 25.01%-37.5% d. 37.51%-50.0%

e. Over 50.01%

Thanks for your participation.

APPENDIX B

TURKISH VERSION OF QUESTIONNAIRE

E-Belediye Başarı Kriterleri Anketi

Bu anket; Boğaziçi Üniversitesi Yönetim Bilişim Sistemleri Bölümü Yüksek Lisans Programı, MIS690-Yüksek Lisans Tezi dersi kapsamında Prof. Dr. Meltem Özturan gözetmenliğinde, Mustafa Can Büken tarafından oluşturulmuştur. Anketin amacı, İstanbul'daki belediyelerin e-Belediye sistemlerinin, belirlenmiş başarı kriterlerine göre pozisyonlarını ve bu başarı kriterlerinin e-Belediye sisteminin genel başarısı ile ilişkilerini incelemektir. Anket sonuçları tamamen gizli tutulacak ve sadece anketi yapan kişilerce, anketin amacı doğrultusunda yapılacak analizler için kullanılacaktır.

Anketin tamamlama süresi yaklaşık 10dk'dır. Sorularınız halinde anket sahibinin iletişim bilgileri aşağıdaki gibidir.

Anket sahibi: Mustafa Can Büken

Cep telefonu numarası: (543) 422 53 42

1) Belediyenizin sorumlu olduğu ilçe: _____

2) E-Belediye sistemi üzerinden vatandaşlarla iletişim kurma yüzdenizi belirtiniz (Şikâyetlere geri dönüş, önerilerin değerlendirilerek geri dönüş sağlanması)

    a. 0%-20% b. 20.01%-40% c. 40.01%-60% d. 60.01%-80%

    e. 80.01%-100%

Aşağıdaki kısmı (3-14. maddeler), e-Belediye sisteminizi ve geliştirme süreçlerinizi göz önünde bulundurarak, bahsedilen durumlara katılıp katılmamanızı derecesine göre işaretleyiniz.

5- Kesinlikle katılıyorum 4- Katılıyorum 3- Ne katılıyorum ne katılmıyorum

2- Katılmıyorum 1- Kesinlikle katılmıyorum

3) Sistemlerimizin arayüzleri kullanıcı dostu.	5	4	3	2	1
4) Yöneticilerimiz e-Belediye sistemlerini tasarlamamız konusunda bizi destekliyor.	5	4	3	2	1
5) E-Belediye sistemlerimiz tasarlanırken ve geliştirilirken kullanıcılardan geri bildirim alınır.	5	4	3	2	1
6) E-Belediye sistemlerimiz iş dünyası/endüstri ile entegre.	5	4	3	2	1
7) E-Belediye sistemlerimizin sürekli takibi yapılıyor.	5	4	3	2	1
8) E-Belediye sistemimiz aldığımız geribildirimlere göre geliştiriliyor.	5	4	3	2	1
9) Sistemlerimizin tarafsız kişilerce değerlendirmeleri dikkate alınıyor.	5	4	3	2	1
10) E-Belediye sistemlerimiz ve yeni servislerimiz geliştirilirken bir yol haritası izleniyor.	5	4	3	2	1
11) Bilgi işlem ekibimiz ve personellerimiz e-Belediye sistemlerinin kullanımı ve geliştirilmesi konusunda eğitiliyor.	5	4	3	2	1
12) E-Belediye sistemlerimiz ve servislerimiz geliştirilirken SWOT ve gereksinim analizlerini yapılıyor.	5	4	3	2	1
13) Sistemimizde oluşan buglara müdahale ediliyor.	5	4	3	2	1
14) E-Belediye sistemlerimiz tasarlanırken daha önceden tasarlanmış sistemlerden yardım alınıyor.	5	4	3	2	1

15) E-Belediye sistemimizdeki hizmetler diğer kurumların e-Belediye/e-Devlet sistemleri ile entegre biçimde çalışıyorlar.

a. Evet, entegre biçimde çalışıyor b. Hayır, entegre değil

16) E-belediye sistemimizi tamamıyla kendimiz geliştiriyoruz.

a. Evet, kendimiz geliştiriyoruz. b. Hayır, dışarıdan yardım alıyoruz

17) E-Belediye sistemlerimiz herhangi bir ulusal/uluslararası standardizasyona (ISO, COBIT, ITIL vb.) uygun bir biçimde geliştirildi ve/veya bu standartlardan birine/bir kaçına uygun.

a. Evet, uygun b. Hayır, uygun değil

18) Vatandaşlara, e-Belediye hizmetlerimizden yararlanabilecekleri kamusal alanlar oluşturuldu (Bilgisayar evleri vb.).

a. Evet, oluşturuldu b. Hayır, oluşturulmadı

19) E-Belediye sistemlerimizin güvenlik testleri eksiksiz bir biçimde tamamlandı.

a. Evet, tamamlandı b. Hayır, tamamlanmadı

20) E-belediye sistemimizde güvenlik sorunuyla karşılaşıldı.

a. Evet, karşılaşıldı b. Hayır, karşılaşılmadı

21) E-Belediye sistemimizdeki yeni servislerin promosyonu yapılıyor.

a. Evet, yapılıyor b. Hayır, yapılmıyor

22) E-Belediye hizmetleriniz kullanılırken yapılan işlemlerde, işlem sırasında oluşan ve kullanıcı bazlı olmayan (Kullanıcının internetinin kesilmesi, işlemi yarıda bırakma vb.) hatalardan kaynaklı yarıda kesilen işlem sayısı, toplam işlem sayısına oranı kaçtır?

a. 0%-2.5% b. 2.51%-5% c. 5.01%-7.5% d. 7.51%-10%

e. 10.01% ve üzeri

23) Geleneksel ve elektronik ortamlarda verdiğimiz ortak hizmetlerde, e-Belediye hizmetlerimizin (Vergi borcu ödeme, beyanname doldurma vb.), belediyemizde yararlanılan toplam ortak (e-Belediye ve geleneksel belediyede ortak sunulan) hizmetlere oranı aşağıdaki gibidir.

a. 0%-12.5% b. 12.51%-25.0% c. 25.01%-37.5% d. 37.51%-50.0%

e. 50.01% ve üzeri

Katılımınız için teşekkür ederiz.

APPENDIX C

ANALYSIS OF HYPOTHESIS TESTING

Table C1. e-municipality Website Functionality Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.395[a]	.156	.126	1.316

a. Predictors: (Constant), Functionality Average

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.954	1	8.954	5.168	.031[b]
	Residual	48.512	28	1.733		
	Total	57.467	29			

a. Dependent Variable: UsageRate

b. Predictors: (Constant), Functionality Average

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.124	1.627		-.076	.940
	Functionality Average	1.104	.485	.395	2.273	.031

a. Dependent Variable: UsageRate

Table C2. e-municipality Website Usability Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.410[a]	.168	.139	1.306

a. Predictors: (Constant), WebsiteUsability Average

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.676	1	9.676	5.669	.024[b]
	Residual	47.791	28	1.707		
	Total	57.467	29			

a. Dependent Variable: UsageRate

b. Predictors: (Constant), WebsiteUsability Average

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.570	1.740		-.328	.746
	WebsiteUsabilityAverage	.919	.386	.410	2.381	.024

a. Dependent Variable: UsageRate

Table C3. Usage Rate of Development Techniques of the e-municipality Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.417[a]	.174	.144	1.302

a. Predictors: (Constant), DevelopmentTechniques

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.983	1	9.983	5.887	.022[b]
	Residual	47.483	28	1.696		
	Total	57.467	29			

a. Dependent Variable: UsageRate

b. Predictors: (Constant), DevelopmentTechniques

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.477	1.670		-.286	.777
	DevelopmentTechniques	.989	.408	.417	2.426	.022

a. Dependent Variable: UsageRate

C4) Level of Governmental Integration * UsageRate

Table C4. Level of Governmental Integration Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
IntegrationwPublic * UsageRate	30	44.1%	38	55.9%	68	100.0%

IntegrationwPublic * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
IntegrationwPublic	1	3	3	0	1	3	10
	2	0	3	3	7	7	20
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.863[a]	4	.043
Likelihood Ratio	11.627	4	.020
Linear-by-Linear Association	4.071	1	.044
N of Valid Cases	30		

a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is 1.00.

Table C5. Development Type Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
DevelopmentType * UsageRate	30	44.1%	38	55.9%	68	100.0%

DevelopmentType * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
DevelopmentType	1	2	6	2	7	10	27
	2	1	0	1	1	0	3
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.463[a]	4	.243
Likelihood Ratio	5.838	4	.212
Linear-by-Linear Association	1.263	1	.261
N of Valid Cases	30		

a. 7 cells (70.0%) have expected count less than 5. The minimum expected count is .30.

Table C6. Level of Standardization Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Standardization * UsageRate	30	44.1%	38	55.9%	68	100.0%

Standardization * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
Standardization	1	0	0	0	6	5	11
	2	3	6	3	2	5	19
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.775[a]	4	.012
Likelihood Ratio	16.569	4	.002
Linear-by-Linear Association	7.438	1	.006
N of Valid Cases	30		

a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is 1.10.

Table C7. Existence of Public Places to Use e-municipality Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PublicSpots * UsageRate	30	44.1%	38	55.9%	68	100.0%

PublicSpots * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
PublicSpots	1	3	4	1	4	1	13
	2	0	2	2	4	9	17
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.045[a]	4	.040
Likelihood Ratio	12.005	4	.017
Linear-by-Linear Association	8.189	1	.004
N of Valid Cases	30		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is 1.30.

Table C8. Application of Security Test Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SecurityTest * UsageRate	30	44.1%	38	55.9%	68	100.0%

SecurityTest * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
SecurityTest	1	2	2	0	3	2	9
	2	1	4	3	5	8	21
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.929[a]	4	.416
Likelihood Ratio	4.602	4	.331
Linear-by-Linear Association	1.157	1	.282
N of Valid Cases	30		

a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is .90.

Table C9. Security Alert Chi-Square Analysis

Case Processing Summary

	Cases					
	N	Percent	N	Percent	N	Percent
Security Alert * UsageRate	30	44.1%	38	55.9%	68	100.0%

Security Alert * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
Security Alert	1	3	5	3	2	4	17
	2	0	1	0	6	6	13
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.724[a]	4	.030
Likelihood Ratio	13.190	4	.010
Linear-by-Linear Association	6.942	1	.008
N of Valid Cases	30		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is 1.30.

Table C10. Existence of Promotion Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
PromotionofService * UsageRate	30	44.1%	38	55.9%	68	100.0%

PromotionofService * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
PromotionofService	1	3	6	0	0	0	9
	2	0	0	3	8	10	21
Total		3	6	3	8	10	30

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.000[a]	4	.000
Likelihood Ratio	36.652	4	.000
Linear-by-Linear Association	22.608	1	.000
N of Valid Cases	30		

a. 8 cells (80.0%) have expected count less than 5. The minimum expected count is .90.

Table C11. Percentage of Error-Free e-municipality Applications Chi-Square Analysis

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
TechnicalErrorneous * UsageRate	29	42.6%	39	57.4%	68	100.0%

TechnicalErrorneous * UsageRate Crosstabulation

Count

		UsageRate					Total
		1	2	3	4	5	
TechnicalErrorneous	1.00	0	1	0	0	0	1
	3.00	0	1	0	1	1	3
	4.00	3	2	0	3	0	8
	5.00	0	1	3	4	9	17
Total		3	5	3	8	10	29

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.450[a]	12	.044
Likelihood Ratio	23.699	12	.022
Linear-by-Linear Association	4.956	1	.026
N of Valid Cases	29		

a. 19 cells (95.0%) have expected count less than 5. The minimum expected count is .10.

APPENDIX D

CRITERIA EVALUATION INSTRUMENT RESULTS

Criteria # ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Municipality Name																							
Büyükçekmece	1	4	5	5	5	5	1	5	4	5	4	5	5	3	3	5	4	1	5	5	5	3	4
Ataşehir	1	2	3	4	1	1	1	3	4	2	2	2	4	3	3	3	5	1	5	4	1	5	3
Gaziosmanpaşa	3	4	5	5	2	1	1	5	5	4	4	5	5	5	5	5	5	1	1	5	5	5	3
Beylikdüzü	1	5	4	4	3	1	1	3	5	2	5	4	4	5	5	5	4	1	5	5	1	5	3
Esenler	3	4	3	3	2	1	1	4	5	4	4	4	4	3	4	5	3	1	5	5	5	5	3
Küçükçekmece	4	4	5	5	3	1	1	4	5	4	4	3	5	3	3	5	5	1	5	5	5	5	4
Üsküdar	1	5	5	4	1	1	1	4	5	3	5	4	5	4	4	5	5	1	5	5	5	5	3
Esenyurt	1	5	3	5	2	1	1	4	3	4	5	5	5	4	5	4	5	1	5	5	5	5	3
Güngören	1	4	1	5	3	1	1	3	4	3	5	3	5	4	3	5	3	1	5	5	1	5	4
Tuzla	4	5	5	5	4	1	1	5	3	4	5	5	5	5	5	5	5	1	5	5	5	5	4
Beşiktaş	1	5	5	5	4	1	1	5	5	4	5	5	5	4	4	5	5	1	5	5	5	5	4
Kadıköy	5	5	5	5	3	1	1	5	5	5	5	5	5	5	5	5	5	1	5	5	5	5	4
Beykoz	1	5	5	5	1	1	1	3	3	1	4	5	5	3	4	5	4	1	5	5	5	5	4
Sultangazi	4	5	5	5	4	1	1	5	5	3	4	5	5	5	5	5	3	1	5	5	5	5	2
Bahçelievler	5	5	5	5	5	1	5	5	5	4	5	5	4	5	5	5	5	1	5	5	5	5	4
Ümraniye	1	5	5	4	2	1	1	5	5	4	5	5	5	4	4	5	5	1	5	5	1	5	5
Sultanbeyli	4	5	5	5	3	1	1	5	4	5	5	5	5	4	4	4	5	1	5	5	1	5	5
Bağcılar	1	4	5	4	4	1	1	3	3	3	4	4	5	4	4	2	3	1	5	5	5	5	5
Adalar	4	5	5	5	2	1	1	5	3	5	5	5	5	4	3	5	5	1	5	5	3	5	4
Silivri	1	4	5	4	2	1	1	3	4	2	4	2	5	3	3	2	2	1	5	4	5	4	2
Beyoğlu	5	5	3	5	4	1	1	4	5	4	5	4	4	4	5	4	1	1	5	5	1	2	2
Bakırköy	4	5	5	5	3	1	1	5	4	5	5	5	5	5	5	5	3	1	5	5	5	5	3
Arnavutköy	1	5	3	4	5	1	1	4	4	3	5	5	5	4	5	5	2	1	5	5	5	3	2
Pendik	1	5	5	5	2	1	1	4	5	2	5	5	4	3	5	5	5	1	5	5	5	5	2
Avcılar	1	5	3	4	2	1	1	4	3	3	5	5	5	5	5	3	5	1	5	5	1	5	4
Kağıthane	4	5	3	4	3	1	1	5	5	4	5	5	5	3	4	5	5	1	1	5	5	5	3
Maltepe	1	4	3	4	2	1	1	3	3	3	5	3	4	3	2	5	5	5	5	5	5	5	2
Kartal	5	5	3	5	2	1	1	5	5	4	4	4	5	4	4	3	1	1	4	5	1	3	3
Eyüp	1	5	3	5	1	1	1	3	2	3	3	5	5	5	3	5	5	1	5	5	5	5	3
Çekmeköy	1	5	5	5	2	1	1	4	5	4	5	5	5	4	5	5	5	1	5	5	5	5	3
Başakşehir	1	4	5	5	4	1	1	5	5	4	5	4	5	4	4	4	1	1	1	5	1	1	5
Çatalca	1	5	5	4	2	1	1	5	3	3	5	5	5	5	3	3	5	1	5	5	1	3	4

REFERENCES

Akman, İ., Yazici, A., Mishra, A., & Arifoglu, A. (2004). E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly, 22(2),* 239-257.

Aktaş, Z. (2006). *Bilgi toplumu ve Türkiye*. Ankara: Atılım University Conferences.

Aktel, M. (2009). İl belediye web sitelerinin işlevselliği üzerine bir araştırma. *Suleyman Demirel University The Journal of Faculty of Economics and Administrative Sciences, 14(2),* 223-240.

Altameem, T., Zairi, M., & Alshawi, S. (2006). *Critical success factors of e-government: A proposed model for e-government implementation*. (pp. 1-5). Dubai: Proceeding of Innovations in Information Technology.

Ang, J., & Teo, T.S.H. (1997). CSFs and sources of assistance and expertise in IS strategic planning: a Singapore perspective. *European Journal of Information Systems, 6(3),* 164-171.

Angelopoulos, S., Kitsios, F., & Papadopoulos, T. (2010). New service development in e-government: identifying critical success factors. *Transforming Government: People, Process and Policy, 4(1),* 95-118.

Apak, D. (2005). E-government applications and methodologies: Turkey on the e-government way. *STPS-Science and Technology Policy Studies Center, Middle East Technical University, 0507,* 1-37.

Arslan, A. (2007). Turkish local e-Governments: A longitudinal study. *The Electronic Journal of e-Government, 5(2),* 95-106.

Ataloglou, M.P., & Economides, A.A. (2009). Evaluating European ministries' websites. *International Journal of Public Information Systems, 5(3),* 147-177.

Ayvalı, A., & Aktepe, R. (2002). *Herkes İçin Bilgi Toplumu E-Türkiye Girişimi Eylem Planı*. T.C. Başbakanlık Yayınları, Ankara.

Bertot, J.C., Jaeger, P.T., & Grimes, J.M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly, 27(3),* 264-271.

Bovens, M., & Zouridis, S. (2002). From street-level to system-level bureaucracies: How information and communication technology is transforming administrative discretion and constitutional control. *Public Administration Review, 62(2),* 174-184.

Brown, M.M., & Brudney, J.L. (2001). *Achieving advanced electronic government services: An examination of obstacles and implications from an international perspective*. Bloomington: National Public Management Research Conference.

Butler, T., & Fitzgerald, B. (1999). Unpacking the systems development process: an empirical application of the CSF concept in a research context. *Journal of Strategic Information Systems, 8(4),* 351-371.

Castells, M. (2000). Volume 1. The Rise of Network Society. In Blackwell (Ed.). *The Information Age: Economy, Society and Culture, Volume 1. The Rise of Network Society* (2nd ed.). West Sussex: Blackwell.

Chen, Y.N., Chen, H.M., Huang, W., & Ching, R.K. (2006). E-government strategies in developed and developing countries: An implementation framework and case study. *Journal of Global Information Management, 14(1),* 23-46.

Choudrie, J., Ghinea, G., & Weerakkody, V. (2004). Evaluating global e-government sites: A view using web diagnostic tools, *Electronic Journal of e-Government, 2*(2), 105-114.

Crosby, P.B. (1979). *Quality is Free: The Art of Making Quality Certain*. New York: McGraw-Hill.

Çoruh, M. (2008). *Belediyeler ve İnternet*. XIII. Türkiye'de İnternet Konferansı Bildirileri.

Çoruh, M. (2009*). Kent Bilişim Sistemi ve e-Belediye*. Akademik Bilisim Konferansı.

Darrel, M., & West, M. (2007). *Global E-Government* (Tech.). Inside Politics.

Davis, F. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly, 13(3),* 319-340.

De Kervenoael, R., & Kocoglu, İ. (2012). E-government strategy in Turkey: A case for m-Government? In *Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks* (pp. 351-373). Pennsylvania: IGI Global.

Deming, W.E. (1986). *Out of the Crisis*. Cambridge: MIT Press.

Demir, H.Ö. (2013). *Awareness and Usage Factors of E-Municipality Services: The Case of Istanbul* (Unpublished master's thesis). Istanbul/Boğaziçi University.

Demirhan, K., & Öktem, M.K. (2011). Electronic participation in the policy making process: A case study. *International Journal of eBusiness and eGovernment Studies, 3(1),* 59-78.

Dewan, S., & Riggins, F.J. (2005). The digital divide: Current and future research directions. *Journal of the Association of Information Systems, 6(12),* 298-337.

Durna, U., & Özel, M. (2008). Bilgi çağında bir yönetsel dönüşüm yaklaşımı: E-(Yerel yönetim). *Mustafa Kemal University Journal of Social Sciences Institute, 5(10),* 1-32.

Erdal, M. (2004). *Elektronik Devlet E-Türkiye ve Kurumsal Dönüşüm* (pp. 38-41). Istanbul: Filiz Kitabevi.

Fountain, J.E. (2003). *Information, institutions and governance: Advancing a basic social science research program for digital government*. Massachussets: John F. Kennedy School of Government Harvard University.

Gable, M. (2015). Efficiency, participation, and quality: Three dimensions of e-government. *Social Science Computer Review, 33(4),* 519-532.

Garcia, A.C.B., Maciel, C., & Pinto, F.B. (2005). A quality inspection method to evaluate e-government sites. *EGOV 2005,* 198–209.

Geymen A., & Karaş, İ.R. (2006). *Yerel yönetimlere yönelik e-belediye uygulamaları*. Fatih Universitesi: 4. Coğrafya Bilgi Sistemleri Bilişim Günleri.

Gil-Garcia, J.R., & Pardo, T.A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly, 22(2),* 187-216.

Gubbins, M. (2004). Global IT spending by sector. *Computing, 8*(April), 28-28.

Güler, B.A. (2001). *Yerel yönetimler ve internet*. INETD 7th Conference.

Halchin, L.E. (2004). Electronic government: Government capability and terrorist resource. *Government Information Quarterly, 21(4),* 406-419.

Hazman, G. G. (2005). Afyonkarahisar Belediyesi'nde e-belediye uygulamaları ve yerel farkındalık. *Afyon Kocatepe Üniversitesi, İ.İ.B.F. Dergisi, 7(2),* 65-84.

Heeks, R. (2006). *Implementing and Managing EGovernment: An International Text*. New York: SAGE Publications.

Heeks, R., & Bailur, S. (2007). Analyzing e-government research: Perspectives, philosophies, theories, methods and practice, *Government Information Quarterly, 24(2),* 243-265.

Helbig, N., Gil-Garcia, J.R., & Ferro, E. (2009). Understanding the complexity of electronic government: Implications from the digital divide literature. *Government Information Quarterly, 26(1),* 89-97.

Henden, B. (2005). Katılımcı yerel yönetim anlayışında e-belediyeciliğin yeri ve önemi. *International Human Sciences Journal, 1(1),* 1-13.

Henden, H.B., and Henden, R. (2005). Yerel yönetimlerin hizmet sunumlarındaki değişim ve e-belediyecilik. *Elektronik Sosyal Bilimler Dergisi, 4(14),* 48-66.

Holzer, M., & Kim, S. (2005). *Digital governance in municipalities worldwide*. New Jersey: The E-Governance Institute National Center for Public Productivity Rutgers, the State University of New Jersey and Seoul: Global e-Policy e-Government Institute Graduate School of Governance Sungkyunkwan University.

Huang, W., D'ambra, J., & Bhalla, V. (2002). An empirical investigation of the adoption of e-government in Australian citizens: Some unexpected research findings. *Journal of Computer Information Systems, 43(1),* 15-22.

ISO (2000). *Quality Management Systems-Fundamentals and Vocabulary* (Tech.).

Jaeger, P.T. (2003). The endless wire: e-government as a global phenomenon. *Government Information Quarterly, 20(4),* 323-331.

Juran, J.M. (1992). *Juran on quality by design: The new steps for planning quality into goods and services*. New York: Free Press.

Katre, D., & Gupta, M. (2011). Expert usability evaluation of 28 state government web portals of India. *International Journal of Public Information Systems, 7(3),* 115-130.

Layne, K., & Lee, J. (2001). Developing fully functional e-government: A four stage model, *Government Information Quarterly, 18(2),* 122-136.

Lemke, T. (2000) *Governmentality, foucault and critique*. University of Amherst, Massachusetts: Rethinking Marxism Conference.

Luna-Reyes, L.F., Gil-Garcia, L.F., Ramon, J., & Cruz, C.B. (2007). E-Mexico: Collaborative structures in Mexican public administration. *Journal of Cases on Electronic Commerce, 3(2),* 54-70.

Mahmood, Z (2013). *E-government implementation and practice in developing countries*. Herhsey, PA: Information Science Reference.

Middleton, M.R. (2007). *Approaches to evaluation of websites for public sector services* (pp. 279-284). Lisbon: IADIS Conference on e-Society.

Mousavi, S.A.A, Pimenidis, E., & Jahankahni, H. (2008). *Challenges to e-municipality in the developing countries* (pp. 172-179). 1st International Conference on e-Municipality.

Napitupulu, D., & Sensuse, D.I. (2014). The critical success factors study for e-government implementation. *International Journal of Computer Applications, 89(16), 23-32.*

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the internet worldwide New York*. Cambridge: Cambridge University Press.

Nye, J. Jr. (1997). Introduction: The decline of confidence in government. In Joseph S. Nye & Philip Zelikow & David C. King (Eds.), *Why people don't trust government*?. Massachussetts: Harvard University Press.

Nygren, K.G. (2009). The rhetoric of E-government management and the reality of e-government work. *International Journal of Public Information Systems, 2009(2),* 135-146.

Polat, N. (2003). Saydamlık, hesap verme sorumluluğu ve denetimin etkinliği. *Sayıştay Dergisi, 14(49),* 65-80.

Relly, J.E. and Sabharwal, M. (2009). Perceptions of transparency of government policymaking: A cross-national study. *Government Information Quarterly, 26(1),* 281-293.

Saruç, N.T. (2007). E-devlet hizmetlerinden yararlanma derecesi ve algılanan hizmet kjalitesi: Ampirik bir çalışma. *Afyon Kocatepe Üniversitesi İ.İ.B.F. Dergisi, 9(1),* 191-213.

Sevinç, İ., & Şahin, A. (2013). Kamu çalışanlarının e-devlet uygulamalarında karşılaştıkları sorunların belirlenmesine yönelik Karaman ilinde bir araştırma. *Suleyman Demirel University The Journal of Faculty of Economics and Administrative Sciences, 18(2),* 197-212.

Shah, M.H. and Siddiqui, F.A. (2006). Organisational critical success factors in adoption of e-banking at the Woolwich bank. *International Journal of Information Management, 26(6),* 442-456.

Siegfried, T., Grabow, B., & Drüke, H. (2003). *Ten factors for success for local community e-government*. Electronic Government, Second International Conference.

Şahin, A. (2007). Türkiye'de e-belediye uygulamaları ve Konya örneği. *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 29*, 161-189.

Tarhan, A. (2007). Halkla ilişkilerde tanıma ve tanıtma aracı olarak internet: Belediyelerin web sayfaları üzerine bir analiz. *Selçuk İletişim, 4*(4), 75-95.

TUIK (2017). Türkiye İstatistik Kurumu, Adrese Dayalı Nüfus Kayıt Sistemi. Retrieved from http://www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=1590.

Turkey Cong. (2010). *E-dönüşüm sürecinde e-devlet yapılanması ve Antakya Belediyesi'ne yansıması* (pp. 257-272) (Ş. Kaypak, author) [Cong. Doc. from 8. Uluslararası Bilgi, Ekonomi ve Yönetim Kongresi].

Uçkan, Ö. (2003). E-devlet, e-demokrasi ve e-yönetişim modeli: Bir ilkesel öncelik olarak bilgiye erişim özgürlüğü. *Aylık Strateji ve Analiz E-dergisi, 5*, 1-19.

UNCTAD (2013). *Executive summary of the e-government strategy (Tech.).*

United Nations, & ASPA (2001). *Benchmarking e-government: A global perspective (Rep.).*

U.S. General Services Administration, Intergovernmental Advisory Board (1999). *Integrated service delivery; Governments using technology to serve the citizen.* Washington, D.C.: General Services Administration Board.

USAID (2005). Designing e-governance for municipalities in India. Section 4: Implementation framework. *Indo-USAID Financial Institutions Reform and Expansion Project-Debt & Infrastructure Component (FIRE-D Project).*

VNG International (2010). *Municipal development strategy process: A toolkit for practitioners.* Hague: FSC.

Welch, E.W., Hinnant, C.C., & Moon, M.J. (2005). Linking citizen satisfaction with e-government and trust in government. *Journal of Public Administration Research and Theory, Inc., 15(3),* 371-291.

Wijkman, A. (1998). Does sustainable development require good governance?. *UN Chronicles, 35(1).*

Wimmer, M.J.K. (2001). *An integrated online one-stop government platform: The eGOV Project* (pp. 329-337). 9th Interdisciplinary Information Management Talks.

Yıldırım, U. and Öner, Ş. (2004). Bilgi toplumu sürecinde yerel yönetimlerde eğitim-bilişim teknolojisinden yararlanma: Türkiye'de E-Belediye Uygulamaları. *The Turkish Online Journal of Education Technology-TOJET, 3(1),* 49-60.

Yıldız, M. (2003). *Peeking into the black box of e-government policy-making: Evidence from Turkey*. 7th National Public Management Research Conference, Washington, D.C.: Georgetown University.

Yıldız, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly, 24(3),* 646-665.

Zucker, L.G. (1986). Production of trust: Institutional sources of economic structure 1840-1920. *Research in Organizational Behavior, 8,* 53-111.